

CONTRIBUTING ZONE PLAN

**RIVINA PHASE 1
EAST OF RONALD REAGAN BLVD. AND FM 3405
WILLIAMSON COUNTY, TEXAS**

Prepared For:

GRBK EDGEWOOD, LLC

9430 Research Blvd., Echelon Bldg. IV Suite #180
Austin, TX 78759

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC.

501 S Austin Ave #1310
Georgetown, Texas 78626
(512) 520-0768

Firm No. 928
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***SECTION 1:
EDWARDS AQUIFER APPLICATION
COVER PAGE***

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: Rivina Phase 1					2. Regulated Entity No.:				
3. Customer Name: GRBK Edgewood, LLC					4. Customer No.:				
5. Project Type: (Please circle/check one)	New X		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP X	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential X		Non-residential			8. Site (acres):		88.75 (PH1 Boundary)/ 335.84 acres (Parcel Boundary)	
9. Application Fee:	\$8,000		10. Permanent BMP(s):				Batch Detention Basin, Vegetative Filter Strips, Grassy Swales, Wet Basin		
11. SCS (Linear Ft.):	N/A		12. AST/UST (No. Tanks):				N/A		
13. County:	Williamson		14. Watershed:				North Fork San Gabriel River		

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Alex E. Granados Rico, P.E.

Print Name of Customer/Authorized Agent

Alexandro E. Granados Rico

July 25, 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):

***SECTION 2:
CONTRIBUTING ZONE PLAN
APPLICATION***

Contributing Zone Plan Application

Texas Commission on Environmental Quality for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), 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 **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Alejandro E. Granados Rico, P.E.

Date: July 24, 2025

Signature of Customer/Agent:



Regulated Entity Name: Rivina Phase 1

Project Information

1. County: Williamson
2. Stream Basin: North Fork San Gabriel
3. Groundwater Conservation District (if applicable): N/A
4. Customer (Applicant):
Contact Person: Austin Evetts
Entity: GRBK Edgewood, LLC
Mailing Address: 9430 Research Blvd. Echelon Blvd IV, Suite 180
City, State: Austin, TX Zip: 78759
Telephone: (512) 694-5303 Fax: -----
Email Address: aevetts@greenbrickpartners.com

5. Agent/Representative (If any):

Contact Person: Alejandro E Granados Rico, P.E.

Entity: Kimley-Horn and Associates, Inc.

Mailing Address: 501 S Austin Ave #1310

City, State: Georgetown, Texas

Zip: 78626

Telephone: 512-782-0602

Fax: N/A

Email Address: alex.granados@kimley-horn.com

6. 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, TX.

☐ The project site is not located within any city's limits or ETJ.

7. ☒ The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

The Subject property is located East of the intersection of Ronald Reagan Blvd. and FM 3405. This can be seen in the Road Map and the USGS Quadrangle Map, which are Attachments A and B, respectively.

8. ☒ Attachment A - Road Map. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

9. ☒ Attachment B - USGS Quadrangle Map. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') is attached. The map(s) clearly show:

☒ Project site boundaries.

☒ USGS Quadrangle Name(s).

10. ☒ Attachment C - Project Narrative. A detailed narrative description of the proposed project is attached. 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

11. 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/Not cleared)
- ☐ Other: _____

12. The type of project is:

- ☒ Residential: # of Lots: 233
- ☒ Residential: # of Living Unit Equivalents: 233
- ☐ Commercial
- ☐ Industrial
- ☐ Other: _____

13. Total project area (size of site): 335.84 acres (Parcel Boundary)/ 88.75 acres (Phase 1 Boundary)

Total disturbed area: 88.75Acres

14. Estimated projected population: 1,113

15. The amount and type of impervious cover expected after construction is complete is shown below:

1. Table 1 - Impervious Cover

<i>Impervious Cover of Proposed Project</i>	<i>Sq. Ft.</i>	<i>Sq. Ft./Acre</i>	<i>Acres</i>
Structures/Rooftops (HOMES AND DRIVEWAYS)	973,600	÷ 43,560 =	22.35
Parking	0	÷ 43,560 =	0
Other paved surfaces (ROADS AND SIDEWALK)	921,530	÷ 43,560 =	21.16
Total Impervious Cover	1,895,130	÷ 43,560 =	43.51

Total Impervious Cover 43.51 ÷ Total Acreage 88.75X 100 = 49.03% Impervious Cover

16. ☒ **Attachment D - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

18. 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.

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

- ☐ Concrete
- ☐ Asphalt concrete pavement
- ☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.

Width of R.O.W.: _____ feet.

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

21. Pavement Area:

Length of R.O.W.: _____ feet.

Width of R.O.W.: _____ feet.

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 = \text{_____ \%}$ impervious cover.

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

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

23. ☐ 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

24. ☒ Attachment E - 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 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

25. ☐ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC§213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☒ N/A

26. Wastewater will be disposed of by:

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

☐ Attachment F - 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):

The sewage collection system will convey the wastewater to the Pecan Branch Wastewater Treatment Plant. The treatment facility is:

☒ Existing.

☐ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks (ASTs) ≥ 500 Gallons

Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

☒ N/A

27. Tanks and substance stored:

2. Table 2 - Tanks and Substance Storage

<i>AST Number</i>	<i>Size (Gallons)</i>	<i>Substance to be Stored</i>	<i>Tank Material</i>
1			
2			
3			
4			
5			

Total x 1.5 = _____ Gallons

28. ☐ The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

☐ Attachment G - Alternative Secondary Containment Methods. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

3. Table 3 - Secondary Containment

<i>Length (L)(Ft.)</i>	<i>Width(W)(Ft.)</i>	<i>Height (H)(Ft.)</i>	<i>L x W x H = (Ft3)</i>	<i>Gallons</i>

Total: _____ Gallons

30. Piping:

- ☐ All piping, hoses, and dispensers will be located inside the containment structure.
- ☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
- ☐ The piping will be aboveground
- ☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ Attachment H - AST Containment Structure Drawings. A scaled drawing of the containment structure is attached that shows the following:

- ☐ Interior dimensions (length, width, depth and wall and floor thickness).
- ☐ Internal drainage to a point convenient for the collection of any spillage.
- ☐ Tanks clearly labeled
- ☐ Piping clearly labeled
- ☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

- ☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.
- ☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

Site Plan Requirements

Items 34 - 46 must be included on the Site Plan.

34. ☒ The Site Plan must have a minimum scale of 1" = 400'.
- Site Plan Scale: 1" = 100'.
35. 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 Map No. 48491C 0275E dated September 26 , 2008.
36. ☒ 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, etc. are shown on the site plan.
- ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.
38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
39. ☒ Areas of soil disturbance and areas which will not be disturbed.
40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
41. ☐ Locations where soil stabilization practices are expected to occur.
42. ☒ Surface waters (including wetlands).
- ☐ N/A
43. ☒ Locations where stormwater discharges to surface water.
- ☐ There will be no discharges to surface water.
44. ☐ Temporary aboveground storage tank facilities.
- ☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.
☒ Permanent aboveground storage tank facilities will not be located on this site.
46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

Practices and measures that will be used during and after construction is completed.

47. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
☐ N/A
48. ☒ 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
49. ☒ 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
50. 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.

51. 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 I - 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.

52. ☒ **Attachment J - 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.

53. ☒ **Attachment K - 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.

54. ☒ **Attachment L - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

☐ N/A

55. ☒ **Attachment M - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ☒ Attachment N - Inspection, Maintenance, Repair and Retrofit Plan. A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

- ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
- ☒ Signed by the owner or responsible party
- ☒ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
- ☒ Contains a discussion of record keeping procedures

☐ N/A

57. ☐ Attachment O - 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

58. ☒ Attachment P - 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 result in water quality degradation.

☐ N/A

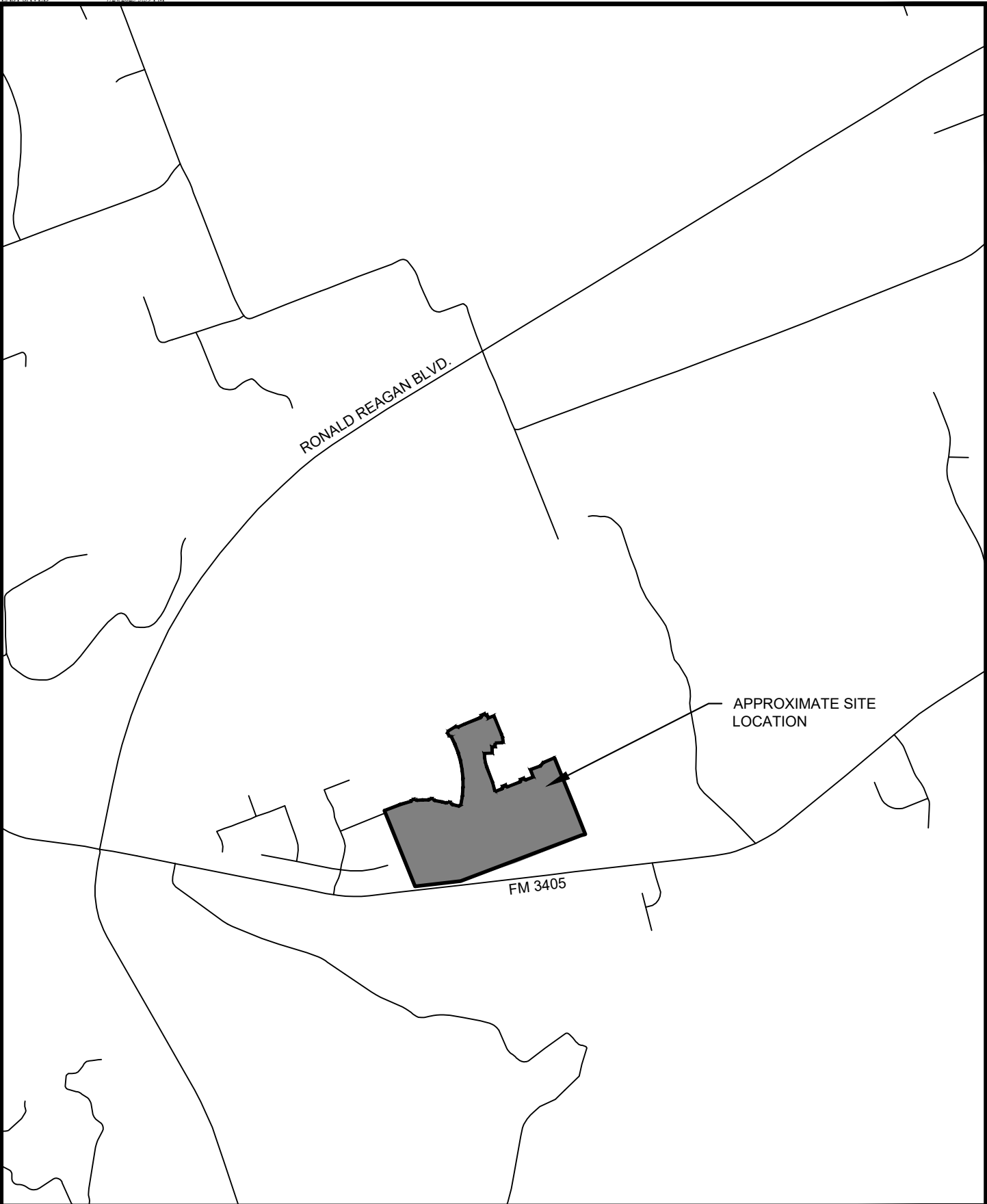
Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.

59. ☒ 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.
60. ☒ 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.

Administrative Information

- 61. ☒ 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.
- 62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.
- 63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.
- ☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

ROAD MAP



SHEET 1 OF 1 SHEETS	Scale:	N.T.S.	ROAD MAP	RIVINA PHASE 1 GEORGETOWN, TEXAS		<div>Kimley»Horn</div> <div>This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.</div>
	Designed by:	KJM				
	Drawn by:	MSG				
	Checked by:	AEG				
	Date:	July 2025				
	Project No.	065000700				

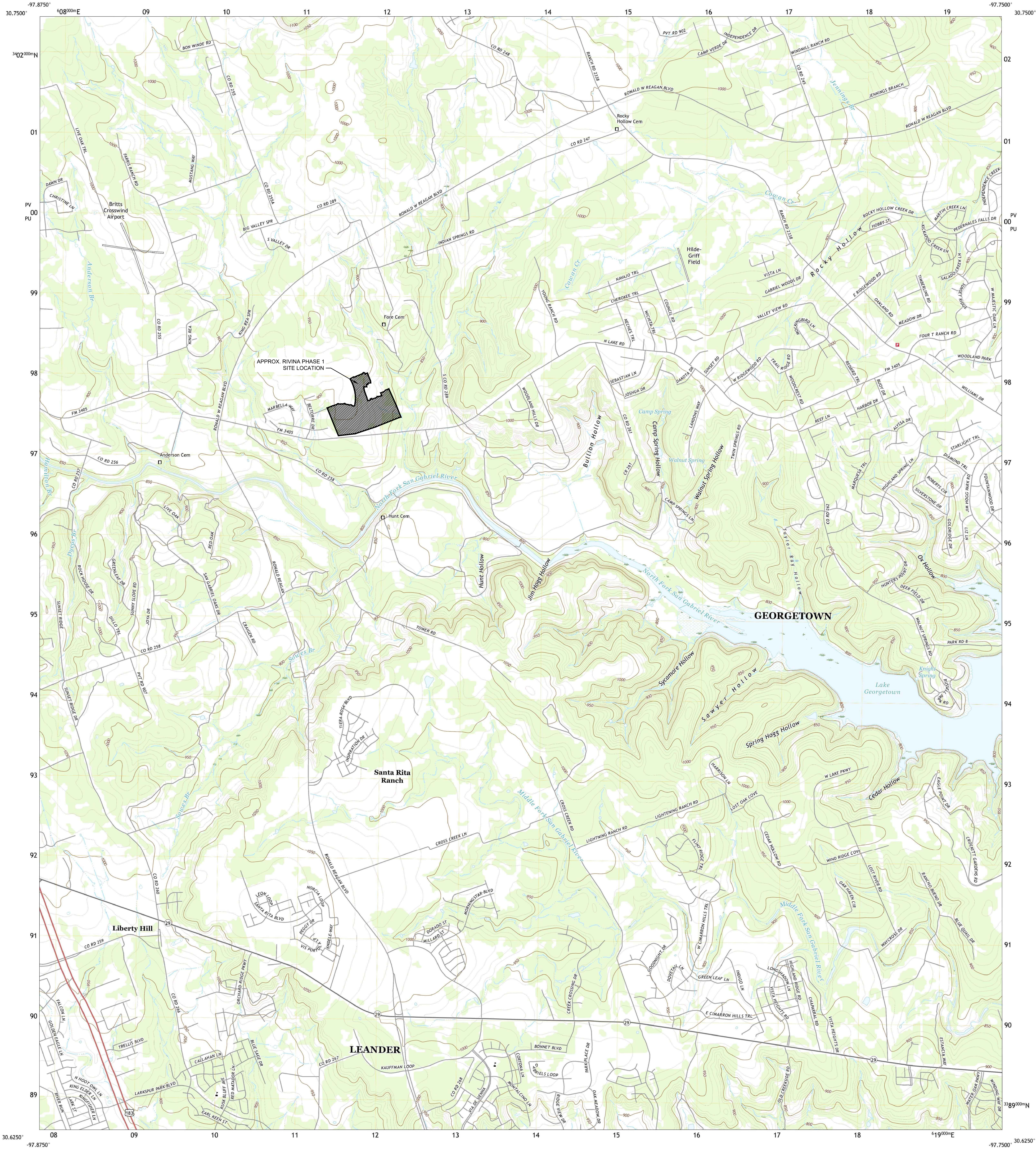
USGS QUADRANGLE MAP



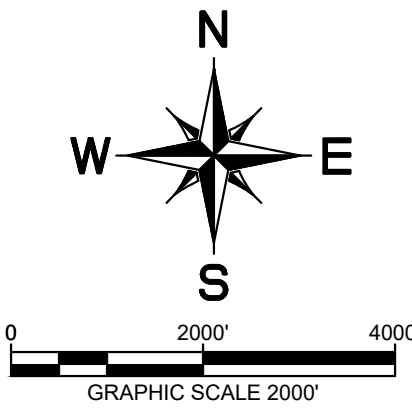
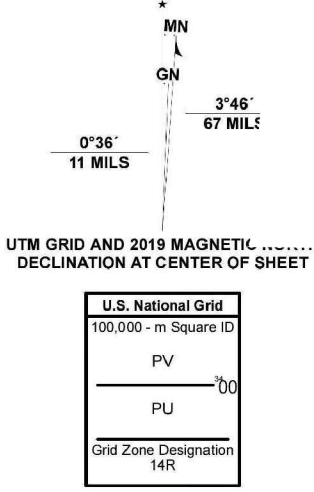
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



LEANDER NE QUADRANGLE
TEXAS - WILLIAMSON COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1,000-meter grid/Universal Transverse Mercator, Zone 14R
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.
Imagery.....N.A.I.P., August 2016 - November 2016
Roads.....U.S. Census Bureau, 2015 - 2019
Names.....G.N.S., 1979 - 2021
Hydrography.....National Hydrography Dataset, 2002 - 2021
Contours.....National Elevation Dataset, 2004
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Wetlands.....FWS National Wetlands Inventory Not Available



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

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

LEANDER NE, TX
2022

PROJECT NARRATIVE

Rivina Phase 1 is a portion of a larger single-family development, Rivina, which encompasses approximately **335.84** acres. Rivina Phase 1 encompasses approximately 88.75 acres of on-site single-family residential development. The Subject property is located east of Ronald Reagan Blvd. and FM 3405 intersection, in Georgetown, Texas. The existing site is occupied by a single-family structure and several assorted barns and sheds. The scope of the project consists of the following civil improvements: roadway, water, wastewater, and storm sewer. The site lies over the Edwards Aquifer Contributing Zone and does contain areas within the 100-year floodplain as defined by Federal Emergency Management Agency Federal Insurance Rate Map # 48491C0275E, dated September 26, 2008.

The Site, Rivina Phase 1, has an overall impervious cover of 43.51 acres or 49.03% of the onsite area, as shown in the table below. The total site area includes the total onsite area shown in the table below for a total site area of 88.75 acres. The permanent BMP's designed to handle the increase in impervious cover on-site will be one on-site batch detention ponds, one wet basin, vegetative filter strips, interim vegetative strips, and an interim grassy swale.

The required capture volume for the proposed pond is 155,109 cubic ft for WQP-G, and 59,121 cubic ft for Wet WQP-H, for a total of 213,865 cubic ft. The water quality volume provided for WQP-G is 160,256 cubic ft, and for Wet WQP-H is 59,756 cubic ft for a total of 220,012 cubic ft. The total volume proposed for WQP-G is 809,183 cubic ft, and 641,106 for Wet WQP-H for a provided 1,450,289 cubic ft of total storage.

All the proposed impervious cover is compliant with the limitations of the impervious allotted by the regulating entity (Georgetown). The percentage of impervious cover proposed is calculated for the fully developed project. The Overall proposed impervious is shown below.

TCEQ OVERALL Water Quality Drainage Basins					
	Proposed Area (AC)	Proposed Impervious Cover (AC)	% Impervious Cover	REQUIRED TSS REMOVAL	PROPOSED TSS REMOVAL
NT-E1	0.98	0.77	79%	674	0
INT-VFS-E2	0.18	0.14	77%	121	121
NT-E	1.08	0.82	76%	715	0
INT-GS-F1	0.42	0.35	84%	305	213
INT-VFS-F	1.22	0.61	50%	531	531
WQP-G	55.62	27.48	49%	23915	25595
NT-G	0.28	0.11	41%	99	0
NT-G1	0.06	0.03	51%	26	0
NT-G2	0.41	0.00	0%	0	0
VFS-G	1.03	0.50	48%	432	432
WET WQP-H	20.63	10.37	50%	9022	10079
NT-H	1.16	0.00	0%	0	0
VFS-J1	1.74	0.76	44%	663	663
VFS-J2	2.16	0.66	31%	575	575
NT-J	1.78	0.91	51%	791	0
TOTAL ONSITE	88.75	43.51	49%	37870	38209
OS-E	7.95	0.00	0%	0	0
OS-F1	3.84	0.00	0%	0	0
OS-G	4.03	0.00	0%	0	0
TOTAL OFFSITE	15.82	0.00	0%	0	0
TOTAL	104.57	43.51	42%	37870	38209

FACTORS AFFECTING SURFACE WATER QUALITY

Examples of items and activities to be expected with the proposed development include petroleum based fuels used in vehicles from vehicle parking, and grass and leaves from landscaping.

During construction, water quality could be affected by the runoff carrying sediments from the open construction area. Silt fence will be installed along the downstream portion of the property and inlet protections will be installed around all proposed inlet structures (once constructed).

After construction, all disturbed areas on the site will be re-vegetated and runoff from the proposed improvements will be captured by the proposed storm sewer system and into one of the proposed BMP's.

VOLUME AND CHARACTER OF STORMWATER

The proposed BMP's were designed and sized to treat the proposed onsite and offsite flows. The proposed improvements create a total of 43.51 acres of impervious cover, making up 49.03% of the overall site that drains into the proposed BMPs. TCEQ TSS Removal calculations are provided on the sheets that follow. Please reference the following sheets 57-60 in attached construction plans.

SUITABILITY LETTER FROM AUTHORIZED AGENT

(NOT APPLICABLE)

BMPs FOR UPGRADIENT STORMWATER

BMPs FOR ON-SITE STORMWATER

During construction, BMP's include silt fence and inlet protection to capture sediment from the construction area contained within the storm water runoff. Silt fence will be installed along the downstream portion of the property. Inlet protection will be installed on all storm sewer curb inlets existing and proposed (once constructed).

Rivina Phase 1 has a total of 15 onsite basins. The overall required removal for this phase of development is $L_m = 37,870$ LBS. The system has been designed to provide 38,202 LBS of TSS removal. The basins have been broken out and are shown on the construction drawings (Water Quality Drainage Area Map, Sheet 57). Water quality drainage area WQP-G will overland flow to drainage inlets then pipe flow to Batch Detention Pond G. Batch Detention Pond G will provide 25,587 LBS of TSS removal from this development. Wet WQP-H will overland flow to drainage inlets then pipe flow to Wet Pond H. Wet Basin Pond H will provide 10,079 LBS of TSS removal from this development. INT-GS-F1 will overland flow to drainage inlets then pipe flow to an appropriately sized grassy swale then discharge offsite. The grassy swale will provide 213 LBS of TSS removal. The INT-VFS-E2 and INT-VFS-F will directly overland flow over vegetative filter strips. The interim VFS for INT-VFS-E2 and INT-VFS-F will provide a total of 652 LBS of TSS removal. VFS-G, VFS-J1 and VFS-J2 will overland flow over vegetative filter strips, which will provide a total of 1670 LBS of TSS removal. All TSS calculations are shown on the construction drawings sheets 58-60. The impervious breakdown is shown under the project narrative.

After construction, all disturbed areas on the site will be re-vegetated and runoff from the proposed improvements will be captured by the proposed storm system and conveyed through the proposed BMP's.

BMPs FOR SURFACE STREAMS

There are no existing surface streams or sensitive features being affected on site. All permanent BMPs have been designed to remove at least 80% of the increase in Total Suspended Solids, as per current TCEQ requirements.

CONSTRUCTION PLANS

Please reference attached construction plans.



CIVIL CONSTRUCTION PLANS
PAVING, GRADING & UTILITIES
FOR
RIVINA PHASE 1
MORGETOWN, WILLIAMSON COUNTY, TEXAS

A map showing the project location in the ETJ limits. The map includes Ronald Reagan Blvd, ETJ Limits, and FM 3405. A shaded area indicates the project location. A north arrow is present in the top right corner.

SCALE: 1" = 1,500'

JULY 2025

Sheet Number	Sheet Title
1	COVER SHEET
2	PRELIMINARY PLAT (1 OF 7)
3	PRELIMINARY PLAT (2 OF 7)
4	PRELIMINARY PLAT (3 OF 7)
5	PRELIMINARY PLAT (6 OF 7)
6	PRELIMINARY PLAT (6 OF 7)
7	PRELIMINARY PLAT (6 OF 7)
8	PRELIMINARY PLAT (7 OF 7)
9	CITY OF GEORGETOWN GENERAL NOTES
10	KH GENERAL NOTES
11	EXISTING CONDITIONS AND DEMOLITION PLAN
12	EROSION CONTROL PLAN
13	TREE PRESERVATION PLAN (SHEET 1 OF 2)
14	TREE PRESERVATION PLAN (SHEET 2 OF 2)
15	OVERALL GRADING PLAN
16	GRADING PLAN (SHEET 1 OF 4)
17	GRADING PLAN (SHEET 2 OF 4)
18	GRADING PLAN (SHEET 3 OF 4)
19	GRADING PLAN (SHEET 4 OF 4)
20	OVERALL PAVING PLAN
21	PAVING PLAN & PROFILE - RIVINA ROAD WEST
22	PAVING PLAN & PROFILE - RIVINA ROAD EAST
23	PAVING PLAN & PROFILE - RIVINA ROAD (SHEET 1 OF 2)
24	PAVING PLAN & PROFILE - RIVINA ROAD (SHEET 2 OF 2)
25	PAVING PLAN & PROFILE - BETHEL STREET (SHEET 1 OF 4)
26	PAVING PLAN & PROFILE - BETHEL STREET (SHEET 2 OF 4)
27	PAVING PLAN & PROFILE - BETHEL STREET (SHEET 3 OF 4)
28	PAVING PLAN & PROFILE - BETHEL STREET (SHEET 4 OF 4)
29	PAVING PLAN & PROFILE - BITTERROOT LOOP (SHEET 1 OF 2)
30	PAVING PLAN & PROFILE - BITTERROOT LOOP (SHEET 2 OF 2)
31	PAVING PLAN & PROFILE - BITTERROOT LOOP KNUCKLES
32	PAVING PLAN & PROFILE - CHOKECHERRY WAY
33	PAVING PLAN & PROFILE - CHOKECHERRY WAY CUL-DE-SAC
34	PAVING PLAN & PROFILE - RABBITBRUSH ROAD
35	PAVING PLAN & PROFILE - NETTLELEAF LANE
36	PAVING PLAN & PROFILE - CORAL BELLS WAY (SHEET 1 OF 3)
37	PAVING PLAN & PROFILE - CORAL BELLS WAY (SHEET 2 OF 3)
38	PAVING PLAN & PROFILE - CORAL BELLS WAY (SHEET 3 OF 3)
39	PAVING PLAN & PROFILE - CORAL BELLS WAY CUL-DE-SAC & KNUCKLE A
40	PAVING PLAN & PROFILE - CORAL BELLS WAY KNUCKLES B & C
41	PAVING PLAN & PROFILE - FOWL MANNA GRASS WAY (SHEET 1 OF 2)
42	PAVING PLAN & PROFILE - FOWL MANNA GRASS WAY (SHEET 2 OF 2)
43	PAVING PLAN & PROFILE - THIMBLEBERRY LANE (SHEET 1 OF 2)
44	PAVING PLAN & PROFILE - THIMBLEBERRY LANE (SHEET 2 OF 2)
45	PAVING PLAN & PROFILE - FOWL MANNA GRASS & THIMBLEBERRY KNUCKLES
46	PAVING PLAN & PROFILE - LUPINE LOOP (SHEET 1 OF 2)
47	PAVING PLAN & PROFILE - LUPINE LOOP (SHEET 2 OF 2)
48	PAVING PLAN & PROFILE - LUPINE LOOP KNUCKLES A & B
49	PAVING PLAN & PROFILE - BUFFALOBOBER WAY
50	PAVING PLAN & PROFILE - BALD SPIKEBRUSH ROAD
51	EXISTING DRAINAGE AREA MAP
52	PROPOSED DRAINAGE AREA MAP
53	INLET DRAINAGE AREA MAP (1 OF 2)
54	INLET DRAINAGE AREA MAP (2 OF 2)
55	DRAINAGE CALCULATIONS (1 OF 2)
56	DRAINAGE CALCULATIONS (2 OF 2)
57	WATER QUALITY DRAINAGE AREA MAP
58	WATER QUALITY CALCULATIONS (1 OF 3)
59	WATER QUALITY CALCULATIONS (2 OF 3)
60	WATER QUALITY CALCULATIONS (3 OF 3)
61	WATER QUALITY POND C
62	WATER QUALITY POND G CROSS SECTION
63	WATER QUALITY POND G DETAILS
64	WATER QUALITY WET POND H
65	WATER QUALITY WET POND H CROSS SECTION
66	WATER QUALITY POND H DETAILS
67	OVERALL STORM PLAN
68	STORM PLAN AND PROFILE LINE SD-A
69	STORM PLAN AND PROFILE LINE SD-B
70	STORM PLAN AND PROFILE LINE SD-C (SHEET 1 OF 2)
71	STORM PLAN AND PROFILE LINE SD-C (SHEET 2 OF 2)
72	STORM PLAN AND PROFILE LINE SD-D (SHEET 1 OF 3)
73	STORM PLAN AND PROFILE LINE SD-D (SHEET 2 OF 3)
74	STORM PLAN AND PROFILE LINE SD-D & SD-H (SHEET 3 OF 3)
75	STORM PLAN AND PROFILE LINE SD-E (1 OF 2)
76	STORM PLAN AND PROFILE LINE SD-E (2 OF 2)
77	STORM PLAN AND PROFILE LINE SD-G
78	STORM PLAN AND PROFILE LINE SD-F

SHEET NUMBER	RIVINA PHASE 1 CITY OF GEORGETOWN WILLIAMSON COUNTY, TEXAS	COVER SHEET	KHA PROJECT 065000700 DATE AUGUST 2025 SCALE: AS SHOWN DESIGNED BY: KJM DRAWN BY: CHECKED BY: AEG	08/14/2025  <i>Alejandro E. Granados Rico</i>	 © 2025 KIMLEY-HORN AND ASSOCIATES, INC. 501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626 PHONE: 512-520-0788 WWW.KIMLEY-HORN.COM TEXAS REGISTERED ENGINEERING FIRM F-928	No.	REVISIONS	DATE	BY	RIVINA - PHASE 1
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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. 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 (ONLY APPLICABLE FOR RESIDENTIAL PROPERTY).
4. WHERE NO EXISTING OVERHEAD INFRASTRUCTURE EXISTS, UNDERGROUND ELECTRIC UTILITY LINES SHALL BE LOCATED ALONG THE STREET AND WITHIN THE SITE. WHERE EXISTING OVERHEAD INFRASTRUCTURE IS TO BE RELOCATED, IT SHALL BE RE-INSTALLED UNDERGROUND AND THE EXISTING FACILITIES SHALL BE REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER (ONLY APPLICABLE FOR NON-RESIDENTIAL AND MULTI-FAMILY DEVELOPMENT).
5. ALL ELECTRIC AND COMMUNICATION INFRASTRUCTURE SHALL COMPLY WITH UDC SECTION 13.06.
6. THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.

BEING 89.56 ACRES OF LAND OUT OF THE THEOPHILUS W. MEDCALF SURVEY, ABSTRACT 412, WILLIAMSON COUNTY, TEXAS AND
BEING OUT OF THAT CALLED 200.00 ACRE TRACT CONVEYED TO RAGSDALE RANCH AND DESCRIBED IN DOCUMENT 2009080791
BEING OUT OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS.

ATMOS ENERGY CORPORATION
3110 N INTERSTATE 35
ROUND ROCK, TEXAS 78681
PH: (512) 310-3855
CONTACT: ALIDA PAINE
WEBSITE: www.atmosenergy.com

PEDERNALES ELECTRIC COOPERATIVE,
INC.
10625 WEST HIGHWAY 29
LIBERTY HILL, TX 78642
TELEPHONE: (800) 868-4791
CONTACT: DAVID PAGOAGA
WEBSITE: [HTTPS://WWW.PEC.COOP](https://www.pec.coop)

CITY OF GEORGETOWN
300 INDUSTRIAL AVE #1
GEORGETOWN, TEXAS 78626
TELEPHONE: (512) 930-3640
CONTACT: DAVID MUNK
WEBSITE: <https://gus.georgetown.org>

CITY OF GEORGETOWN
GEORGETOWN UTILITY SYSTEMS
300-1 INDUSTRIAL AVENUE
GEORGETOWN, TEXAS 78626
TELEPHONE: (512)930-3555
CONTACT: DAVID MUNK
WEBSITE: <https://gus.georgetown.org>

Kimley»»Horn

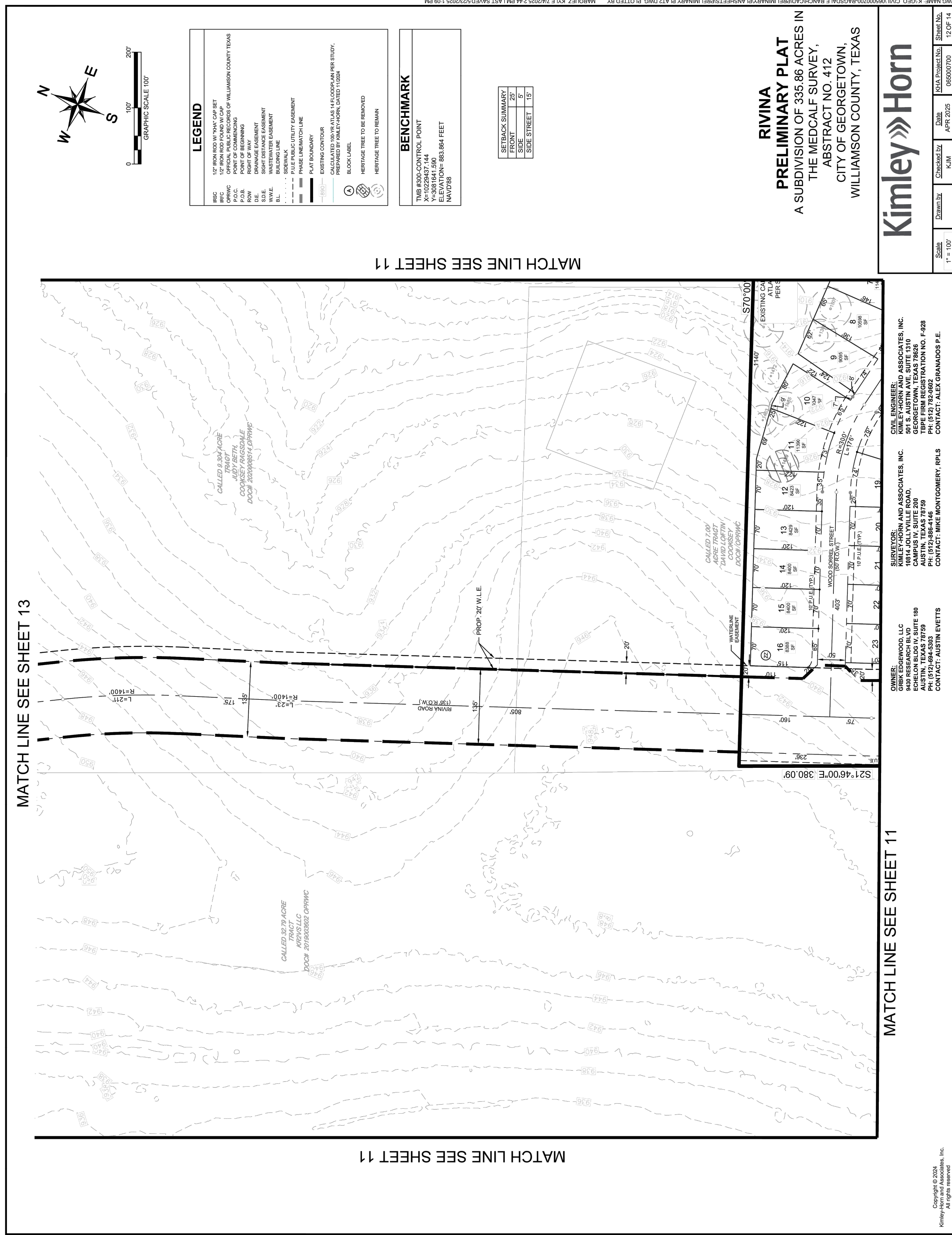
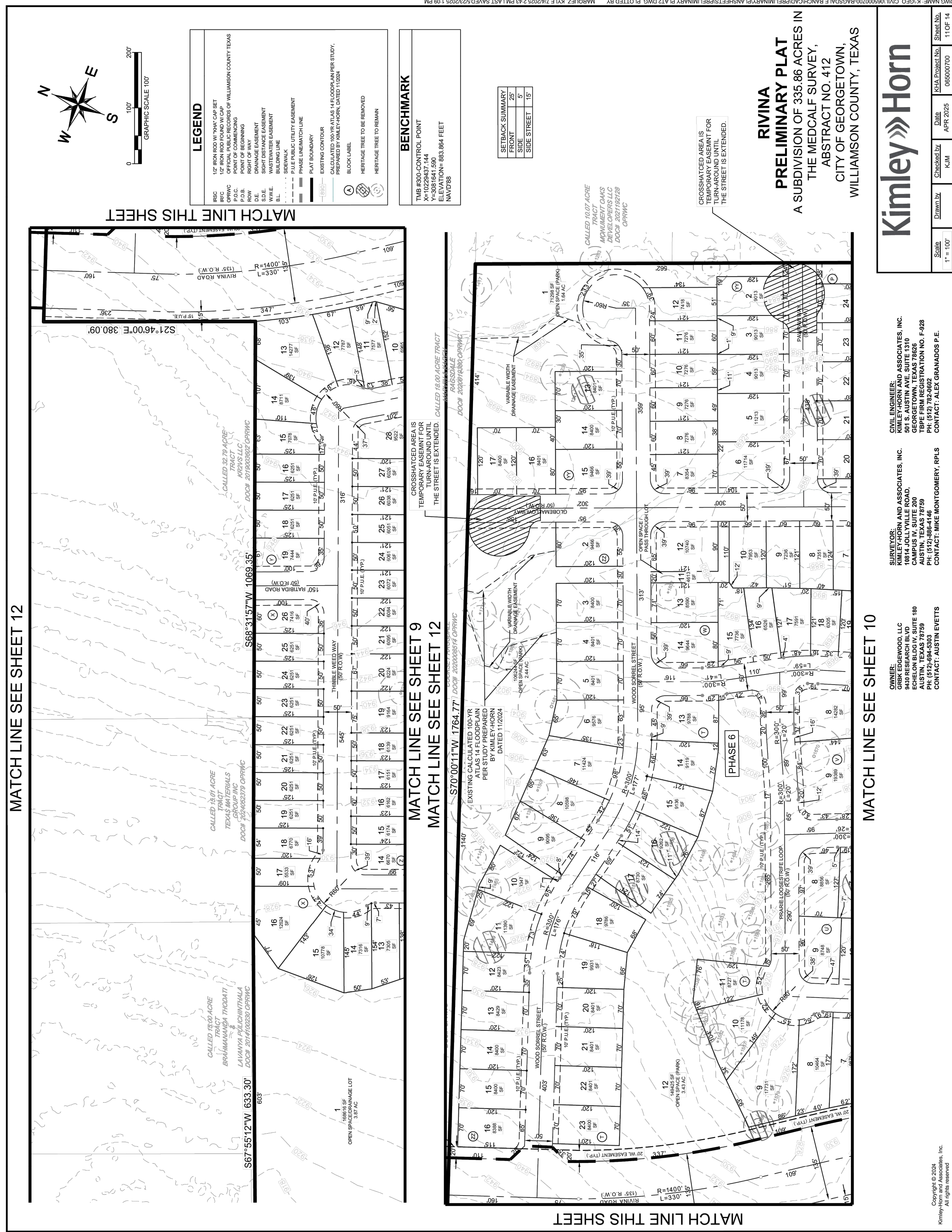
OWNER/DEVELOPER

GRBK EDGEWOOD, LLC
9430 RESEARCH BLVD
ECHELON BLDG IV, SUITE 180
AUSTIN, TEXAS 78759
PH: (512) 694-5303
CONTACT: AUSTIN EVETTS

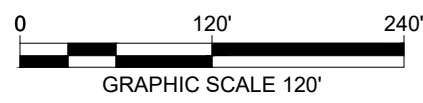
KIMLEY-HORN AND ASSOCIATES, INC.
10814 JOLLYVILLE ROAD,
CAMPUS IV, SUITE 200
AUSTIN, TEXAS 78759
PH: (512) 886-4146
CONTACT: MIKE MONTGOMERY, RPLS



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[illegible]



NOTES:

1. ALL EROSION SEDIMENTATION CONTROLS CALLED OUT AS "PHASE 2" ARE TO BE INSTALLED AFTER THE APPLICABLE IMPROVEMENT IS INSTALLED AND NOT WITH THE INITIAL EROSION SEDIMENTATION CONTROLS.
2. GRADED AREAS MUST BE STABILIZED PRIOR TO ACCEPTANCE OR EROSION CONTROLS MUST BE IN PLACE TO PREVENT SEDIMENT FROM ENTERING ROADWAYS.
3. NO LOTS SHOULD BE CLEARED OUTSIDE THE LIMITS OF CONSTRUCTION.
4. PDS'S SHALL BE CLEARED FROM POLLUTION FROM CONSTRUCTION SEDIMENT FLOW BEFORE FINAL WALK THROUGH.
5. TOTAL AREA OF LIMITS OF CONSTRUCTION IS 4,510,579 SF

[illegible]

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11 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928



SCALE:	AS SHOWN
DESIGNED BY:	KJN
DRAWN BY:	MS
CHECKED BY:	AFC

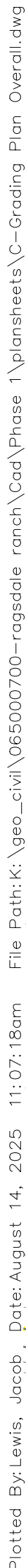
EROSION CONTROL PLAN

**RIVINA
PHASE 1**
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

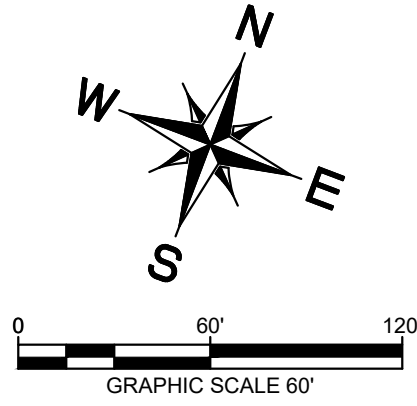
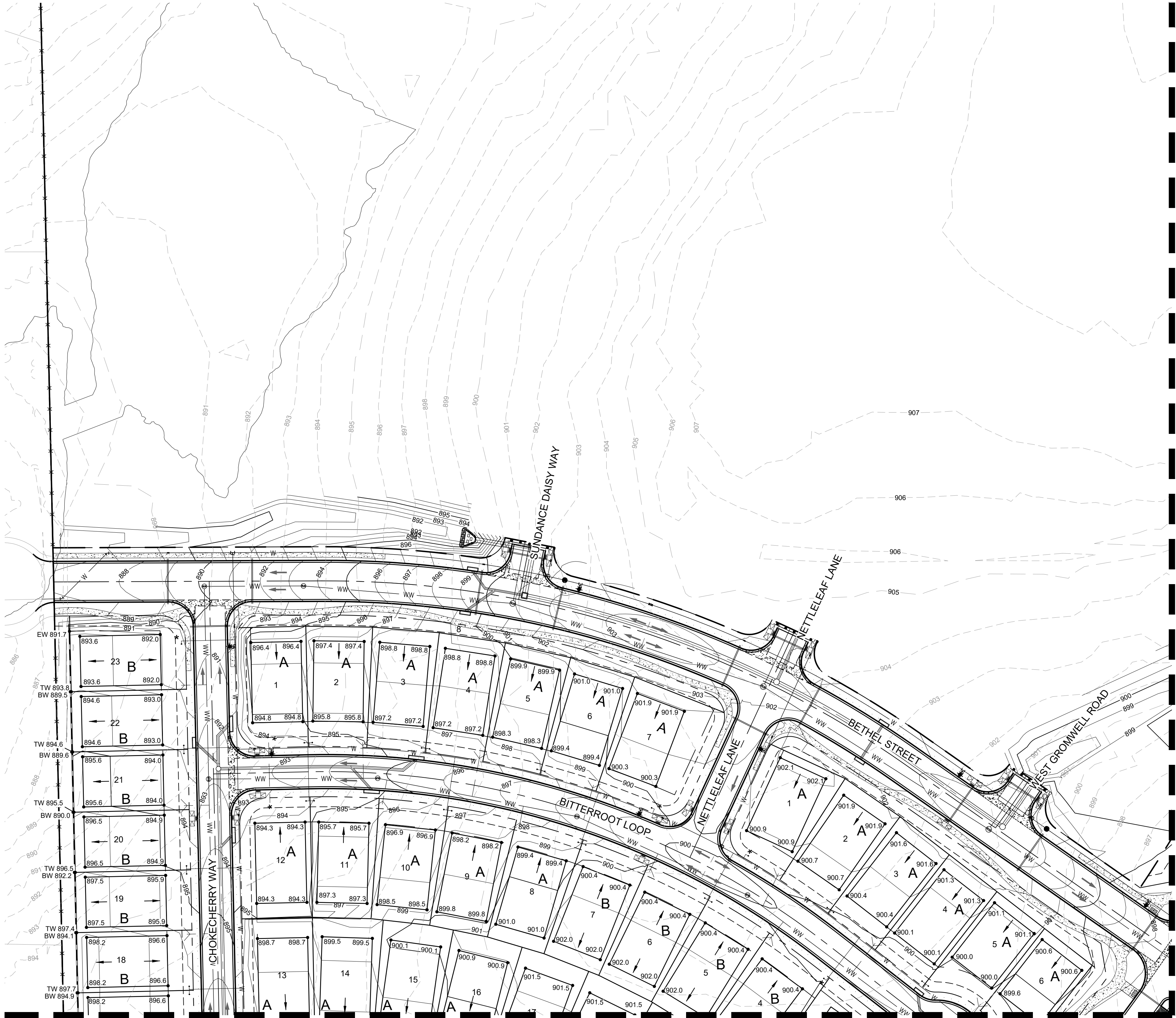
12
F 155

CALCULATED 100-YR
ATLAS 14 FLOODPLAIN
PER STUDY PREPARED
BY KIMLEY-HORN
DATED 11/2024

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'88



Plotted By: Lewis, Jacob Date: August 14, 2025 11:09:09am File Path: K:\Geo_civil\065000700-ridgeville ranch\Coa\Phase 1\plan\sheet\G-Grading Plan.dwg
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LEGEND

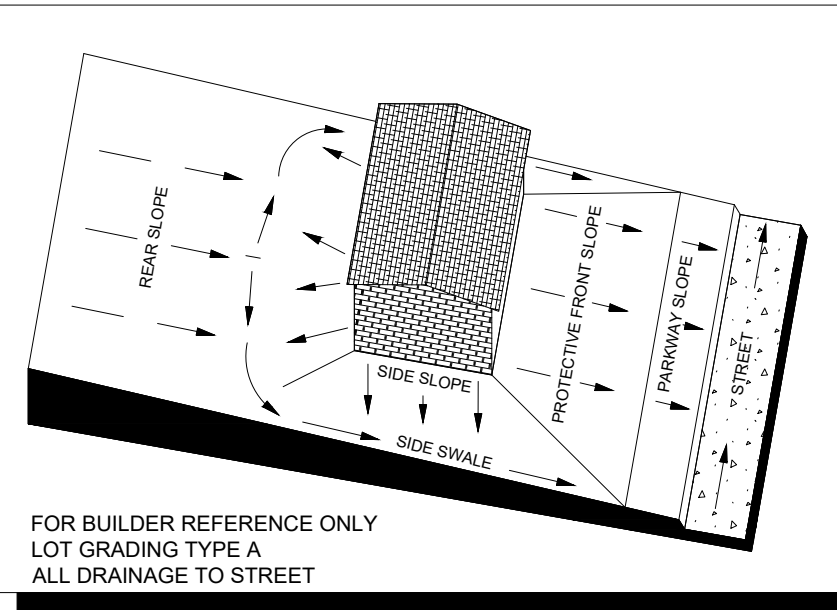
---	PROPERTY LINE
---	MATCH LINE
55.5 •	PROPOSED SPOT ELEVATION
TW 55.5 •	PROPOSED GRADE AT TOP OF WALL
BW 55.5 •	PROPOSED GRADE AT BOTTOM OF WALL
EW 55.5 •	PROPOSED GRADE AT END OF WALL
→	LOT DRAINAGE FLOW DIRECTION
→	STREET DRAINAGE FLOW DIRECTION
---	PROPOSED RETAINING WALL
▲	EXPOSED FACE OF RETAINING WALL
---	PROPOSED CONTOUR
---	EXISTING CONTOUR
---	STORM SEWER
□	STORM INLET
○	STORM MANHOLE
W	WATER MAIN
WW	WASTEWATER MAIN
---	5' SIDEWALK (INCLUDED IN CONTRACT)
---	5' SIDEWALK (EXCLUDED FROM CONTRACT)

NOTES:

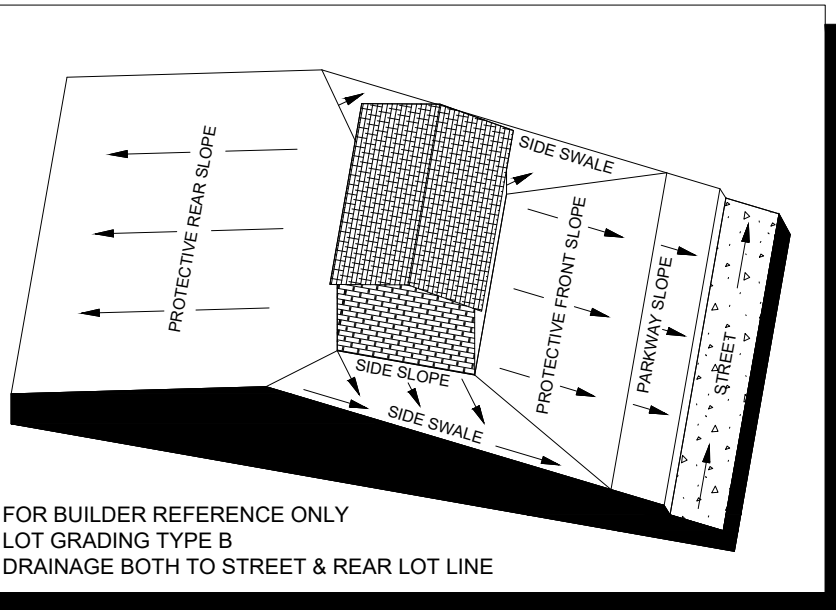
- ALL PROPOSED ELEVATIONS ARE TOP OF PAVEMENT OR NATURAL GROUND UNLESS OTHERWISE NOTED.
- ALL TOP OF WALL ELEVATIONS ARE TO TOP OF GRADE AT WALL.
- ALL BOTTOM OF WALL ELEVATIONS ARE TO BOTTOM OF GRADE AT WALL.
- CONTRACTOR TO VERIFY A.D.A. COMPLIANCE FOR GRADES IN ALL SIDEWALK ACCESSIBLE ROUTES, INCLUDING DRIVEWAY CROSSINGS, SHALL CONFORM TO ALL APPLICABLE A.D.A. STANDARDS: NOT EXCEED 5.0% ALONG TRAVEL PATH WITH NOT MORE THAN 2.0% CROSS SLOPE AND NOT EXCEED 2.0% IN ANY DIRECTION IN ACCESSIBLE PARKING AREAS.
- MAINTAIN EXISTING GRADE IN TREE WELLS. CONTRACTOR TO ENSURE POSITIVE DRAINAGE TO AREA INLETS.

BENCHMARKS

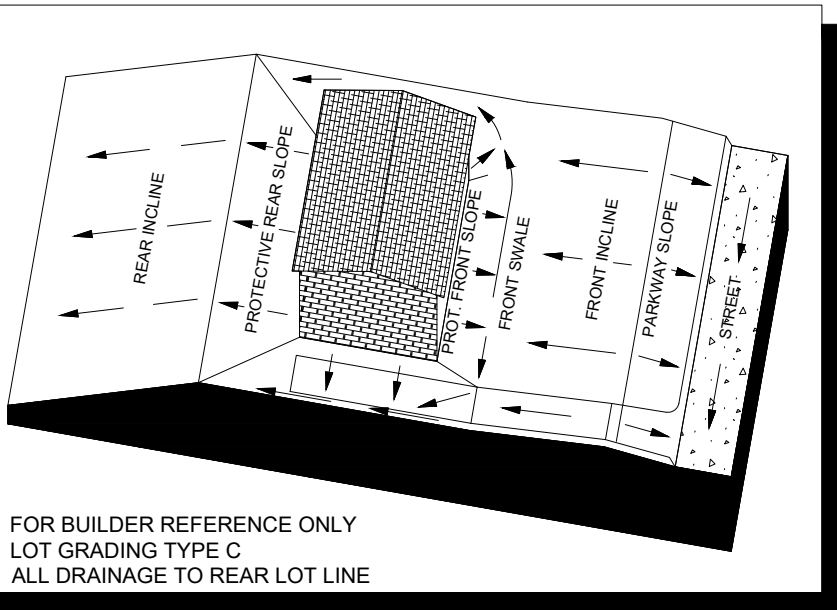
TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE A
ALL DRAINAGE TO STREET



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE B
DRAINAGE BOTH TO STREET & REAR LOT LINE



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE C
ALL DRAINAGE TO REAR LOT LINE

Kimley»Horn

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78628
PHONE: 512-500-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM E-928



KHA PROJECT	065000700
DATE	AUGUST 2025
SCALE	AS SHOWN
DESIGNED BY	KJM
DRAWN BY	
CHECKED BY	AEG

GRADING PLAN
(SHEET 1 OF 4)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER

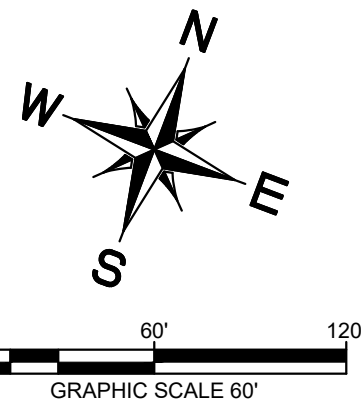
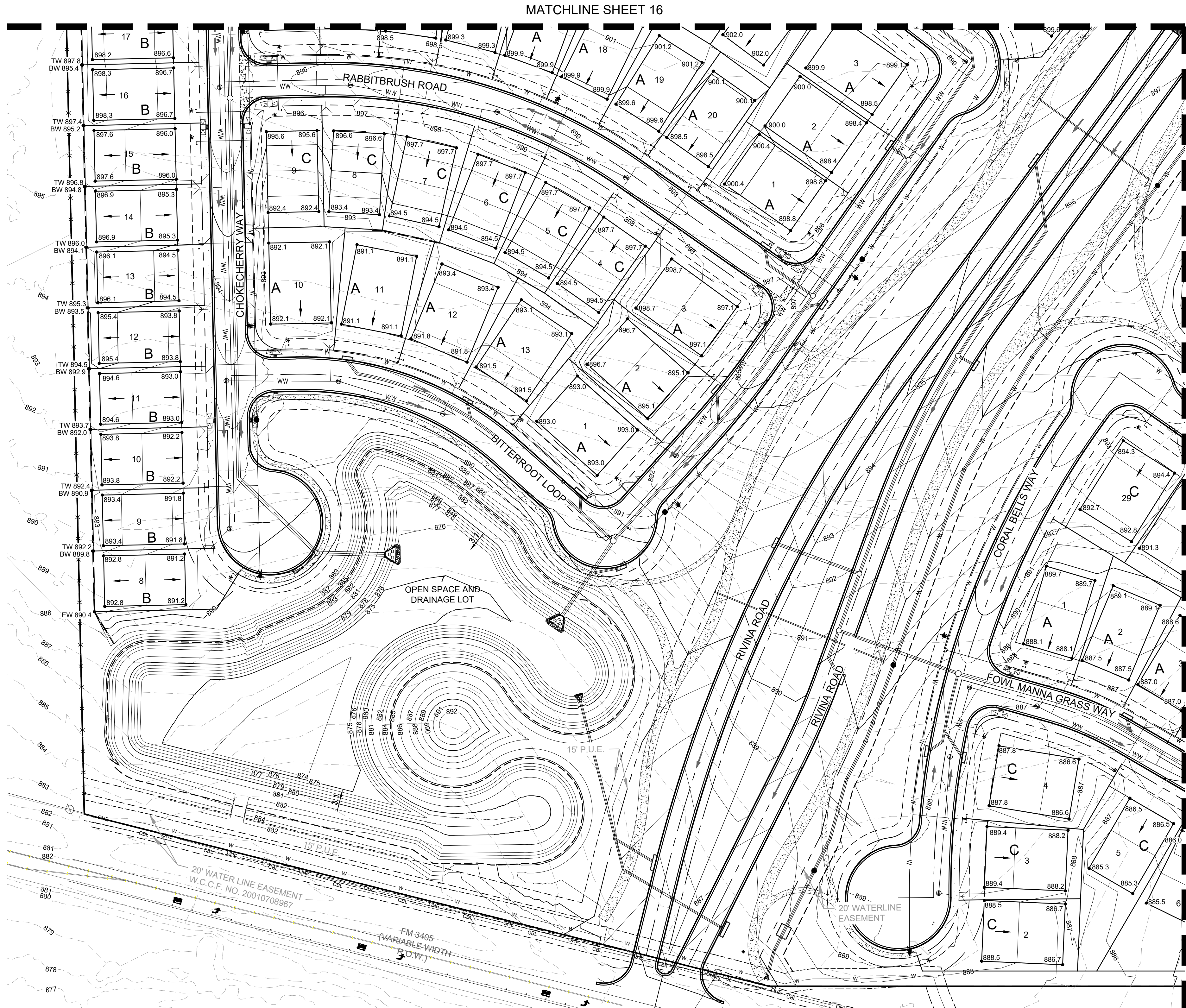
16
OF 155

DATE

REVISIONS

BY

Plotted By: Lewis, Jacob Date: August 14, 2025 11:09:52am File Path: K:\proj\065000700-gradgale ranch\Coa\Phase 1\plan\sheet\c-Grading Plan.dwg
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LEGEND

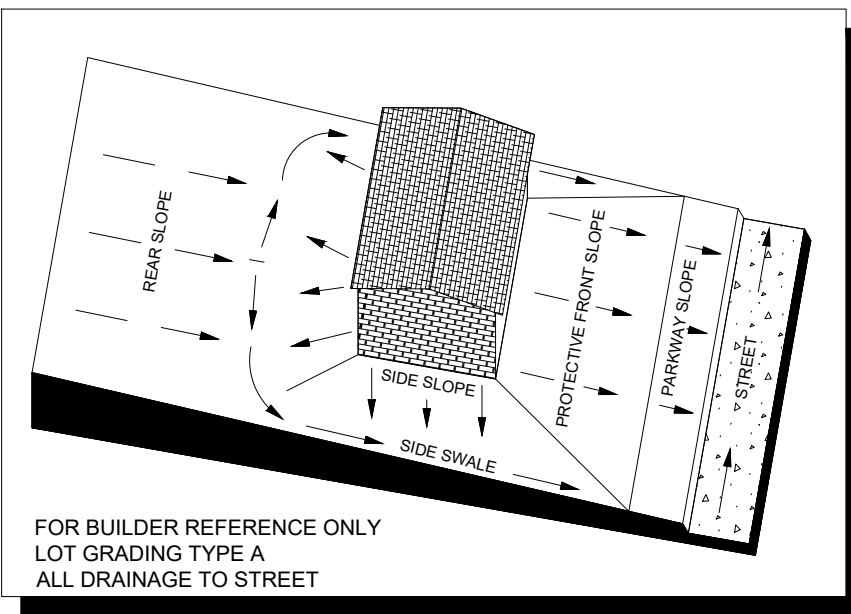
---	PROPERTY LINE
---	MATCH LINE
55.5 •	PROPOSED SPOT ELEVATION
TW 55.5 •	PROPOSED GRADE AT TOP OF WALL
BW 55.5 •	PROPOSED GRADE AT BOTTOM OF WALL
EW 55.5 •	PROPOSED GRADE AT END OF WALL
→	LOT DRAINAGE FLOW DIRECTION
→	STREET DRAINAGE FLOW DIRECTION
---	PROPOSED RETAINING WALL
---	PROPOSED CONTOUR
---	EXISTING CONTOUR
---	STORM SEWER
□	STORM INLET
○	STORM MANHOLE
W	WATER MAIN
WW	WASTEWATER MAIN
---	5' SIDEWALK (INCLUDED IN CONTRACT)
---	5' SIDEWALK (EXCLUDED FROM CONTRACT)

NOTES:

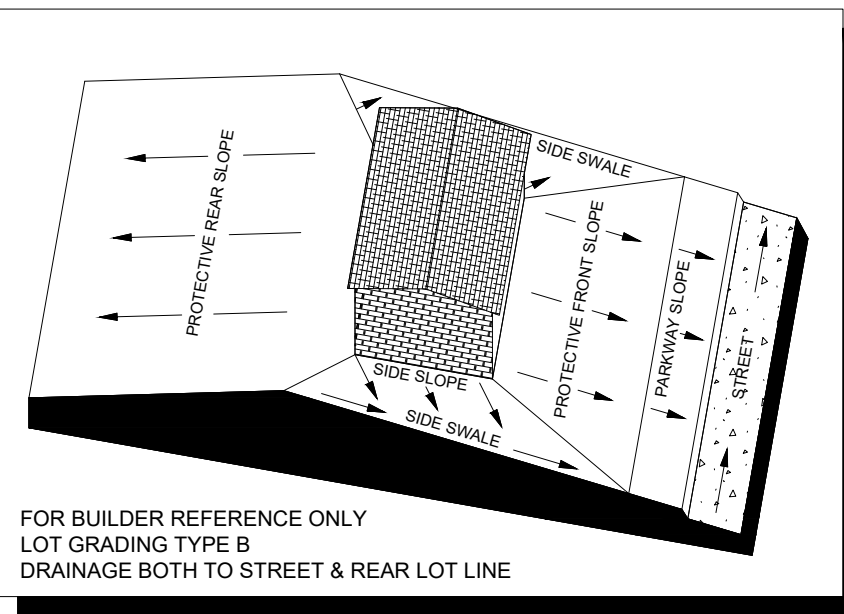
- ALL PROPOSED ELEVATIONS ARE TOP OF PAVEMENT OR NATURAL GROUND UNLESS OTHERWISE NOTED.
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-

BENCHMARKS

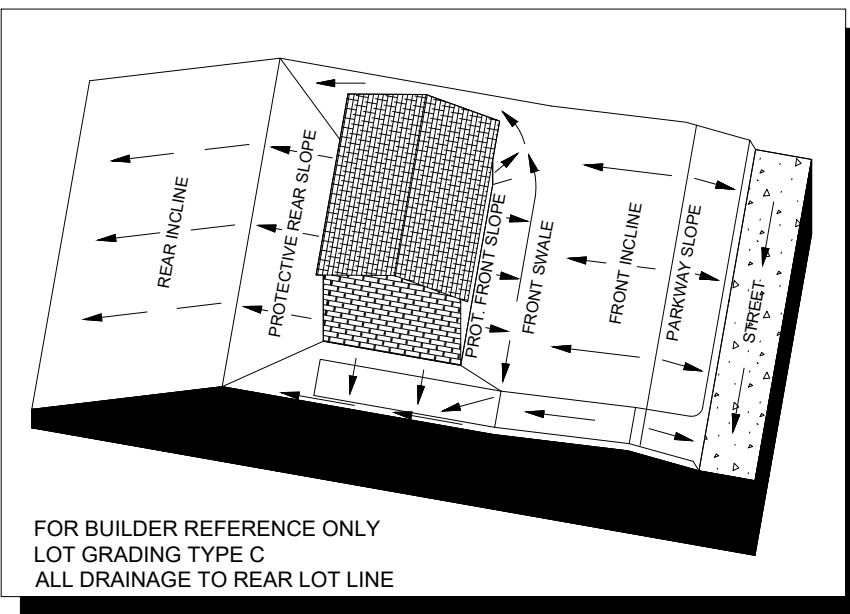
TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE A
ALL DRAINAGE TO STREET



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE B
DRAINAGE BOTH TO STREET & REAR LOT LINE



FOR BUILDER REFERENCE ONLY
LOT GRADING TYPE C
ALL DRAINAGE TO REAR LOT LINE

Kimley»Horn

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TEXAS REGISTERED ENGINEERING FIRM E-928

KHA PROJECT	065000700
DATE	AUGUST 2025
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CHECKED BY	AEG

GRADING PLAN
(SHEET 2 OF 4)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
17
OF 155

REVISIONS

DATE

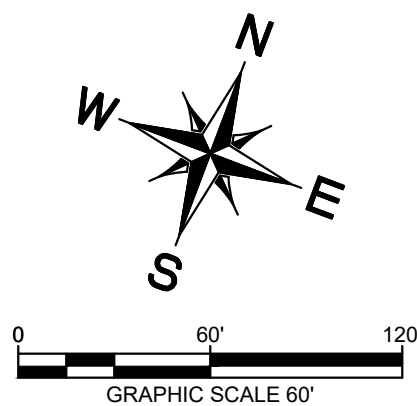
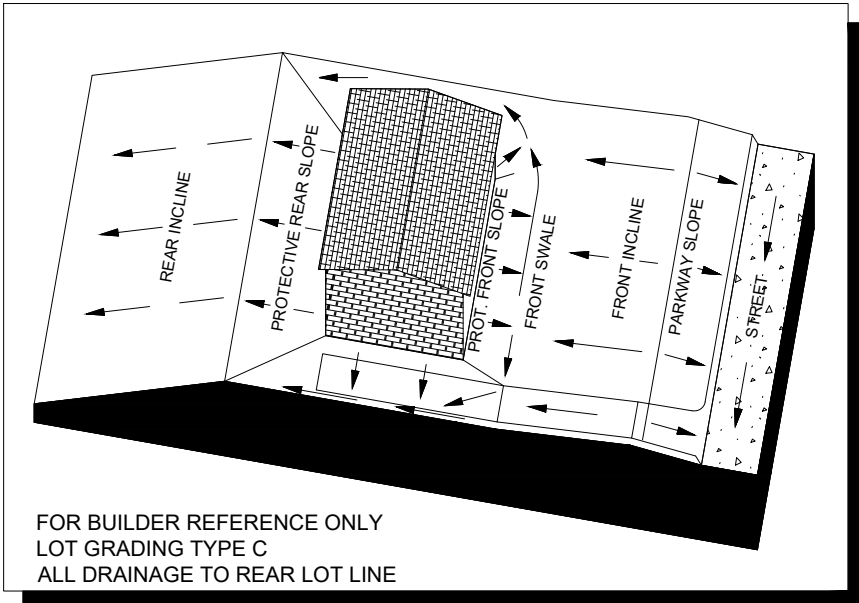
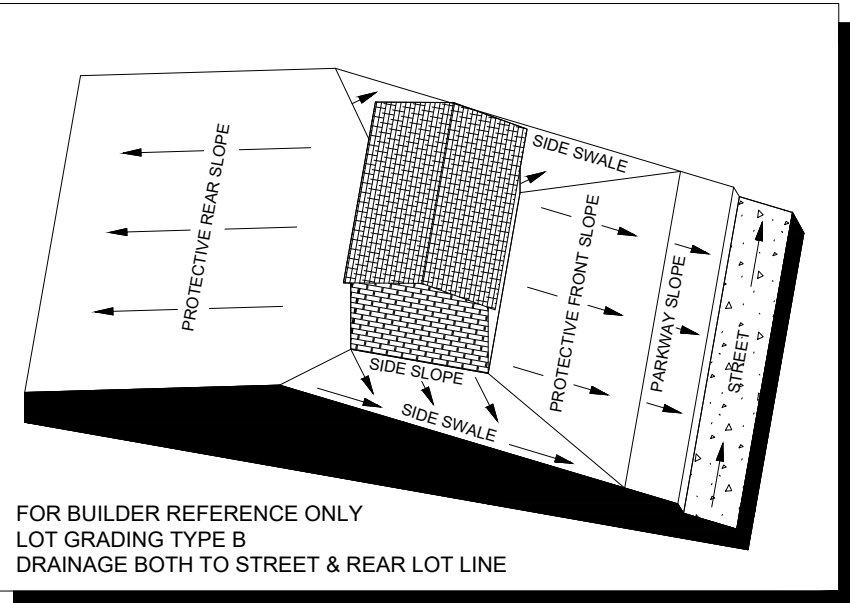
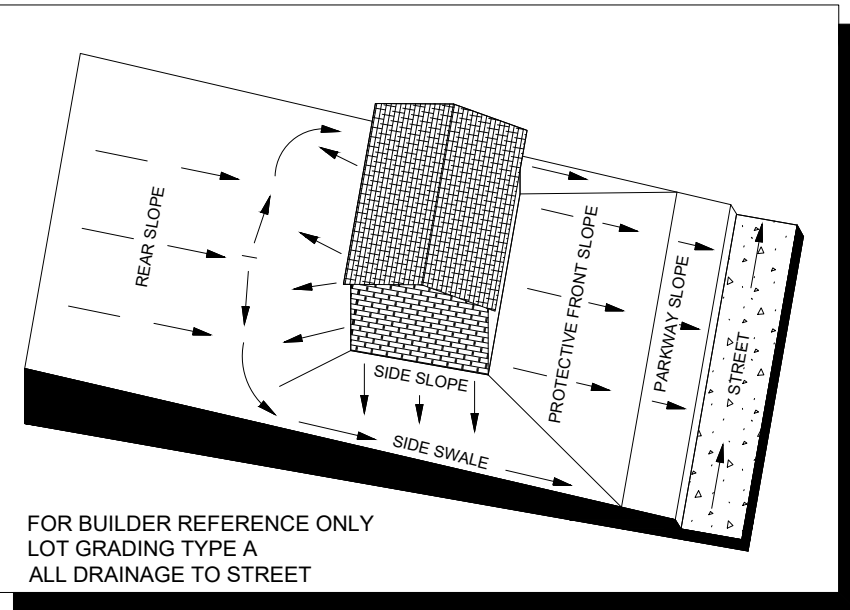
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MATCHLINE SHEET 16



MATCHLINE SHEET 19



LEGEND

---	PROPERTY LINE
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---	PROPOSED RETAINING WALL
---	EXPOSED FACE OF RETAINING WALL
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---	STORM MANHOLE
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BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88

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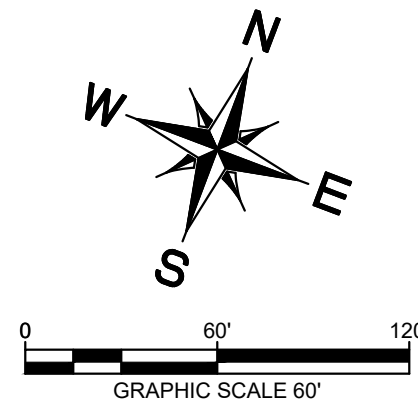
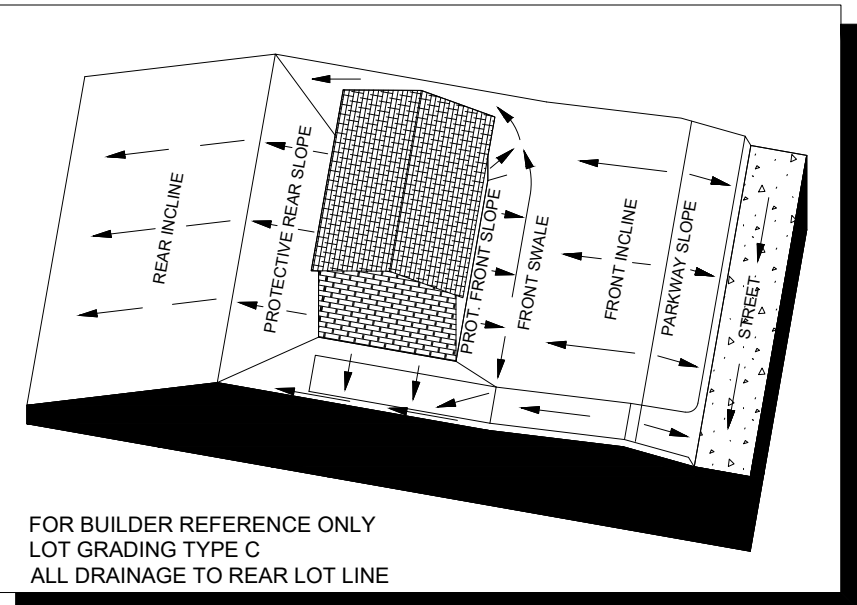
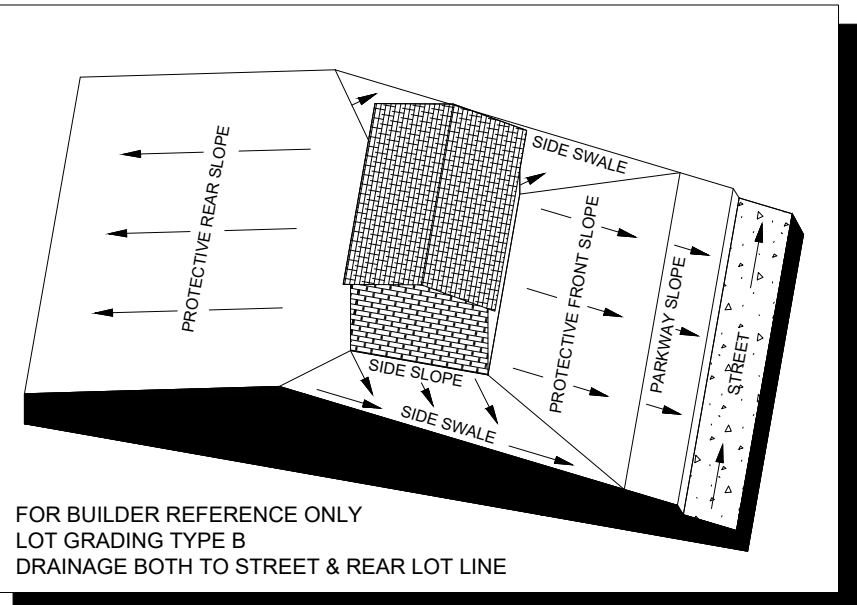
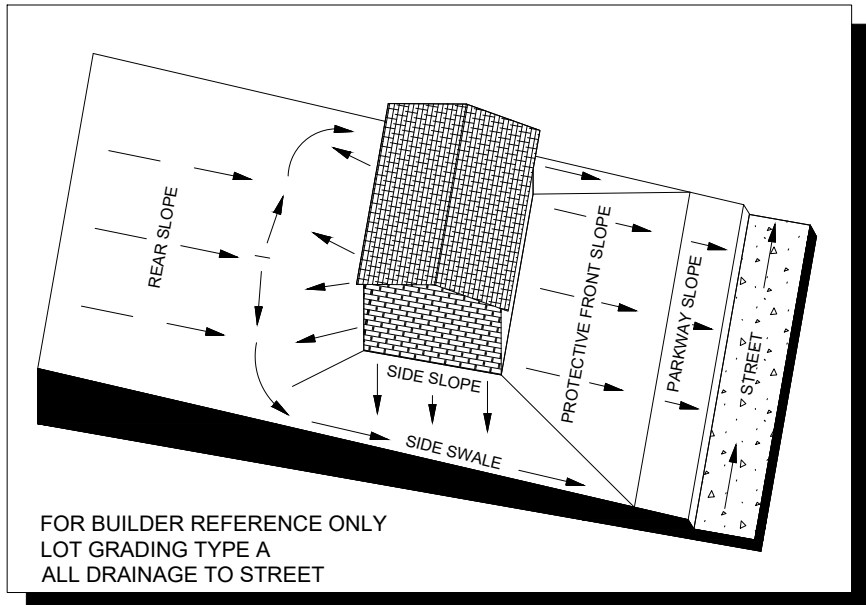
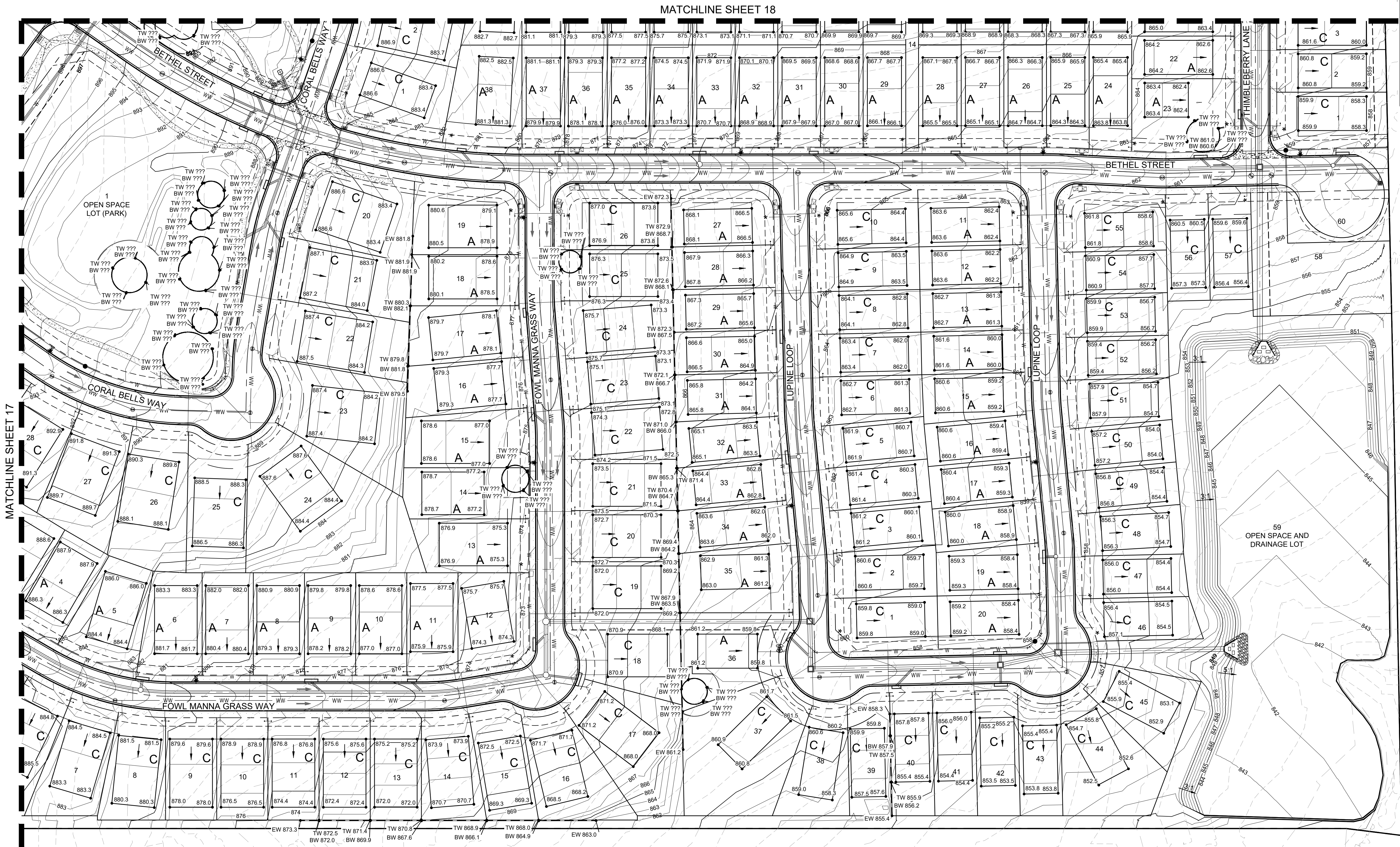
KHA PROJECT	065000700
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CHECKED BY	AEG

GRADING PLAN
(SHEET 3 OF 4)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
18
OF 155

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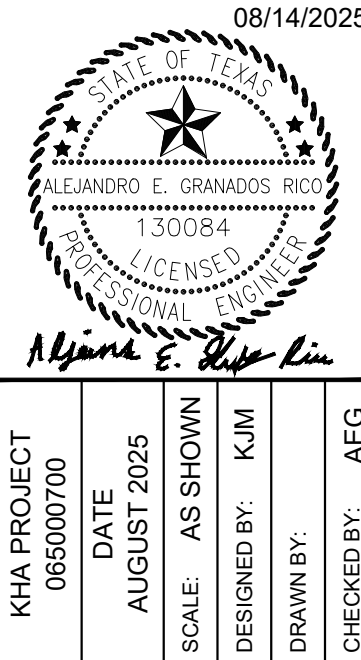
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GRADING PLAN
(SHEET 4 OF 4)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
19
OF 155

NO.	REVISIONS	DATE	BY

TIME OF CONCENTRATION & LAG TIME EXISTING WATERSHED CONDITIONS TR-55 Methodology																					
SHEET FLOW										SHALLOW CONCENTRATED FLOW							OPEN CHANNEL FLOW			TOTAL	
Tc = (0.42(nL ^{0.8} /P ^{2/3} S ^{0.5}) ^{0.4} 2-year/24-hr Rainfall Depth (in.) = 3.94										Tc = L / 60 ^{0.7} V							Tc = L / 60 ^{0.7} V V = (1.49(n) ^{0.76} R ^{0.38} /2(3) ^{0.5}) ^{1/2}				
Basin	Area (ac)	Curve No	I.C. %	Length (ft)	Elev ₁	Elev ₂	Slope (ft/ft)	Manning's "n"	T _{c1} (min)	Length (ft)	Elev ₁	Elev ₂	Slope (ft/ft)	Condition TR-55 Fig. 3-1	V _{avg} (ft/s)	T _{c2} (min)	Length (ft)	V _{avg} (ft/s)	T _{c3} (min)	T _{cTOTAL} * (min)	T _{lag} 0.6T _c (min)
DA-C	4.8	80	0.0	100	947.94	946.89	0.0105	0.150	11.4	866.8	946.887	922.96	0.0276	Unpaved	2.68	5.4	347.47	6.00	0.97	17.8	10.7
DA-D	23.5	80	0.0	100	947.00	945.37	0.0063	0.150	14.0	2201.2	946.365	906.13	0.0183	Unpaved	2.18	16.8	268.37	6.00	0.75	31.6	18.9
DA-E	90.9	84	0.0	100	946.18	945.18	0.0100	0.150	11.7	2263.8	945.182	898.63	0.0206	Unpaved	2.31	16.3	537.85	6.00	1.49	29.5	17.7
DA-F	20.0	80	0.0	100	926.06	923.86	0.0220	0.150	8.5	1783.2	923.858	866.82	0.0320	Unpaved	2.89	10.3	337.81	6.00	0.94	19.7	11.8
DA-G	69.2	80	47.6	100	912.19	909.89	0.0230	0.150	8.4	1661.6	911.979	859.31	0.0317	Unpaved	2.87	9.6	1121.9	6.00	3.12	21.1	12.7
DA-H	26.4	80	49.4	100	902.31	901.55	0.0077	0.150	12.9	970.6	901.545	885.63	0.0164	Unpaved	2.07	7.8	489.65	6.00	1.32	22.1	13.3
DA-I	6.6	80	40.6	53	907.02	905.77	0.0199	0.150	6.1	56.8	905.765	884.92	0.0371	Unpaved	9.78	0.1	48.89	6.00	0.14	6.3	3.8
T1-01	65.0	84	0.5	100	914.07	912.03	0.0204	0.150	8.8	1390.2	912.032	860.54	0.0370	Unpaved	3.11	7.5	1877.30	6.00	5.21	21.4	12.9
T1-02	61.0	84	0.3	100	934.56	933.45	0.0111	0.150	11.2	1133.63	933.450	890.39	0.0380	Unpaved	3.14	6.0	1467.4	6.00	4.08	21.3	12.8
T1-03	29.8	84	0.0	100	940.31	940.03	0.0029	0.150	19.2	916.97	940.025	898.05	0.0458	Unpaved	3.45	4.4	760.75	6.00	2.11	25.7	15.4
T1-04	63.3	84	4.5	100	971.30	969.65	0.0165	0.150	9.5	1138.78	969.650	920.42	0.0432	Unpaved	3.35	5.7	1390.5	6.00	3.86	19.1	11.4
T1-05	66.3	84	0.4	100	996.45	996.09	0.0035	0.150	17.7	1520.9	996.093	971.69	0.0160	Unpaved	2.04	12.4	2619.6	6.00	7.28	37.3	22.4
T1-06	84.4	84	0.4	100	1008.31	1007.23	0.0108	0.150	11.3	868.97	1007.23	985.78	0.0247	Unpaved	2.53	5.7	2014.13	6.00	5.59	22.6	13.6
T2-01	54.0	84	0.0	100	945.52	944.95	0.0057	0.150	14.6	1285.12	944.95	895.65	0.0384	Unpaved	3.16	6.8	1206.65	6.00	3.35	24.7	14.8
T2-02	35.2	84	0.3	100	951.06	949.64	0.0142	0.150	10.1	945.65	949.642	910.20	0.0417	Unpaved	3.30	4.8	1703.71	6.00	4.73	19.6	11.8
T2-03	30.2	84	0.0	100	957.38	956.82	0.0056	0.150	14.7	1244.87	956.816	914.36	0.0341	Unpaved	2.98	7.0	27.22	6.00	0.08	21.7	13.0

Peak Flow Summary Table													
HMS Node	Existing Conditions				Proposed Conditions				Comparison				
	2YR	10YR	25YR	100YR	2YR	10YR	25YR	100YR	2YR	10YR	25YR	100YR	
J-C	10.8	20.3	26.9	37.6	10.8	20.3	26.9	37.6	0.0	0.0	0.0	0.0	
J-D	39.8	75.6	100.2	140.9	39.8	75.6	100.2	140.9	0.0	0.0	0.0	0.0	
J-E	187.4	332.6	430.8	591.0	186.5	331.0	428.7	588.2	-0.9	-1.6	-2.1	-2.8	
J-F	52.1	98.4	130.3	182.1	51.0	96.4	127.5	177.6	-1.1	-2.0	-2.8	-4.5	
J-G	110.7	209.0	276.9	387.1	107.7	194.2	255.7	366.0	-3.0	-14.8	-21.2	-21.1	
J-H	36.6	69.3	91.6	127.9	35.1	64.8	85.9	124.9	-1.5	-4.5	-5.7	-3.0	
J-I	30.2	57.0	75.6	105.8	27.0	45.1	57.2	77.0	-3.2	-11.9	-18.4	-28.8	
J-T1-01	636.7	1248.8	1683.5	2457.5	636.7	1248.8	1683.5	2457.5	0.0	0.0	0.0	0.0	

Legend

PROPOSED DRAINAGE AREAS

PROPERTY BOUNDARY

PROPOSED PONDS PH1

Phase 1 Surface Lots

2-FT EXISTING CONTOURS (2021 WILCO)

SHEET FLOW

SHALLOW CONCENTRATED FLOW

CHANNEL FLOW

SHEET FLOW

SHALLOW CONCENTRATED FLOW

CHANNEL FLOW

Kimley»Horn

1400 WOODLICK FOREST DRIVE, SUITE 225,
THE WOODLANDS, TX 77380
PHONE: 281-475-2816
TBP# FIRM NO. 928

STATE OF TEXAS

HUDSON D. STONE
142690
LICENSED
PROFESSIONAL ENGINEER

Hudson Stone

1 inch = 600 feet

PROPOSED
DRAINAGE AREA MAP

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

DATE
JULY 2025

PROJECT NO.
XXXXXXXXXX

SHEET NUMBER

Plotted By: Lewis, Jacob Date: August 14, 2025 03:51:00pm File Path: K:\p06000700-rogade ranch\CoalPhase 1\plan\sheet\c-DrainageCalculations.dwg

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RIVINA PHASE 1						
Proposed "C" Value Calculations						
DRAINAGE AREA	AREA (sf)	AREA (Ac.)	IMPERVIOUS COVER (sf)	IMPERVIOUS COVER %	Comp. C ₂₅	Comp. C ₁₀₀
A0	47485	1.09	32,034	67%	0.72	0.80
A1	16405	0.38	7,106	43%	0.60	0.68
A2	47662	1.09	25,764	54%	0.65	0.74
A3	45215	1.04	27,957	62%	0.69	0.78
A4	52180	1.20	32,272	62%	0.69	0.78
ASA	28708	0.66	14,946	52%	0.65	0.73
ASB	8757	0.20	8,219	94%	0.85	0.94
B0	43764	1.00	25,218	58%	0.67	0.75
B1	35264	0.81	21,886	62%	0.69	0.78
B2	27505	0.63	15,693	57%	0.67	0.75
B3	35701	0.82	17,654	49%	0.63	0.71
B4	43718	1.00	29,778	68%	0.72	0.81
B5	43955	1.01	28,673	65%	0.71	0.79
B6	37828	0.87	20,185	53%	0.65	0.73
B7A	21940	0.50	11,948	54%	0.66	0.74
B7B	31707	0.73	16,680	53%	0.65	0.73
B8A	8681	0.20	6,864	79%	0.78	0.86
B8B	11907	0.27	9,372	79%	0.78	0.86
C0	34450	0.79	16,467	48%	0.62	0.70
C1	33035	0.76	16,467	50%	0.63	0.71
C2	13958	0.32	8,768	63%	0.70	0.78
C3	9885	0.23	6,656	67%	0.72	0.80
C4-AREA	41295	0.95	0	0%	0.39	0.46
C5-AREA	98224	2.25	0	0%	0.39	0.46
C6	16672	0.38	12,364	74%	0.75	0.84
C7	16379	0.38	14,564	89%	0.83	0.91
C8	21489	0.49	15,218	71%	0.74	0.82
C9	54768	1.26	25,282	46%	0.62	0.70
C10	36416	0.84	22,500	62%	0.69	0.78
C11	39237	0.90	22,500	57%	0.67	0.75
C12	43841	1.01	22,830	52%	0.65	0.73
C13	51340	1.18	28,582	56%	0.66	0.74
C14	9533	0.22	7,458	78%	0.77	0.86
C15	33228	0.76	21,468	65%	0.71	0.79
D0	42722	0.98	22,254	52%	0.65	0.73
D1	28242	0.65	14,322	51%	0.64	0.72
D2	48515	1.14	15,015	30%	0.54	0.61
D3	31815	0.73	11,273	35%	0.56	0.64
D4A	12432	0.29	7,714	62%	0.69	0.78
D4B	39143	0.90	9,108	23%	0.50	0.58
D5A	8031	0.18	7,381	92%	0.84	0.93
D5B	1640	0.04	1,144	70%	0.73	0.82
D6	42601	0.98	23,967	56%	0.67	0.75
D7	51069	1.17	26,570	52%	0.64	0.73
D8	50916	1.17	26,022	51%	0.64	0.72
D9A	23543	0.54	19,030	81%	0.79	0.87
D9B	15419	0.35	13,332	86%	0.81	0.90
D10	42124	0.97	15,352	36%	0.57	0.65
D11A	18626	0.43	12,510	67%	0.72	0.80
D11B	51897	1.19	21,918	42%	0.60	0.68
D12	47221	1.08	27,664	59%	0.68	0.76
D13	41367	0.95	20,240	49%	0.63	0.71
D14	48331	1.11	27,940	58%	0.67	0.75
D15	45848	1.05	24,871	54%	0.66	0.74
D16	50901	1.17	27,701	54%	0.66	0.74
D17	53648	1.23	11,818	22%	0.50	0.57
D18A	2991	0.07	2,702	90%	0.83	0.92
D18B	18874	0.43	14,491	77%	0.77	0.85
D19A	29403	0.67	17,244	59%	0.68	0.76
D19B	22389	0.51	17,820	80%	0.78	0.87
D20	64408	1.48	37,084	58%	0.67	0.75
D21	54747	1.26	30,528	56%	0.66	0.74
E0	43353	1.00	21,054	49%	0.63	0.71
E1	41470	0.95	21,054	51%	0.64	0.72
E2	78038	1.79	14,740	19%	0.48	0.56
E3	18224	0.42	16,192	89%	0.83	0.91
E4	34179	0.78	3,960	12%	0.45	0.52
E5	13260	0.30	7,084	53%	0.65	0.73
E6	38370	0.88	23,002	60%	0.68	0.77
E7	29800	0.68	20,922	70%	0.73	0.82
E8	28403	0.65	16,652	59%	0.68	0.76
E9	38562	0.89	19,950	51%	0.64	0.72
E10	34679	0.80	20,764	60%	0.68	0.77
F0-AREA	115948	2.66	0	80%	0.78	0.87
F1	22453	0.52	19,360	86%	0.81	0.90
F2	231878	5.32	139,730	60%	0.69	0.77
K0	276735	6.35	138,556	50%	0.64	0.72
K1A	37205	0.85	4,709	13%	0.45	0.52
K1B	36012	0.83	6,018	17%	0.47	0.55
K2A	4973	0.11	3,825	77%	0.77	0.85
K2B	8676	0.20	6,528	75%	0.76	0.84
K3	17160	0.39	5,100	30%	0.54	0.61
K4	6058	0.14	4,616	76%	0.76	0.85
H0	38492	0.88	12,705	33%	0.55	0.63
H1	34908	0.80	9,108	26%	0.52	0.59
POND 1	268862	6.17	41,600	15%	0.47	0.54
POND 2	173172	3.98	0	0%	0.39	0.46
OFF-1	230461	5.29	92,000	40%	0.59	0.66
OFF-2	189074	3.68	25,963	15%	0.47	0.54
OFF-4	867018	19.67	29,644	3%	0.41	0.48
OFF-5	19816	0.45	4,752	24%	0.51	0.58
G2 (INTERIM)	73673	1.69	3,872	5%	0.42	0.49
G3 (INTERIM)	23527	0.54	5,533	24%	0.51	0.58
SD-L (FUTR)	139330	3.20	80,116	58%	0.67	0.75
SD-M (FUTR)	119758	2.75	66,408	55%	0.66	0.74

Storm Event	Fair Condition 2-7%	
	Pervious	Impervious
C ₁₀	0.35	0.81
C ₂₅	0.39	0.88
C ₁₀₀	0.46	0.97

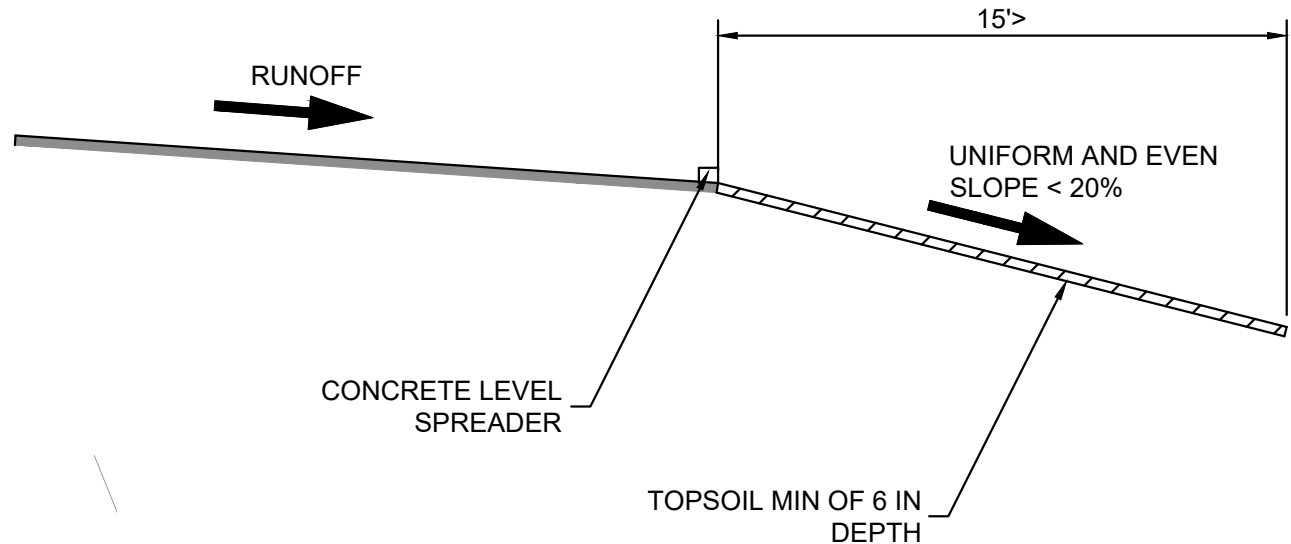
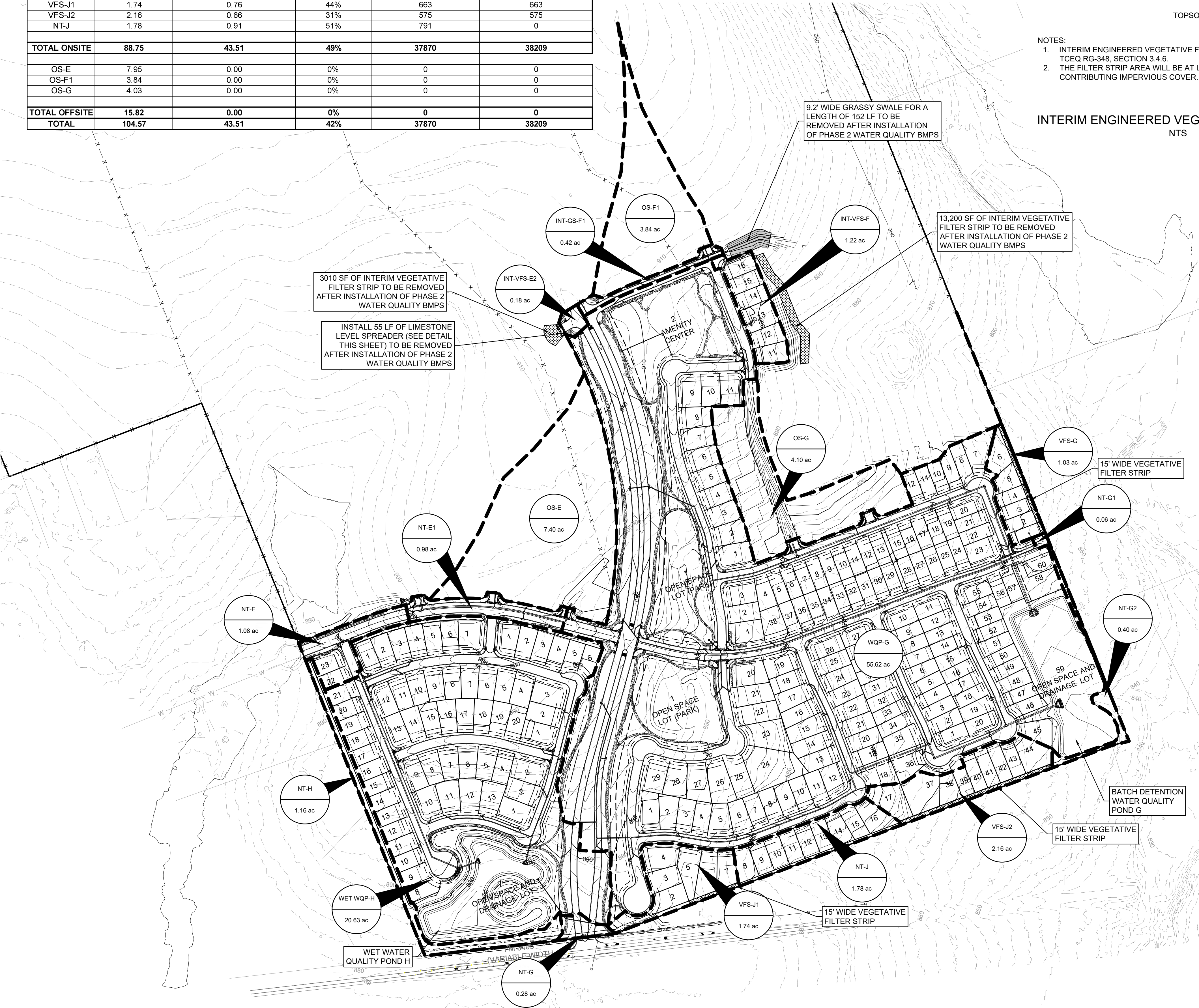
RIVINA PHASE 1																	
DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW							TOTAL Tc** (min)	
	P-2yr24hr		4.06 IN		Grass Surface				Channel Flow								
	N	L (ft)	S (ft/ft)	Tt (min)	L (ft)	V (fps)	S (ft/ft)	Tt (min)	L (ft)	V (fps)	a (ft/s²)	Pw (ft)	r	n	S (ft/ft)		Tt (min)
A0	0.15	100	0.020	8.699	92	2.3	0.020	0.672	180	5.2	3.8	15.5	0.245	0.016	0.020	0.58	9.95
A1	0.15	32	0.020	3.496	0	2.3	0.020	0.000	342	4.5	3.8	15.5	0.245	0.016	0.015	1.28	5.00
A2	0.15	100	0.020	8.699	38	2.7	0.028	0.235	155	4.8	3.8	15.5	0.245	0.016	0.017	0.54	9.47
A3	0.15	100	0.020	8.699	17	2.3	0.020	0.124	347	4.9	3.8	15.5	0.245	0.016	0.018	1.18	10.00
A4	0.15	100	0.025	7.956	52	2.6	0.025	0.340	443	5.2	3.8	15.5	0.245	0.016	0.020	1.43	9.72
ASA	0.15	33	0.010	4.728	0	1.6	0.010	0.000	548	3.6	3.8	15.5	0.245	0.016	0.010	2.50	7.22
ASB	0.15	100	0.030	7.986	70	2.3	0.020	0.511	193	3.6	3.8	15.5	0.245	0.016	0.010	0.88	8.78
B0	0.01	100	0.014	1.241	29	1.9	0.014	0.253	195	2.6	3.8	15.5	0.245	0.016	0.005	1.26	5.00
B1	0.15	100	0.010	11.478	15	2.2	0.018	0.115	357	2.6	3.8	15.5	0.245	0.016	0.005	2.31	13.90
B2	0.15	50	0.022	4.809	114	2.3	0.020	0.833	390	2.6	3.8	15.5	0.245	0.016	0.005	2.52	8.16
B3	0.15	100	0.010	11.478	77	1.6	0.010	0.795	251	3.1	3.8	15.5	0.245	0.016	0.007	1.37	13.62
B4	0.15	100	0.010	11.478	39	2.7	0.028	0.241	52	5.9	3.8	15.5	0.245	0.016	0.026	0.15	11.85
B5	0.15	100	0.035	6.954	177	2.2	0.018	1.363	0	3.6	3.8	15.5	0.245	0.016	0.010	0.00	8.31
B6	0.15	100	0.041	6.527	174	2.3	0.021	1.240	37	2.6	3.8	15.5	0.245	0.016	0.005	0.24	8.00
B7A	0.15	100	0.046	6.234	172	2.4	0.023	1.172	131	2.6	3.8	15.5	0.245	0.016	0.005	0.85	8.25
B7B	0.15	100	0.039	6.659	229	1.9	0.014	1.999	92	4.9	3.8	15.5	0.245	0.016	0.018	0.31	8.97
B8A	0.15	25	0.025	2.624	0	1.6	0.010	0.000	314	5.8	3.8	15.5	0.245	0.016	0.025	0.91	5.00
B8B	0.15	25	0.005	4.996	0	1.6	0.010	0.000	420	2.6	3.8	15.5	0.245	0.016	0.005	0.27	7.71
C0	0.15	41	0.020	4.263	0	1.6	0.010	0.000	487	3.6	3.8	15.5	0.245	0.016	0.010	2.23	6.49
C1	0.15	37	0.070	2.379	0	1.6	0.010	0.000	474	4.3	3.8	15.5	0.245	0.016	0.014	1.83	5.00
C2	0.15	100	0.050	6.029	52	3.6	0.050	0.240	78	7.3	3.8	15.5	0.245	0.016	0.040	0.18	6.46
C3	0.15	37	0.018	4.096	0	1.6	0.010	0.000	240	7.3	3.8	15.5	0.245	0.016	0.040	0.55	5.00
C4-AREA	0.15	100	0.050	6.029	228	3.6	0.050	1.053	0	6.3	3.8	15.5	0.245	0.016	0.030	0.00	7.10
C5-AREA	0.15	100	0.037	6.801	249	3.1	0.037	1.337	0	6.3	3.8	15.5	0.245	0.016	0.030	0.00	8.16
C6	0.15	20	0.010	3.167	0	1.6	0.010	0.000	581	5.7	3.8	15.5	0.245	0.016	0.024	1.71	5.00
C7	0.15	20	0.010	3.167	0	3.0	0.035	0.000	584	5.7	3.8	15.5	0.245	0.016	0.024	1.72	5.00
C8	0.15	71	0.050	4.584	0	1.6	0.010	0.000	104	5.5	3.8	15.5	0.245	0.016	0.023	0.31	5.00
C9	0.15	100	0.025	7.956	301	2.6	0.025	1.966	28	8.4	3.8	15.5	0.245	0.016	0.053	0.06	10.02
C10	0.15	100	0.025	7.956	158	2.6	0.025	1.032	92	8.4	3.8	15.5	0.245	0.016	0.053	0.18	9.21
C11	0.15	100	0.025	7.956	166	2.6	0.025	1.085	80	4.5	3.8	15.5	0.245	0.016	0.015	0.30	9.38
C12	0.15	100	0.034	7.035	149	3.0	0.034	1.385	156	4.5	3.8	15.5	0.245	0.016	0.015	0.58	8.50
C13	0.15	100	0.031	7.300	161	2.8	0.031	0.945	202	5.2	3.8	15.5	0.245	0.016	0.020	0.65	8.95
C14	0.15	15	0.008	2.751	0	2.5	0.024	0.000	375	5.2	3.8	15.5	0.245	0.016	0.020	1.21	5.00
C15	0.15	100	0.015	9.759	15	2.0	0.015	0.127	227	4.8	3.8	15.5	0.245	0.016	0.017	0.80	10.74
D0	0.15	92	0.040	6.167	0	1.6	0.010	0.000	346	2.8	3.8	15.5	0.245	0.016	0.006	2.04	8.27
D1	0.15	40	0.015	4.689	0	1.6	0.010	0.000	369	3.6	3.8	15.5	0.245	0.016	0.010	1.69	6.44
D2	0.15	79	0.033	5.986	0	1.6	0.010	0.000	427	4.0	3.8	15.5	0.245	0.016	0.012	1.78	7.75
D3	0.15	40	0.035	3.341	0	1.6	0.010	0.000	322	4.3	3.8	15.5	0.245	0.016	0.014	1.24	5.00
D4A	0.15	83	0.005	13.048	0	1.6	0.010	0.000	34	2.8	3.8	15.5	0.245	0.016	0.006	0.20	13.33
D4B	0.15	100	0.015	9.759	0	1.6	0.010	0.000	438	4.8	3.8	15.5	0.245	0.016	0.017	1.53	11.38
D5A	0.15	100	0.010	11.478	0	1.6	0.010	0.000	268	3.1	3.8	15.5	0.245	0.016	0.007	1.46	13.03
D5B	0.15	100	0.024	1.773	0	1.6	0.010	0.000	40	2.6	3.8	15.5	0.245	0.016	0.005	0.26	5.00
D6	0.15	100	0.027	7.765	191	2.6	0.026	5.1224	51	3.6	3.8	15.5	0.245	0.016	0.010	0.23	9.23
D7	0.15	100	0.023	2.226	200	2.6	0.026	1.281	204	5.7	3.8	15.5	0.245	0.016	0.024	0.60	10.17
D8	0.15	100	0.021	8.530	209	3.1	0.036	1.138	178	5.0	3.8	15.5	0.245	0.016	0.019	0.59	10.33
D9A	0.15	15	0.024	1.773	0	1.6	0.010	0.000	903	5.0	3.8	15.5	0.245	0.016	0.019	2.99	5.00
D9B	0.15	15	0.024	1.773	0	16.2	1.010	0.000	581	4.0	3.8	15.5	0.245	0.016	0.012	2.42	5.00
D10	0.15	100	0.040	6.592	208	3.0	0.035	1.148	98	5.0	3.8	15.5	0.245	0.016	0.019	0.32	8.14
D11A	0.15	100	0.040	6.592	81	2.3	0.020	0.592	75	2.6	3.8	15.5	0.245	0.016	0.005	0.48	7.75
D11B	0.15	100	0.020	8.699	205	2.3	0.020	1.497	261	3.6	3.8	15.5	0.245	0.016	0.010	1.19	11.47
D12	0.15	100	0.040	6.592	177	2.3	0.020	1.293	81	2.6	3.8	15.5	0.245	0.016	0.005	0.52	8.49
D13	0.15	100	0.040	6.592	208	2.4	0.022	1.449	110	2.6	3.8	15.5	0.245	0.016	0.005	0.71	8.84
D14	0.15	100	0.040	6.592	157	2.3	0.020	1.147	149	4.2	3.8	15.5	0.245	0.016	0.013	0.60	8.44
D15	0.15	100	0.040	6.592	171	2.3	0.020	1.249	141	4.6	3.8	15.5	0.245	0.016	0.016	0.51	8.46
D16	0.15	100	0.040	6.592	160	1.6	0.010	1.653	194	4.8	3.8	15.5	0.245	0.016	0.017	0.68	9.03
D17	0.15	100	0.040	6.592	163	1.6	0.010	1.684	173	4.0	3.8	15.5	0.245	0.016	0.012	0.45	9.11
D18A	0.15	100	0.030	7.603	0	1.6	0.010	0.000	117	4.3	3.8	15.5	0.245	0.016	0.014	0.72	9.00
D18B	0.15	12	0.009	1.185	0	1.6	0.010	0.000	689	4.0	3.8	15.5	0.245	0.016	0.012	2.87	5.19
D19A	0.15	100	0.018	9.733	156	1.5	0.009	1.699	141	3.5	3.8	15.5	0.245	0.016	0.009	0.68	11.57
D19B	0.15	15	0.020	1.907	0	1.6	0.010	0.000	743	4.3	3.8	15.5	0.245	0.016	0.014	2.87	5.00
D20	0.15	100	0.012	10.671	145	1.8	0.012	1.367	187	5.2	3.8	15.5	0.245	0.016	0.020	0.60	12.78
D21	0.15	100	0.015	9.759	149	2.0	0.015	1.257	209	2.6	3.8	15.5	0.245	0.016	0.005	1.35	12.52
E0	0.15	35	0.070	2.275	0	1.6	0.010	0.000	639	3.5	3.8	15.5	0.245	0.016	0.009	3.08	5.48
E1	0.15	36	0.040	2.911	0	3.6	0.050	0.000	612	3.4	3.8	15.5	0.245	0.016	0.009	3.03	6.08
E2	0.15	100	0.056	5.762	20	3.8	0.056	0.087	671	5.4	3.8	15.5	0.245	0.016	0.022	0.27	8.05
E3	0.15	15	0.009	2.624	0	3.1	0.038	0.000	611	5.4	3.8	15.5	0.245	0.016	0.022	1.88	5.00
E4	0.15	100	0.070	5.270	58	4.3	0.070	0.226	172	4.5	3.8	15.5	0.245	0.016	0.015	0.64	6.28
E5	0.15	60	0.050	4.007	0	1.6	0.010	0.000	183	7.0	3.8	15.5	0.245	0.016	0.037	0.43	5.00
E6	0.15	100	0.037	6.801	127	3.1	0.037	0.682	126	2.8	3.8	15.5	0.245	0.016	0.006	0.74	8.37
E7	0.15	15	0.037	1.491	0	1.6	0.010	0.000	909	5.2	3.8	15.5	0.245	0.016	0.020	2.94	5.00
E8	0.15	100	0.070	5.270	17	4.3	0.070	0.066	380	5.2	3.8	15.5	0.245	0.016	0.020	1.23	6.71
E9	0.15	100	0.030	7.603	16	1.7	0.028	0.099	197	4.2	3.8	15.5	0.245	0.016	0.017	0.79	8.63
E10	0.15	100	0.040	6.592	118	3.2	0.040	0.609	80	4.8	3.8	15.5	0.245	0.016	0.011	0.28	7.63
F0-AREA	0.15	100	0.025	7.956	372	2.6	0.025	2.430	0	3.8	3.8	15.5	0.245	0.016	0.011	0.00	10.55
F1	0.15	35	0.														

Plotted By: Lewis, Jacob Date: August 14, 2025 03:51:10pm File Path: K:\Veeo-civil\06000700-reg-stade ranch-Cad\Phase 1\plan-sheets\G-DrainageCalculations.dwg
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RIVINA PHASE 1																					
INLET FLOW CALCULATION TABLE (25-Yr Flows)																					
Parabolic Crown																					
Inlet No.	Inlet Type	Drainage Area No.	Street Width (FOC - FOC)	Crown Slope (%)	Q (cfs)	Q Pass (cfs)	Q Total (Qa) (cfs)	Slope (%)	a (in.)	yo (ft.)	Ponded Width (ft)	R.F. (%)	Qa/La	La (ft)	Length (ft)	L/La	a/yo	Q/Qa	Q (cfs)	Q Pass (cfs)	Target Inlet
A0	Grade	A0	33'	2.00	7.26	0.00	7.26	2.00%	5.0	0.266	13.31	10	0.72	10.10	15	1.48	1.57	1.00	7.26	0.00	
A1	Grade	A1	33'	2.00	2.64	0.00	2.64	1.50%	5.0	0.192	9.61	10	0.65	4.09	10	2.45	2.17	1.00	2.64	0.00	
A2	Grade	A2	33'	2.00	6.75	0.00	6.75	1.70%	5.0	0.267	13.36	10	0.72	9.38	15	1.60	1.56	1.00	6.75	0.00	
A3	Grade	A3	33'	2.00	6.64	0.00	6.64	1.80%	5.0	0.263	13.13	10	0.71	9.28	15	1.62	1.59	1.00	6.64	0.00	
A4	Grade	A4	33'	2.00	7.74	0.00	7.74	2.00%	5.0	0.273	13.64	10	0.73	10.68	15	1.41	1.53	1.00	7.74	0.00	
A5	Grade	ASA	33'	2.00	4.42	0.00	4.42	1.00%	5.0												
A5	Grade	ASB	33'	2.00	1.66	0.00	1.66	1.00%	5.0												
B0	Grade	B0	33'	2.00	7.85	0.00	7.85	0.50%	5.0	0.356	17.78	10	0.81	9.68	10	1.03	1.17	1.00	7.85	0.00	B2
B1	Grade	B1	33'	2.00	4.52	0.00	4.52	0.50%	5.0	0.289	14.45	10	0.74	6.09	10	1.64	1.44	1.00	4.52	0.00	
B2	Grade	B2	33'	2.00	4.21	0.00	4.21	0.50%	5.0	0.281	14.07	10	0.73	5.73	10	1.74	1.48	1.00	4.21	0.00	B8
B3	Grade	B3	33'	2.00	4.20	0.00	4.20	0.70%	5.0	0.264	13.20	10	0.72	5.87	10	1.70	1.58	1.00	4.20	0.00	
B4	Grade	B4	33'	2.00	6.25	0.00	6.25	2.60%	5.0	0.240	11.98	10	0.69	9.04	10	1.11	1.74	1.00	6.25	0.00	B7
B5	Grade	B5	33'	2.00	7.08	0.00	7.08	1.00%	5.0	0.300	15.02	10	0.75	9.40	10	1.06	1.39	1.00	7.08	0.00	B6
B6	Grade	B6	33'	2.00	5.67	0.00	5.67	0.50%	5.0	0.315	15.74	10	0.77	7.38	10	1.35	1.32	1.00	5.67	0.00	B7
B7	Sump	B7A	33'	2.00	3.28	0.00	3.28	0.50%	5.0												
B7	Sump	B7B	33'	2.00	4.53	0.00	4.53	1.80%	5.0												
B8	Sump	B8A	33'	2.00	1.80	0.00	1.80	2.50%	5.0												
B8	Sump	B8B	33'	2.00	2.15	0.00	2.15	0.50%	5.0												
C0	Grade	C0	25'	2.00	5.31	0.00	5.31	1.00%	5.0	0.270	13.48	10	0.72	7.35	10	1.36	1.55	1.00	5.31	0.00	D0
C1	Grade	C1	25'	2.00	5.59	0.00	5.59	1.40%	5.0	0.258	12.90	10	0.71	7.87	10	1.27	1.61	1.00	5.59	0.00	D1
C2	Grade	C2	25'	2.00	2.41	0.00	2.41	4.00%	5.0	0.155	7.73	10	0.61	3.95	10	2.53	2.70	1.00	2.41	0.00	
C3	Grade	C3	25'	2.00	1.90	0.00	1.90	4.00%	5.0	0.141	7.07	10	0.60	3.18	10	3.14	2.95	1.00	1.90	0.00	
C4-AREA	Grade	C4-AREA	33'	2.00	3.86	0.00	3.86	3.00%	5.0												
C5-AREA	Grade	C5-AREA	33'	2.00	8.76	0.00	8.76	3.00%	5.0												
C6	Grade	C6	33'	2.00	3.35	0.00	3.35	2.40%	5.0	0.193	9.63	11	0.65	5.19	10	1.93	2.16	1.00	3.35	0.00	
C7	Area	C7	33'	2.00	3.61	0.00	3.61	2.40%	5.0	0.198	9.90	12	0.65	5.54	10	1.80	2.10	1.00	3.61	0.00	
C8	Grade	C8	33'	2.00	4.23	0.00	4.23	2.30%	5.0	0.212	10.59	10	0.66	6.36	10	1.57	1.97	1.00	4.23	0.00	
C9	Grade	C9	33'	2.00	7.14	0.00	7.14	5.30%	5.0	0.244	11.02	10	0.67	10.61	10	0.94	1.89	0.84	6.73	0.41	C10
C10	Area	C10	33'	2.00	5.51	0.41	5.93	5.30%	5.0	0.206	10.28	11	0.66	9.00	15	1.67	2.03	1.00	5.93	0.00	C11
C11	Grade	C11	33'	2.00	5.71	0.00	5.71	1.50%	5.0	0.257	12.84	10	0.71	8.06	10	1.24	1.62	1.00	5.71	0.00	C12
C12	Grade	C12	33'	2.00	6.37	0.00	6.37	1.50%	5.0	0.268	13.38	10	0.72	8.85	15	1.70	1.56	1.00	6.37	0.00	
C13	Grade	C13	33'	2.00	7.52	0.00	7.52	2.00%	5.0	0.270	13.49	10	0.72	10.41	15	1.44	1.54	1.00	7.52	0.00	
C14	Grade	C14	33'	2.00	1.97	0.00	1.97	2.00%	5.0	0.163	8.16	10	0.62	3.19	10	3.14	2.55	1.00	1.97	0.00	
C15	Grade	C15	33'	2.00	4.83	0.00	4.83	1.70%	5.0	0.236	11.78	10	0.69	7.02	15	2.14	1.77	1.00	4.83	0.00	
D0	Grade	D0	25'	2.00	6.27	0.00	6.27	0.60%	5.0	0.316	15.79	10	0.77	8.15	10	1.23	1.32	1.00	6.27	0.00	D2
D1	Grade	D1	25'	2.00	4.46	0.00	4.46	1.00%	5.0	0.253	12.63	10	0.70	6.33	10	1.58	1.65	1.00	4.46	0.00	
D2	Grade	D2	25'	2.00	6.21	0.00	6.21	1.20%	5.0	0.276	13.82	10	0.73	8.52	10	1.17	1.51	1.00	6.21	0.00	D4
D3	Grade	D3	25'	2.00	4.78	0.00	4.78	1.40%	5.0	0.243	12.17	10	0.70	6.88	10	1.45	1.71	1.00	4.78	0.00	
D4	Sump	D4A	33'	2.00	1.62	0.00	1.62	0.60%	5.0												
D4	Sump	D4B	33'	2.00	3.97	0.00	3.97	1.70%	5.0												
D5	Sump	D5A	33'	2.00	1.28	0.00	1.28	0.70%	5.0												
D5	Sump	D5B	33'	2.00	0.32	0.00	0.32	0.50%	5.0												
D6	Grade	D6	33'	2.00	6.19	0.00	6.19	1.00%	5.0	0.286	14.28	10	0.74	8.39	10	1.19	1.46	1.00	6.19	0.00	D9
D7	Grade	D7	33'	2.00	6.93	0.00	6.93	2.40%	5.0	0.253	12.64	10	0.71	9.82	15	1.53	1.65	1.00	6.93	0.00	D10
D8	Grade	D8	33'	2.00	6.82	0.00	6.82	1.90%	5.0	0.263	13.13	10	0.71	9.54	15	1.57	1.59	1.00	6.82	0.00	
D11	Grade	D11A	33'	2.00	4.94	0.00	4.94	1.90%	5.0												
D11	Grade	D11B	33'	2.00	3.35	0.00	3.35	1.20%	5.0												
D10	Grade	D10	33'	2.00	5.48	0.00	5.48	1.90%	5.0	0.242	12.09	10	0.69	7.89	10	1.27	1.72	1.00	5.48	0.00	D13
D13	Grade	D13A	33'	2.00	3.12	0.00	3.12	0.50%	5.0												
D13	Grade	D13B	33'	2.00	6.21	0.00	6.21	1.00%	6.0												
D12	Grade	D12	33'	2.00	7.20	0.00	7.20	0.50%	5.0	0.344	17.21	10	0.80	9.01	10	1.11	1.21	1.00	7.20	0.00	D15
D13	Grade	D13	33'	2.00	5.78	0.00	5.78	0.50%	5.0	0.317	16.85	10	0.77	7.50	15	2.00	1.31	1.00	5.78	0.00	
D14	Grade	D14	33'	2.00	7.35	0.00	7.35	1.30%	5.0	0.290	14.50	10	0.74	9.89	15	1.52	1.44	1.00	7.35	0.00	
D15	Grade	D15	33'	2.00	6.78	0.00	6.78	1.60%	5.0	0.271	13.53	10	0.72	9.38	15	1.60	1.54	1.00	6.78	0.00	
D16	Grade	D16	33'	2.00	7.36	0.00	7.36	1.70%	5.0	0.276	13.79	10	0.73	10.10	10	0.99	1.51	0.99	7.28	0.08	D20
D17	Grade	D17	33'	2.00	5.86	0.00	5.86	1.20%	5.0	0.270	13.52	10	0.72	8.11	10	1.23	1.54	1.00	5.86	0.00	D21
D20	Sump	D20A	33'	2.00	0.66	0.08	0.74	1.40%	5.0												
D20	Sump	D20B	33'	2.00	3.82	0.08	3.90	1.20%	5.0												
D21	Grade	D21A	33'	2.00	3.98	0.00	3.98	0.90%	5.0												
D21	Grade	D21B	33'	2.00	4.66	0.00	4.66	1.40%	5.0												
D20	Grade	D20	33'	2.00	8.29	0.08	8.36	2.00%	5.0	0.281	14.04	10	0.73	11.40	10	0.88	1.48	0.88	7.33	1.03	D25
D21	Grade	D21	33'	2.00	7.01	0.00	7.01	0.50%	5.0	0.341	17.04	10	0.80	8.81	10	1.13	1.22	1.00	7.01	0.00	
E0	Grade	E0	33'	2.00	7.08	0.00	7.08	0.90%	5.0	0.306	16.31										

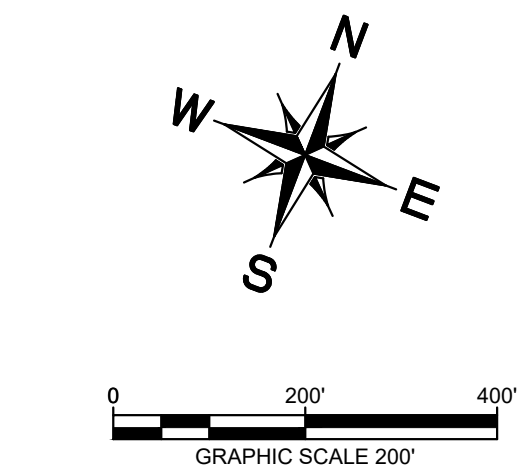
Plotted By: Lewis, Jacob Date: August 14, 2025 03:52:31pm File Path: K:\Geo-civil\065000700-rogasde ranch\Cost\Phase 1\plan\sheet\c-Water Quality Plan.dwg
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TCEQ OVERALL Water Quality Drainage Basins					
	Proposed Area (AC)	Proposed Impervious Cover (AC)	% Impervious Cover	REQUIRED TSS REMOVAL	PROPOSED TSS REMOVAL
NT-E1	0.98	0.77	79%	674	0
INT-VFS-E2	0.18	0.14	77%	121	121
NT-E	1.08	0.82	76%	715	0
INT-GS-F1	0.42	0.35	84%	305	213
INT-VFS-F	1.22	0.61	50%	531	531
WQP-G	55.62	27.48	49%	23915	25595
NT-G	0.28	0.11	41%	99	0
NT-G1	0.06	0.03	51%	26	0
NT-G2	0.41	0.00	0%	0	0
VFS-G	1.03	0.50	48%	432	432
WET WQP-H	20.63	10.37	50%	9022	10079
NT-H	1.16	0.00	0%	0	0
VFS-J1	1.74	0.76	44%	663	663
VFS-J2	2.16	0.66	31%	575	575
NT-J	1.78	0.91	51%	791	0
TOTAL ONSITE	88.75	43.51	49%	37870	38209
OS-E	7.95	0.00	0%	0	0
OS-F1	3.84	0.00	0%	0	0
OS-G	4.03	0.00	0%	0	0
TOTAL OFFSITE	15.82	0.00	0%	0	0
TOTAL	104.57	43.51	42%	37870	38209

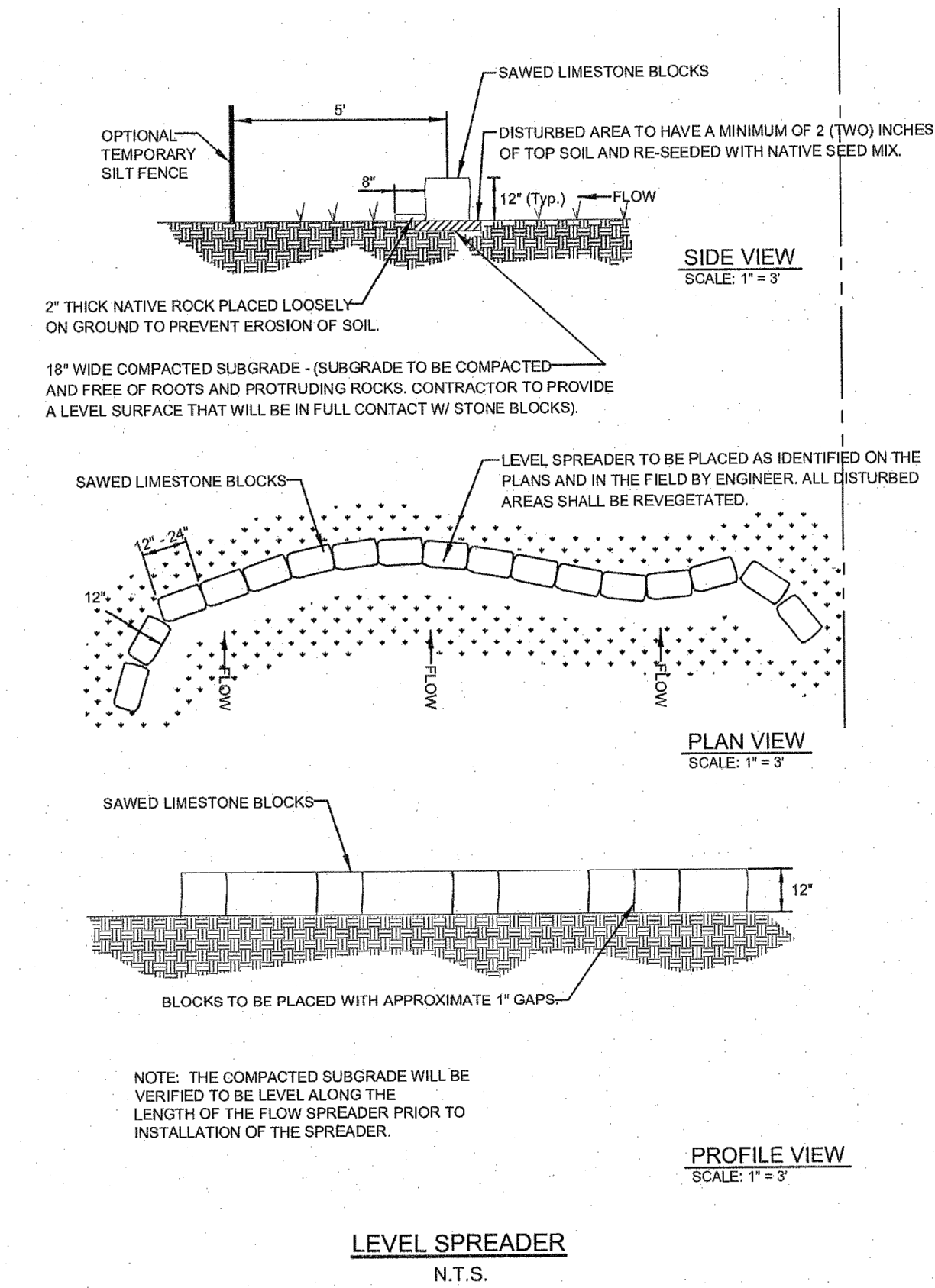


- NOTES:
- INTERIM ENGINEERED VEGETATIVE FILTER STRIPS TO COMPLY WITH TCEQ RG-348, SECTION 3.4.6.
 - THE FILTER STRIP AREA WILL BE AT LEAST 50% OF THE SIZE OF THE CONTRIBUTING IMPERVIOUS COVER.

INTERIM ENGINEERED VEGETATIVE FILTER STRIPS
NTS



LEGEND	
	AREA DESIGNATOR
	AREA IN ACRES
	INLET NUMBER
	PROPERTY LINE
	PROPOSED STORM SEWER LINE
	EXISTING STORM SEWER LINE
	PROPOSED DRAINAGE DIVIDE
	PROPOSED STORM SEWER INLET
	PROPOSED STORM SEWER MANHOLE
	PROPOSED STORM SEWER HEADWALL
	PROPOSED FLOW DIRECTION
	PROPOSED CONTOUR
	EXISTING CONTOUR
	100-YR ATLAS-14 FLOODPLAIN
	VEGETATIVE FILTER STRIP
	GRASSY SWALES



BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88

BY	DATE	REVISIONS	No.

Kimley»Horn

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE: 512-520-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

08/14/2025

STATE OF TEXAS
ALEXANDRO E. GRANADOS RIVERA
130084
LICENSED PROFESSIONAL ENGINEER
Alejandro E. Rivero Rin

KHA PROJECT: 065000700
DATE: AUGUST 2025
SCALE: AS SHOWN
DESIGNED BY: KJM
DRAWN BY: AEG
CHECKED BY: AEG

WATER QUALITY
DRAINAGE AREA MAP

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

Plotted By: Lewis, Jacob Date: August 14, 2025 03:52:36pm File Path: K:\Geo-ct\06500700-rotadde ranch\Cost\Phase 1\plan sheets\1-C-Water Quality Plan.dwg
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Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Rivina Phase 1

Date Prepared: 7/8/2025

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 = 88.75 acres

Predevelopment impervious area within the limits of the plan = 0.33 acres

Total post-development impervious area within the limits of the plan = 43.51 acres

Total post-development impervious cover fraction = 0.49

P = 32 inches

L_M TOTAL PROJECT = 37583 lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 15

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

Drainage Basin/Outfall Area No. = WQP-G

Total drainage basin/outfall area = 55.62 acres

Predevelopment impervious area within drainage basin/outfall area = 0.00 acres

Post-development impervious area within drainage basin/outfall area = 27.48 acres

Post-development impervious fraction within drainage basin/outfall area = 0.49

L_M THIS BASIN = 23,915 lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Extended Detention

Removal efficiency = 91 percent

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

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

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_i = Impervious area proposed in the BMP catchment area

A_p = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C = 55.62 acres

A_i = 27.48 acres

A_p = 28.14 acres

L_R = 28,126 lbs

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

Desired L_M THIS BASIN = 25,595 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 = 0.35

On-site Water Quality Volume = 128,731 cubic feet

Calculations from RG-348

Pages 3-36 to 3-37

Off-site area draining to BMP = 4.03 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 = 527 cubic feet

Storage for Sediment = 25851

Total Capture Volume (required water quality volume(s) x 1.20) = 155,109 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.

The values for BMP Types not selected in cell C45 will show NA.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Rivina Phase 1

Date Prepared: 7/8/2025

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 = 88.75 acres

Predevelopment impervious area within the limits of the plan = 0.33 acres

Total post-development impervious area within the limits of the plan = 43.51 acres

Total post-development impervious cover fraction = 0.49

P = 32 inches

L_M TOTAL PROJECT = 37583 lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 15

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

Drainage Basin/Outfall Area No. = WET WQP-H

Total drainage basin/outfall area = 20.63 acres

Predevelopment impervious area within drainage basin/outfall area = 0.00 acres

Post-development impervious area within drainage basin/outfall area = 10.37 acres

Post-development impervious fraction within drainage basin/outfall area = 0.50

L_M THIS BASIN = 9,022 lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Wet Basin

Removal efficiency = 93 percent

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

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

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 = 20.63 acres

A_i = 10.37 acres

A_p = 10.26 acres

L_R = 10,838 lbs

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

Desired L_M THIS BASIN = 10,079 lbs.

F = 0.93

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 = 2.20 inches

Post Development Runoff Coefficient = 0.36

On-site Water Quality Volume = 59,120 cubic feet

Calculations from RG-348

Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres

Off-site Impervious cover draining to BMP = 0.00 acres

Impervious fraction of off-site area = 0

Off-site Runoff Coefficient = 0.00

Off-site Water Quality Volume = 0 cubic feet

Storage for Sediment = 11824

Total Capture Volume (required water quality volume(s) x 1.20) = 70,944 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.

The values for BMP Types not selected in cell C45 will show NA.

11. Wet Basins

Designed as Required in RG-348

Pages 3-66 to 3-71

Required capacity of Permanent Pool = 70944 cubic feet

Required capacity at WQV Elevation = 130065 cubic feet

Permanent Pool Capacity is 1.20 times the WQV

Total Capacity should be the Permanent Pool Capacity plus a second WQV.

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78628
PHONE: 512-520-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM E-928



KHA PROJECT 06500700
DATE AUGUST 2025
SCALE: AS SHOWN
DESIGNED BY: KJM
DRAWN BY:
CHECKED BY: AEG

WATER QUALITY
CALCULATIONS (1 OF 3)

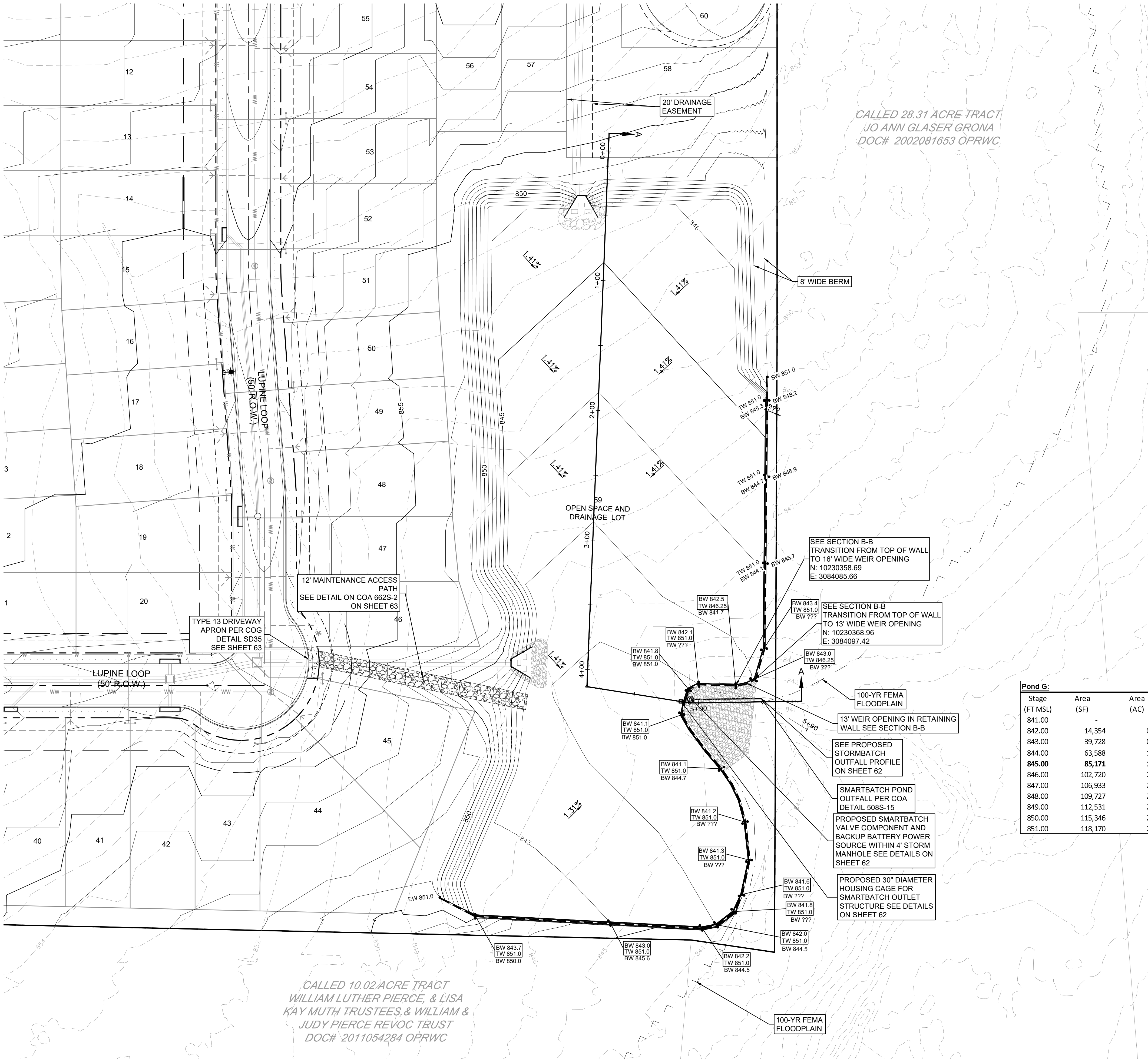
RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER

58
OF 155

No. REVISIONS DATE BY

Plotted By: Lewis, Jacob Date: August 14, 2025 03:54:24pm File Path: k:\geo_civil\065000700--rogsdale ranch\065000700--Pond Sections.dwg
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LEGEND

	PROPERTY LINE
	PROPOSED SPOT ELEVATION
	EXISTING SPOT ELEVATION
	DRAINAGE FLOW DIRECTION
	PROPOSED CONTOUR
	EXISTING CONTOUR

BATCH DETENTION POND REVEGETATION PLAN

1. IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION, EXCESS SPOIL AND DEBRIS SHALL BE REMOVED AND THE CONSTRUCTION AREA SHALL BE GRADED TO THE CONTOURS AS SHOWN ON THE PLANS. THE SURFACE OF THE GROUND SHOULD BE SMOOTH WITH NO LARGE ROCKS, STUMPS, OR OTHER DEBRIS. TOPSOIL OF SANDY LOAM, LOAM, CLAY LOAM OR EQUIVALENT AND FREE OF TREE ROOTS, ROCKS GREATER THAN 2 INCHES IN DIAMETER AND OTHER DEBRIS SHALL THEN BE UNIFORMLY SPREAD OVER ALL DISTURBED AREAS TO A MINIMUM DEPTH OF 6 INCHES. THE TOPSOIL SHOULD BE COMPACTED BY TRACKING A BULLDOZER WITH CLEATED TREADS VERTICALLY ON THE SLOPES TO CREATE HORIZONTAL EROSION CHECKS IN THE SURFACE.
2. THE SEEDED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, AT 10-DAY INTERVALS DURING THE FIRST TWO MONTHS FOLLOWING PLANTING AT A RATE SUFFICIENT TO THOROUGHLY SOAK THE SOIL TO A DEPTH OF 6 INCHES. RAINFALL OCCURRENCES OF ONE-HALF INCH OR GREATER SHALL POSTPONE THE WATERING SCHEDULE 10 DAYS. RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1-1/2 INCHES HIGH WITH 95% COVERAGE AND NO BARE SPOT LARGER THAN 16 SQUARE FEET EXIST.

- NOTES:**
1. BOTTOM OF BATCH DETENTION BASIN SHALL BE GRASS LINED.
 2. BARRIER FENCE SHALL BE INSTALLED ON ANY WALLS IN EXCESS OF 30" TALL.
 3. ALL POND BOTTOMS, SIDE SLOPES, AND EARTHEN EMBANKMENTS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY PER GEOTECH REPORT.
 4. EXPANSION JOINTS ON FREE STANDING WALLS SHALL HAVE WATER TIGHT SEALS AS NEEDED.
 5. EXPOSED CONCRETE POND WALLS TO HAVE STONE VENEER FINISH. SAMPLE OF PROPOSED STONE VENEER FINISH TO BE APPROVED BY DEVELOPER.
 6. CONTRACTOR SHALL SUBMIT STRUCTURAL DESIGN TO THE CITY FOR APPROVAL PRIOR TO CONSTRUCTION ON THIS STRUCTURE.

Pond G:							Rating Table	
Stage (FT MSL)	Area (SF)	Area (AC)	Storage (CF)	Cumm. Storage (CF)	Cumm. Storage (AC-FT)	Flow (CFS)	WQE	
841.00	-	-	-	-	-	-		
842.00	14,354	0.33	7,177	7,177	0.16			
843.00	39,728	0.91	27,041	34,218	0.79			
844.00	63,588	1.46	51,658	85,876	1.97			
845.00	85,171	1.96	74,380	160,256	3.68			
846.00	102,720	2.36	93,946	254,201	5.84			
847.00	106,933	2.45	104,827	359,028	8.24			
848.00	109,727	2.52	108,330	467,358	10.73			
849.00	112,531	2.58	111,129	578,487	13.28			
850.00	115,346	2.65	113,939	692,425	15.90			
851.00	118,170	2.71	116,758	809,183	18.58			
							FREEBOARD	

WSE Table	
2-yr	847.4
10-yr	848.2
25-yr	848.8
100-yr	849.6

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'98

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501 S AUSTIN AVE #1310, GEORGETOWN, TX 78626
PHONE 512-552-0768
WWW.KIMLEY-HORN.COM

TEXAS REGISTERED ENGINEERING FIRM F-928

08/14/2025

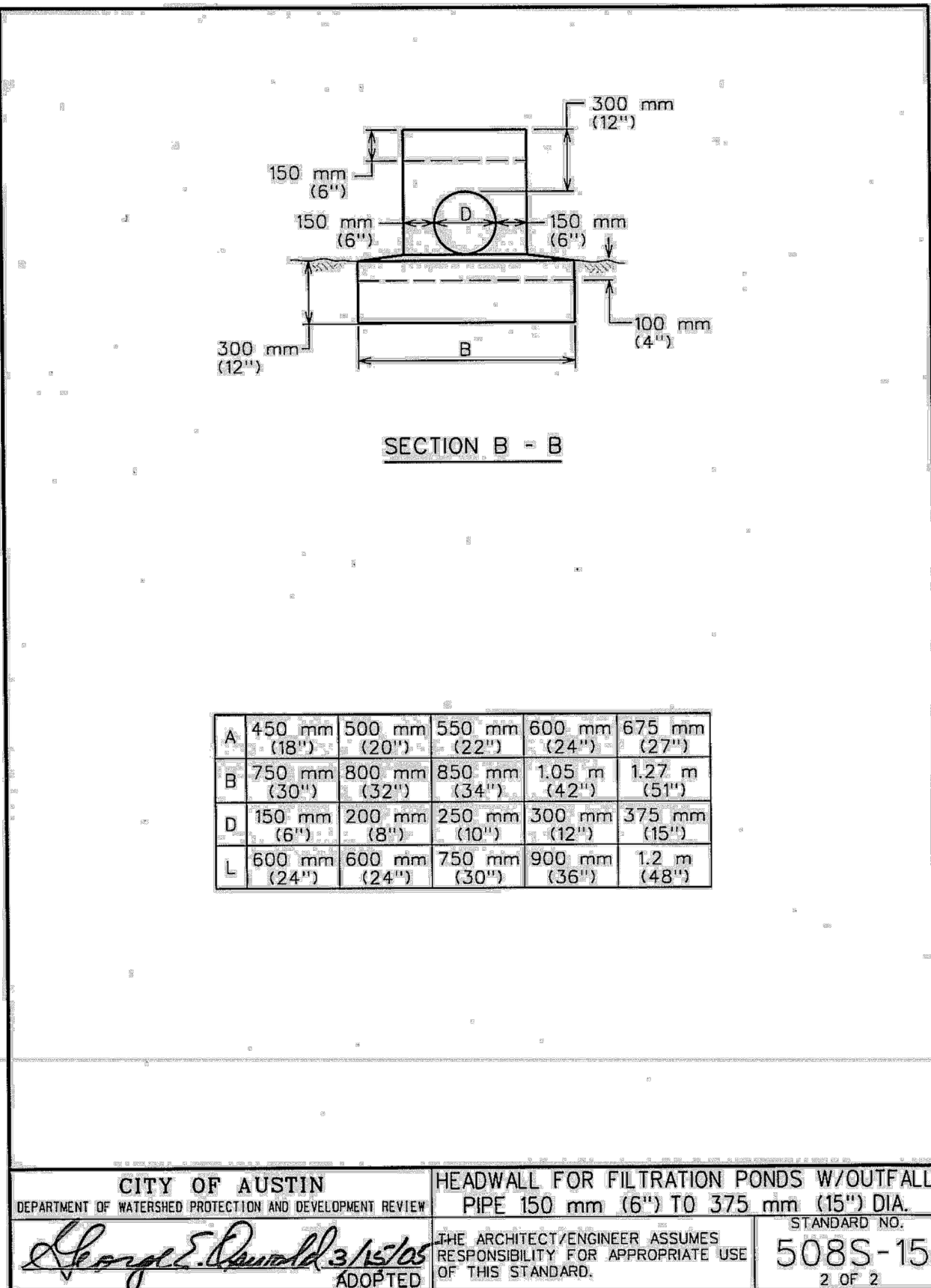
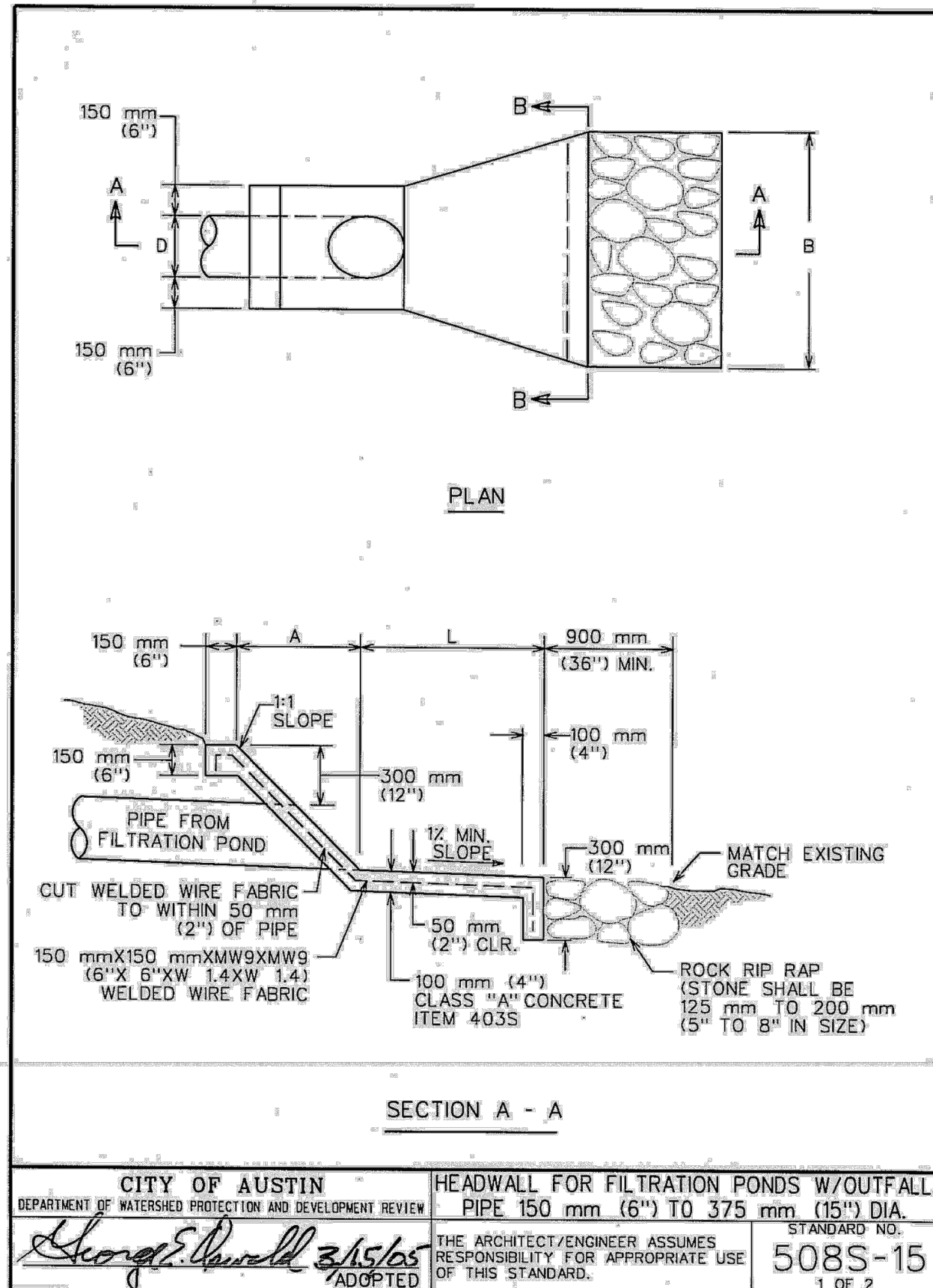
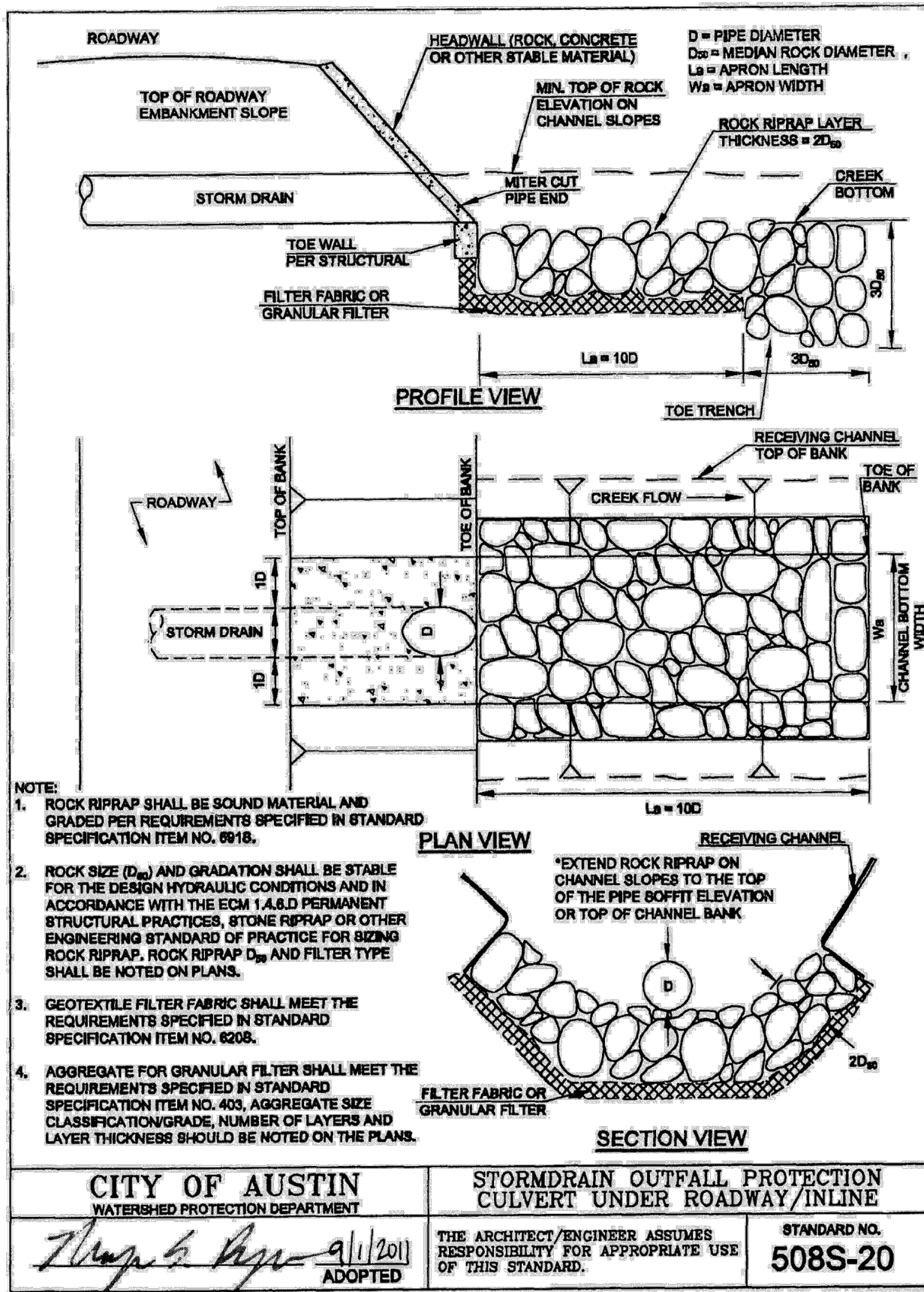
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DATE	AUGUST 2025
SCALE	AS SHOWN
DESIGNED BY:	KJM
DRAWN BY:	KJM
CHECKED BY:	AEG


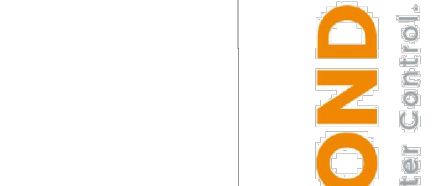
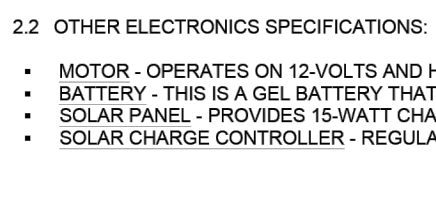
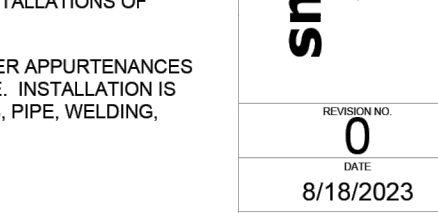






WATER QUALITY POND G

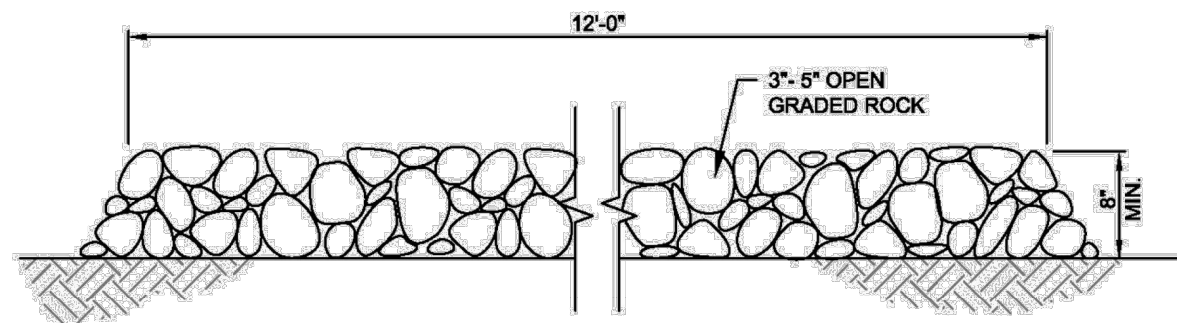
RIVINA PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
61
OF 155

NO.	REVISIONS	DATE	BY

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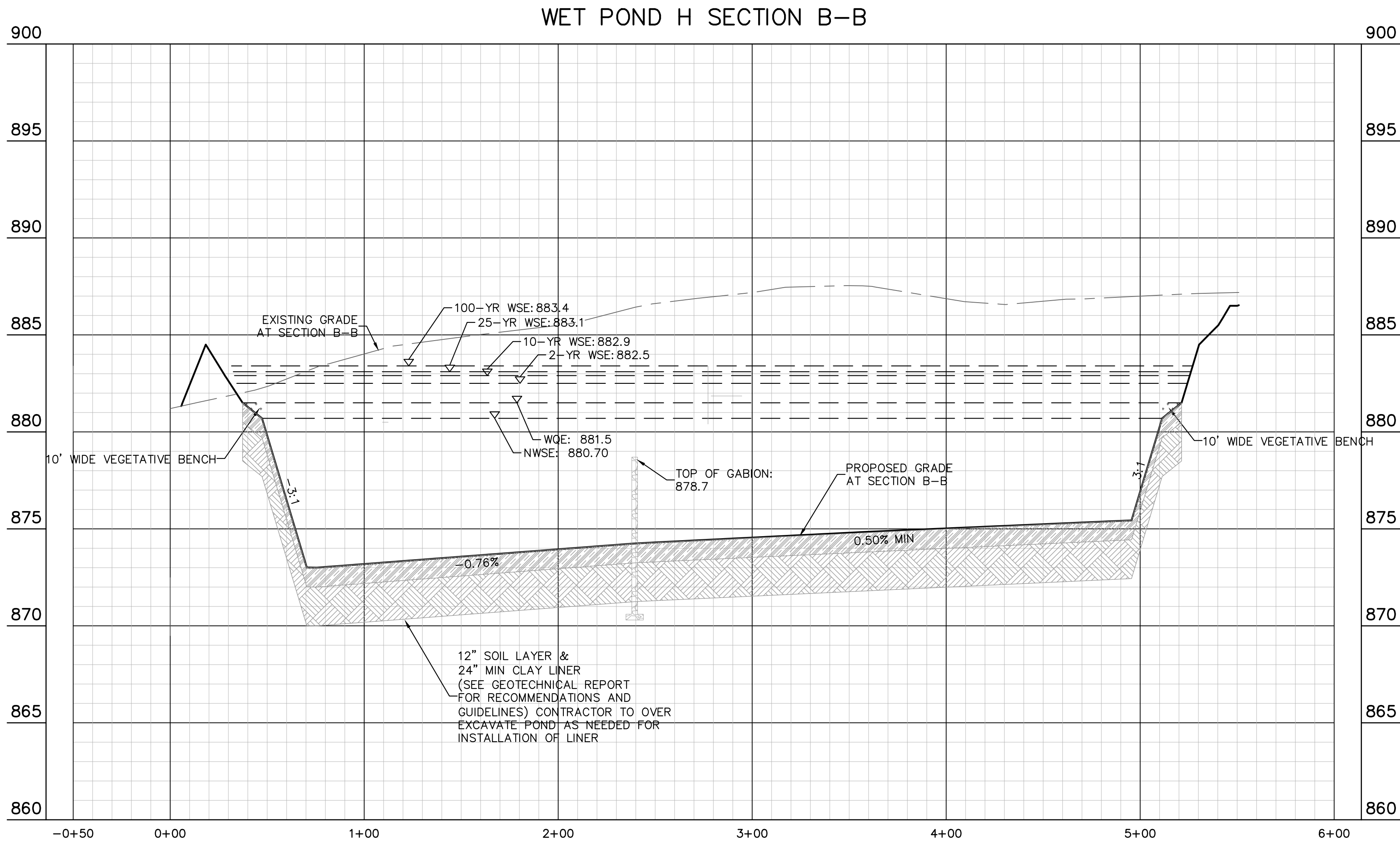
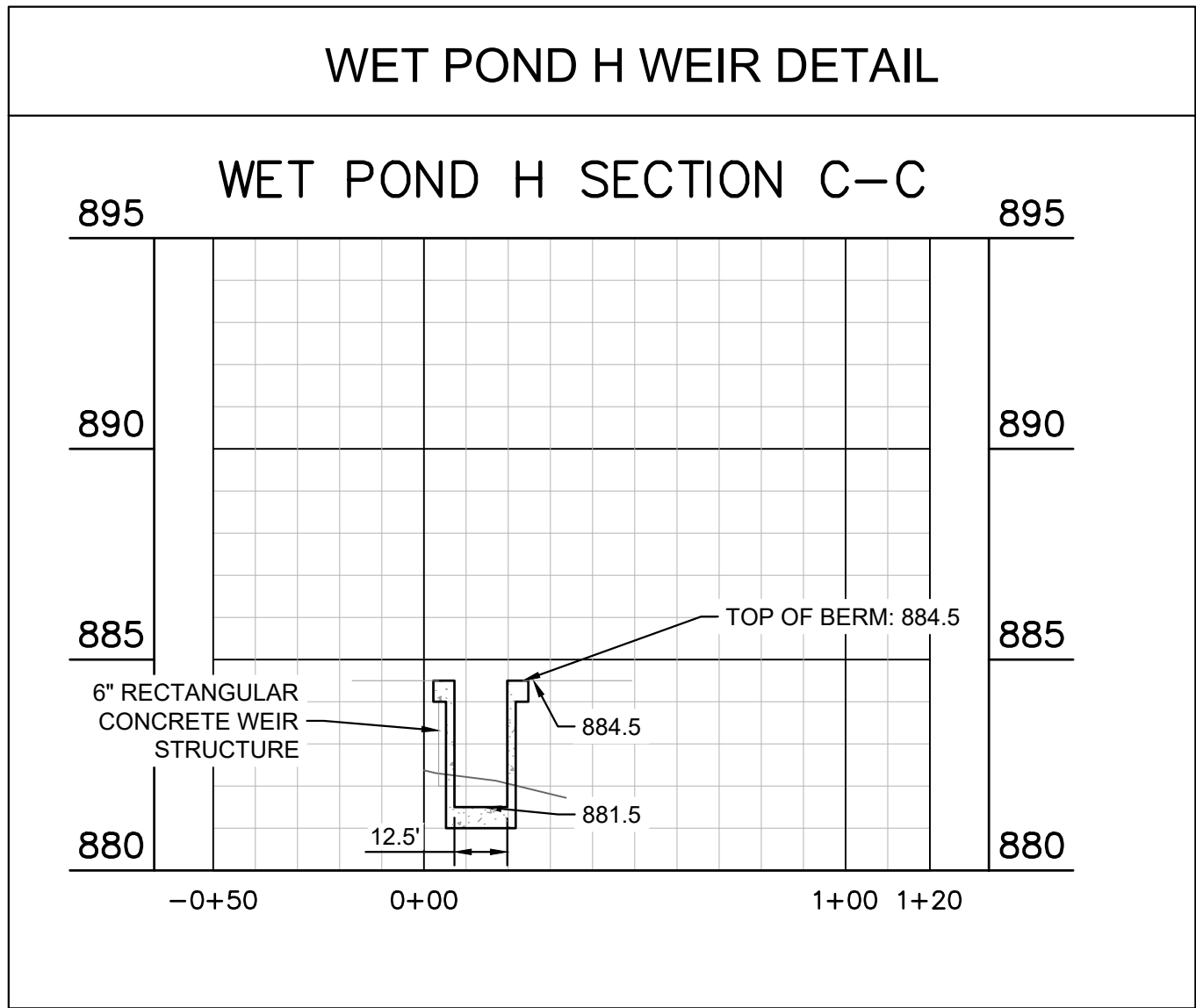
<div> <div>  </div> <div> <h1>smartPOND™ OUTFALL VALVE</h1> <h2>SPECIFICATIONS</h2> </div> </div>		<h1>CONTINUOUSLY MONITORED AUTOMATED STORMWATER SYSTEM (C-MASS), WITH PROGRAM CONTROLLED OUTFALL VALVE</h1>		<div>  </div>	
<p>1. CONTINUOUSLY MONITORED AUTOMATED STORMWATER SYSTEM (C-MASS) DEVICE: THE CONTINUOUSLY MONITORED AUTOMATED STORMWATER SYSTEM (C-MASS), SHOWN ON THE PLANS AS THE OUTFALL ASSEMBLY SHALL BE A smartPOND™ OUTFALL VALVE PROVIDED BY:</p> <p>CONVERGENT WATER TECHNOLOGIES 800.711.5428 WWW.CONVERGENTWATER.COM</p> <p>THE smartPOND™ OUTFALL VALVE SHALL SHALL PROVIDE FOR ACTIVE MANAGEMENT OF DETAINED STORMWATER VOLUME AND / OR ITS ALLOWABLE DISCHARGE RATE. THE smartPOND™ OUTFALL VALVE SHALL BE PROGRAMMABLE TO OBTAIN A SPECIFIED VOLUME OF STORMWATER FOR A SPECIFIED REQUIRED PERIOD OF TIME AND / OR PROGRAMMED TO CONTROL THE OUTFLOW RATE TO MATCH THE MAXIMUM ALLOWABLE DISCHARGE RATE OF BOTH OF THIS OPERATIONS SIMULTANEOUSLY. THE smartPOND™ VALVE VOLUME MAXIMIZES THE DETENTION TO PROMOTE THE SETTLEMENT OF SOLIDS BEFORE AUTOMATICALLY DEWATERING THE DETENTION POND COMPLETELY. FOR STORMWATER RETENTION SYSTEMS, THE SYSTEM SHALL BE PROGRAMMED TO MANAGE THE REQUIRED RETENTION VOLUME WHILE MAINTAINING A SPECIFIED AMOUNT OF CAPACITY FOR FLOOD STORAGE OR OTHER USE.</p> <p>THE FOLLOWING SPECIFICATIONS DESCRIBE THE COMPONENTS, GENERAL FUNCTIONS, AND APPLICATIONS OF A CONTINUOUSLY MONITORED AUTOMATED STORMWATER SYSTEM (C-MASS) DURING THE PROGRAMMED smartPOND™ OUTFALL VALVE.</p> <p>THIS smartPOND™ OUTFALL VALVE SHALL FUNCTION AS AN ELECTRONICALLY CONTROLLED, SOLAR POWERED STORMWATER MANAGEMENT DEVICE, PROVIDING PRECISION STORMWATER VOLUME MANAGEMENT CAPABILITIES AND REAL-TIME DATA. USING SENSORS, SOLAR POWER, AN ELECTRONIC ACTUATOR, AND AN INTERNET-BASED CONTROL, INTERFACE. THE smartPOND™ OUTFALL VALVE CONNECTS TO A REMOTE MONITORING AND CONTROL CENTER, ENABLING THE STORMWATER IMPROVEMENT AREA TO ENABLE PRECISE CONTROL OF THE REQUIRED DETENTION OR RETAINED STORMWATER CONTROL VOLUMES AND ALLOWABLE DISCHARGE RATES AUTOMATICALLY OR ON REAL TIME. THE smartPOND™ ASSEMBLY CAN BE CONFIGURED ABOVE GROUND OR BELOW IN SMALL MAN-HOLE OR VAULT STRUCTURE.</p> <p>1.1. PRE-PROGRAMMED OUTFALL VALVE CONTROL: THE OUTFALL VALVE SHALL BE PRE-PROGRAMMED TO EXECUTE COMMANDS BASED ON STORM EVENTS, REQUIRED CONTROL VOLUMES AND ALLOWABLE DISCHARGE RATES.</p> <p>1.1.1 DETENTION POND OPTIMIZATION: THE smartPOND™ OUTFALL VALVE SHALL BE PROGRAMMED TO DISCHARGE FLOWS FROM THE DETENTION SYSTEM AT THE MAXIMUM ALLOWABLE RELEASE, WHICH IS TYPICALLY A PREDEVELOPMENT VALUE. OTHER PROGRAM CONSIDERATIONS MAY INCLUDE INCLUDE PREVENTION OF OVERTOPPING OR BYPASS.</p> <p>1.1.2 BATCH DETENTION FUNCTION FOR STORMWATER QUALITY: THE smartPOND™ OUTFALL VALVE MAY BE PROGRAMMED TO PROVIDE BATCH DETENTION TO ACHIEVE STORMWATER QUALITY EFFICIENT GOAL OF 80% OR MORE REMOVAL, OF TOTAL SUSPENDED SOLID (TSS) REMOVAL BY HOLDING THE WATER QUALITY VOLUME (WQ) FOR SETTLEMENT TREATMENT FOR A REQUIRED PERIOD OF TIME. HOLDING TIMES ARE TYPICALLY SET FORTH IN STORMWATER MANAGEMENT REGULATIONS AS 2, 24 OR 48 HOURS.</p> <p>1.1.3 SPILL CONTROL OF HAZARDOUS MATERIAL (HAZMAT): smartPOND™ WHEN SPECIFIED FOR HAZMAT SPILL CONTROL SHALL BE EQUIPPED WITH POLLUTANT SPECIFIC SENSORS THAT WHEN TRIGGERED AUTOMATICALLY CLOSE THE OUTFALL VALVE UNTIL THE COMMAND IS OVERRIDDEN.</p> <p>1.2. REAL TIME MONITORING: smartPOND™ SHALL COME WITH TELEMETRY AND THE 'AUTOFLOW APP' USER APPLICATION SOFTWARE AT NO ADDITIONAL COST FOR 1 YEAR. THIS AUTOFLOW APP ENABLES REAL TIME MONITORING OF THE DETENTION POND'S STORAGE-STAGE AND DISCHARGE RATE. THE AUTOFLOW APP SHALL ENABLE A USER TO:</p> <ul style="list-style-type: none"> CONTROL THE OUTFALL VALVE, EITHER OPEN OR CLOSE. DETERMINE THE WATER SURFACE ELEVATION (WSR) OR POND DEPTH. DETERMINE IF TRAFFIC OR DESIRS IS SURROUNDING THE TRASH CAN, AND INTAKE RISER. RECEIVE MAINTENANCE ALERTS SUCH AS: LOW BATTERY, INTAKE VALVE FAILURE, ETC. MAINTAIN SPECIFIED WATER SURFACE LEVEL. <p>2. COMPONENTS: THE smartPOND™ OUTFALL VALVE MAY BE IMPLEMENTED EITHER ABOVE OR BELOW GROUND, AND IS COMPRISED OF THE FOLLOWING COMPONENTS:</p> <p>2.1. HARDWARE AND CONFIGURATION:</p> <p>THE STANDARD smartPOND™ OUTFALL VALVE ASSEMBLY CONSISTS OF A LOWER AND UPPER COMPONENT. THE LOWER COMPONENT IS THE PEDESTAL WITH Ø6" PIPE SPOOL, AND Ø3" ACTUATED OUTFALL VALVE AND PRESSURE TRANSDUCER HOUSING. THIS LOWER PEDESTAL SHALL HAVE FLANGES ON EACH SIDE OF THE ASSEMBLY CONFORMING WITH AN ANSI 16.58 CLASS 150 FLANGE FOR CONNECTION OF THE OUTFALL PIPE FROM THE DETENTION SYSTEM AND TO A DOWNSTREAM DISCHARGE PIPE IF CALLED FOR ON THE PLANS. THE SECOND UPPER COMPONENT IS THE ENCLOSURE BOX WITH A SOLAR PANEL, AND ALERT LIGHT MOUNTED ON ITS TOP. THIS ENCLOSURE BOX HOUSES THE PROGRAMMABLE CONTROLLER INSIDE A NEMA-3R BOX, BATTERY, ELECTRIC MOTOR, ACTUATOR GEARING AND AN EXTENDABLE NON-RISING VALVE STEM BETWEEN THE ACTUATOR AND THE Ø3" OUTFALL PIPE.</p> <p>FOR ABOVE GROUND APPLICATIONS, THE COMPLETE "OUTFALL VALVE ASSEMBLY" SHALL BE BOLTED TO A 36"x36", 6" THICK OR LARGER CONCRETE PAD USING (3) 3.5 LONG STAINLESS STEEL (SS) WEDGE ANCHORS. THE OUTFALL PIPE FROM THE DETENTION SYSTEM CONNECTS TO THE INLET OF THE OUTFALL VALVE ASSEMBLY WITH EIGHT (8) X/2" BOLTS AND NUTS THAT CONFORM TO ANSI 16.58 CLASS 150 FLANGE CONDITIONS. THE OUTFALL VALVE PIPE, IF ANY, CONNECTS WITH ONLY FOUR (4) BOLTS TO PROPERLY FLANGE UP TO THE DISCHARGE SIDE OF THE ACTUATED VALVE.</p> <p>2.2. OTHER ELECTRONICS SPECIFICATIONS:</p> <ul style="list-style-type: none"> MOTOR - OPERATES ON 120 VOLTS AND HAS TWO WIRES CONNECTING TO THE MOTOR CONTROLLER BOARD. BATTERY - THIS IS A GEL BATTERY THAT PROVIDES 12VOLTS, 30 AMP/HOUR OF POWER TO THE OUTFALL VALVE ASSEMBLY. SOLAR PANEL - PROVIDES 15-WATT CHARGING TO THE 12-VOLT GEL BATTERY. SOLAR CHARGE CONTROLLER - REGULATES THE VOLTAGE AND CURRENT DELIVERED TO THE GEL BATTERY. 		<p>SENSORS:</p> <ul style="list-style-type: none"> PRESSURE TRANSDUCER - A SENSOR CAPABLE OF STAYING SUBMERSED IN WATER INDEFINITELY AND IS MOUNTED IN CENTER PIPE SPOOL OF THE LOWER PEDESTAL COMPONENT. OUTFALL VALVE POSITION SENSOR - DETERMINES THE POSITION OF THE OUTFALL VALVE. <p>OPTIONAL SENSORS:</p> <ul style="list-style-type: none"> CELL DATA MODEM - REQUIRED FOR REAL TIME CONTROL AND ALERTS. HYDROCARBON SENSOR - THIS OPTIONAL SENSOR MAY BE FITTED TO THE smartPOND™ OUTFALL VALVE TO PERFORM SPECIFIC FUNCTIONS BASED ON THE PRESENCE OF HYDROCARBON CONTAMINATION. <p>3. ADDITIONAL COMPONENTS LIST:</p> <p>3.1 INTAKE RISER: THIS SHALL BE A PERFORATED STEEL RISER CONNECTED TO THE Ø6" OUTFALL PIPE WITHIN THE POND AREA. THIS INTAKE RISER SHALL BE AN 8" SQUARE STEEL WITH FOUR (4) 1" HOLES TO 80-DEGREES EACH, EVERY 4 VERTICAL INCHES. THE DISCHARGE OF THIS INTAKE TUBING SHALL HAVE FEMALE NATIONAL PIPE THREADS (NPT) TO MATCH THE Ø1" SCHEDULE 40 PVC OUTFALL PIPE.</p> <p>3.2 TRASH CAGE: THE TRASH CAGE ATTACHES TO THE PERFORATED RISER WITH A COUPLING AND CALDER PIN PROVIDED WITH THE SYSTEM. THE TRASH CAGE SHALL BE COMPRISED OF STEEL BANDING AND A 1'5" X 1'5" MESH TO PREVENT FLOATABLES AND OTHER DEBRIS FROM ENTERING THE CLOGGING AND CLOSING THE PERFORATED RISER. THE TRASH CAGE WILL SIT 0.5' ABOVE THE BOTTOM OF THE IMPOUNDMENT TO ALLOW THE LAST 0.5' OF THE IMPOUNDMENT.</p> <p>4. REAL TIME MONITORING INTERFACE (OPTIONAL): THE AUTOFLOW APP SHALL BE THE SOFTWARE USED IF THE REAL TIME MONITORING OPTION IS SPECIFIED FOR LONG-TERM POND OPERATIONS. A COMPLETE SET OF USER INSTRUCTIONS SHALL BE PROVIDED IN THE CONSTRUCTION SUBMITTALS AND COPY OF THESE INSTRUCTIONS SHALL BE PLACED IN THE ENCLOSURE BOX.</p> <p>THIS AUTOFLOW APP SHALL PROVIDE LIVE AND HISTORICAL DATA AND PROVIDE THE ALERTS LISTED IN SECTION 6. IT WILL ALSO ENABLE COMMANDS TO BE SENT TO THE OUTFALL VALVE TO CHANGE THE VALVES POSITION TO CONTROL DISCHARGE RATE AND POND DEPTH.</p> <p>6. ALERTS: THE smartPOND™ OUTFALL VALVE WILL INDICATE THE FOLLOWING ALERTS BY ILLUMINATING AN EXTERIORLY VISIBLE RED LED LIGHT ON TOP OF THE ENCLOSURE BOX:</p> <ul style="list-style-type: none"> LOW BATTERY LOSS OF FUNCTION OUTFALL VALVE MALFUNCTION HYDROCARBON CONTAMINATION (OPTIONAL) <p>IF THE TELEMETRY OPTION IS SELECTED, THE UNIT WILL UPLOAD THE ABOVE ALERTS TO THE AUTOFLOW APP AND NOTIFY THE OPERATOR VIA TEXT OR EMAIL.</p> <p>6. MAINTENANCE & OPERATION SUBMITTAL: AN OPERATION AND MAINTENANCE MANUAL SHALL BE PROVIDED, REVIEWED AND APPROVED DURING THE CONSTRUCTION SUBMITTAL PROCESS AND SHALL INCLUDE AT A MINIMUM: GREASING AND LUBRICATION ITEMS AND CYCLE FOR THE ACTUATOR, MOTOR AND VALVE, INSPECTION AND MAINTENANCE OF THE SOLAR PANEL, GEL BATTERY TRASH CAGE AND INTAKE RISER, AND PROCEDURES FOR VALVE OPERATION IN CASE OF TOTAL ELECTRONIC OR MOTOR FAILURE.</p> <p>7. SHIPPING AND HANDLING STORAGE: THE smartPOND™ OUTFALL VALVE IS SHIPPED IN A NEARFULLY ASSEMBLED CONFIGURATION AND SHOULD BE STORED LIKEWISE. THE SYSTEMS ARE TRANSPORTED AND STORED ON PALLETS AND MUST BE SECURED USING VIA STRAPS OR STEEL BANDS TO SAID PALLET AT ALL TIMES. THE SOLAR PANEL IS NOT INSTALLED AT TIMES OF TRANSPORT OR STORAGE AND SHOULD NOT BE INSTALLED UNTIL THE UNIT IS READY TO BEGIN OPERATION. THE BATTERY MAY BE STORED INSIDE THE ELECTRONICS BOX AND IF REMOVED, SHOULD NEVER BE STORED ON A CONCRETE SURFACE.</p> <p>8. INSTALLATION: INSTALL THE smartPOND™ OUTFALL ASSEMBLY FIRST WITHOUT THE SOLAR PANEL. MOUNT SOLAR PANEL WITH THE CONNECTION BOLTS PROVIDED AFTER THE ASSEMBLY IS ANCHORED TO THE CONCRETE PAD USING THE ANCHOR BOLTS CALLED OUT ON THE PLANS. AS, BOLTS SHOULD BE REMOVED DURING THE INSTALLATION PROCESS. THERE ARE SEVERAL WAYS TO INSTALL THE smartPOND™ OUTFALL VALVE WITH THE KEY BEINGS STRUCTURED SUPPORT.</p> <p>8.1 BELOW GROUND INSTALLATIONS: THE UPPER COMPONENT CONSISTING OF THE ENCLOSURE BOX AND ALL ITS INTERNALS SHOULD BE FASTENED TO THE SURFACE OF THE CONCRETE VAULT. FOR VAULT INSTALLATIONS, SEE DESIGN DETAILS FOR STANDARD VAULT DESIGN.</p> <p>9. SAFETY INFORMATION AND WARNINGS:</p> <ul style="list-style-type: none"> ALWAYS KEEP HANDS CLEAR OF THE OUTFALL VALVE AND MOTOR WHEN UNIT IS IN OPERATION. PLEASE TURN POWER SWITCH OFF WHEN DOING ANY ELECTRICAL WORK. DO NOT ENTER THE WATER WHEN THE DEVICE IS ACTIVELY DRAINING WATER. ALWAYS USE PROPER PERSONAL PROTECTION EQUIPMENT (PPE), AND CONFINED SPACE PROTOCOL, WHEN SERVICING A OUTFALL VALVE BEGINS ABOVE GROUND. <p>10. PRODUCTS: THE MANUFACTURER SHALL BE AN ESTABLISHED STORMWATER COMPANY THAT HAS AT LEAST FIVE (5X) INSTALLATIONS OF C-MASS DEVS THAT HAVE BEEN IN USE AND FUNCTIONAL FOR FIVE (5X) OR MORE YEARS.</p> <p>11. QUALITY ASSURANCE AND PERFORMANCE SPECIFICATIONS: THE QUALITY OF ALL SYSTEM COMPONENTS AND ALL OTHER APPURTEANCES AND THEIR ASSEMBLY PROCESS SHALL BE SUBJECT TO INSPECTION UPON DELIVERY OF THE SYSTEM TO THE WORK SITE. INSTALLATION IS TO BE PERFORMED ONLY BY SKILLED WORK PEOPLE WITH SATISFACTORY RECORD OF PERFORMANCE ON EARTHWORKS, PIPE, WELDING, CHAMBER, OR POND/LANDFILL CONSTRUCTION PROJECTS OF COMPARABLE SIZE AND QUALITY.</p>			
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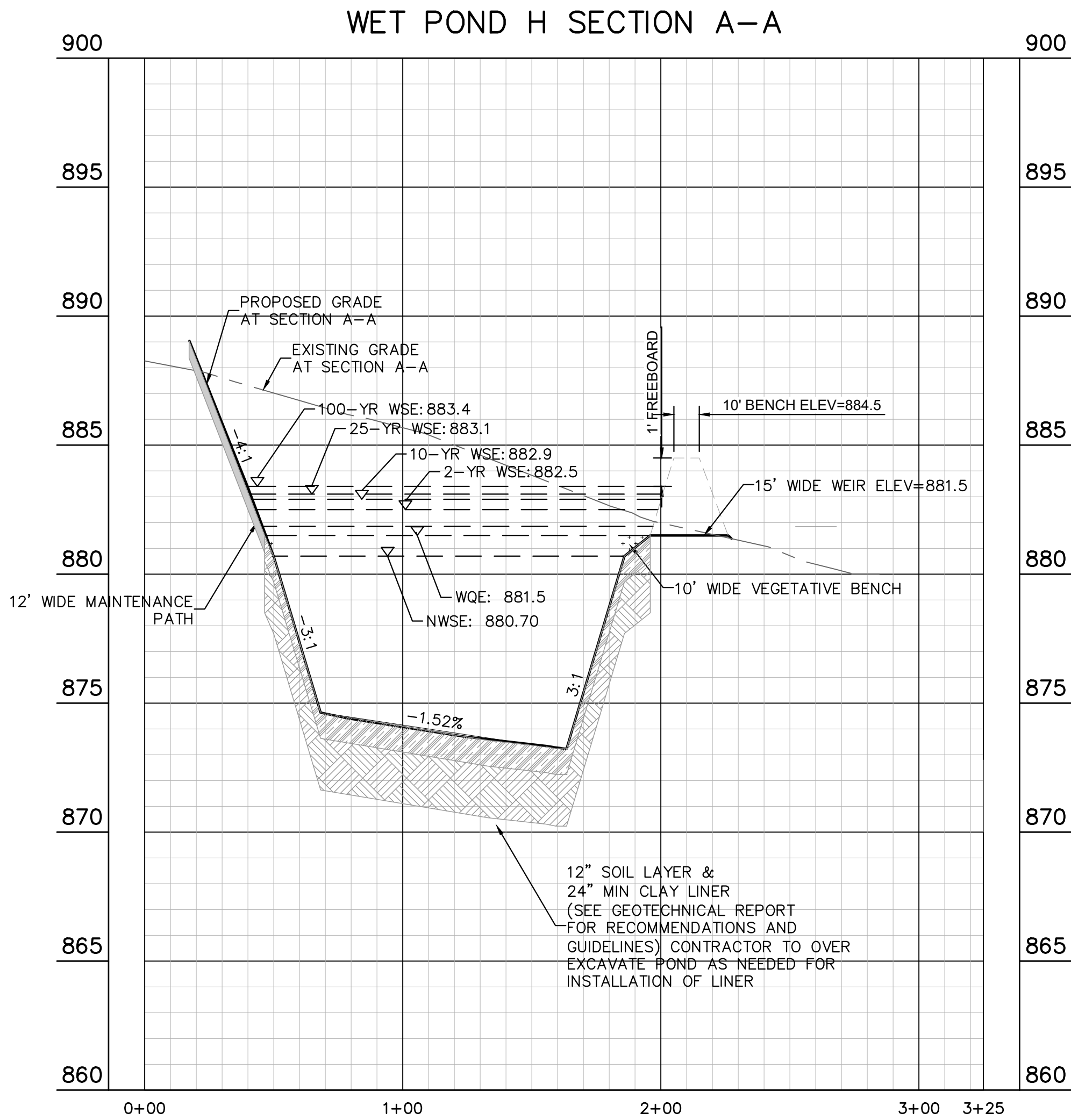
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		POND MAINTENANCE ROAD CROSS SECTION	
_____ ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 662S-2

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'88

Plotted By: Lewis, Jacob Date: August 14, 2025 03:57:08pm File Path: K:\geo_civil\065000700--ropside ranch\cad\Phase 1\planisheets\C-Wet Pond.dwg
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PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL



BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'98

NO.	REVISIONS	DATE	BY

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PHONE 512-550-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM F-928

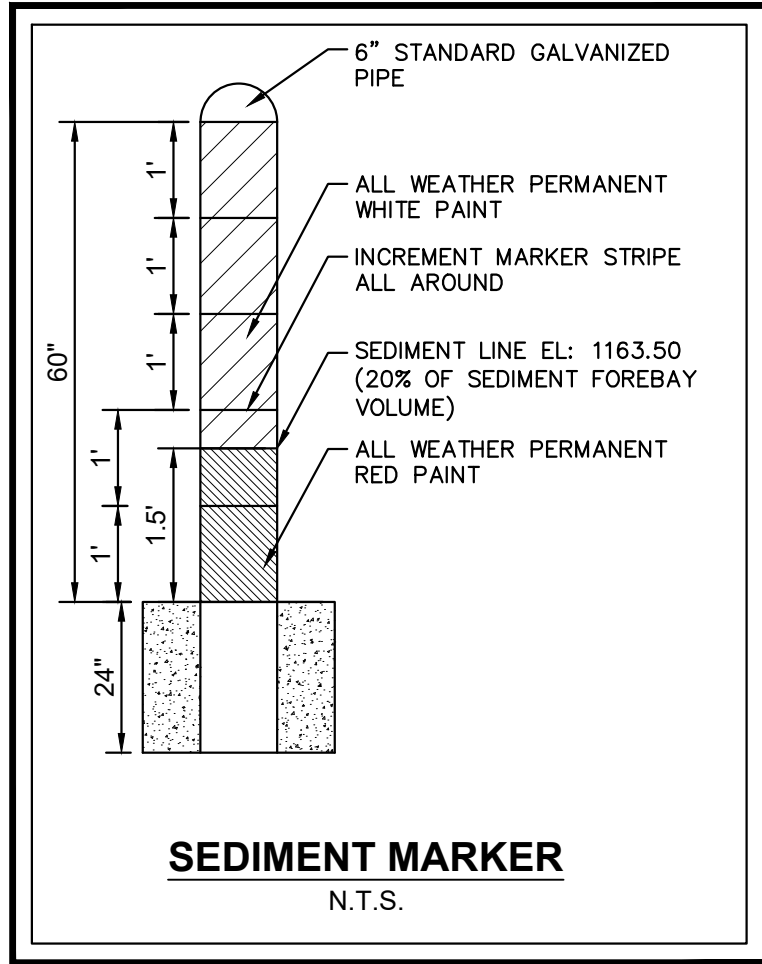
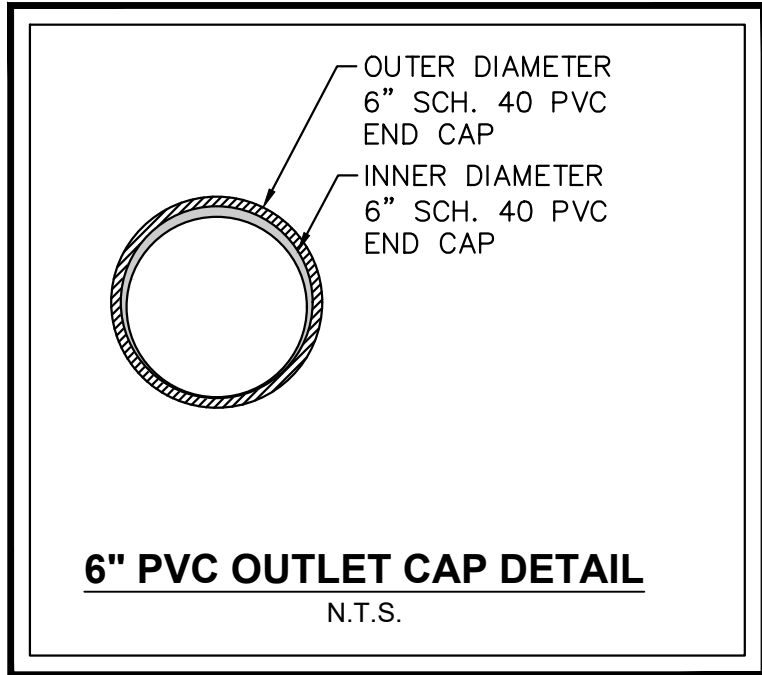
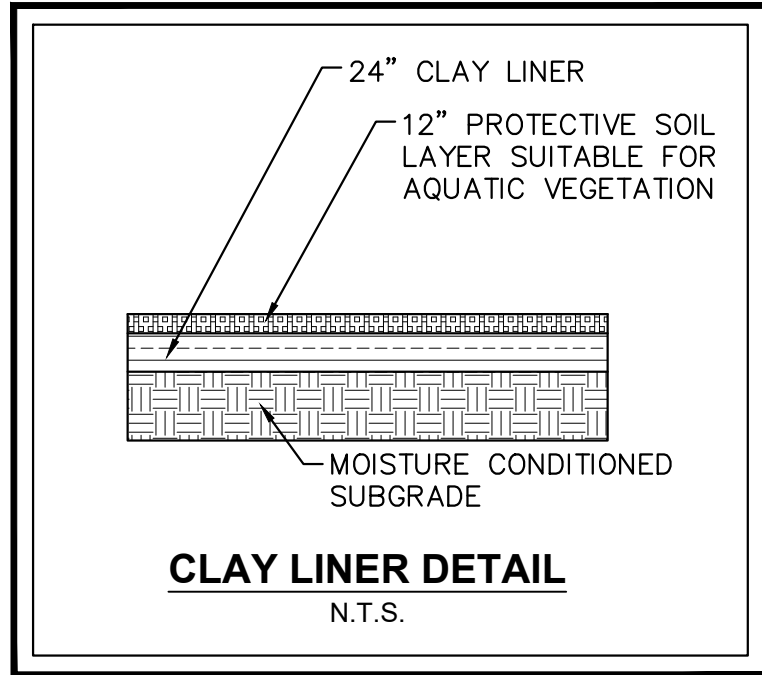
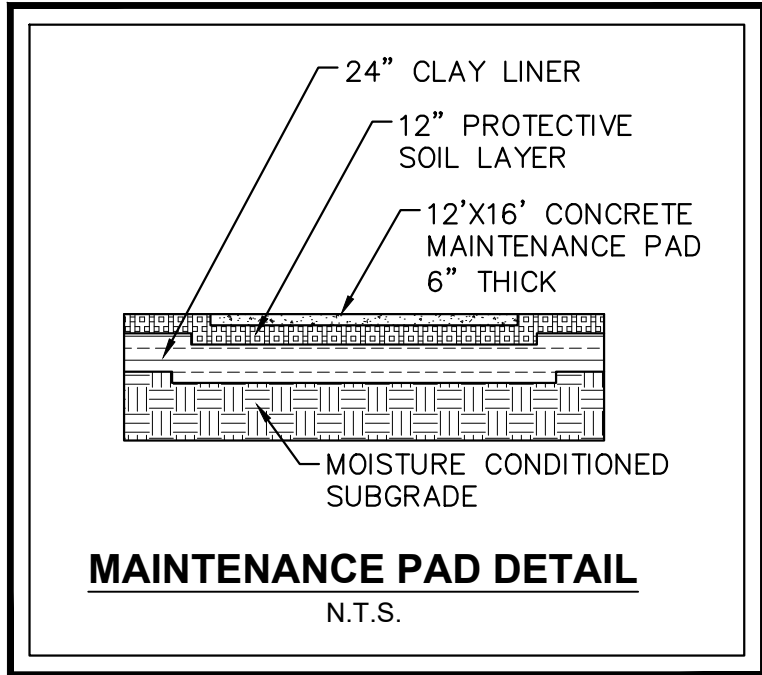
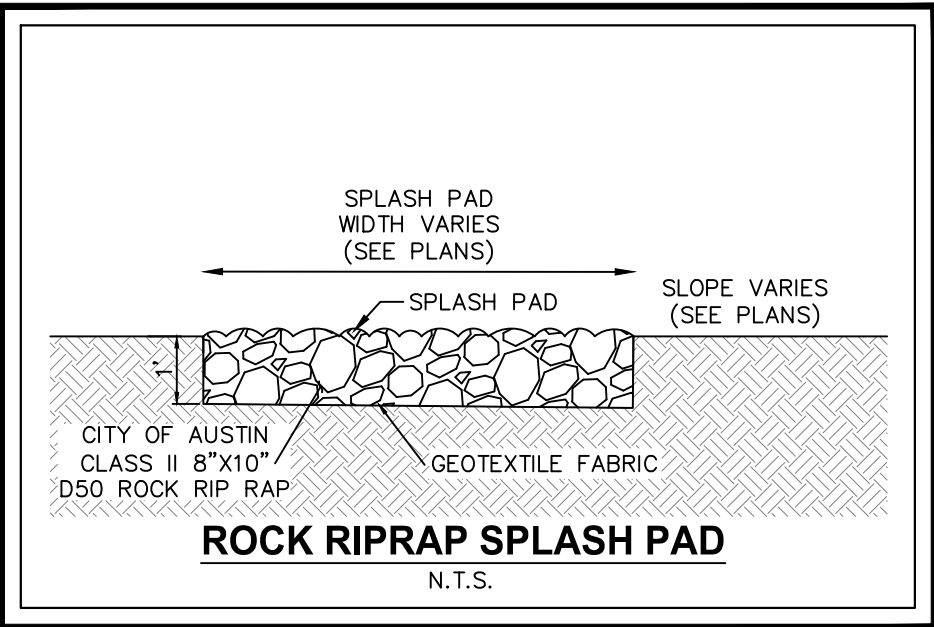
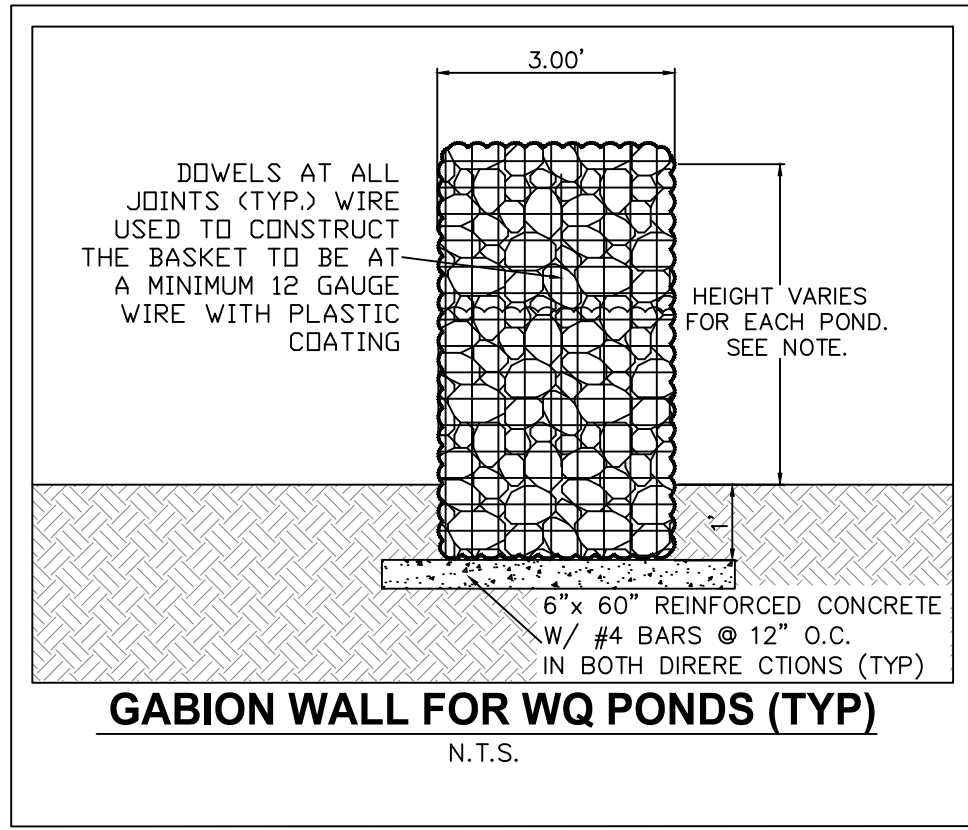


KHA PROJECT	065000700
DATE	AUGUST 2025
SCALE	AS SHOWN
DESIGNED BY:	KIM
DRAWN BY:	AEG
CHECKED BY:	AEG

WATER QUALITY WET
POND H CROSS
SECTION

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
65
OF 155



GABION WALL NOTES

594S DESCRIPTION
THIS ITEM SHALL INCLUDE FURNISHING, ASSEMBLING, FILLING, AND TYING ROCK-FILLED WIRE MESH COMPARTMENTED GABIONS AND REVET MATRESSES IN ACCORDANCE WITH THE LINES, GRADES, AND DIMENSIONS SHOWN ON THE DRAWINGS OR OTHERWISE ESTABLISHED IN THE FIELD BY THE ENGINEER OR DESIGNATED REPRESENTATIVE.

594S.2 MATERIALS

(1) GABION AND REVET MATRESS WIRE
GABION WIRE SHALL BE GALVANIZED STEEL, CLASS 3 OR A COATING, SOFT TEMPER CONFORMING TO ASTM A 641, AND SHALL SPECIFICALLY MEET THE REQUIREMENTS GIVEN BELOW FOR GABIONS (12 GAUGE WIRE) AND/OR REVET MATRESSES (13.5 WIRE GAUGE), AS CALLED OUT IN DRAWINGS. PVC COATING OF WIRE MAY BE FUSED/ON OR EXTRUDED ONTO THE WIRE. GALVANIZATION OF WELDED WIRE SHALL BE PERFORMED EITHER BEFORE OR AFTER WELDING.

CHARACTERISTIC	GABIONS	REVET MATRESSES
WIRE GAUGE	12 GAUGE	13.5 GAUGE
MAX. TENSILE STRENGTH (ASTM A 641)	70,000 PSI (483 MPa)	75,000 PSI (517 MPa)
NOMINAL WIRE DIAMETER (ASTM A 641)	0.106 INCH (2.7 mm)	0.0866 INCH (2.2 mm)
MINIMUM DIAMETER (ASTM A 641, TABLE 3)	0.102 INCH (2.6 mm)	0.0826 INCH (2.1 mm)
GALVANIZED, ZINC (ASTM A 641, TABLE 1)	0.80 OZ./SQ. (245 GR/M)	0.70 OZ./SQ. (215 GR/M)

(2) GABION MESH
(A) WOVEN MESH
WOVEN MESH SHALL BE OF A UNIFORM NONWEAVING, DOUBLE TWIST HEXAGONAL PATTERN, NOMINALLY OF DIMENSIONS 3.25 INCHES BY 4.5 INCHES (83 mm BY 114mm). SELVEDGE WIRE SHALL BE 10 GAUGE (NOMINAL DIAMETER OF 3.4 mm).

(B) WELDED MESH
MESH OPENING SHALL BE NOMINALLY 3 INCHES BY 3 INCHES (75 mm BY 75 mm). STRENGTH OF WELDS SHALL MEET THE FOLLOWING REQUIREMENTS WHEN TESTED IN ACCORDANCE WITH SECTION 13.4 OF ASTM, A-974:

TYPE OF STRUCTURE	WIRE SIZE (DIAMETER) GAUGE (mm)	MINIMUM AVERAGE WELD SHEAR STRENGTH ENGLISH UNITS (SI UNITS)
GABIONS	12 (2.7)	475 lbf (2.10 kN)
REVET MATRESS	13.5 (2.2)	292 lbf (1.30 kN)

(C) MANUFACTURING
TWISTED WIRE MESH GABIONS SHALL BE MANUFACTURED IN CONFORMANCE WITH ASTM A-975, WHILE WELDED WIRE MESH GABIONS SHALL BE MANUFACTURED IN CONFORMANCE WITH ASTM A-974.

(3) REVET MATRESSES
(A) WOVEN MESH
WOVEN MESH SHALL BE OF A UNIFORM NONWEAVING, DOUBLE TWIST HEXAGONAL PATTERN, NOMINALLY OF DIMENSIONS 2.5 INCHES BY 3.25 INCHES (64 mm BY 83mm). SELVEDGE WIRE SHALL BE 12 GAUGE (NOMINAL DIAMETER OF 2.7 mm).

(B) WELDED MESH
MESH OPENING SHALL BE NOMINALLY 1.5 INCHES BY 3 INCHES (38 mm BY 76 mm). STRENGTH OF WELDS SHALL MEET THE REQUIREMENTS LISTED IN TABLE 2 FOR 13.5 GAUGE (2.2 mm) WIRE WHEN TESTED IN ACCORDANCE WITH SECTION 13.4 OF ASTM, A-974.

(C) MANUFACTURING
TWISTED WIRE MESH REVET MATRESSES SHALL BE MANUFACTURED IN CONFORMANCE WITH ASTM A-975, WHILE WELDED WIRE MESH REVET MATRESSES SHALL BE MANUFACTURED IN CONFORMANCE WITH ASTM A-974.

(4) PVC COATING
SEE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO 594S GABIONS AND REVET MATRESSES.

(5) STONE
(A) GABION BASKET STONES
STONE FILL SHALL BE DURABLE AND OF SUITABLE QUALITY TO ENSURE PERMANENCE IN THE STRUCTURE. THE STONE USED TO FILL THE GABION BASKETS SHALL BE A CLEAN, SOUND, AND DURABLE ROCK MEETING THE FOLLOWING REQUIREMENTS. IT SHALL HAVE A WEARING LOSS LESS THAN 35% WHEN THE STONE IS TESTED WITH THE LOS ANGELES ABRASION MACHINE IN ACCORDANCE WITH ASTM TEST METHOD C535 (TxDOT TEST METHOD TEX-410A). THE LOSS OF MATERIAL EXPERIENCED DURING FIVE CYCLES OF MAGNESIUM SULFATE EXPOSURE CONDUCTED IN ACCORDANCE WITH TxDOT TEST METHOD TEX-411A FOR ROCK RIP RAP SHALL NOT EXCEED 10%. THE STONE SHALL BE WELL GRADED TO PRODUCE A DENSE FILL, ANGULAR IN TEXTURE, WHILE MEETING THE FOLLOWING GRADATION REQUIREMENTS:

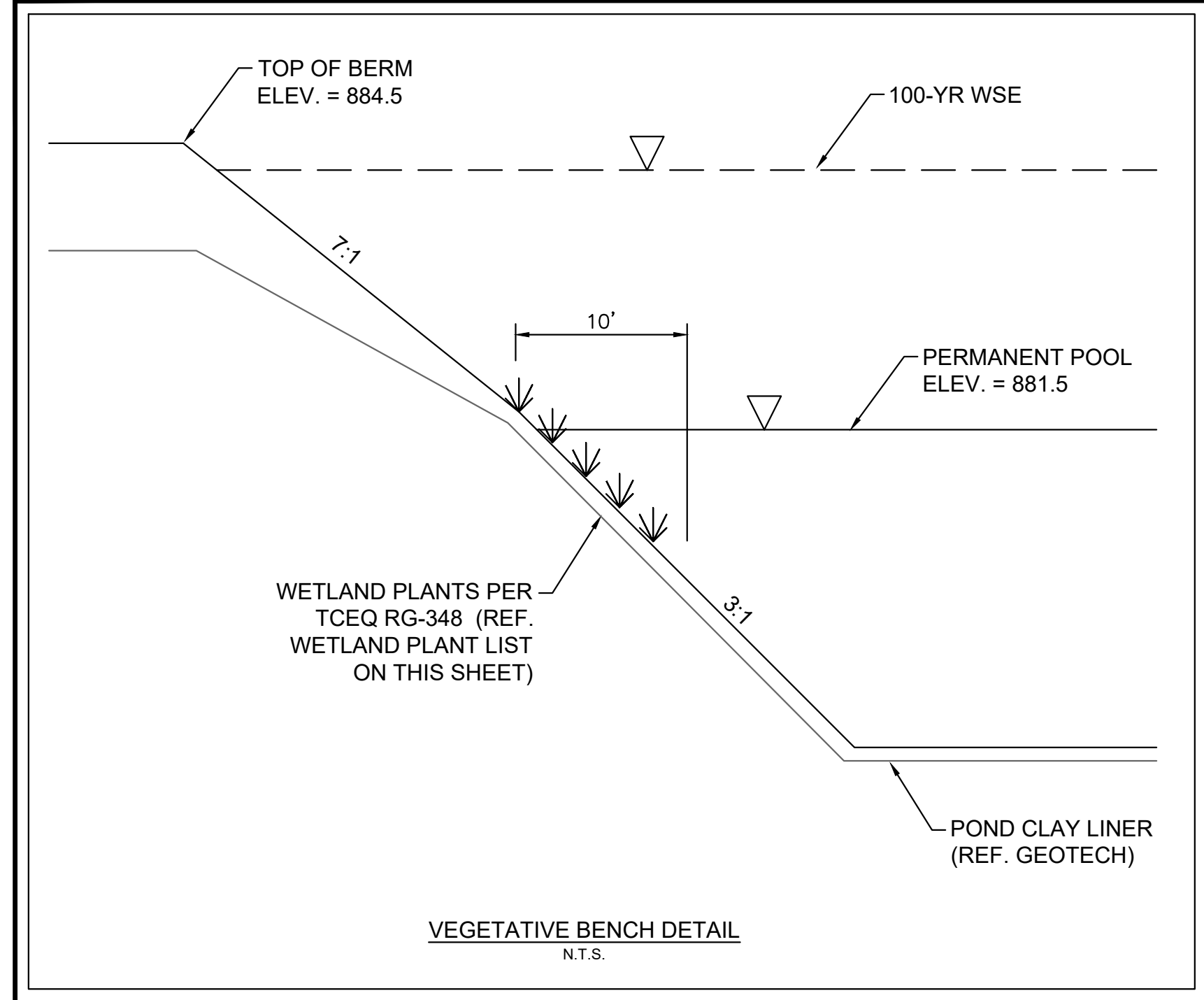
SIEVE SIZE U.S. (SI)	PERCENT BY WEIGHT (MASS) % PASSING EACH INDIVIDUAL SIEVE
8 INCH (200 mm)	100
4 INCH (100 mm)	0-5
3 INCH (75 mm)	0

THE MINIMUM UNIT WEIGHT (UNIT MASS) OF A ROCKFILLED GABION SHALL BE 120 lbf (1.192 MEGAGRAMS (mm) PER CUBIC METER). VERIFICATION OF UNIT WEIGHT (MASS) SHALL BE PERFORMED WHEN ORDERED BY THE ENGINEER, BY CONSTRUCTING A TEST GABION WITH MATERIALS SUPPLIED FOR CONSTRUCTION WITH THE SAME EFFORT AND METHOD INTENDED FOR PRODUCTION GABIONS.

(6) CONNECTIONS
SEE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO 594S GABIONS AND REVET MATRESSES.

(7) FASTENER SYSTEM
SEE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO 594S GABIONS AND REVET MATRESSES.

(8) PANEL TO PANEL JOINT STRENGTH
SEE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO 594S GABIONS AND REVET MATRESSES.



WETLAND PLANT LIST

INSTALL BULRUSH IN CLUMPS, WITH INDIVIDUAL PLANTS SPACED APPROXIMATELY THREE TO FOUR FEET ON CENTER. AT LEAST TWO OF THE FOLLOWING SPECIES SHOULD BE USED:

BULRUSH	WATER DEPTH	NOTES
Scirpus validus, Bulrush	1' — 3'	8' tall evergreen, resists cattail encroachment
Scirpus californicus, Bulrush	1' — 3'	8' tall evergreen, resists cattail encroachment
Scirpus americanus, Three-square bulrush	2" — 6"	2' to 4' tall, w/ 3 distinct edges

AT LEAST TWO SPECIES OF THE FOLLOWING MARSH PLANTS SHOULD BE USED (ADDITIONAL SPECIES ARE ENCOURAGED). INSTALL IN CLUMPS IN SHALLOW WATER, WITH INDIVIDUAL PLANTS SPACED AT APPROXIMATELY THREE FEET ON CENTER:

MARSH DIVERSITY	WATER DEPTH	NOTES
1. Cyperus ochraceus, Flatsedge	2" — 6"	1' to 2' tall, clump-forming, common to central Texas
2. Dichromena colorata, White-topped Sedge	2" — 6"	1' to 2' tall, white bracts during warm season
3. Echinodorus rostratus, Burhead	3' - 1'	1' to 2' tall, annual, heart-shaped leaves, flower similar to arrowhead
4. Eleocharis quadrangulata, Four-square Spikerush	6" — 1'	1' to 2' tall, colonizes, inhabits deeper water than other Spikerushes
5. Iris Pseudacorus, Yellow Flag Iris	1' — 2'	3' to 4' tall, can be invasive, dense growth, yellow flowers
6. Juncus effusus, Soft Rush	6" — 1'	3' to 4' tall, forms a tight clump, evergreen, very attractive
7. Justicia americana, Water willow	2" — 6"	2' to 3' tall, common, white flowers, herbaceous, colonizes
8. Marsilea macropoda, Water Clover	2" — 6"	Looks like floating four-leaf clover, endemic to Texas
9. Najas guadalupensis, Water-Najas	1' — 4'	Submergent, valuable to fish and wildlife
10. Pontederia cordata, Pickerelweed	2" — 1'	3' tall, colonizes, cosmopolitan, purple flowers
11. Rhyssolopora comiculata, Horned-rush	2" — 6"	2' to 3' tall, brass-colored flowers in May

INSTALL SPIKERUSH AT OR NEAR THE WATER'S EDGE, WITH INDIVIDUAL PLANTS SPACED APPROXIMATELY THREE TO SIX FEET ON CENTER. AT LEAST TWO OF THE FOLLOWING SPECIES SHOULD BE USED:

SPIKERUSH	WATER DEPTH	NOTES
Eleocharis montevidensis, Spikerush	0" — 6"	1' tall, rhizomatous, reduces erosion at the pond edge
Eleocharis macrostachys, Spikerush	0" — 6"	1' tall, rhizomatous, reduces erosion at the pond edge
Eleocharis quadrangulata, Spikerush	3" — 1'	2' to 2.5' tall, rhizomatous, can accommodate deeper water, 4-angled

INSTALL ARROWHEAD IN CLUMPS IN SHALLOW WATER, WITH INDIVIDUAL PLANTS SPACED APPROXIMATELY THREE FEET ON CENTER.

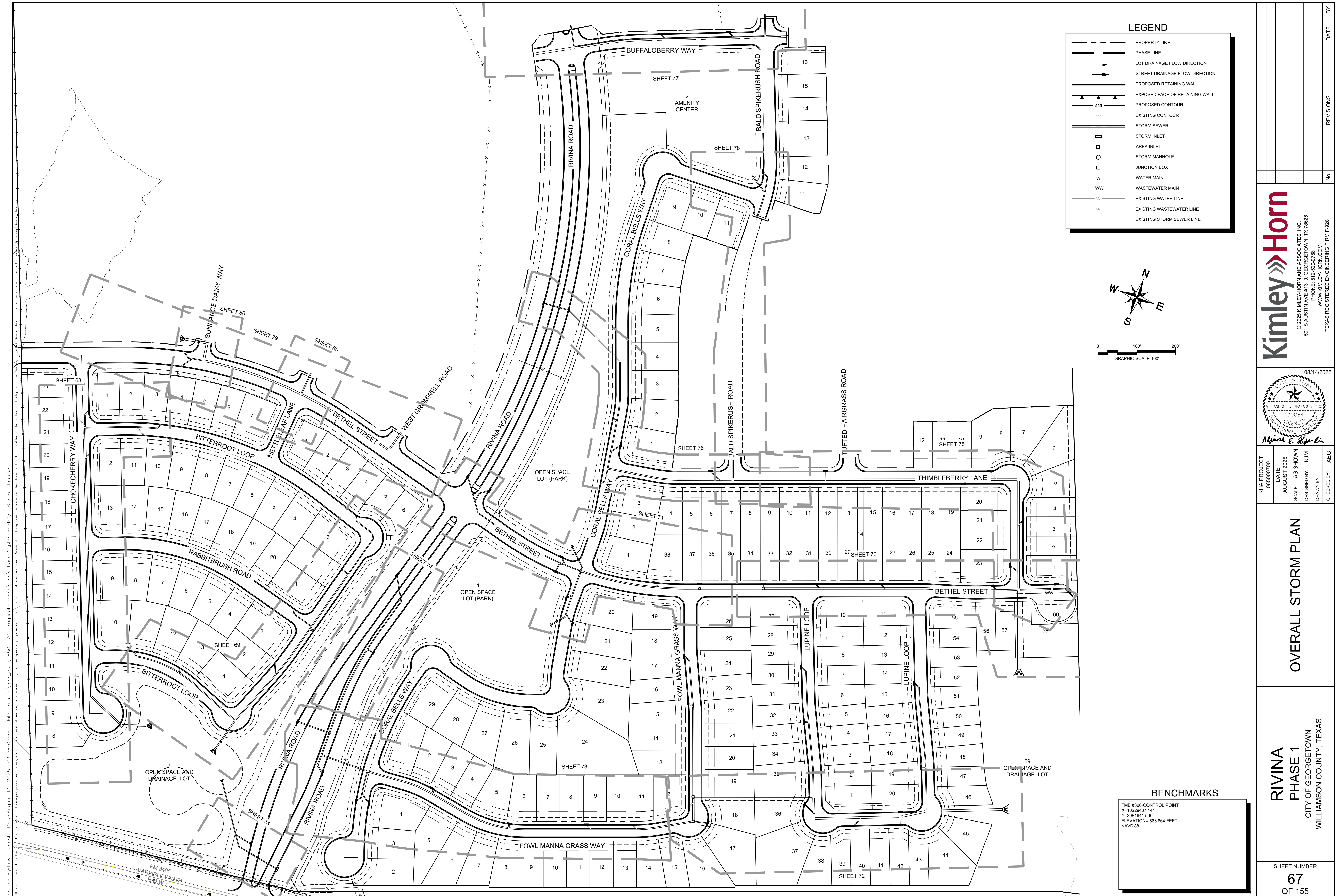
ARROWHEAD	WATER DEPTH	NOTES
Sagittaria latifolia, Arrowhead	2" — 1'	2' height, wildlife value, white flowers, proven water quality performer

FLOATING-LEAFED AQUATIC PLANTS ARE ROOTED IN THE SEDIMENT OF THE POND, AND HAVE LEAVES THAT FLOAT ON THE SURFACE OF THE WATER. THESE LEAVES SHADE THE WATER, WHICH LIMITS POTENTIAL ALGAE GROWTH. AT LEAST TWO OF THE FOLLOWING SPECIES SHOULD BE USED AND SHOULD BE PLACED AT RANDOM LOCATIONS THROUGHOUT THE POND:

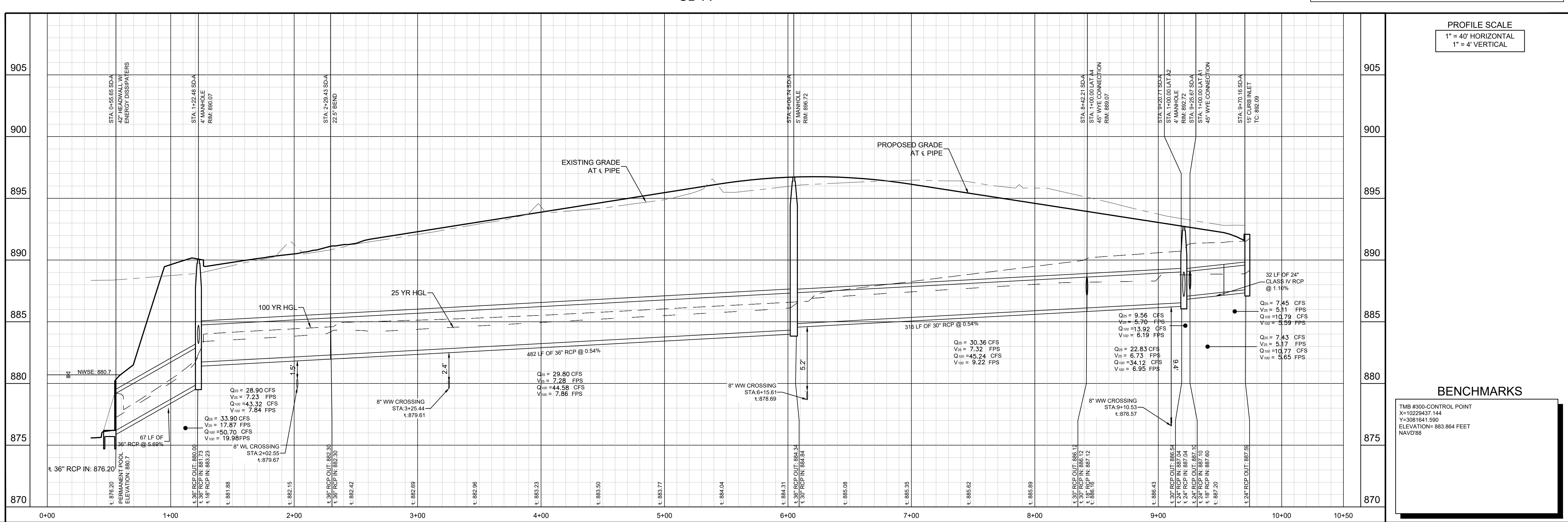
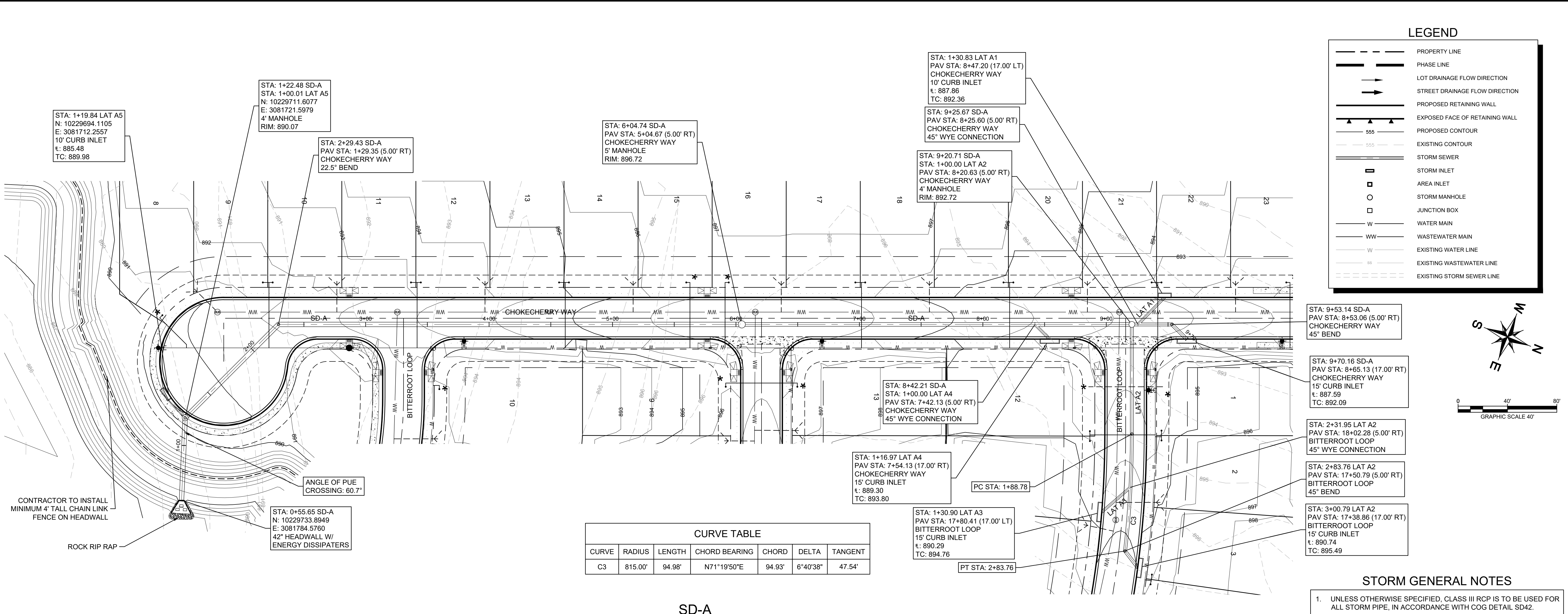
AQUATICS	WATER DEPTH	NOTES
1. Cabomba caroliniana, Fanwort	1' — 4'	Approximately 6' length underwater, submergent
2. Ceratophyllum spp., Coon-tail	1' — 4'	Maximum 8' length, tolerant of turbidity and water fluctuation, wildlife food
3. Nymphaea odorata, Fanwort	6" — 2'	A native, reliably hardy, floating-leaved aquatic, with white flowers
4. Potamogeton pectinatus, Sago Pondweed	8" — 3'	Colonizes quickly, valuable to fish and wildlife; floating-leaved aquatic

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'98



Plotted By: Lewis, Jacob Date: August 14, 2025 04:00:32pm File Path: K:\Geo civil\06500700-rojgddde ranch\Coa\Phase 1\Storm\Sheet\06500700-Storm Plan and Profile.dwg
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TEXAS REGISTERED ENGINEERING FIRM E-928

08/14/2025

STATE OF TEXAS

ALEJANDRO L. GRANADOS RIVERA

130084

PROFESSIONAL ENGINEER

Alejandro L. River

KHA PROJECT

06500700

DATE

AUGUST 2025

SCALE

AS SHOWN

DESIGNED BY

KJM

DRAWN BY

AEG

CHECKED BY

AEG

STORM PLAN AND

PROFILE LINE SD-A

RIVINA

PHASE 1

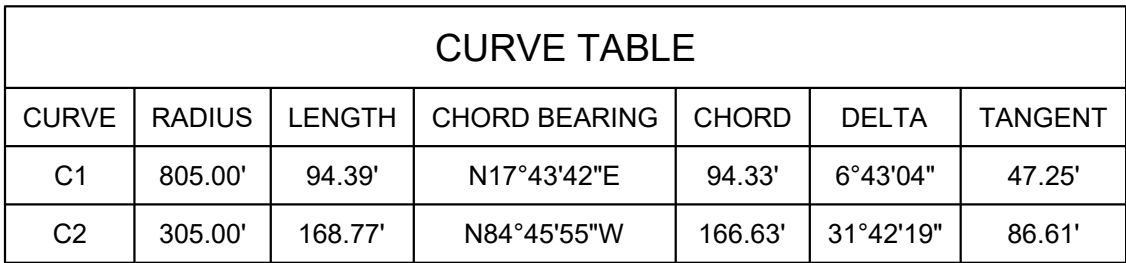
CITY OF GEORGETOWN

WILLIAMSON COUNTY, TEXAS



















SHEET NUMBER

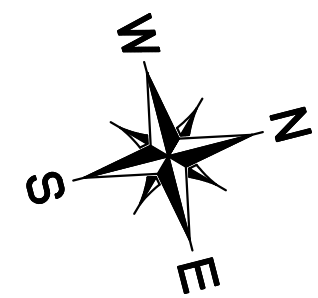
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OF 155

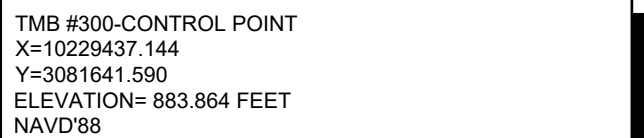
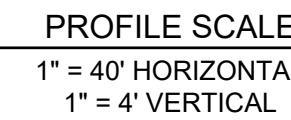


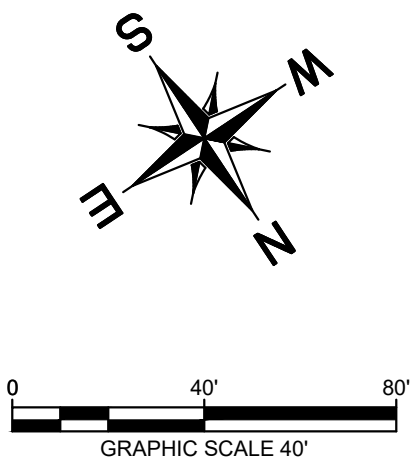
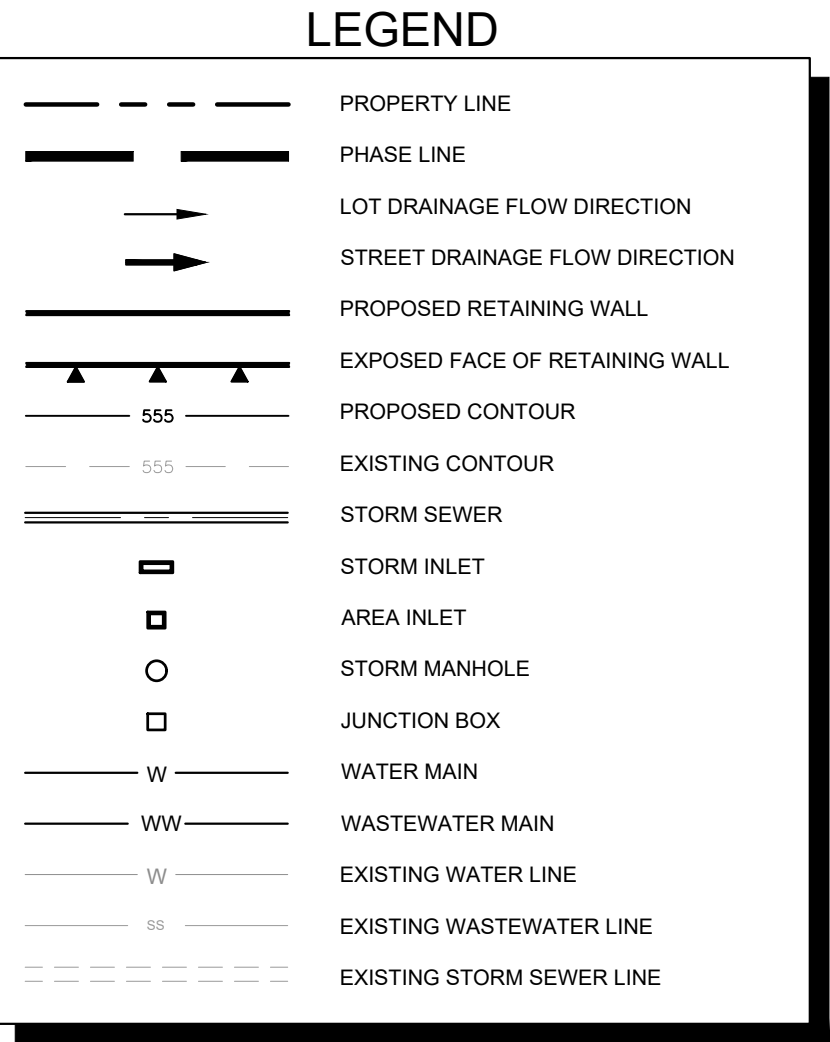
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	PHASE LINE
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	STREET DRAINAGE FLOW DIRECTION
	PROPOSED RETAINING WALL
	EXPOSED FACE OF RETAINING WALL
	PROPOSED CONTOUR
	EXISTING CONTOUR
	STORM SEWER
	STORM INLET
	AREA INLET
	STORM MANHOLE
	JUNCTION BOX
	WATER MAIN
	WASTEWATER MAIN
	EXISTING WATER LINE
	EXISTING WASTEWATER LINE
	EXISTING STORM SEWER LINE



1. UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.

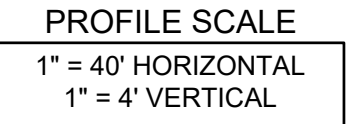




CURVE TABLE						
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C12	295.00'	21.14'	S70°03'58"W	21.14'	4°06'22"	10.57'
C13	305.00'	15.32'	S70°40'49"W	15.32'	2°52'40"	7.66'

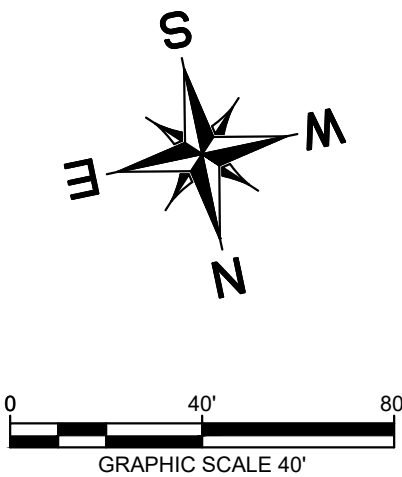
STORM GENERAL NOTES

1. UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.

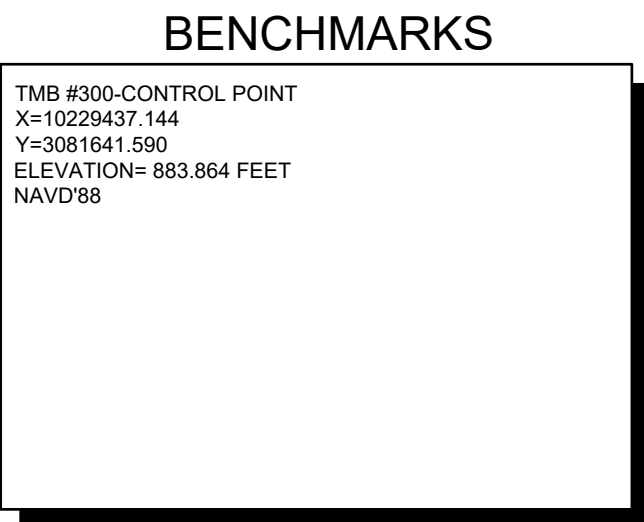


BENCHMARKS

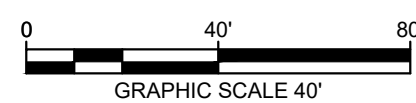
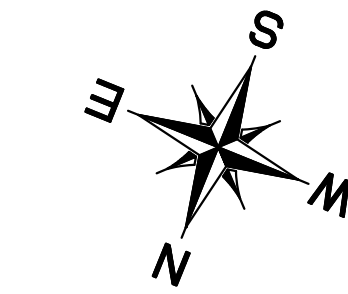
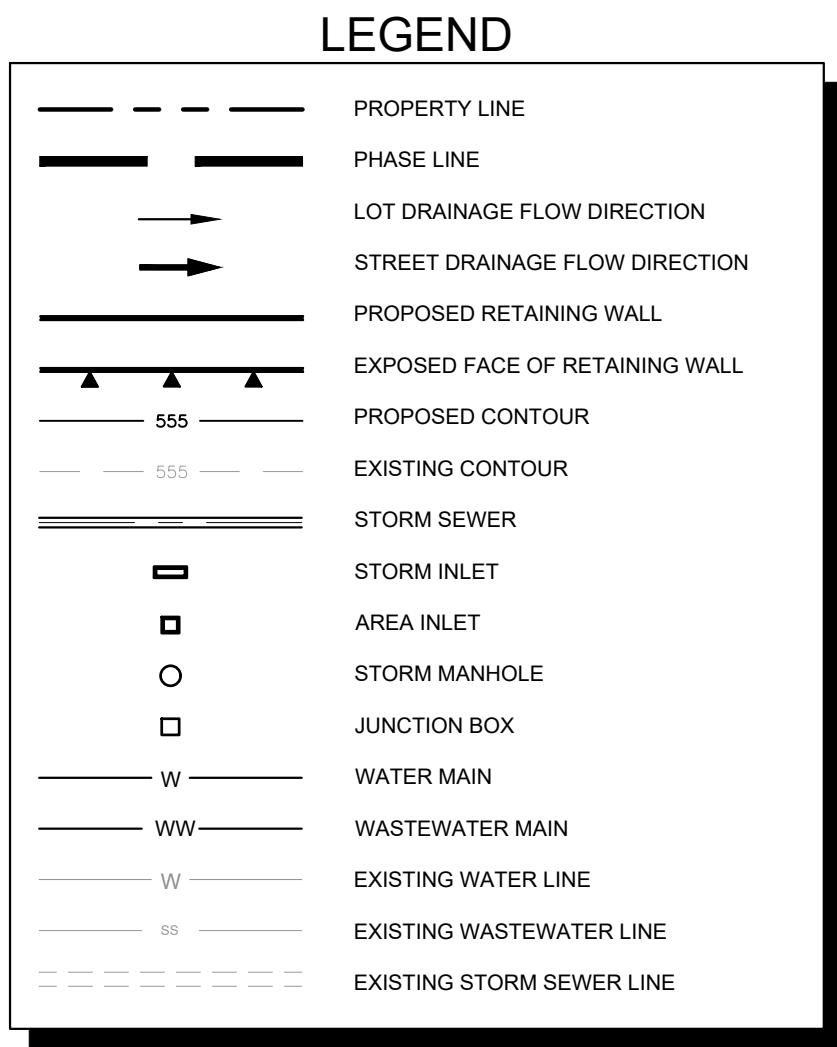
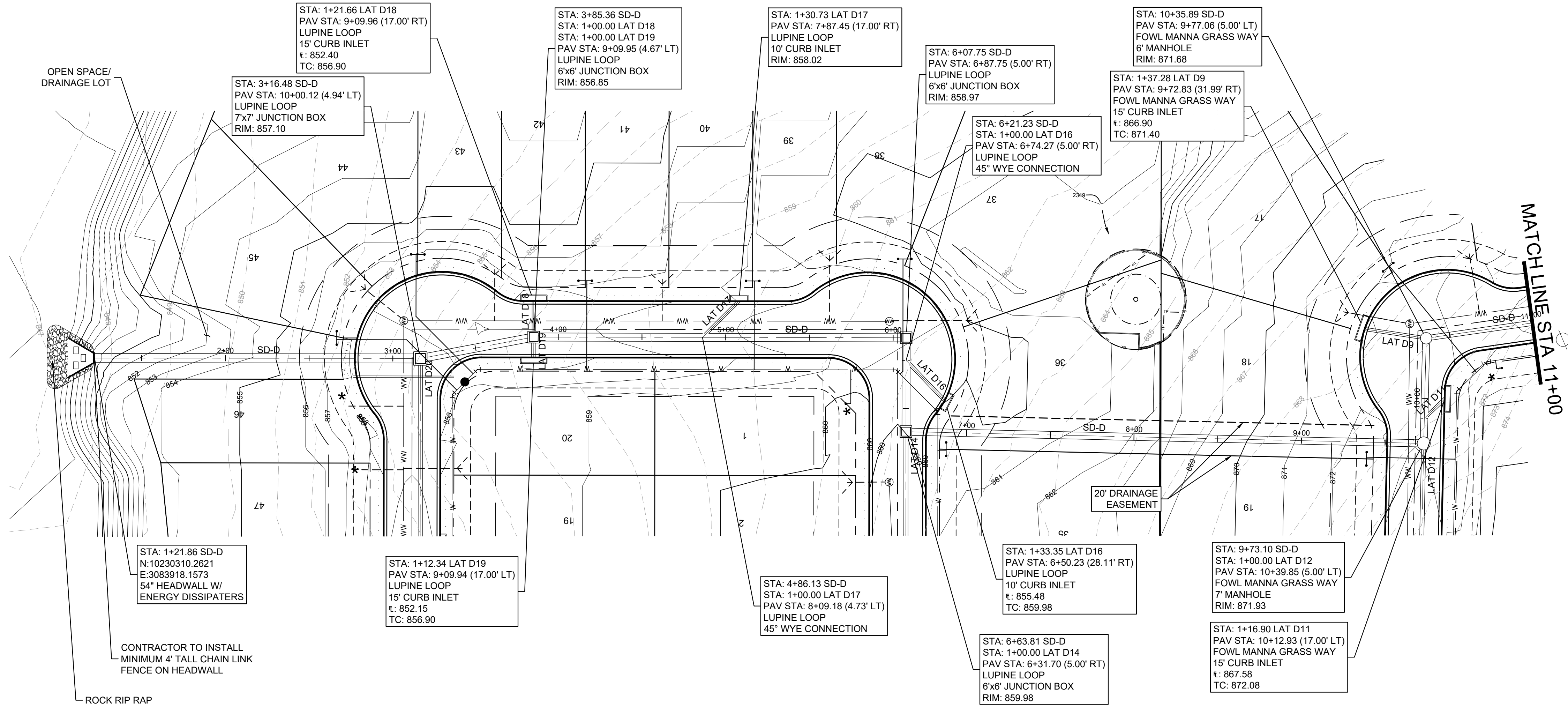
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Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'88



STORM GENERAL NOTES	
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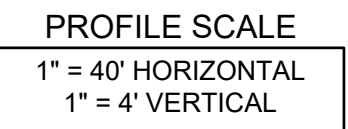
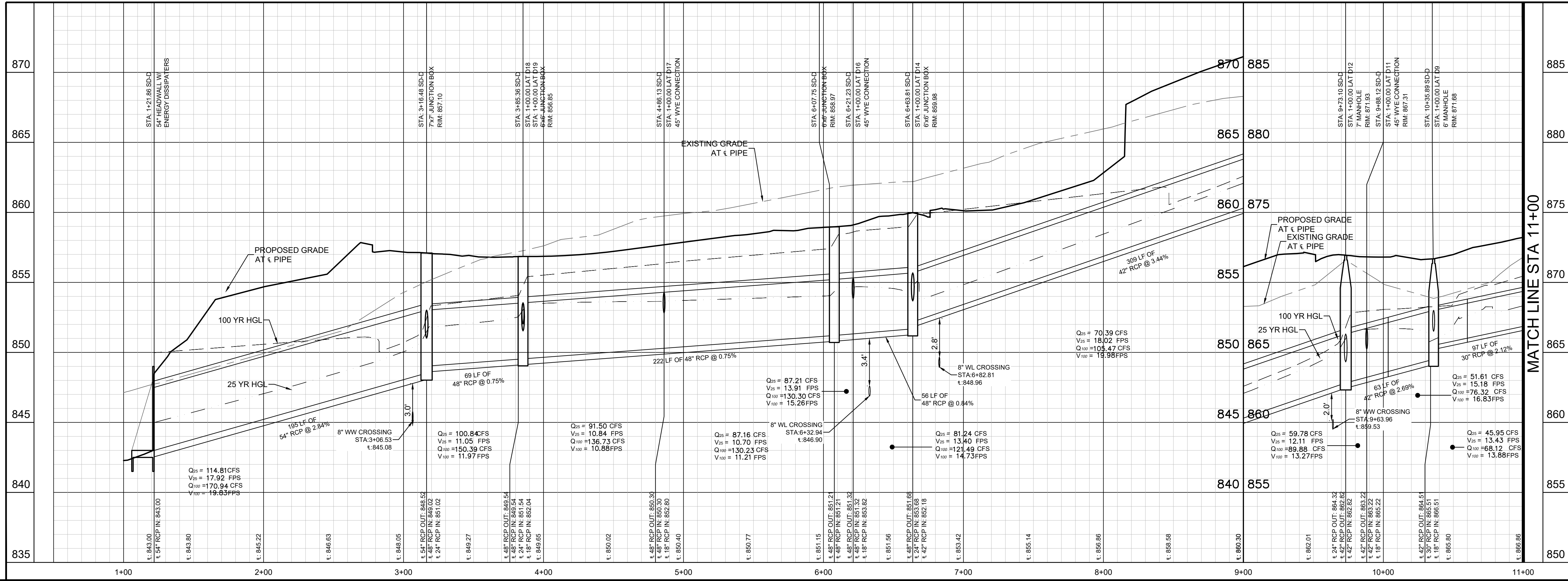
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LINE SD-D

STORM GENERAL NOTES

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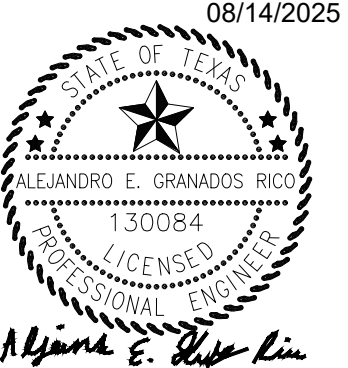
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NAVD88

No.	REVISIONS	DATE	BY

Kimley»Horn

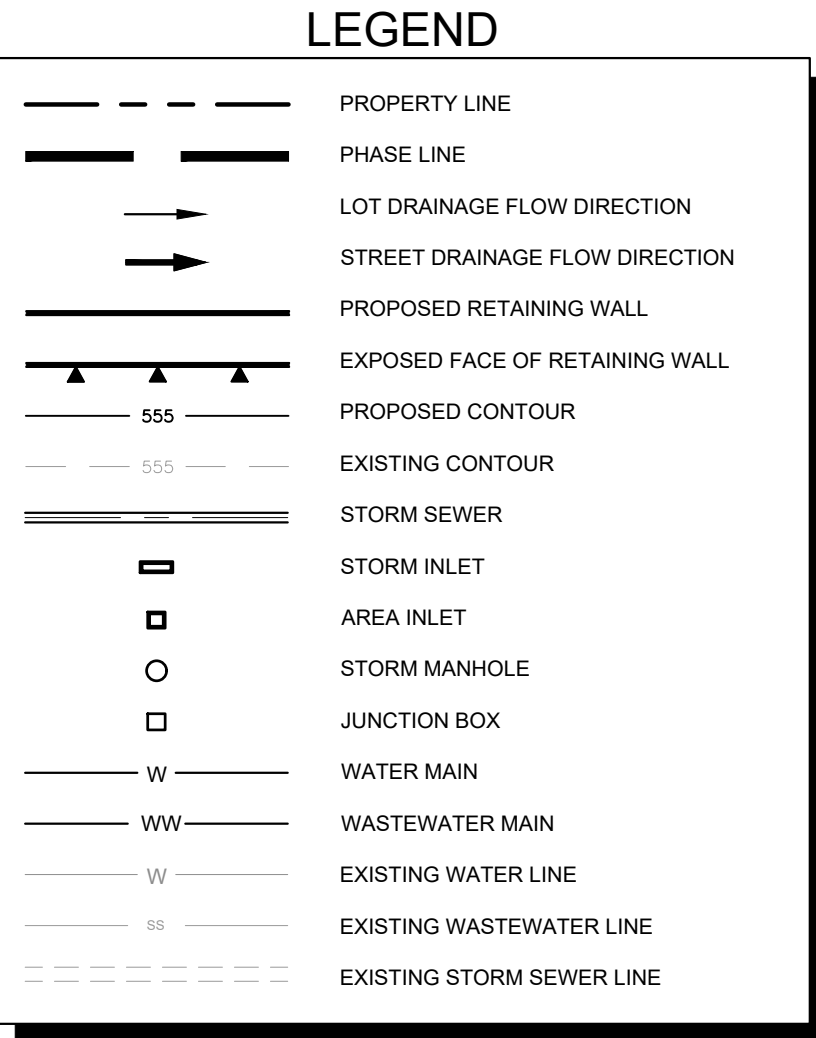
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TEXAS REGISTERED ENGINEERING FIRM E-928



KHA PROJECT	06500700
DATE	AUGUST 2025
SCALE	AS SHOWN
DESIGNED BY	KJM
DRAWN BY	AEG
CHECKED BY	AEG

STORM PLAN AND
PROFILE LINE SD-D
(SHEET 1 OF 3)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS



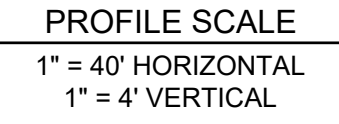
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C6	295.00'	155.55'	S84°23'19"W	153.76'	30°12'42"	79.63'
C7	305.00'	77.04'	N87°44'30"W	76.83'	14°28'20"	38.73'
C8	805.00'	69.06'	S7°41'42"E	69.04'	4°54'55"	34.55'

A graphic scale bar showing distances of 0, 40, and 80 feet. Below the bar is the text "GRAPHIC SCALE 40'".

STORM GENERAL NOTES

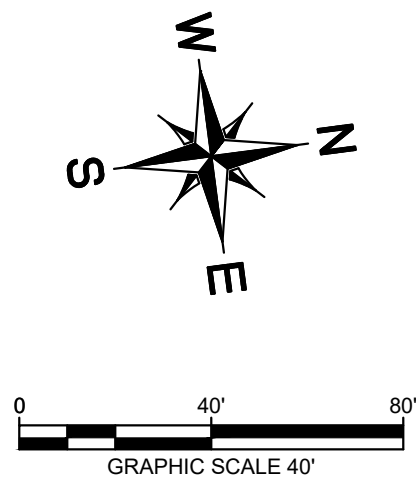
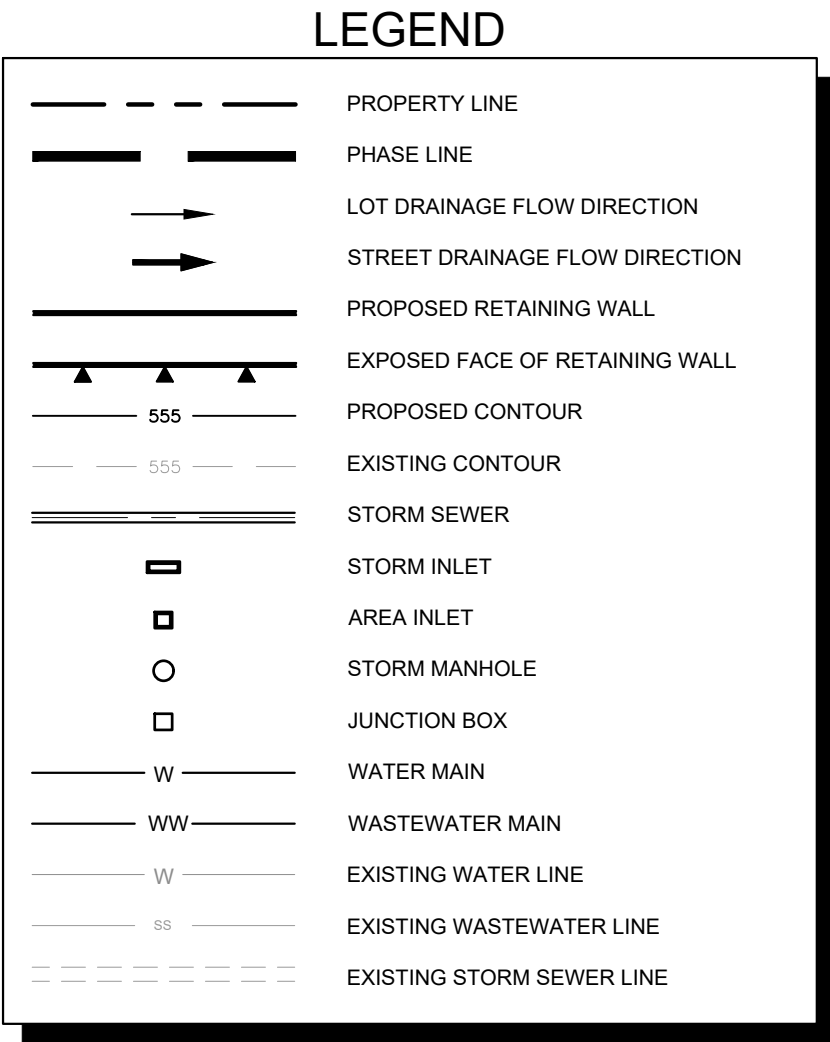
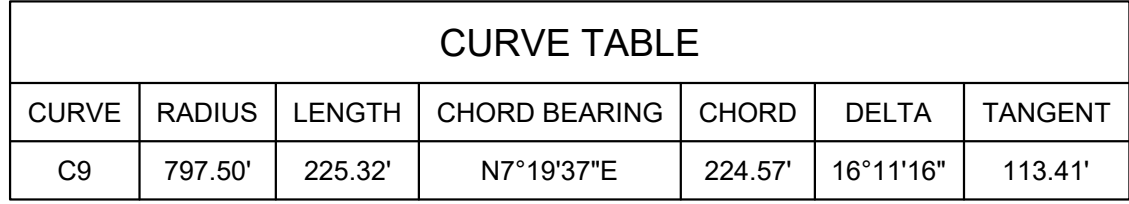
OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR RM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.

SD-D



BENCHMARKS

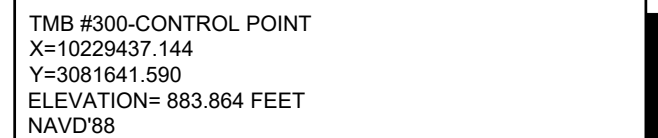
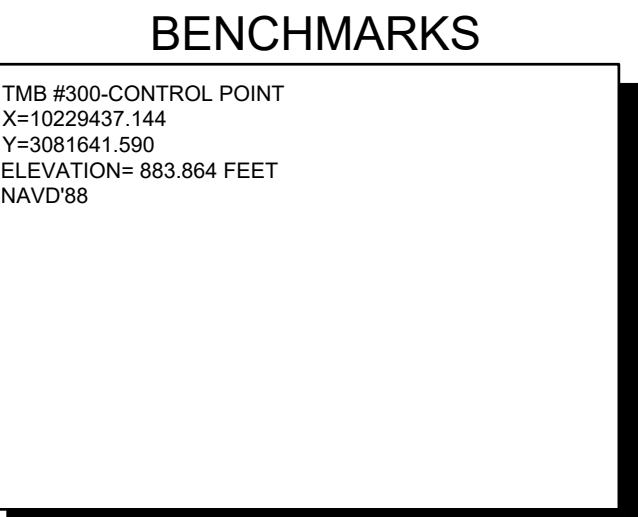
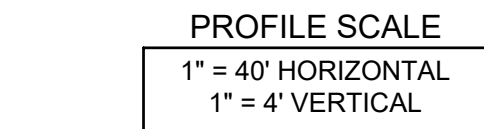
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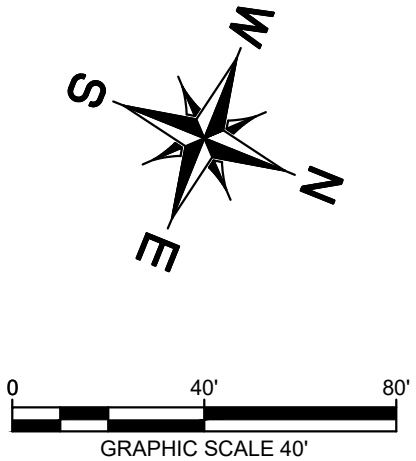


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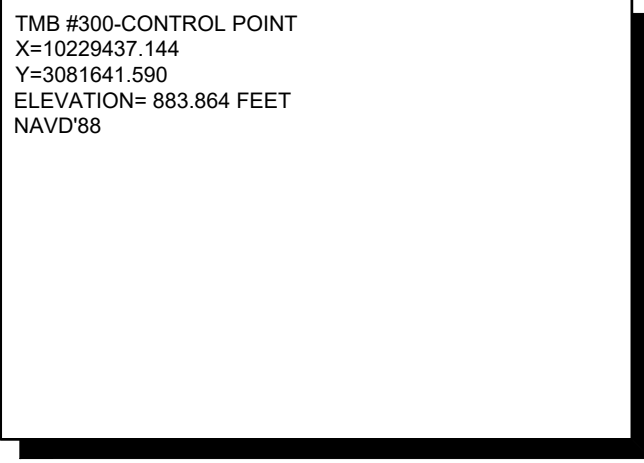
SD-H

1. UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.



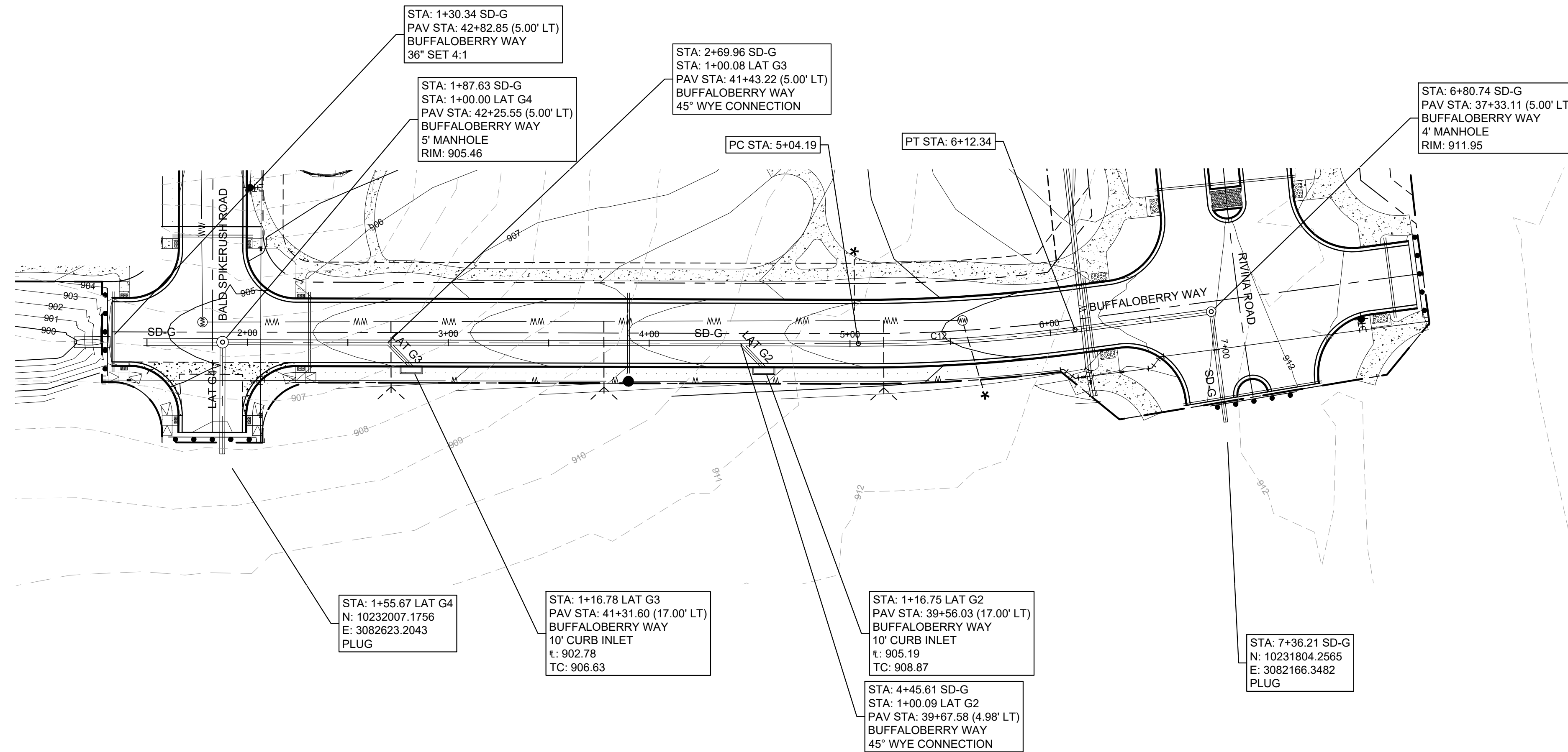


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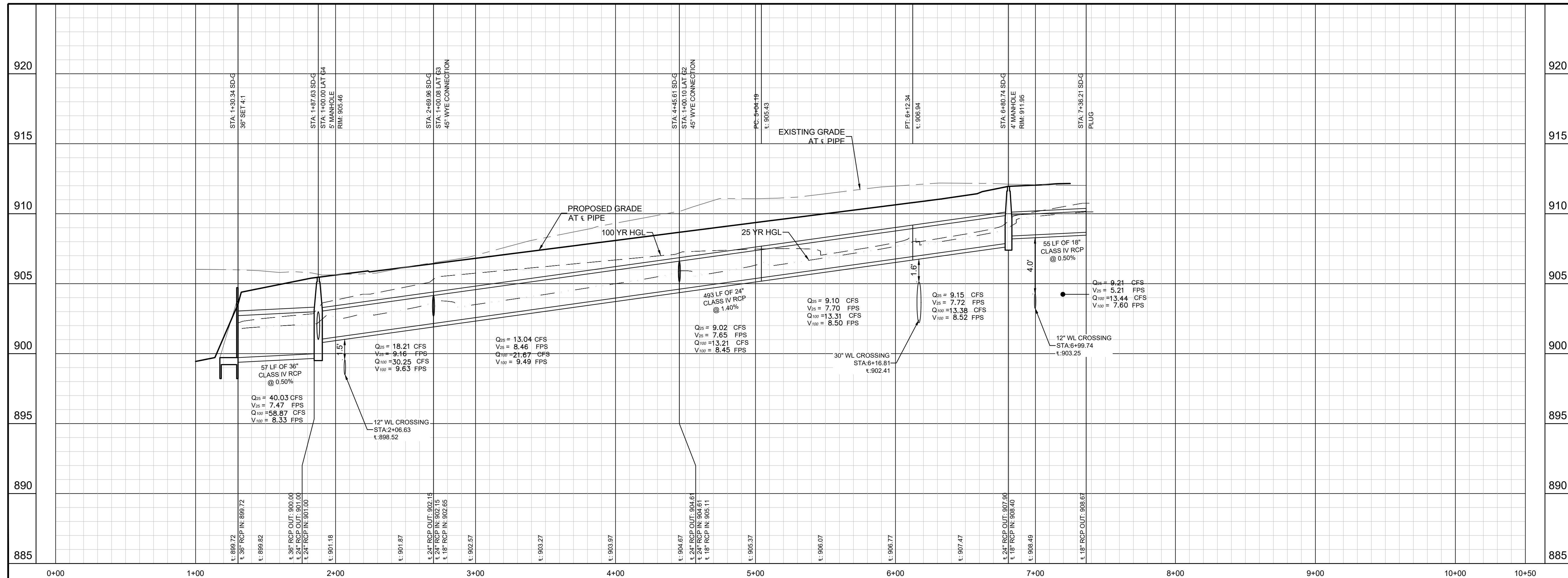


SHEET NUMBER
75
OF 155

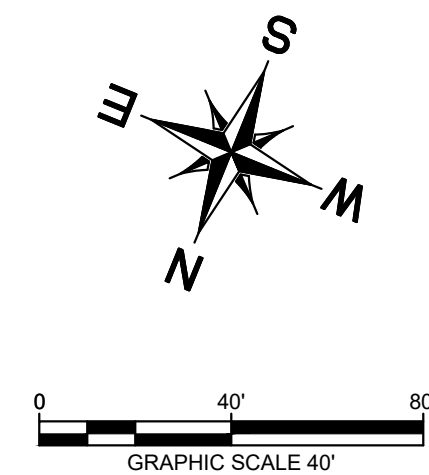
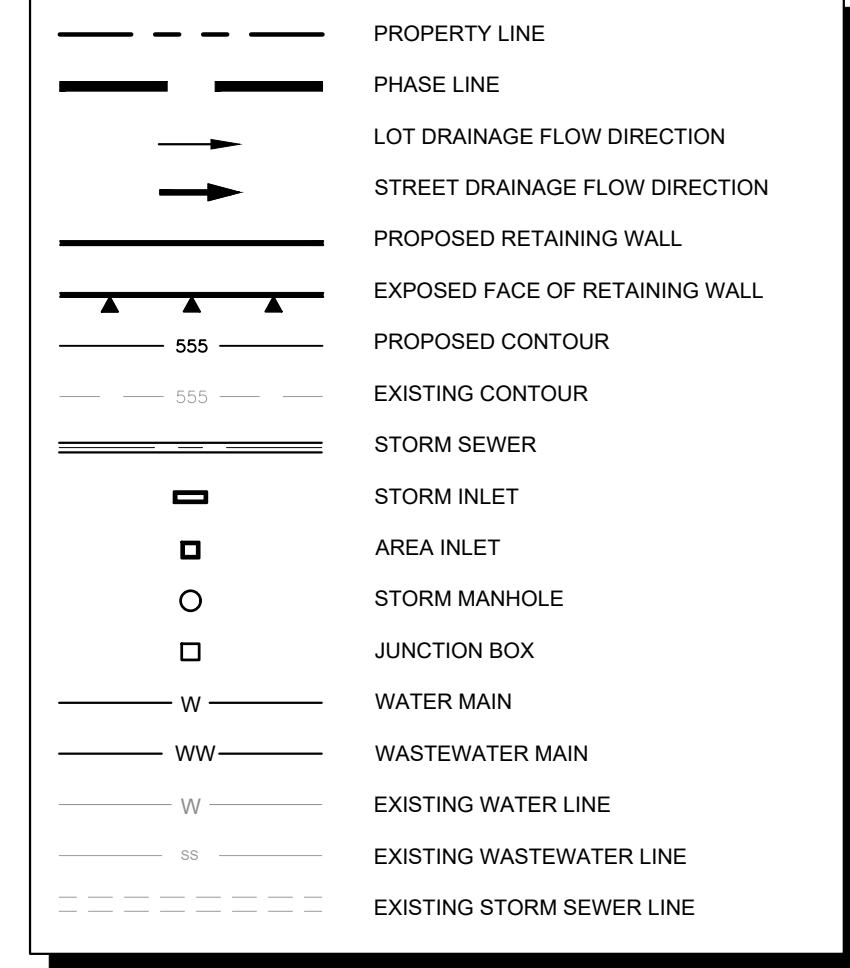
CURVE TABLE						
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C12	805.00'	108.15'	S64°09'51"W	108.07'	7°41'51"	54.16'



SD-G

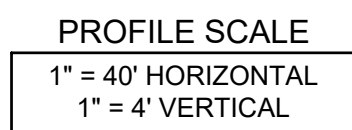


LEGEND



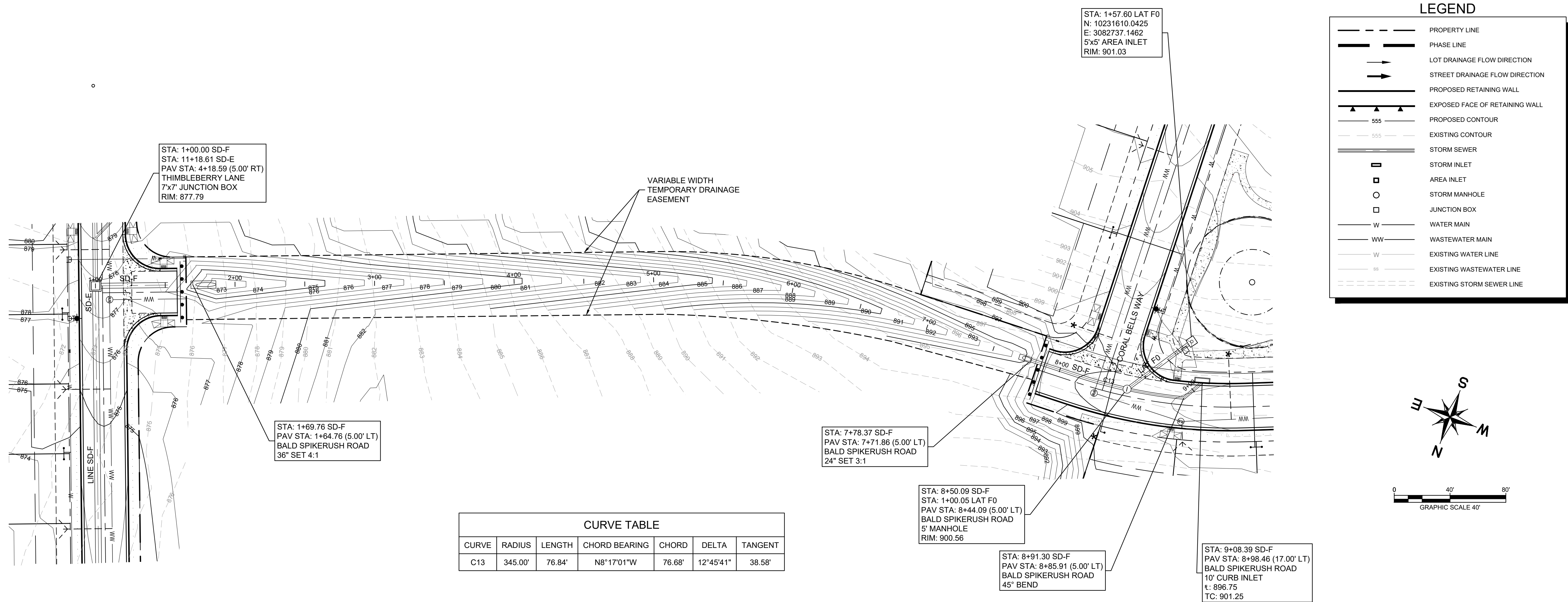
STORM GENERAL NOTES

1. UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.



BENCHMARKS

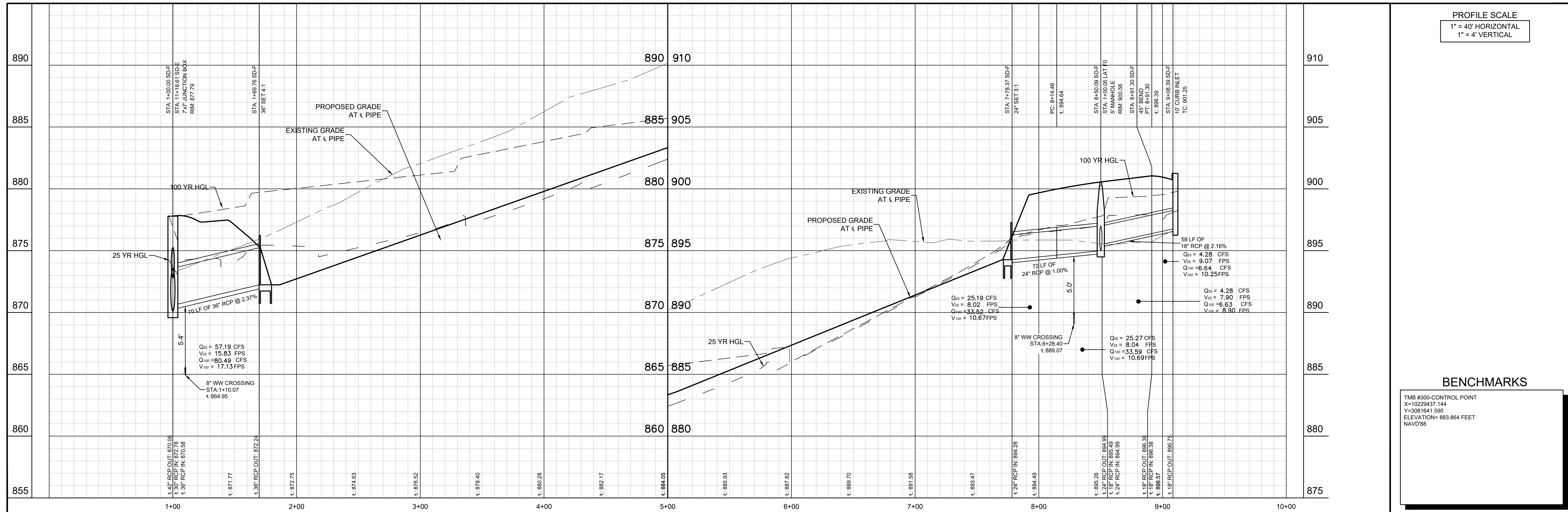
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NAVD'88



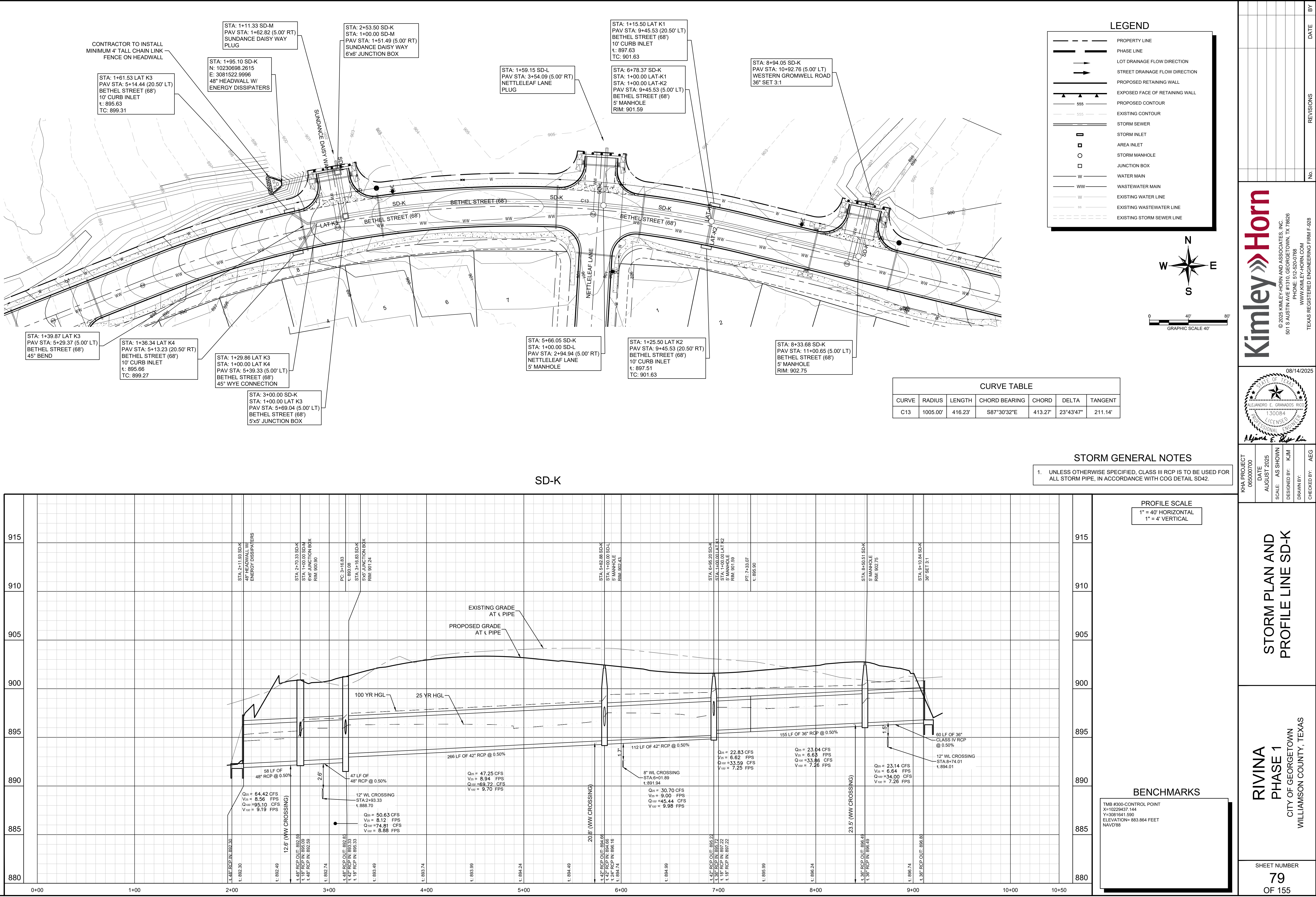
CURVE TABLE						
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C13	345.00'	76.84'	N8°17'01"W	76.68'	12°45'41"	38.58'

STORM GENERAL NOTES

1. UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.



Plotted By: Lewis, Jacob Date: August 14, 2025 04:16:39pm File Path: K:\Geo-civil\06500700-rogade ranch\Coa\Phase 1\plan\sheet1\c-Storm Plan and Profile Set.dwg
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TEXAS REGISTERED ENGINEERING FIRM E-928

08/14/2025

ALFONSO L. GRANADOS RIOS
130084
PROFESSIONAL ENGINEER

Alfonso L. Granados Rios

KHA PROJECT
06500700

DATE
AUGUST 2025

SCALE
AS SHOWN

DESIGNED BY
KJM

DRAWN BY

CHECKED BY
AEG

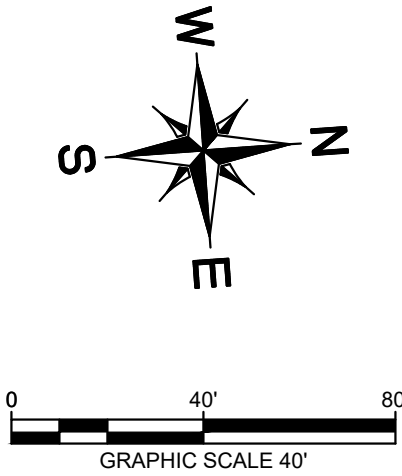
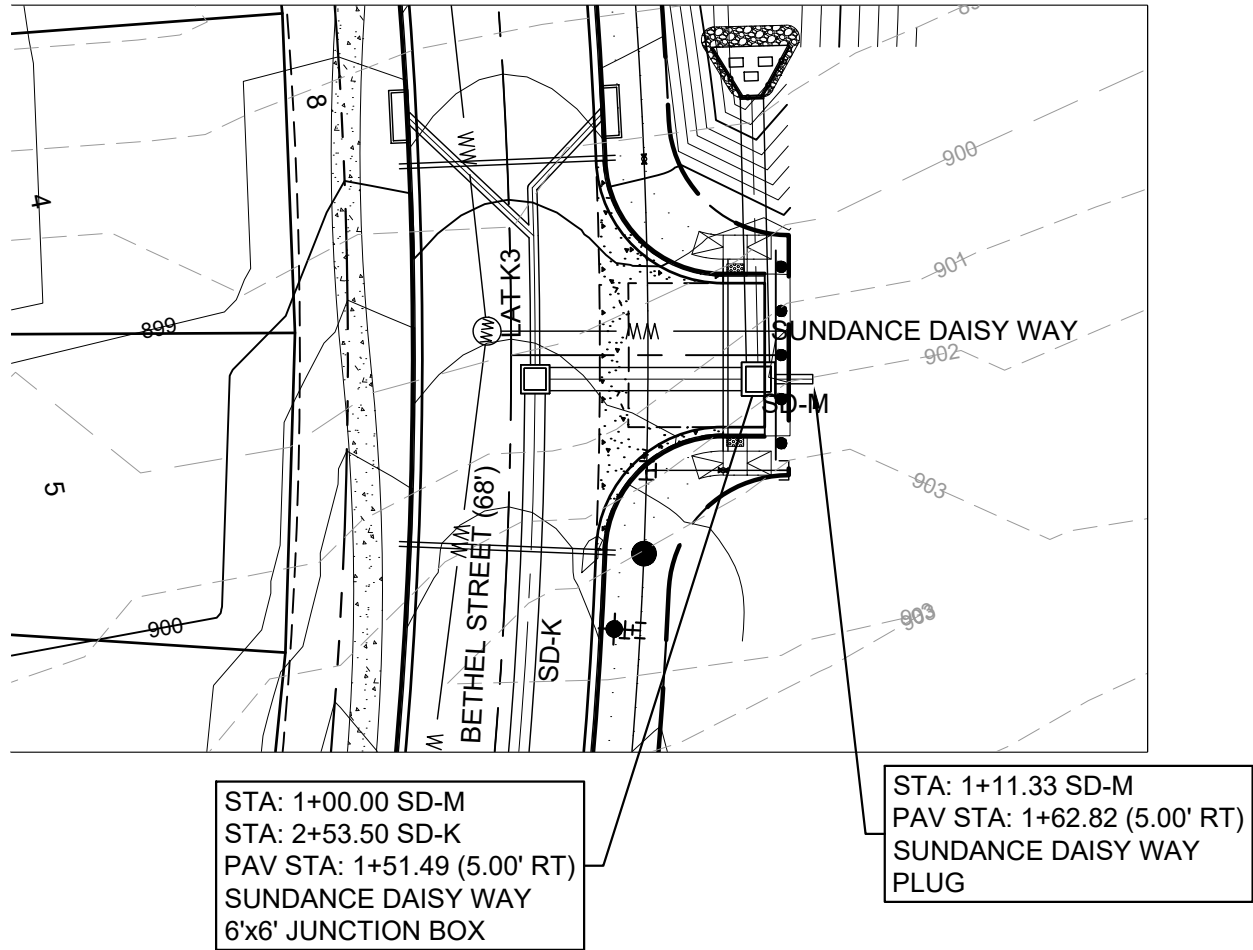
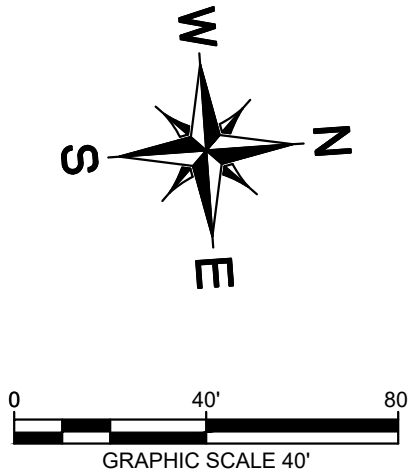
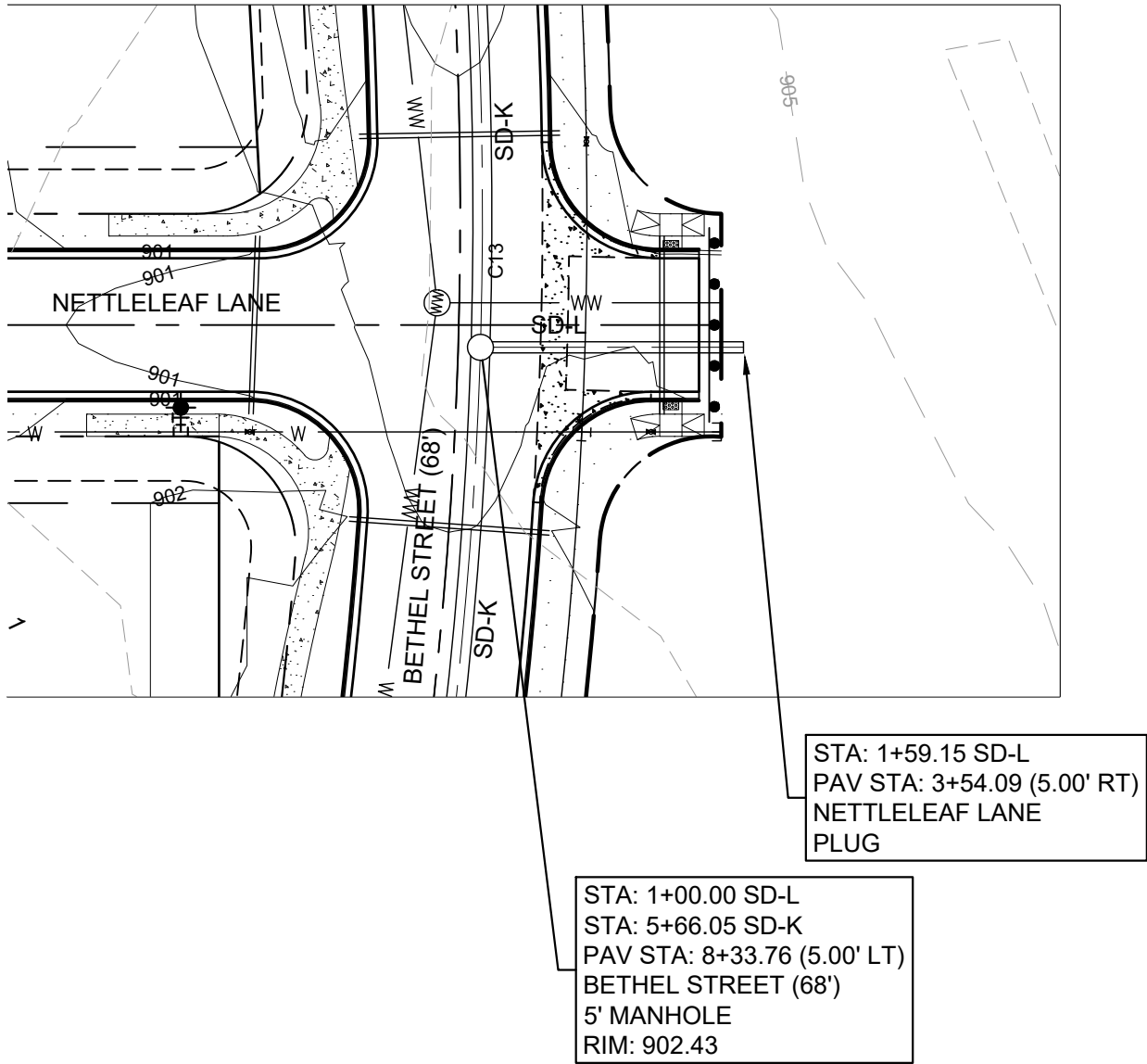
BY

DATE

REVISIONS

No.

Plotted By: Lewis, Jacob Date: August 14, 2025 04:17:25pm File Path: K:\Geo-civil\06500700-regalade ranch\Coa\Phase 1\plan\sheet\0-Storm Plan and Profile Set.dwg
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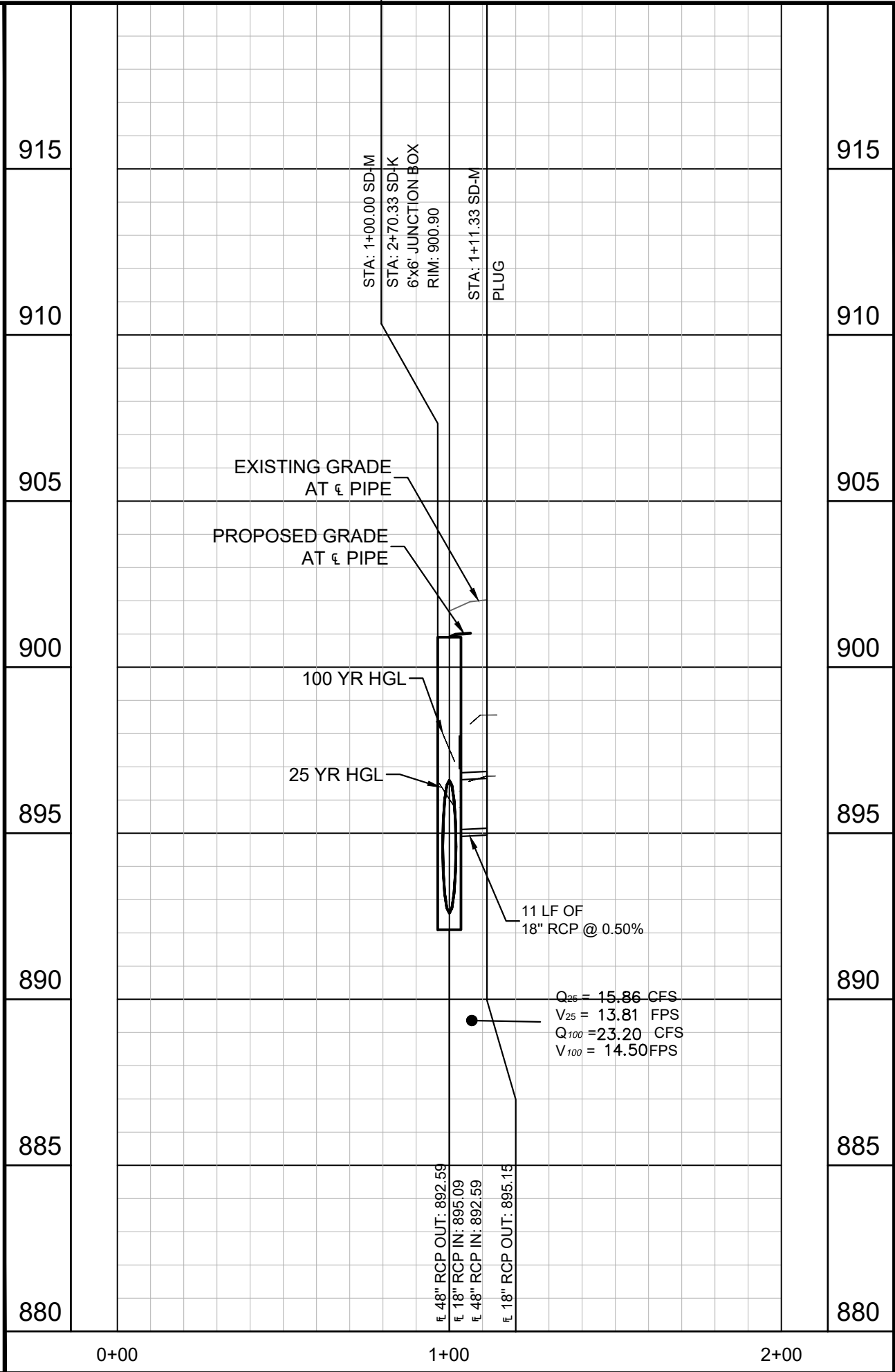
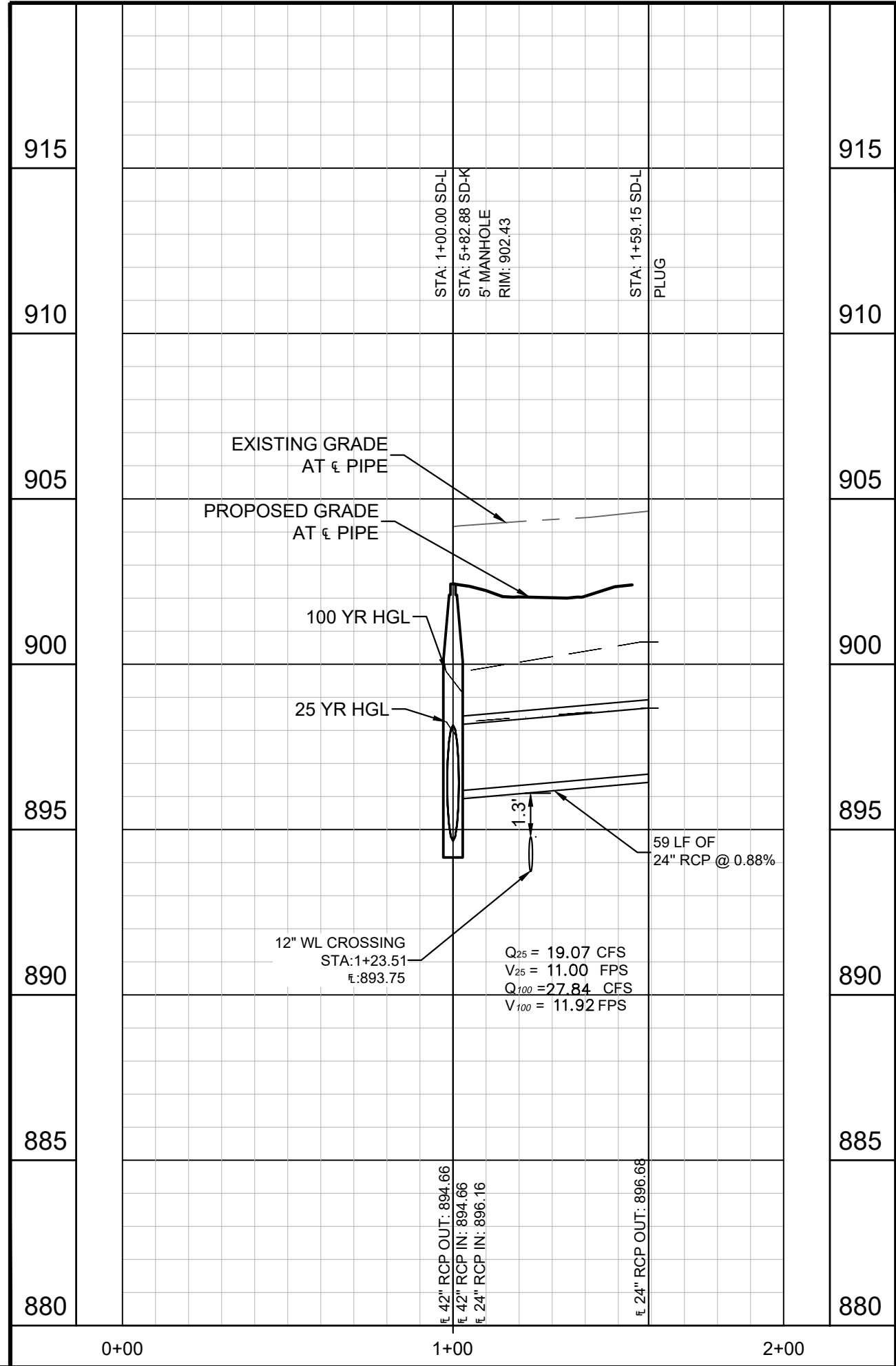
LEGEND	
	PROPERTY LINE
	PHASE LINE
	LOT DRAINAGE FLOW DIRECTION
	STREET DRAINAGE FLOW DIRECTION
	PROPOSED RETAINING WALL
	EXPOSED FACE OF RETAINING WALL
	PROPOSED CONTOUR
	EXISTING CONTOUR
	STORM SEWER
	STORM INLET
	AREA INLET
	STORM MANHOLE
	JUNCTION BOX
	WATER MAIN
	WASTEWATER MAIN
	EXISTING WATER LINE
	EXISTING WASTEWATER LINE
	EXISTING STORM SEWER LINE

STORM GENERAL NOTES

- UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.

SD-L

SD-M



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

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88

STORM PLAN AND
PROFILE LINE SD-L &
SD-M

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
80
OF 155

08/14/2025

Alejandro E. Granados-Rios

RHA PROJECT
06500700

DATE
AUGUST 2025

SCALE: AS SHOWN

DESIGNED BY: KJM

DRAWN BY:

CHECKED BY: AEG

REVISIONS		DATE	BY
No.			

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TEXAS REGISTERED ENGINEERING FIRM E-928

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

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

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 863.864 FEET
NAVD88

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TEXAS REGISTERED ENGINEERING FIRM #2928

08/14/2023



A circular professional engineer seal for the State of Texas. The seal features a five-pointed star in the center. The text "STATE OF TEXAS" is at the top, "ALEJANDRO E. GRANADOS RICO" is on the left, "130084" is in the middle, and "LICENSED PROFESSIONAL ENGINEER" is on the right. The seal is surrounded by a decorative border.

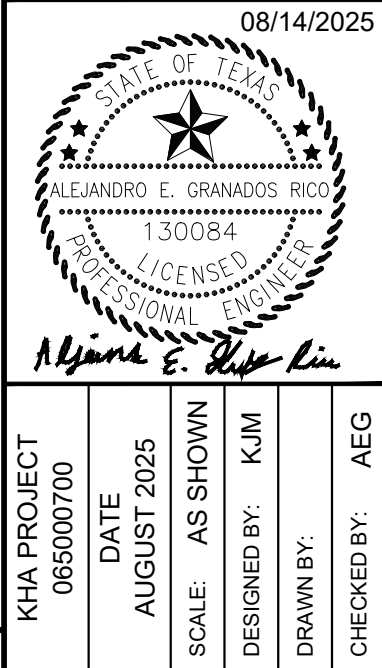
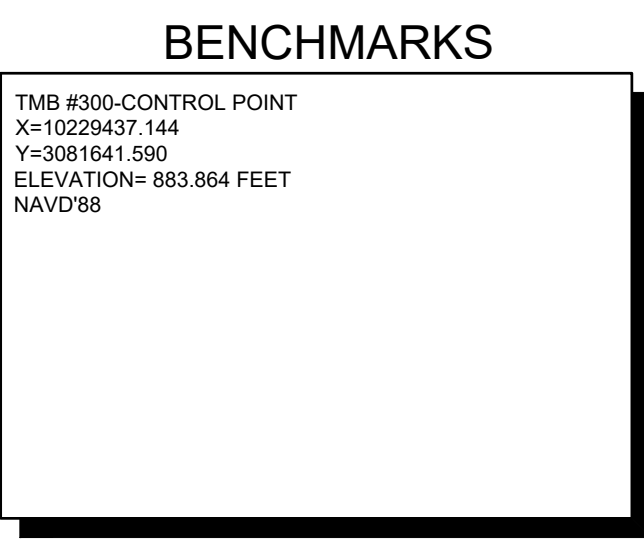
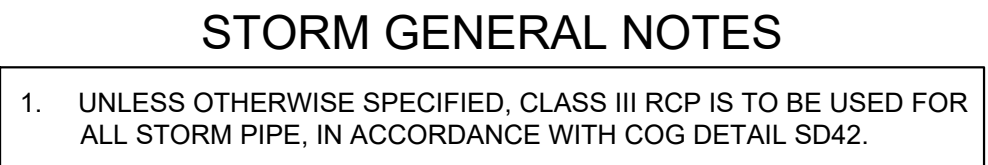
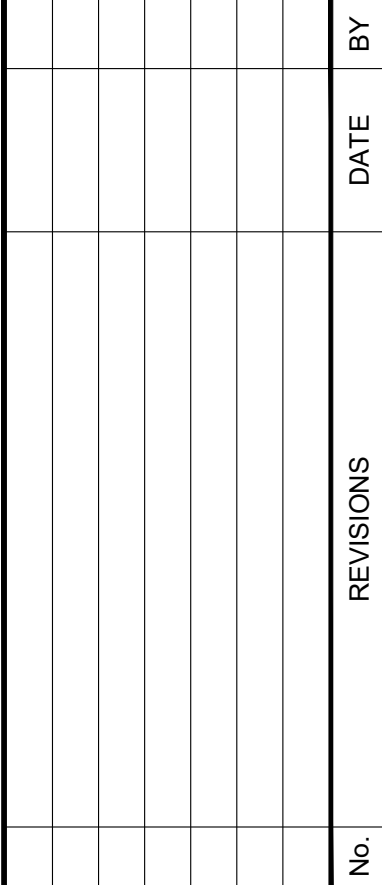
Alejandro E. Granados Rico

KHA PROJECT 065000700	DATE AUGUST 2025	SCALE: AS SHOWN	DESIGNED BY: KJM	DRAWN BY:	CHECKED BY: AFG
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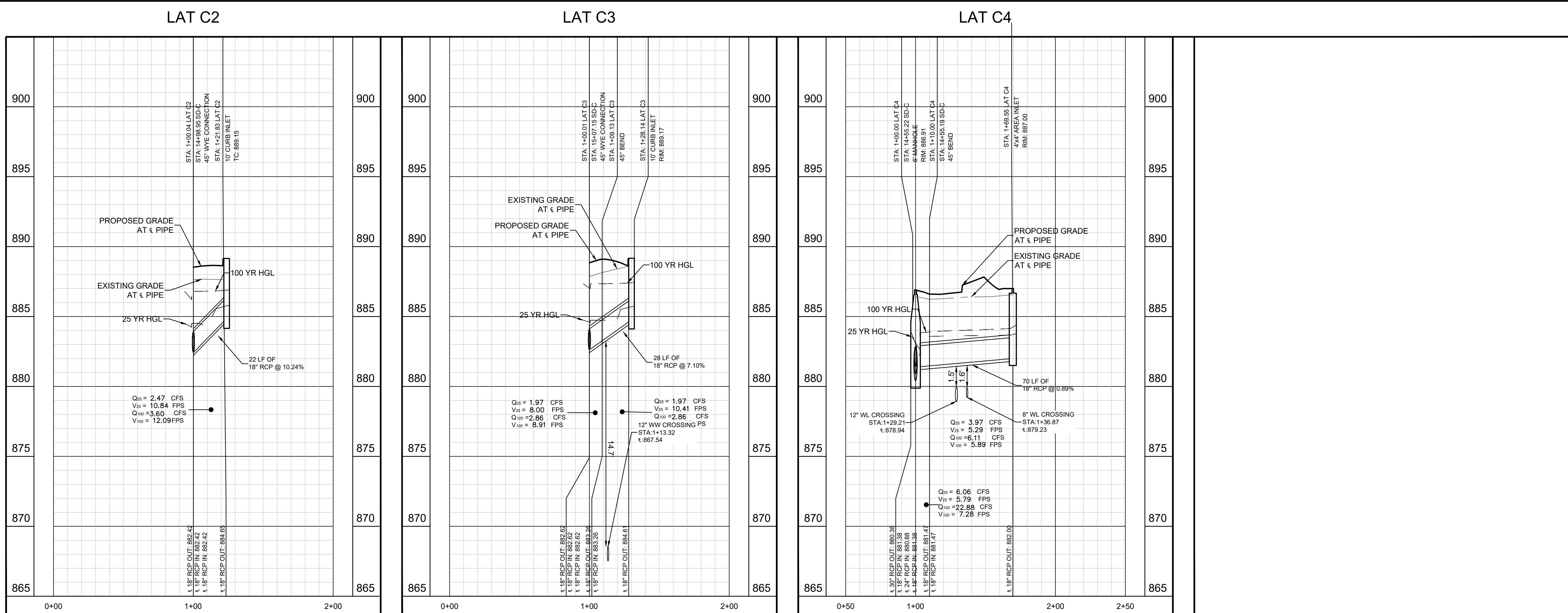
STORM LATERALS
(1 OF 10)

**RIVINA
PHASE 1**
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
81
OF 155

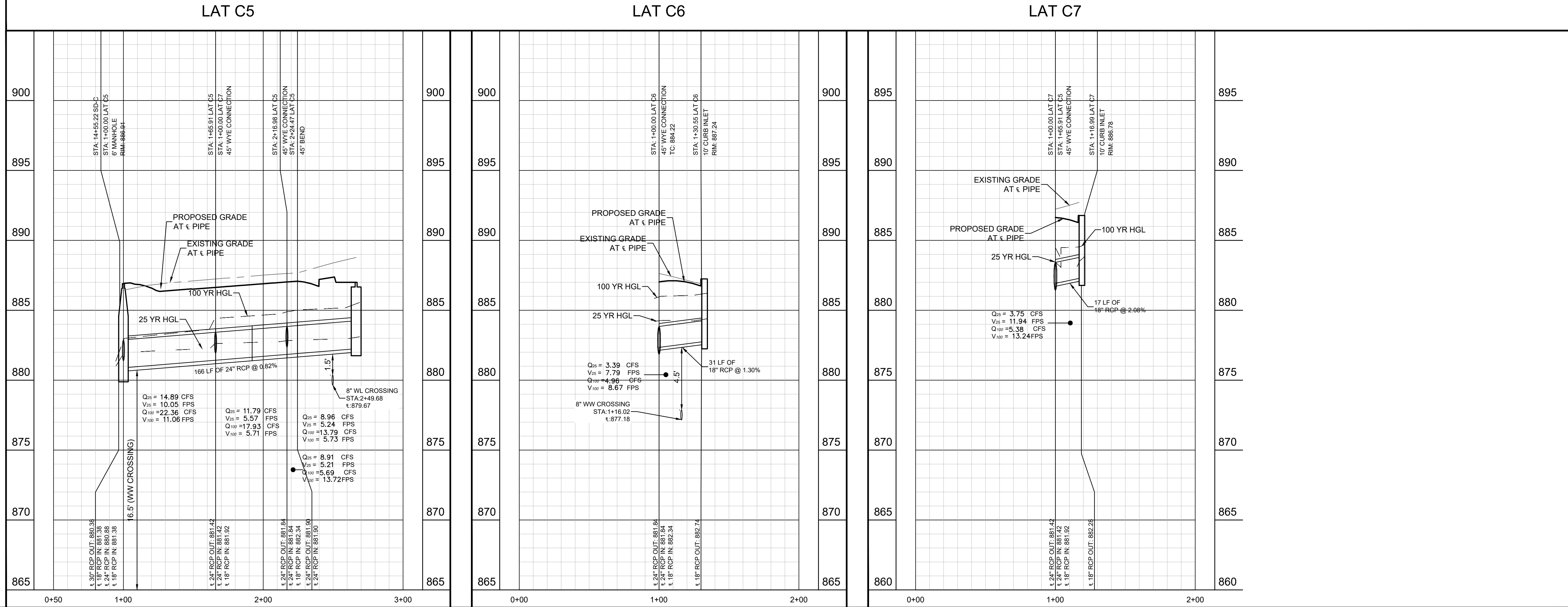


Plotted By: Lewis, Jacob Date: August 14, 2025 04:20:12pm File Path: K:\Geo-civil\06500700-roggside ranch\Coord\Phase 1\plan\sheet\c-Storm Laterals.dwg
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STORM GENERAL NOTES

1. UNLESS OTHERWISE SPECIFIED, CLASS III RCP IS TO BE USED FOR ALL STORM PIPE, IN ACCORDANCE WITH COG DETAIL SD42.



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

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PHONE: 512-520-0768
WWW.KIMLEY-HORN.COM
TEXAS REGISTERED ENGINEERING FIRM E-928

08/14/2025

STATE OF TEXAS

ALFONSO E. GRANADOS RIOS

130084

PROFESSIONAL ENGINEER

KHA PROJECT
06500700

DATE
AUGUST 2025

SCALE
AS SHOWN

DESIGNED BY
KJM

DRAWN BY

CHECKED BY
AEG

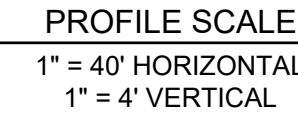
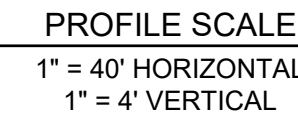
STORM LATERALS
(3 OF 10)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
83
OF 155

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88



BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'88

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08/14/2

KHA PROJECT 065000700	DATE AUGUST 2025	SCALE: AS SHOWN	DESIGNED BY: KJM	DRAWN BY:	CHECKED BY: AEC
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STORM LATERALS
(4 OF 10)

RIVINA
PHASE 1

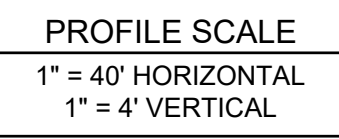
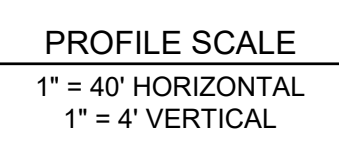
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER

84
OF 155

NO	REVISIONS	DATE	BY
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BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD78

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Life Line

KHA PROJECT 065000700	DATE AUGUST 2025	SCALE: AS SHOWN	DESIGNED BY: KJM	DRAWN BY:	CHECKED BY: AFG
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STORM LATERALS
(5 OF 10)

RIVINA

PHASE 1

CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
85
OF 155

No.	REVISIONS	DATE	BY
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TEXAS REGISTERED ENGINEERING FIRM F-928

25

CHECKED BY: AEG



No.	REVISIONS	DATE	BY

08/14/2025



Alejandro E. Granados Rico

KHA PROJECT 065000700	DATE AUGUST 2025	SCALE: AS SHOWN	DESIGNED BY: KJM	DRAWN BY:	CHECKED BY: AEG
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STORM LATERALS (6 OF 10)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

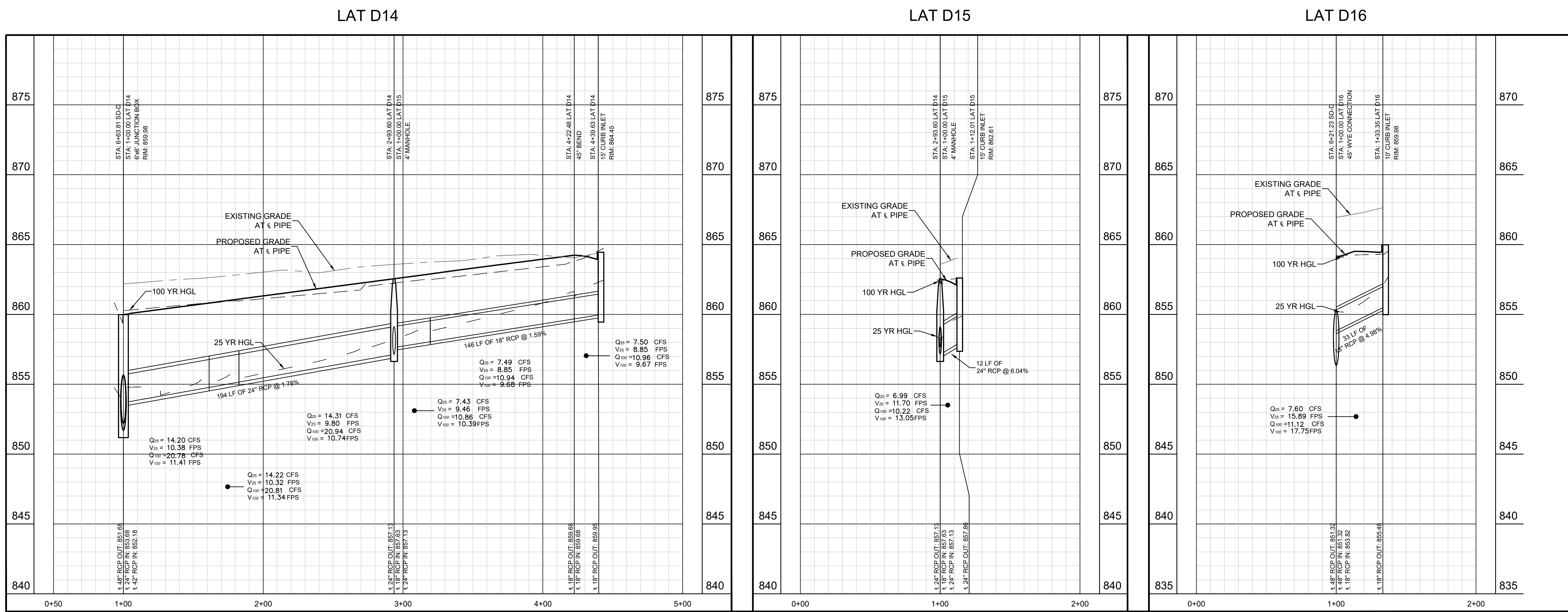
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86
OF 155

BENCHMARKS

TMB #300-CONTROL POINT
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Y=3081641.590
ELEVATION= 883.864 FEET
NAVD'88

Plotted By: Lewis, Jacob Date: August 14, 2025 04:27:57pm File Path: K:\geo_civil\065000700-ragsdale ranch\cad\Phase 1\plansheets\C-Storm Laterals-East.dwg

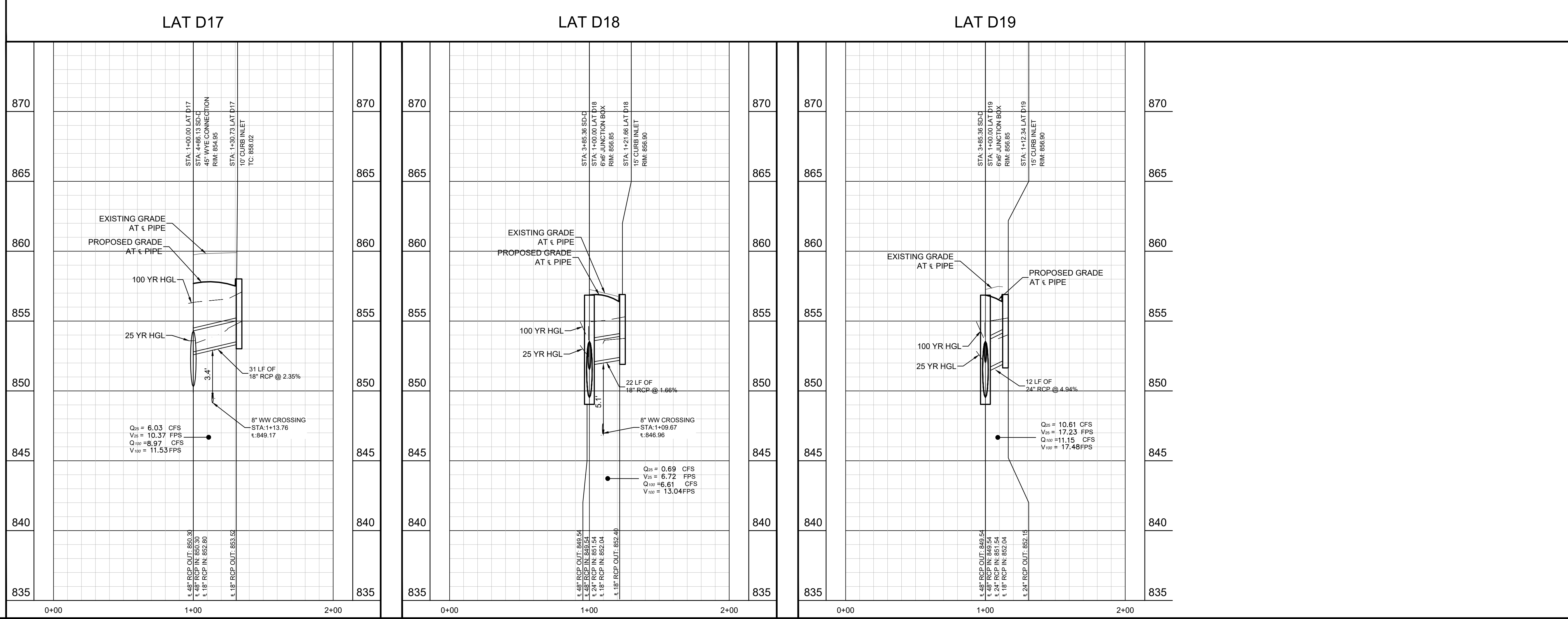
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PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

STORM GENERAL NOTES

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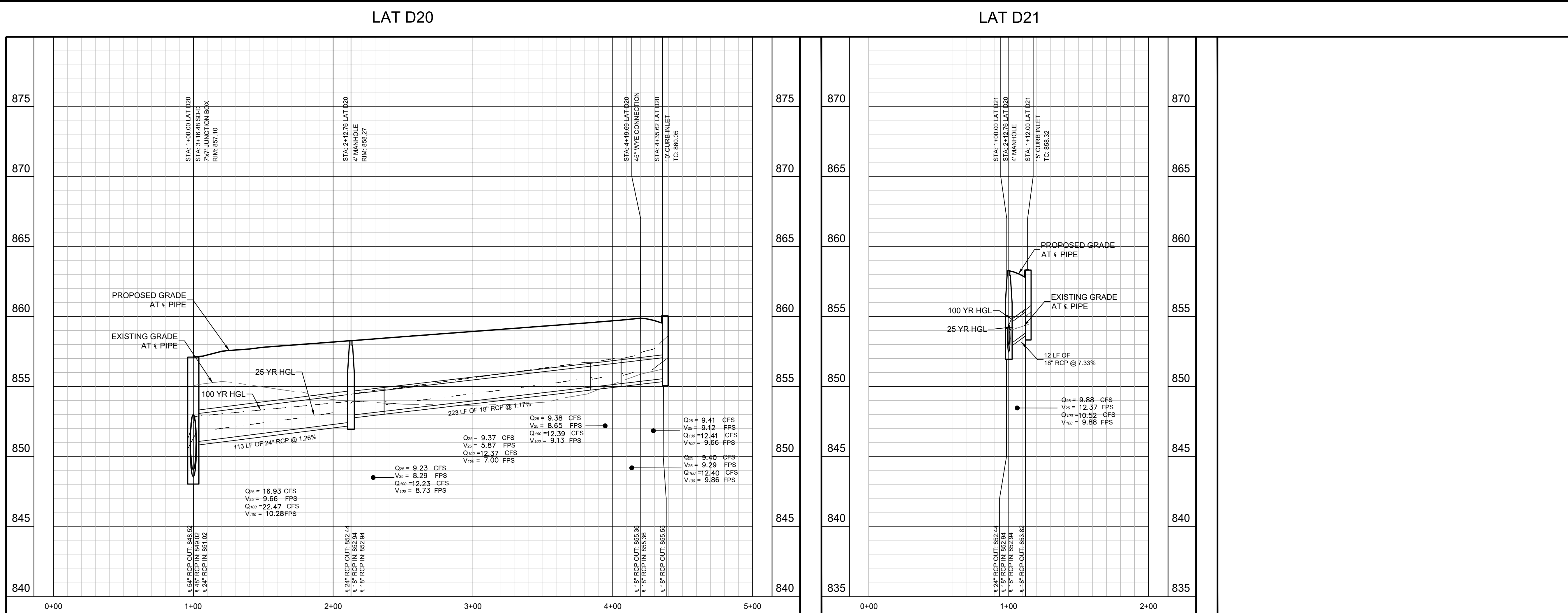
PROFILE SCALE
1" = 40' HORIZONTAL
1" = 4' VERTICAL

BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD83

KHA PROJECT 06500700		DATE AUGUST 2025		SCALE AS SHOWN		DESIGNED BY KJM		DRAWN BY		CHECKED BY AEG	
STORM LATERALS (7 OF 10)											
RIVINA PHASE 1 CITY OF GEORGETOWN WILLIAMSON COUNTY, TEXAS											
SHEET NUMBER 87 OF 155											
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08/14/2025 ALEXANDRO E. GRANADOS RIVERA 130084 PROFESSIONAL ENGINEER Alfonso E. Rivero-Lin											
BY DATE REVISIONS No.											

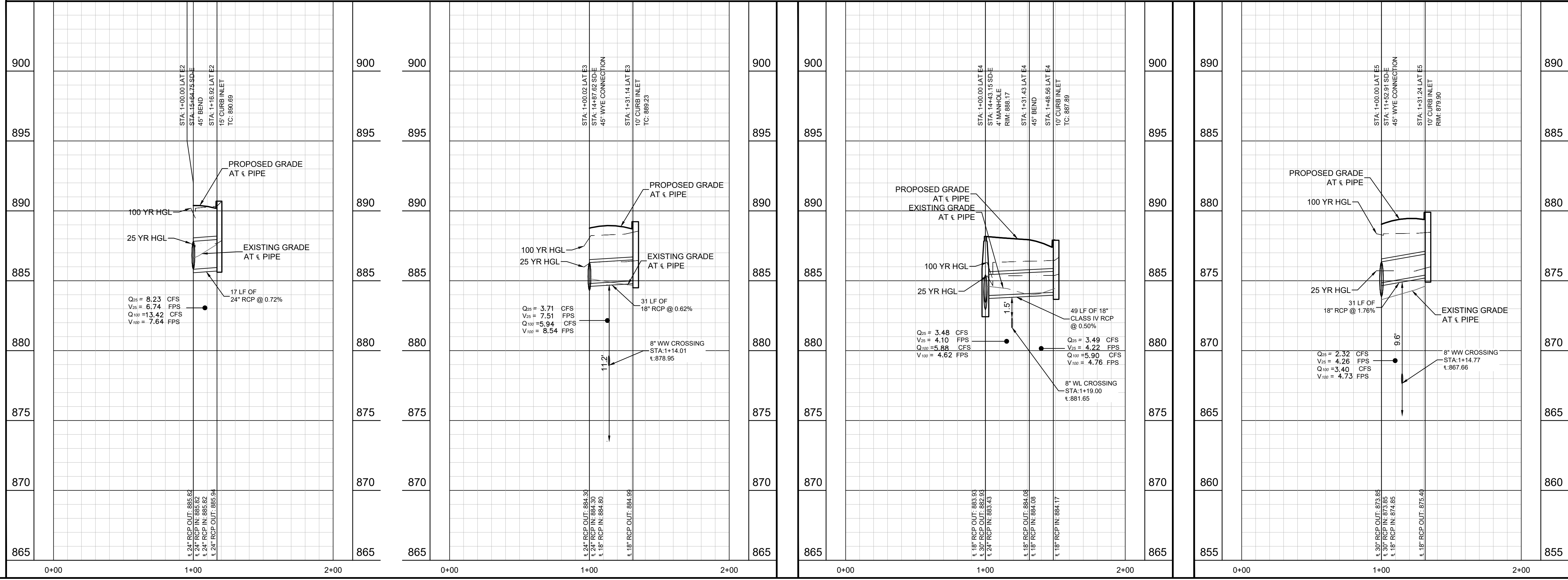
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BENCHMARKS

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Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88

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TEXAS REGISTERED ENGINEERING FIRM E-928

08/14/2025

ALFONSO L. GRANADOS RIVERA

130084

PROFESSIONAL ENGINEER

Alfonso L. Rivera

KHA PROJECT
06500700

DATE
AUGUST 2025

SCALE
AS SHOWN

DESIGNED BY
KJM

DRAWN BY

CHECKED BY
AEG

STORM
LATERALS
(8 OF 10)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

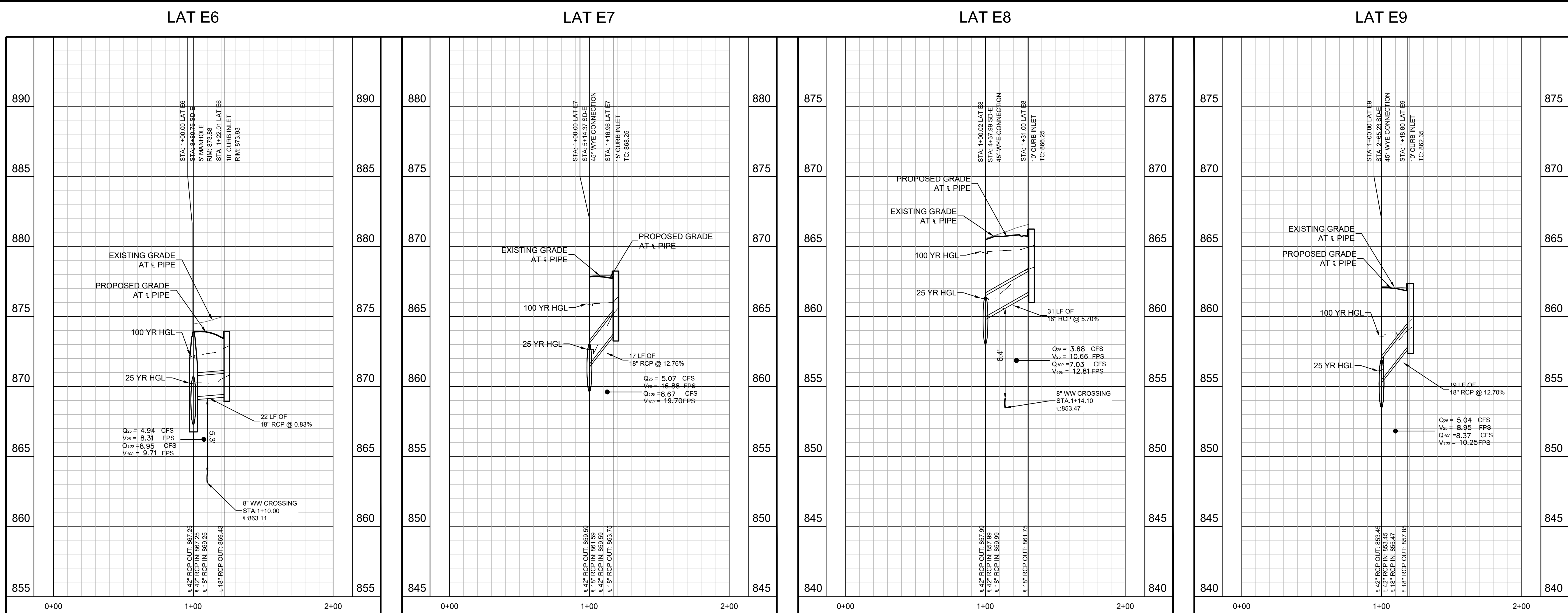
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OF 155

REVISIONS

DATE

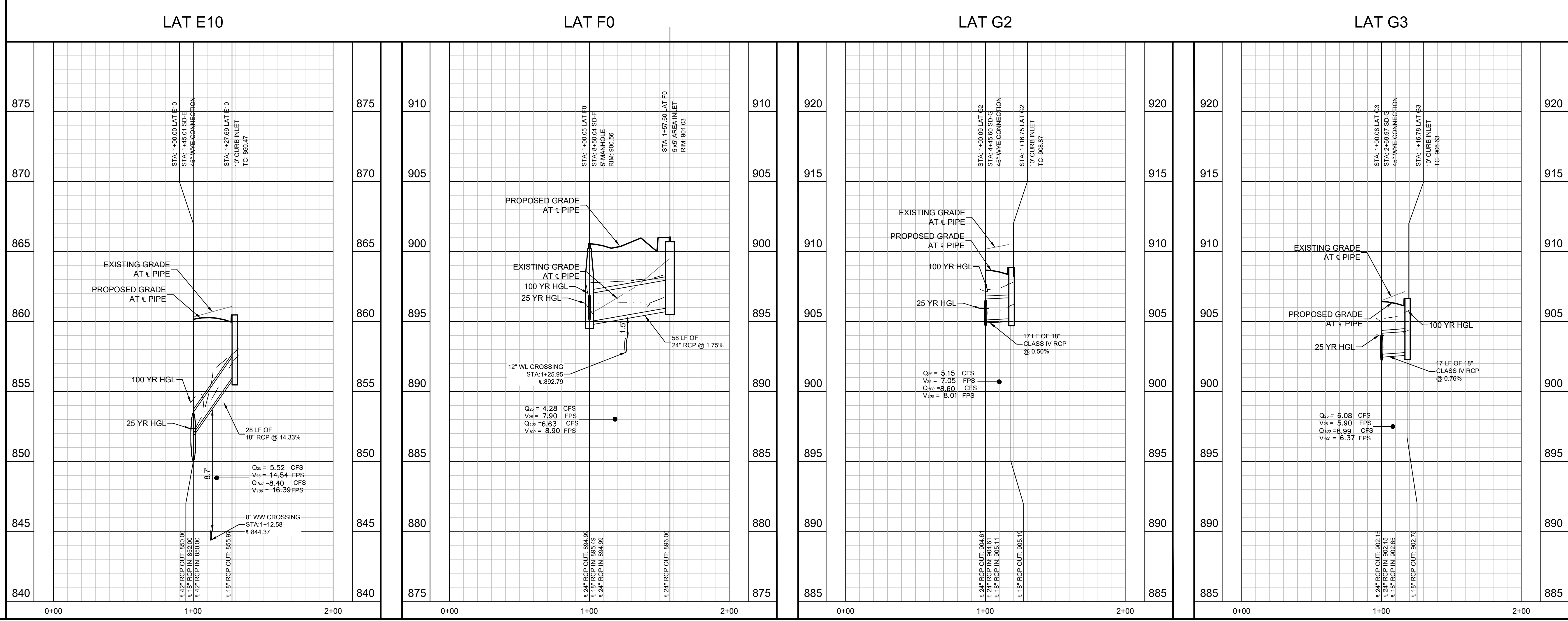
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Plotted By: Lewis, Jacob Date: August 14, 2025 04:31:03pm File Path: K:\Geo-civil\06500700-ragsdale ranch\Coord\Phase 1\plan\sheet\0-Storm Laterals-East-2.dwg
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BENCHMARKS

TMB #300-CONTROL POINT
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ELEVATION= 883.864 FEET
NAVD88

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08/14/2025

ALFONSO E. GRANADOS RIVERA
130084
PROFESSIONAL ENGINEER

Alfonso E. Rivera

KHA PROJECT
06500700

DATE
AUGUST 2025

SCALE
AS SHOWN

DESIGNED BY
KJM

DRAWN BY

CHECKED BY
AEG

STORM
LATERALS
(9 OF 10)

RIVINA
PHASE 1
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER
89
OF 155

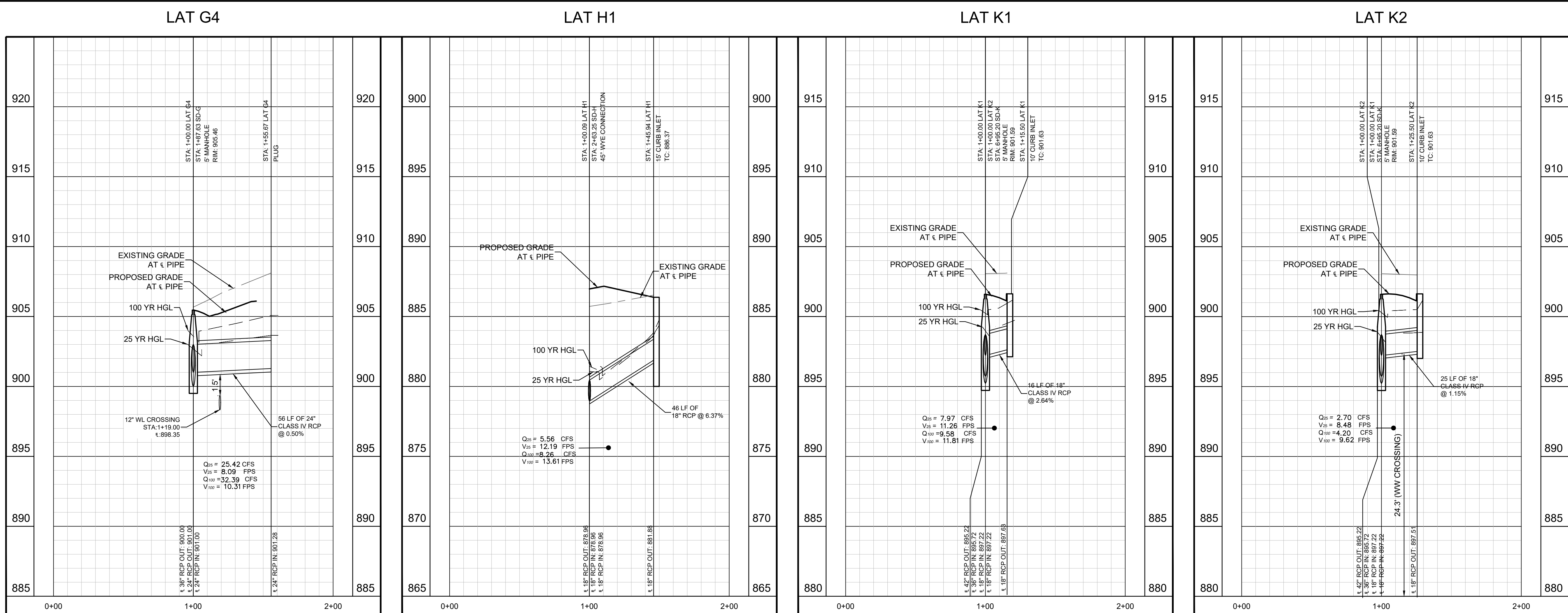
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REVISIONS

DATE

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Plotted By: Lewis, Jacob Date: August 14, 2025 04:31:42pm File Path: K:\Geo-civil\065000700-ragsdale ranch\Coord\Phase 1\plan\sheet\0-Storm Laterals-East-2.dwg
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1" = 4' VERTICAL


BENCHMARKS

TMB #300-CONTROL POINT
X=10229437.144
Y=3081641.590
ELEVATION= 883.864 FEET
NAVD88


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8/14/2025		KIM		AEG	
KHA PROJECT 065000700		DATE AUGUST 2025		SCALE AS SHOWN	
DESIGNED BY KIM		DRAWN BY		CHECKED BY	
RIVINA		STORM LATERALS (10 OF 10)			
PHASE 1					
CITY OF GEORGETOWN					
WILLIAMSON COUNTY, TEXAS					
SHEET NUMBER 90 OF 155					

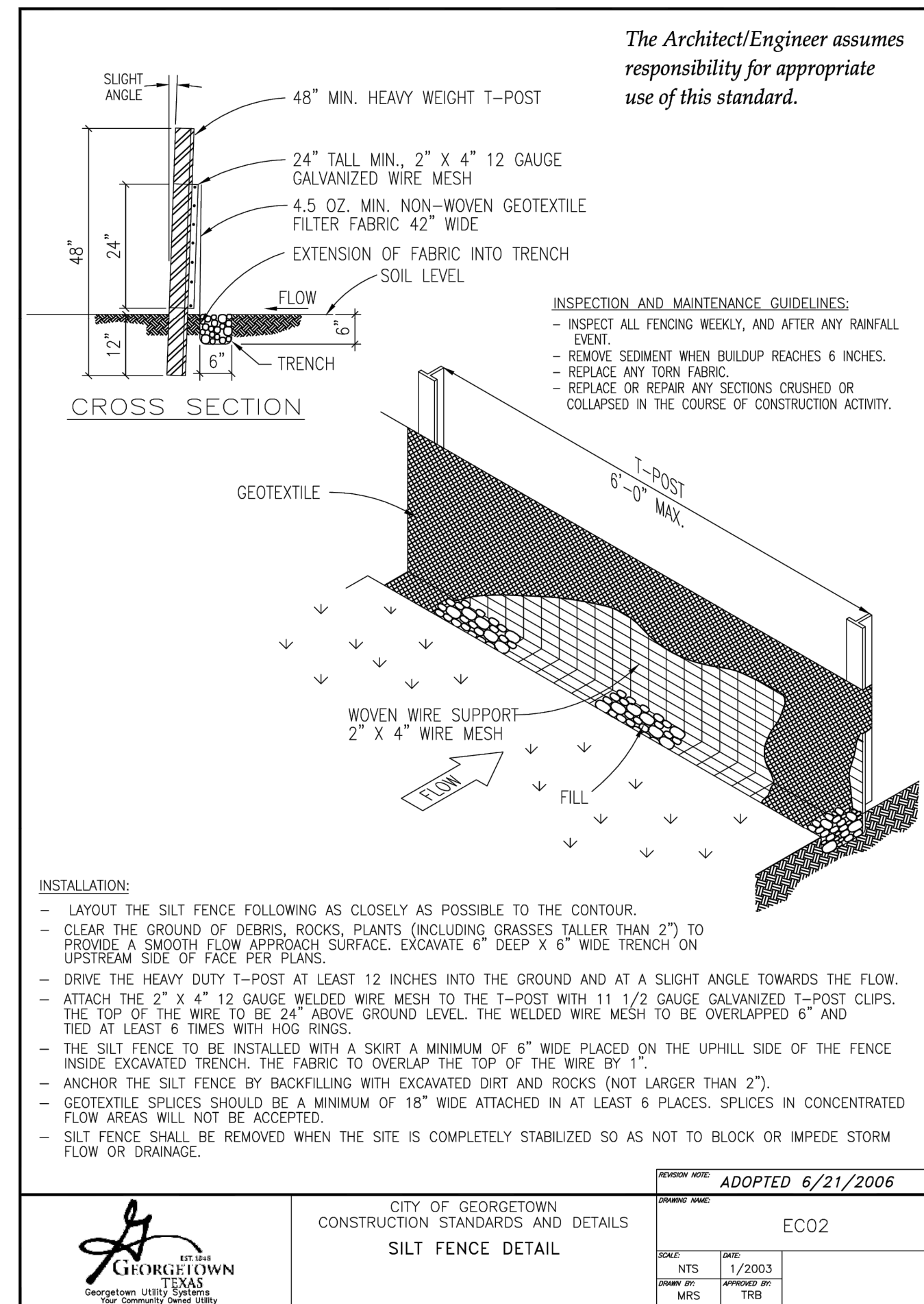
TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 – 10%
	200 FEET	2 ACRES	10 – 20%
	100 FEET	1 ACRE	20 – 30%
	50 FEET	1/2 ACRE	> 30%
TRIANGLE FILTER DIKE	100 FEET	1/2 ACRE	< 30% SLOPE
	50 FEET	1/4 ACRE	> 30% SLOPE
ROCK BERM *, **	500 FEET	< 5 ACRES	0 – 10%

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

 <p>EST. 1984 TEXAS GEOSPATIAL UTILITY SOLUTIONS Geospatial Utility Solutions Your Community's Geospatial Utility</p>	<p>CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS</p> <p>TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES</p>		<p>DRAWING NAME: EC01</p>
	<p>SCALE: NTS 1/2003 REVISED BY: MRS. T. TRB</p>	<p>DATE: 1/2003 APPROVED BY: TRB</p>	

[illegible]

 <p> CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES </p>	REVISION NOTE ADOPTED 6/21/200	
	DRAWING NAME: EC01A	
<p> EST. 1948 GEORGETOWN TEXAS Georgetown Utility Systems Your Community. Speed. Utility. </p>	SCALE: NTS	DATE: 1/7/2003
	DRAWN BY: MRS	APPROVED BY: TRB



5'-0"

10' MAX.

DRIPLINE OF EXISTING TREE

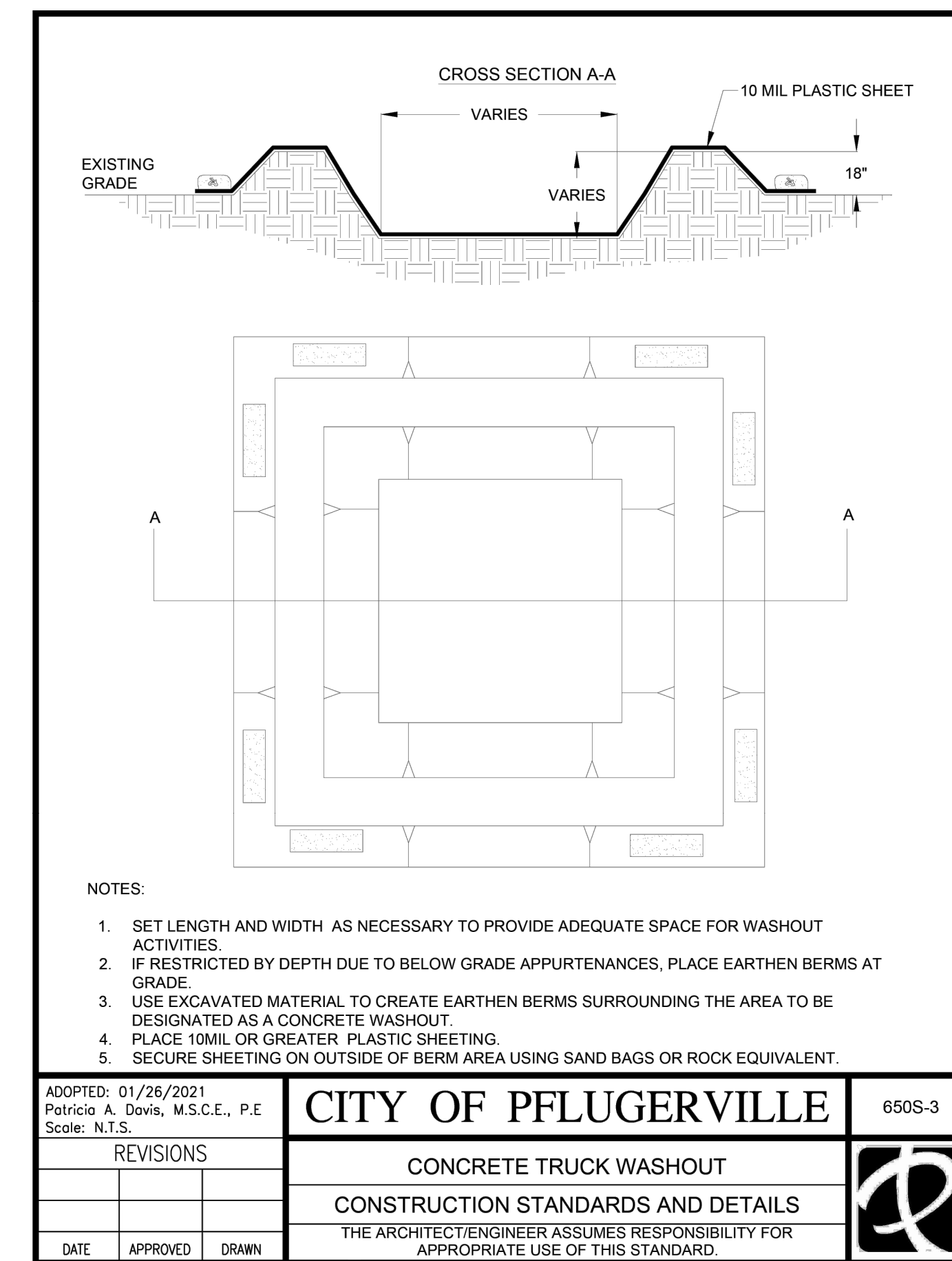
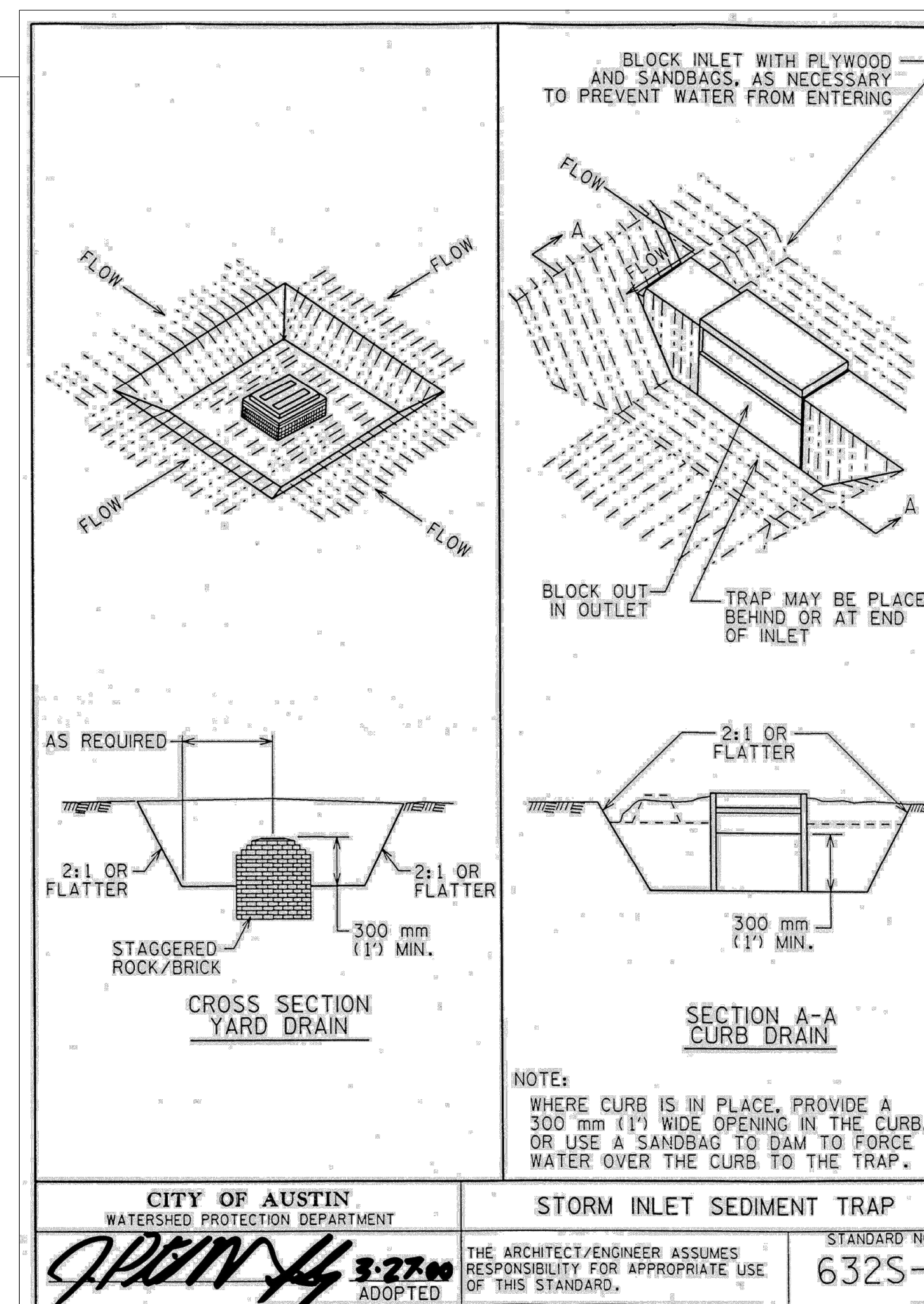
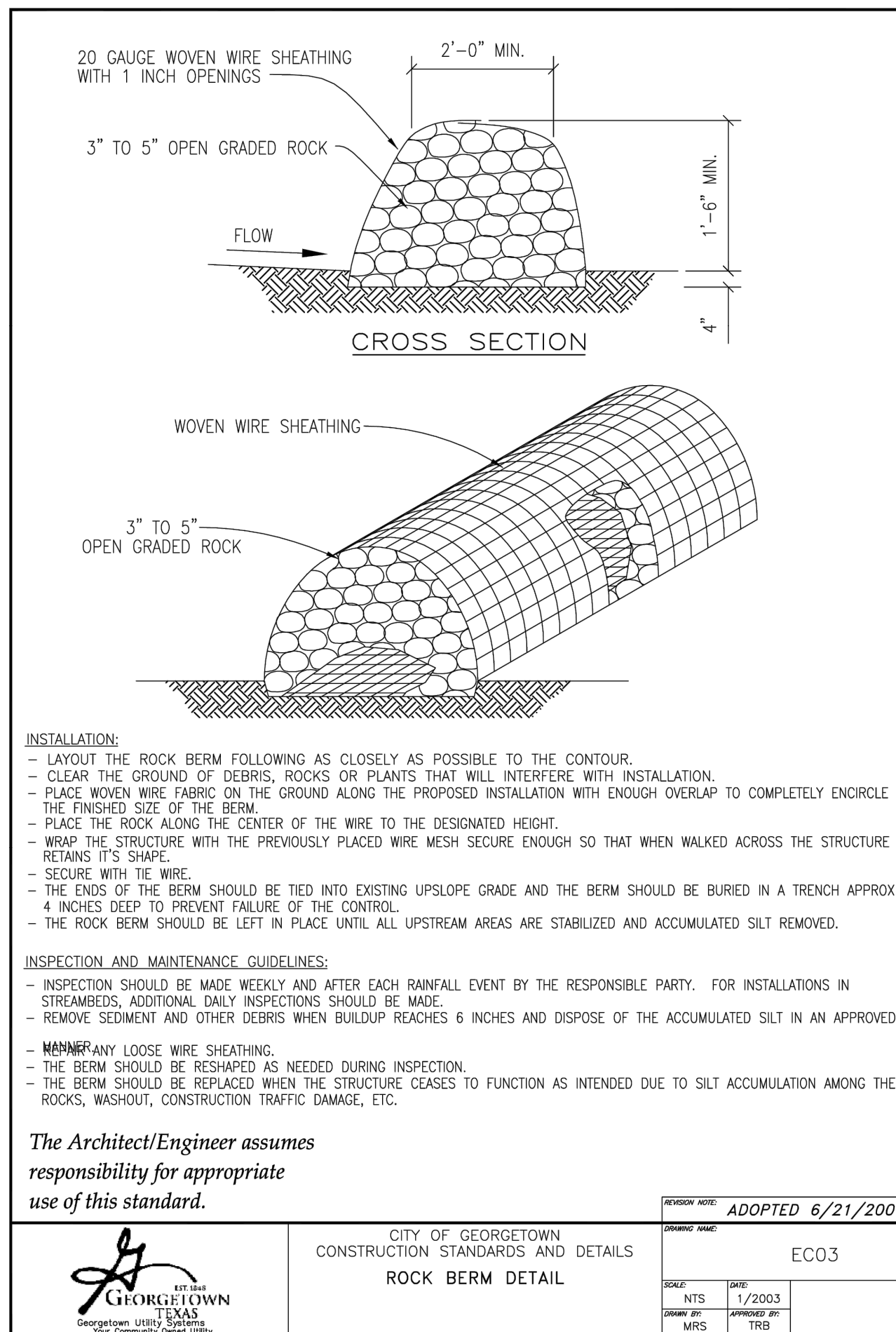
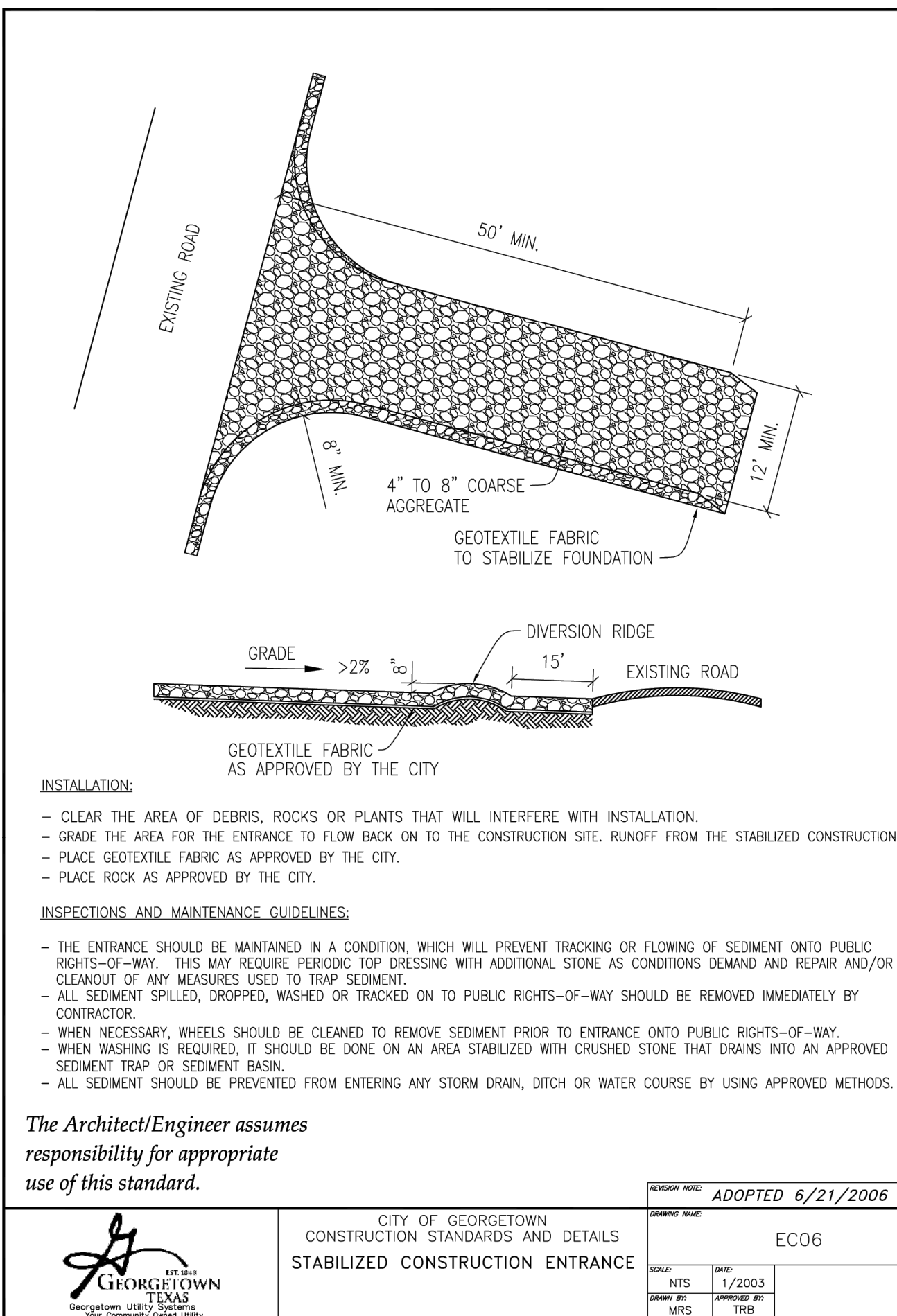
CHAIN LINK FENCE

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.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS TREE PROTECTION – CHAIN LINK FENCE		REVISION DATE: ADOPTED 6/21/2006 DRAWING NAME: EC09
DATE: NTS DRAWN BY: MRS CHECKED BY: TRB	DATE: 1/2003 APPROVED BY: TRB	GEORGETOWN ENGINEERING 10101 10101 10101



Inspection, Maintenance, Repair and Retrofit Plan

The following sections address inspection and maintenance taken from the TNRCC Manual, "Complying with Edward Aquifer Rules: Technical Guidance on Best Management Practices."

Silt Fence:

1. Inspection shall be made weekly and after each rainfall event, in accordance with Section 1.4.3 of RG-348.
2. Tom fabric shall be replaced or a second line of fencing parallel to the tom section shall be implemented as needed.
3. Accumulated silt shall be removed when it reaches a depth of six (6) inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.
4. Silt fence shall be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

Inlet Protection:

1. Daily inspection shall be made by the Contractor and silt accumulation must be removed when depth reaches 50 mm (two (2) inches).
2. Contractor shall monitor the performance of inlet protection during each rainfall event and immediately remove the inlet protections if the stormwater begins to overtop the curb.
3. Inlet protections shall be removed as soon as the source of sediment is stabilized.

Stabilized Construction Entrance:

1. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public roadway. This may require periodic top dressing with additional stone as conditions demand. As well as repair and clean out of any measure device used to trap sediment. All sediments that are spilled, dropped, washed or tracked onto public roadway must be removed immediately.
2. Entrance shall be properly graded to prevent run-off from leaving the construction site.

Concrete Washout Area:

1. Routine inspection in accordance with Section 1.4.18 of RG-348 of the area to ensure that sufficient quantity and volume remain to contain all liquid and concrete waste generated by washout operations.

2. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
3. When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Batch Detention Basin

Inspections: Basins should be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. When possible, inspections should be conducted during wet weather to determine if the pond is meeting the target detention times. In particular, the extended detention control device should be regularly inspected for evidence of clogging, or conversely, for too rapid a release. If the design drawdown times are exceeded by more than 24 hours, then repairs should be scheduled immediately. The upper stage pilot channel, if any, and its flow path to the lower stage should be checked for erosion problems. During each inspection, erosion areas inside and downstream of the BMP should be identified and repaired or revegetated immediately.

Mowing. The upper stage, side slopes, embankment, and emergency spillway of an extended detention basin must be mowed regularly to discourage woody growth and control weeds. Grass areas in and around basins should be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. When mowing of grass is performed, a mulching mower should be used, or grass clippings should be caught and removed.

Debris and Litter Removal. Debris and litter will accumulate near the extended detention control device and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the control device or riser.

Erosion Control. The pond side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion, although this should not occur often if the soils are properly compacted during construction. Regrading and revegetation may be required to correct the problems. Similarly, the channel connecting an upper stage with a lower stage may periodically need to be replaced or repaired. g: Grass areas in and around sand filters must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscape areas. Vegetation on the pond embankments should be mowed as appropriate to prevent the establishment of woody vegetation

Structural Repairs and Replacement. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. These repairs should include patching of cracked concrete, sealing of voids, and removal of vegetation from cracks and joints. The various inlet/outlet and riser works in a basin will eventually deteriorate and must be replaced. Public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 yr, whereas reinforced concrete barrels and risers may last from 50 to 75 yr.

Nuisance Control. Standing water (not desired in a extended detention basin) or soggy conditions within the lower stage of the basin can create nuisance conditions for nearby residents. Odors, mosquitoes, weeds, and litter are all occasionally perceived to be problems. Most of these problems are generally a sign that regular inspections and maintenance are not being performed (e.g., mowing, debris removal, clearing the outlet control device).

Sediment Removal. When properly designed, dry extended detention basins will accumulate quantities of sediment over time. Sediment accumulation is a serious maintenance concern in extended detention dry ponds for several reasons. First, the sediment gradually reduces available stormwater management storage capacity within the basin. Second, unlike wet extended detention basins (which have a permanent pool to conceal deposited sediments), sediment accumulation can make dry extended detention basins very unsightly. Third, and perhaps most importantly, sediment tends to accumulate around the control device. Sediment deposition increases the risk that the orifice will become clogged, and gradually reduces storage capacity reserved for pollutant removal. Sediment can also be resuspended if allowed to accumulate over time and escape through the hydraulic control to downstream channels and streams. For these reasons, accumulated sediment needs to be removed from the lower stage when sediment buildup fills 20% of the volume of the basin or at least every 10 years.

Wet Basins

Mowing. The side-slopes, embankment, and emergency spillway of the basin should be mowed at least twice a year to prevent woody growth and control weeds.

- **Inspections.** Wet basins should be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. When possible, inspections should be conducted during wet weather to determine if the basin is functioning properly. There are many functions and characteristics of these BMPs that should be inspected. The embankment should be checked for subsidence, erosion, leakage, cracking, and tree growth. The condition of the emergency spillway should be checked. The inlet, barrel, and outlet should be inspected for clogging. The adequacy of upstream and downstream channel erosion protection measures should be checked. Stability of the side slopes should be checked. Modifications to the basin structure and contributing watershed should be evaluated. During semi-annual inspections, replace any dead or displaced vegetation. Replanting of various species of wetland vegetation may be required at first, until a viable mix of species is established. Cracks, voids and undermining should be patched/filled to prevent additional structural damage. Trees and root systems should be removed to prevent growth in cracks and joints that can cause structural damage. The inspections should be carried out with as-built pond plans in hand.

- **Debris and Litter Removal.** As part of 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 riser, and the outlet should be checked for possible clogging.

- **Erosion Control.** The basin side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion. Corrective measures such as regrading and revegetation may be necessary. Similarly, the riprap protecting the channel near the outlet may need to be repaired or replaced.

Nuisance Control. Most public agencies surveyed indicate that control of insects, weeds, odors, and algae may be needed in some ponds. Nuisance control is probably the most frequent maintenance item demanded by local residents. If the ponds are properly sized and vegetated, these problems should be rare in wet ponds except under extremely dry weather conditions. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.). Biological control of algae and mosquitoes using fish such as fathead minnows is preferable to chemical applications.

Non-routine maintenance.

- **Structural Repairs and Replacement.** Eventually, the various inlet/outlet and riser works in the wet basin will deteriorate and must be replaced. Some public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 yr, while concrete barrels and risers may last from 50 to 75 yr. The actual life depends on the type of soil, pH of runoff, and other factors. Polyvinyl chloride (PVC) pipe is a corrosion resistant alternative to metal and concrete pipes. Local experience typically determines which materials are best suited to the site conditions. Leakage or seepage of water through the embankment can be avoided if the embankment has been constructed of impermeable material, has been compacted, and if anti-seep collars are used around the barrel. Correction of any of these design flaws is difficult.
- **Sediment Removal.** Wet ponds will eventually accumulate enough sediment to significantly reduce storage capacity of the permanent pool. As might be expected, the accumulated sediment can reduce both the appearance and pollutant removal performance of the pond. Sediment accumulated in the sediment forebay area should be removed from the facility every two years to prevent accumulation in the permanent pool. Dredging of the permanent pool should occur at least every 20 years, or when accumulation of sediment impairs functioning of the outlet structure.
- **Harvesting.** If vegetation is present on the fringes or in the pond, it can be periodically harvested and the clippings removed to provide export of nutrients and to prevent the basin from filling with decaying organic matter.

Rock Berm

1. Inspection should be made weekly and after each rainfall in accordance to Section 1.4.5 of RG-348. If placed in streambeds, inspection should occur on a daily basis.
2. Accumulated silt shall be removed when it reaches a depth of six (6) inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.
3. Loose wire sheathing shall be repaired immediately when necessary and the berm shall be reshaped as needed during inspection.
4. Berm shall be replaced if the structure ceases to function as initially intended due to factors such as silt accumulation, washout, construction traffic damage, etc.
5. When all upstream areas are stabilized and the accumulated silt has been removed, the rock berm should be removed and disposed of.

VEGETATIVE FILTER STRIPS

VEGETATIVE FILTER STRIPS

First Two Months: The first two months are the most important for vegetative filter strips, or until they are well established. The following guidelines should be followed most closely during this time period. After the vegetative filter strips have been well established, little additional maintenance is necessary.

Pest Management: An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

Seasonal Mowing and Lawn Care: If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip area. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.

Inspection: Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

Debris and Litter Removal: Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.

Sediment Removal: Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.

Grass Reseeding and Mulching: A healthy dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Corrective maintenance such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established

GRASSY SWALES

Maintenance for grassy swales is minimal and is largely aimed at keeping the grass cover dense and vigorous. Maintenance practices and schedules should be developed and included as part of the original plans to alleviate maintenance problems in the future. Recommended practices include (modified from Young et al., 1996):

- **Pest Management.** An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

**RIVINA PHASE 1
CONTRIBUTING ZONE PLAN**

- **Seasonal Mowing and Lawn Care.** Lawn mowing should be performed routinely, as needed, throughout the growing season. Grass height should not exceed 18 inches. Grass cuttings should be collected and disposed of offsite, or a mulching mower can be used. Regular mowing should also include weed control practices; however, herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients.
- **Inspection.** Inspect swales at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The swale should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections should be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.
- **Debris and Litter Removal.** Trash tends to accumulate in swale areas, particularly along highways. Any swale structures (i.e. check dams) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than two times per year (Urbonas et al., 1992).
- **Sediment Removal.** Sediment accumulating near culverts and in channels needs to be removed when they build up to 3 inches at any spot, or cover vegetation. Excess sediment should be removed by hand or with flat-bottomed shovels. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level with the bottom of the swale. Sediment removal should be performed periodically, as determined through inspection.
- **Grass Reseeding and Mulching.** A healthy dense grass should be maintained in the channel and side slopes. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during swale establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established.
- **Public Education.** Private homeowners are often responsible for roadside swale maintenance. Unfortunately, overzealous lawn care on the part of homeowners can present some problems. For example, mowing the swale too close to the ground, or excessive application of fertilizer and pesticides will all be detrimental to the performance of the swale. Pet waste can also be a problem in swales, and should be removed to avoid contamination from fecal coliform and other waste-associated bacteria. The delegation of maintenance responsibilities to individual landowners is a cost benefit to the locality. However, localities should provide an active educational program to encourage the recommended practices.

**RIVINA PHASE 1
CONTRIBUTING ZONE PLAN**

Responsible Party for Maintenance: GRBK Edgewood LLC

Address: 9430 Research Blvd. Echelon Bldg. IV Suite #180

City, State, Zip: Austin, TX 78759

Telephone Number: (512) 694-5303

Signature of Responsible Party: 

PROJECT NAME: Rivina Phase 1

ADDRESS: Approximately 0.95 miles East of the intersection of Ronald Reagan Blvd.
and FM 3405

CITY, STATE ZIP: Georgetown, Texas 78633

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

During construction, Best Management Practices include the use of silt fence and inlet protection to capture sediment from the construction area contained within the storm water runoff. Silt fence will be installed along the downstream portion of the property and inlet protection will be installed around all existing and proposed inlet structures (once constructed).

After construction, all disturbed areas on the site will be re-vegetated and runoff from the proposed improvements will be captured by the proposed inlets and conveyed to BMP's. Rivina

Phase 1 has a total of 15 basins. The water quality drainage basins are piped into proposed storm sewer pipe and sent to 1 batch detention pond, 1 wet basin, grassy swale, vegetative filter strips, or are untreated. WQP-G is sent to Batch Detention Pond G; WQP-H is sent to Wet Basin Pond H; INT-GS-F1 is sent to a Grassy Swale; INT-VFS-E2, INT-VFS-F, VFS-G, VFS-J1, and VFS-J2 are sent to vegetative filter strips. All proposed water quality BMP's are shown in the construction drawings under sheet 57. The TSS Removal calculations are shown on the Water Quality Calculations sheets 58-60. Please refer to the Erosion and Sedimentation Control for proposed temporary BMPs proposed on Sheet 5.

***SECTION 3:
STORM WATER POLLUTION
PREVENTION PLAN***

STORM WATER POLLUTION PREVENTION PLAN (SWP3)

Rivina Phase 1
Georgetown, Texas

JULY 2025

Project Owner:

GRBK Edgewood, LLC
9430 Research Blvd., Echelon Bldg. IV Suite#180
Austin, TX 78626

Project Contractor:

TBD

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC.
501 S Austin Ave #1310
Georgetown, Texas 78626
(512) 520-0768

TBPE
Firm No. 928
KHA Project No. 065000700

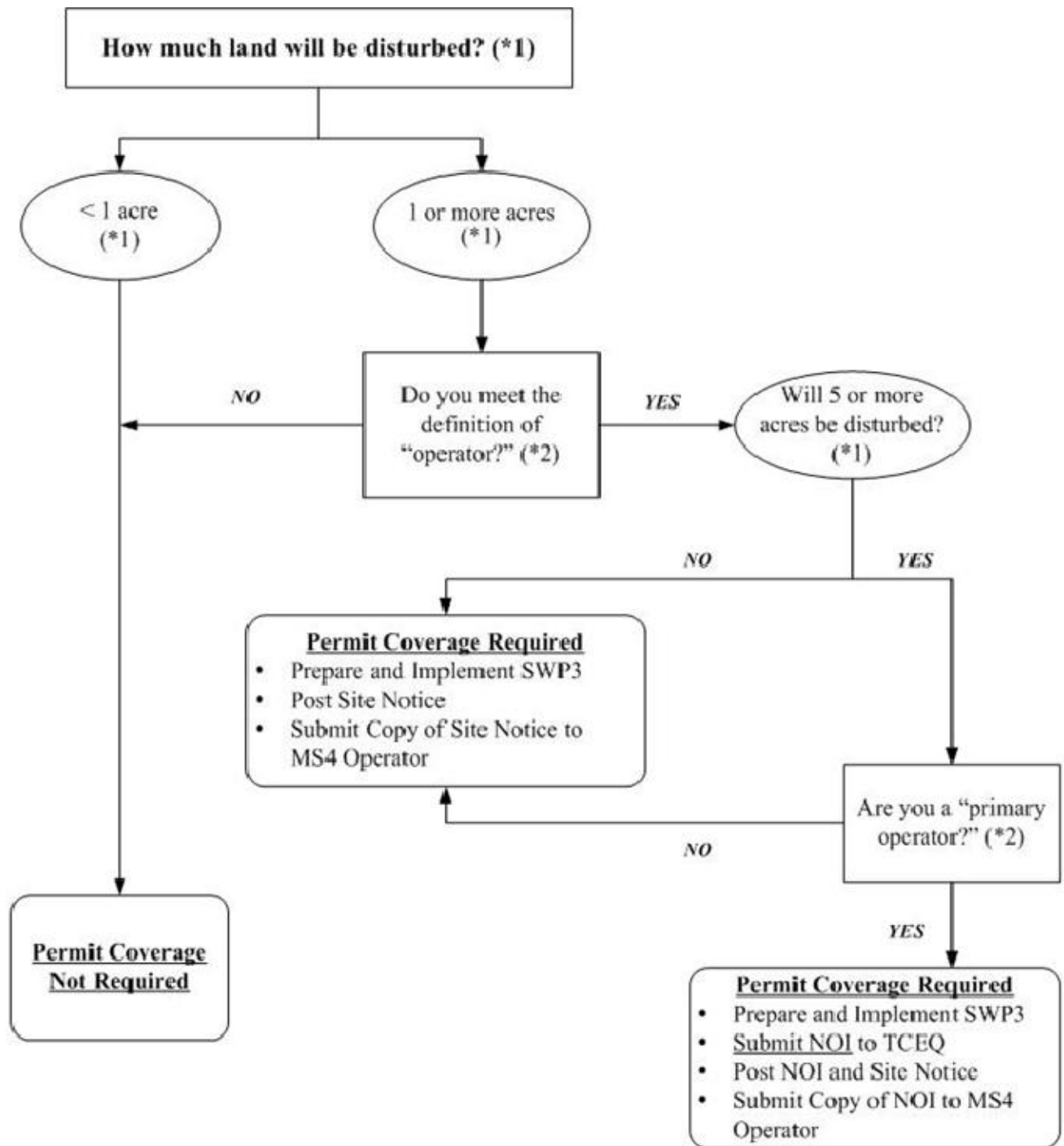
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- (*1) To determine the size of the construction project, use the size of the entire area to be disturbed, and include the size of the larger common plan of development or sale, if the project is part of a larger project (refer to Part I.B., "Definitions," for an explanation of "larger common plan of development or sale").
- (*2) Refer to the definitions for "operator," "primary operator," and "secondary operator" in Part I., Section B. of this permit.

STORM WATER POLLUTION PREVENTION PLAN REVISIONS

Provide a general description and document the date of any revisions to the storm water pollution prevention plan during the course of this construction project. Revisions may be necessary as a result of site inspections or because of a change in the circumstances of the construction project (such as schedule change or a modification in design).

The Storm Water Pollution Prevention Plan (SWP3) must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing best management practices (BMPs) are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

REVISION (Refer to attachments if necessary)	DATE	SIGNATURE

1.0 INTRODUCTION

On April 10, 2003, responsibility for the administration of storm water protection associated with construction activities in Texas was delegated by the U.S. Environmental Protection Agency (EPA) to the Texas Commission on Environmental Quality (TCEQ). The Texas Pollutant Discharge Elimination System (TPDES) program in Texas meets or exceeds the National Pollutant Discharge Elimination System (NPDES) standards established on a federal level. This SWP3 has been developed in accordance with the TPDES requirements. Additional local requirements may apply and this SWP3 should be updated accordingly (Appendix O).

The purpose of the SWP3 is to provide guidelines for preventing or minimizing sediment and other pollutants that may originate on the site from flowing into municipal storm systems or jurisdictional waters during the construction period. This plan also addresses the principal activities known to disturb significant amounts of ground surface during construction. Stabilization measures must begin within fourteen (14) days of stoppage of construction activities (Appendix I). The permit coverage requirements terminate when areas disturbed for this project reach full stabilization (i.e., when disturbed areas are paved or achieve 70 percent native background vegetative coverage). Revisions to this plan will be made as necessary to accurately reflect project activities and storm water pollution prevention measures.

The storm water management controls included in this SWP3 focus on providing control of pollutant discharges with practical approaches that use readily available techniques, expertise, materials, and equipment. The necessary forms for implementing the SWP3 are found in the appendices of this document, including the Inspector's Qualifications, Inspection Form, Notice of Intent (NOI), Notice of Termination (NOT), and construction site notice. The SWP3 must be implemented prior to the start of construction activities.

The Project Owner's and the Contractor's roles and responsibilities for implementation and maintenance of the elements of the SWP3 are shown in a checklist in Appendix F of this document. Appendix F also includes a description of primary and secondary operators, along with associated responsibilities. The Project Owner and each Contractor must complete the checklist in Appendix F and sign the included certification statement. The certification statement indicates that each operator understands and accepts their roles and responsibilities with respect to storm water pollution prevention for this project.

A. Project Name and Location

Rivina Phase 1 - Georgetown, Texas (See Appendix A for a project location map).

B. Owner Information

Name: GRBK Edgewood, LLC
Address: 9430 Research Blvd., Echelon Bldg. IV Suite#180
Austin, TX 78759
Representative: Austin Evetts
Title: Vice President of Land Development
Telephone: (512) 694-5303
Fax: _____

C. Contractor Information

Name: _____
Address: _____
Representative: _____
Title: _____
Telephone: _____
Fax: _____

D. Subcontractor Information

Name: _____
Address: _____
Representative: _____
Title: _____
Telephone: _____
Fax: _____

Name: _____
Address: _____
Representative: _____
Title: _____
Telephone: _____
Fax: _____

E. Discharges Eligible for Authorization

The general permit for construction activities allows for storm water discharges from construction activities, construction support activities, and authorized non-storm water discharges. Under the general permit, construction support activities include, but are not limited to:

- concrete and asphalt batch plants,
- rock crushers,
- equipment staging areas,
- material storage yards,
- material borrow areas, and
- excavated material disposal areas.

Storm water discharges from these construction support activities are authorized under the general permit for construction activities provided:

- the activity is located within one mile of the permitted construction site and is directly supporting the construction activities,
- the SWP3 for the permitted construction activities is developed to include the controls and measures to reduce erosion and discharge of pollutants in storm water runoff from the construction support activities, and

- the construction support activities either do not operate beyond the completion date of the construction activity or, at the time that they do, are authorized under separate Texas Pollutant Discharge Elimination System (TPDES) authorization.

The following non-storm water discharges are also authorized under the general permit for construction activities:

- Discharges from firefighting activities,
- Uncontaminated fire hydrant flushings,
- Water from routine external washing of vehicles, the external portion of buildings or structures, and pavement (where detergents and soaps are not used),
- Uncontaminated water used to control dust,
- Potable water sources, including waterline flushings,
- Uncontaminated air conditioning condensate,
- Uncontaminated groundwater or spring water, and
- Lawn watering and similar Irrigation drainage.

Part II.A.3 of the general permit contains additional information and requirements for non-storm water discharges. Discharges of storm water runoff from concrete batch plants may be authorized provided that the benchmark sampling and associated requirements located in Part V of the general permit are met. The wash out of concrete trucks associated with off-site facilities may be conducted in accordance with the requirements of Part V of the general permit. The Operator will be responsible for updating the SWP3 to meet Part V requirements, if applicable. A non-storm water discharge inventory is located in Appendix L.

F. Obtaining Coverage under the General Permit

Construction activities, including the activities associated with this project, disturbing five (5) acres or more (definition of a large construction activity) are required to comply with the following requirements of the general permit to obtain permit coverage:

- a) Develop a SWP3 according to the provisions of the general permit that covers either the entire site or all portions of the site for which the applicant is the operator and implement that plan prior to commencing construction activities.
- b) Primary operators must submit a NOI:
 - 1) at least seven days prior to commencing construction activities if mailing a paper NOI, or
 - 2) prior to commencing construction activities if utilizing electronic submittal.

A copy of the NOI form is located in Appendix H. Instructions for NOI submittal relating to primary operator additions or changes are also located in Appendix H.

- c) Post a site notice where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction. The site notice must be maintained until completion of the construction activity.
 - 1) For linear construction activities, the site notice must be placed in a publicly accessible location near where construction is actively underway. A copy of the construction site notice is located in Appendix H.

- d) All primary operators must also post a copy of the signed NOI at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to starting construction activities until completion of the construction activity. If multiple crews will be conducting construction activities under the general permit simultaneously, copies of the signed NOI should be posted at each separate construction site.
- e) All primary operators must provide a copy of the signed NOI at least seven days prior to commencement of construction activities to any secondary operator and to the operator of any municipal separate storm sewer system (MS4) receiving construction site discharge. The names and addresses of all MS4 operators receiving a copy of the NOI are to be recorded in this SWP3 (Appendix H).
- f) Secondary operators are regulated under the general construction permit but are not required to submit a NOI provided that:
 - 1) a primary operator(s) at the site has submitted a NOI, or
 - 2) another operator(s) is required to submit a NOI and the secondary operator has provided notification to the operator(s) of the need to obtain coverage.

Additional information for secondary operators seeking alternative coverage is located in the general permit.

Questions about the TPDES construction permit program can be directed to the TCEQ Storm Water and General Permits Team at (512) 239-4515. A copy of the TPDES General Permit (TXR150000) for Storm Water Discharges from Construction Activities has been included in Appendix G for reference.

G. Notice of Change Letter

If the Operator becomes aware that he/she failed to submit any relevant facts, or submitted incorrect information in a NOI, the correct information must be provided to the TCEQ in a Notice of Change (NOC) letter within fourteen (14) days after discovery. In addition, if relevant information provided in the NOI changes, a NOC letter must be submitted to the TCEQ within fourteen (14) days of the change. A copy of the NOC must be provided to the operator of any MS4 receiving discharge from the construction activity. The names and addresses of all MS4 operators receiving a copy of the NOC must be included in this SWP3 (Appendix H).

H. Notice of Termination

Authorization under the general permit must be terminated by submitting a completed and signed NOT form provided in Appendix H. The NOT must be submitted to the TCEQ, and a copy of the NOT must be provided to the operator of any municipal separate storm sewer system (MS4) receiving the discharge within thirty (30) days after final stabilization has been achieved on all portions of the site that are the responsibility of the permittee, or another permitted contractor has assumed control over all areas of the site that have not been finally stabilized. The names and addresses of all MS4 operators receiving a copy of the NOT must be recorded in this SWP3 (Appendix H).

I. Termination of Coverage for Secondary Operators

Each operator that obtained authorization of the general permit without submitting a NOI must remove the site notice and complete the applicable portion of the notice related to removal of the notice. A copy of

the completed notice must be submitted to the operator of any MS4 receiving site discharge within 30 days of any the following conditions:

- a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee,
- b) a transfer of operational control has occurred, or
- c) the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

J. SWP3 Availability

This SWP3 must be retained on-site at the construction site, or if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. This SWP3 must be made readily available at the time of an on-site inspection.

K. Hazardous Materials

The following potential pollutant sources may be present at the site due to the nature of the construction activities. An inventory of materials is located in Appendix L. Controls for potential pollutants are listed and described in Appendices C and D.

- | | |
|-----------------------------------|--------------------------------------|
| – Solvents | – Trash |
| – Stains/paints | – Paving |
| – Fuels | – Concrete curing compound |
| – Oils | – Glue adhesives |
| – Grease | – Joint compound |
| – Pesticides | – Concrete, painting, and brick wash |
| – Fertilizer | – Excavation pump-out water |
| – Sediment/total suspended solids | – Concrete |

2.0 SITE DESCRIPTION

A. General Site Description

The construction site is located in the ETJ of Georgetown, Texas (Appendix A). The site covers an area of approximately 88.75-acres and is a part of a known larger common plan of development. The construction site is generally located East of the intersection of Ronald Reagan Blvd. and FM 3405. Coordinates for the site are approximately 30.706 latitude and -97.836 longitude (1983 North American Datum (NAD83) Coordinates).

This site is located over the Edwards Aquifer Contributing Zone and is not located on Indian Country Lands. If information about the Edwards Aquifer Zone or Indian Country Lands changes, the Operator should update this SWP3 accordingly.

B. Nature of Construction Activity

The purpose of the construction project is to construct roadways, water quality/detention ponds, and civil improvements (water, wastewater, storm sewer) to serve the proposed single family development. The table in Appendix B should be updated to depict the anticipated schedule for the project.

C. Estimate of Total Site Area and Disturbed Area

The amount of area involved in the project is estimated to be 88.75-acres of platted area and 0.78 acres of FM 3405 ROW for a total area of 89.53 acres.

D. Storm Water Discharge Locations and Quality Data

No data is available describing quality of storm water discharges from the site. Information will be added to this plan as it is received.

E. Information on Soil Types

A soils map showing the project site and surrounding area is included in Appendix A. The predominant soil types found on the project site are Doss silty clay (DoC), 1 to 5 percent slopes; Brackett gravelly clay loam (BkE), 3 to 12 percent slopes; and Eckrant cobbly clay (EaD), 1 to 8 percent slopes. A description of these soils is located in Appendix A (USDA, 2019).

F. Receiving Waters and Wetlands

The site lies to the north of the North Fork San Gabriel River, the site's receiving body of water. This portion of the river is listed on the 2024 Texas 303(d) list of impaired waters, as category 5c for chloride in the water. This category means additional data and information will be collected or evaluated before a management strategy is selected.

New sources or new discharges of the constituents of concern to impaired waters are not authorized by the general construction permit (unless otherwise allowable under 30 TAC Chapter 305 and applicable state law). Impaired waters are those that do not meet applicable water quality standards and are listed

on the EPA approved CWA 303(d) list. Pollutants of concern are those for which the water body is listed as impaired.

If discharges are expected to enter into a receiving water body located on the 303(d) list, constituents of concern are those for which the water body is listed as impaired. Discharges of the constituents of concern to impaired water bodies for which there is a total maximum daily load (TMDL) are not eligible for the general permit unless they are consistent with the approved TMDL. The receiving water does not have a known published TMDL. Permittees must incorporate the conditions and requirements applicable to their discharges, including monitoring frequency and reporting required by TCEQ rules, into this SWP3 in order to be eligible for coverage under the general permit.

There are no known wetlands on the site. If any wetlands are identified on the site, the Operator should update this SWP3 accordingly.

G. Threatened and Endangered Species

Discharges that would adversely affect a listed endangered or threatened aquatic or aquatic-dependent species or its critical habitat are not authorized by the general construction permit, unless the requirements of the Endangered Species Act are satisfied. It is unlikely that the project has the potential to adversely affect a listed endangered or threatened species in Williamson County, Texas. If information regarding the presence of protected species changes, the Operator should consult with the appropriate state or federal agency.

H. Discharges to the Edwards Aquifer Recharge Zone

Discharges cannot be authorized by the general permit where prohibited by 30 Texas Administrative Code (TAC) Chapter 213.

1. New Discharges

For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone, operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of the general construction permit. A copy of 30 TAC Chapter 213 is located in Appendix Q.

2. Existing Discharges

For existing discharges, the requirements of the agency-approved Water Pollution Abatement Plan under the Edwards Aquifer Rules are in addition to the requirements of the general construction permit. Best management practices and maintenance schedules for structural storm water controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in storm water runoff are in addition to the requirements in the general construction permit. A copy of the 30 TAC Chapter 213 is located in Appendix Q.

For discharges from large construction activities located on the Edwards Aquifer recharge zone or the Edwards Aquifer contributing zone, applicants must also submit a copy of the NOI to the appropriate

TCEQ regional office. For discharges from large construction activities by operators not required to submit a NOI, a copy of the construction site notice must be submitted to the appropriate TCEQ regional office.

Counties:

Comal, Bexar, Medina, Uvalde, and Kinney

Contact:

TCEQ
Water Program Manager
San Antonio Regional Office
14250 Judson Road
San Antonio, Texas
(210) 490-3096

Williamson, Travis, and Hays

TCEQ
Water Program Manager
Austin Regional Office
2800 South IH 35, Suite 100
Austin, Texas 78704-5712
(512) 339-2929

3.0 BEST MANAGEMENT PRACTICE MEASURES AND CONTROLS

A. MINIMIZE DISTURBED AREA AND PROTECT NATURAL FEATURES AND SOIL

The entire limits of construction, detailed in the Erosion and Sedimentation Control Plan, are subject to disturbance during construction activities. The construction will have one (1) staging and spoils area located within the limits of construction that will be used to store and save topsoil and trenching materials. The contractor will try to minimize disturbance of the natural ground as much as possible during the construction process and will not leave the designated limits of construction for the project.

B. PHASE CONSTRUCTION ACTIVITY

This project is proposed to be constructed in one single phase. The contractor will install all silt fencing prior to beginning any construction or demolition. An exception will be made with the proposed J-hooks, as identified on the Erosion and Sedimentation Control Plan found in site's construction plan set. J-hooks are to be installed over trenched areas after soils have been replaced, compacted and graded. Specific areas where J-hooks are to be utilized are shown on the Erosion and Sedimentation Control Plan. Soil stabilization will take place after J Hooks have been installed.

The sequence of major activities for Rivina Phase 1 of the development will be as follows:

Phase 1 (total disturbed area approximately 88.75 acres):

- 1) Install tree protection and initiate tree mitigation measures.
- 2) Install erosion controls as indicated on approved plan.
- 3) Contact City of Georgetown to schedule the preconstruction coordination meeting.
- 4) Evaluate temporary erosion control installation. Review construction schedule with the erosion control plan.
- 5) Rough grade site. **Proposed batch detention ponds grading to be performed before rough grading remainder of the site, as these ponds will act as a storage for storm water during construction. Inspect and maintain all controls as per general notes. Total area disturbed with this phase will be entire site approximately 93.91 acres.**
- 6) Construct site utilities and paving.

Phase 2 (total disturbed area approximately 88.75 acres):

- 7) Complete construction and install landscaping and/or re-vegetation.
- 8) Re-vegetate disturbed areas or complete a developer's contract for the re-vegetation along with the engineer's concurrence letter.
- 9) Project engineer inspects job and writes concurrence letter to the County. Final inspection is scheduled upon receipt of letter.

Final Phase (all temporary E&S to be removed, and no disturbed area)

- 10) Upon re-vegetation per Williamson County requirements, remove temporary erosion/sedimentation controls.

C. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT

BMP Description: Silt Fence – Perimeter and J-Hooks

<i>Installation Schedule:</i>	Prior to commencing construction activities.
<i>Maintenance and Inspection:</i>	<p>If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about six (6) months, depending on the amount of rainfall and runoff. Burlap fences have a much shorter useful life span, usually up to two (2) months.</p> <p>Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third (1/3) to one-half (1/2) the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment as well.</p>
<i>Responsible Staff:</i>	TBD

BMP Description: Rock Berms – Check Dam

<i>Installation Schedule:</i>	Prior to commencing construction activities.
<i>Maintenance and Inspection:</i>	Inspect the berm after every rainfall to make sure sediment has not built up and that vehicles have not damaged it. It is important to make repairs at the first sign of deterioration to keep the berm functioning properly.
<i>Responsible Staff:</i>	TBD

D. STABILIZE SOILS

BMP Description: Seeding

<input checked="" type="checkbox"/> <i>Permanent</i>	<input checked="" type="checkbox"/> <i>Temporary</i>
<i>Installation Schedule:</i>	After final grading in areas not to be landscaped. Bare soils should be stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.
<i>Maintenance and Inspection:</i>	Low-maintenance areas are mowed infrequently or not at all and do not receive lime or fertilizer regularly. Plants must be able to persist with minimal maintenance over long periods of time. Use grass and legume mixtures for these sites because legumes fix nitrogen from the atmosphere. Sites suitable for low-maintenance vegetation include steep slopes, stream or channel banks, some commercial properties, and "utility" turf areas such as road banks.

	<p>Grasses should emerge within 4-28 days and legumes 5-28 days after seeding, with legumes following grasses. A successful stand has the following characteristics:</p> <ul style="list-style-type: none"> • Vigorous dark green or bluish green (not yellow) seedlings • Uniform density, with nurse plants, legumes, and grasses well intermixed • Green leaves that remain green throughout the summer--at least at the plant bases <p>Inspect seeded areas for failure and, if needed, reseed and repair them as soon as possible. If a stand has inadequate cover, reevaluate the choice of plant materials and quantities of lime and fertilizer. Depending on the condition of the stand, repair by overseeding or reseeding after complete seedbed preparation. If timing is bad, overseed with rye grain or German millet to thicken the stand until a suitable time for seeding perennials. Consider seeding temporary, annual species if the season is not appropriate for permanent seeding. If vegetation fails to grow, test the soil to determine if low pH or nutrient imbalances are responsible.</p> <p>On a typical disturbed site, full plant establishment usually requires refertilization in the second growing season. Use soil tests to determine if more fertilizer needs to be added. Do not fertilize cool season grasses in late May through July. Grass that looks yellow might be nitrogen deficient. Do not use nitrogen fertilizer if the stand contains more than 20% legumes.</p>
<i>Responsible Staff:</i>	TBD

<i>BMP Description: <u>Soil Roughening</u></i>	
<input type="checkbox"/> <i>Permanent</i>	<input checked="" type="checkbox"/> <i>Temporary</i>
<i>Installation Schedule:</i>	After interim and rough grading activities, prior to final site work or utility construction
<i>Maintenance and Inspection:</i>	Inspect roughened areas after storms to see if re-roughening is needed. Regular inspection should indicate where additional erosion and sediment control measures are needed. If rills (small watercourses that have steep sides and are usually only a few inches deep) appear, fill, regrade, and reseed them immediately.
<i>Responsible Staff:</i>	TBD

<i>BMP Description: <u>Hydro-mulching</u></i>	
<input type="checkbox"/> <i>Permanent</i>	<input checked="" type="checkbox"/> <i>Temporary</i>

<i>Installation Schedule:</i>		Bare soils should be stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.
<i>Maintenance and Inspection:</i>	and	Anchor mulches to resist wind displacement. When protection is no longer needed, remove netting and compost it or dispose of it in a landfill. Inspect mulched areas frequently to identify areas where it has loosened or been removed, especially after rainstorms. Reseed these areas, if necessary, and replace the mulch cover immediately. Apply mulch binders at rates recommended by the manufacturer. If washout, breakage, or erosion occurs, repair, reseed and remulch surfaces, and install new netting. Continue inspections until vegetation is firmly established.
<i>Responsible Staff:</i>		TBD

E. PROTECT SLOPES

There are no excessive slopes located within the construction area; therefore, no additional controls are proposed to protect slopes

F. PROTECT STORM DRAIN INLETS

BMP Description: Bagged Gravel Inlet Filter

<i>Installation Schedule:</i>		Prior to stabilization of associated drainage areas
<i>Maintenance and Inspection:</i>	and	Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor. Remove sediment when buildup reaches a depth of three (3) inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode. Check placement of device to prevent gaps between device and curb. Inspect filter fabric and patch or replace if torn or missing. Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.
<i>Responsible Staff:</i>		TBD

There are no storm drain inlets located within the construction area for the public wastewater line; therefore, no controls are proposed to protect storm drain inlets at the time of its construction.

G. ESTABLISH PERIMETER CONTROLS AND SEDIMENT BARRIERS

BMP Description: Silt Fence – Perimeter and J-Hooks

<i>Installation Schedule:</i>		Prior to commencing construction activities.
<i>Maintenance and Inspection:</i>	and	If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about six (6) months, depending on the amount of rainfall and runoff. Burlap fences

	<p>have a much shorter useful life span, usually up to two (2) months.</p> <p>Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third (1/3) to one-half (1/2) the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment as well.</p>
<i>Responsible Staff:</i>	TBD

BMP Description: Rock Berms – Check Dam

<i>Installation Schedule:</i>	Prior to commencing construction activities.
<i>Maintenance and Inspection:</i>	Inspect the berm after every rainfall to make sure sediment has not built up and that vehicles have not damaged it. It is important to make repairs at the first sign of deterioration to keep the berm functioning properly.
<i>Responsible Staff:</i>	TBD

H. RETAIN SEDIMENT ON-SITE .

BMP Description: Sediment Basin

<i>Installation Schedule:</i>	Prior to commencing construction activities.
<i>Maintenance and Inspection:</i>	Sediment basins should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to check for damage and to ensure that obstructions are not diminishing the effectiveness of the structure. Sediment shall be removed and the basin shall be re-graded to its original dimensions when the sediment storage capacity of the impoundment has been reduced by 20 percent. The removed sediment may be stockpiled or redistributed onsite in areas that are protected by erosion and sediment controls. Inspect temporary stabilization of the embankment and graded basin and the velocity dissipaters at the outlet and spillway for signs of erosion. Repair any eroded areas that are found. Install additional erosion controls if erosion is frequently evident.
<i>Responsible Staff:</i>	TBD

I. ESTABLISH STABILIZED CONSTRUCTION EXITS

BMP Description: Stabilized Construction Entrance/Exit

<i>Installation Schedule:</i>	Prior to commencing construction activities.
<i>Maintenance and Inspection:</i>	Maintain stabilization of the site entrances until the rest of the construction site has been fully stabilized. You might need to add stone and gravel periodically to each stabilized construction site entrance to

	keep the entrance effective. Sweep up soil tracked offsite immediately for proper disposal. For sites with wash racks at each site entrance, construct sediment traps and maintain them for the life of the project. Periodically remove sediment from the traps to make sure they keep working
<i>Responsible Staff:</i>	TBD

J. ADDITIONAL BMPS

No additional BMPs proposed.

4.0 EXAMPLE PRACTICES

A. Example Stabilization Practices

1. Temporary Stabilization

Top soil stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 21 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in that area. Areas of the site which are to be paved will be temporarily stabilized until pavement can be applied.

2. Permanent Stabilization

Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed no later than 14 days after the last construction activity.

B. Example Structural Practices

1. Interceptor Swale

An interceptor swale is a small v-shaped or parabolic channel which collects runoff and directs it to a desired location. It can either have a natural grass lining or, depending upon slope and design velocity, a protective lining of erosion matting, stone or concrete. The interceptor swale can either be used to direct sediment-laden flow from disturbed areas into a controlled outlet or to direct “clean” runoff around disturbed areas. Since the swale is easy to install during early grading operations, it can serve as the first line of defense in reducing runoff across disturbed areas. As a method of reducing runoff across the disturbed construction area, it reduces the requirements of structural measures to capture sediment from runoff since the flow is reduced. By intercepting sediment-laden flow downstream of the disturbed area, runoff can be directed into a sediment basin or other BMP for sedimentation as opposed to long runs of silt fence, straw bales or other filtration method.

2. Silt Fence

A silt fence consists of geotextile fabric supported by poultry netting or other backing stretched between either wooden or metal posts with the lower edge of the fabric securely embedded in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. Silt fence provides both filtration and time for sedimentation to reduce sediment and the

velocity of the runoff. Properly designed silt fence is economical since it can be relocated during construction and reused on other projects. Silt fence is normally used as perimeter control located downstream of disturbed areas. It is only feasible for non-concentrated, sheet flow conditions.

3. Fiber Roll/Sediment Log

Fiber rolls/sediment logs are tightly compacted tubular cylinders composed of straw, flax, coconut fiber, or other similar types of material wrapped with a fiber mesh. They must be secured with stakes. When installed at the base of an embankment or on a slope, fiber rolls are effective at controlling sediment and reducing erosion rates. They achieve this by intercepting storm water runoff, thereby reducing the velocity of the flow and dispersing concentrated runoff as sheet flows. Fiber rolls are also water-permeable and are effective at trapping eroded sediment. It is important not to crush fiber rolls when they are installed. If more than one sock is placed in a row, the socks should be overlapped; not abutted.

4. Inlet Control

Inlet protection consists of a variety of methods of intercepting sediment at low point inlets through the use of stone, filter fabric and other materials. This is normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in storm water. Inlet protection is normally used as a secondary defense in site erosion control due to the limited effectiveness and applicability of the technique. It is normally used in new developments that include new inlets or roads with new curb inlets or during major repairs to existing roadways. Inlet protection has limited use in developed areas due to the potential for loading, traffic safety and pedestrian safety and maintenance problems. Inlet protection can reduce sediment in a storm sewer system by serving as a back system to onsite controls or by reducing sediment loads from controls with limited effectiveness such as straw bale dikes.

5. Check Dams

Check dams are small barriers consisting of straw bales, rock, or earth berms placed across a drainage swale or ditch. They reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion. Check dams are used for long drainage swales or ditches in which permanent vegetation may not be established and erosive velocities are present. They are typically used in conjunction with other techniques such as inlet protection, rip rap or other sediment reduction techniques. Check dams provide limited treatment. They are more useful in reducing flow to acceptable levels.

6. Erosion Control Mats

An erosion control mat (ECM) is a geomembrane or biodegradable fabric placed over disturbed areas to limit the effects of erosion due to rainfall and runoff across barren soil. Erosion control mats are manufactured by a wide variety of vendors addressing a wide variety of conditions such as vegetation establishment and high velocity flow. Types of matting include organic (jute, straw) and synthetic (plastic and glass fiber) materials. Mats can provide both temporary and/or permanent stabilization for disturbed soil or barren areas. It is used for difficult areas to stabilize such as steep slopes, temporary or permanent drainage swales, embankments or high traffic (pedestrian) areas. Some mats are reusable, reducing the initial cost of the installation.

7. Stabilized Construction Entrance

A stabilized construction entrance consists of a pad consisting of gravel, crushed stone, recycled concrete or other rock like material on top of geotextile filter cloth to facilitate the wash down and removal of sediment and other debris from construction equipment prior to exiting the construction site. For added effectiveness, a wash rack area can be incorporated into the design to further reduce sediment tracking. For long term projects, cattle guards or other type of permanent rack system can be used in conjunction with a wash rack. This directly addresses the problem of silt and mud deposition in roadways used for construction site access. Stabilized construction entrances are used primarily for sites in which significant truck traffic occurs on a daily basis. It reduces the need to remove sediment from streets. If used properly, it also directs the majority of traffic to a single location, reducing the number and quantity of disturbed areas on the site and providing protection for other structural controls through traffic control.

8. Earth Dike

An earth dike is constructed along the uphill perimeter of a site. A portion of the dike will divert run-on around the construction site. The remaining portion of the dike will collect runoff from the disturbed area and direct the runoff to the sediment basin.

9. Triangular Sediment Filter Dike

A triangular sediment filter dike is a self-contained silt fence consisting of filter fabric wrapped around welded wire fabric shaped into a triangular cross section. While similar in use to a silt fence, the dike is reusable, sturdier, transportable, and can be used on paved areas in situations where it is impractical to install embedded posts for support. Triangular filter dikes are used in place of silt fence, treating sediment flow at the perimeter of construction areas and at the perimeter of the site. Also, the dikes can serve as stream protection devices by preventing sediment from entering the streams or as check dams in small swales. Triangular sediment filter dikes are especially useful for construction areas surrounded by pavement, where silt fence or hay bale installation is impracticable. Since they can be anchored without penetration (through the use of rock), pavement damage can be minimized. Triangular dikes are used to provide perimeter control by detaining sediment on a disturbed site with drainage that would otherwise flow onto adjacent properties. Triangular dikes also serve as sediment trapping devices when used in areas of sheet flow across disturbed areas or are placed along stream banks to prevent sediment-laden sheet flow from entering the stream. The dikes can be subjected to more concentrated flows and a higher flow rate than silt fence.

10. Sediment Basin

Sediment basins are required, where feasible, for sites with drainage areas of ten (10) or more acres. Additional information for sedimentation basins is located in Appendix M.

11. Tree Protection

Tree protection prevents the disturbance of existing trees and their roots on a construction site. Trees are not the same shape below ground as they are above, so it is difficult to predict the length or location of their roots. One common method used to identify the critical root zone is to define the tree's "drip line" – the area directly below the branches of the tree. Many roots extend beyond the longest branches a distance equal to two or more times the height of the tree. For this reason, it is

recommended to protect as much of the area beyond the drip line as feasible. An example of tree protection is to tie continuous nylon string with two-foot tundra weight orange streamers to eight-foot minimum metal t-posts driven two feet into the ground. Four-foot minimum orange plastic fencing per manufacturer's recommendations will surround the critical root zone to keep equipment off the rooting area. If a fence cannot be erected, cushion the rooting area with six inches of wood chips, wood, or brick paths. Where root areas must be graded, cut large roots instead of tearing them with equipment.

C. Waste Control and Disposal

1. Waste Materials

All waste materials will be collected and stored in a securely lidded metal dumpster rented from a local waste management company, which is a licensed solid waste management company. The dumpster will meet all local and any State solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied periodically or more often if necessary, and the trash will be hauled to an appropriate waste management facility. No construction waste materials will be buried onsite. Staging areas for construction materials should have secondary containment. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer. The individual who manages the day-to-day site operations will be responsible for seeing that these procedures are followed.

2. Hazardous Waste

All hazardous waste materials will be disposed of in the manner specified by local or State regulations or by the manufacturer. Site personnel will be instructed in these practices and the individual who manages day-to-day site operations will be responsible for seeing that these practices are followed.

3. Sanitary Waste

All sanitary waste will be collected from the portable units periodically by a licensed sanitary waste management contractor, as required by local regulation.

4. Offsite Vehicle Tracking and Dust Control

A stabilized construction entrance has been provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin. If dust is visible when dump trucks are leaving the site due to construction activities, dust suppression techniques such as wetting the soil will be employed.

D. Timing of Controls/Measures

The contractor and the operator shall review the SWP3 requirements prior to beginning construction activities. The following is a sample erosion control sequence:

- Site Mobilization: Prior to any construction on the site a stabilized construction entrance shall be installed.
- Clearing and Rough Grading: Prior to any grading of the site, erosion control measures shall be installed. These controls may include but are not limited to silt fences, sedimentation ponds and vegetated swales. The installation is required to prevent sediment from leaving disturbed areas.
- Storm Drain Installation: In addition to maintaining the devices installed during initial grading, supplemental control measures will need to be installed. These devices will include devices shown on the plan such as storm drain inlet protection and sediment traps. Inlet protection devices prevent sedimentation from entering the inlet and subsequently, the storm sewer system

as well as the receiving water body. Other devices may be required as shown on the erosion control plan or requested by the inspector or operator.

- Installation of Public Utilities: Additional control measures are likewise not required during installation of public utilities. However, maintenance of existing control measures installed during previous phases must continue.
- Pavement Installation: In addition to maintaining the control measures installed during initial grading and storm drain installation phases, supplemental measures should be installed. Upon completion of paving and curb backfill operations, control measures should be installed behind curbs at handicap ramps and along parkways where sediment could enter streets and/or paved areas.
- Final Grading: Additional control measures are not required during final grading. However, maintenance of existing control measures installed during previous phases will continue.
- Building Construction: In addition to maintaining previously installed control measures, a strict policy will be enacted which minimizes vehicle traffic from entering non-paved areas. Construction materials will be unloaded from existing paved surfaces where possible, thereby preventing disturbing control measures already in place and reducing sediment tracking into paved areas. Areas where construction activity temporarily ceases for more than 21 days will be stabilized with a temporary seed and mulch within 14 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stabilized, the accumulated sediment will be removed and the erosion control measures will be removed.

5.0 RELEASES OF REPORTABLE QUANTITIES

Because construction activities may handle certain hazardous substances over the course of the project, spills of these substances in amounts that equal or exceed Reportable Quantity (RQ) levels are a possibility. Material management practice guidelines are located in Appendix K.

EPA has issued regulations that define what reportable quantity levels are for oil and hazardous substances. These regulations are found at 40 CFR Part 110 Part 117, or 40 CFR Part 302. A list of RQs are included in Appendix M. If there is a RQ release during the construction period, then you must take the following steps:

- Notify TCEQ immediately at (800) 832-8224.
- Notify the National Response Center immediately at (800) 424-8802.
- Within fourteen (14) days, submit a written description of the release to TCEQ providing the date and circumstances of the release and the steps to be taken to prevent another release.
- Modify the pollution prevention plan to include the date of release, the circumstances leading to the release, and steps taken to prevent reoccurrence of the release.

6.0 STATE AND LOCAL PROGRAMS

The TPDES program meets or exceeds the NPDES standards established on a federal level. This SWP3 has been developed in accordance with the requirements of the TPDES requirements. Information for the City of Georgetown, TX has been included in Appendix N. Additional local requirements may apply and this SWP3 should be updated accordingly.

Storm water from the project construction area discharges into the storm sewer system of the City of Georgetown, TX (MS4).

Construction projects that discharge storm water to an MS4 are required to:

- submit a copy of the signed NOI to the operator of the MS4 at least seven days prior to the commencement of construction activities,
- post a copy of the signed NOI and construction site notice at the project site at all times,
- submit a copy of any NOCs to the operator of the MS4,
- submit a copy of the NOT to the operator of the MS4, and
- keep and maintain a list of the names and address of MS4s that receive NOI, NOT, and/or NOC forms (Appendix H).

7.0 INSPECTION AND MAINTENANCE

A. Inspection Schedule

1. All disturbed areas, as well as all erosion and sediment control devices, will be inspected according to one of the following schedules:
 - a) at least every seven (7) calendar days and within 24 hours after a rainfall of 0.5 inch or greater, or
 - b) every seven (7) days on the same day of the week each week, regardless of whether or not there has been a rainfall event since the previous inspection.
2. Inspections may occur on either schedule provided that this SWP3 reflects the current schedule and that any changes are in accordance with the following:
 - a) the schedule is changed a maximum of one time each month,
 - b) the schedule change must be implemented at the beginning of a calendar month, and
 - c) the reason for the schedule change must be documented in this SWP3 (an inspection schedule form is located in Appendix E).

B. Inspection Reports

1. Completed inspection reports (Appendix E) will include the following information:
 - a) scope of the inspection,
 - b) date of the inspection,
 - c) name(s) of personnel making the inspection,
 - d) reference to qualifications of inspection personnel,
 - e) observed major construction activities, and
 - f) actions taken as a result of the inspection.
2. All disturbed areas (on and off-site), areas for material storage locations where vehicles enter or exit the site, and all of the erosion and sediment controls that were identified as part of the SWP3 must be inspected. The inspection report must state whether the site was in compliance or identify any incidents of non-compliance. The report will be signed by the qualified inspector in accordance with the TPDES general permit and filed in the SWP3. A sample Inspection Report is included in Appendix E, along with an Inspector Qualification Form. All reports and inspections required by the general construction permit will be completed by a duly authorized representative. A copy of a Delegation of Signatories to Reports letter is included in Appendix J.
3. The operator should correct any damage or deficiencies as soon as practicable after the inspection, but in no case later than seven (7) calendar days after the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3, and wherever possible, those changes implemented before the next storm event or as soon as practicable. A list of maintenance guidelines is included in Appendix E.
4. Inspection reports will be kept in the Operator's file, along with the SWP3, for at least three years from the date that the NOT is submitted to the TCEQ for the construction site.

C. Final Stabilization

Final stabilization of the construction site has been achieved when all soil disturbing activities at the site have been completed, and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. If a vegetative cover cannot be established, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) can be employed. When these conditions have been met, BMPs can be removed from the construction area.

8.0 RECORD RETENTION

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted. Records include:

- A copy of the SWP3,
- All data used to complete the NOI, if an NOI is required for coverage under this general permit,
- All reports and actions required by this permit, including a copy of the construction site notice, and
- All records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

9.0 CONCRETE BATCH PLANTS (IF APPLICABLE)

A. Storm Water Runoff from Concrete Batch Plants

Discharges of storm water runoff from concrete batch plants may be authorized under the general permit provided that the requirements in Part IV of the permit are met (Appendix G). If discharges are not covered under the general permit, then discharges must be authorized under an alternative permit. Authorization for discharge or land disposal of concrete batch plant wastewater must be obtained under an alternative permit.

B. Benchmark Sampling Requirements

Operators of concrete batch plants must sample the storm water runoff from the concrete batch plant according to the requirements of the general permit. A table of benchmark monitoring values is located in Part IV.A. of the general permit. Analytical results that exceed a benchmark value are not a violation of the general construction permit. Results of analyses are indicators that modifications of the SWP3 should be assessed and may be necessary to protect water quality. Benchmark sampling records should be included in Appendix P.

C. Additional BMP and SWP3 Requirements

The following items are additional requirements for concrete batch plants. The Operator is responsible for updating the SWP3 as appropriate. Additional information for concrete batch plant requirements is located in Part IV of the general construction permit. Records and information for the concrete batch plant should be included in Appendix P.

1. A description of potential pollutant sources associated with the concrete batch plant must be kept in the SWP3.
2. The site map in Appendix A must include the following information:
 - a) the location of all outfalls for storm water discharges associated with concrete batch plants;
 - b) a depiction of the drainage area and the direction of flow to the outfall(s);
 - c) structural controls used within the drainage area(s);
 - d) the locations of the following areas associated with concrete batch plants that are exposed to precipitation: vehicle and equipment maintenance activity areas; areas used for the treatment, storage, or disposal of wastes; liquid storage tanks; material process and storage areas; and loading and unloading areas; and
 - e) the locations of the following: any bag house or other dust control device(s); recycle/sedimentation pond, clarifier or other device used for the treatment of facility wastewater; areas with significant materials; and areas where major spills or leaks have occurred.

3. A list of materials handled at the concrete batch plant that may be exposed to storm water and that have a potential to affect the quality of storm water discharges associated with concrete batch plants must be kept in this SWP3.
4. A list of significant spills and leaks of toxic or hazardous pollutants that occurred in areas exposed to storm water and that drain to storm water outfalls associated with concrete batch plants must be developed, maintained, and updated.
5. A summary of existing storm water discharge sampling data must be maintained if available.
6. Good housekeeping measures must be developed and implemented in the area(s) associated with concrete batch plants.
7. Areas where potential spills that can contribute pollutants to storm water runoff, and the drainage areas from these locations must be identified. Include material handling procedures, storage requirements, and use of equipment information. Procedures for cleaning up spills must be identified and made available to the appropriate personnel.
8. Qualified facility personnel must be identified to inspect designated equipment and areas of the facility specified in this SWP3. Inspection frequency must be specified based upon a consideration of the level of concrete production, but must be a minimum of once per month while the facility is in operation. The inspection must take place while the facility is in operation and include all areas that are exposed to storm water at the site. Records of inspections must be maintained in Appendix P.
9. An employee training program must be developed to educate personnel. At a minimum, training must occur prior to the initiation of operation of the concrete batch plant.
10. A description of spills and similar incidents, plus additional information that is obtained regarding the quality and quantity of storm water discharges must be included with this SWP3.
11. Include a narrative consideration for reducing the volume of runoff from concrete batch plants by diverting runoff or otherwise managing runoff, including use of infiltration, detention ponds, retention ponds, or reusing of runoff.
12. At least once per year, one or more qualified personnel shall conduct a compliance evaluation of the plant. Evaluation requirements are listed in Part IV.B.3 of the general permit.

10.0 CONCRETE TRUCK WASH OUT (IF APPLICABLE)

The wash out of concrete trucks at the construction site is authorized, provided that the requirements in Part V of the general permit are met. Authorization is limited to the land disposal of wash out water from concrete trucks. Any other direct discharge of concrete production waste water must be authorized under a separate general permit or individual permit.

A. Wash Out Requirements

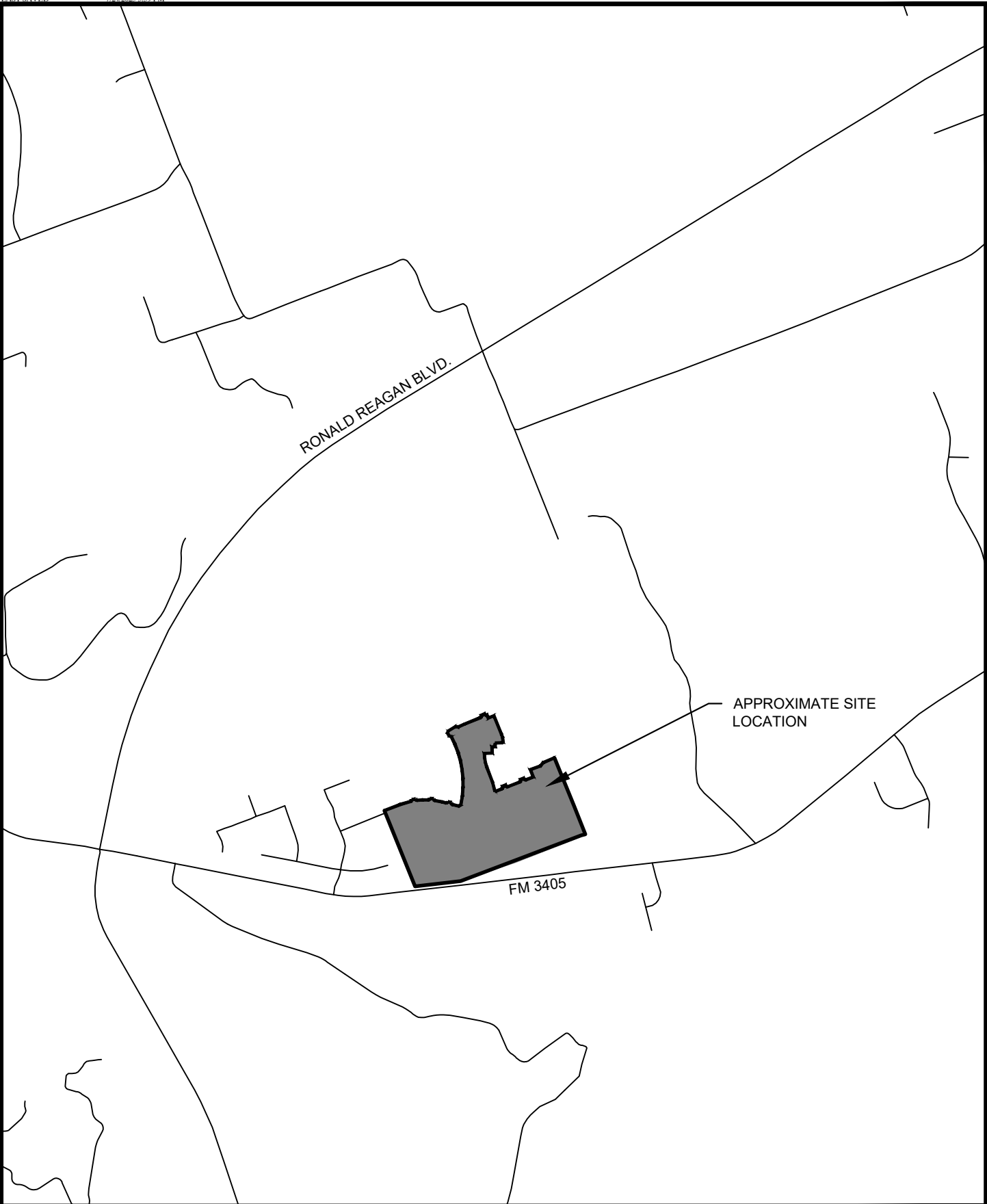
1. Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by the general permit.
2. Concrete truck wash out water should be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the site.
3. Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete wash out water is prohibited at all times, and the operator should have BMPs sufficient to prevent the discharge of concrete truck wash out as the result of rain.
4. The discharge of wash out water should not cause or contribute to groundwater contamination.
5. The Operator is responsible for showing concrete wash out areas on a map (Appendix A).

11.0 REFERENCES

- North Central Texas Council of Governments (NCTCOG). 2010. Integrated Storm Water Management Technical Manual. http://iswm.nctcog.org/technical_manual.asp.
- Texas Commission on Environmental Quality (TCEQ). 2024. "2024 Texas Water Quality Inventory and 303(d) List." [Online] (accessed on May 20, 2025). Available URL: <https://www.tceq.texas.gov/downloads/water-quality/assessment/integrated-report-2024/2024-basin12>.
- United States Department of Agriculture (USDA). 2019. Soil Survey of Williamson County, Texas. "Web Soil Survey." [Online] (accessed on May 20, 2025). Available URL: <http://websoilsurvey.nrcs.usda.gov/app/>

APPENDIX A

PROJECT MAPS



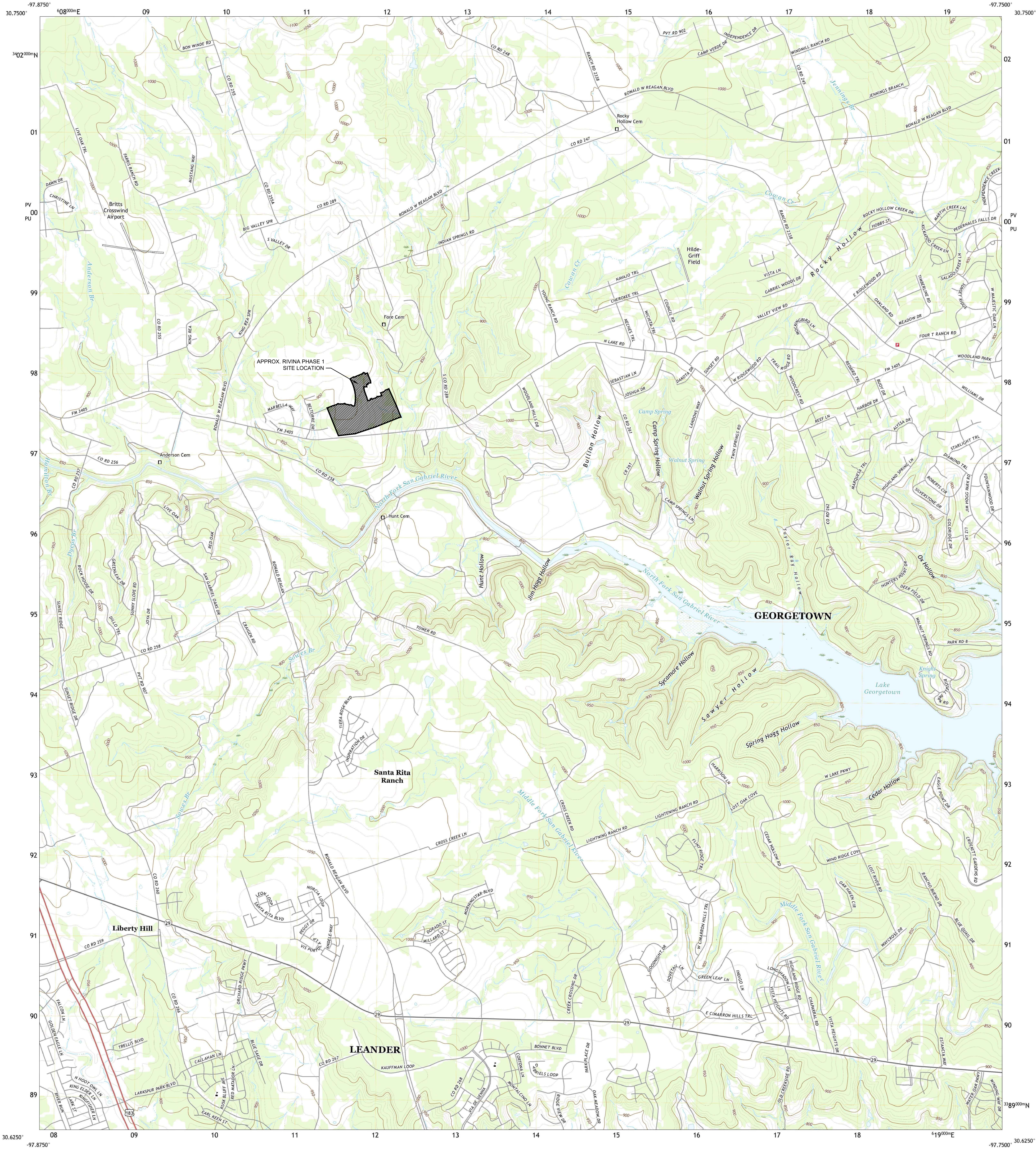
SHEET 1	Scale:	N.T.S.	ROAD MAP	RIVINA PHASE 1 GEORGETOWN, TEXAS		<div>Kimley»Horn</div> <div>This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.</div>
	Designed by:	KJM				
	Drawn by:	MSG				
	Checked by:	AEG				
	Date:	July 2025				
OF 1 SHEETS	Project No.	065000700				



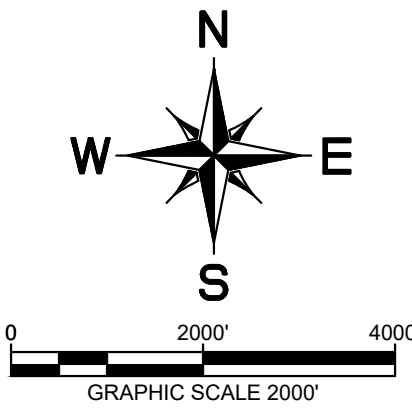
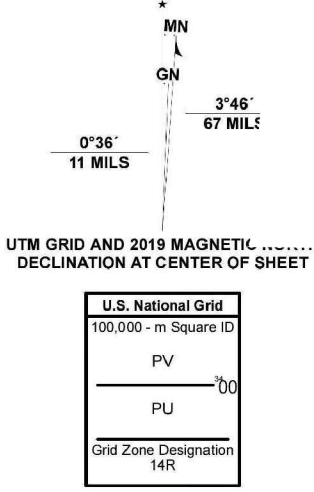
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



LEANDER NE QUADRANGLE
TEXAS - WILLIAMSON COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1,000-meter grid/Universal Transverse Mercator, Zone 14R
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.
Imagery.....N.A.I.P., August 2016 - November 2016
Roads.....U.S. Census Bureau, 2015 - 2019
Names.....G.N.S., 1979 - 2021
Hydrography.....National Hydrography Dataset, 2002 - 2021
Contours.....National Elevation Dataset, 2004
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Wetlands.....FWS National Wetlands Inventory Not Available



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

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

LEANDER NE, TX
2022



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Williamson County, Texas**

Rivina Phase 1



May 20, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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EaD—Eckrant cobbly clay, 1 to 8 percent slopes.....	20
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Williamson County, Texas
Survey Area Data: Version 25, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BkE	Brackett gravelly clay loam, 3 to 12 percent slopes	93.1	28.2%
CfB	Crawford clay, 1 to 3 percent slopes	12.8	3.9%
DnB	Denton silty clay, 1 to 3 percent slopes	32.2	9.8%
DoC	Doss silty clay, moist, 1 to 5 percent slopes	123.6	37.5%
EaD	Eckrant cobbly clay, 1 to 8 percent slopes	48.5	14.7%
FaB	Fairlie clay, 1 to 2 percent slopes	19.6	6.0%
Totals for Area of Interest		329.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Williamson County, Texas

BkE—Brackett gravelly clay loam, 3 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2t2m5

Elevation: 700 to 1,450 feet

Mean annual precipitation: 30 to 36 inches

Mean annual air temperature: 66 to 69 degrees F

Frost-free period: 230 to 265 days

Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 92 percent

Minor components: 8 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 5 inches: gravelly clay loam

Bk - 5 to 16 inches: clay loam

Cr - 16 to 60 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent

Surface area covered with cobbles, stones or boulders: 3.0 percent

Depth to restrictive feature: 6 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 90 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R081CY355TX - Adobe 29-35 PZ

Hydric soil rating: No

Minor Components

Sunev

Percent of map unit: 6 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Austin

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

CfB—Crawford clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2rspf
Elevation: 400 to 1,100 feet
Mean annual precipitation: 26 to 34 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 230 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Crawford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crawford

Setting

Landform: Plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 6 inches: clay
Bss - 6 to 27 inches: clay

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R - 27 to 30 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 2 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D

Ecological site: R081CY358TX - Deep Redland 29-35 PZ

Hydric soil rating: No

Minor Components

Fairlie

Percent of map unit: 4 percent

Landform: Ridges

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R086AY011TX - Southern Blackland

Hydric soil rating: No

Denton

Percent of map unit: 4 percent

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R081CY357TX - Clay Loam 29-35 PZ

Hydric soil rating: No

Georgetown

Percent of map unit: 4 percent

Landform: Plains

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Interfluve, base slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R081CY361TX - Redland 29-35 PZ

Hydric soil rating: No

Purves

Percent of map unit: 2 percent

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Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

DnB—Denton silty clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t26l
Elevation: 570 to 1,870 feet
Mean annual precipitation: 31 to 36 inches
Mean annual air temperature: 65 to 68 degrees F
Frost-free period: 220 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Denton and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Denton

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty and clayey slope alluvium over residuum weathered from limestone

Typical profile

A - 0 to 14 inches: silty clay
Bw - 14 to 25 inches: silty clay
Bk - 25 to 33 inches: silty clay
Ck - 33 to 36 inches: gravelly silty clay
R - 36 to 80 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 22 to 60 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 80 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: D

Ecological site: R081CY357TX - Clay Loam 29-35 PZ

Hydric soil rating: No

Minor Components

Krum

Percent of map unit: 6 percent

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Concave

Ecological site: R081CY357TX - Clay Loam 29-35 PZ

Hydric soil rating: No

Doss

Percent of map unit: 4 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Ecological site: R081BY343TX - Shallow 23-31 PZ

Hydric soil rating: No

Anhalt

Percent of map unit: 2 percent

Landform: Hillslopes

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R081CY358TX - Deep Redland 29-35 PZ

Hydric soil rating: No

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

Map Unit Setting

National map unit symbol: 2s0st
Elevation: 630 to 1,840 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 66 to 68 degrees F
Frost-free period: 210 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Doss and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Doss

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 9 inches: silty clay
Bk - 9 to 17 inches: silty clay
Cr - 17 to 80 inches: bedrock

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 11 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 70 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Minor Components

Brackett

Percent of map unit: 7 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Bolar

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Eckrant

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Purves

Percent of map unit: 1 percent
Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Denton

Percent of map unit: 1 percent
Landform: Plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

EaD—Eckrant cobbly clay, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t0sg
Elevation: 650 to 1,900 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 65 to 69 degrees F
Frost-free period: 210 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Eckrant and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eckrant

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 4 inches: cobbly clay
A2 - 4 to 11 inches: very cobbly clay
R - 11 to 80 inches: bedrock

Properties and qualities

Slope: 1 to 8 percent
Surface area covered with cobbles, stones or boulders: 2.3 percent
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Custom Soil Resource Report

Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ

Hydric soil rating: No

Minor Components

Brackett

Percent of map unit: 7 percent

Landform: Ridges

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: R081CY355TX - Adobe 29-35 PZ

Hydric soil rating: No

Bexar

Percent of map unit: 5 percent

Landform: Ridges

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R081CY361TX - Redland 29-35 PZ

Hydric soil rating: No

Krum

Percent of map unit: 3 percent

Landform: Ridges

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R081CY357TX - Clay Loam 29-35 PZ

Hydric soil rating: No

FaB—Fairlie clay, 1 to 2 percent slopes

Map Unit Setting

National map unit symbol: djq1

Elevation: 550 to 850 feet

Mean annual precipitation: 30 to 42 inches

Mean annual air temperature: 64 to 68 degrees F

Frost-free period: 230 to 260 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Fairlie and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fairlie

Setting

Landform: Ridges

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Residuum weathered from austin chalk formation

Typical profile

H1 - 0 to 8 inches: clay

H2 - 8 to 46 inches: clay

H3 - 46 to 54 inches: bedrock

Properties and qualities

Slope: 1 to 2 percent

Depth to restrictive feature: 40 to 60 inches to paralithic bedrock

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 20 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D

Ecological site: R086AY011TX - Southern Blackland

Hydric soil rating: No

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Map/Figure Notes:

- The Operator is solely responsible for selection, implementation, maintenance, and effectiveness of all BMPs.
- Best management practices shown on the attached figures are suggested controls only. The Operator will record BMPs (whether called out on the original SWP3 or not) directly on the site map.
- If information is not shown or if site conditions change from the attached figures, the Operator is responsible for updating the maps. The following information should be included on maps.
 - drainage patterns and approximate slopes anticipated after major grading activities,
 - areas where soil disturbance will occur,
 - locations of all major structural controls either planned or in place,
 - locations where stabilization practices are expected to be used,
 - locations of off-site material, waste, borrow, fill, or equipment storage areas,
 - surface waters (including wetlands) either adjacent or in close proximity,
 - locations where storm water discharges from the site directly to a surface water body or a MS4, and
 - vehicle wash areas
 - designated points on the site where vehicles will exit onto paved roads
- Where the amount of information required to be included on the map would result in a single map being difficult to interpret, the operator shall develop a series of maps that collectively include the required information.

APPENDIX B

CONSTRUCTION ACTIVITY SCHEDULE

Construction Activity Schedule

Activities	Start Date	Finish Date
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		

*Construction activity sequences for linear projects may be conducted on a rolling basis. As a result, construction activities may be at different stages at different locations in the project area. The Contractor is required to complete and update the schedule and adjust as necessary.

APPENDIX C

BEST MANAGEMENT PRACTICE CHECKLIST AND FACT SHEETS

Best Management Practice Measures and Controls

Best Management Practice (BMP)	In Use	Maintained Post Construction?
Interceptor Swale		
Diversion Dike		
Pipe Slope Drain		
Vegetation		
Mulching		
Erosion Control Blankets		
Channel Protection		
Dust Control		
Silt Fence		
Organic Filter Berm		
Triangular Sediment Filter Dike		
Inlet Protection		
Stone Outlet Sediment Trap		
Sediment Basin		
Check Dam		
Temporary Sediment Tank		
Stabilized Construction Entrance		
Wheel Wash		
Debris and Trash Management		
Chemical Management		
Concrete Waste Management		
Concrete Sawcutting Waste Management		
Sandblasting Waste Management		
Lime Stabilization Management		
Sanitary Facilities		
Other*		
Other*		

*If another BMP is being used, include the BMP information in Appendix D.

EROSION AND SEDIMENT CONTROL CHECKLIST

Instructions: Check each item and fill in the blanks below to evaluate compliance for each drainage area and location.

Stabilization Practices:

- ☐ Stabilization will be initiated on all disturbed areas where construction activity will not occur for a period of more than 21 calendar days by the 14th day after construction activity has permanently or temporarily ceased. Stabilization measures to be used include:
 - ☐ Temporary Seeding
 - ☐ Permanent Seeding
 - ☐ Mulching
 - ☐ Sod Stabilization
 - ☐ Geotextiles
 - ☐ Other _____

Structural Practices

- ☐ Flows from upstream areas will be diverted from exposed soils to the degree attainable. Measures to be used include:
 - ☐ Earth Dike
 - ☐ Drainage Swale
 - ☐ Interceptor Dike and Swale
 - ☐ Pipe Slope Drain
 - ☐ Other _____

For Drainage locations serving less than 10 disturbed acres, Sediment Basin will be installed and will include:

- ☐ Sediment Trap
- ☐ Silt Fence or equivalent along all sideslopes & downstream boundaries

For Drainage locations serving 10 or more disturbed acres, a Sediment Basin will be installed (See Appendix N), if a Sediment Basin is not attainable on-site, Sediment Controls will be installed & will include:

- ☐ Sediment Trap
- ☐ Silt Fence or equivalent along all sideslopes & downstream boundaries
- ☐ Sediment Basin

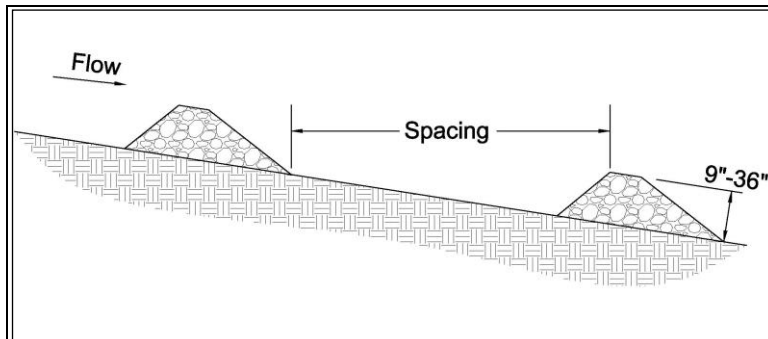
FINAL STABILIZATION / TERMINATION CHECKLIST

1. All soil disturbing activities are complete.
2. Temporary erosion and sediment control measures have been, or will be, removed at an appropriate time.
3. All areas of the construction site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 70% or equivalent measures have been employed.

2.0 Erosion Controls

2.1 Check Dam

Erosion Control



Description: Check dams are small barriers consisting of loose rock, rock bags, or organic filter tubes placed across a drainage swale or ditch. They reduce the velocity of small concentrated flows, provide a limited barrier for sediment and reduce the potential for erosion of the swale or ditch.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Heights between 9 inches and 36 inches
- Top of the downstream dam should be at the same elevation as the toe of the upstream dam

ADVANTAGES / BENEFITS:

- Reduced velocities in long drainage swales or ditches
- May be used with other channel protection measures
- Provides some sediment removal

DISADVANTAGES / LIMITATIONS:

- Cannot be used in live stream channels
- Minor ponding upstream of the check dams
- Extensive maintenance or replacement of the dams required after heavy flows or high velocity flows
- Mowing hazard from loose rocks if all rock is not removed at end of construction

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Remove silt when it reaches approximately $\frac{1}{3}$ the height of the dam or 12 inches, whichever is less

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.30-0.50

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- None

2.1.1 Primary Use

Check dams are used in long drainage swales or ditches to reduce erosive velocities. They are typically used in conjunction with other channel protection techniques such as vegetation lining and turf reinforcement mats. Check dams provide limited treatment to sediment-laden flows. They are more useful in reducing flow velocities to acceptable levels for stabilization methods. Check dams may be used in combination with stone outlet sediment traps, where the check dams prevent erosion of the swale while the sediment trap captures sediment at the downstream end of the swale.

2.1.2 Applications

Check dams are typically used in swales and drainage ditches along linear projects such as roadways. They can also be used in short swales down a steep slope, such as swales down a highway embankment, to reduce velocities. Check dams shall not be used in live stream channels.

Check dams should be installed before the contributing drainage area is disturbed, so as to mitigate the effects on the swale from the increase in runoff. If the swale itself is graded as part of the construction activities, check dams are installed immediately upon completion of grading to control velocities in the swale until stabilization is completed.

2.1.3 Design Criteria

General Criteria

- Typically, the dam height should be between 9 inches and 36 inches, depending on the material of which they are made. The height of the check dam shall always be less than one-third the depth of the channel.
- Dams should be spaced such that the top of the downstream dam is at the same elevation as the toe of the upstream dam. On channel grades flatter than 0.4 percent, check dams should be placed at a distance that allows small pools to form between each check dam.
- The top of the side of the check dam shall be a minimum of 12 inches higher than the middle of the dam. In addition, the side of the dams shall be embedded a minimum of 18 inches into the side of the drainage ditch, swale or channel to minimize the potential for flows to erode around the side of the dam.
- Larger flows (greater than 2-year, 24-hour design storm) must pass the check dam without causing excessive upstream flooding.
- Check dams should be used in conjunction with other sediment reduction techniques prior to releasing flow offsite.
- Use geotextile filter fabric under check dams of 12 inches in height or greater. The fabric shall meet the following minimum criteria:
 - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 250-lbs.
 - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 135-lbs.
 - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 420-psi.
 - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max).
- Loose, unconfined soil, wood chips, compost, and other material that can float or be transported by runoff shall not be used to construct check dams.

Rock Check Dams

- Stone shall be well graded with stone size ranging from 3 to 6 inches in diameter for a check dam height of 24 inches or less. The stone size range for check dams greater than 24 inches is 4 to 8 inches in diameter.
- Rock check dams shall have a minimum top width of 2 feet with side slopes of 2:1 or flatter.

Rock Bag Check Dams

- Rock bag check dams should have a minimum top width of 16 inches.
- Bag length shall be 24 inches to 30 inches, width shall be 16 inches to 18 inches and thickness shall be 6 inches to 8 inches and having a minimum weight of 40 pounds.
- Minimum rock bag dam height of 12 inches would consist of one row of bags stacked on top of two rows of bag. The dam shall always be one more row wide than it is high, stacked pyramid fashion.
- Bags should be filled with pea gravel, filter stone, or aggregate that is clean and free of deleterious material.
- Sand bags shall not be used for check dams, due to their propensity to break and release sand that is transported by the concentrated flow in the drainage swale or ditch.
- Bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4-ounces-per-square-yard, Mullen burst strength exceeding 300-psi as determined by ASTM D3786, Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, and ultraviolet stability exceeding 70 percent.
- PVC pipes may be installed through the dam to allow for controlled flow through the dam. Pipe should be schedule 40 or heavier polyvinyl chloride (PVC) having a nominal internal diameter of 2 inches.

Sack Gabion Check Dams

- Sack gabion check dams may be used in channels with a contributing drainage area of 5 acres or less.
- Sack gabions shall be wrapped in galvanized steel, woven wire mesh. The wire shall be 20 gauge with 1 inch diameter, hexagonal openings.
- Wire mesh shall be one piece, wrapped around the rock, and secured to itself on the downstream side using wire ties or hog rings.
- Sack gabions shall be staked with ¾ inch rebar at a maximum spacing of three feet. Each wire sack shall have a minimum of two stakes.
- Stone shall be well graded with a minimum size range from 3 to 6 inches in diameter.

Organic Filter Tube Check Dams

- Organic filter tubes may be used as check dams in channels with a contributing drainage area of 5 acres or less.
- Organic filter tubes shall be a minimum of 12 inches in diameter.
- Filter material used within tubes to construct check dams shall be limited to coir, straw, aspen fiber and other organic material with high cellulose content. The material should be slow to decay or leach nutrients in standing water.
- Staking of filter tubes shall be at a maximum of 4 foot spacing and shall alternate through the tube and on the downstream face of the tube.
- Unless superseded by requirements in this section, filter tubes and filter material shall comply with the

criteria in *Section 3.6 Organic Filter Tubes*.

2.1.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.9 Check Dam (Rock). Specifications are also available in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (TxDOT 2004), Item 506.2.A and Item 506.4.C.1.

2.1.5 Inspection and Maintenance Requirements

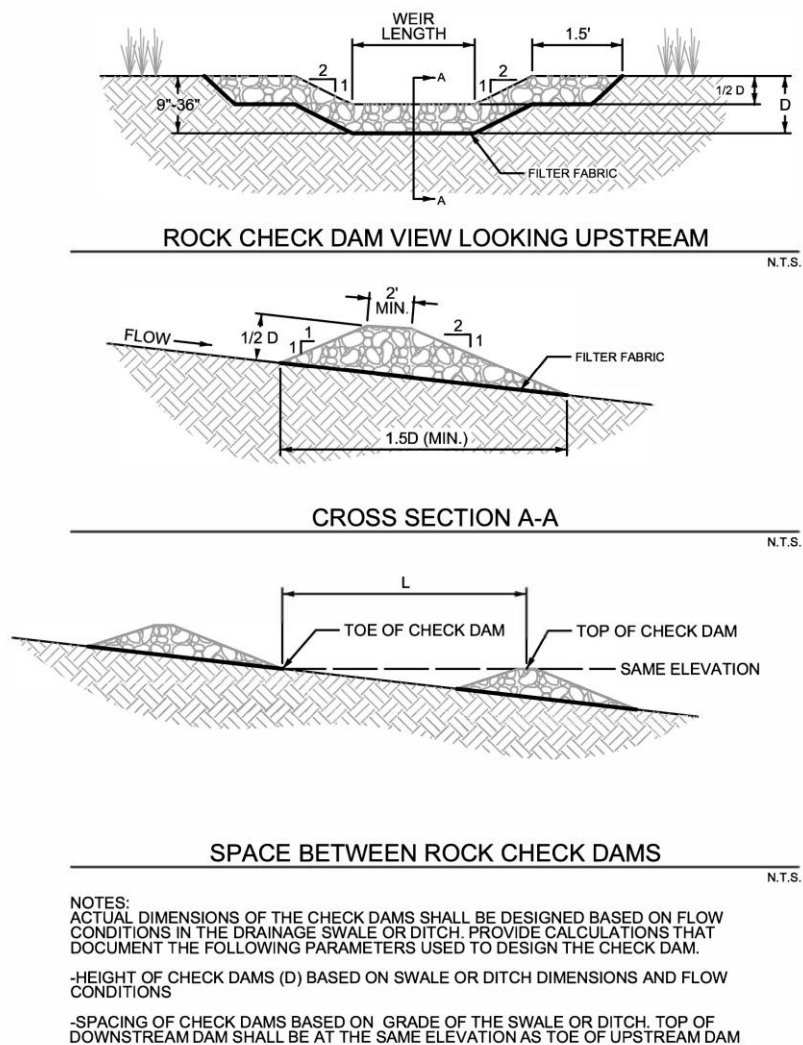
Check dams should be inspected regularly (at least as often as required by the TPDES Construction General Permit). Silt must be removed when it reaches approximately 1/3 the height of the dam or 12 inches, whichever is less. Inspectors should monitor the edges of the dam where it meets the sides of the drainage ditch, swale or channel for evidence of erosion due to bypass or high flows. Eroded areas shall be repaired. If erosion continues to be a problem, modifications to the check dam or additional controls are needed.

Care must be used when taking out rock check dams in order to remove as much rock as possible. Loose rock can create an extreme hazard during mowing operations once the area has been stabilized.

2.1.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be adapted for the site by the designer. Dimensions and notes appropriate for the application must also be added by the designer.



Revised 2019

Figure 2.1 Schematics of Rock Check Dams
(Source: Modified from Stormwater Management Manual for Western Washington)

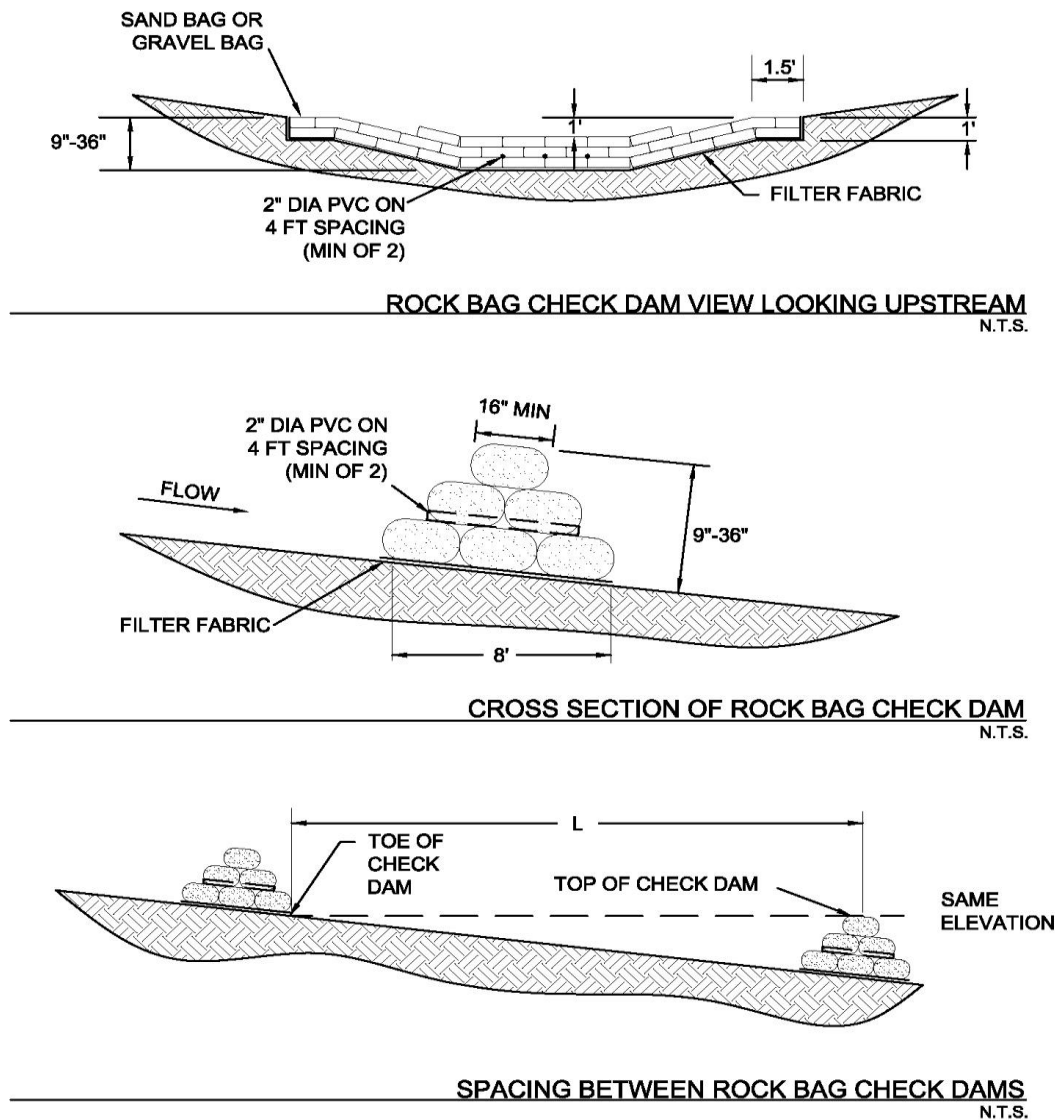
ROCK CHECK DAM GENERAL NOTES:

1. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.9 CHECK DAM (ROCK).
2. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 1 1/2 TO 3 1/2 INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.
3. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
5. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

Revised 2019

Figure 2.2 Rock Check Dams Schematic General Notes

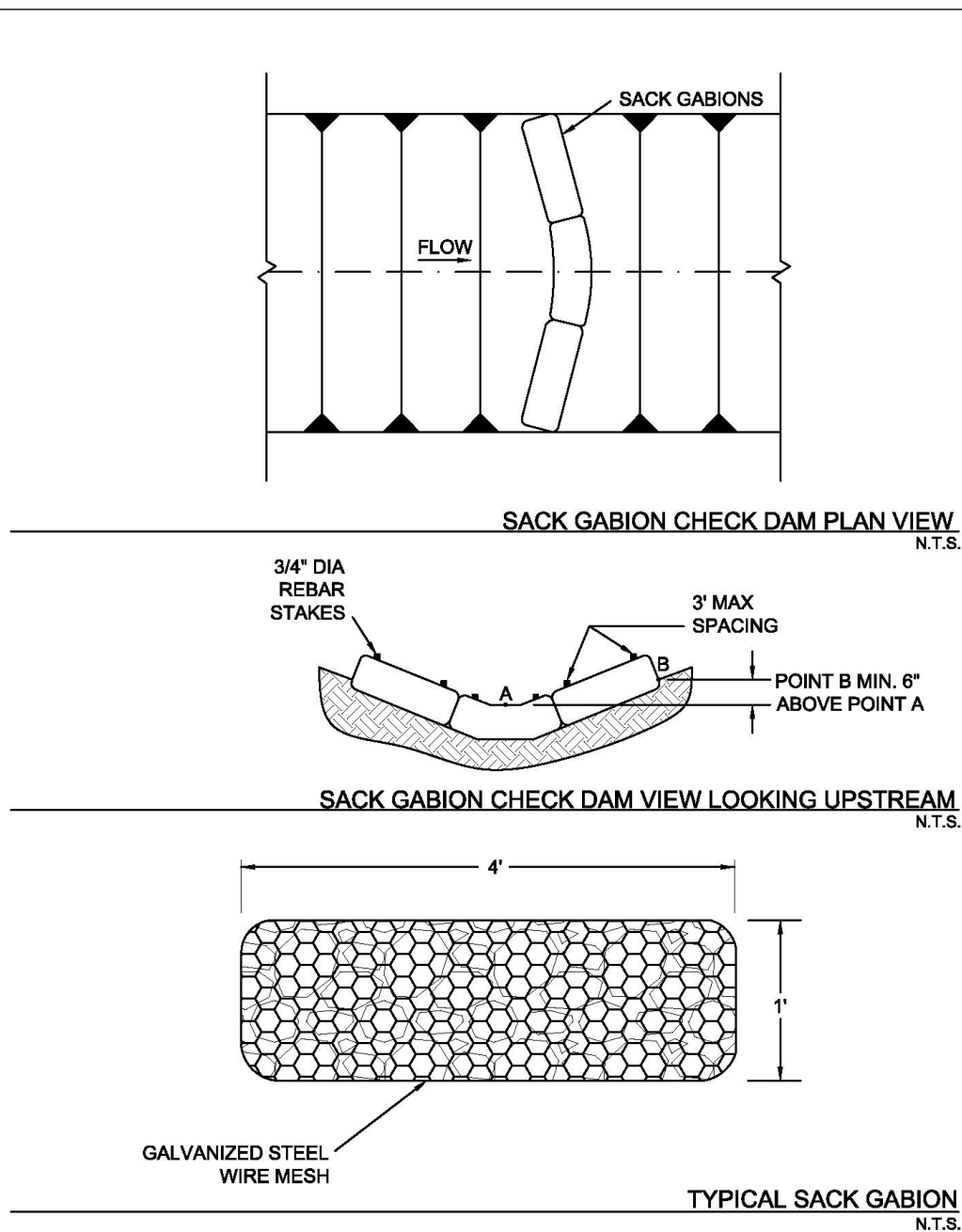
(Source: Modified from Stormwater Management Manual for Western Washington)



NOTES: ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

- HEIGHT OF CHECK DAMS BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS.
- SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.

Figure 2.3 Schematics of Rock Bag Check Dams

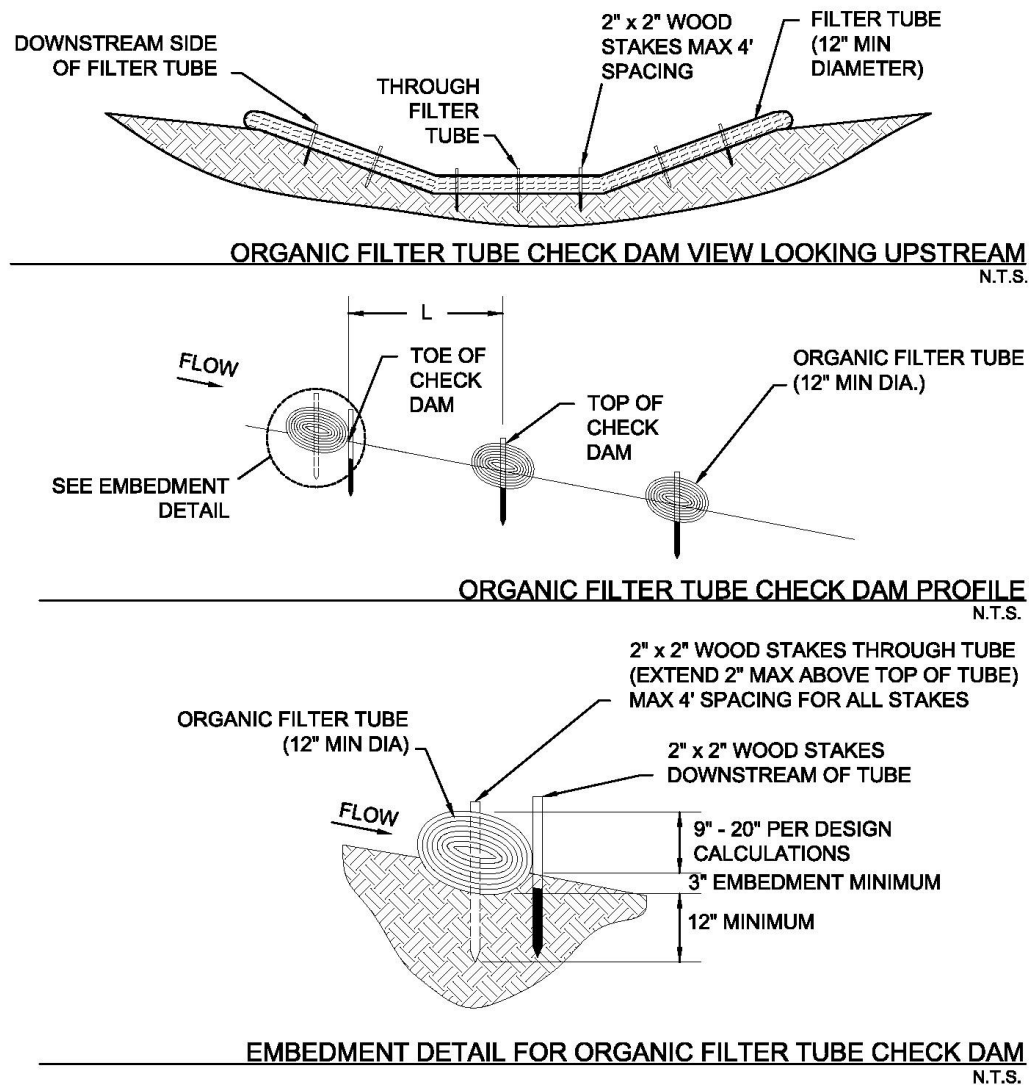


NOTES: ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

- HEIGHT OF CHECK DAMS BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS.
- SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.

Figure 2.4 Schematics of Sack Gabion Check Dams

(Source: Modified from Texas Department of Transportation Detail Sheet EC (2)-93)



NOTES: ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

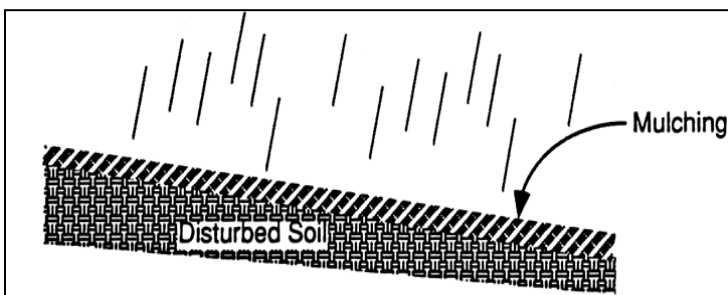
- HEIGHT OF CHECK DAMS BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS.
- SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.

Figure 2.5 Schematics of Organic Filter Tube Check Dams

(Source: Modified from City of Plano BMP S-7)

2.5 Mulching

Erosion Control



Description: Mulching is the application of a uniform layer of organic material over barren areas to reduce the effects of erosion from rainfall. Types of mulch include compost mixtures, straw, wood chips, bark, or other fibers. Commercialized surface treatments that combine straw or other mulch material with organic or inorganic soil binding systems are also available and are particularly useful on steep slopes.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Specify even, uniform application
- Thickness of 1 to 2 inches, depending on application
- Application criteria specific to type of mulch
- Anchor mulch on slopes of 3:1 to 1.5:1
- Do not use mulch on slopes steeper than 1.5:1

ADVANTAGES / BENEFITS:

- Provides immediate stabilization of bare areas
- May be used with seeding for final stabilization
- Decreases soil moisture loss
- Decreases velocity of sheet flow
- Reduces volume of sediment-laden flow

DISADVANTAGES / LIMITATIONS:

- Subject to removal by wind or water
- Results in lower soil temperature, which may yield longer seed germination periods
- Should not be applied within the ordinary high-water mark of natural surface waters or within the design flow depth of constructed ditches and channels

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Replace regularly in high traffic areas to maintain uniform thickness
- Maintain a stockpile of excess mulch at the site to repair problem spots

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.75-0.90

(Depends on coverage)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- Availability of materials for mulch
- Application depends on slope

2.5.1 Primary Use

Mulch may be used by itself to temporarily stabilize bare areas or with seed to establish final stabilization of bare areas. Mulch protects the soil from erosion and moisture loss by lessening the effects of wind, water, and sunlight. It also decreases the velocity of sheet flow, thereby reducing the volume of sediment-laden water flow leaving the mulched area.

2.5.2 Applications

Mulch may be applied on most areas disturbed by construction that require surface protection including:

- Freshly seeded or planted areas;
- Disturbed areas at risk of erosion due to the time period being unsuitable for growing vegetation;
- Disturbed areas that are not conducive to vegetation for temporary stabilization; or
- Steep slopes of 3:1 to 1.5:1, provided the mulch is anchored to the soil by use of soil stabilizers, netting, or crimping.

Mulch is frequently applied with seeding for vegetation. In these cases, refer to [Section 2.9 Vegetation](#) for related criteria that may affect mulching.

Mulch may also be applied with commercially available polymers for soil surface treatment to bind the mulch with the soil. This method is particularly useful on steep slopes. Related criteria are available in [Section 2.7 Soil Surface Treatments](#).

2.5.3 Design Criteria

General

- Specific design information is required for the use of this control. The designer shall specify the type of mulch to be used, the application rate and/or thickness, and the type of anchoring (if applicable) based on site conditions.
- Choice of mulch depends largely on slope and soil type, in addition to availability of materials.
- Netting, adhesive polymers, or other methods of anchoring the mulch are required on slopes of 3:1 to 1.5:1. Do not use mulch on slopes steeper than 1.5:1.
- Mulch should be applied in an even and uniform manner where concentrated water flow is negligible. Do not apply mulch within the ordinary high-water mark of natural surface waters or within the design flow depth of constructed ditches and channels.
- Hay should not be used as mulch.
- Organic mulches may be distributed by hand or by mechanical means, provided a uniform thickness is achieved.
- When mulch is used with vegetation for final stabilization, fertilization and soil treatment for vegetation establishment should be done prior to placement of mulch, with the exception of hydroseeding or when seed is distributed following straw mulch spread during winter months.
- Table 2.1 on the following page contains a summary of mulch types and general guidelines.

Table 2.1 Mulch Standards and Guidelines			
Mulch Material	Quality Standards	Application Rates	Remarks
Straw	Air-dried, free of mold and not rotten. Certified Weed Free.	1.5 to 2 tons per acre	Cost-effective when applied with adequate thickness. Straw must be held in place by crimping, netting, or soil stabilizer.
Chipped Site Vegetation	Should include gradation from fine to coarse to promote interlocking properties. Must be free of waste materials such as plastic bags, metal debris, etc.	10 to 12 tons per acre	Cost-effective method to dispose of vegetative debris from site. Best application is for temporary stabilization where construction will resume. Use cautiously on areas where vegetation will be established, as wood chips will deplete soil nitrogen.
Erosion Control Compost (Wood Chip and Compost Mixture)	Shall meet the Physical Requirements in Table 1 of TxDOT Special Specification 1001.	Approx. 10 tons per acre	Special caution is advised regarding the source and composition of wood mulches. Ensure compost is free of herbicides. Ensure wood chips are from unpainted and untreated wood.
Hydraulic Mulch	Must not contain sawdust, cardboard, paper, paper byproducts, plastics, or synthetics. No petroleum-based tackifiers.	Follow the manufacturer's recommendations. Application rate increases with slope steepness.	May be particularly effective on slopes steeper than 3:1. Ensure wood fibers are from unpainted and untreated wood.

Straw Mulch

- Straw mulch shall be free of weed and grass seed.
- Straw mulch shall be air-dried, free of mold, and not rotten.
- Straw fibers shall be a minimum of 4 inches and a maximum of 8 inches in length.
- Straw mulch must be anchored by using a tractor-drawn crimper to punch into the soil, by placing degradable netting above the mulch, or by application of a soil stabilizer ([Section 2.7 Soil Surface Treatments](#)).

Chipped Site Vegetation

- Chipped site vegetation is suitable mulch for temporary stabilization before construction will resume in an area of the construction site.
- Ensure the cleared vegetation is free of trash, litter, and debris prior to chipping.

- Chipped pieces shall be a minimum of 2 inches and a maximum of 6 inches in length.
- Chipped woody vegetation that is greater than 50% wood chips by volume may result in mulch that depletes nitrogen in the soil. It is useful as mulch for temporary stabilization where construction activity will resume and result in removal of the mulch. However, it should be used with care on areas where vegetation will be established for final stabilization.
- Chipped vegetation that is greater than 50 percent wood chips by volume may require treatment with a nitrogen fertilizer when used for mulch with seeding.
- Chipped vegetation that includes green matter will include seeds. It should not be used on areas that have specific landscaping requirements.

Erosion Control Compost (Wood Chip and Compost Mixture)

- Wood chip and compost mixture used for mulch shall meet the criteria for Erosion Control Compost in TxDOT Special Specification 1001.
- Wood chips for the mixture shall be less than or equal to 5 inches in length with 95 percent passing a 2 inch screen and less than 30 percent passing a 1 inch screen. Mulch should not contain chipped manufactured boards or chemically treated wood such as particleboard, railroad ties, or similar treated wood.
- Compost for the mixture shall meet the Physical Requirements specified in Table 1 of 2004 TxDOT Special Specification 1001, Compost. It must be free of herbicides and other chemicals.
- Mixing of the Erosion Control Compost into the soil surface is allowed when vegetation is established for final stabilization, except for drill seeding, in which case it is best to leave the mulch as an undisturbed top layer.

Hydraulic Mulch (Including Bonded Fiber Matrix)

- Hydraulic mulch shall consist of a mixture of shredded wood fiber and a stabilizing binder. The mulch must not contain sawdust, cardboard, paper or paper byproducts.
- Shredded wood fiber shall be long strand, whole wood fibers that are:
 - Minimum of 25 percent of fibers 3/8 inch long;
 - Minimum of 50 percent held on a No. 25 sieve;
 - Free from paint, printing ink, varnish, petroleum products, seed germination inhibitors; and
 - Free from synthetic or plastic materials.
- Mulch binders may be organic or inorganic polymers. Asphaltic emulsions and other petroleum-based tackifiers shall not be used.
- The stabilizing emulsion must be nonflammable, non-toxic to aquatic organisms, and free from growth or germination inhibiting factors.
- Areas hydraulically mulched shall be protected from all traffic, including foot traffic, a minimum of 24 hours to allow the mulch to dry and cure. Depending on the mulch, up to 48 hours of protection may be required. Always follow manufacturer's recommendations.
- Hydraulic mulch provides limited to no protection until cured. Do not apply when rain is forecast within the next 24 hours.
- Hydraulic mulch may be particularly effective on slopes steeper than 3:1.

2.5.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.16 Mulching. Specifications for

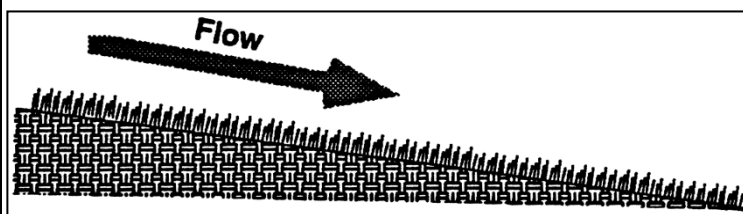
compost may be found in Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDOT 2004) Item 161.

2.5.5 Inspection and Maintenance Requirements

Mulched areas should be inspected regularly (at least as often as required by the TPDES Construction General Permit) for thin or bare spots caused by natural decomposition or weather related events. Mulch in high traffic areas should be replaced on a regular basis to maintain uniform protection. Excess mulch should be brought to the site and stockpiled for use during the maintenance period to dress problem spots.

2.9 Vegetation

Erosion Control



Description: Vegetation, used as an erosion control, is the sowing or sodding of grasses, small grains, or legumes to provide temporary and final vegetative stabilization for disturbed areas.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Specify preparation of the soil surface before seeding or sodding
- Minimum of 4 to 6 inches of top soil required, depending on subsurface conditions
- Specify soil amendments depending on soil conditions
- Select seed or sod species appropriate for the climate, season, and soil

ADVANTAGES / BENEFITS:

- More effective and easier to maintain than sediment controls during a long construction period
- May be used for temporary or final stabilization

DISADVANTAGES / LIMITATIONS:

- Not appropriate for areas with heavy pedestrian, vehicular traffic, or concentrated, high velocity flow
- May require days to weeks for adequate establishment
- Alternate erosion control is needed until vegetation is established

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Protect newly seeded areas from excessive runoff, high velocity flow, and traffic until vegetation is established
- Water and fertilize until vegetation is established
- Reseed and/or provide mulch or another control for bare spots
- Rake accumulations of sediment from the vegetation

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.90

(When fully established; lower while vegetation is first growing)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- *Design is unique to soil and other conditions at each site*
- *Watering and other maintenance required until vegetation is established*

2.9.1 Primary Use

Vegetation is used as a temporary or final stabilization measure for areas disturbed by construction. As a temporary control, vegetation is used to stabilize stockpiles, earthen dikes, and barren areas that are inactive for longer than two weeks. As a final control at the end of construction, grasses and other vegetation provide good protection from erosion along with some filtering for overland runoff. Subjected to acceptable runoff velocities, vegetation can provide a positive method of long-term stormwater management as well as a visual amenity to the site.

Other control measures may be required to assist during the establishment of vegetation. These other controls include erosion control blankets, mulching, swales, and dikes to direct flow around newly seeded areas and proper grading to limit runoff velocities during construction.

2.9.2 Applications

Vegetation effectively reduces erosion in channels and swales and on stockpiles, dikes, and mild to medium slopes. Vegetative strips can provide some protection and sediment trapping when used as a perimeter control for utility and site development construction. Refer to [Section 3.15 Vegetated Filter Strips and Buffers](#) for more information.

In many cases, the initial cost of temporary seeding may be high compared to tarps or covers for stockpiles or other barren areas subject to erosion. This initial cost should be weighed with the amount of time the area is to remain inactive, since vegetation is more effective and the maintenance cost for vegetated areas is much less than most structural controls.

2.9.3 Design Criteria

General

- Vegetation is a highly effective erosion control when the vegetation is fully established. Until then, additional controls are needed. Sediment controls should not be removed from vegetated areas until the vegetation is established.
- On grades steeper than 20:1 (5 percent), anchored mulch or erosion control blankets are required to protect seeded areas until vegetation is established. Refer to [Section 2.5 Mulching](#) and [Section 2.3 Erosion Control Blankets](#) for design criteria.
- Vegetation may be used by itself for channel protection when the channel grade is less than 2 percent and the temporary control design storm (2-year, 24-hour) and the conveyance storm (25-year, 24-hour) flow velocities are less than 6 feet per second.
- If the velocity of the temporary control design storm is greater than 2 feet per second, erosion control blankets shall be used in the channel while vegetation is being established. Turf reinforcement mats are required when the velocity exceeds 6 feet per second. Refer to [Section 2.3 Erosion Control Blankets](#) and [Section 2.8 Turf Reinforcement Mats](#) for design criteria.
- Stabilization of channels with vegetation is limited to channels that have side slopes of 3:1 or flatter.
- On cut/fill slopes and channels designed to receive temporary or final vegetation, establishment of vegetation shall be initiated immediately after completing grading of the cut/fill slope or channel, and in no case later than 14 days after completion of grading on these features. It is not acceptable to delay establishing vegetation on these highly-erodible areas until completion of construction activities and stabilization of the remainder of the site.

Surface Preparation

- Unless infeasible, remove and stockpile existing topsoil at the start of grading activities. Store topsoil in a series of small stockpiles instead of one large stockpile to decrease the loss of aerobic soil micro-organisms during stockpiling.

- Interim or final grading must be completed prior to seeding or sodding.
- To minimize soil compaction of areas to be vegetated, limit vehicle and equipment traffic in these areas to the minimum necessary to accomplish grading.
- Install all necessary erosion structures such as dikes, swales, diversions, etc. prior to seeding or sodding.
- Spread stockpiled topsoil evenly over the disturbed area to be vegetated.
- Depth of topsoil shall be a minimum of 4 inches, with 6 inches required where the topsoil is over rock, gravel or otherwise unsuitable material for root growth. After spreading stockpiled topsoil, provide additional top soil as needed to achieve these depths.
- Compost Manufactured Topsoil as specified in TxDOT Special Specification 1001 may be used to achieve the specified depths or when it's infeasible to stockpile topsoil. Topsoil may also be acquired from another construction site if there is no space to stockpile the topsoil at that site.
- Topsoil shall have an organic content of 10 to 20 percent using ASTM D2974 Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
- Topsoil that does not meet the organic content requirement shall be amended with General Use Compost as specified in TxDOT Special Specification 1001. Amendment should be three parts of topsoil to one part compost by volume thoroughly blended.
- Seed bed should be well pulverized and loosened to a minimum depth of 3 inches and then raked to have a uniform surface.
- When establishing vegetation from seed, groove or furrow slopes steeper than 3:1 on the contour line before seeding.

Plant Selection, Fertilization and Seeding

- Use only high quality, USDA certified seed.
- Use an appropriate species or species mixture adapted to the local climate, onsite soil conditions and the season as shown below, or consult with the local office of the Natural Resource Conservation Service (NRCS) or Texas AgriLife Extension Service for selection of proper species and application technique in this area.
- Seeding rate should be in accordance with the Tables 2.4, 2.5 and 2.6 as follow in this section or as recommended by the Natural Resources Conservation Service (NRCS) or Texas AgriLife Extension Service.
- Chemical fertilization is not recommended at the time of seeding, because it typically stimulates and is consumed by fast growing weeds that out-compete the slower growing grasses and legumes. If the topsoil has not been amended by compost as discussed above, an 0.5 inch layer of General Use Compost (TxDOT Special Specification 1001) is recommended as a surface treatment to protect the seed and provide slow release nutrients
- Evenly apply seed using a seed drill, cultipacker, terraseeding, or hydroseeder.
- Hydro-seeding should not be used on slopes of 5:1 or steeper unless Bonded Fiber Matrix is used.
- Seeded areas shall be thoroughly watered immediately after planting. Water shall be applied at a rate that moistens the top 6 inches of soil without causing runoff. Provide water daily for the first 14 days after seeding and thereafter as needed to aid in establishment of vegetation.
- Use appropriate mulching techniques ([Section 2.5 Mulching](#)) where necessary, especially during cold periods of the year. Mulch consisting of chipped site vegetation is discouraged, since the wood content may result in depleting nitrogen from the soil.

Sodding

- Use of sod should be limited to planned landscapes due to the relatively high water use of most types of sod grass.
- When sod is necessary to achieve immediate stabilization, buffalograss (*Buchloe dactyloides*) is recommended. Other types of sod may be used in landscaping when specified by a landscape architect for a commercial property or a homebuyer for a residential lot.
- The sod should be mowed prior to sod cutting so that the height of the grass shall not exceed 3 inches and should not be harvested or planted when its moisture condition is so excessively wet or dry that its survival shall be affected.
- Sod shall have a healthy, virile, system of dense, thickly matted roots throughout a minimum soil thickness of 0.75 inch.
- Sod shall be planted within 3 days after it is excavated.
- In areas subject to direct sunlight, pre-moisten prepared sod bed by watering immediately prior to placing sod.
- Sodded areas shall be thoroughly watered immediately after they are planted.

Temporary Vegetation

The following table lists recommended plant species for the North Central Texas region depending on the season for planting.

Table 2.4 Recommended Grass Mixture for Temporary Erosion Control		
Season	Common Name	Pure Live Seed Rate (Lbs/Acre)
Sep 1 - Nov 30	Tall Fescue	4.5
	Western Wheat Grass	5.6
	Wheat (Red, Winter)	34.0
May 1 - Aug 31	Foxtail Millet	34.0
Feb 15 – May 31 Sep 1 – Dec 31	Annual Rye	20.0

Areas receiving temporary seeding and vegetation shall be landscaped, re-seeded or sodded with perennial species to establish final vegetation at the end of construction.

Vegetation for Final Stabilization

Sodding or seeding may be used to establish vegetation for final stabilization of areas disturbed by construction activity. The vegetation must achieve a cover that is 70 percent of the native background vegetative cover to be considered final stabilization. Sod will achieve this coverage quicker than seeding; however, sod is usually more expensive than seeding. Sod is most cost-effective for small areas or areas of concentrated flow or heavy pedestrian traffic where it will be difficult to establish vegetation by seeding.

Grass seed for establishing final stabilization can be sown at the same time as seeding for temporary (annual) vegetation. Drought tolerant native vegetation is recommended rather than exotics as a long-term water conservation measure. Native grasses can be planted as seed or placed as sod. Buffalo 609, for example, is a hybrid grass that is placed as sod. Fertilizers are not normally used to establish native grasses, but mulching is effective in retaining soil moisture for the native plants.

Table 2.5 Recommended Grass Mixture for Final Stabilization of Upland in Rural Areas						
County	Planting Date	Clay Soils		Sandy Soils		
		Species and Pure Live Seed Rate (Lbs/Acre)		Species and Pure Live Seed Rate (Lbs/Acre)		
Erath	February 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3	
Hood		Sideoats Grama (El Reno)	2.7	Sand Lovegrass	0.5	
Johnson		Bermudagrass	0.9	Bermudagrass	1.8	
Palo Pinto		Little Bluestem (Native)	1.0	Weeping Lovegrass (Ermelo)	0.8	
Parker		Blue Grama (Hachita)	0.9	Sand Dropseed	0.4	
Somervell		Illinois Bundleflower	1.0	Partridge Peal	1.0	
Tarrant						
Wise						
Collin	February 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3	
Dallas		Bermudagrass	1.2	Bermudagrass	1.8	
Denton		Sideoats Grama (El Reno)	2.7	Weeping Lovegrass (Ermelo)	0.6	
Ellis		Little Bluestem (Native)	2.0	Sand Lovegrass	0.6	
Kaufman		Buffalograss (Texoka)	1.6	Sand Dropseed	0.4	
Navarro		Illinois Bundleflower	1.0	Partridge Pea	1.0	
Rockwell						
Hunt	February 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3	
		Sideoats Grama (El Reno)	3.2	Bermudagrass	1.5	
		Bermudagrass	1.8	Bahiagrass (Pensacola)	6.0	
		Little Bluestem (Native)	1.7	Sand Lovegrass	0.6	
		Illinois Bundleflower	1.0	Weeping Lovegrass (Ermelo)	0.8	
				Partridge Pea	1.0	

(Source: TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, Item 164)

Table 2.6 Recommended Grass Mixture for Final Stabilization of Upland in Urban Areas					
County	Planting Date	Clay Soils		Sandy Soils	
		Species and Pure Live Seed Rate (Lbs/Acre)		Species and Pure Live Seed Rate (Lbs/Acre)	
Erath Hood Johnson Palo Pinto Parker Somervell Tarrant Wise	February 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3
		Sideoats Grama (El Reno)	3.6	Sideoats Grama (El Reno)	3.6
		Bermudagrass	2.4	Bermudagrass	2.1
		Buffalograss (Texoka)	1.6	Sand Dropseed	0.3
Collin Dallas Denton Ellis Kaufman Navarro Rockwell	February 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3
		Sideoats Grama (El Reno)	3.6	Buffalograss (Texoka)	1.6
		Buffalograss (Texoka)	1.6	Bermudagrass	3.6
		Bermudagrass	2.4	Sand Dropseed	0.4
Hunt	February 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3
		Bermudagrass	2.4	Bermudagrass	5.4
		Sideoats Grama (Haskell)	4.5		

(Source: TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, Item 164)

Vegetation for final stabilization of channels requires grasses that are tolerant of periodic inundation, such as Bermuda grass, Kentucky bluegrass or a grass-legume mixture.

Additional Considerations

- Conditions for establishing vegetation vary significantly from site to site. Therefore, specifics of the vegetation design should be prepared based on the soil, slopes, drainage patterns, and the purpose of the vegetation at a each site.
- For construction activities that include landscaping in the development plans, the landscape architect should be consulted when specifying vegetation for temporary or final stabilization of disturbed areas.
- Vegetation is easier to establish if equipment and vehicle traffic is managed onsite to minimize soil compaction by traffic in the disturbed area that will be vegetated.
- Establishing a good vegetative cover is dependent on the season of the year. Projects that commence in the fall of the year may not be candidates for using vegetation as an erosion control.
- Where vegetation is used in swales and channels it may be necessary to use sod, rather than seeding, to establish an erosion resistant surface that accommodates rainfall runoff flows.
- Mulch should be used to enhance vegetative growth, in that mulch protects seeds from heat, prevents soil moisture loss, and provides erosion protection until the vegetation is established. Compost mulch has the additional benefit of providing some slow-release nutrients.
- Fertilizers have both beneficial and adverse effects. Fertilizers provide nutrients to the vegetation, but fertilizers are also a source of unwanted nutrients in streams and lakes. In this latter regard, they are a pollutant. The use of native vegetation rather than exotics reduces the need for fertilizers. Organic fertilizers, such as compost mulch, are generally preferred over chemical fertilizers. They provide a slow release of nutrients over a longer period of time and are less likely to cause environmental problems.
- Steep slopes represent a problem for establishing vegetation. Hydraulic mulches are useful for establishing vegetation on slopes. Refer to [Section 2.5 Mulching](#).

2.9.4 Design Guidance and Specifications

Additional criteria for the application of vegetation in channels are in [Section 3.6.3 of the iSWM Criteria Manual](#) and design guidance is in [Section 3.2 of the Hydraulics Technical Manual](#).

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Item 202 Landscaping. Additional specifications for the following components of this item are in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (TxDOT 2004):

- Topsoil, Item 160.
- Compost, Item 161.
- Sodding for Erosion Control, Item 162.
- Seeding for Erosion Control, Item 163.
- Fertilization, Item 164.
- Vegetative Watering 165.

2.9.5 Inspection and Maintenance Requirements

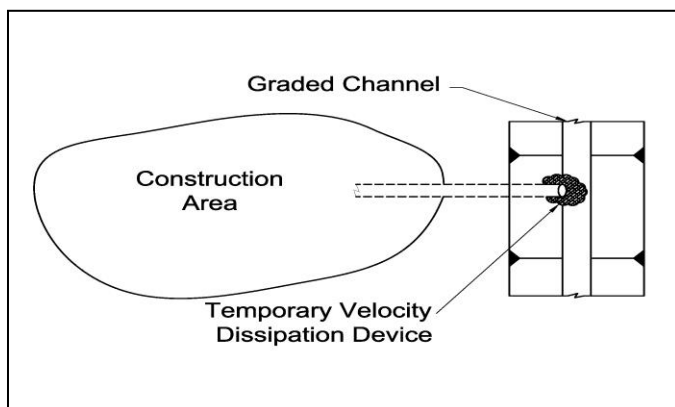
Protect newly seeded areas from excessive runoff and traffic until vegetation is established. Include a watering and fertilizing schedule in the iSWM Construction Plan facilitate the establishment of the vegetation. Vegetation for final stabilization must be maintained until the vegetative cover is 70 percent of the native background vegetative cover.

Vegetation should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to ensure that the plant material is established properly and remains healthy. Bare spots shall be reseeded and/or protected from erosion by mulch or other measures. Accumulated sediment

deposited by runoff should be removed to prevent smothering of the vegetation. In addition, determine the source of excess sediment and implement appropriate measures to control the erosion.

2.10 Velocity Dissipation Devices

Erosion Control



Description: Velocity dissipation devices control erosion by dispersing concentrated flow and slowing flow velocities at drainage pipe outlets, the outlet end of an armored flume or swale, and other points where concentrated flow is discharged to an open channel. Velocity dissipation devices are also called energy dissipaters. They may consist of crushed rock, rock riprap, gabions, and other non-erosive materials.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Use at discharge points into unlined and natural channels where the flow velocity exceeds 4 fps during construction
- Install permanent energy dissipaters in the first phase of construction when possible to eliminate the need for temporary devices
- Design based on discharge rate and velocity for the temporary control design storm (2-year, 24-hour)

ADVANTAGES / BENEFITS:

- Protects habitat in natural channels
- Protects new conveyance systems from damage due to erosion until permanent controls are installed

DISADVANTAGES / LIMITATIONS:

- Additional cost for temporary structures
- May be damaged by larger storm events

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Repair damaged devices and eroded areas
- Replace dislodged rock

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=N/A

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- *Coordination of temporary structures with the plans for permanent infrastructure*

2.10.1 Primary Use

Velocity dissipation devices are used to disperse concentrated flow and slow velocities to a point where they will not cause erosion in a vegetated or natural drainage way. In process of slowing the flow, suspended sediments in runoff from disturbed areas may be removed from the runoff and settle in the dissipation device.

2.10.2 Applications

Velocity dissipation devices are used where velocities in concentrated flow may cause erosion of un-lined or natural channels during construction. These locations are typically where a constructed conveyance system (such as a storm drain pipe, concrete flume, or roadside drainage ditch) discharges flow to a channel that is larger in size or lower in elevation.

2.10.3 Design Criteria

General

- Temporary velocity dissipation devices should be installed at pipe outlets and similar discharge points during construction to maintain the downstream physical and biological characteristics and functions until channel protection and stabilization measures are installed. Other points that may require velocity dissipaters are locations where concrete flumes, drainage swales, roadside ditches, and other drainage structures discharge to an unlined or natural channel.
- The design and use of velocity dissipation devices during construction should be coordinated with the stormwater infrastructure design in the development plans. It is recommended that permanent devices be constructed early in the first phase of construction to provide velocity dissipation both during and post-construction, thus eliminating the need for temporary devices.
- The criteria in this section are specific to **temporary** velocity dissipation devices that are designed using the temporary control design storm (2-year, 24-hour). The design of permanent dissipation devices shall be in accordance with the municipality's drainage design criteria and are more stringent.
- Temporary dissipation devices must not block flow or cause flooding during larger storm events.
- Temporary dissipation devices shall be installed on all outlets where the design storm velocity exceeds 4 feet per second and the discharge is to an unlined or natural channel.

Rock Riprap

- Rock riprap is the most common material used for temporary velocity dissipation. The rock may be removed and re-used for other applications when permanent drainage structures, channel lining, or final stabilization measures are installed.
- Design calculations are required for the use of this control. The designer shall provide drainage computations, discharge velocity, stone size, and apron dimensions for each application.
- Rock may be natural stone or recycled concrete.
- The stone shall be well graded from 2 inch diameter through the median diameter (d_{50}) and up to the maximum diameter (d_{MAX}). The stone should create a homogeneous stone surface with no voids larger than 1½ inches in diameter.
- Stone shall be sized using the criteria for riprap aprons in [Section 4.0 of the Hydraulics Technical Manual](#) or using an alternative method accepted by the municipality reviewing the plans. The median stone size (d_{50}) shall be a minimum of 6 inches for temporary velocity dissipation. The maximum stone size (d_{MAX}) shall be 1.5 times d_{50} .
- Minimum depth of the riprap apron shall be 1.5 times d_{MAX} .

- Minimum length of the apron shall be 4.5 times the outlet pipe diameter or equivalent for other types of outlets.
- Minimum width of the apron shall be 4.0 times the outlet pipe diameter or equivalent for other types of outlets.
- Riprap should be placed on a lining of filter fabric to prevent soil movement into or through the riprap. The perimeter of the filter fabric must be keyed into the ground a minimum of 6 inches.
- Riprap apron should be aligned with flow direction.
- Riprap shall not be used where there is a difference in elevation between the outlet and the receiving channel.

Other Devices

- Articulating concrete blocks, gabions, stilling basins or manufactured velocity dissipaters may be used for velocity dissipation if the designer provides calculations that document size and dimensions of the device for the design storm flow rate and velocities.
- Temporary baffled chutes, gabion drop structures, or other stabilized grade breaks shall be installed where an elevation difference exists at the outlet until permanent structures are installed.

2.10.4 Design Guidance and Specifications

Criteria for the design of permanent design velocity dissipation devices are in [Section 3.6.3 of the iSWM Criteria Manual](#), and additional design guidance is in [Section 4.0 of the Hydraulics Technical Manual](#). Guidance is also available in the Federal Highway Administration Engineering Circular No. 14, [Hydraulic Design of Energy Dissipaters for Culverts and Channels](#).

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Item 803, Slope and Channel Protection.

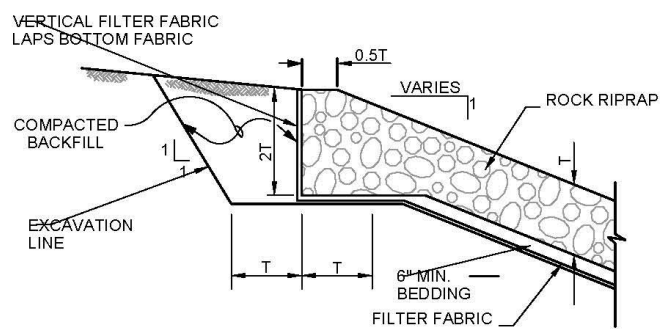
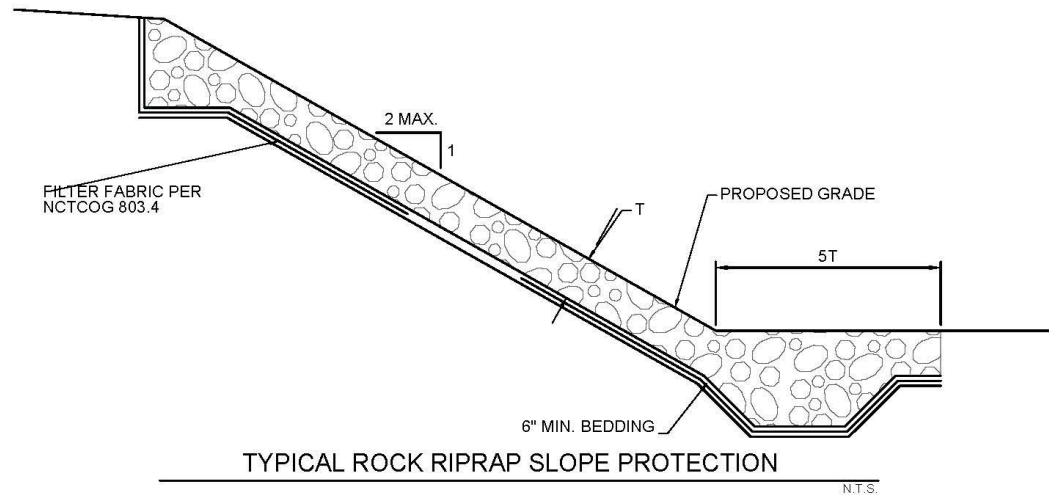
2.10.5 Inspection and Maintenance Requirements

Discharge points shall be inspected regularly (at least as often as required by the TPDES Construction General Permit) for evidence of downstream erosion. Repair dislodges or missing rock riprap. The development of head-cuts, the deepening or widening of the channel, or low flow channels developing within the main channel are all evidence that additional velocity dissipation measures are required until permanent structures are installed.

2.10.6 Example Schematics

The following schematics are only applicable to **temporary** installations of riprap for velocity dissipation. Permanent installations shall be in accordance with the municipality's design criteria.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



- ROCK RIPRAP DRY OR GROUTED AS SHOWN ON EROSION CONTROL PLANS
- FILTER FABRIC SPLICES SHALL HAVE A MINIMUM 18 INCHES OVERLAP
- DETERMINE GRADATION FOR d_{50} WELL GRADED STONE
- MEDIAN STONE DIAMETER d_{50} AND MAXIMUM STONE DIAMETER d_{100} , FEET

$$T = 1.5 \times d_{50}$$

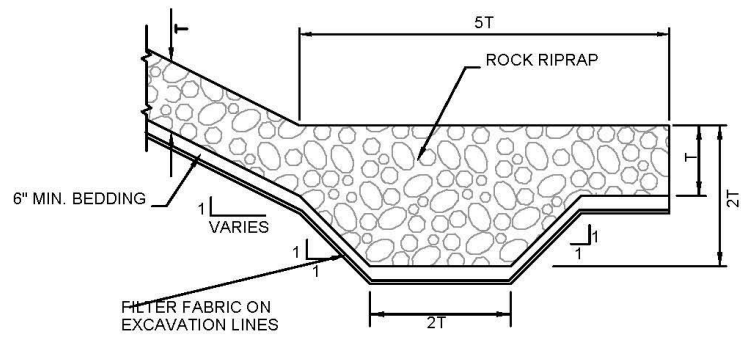
$$d_{min.} = \underline{\hspace{2cm}}$$

$$d_{50} = \underline{\hspace{2cm}}$$

$$d_{100} = \underline{\hspace{2cm}}$$

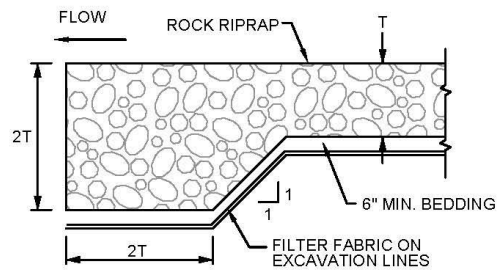
Revised 2019

Figure 2.16 Riprap Schematics of Rock Riprap



ROCK RIPRAP TOE OF SLOPE DETAIL

N.T.S.



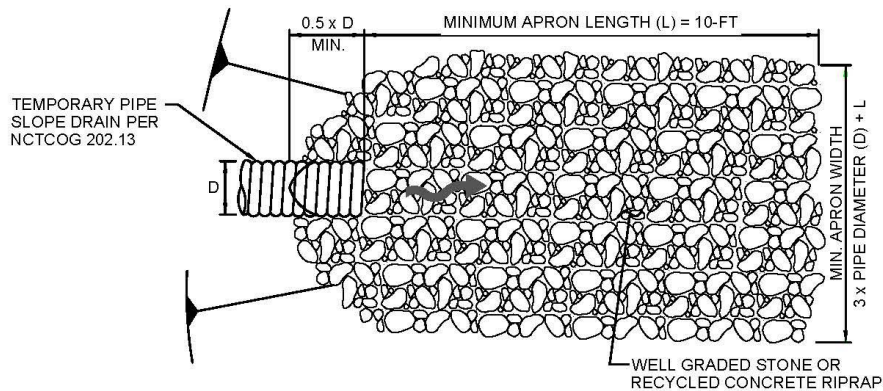
UPSTREAM ROCK RIPRAP TOE WALL DETAIL

N.T.S.

Revised 2019

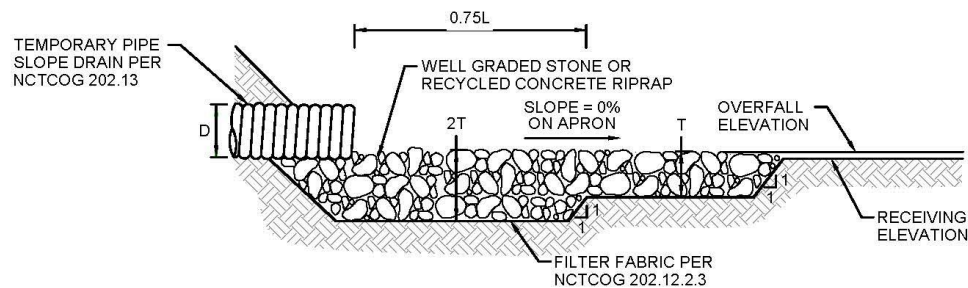
Figure 2.17 Riprap Schematics of Rock Riprap

* SPECIFIC DESIGN INFORMATION ON THE EROSION CONTROL PLANS IS REQUIRED FOR EACH INSTALLATION



TEMPORARY VELOCITY DISSIPATION DEVICE PLAN VIEW

N.T.S



TEMPORARY VELOCITY DISSIPATION DEVICE PROFILE VIEW

N.T.S

NOTE: DIMENSIONS OF THE RIPRAP APRON SHALL BE DESIGNED BASED ON FLOW CONDITIONS. TEMPORARY CONTROL DESIGN STORM (2-YEARS, 24-HOUR). PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE APRON.

- PIPE DIAMETER (OR EQUIVALENT FOR FLUME, SWALE, ETC.), D, FEET
- DISCHARGE VELOCITY FROM DRAINAGE STRUCTURE, V_{pipe} , FT/S
- DETERMINE GRADATION FOR d_{50} WELL GRADED STONE OR RECYCLED CONCRETE RIPRAP
- MEDIAN STONE DIAMETER d_{50} AND MAXIMUM STONE DIAMETER (d_{100}), FEET

Revised 2019

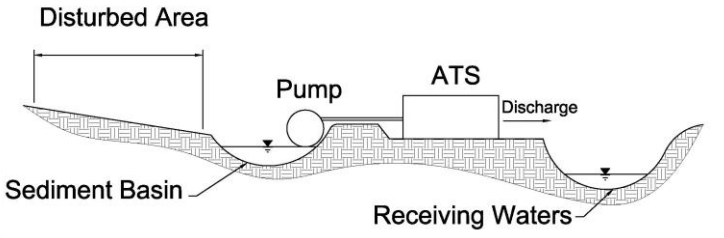
Figure 2.18 Schematics of Velocity Dissipation Device

(Source: Modified from Oklahoma City Public Works Engineering Division Detail ERO-A17)

3.0 Sediment Controls

3.1 Active Treatment System (ATS)

Sediment Control

 <p>The diagram illustrates the flow of water from a Disturbed Area through a Sediment Basin, then through a Pump and an Active Treatment System (ATS) unit, before being discharged into Receiving Waters.</p>	<p>Description: An Active Treatment System (ATS) is a small, onsite, water treatment plant used to produce discharge water quality that is better than can be achieved by traditional sediment controls. Common ATS methods are filtration and chemical-aided coagulation/flocculation.</p>
<p style="text-align: center;"><u>KEY CONSIDERATIONS</u></p> <p>DESIGN CRITERIA:</p> <ul style="list-style-type: none"> • ATS designed based on site conditions, stormwater characteristics, and required discharge quality • ATS shall be designed in coordination with the system provider and operator <p>ADVANTAGES / BENEFITS:</p> <ul style="list-style-type: none"> • Provides consistent, high quality, stormwater discharges <p>DISADVANTAGES / LIMITATIONS:</p> <ul style="list-style-type: none"> • Most expensive treatment method • Retention structures required to capture the design storm for treatment • Filtration requires pre-treatment with a sediment trap or basin • Highly dependent on operator knowledge and skill level <p>MAINTENANCE REQUIREMENTS:</p> <ul style="list-style-type: none"> • Daily monitoring and maintenance while in operation, including influent characteristics and chemical dosage • Backwash filters and dispose of waste from backwashing • Monitor discharge for residual chemicals • Repair erosion or other damage on stormwater retention structures that precede the ATS 	<p style="text-align: center;"><u>APPLICATIONS</u></p> <p>Perimeter Control</p> <p>Slope Protection</p> <p style="border: 1px solid black; padding: 2px;">Sediment Barrier</p> <p>Channel Protection</p> <p>Temporary Stabilization</p> <p>Final Stabilization</p> <p>Waste Management</p> <p>Housekeeping Practices</p> <p style="font-size: 1.2em; font-weight: bold;">Fe=0.99</p>
<p style="text-align: center;"><u>TARGETED POLLUTANTS</u></p> <ul style="list-style-type: none"> ● Sediment ○ Nutrients & Toxic Materials ● Oil & Grease ● Floatable Materials ● Other Construction Wastes 	<p style="text-align: center;"><u>IMPLEMENTATION CONSIDERATIONS</u></p> <ul style="list-style-type: none"> ● Capital Costs ● Maintenance ● Training ● Suitability for Slopes > 5% <p>Other Considerations:</p> <ul style="list-style-type: none"> • <i>Operator training</i> • <i>Site access to operate the ATS during wet conditions</i> • <i>Worker safety and spill response procedures</i>

3.1.1 *Primary Use*

Active treatment systems (ATS) are used when traditional sediment controls cannot achieve the necessary level of sediment removal for discharges from a construction site. They are primarily used to remove fine silt and clay soil particles, for which traditional sediment controls are the least effective. These fine particles are small enough to pass through the pores or void spaces of sediment barriers. They are also not removed by sediment basins, because their settling velocities require a detention time of days or weeks, not hours.

3.1.2 *Applications*

Active treatment systems are applicable on sites that have a large percentage of fine silt and clay soils. The systems are most useful where special aquatic sites or sensitive receiving waters result in specific limits on discharges or regulations require a higher level of treatment. An ATS may be used when a turbidity effluent limit is established for a construction activity or where the activity discharges to:

- Wetlands regulated under Section 404 of the Clean Water Act;
- Spring-fed receiving waters;
- Receiving water with a Total Maximum Daily Load;
- Receiving water bodies with a Water Quality Standard that could be exceeded by the discharge; or
- Receiving water utilized by a species protected under the Federal Endangered Species Act or the State of Texas Threatened and Endangered Species Regulations.

3.1.3 *Design Criteria*

Active treatment systems are a specialized application that requires skill in designing, operating, and maintaining the systems. When the designer has determined that an ATS is needed for a project, the designer should select a supplier of ATSs and work with their technical experts. The criteria contained in this section are general guidelines. It is essential that the designer of controls for a construction activity work with an ATS supplier and operator to develop an effective system based on site conditions and anticipated characteristics of the stormwater runoff.

General

- A source of electricity is required for an ATS. Diesel generators are required until the electrical distribution system is extended to the site. In some cases, it may be advisable to maintain the generators onsite for the duration of the project in case of power outages.
- An ATS requires a sediment basin, tank, or other structure to capture the temporary control design storm (2-year, 24-hour) and retain it to be pumped to the ATS. The retention structure should be designed to pass larger storm events without damage to the structure.
- An ATS can be either a batch flow or flow-through (continuous flow) design.
- ATS designs are specific to each site, the stormwater runoff characteristics, and the required discharge water quality. The designer should consult with suppliers and operators of ATSs and consider the following when designing the ATS:
 - Available stormwater detention space for the storm event being treated and for another event that could occur during treatment.
 - Turbidity, pH, and suspended solids concentrations of the stormwater to be treated.
 - Size of soil particles to be removed.
 - Required discharge concentrations.
 - Flow rate through the ATS.

- Available space.
- Cost.
- Electrocoagulation is available as an ATS for sediment removal; however, it is not recommended for construction sites.
- The design should include requirements for operator training and/or required skill and experience for the lead operator. Unlike other sediment control devices, improper operation can result in a discharge that is more damaging to the receiving water than the construction activity. The recommended minimum skill level is 5 years experience operating stormwater ATSs or a combination of training and experience equivalent to a Class C Surface Water Operators license in the State of Texas.
- The ATS operator selected for the project shall have written plans for the following:
 - Operation and maintenance manual for all equipment in the ATS.
 - Monitoring, sampling and reporting, including Quality Assurance/Quality Control (QA/QC).
 - Worker health and safety.
 - Spill prevention and response.
- The ATS shall be equipped with instrumentation that automatically measures and records the following:
 - Influent and effluent turbidity.
 - Influent and effluent pH.
 - Influent and effluent flow rate.
- The ATS should be designed with a recirculation mode or a safe shut down mode that will be automatically activated upon system upset, power failure, or other catastrophic event.
- A velocity dissipation device is required at the ATS discharge point.

Filtration

- Filtration is accomplished by pumping water through vessels filled with granular filter media. The media may be sand, gravel, anthracite or a combination. Single media, sand filters are most common in construction applications.
- Bag or cartridge filters may be used after the media filter to provide the highest level of sediment removal. They are typically only needed when extremely low turbidity values (<10 NTU) are required for discharges to clear, cool-water streams, such as spring-feed creeks flowing over a limestone channel bed.
- For temporary installations at construction sites, filtration units are frequently hauled to the site and operated on flat bed trailers.
- The designer shall specify the filter media to be used based on the particle size to be removed and desired reduction in turbidity and suspended solids concentrations.
- Filtration can be effective in removing other pollutants from construction sites, such as sheen on stormwater surfaces; however, the filter media must then be classified and handled as the appropriate type of waste.
- Filtration may be used as an ATS by itself on sites where the suspend soils are primarily coarser silts and sands and a higher quality discharge is required than can be achieved by traditional sediment controls.
- Filtration systems are most commonly used after chemical-aided flocculation to remove flocs that do not settle within the detention time available while maintaining the design flow rate.

- When used without chemical-aided flocculation, stormwater requires pre-treatment with a sediment trap or basin before being pumped to the filter. Pre-treatment extends the operating life of the filter and decreases maintenance requirements.
- Filters shall be equipped with gauges to measure differential pressure across the filter to monitor filter loading.
- Filtration designs shall contain a means for backwashing the filters and collection and disposal of the backwash water.

Chemical-Aided Flocculation

- Chemicals are added as coagulation agents in an ATS. The coagulants destabilize the charged soil particles. As a result, the particles form flocs that can be settled or filtered from the stormwater.
- The ATS typically consists of the following, each of which requires its own design parameters:
 - Retention basin or other structure to capture the design storm.
 - Water pump to convey stormwater from the retention structure to the settling tank.
 - Chemical injection and metering pump.
 - Settling tank or chamber.
 - Filters (optional).
- Commonly used chemicals for stormwater treatment are chitosan, polyacrylamide (PAM), aluminum sulfate (alum), and polyaluminum chloride.
- Chemicals must be applied in proper doses and for the proper contact times to avoid potential toxicity in the ATS effluent. The effluent should be monitored for both turbidity and residual concentration of the treatment chemical.
- Where feasible, chemical injection should occur on the intake side of the stormwater pump to provide for maximum mixing.
- Chemical dosing should be designed based on flow rate, pH, and suspended solids concentration. Adjustments to dosage are common as the stormwater characteristics vary for different storm events and changing conditions on the construction site.
- Jar tests should be used to determine the chemical dosage. Jar tests should be conducted in accordance with ASTM D2035 Standard Practice for Coagulation-Flocculation Jar Test of Water. Tests shall be performed 15 minutes after start-up and every 8 hours of operation.
- The settling tank or chamber should be designed to prevent the accidental discharge of settled floc during floc pumping and related cleaning operations. Include specifications for disposal of settled floc.
- When chitosan is used, the discharge from the ATS should be tested for residual concentration of the chemical using commercially available residual field tests. Tests should be performed 15 minutes after start-up, every 8 hours of operation, and 15 minutes after each change in dosage. Return period of the test results depends on the sensitivity of the receiving water, but in no case should be longer than 24 hours. Return period may be as short as one hour if the receiving water has a species that is threatened, endangered, or of concern.
- The residual concentration of chitosan should be limited to 10 percent or less of the following for the aquatic species most sensitive to the chemical being used:
 - Geometric mean of the No Observed Effect Concentration (NOEC).
 - Acute toxicity concentration.
 - Chronic toxicity concentration.

- For PAM and other coagulation agents without a residual field test, a daily bioassay shall be performed on an effluent sample. The methods used for acute toxicity testing shall be those outlined for a 96-hour acute test in Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms (USEPA-841-R-02-012) for Fathead minnow, *Pimephales promelas*.
- PAM has a documented record of low toxicity. For all other chemical coagulants without a residual field test, batch operation of the ATS is encouraged to delay discharge of the treated stormwater until results of the toxicity tests are available.
- Toxicity testing should be done by an independent, third-party laboratory that is accredited in Texas according to the standards of the National Environmental Laboratory Accreditation Conference (NELAC).

3.1.4 Design Guidance and Specifications

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

3.1.5 Inspection and Maintenance Requirements

Active treatment systems must be maintained and monitored by trained, onsite personnel that observe the system at all times while it is in operation. Inspection and maintenance should be according to the system's operations and maintenance manual.

The overall system should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to ensure stormwater is not bypassing the ATS. The basin or other structure used to collect and pre-treat stormwater should be inspected for damage and repaired as needed.

During operation of chemical-aided flocculation, the chemical dosage should be monitored and changed according to characteristic of the stormwater inflow. The discharge from the ATS should be sampled and analyzed regularly to verify that chemical residuals are acceptable levels.

3.1.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

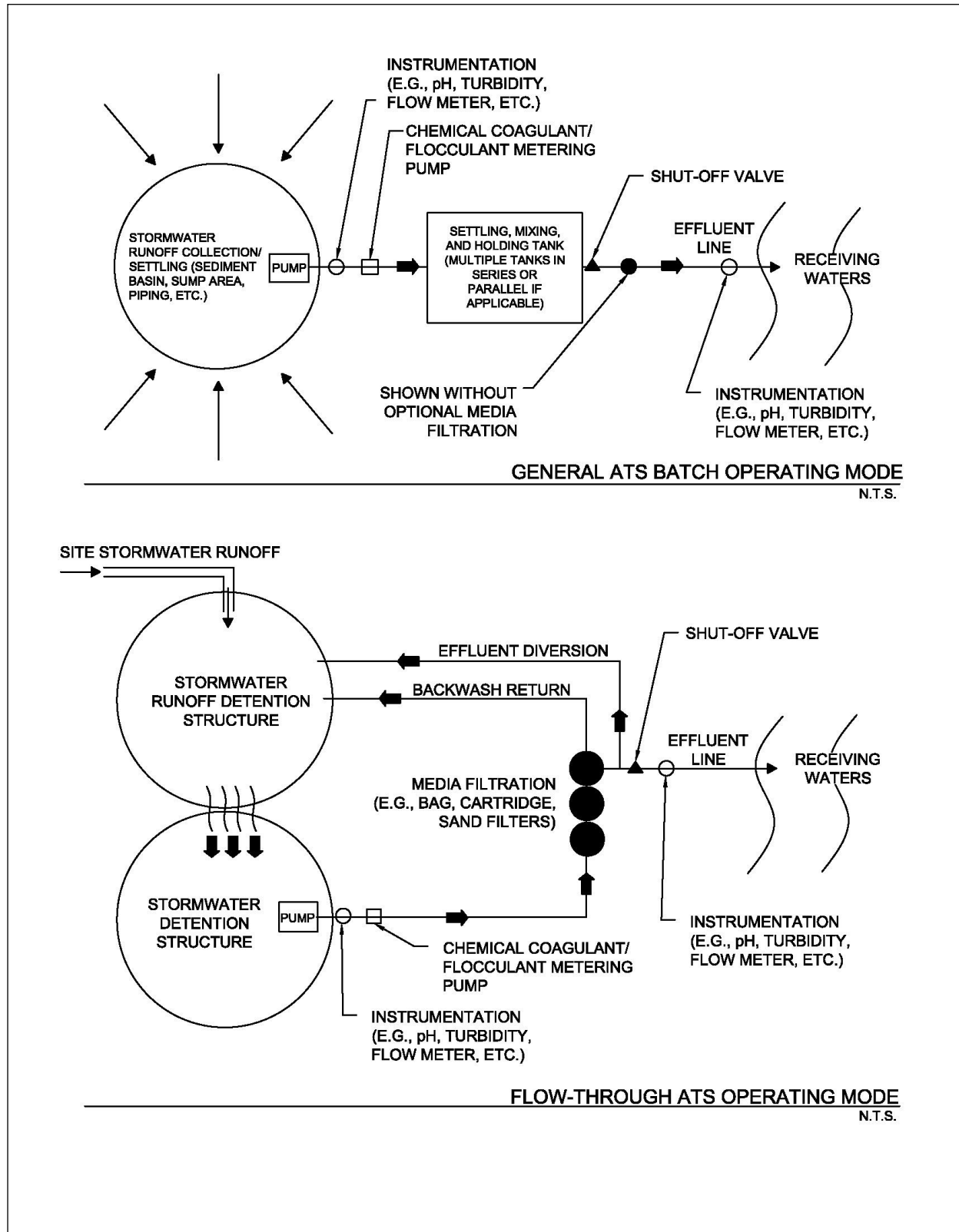
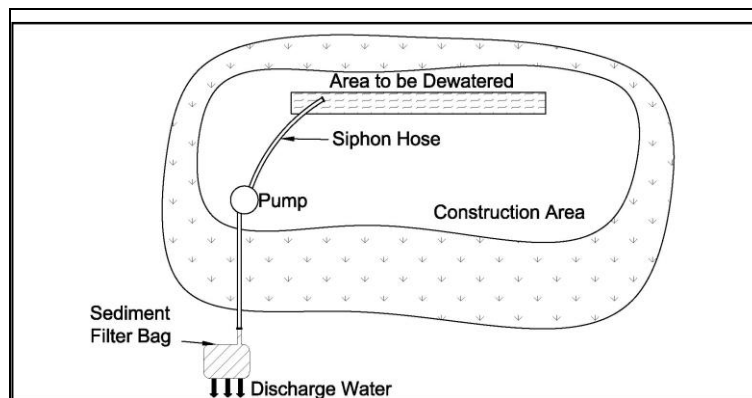


Figure 3.1 Schematics of Active Treatment System

(Source: EPA Development Document for Final Effluent Guidelines and Standards for the Construction & Development Category)

3.3 Dewatering Controls

Sediment Control



Description: Dewatering controls consist of methods and devices to remove suspended soil in water that is pumped or otherwise discharged from foundations, trenches, excavations, and other low areas. The controls may be the sediment controls already onsite (e.g. silt fence, organic filters tubes) or dedicated dewatering devices such as sediment tanks and sediment filter bags.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Discharge of pumped water is prohibited unless controlled for the removal of suspended soil
- Select controls based on dewatering flow rate and duration and available space
- Dewatering discharge points must be protected for high velocities

ADVANTAGES / BENEFITS:

- Removes suspended soil and some pollutants from pumped water
- Works well with passive treatment systems for removal of clay soil particles
- Water may be applied to other onsite uses

DISADVANTAGES / LIMITATIONS:

- Requires frequent maintenance

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Monitor for erosion, control failure and unauthorized discharges frequently while pumping
- Clean and replace controls as they are filled with sediment

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.50-0.75

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- None

3.3.1 Primary Use

Dewatering controls are used to remove suspended soil in water that is pumped or otherwise discharged from foundations, trenches, excavations, and other low areas. Some dewatering controls, such as the temporary sediment tank, may also be useful in removing other pollutants.

3.3.2 Applications

Dewatering controls are applicable whenever water must be pumped from a low area on a construction site before construction can continue in that area. Pumping of foundations, excavated trenches, and utility vaults are common on development projects.

Dewatering controls may also apply when a temporary cofferdam has been constructed to dewater a normally wet area for construction, such as road crossings of creeks and bank stabilization projects. Water pumped from these areas must flow through a control before it is discharged back to the water body.

3.3.3 Design Criteria

General

- Construction plan notes shall prohibit the discharge of water from dewatering activities into public streets, flumes, storm drains, creeks or other drainage ways unless controlled to remove suspended soil or other pollutants.
- The designer shall determine whether dewatering will be a batch operation after storm events or a continuous operation due to high groundwater and specify controls accordingly. Controls for continuous dewatering need to provide effective removal of sediment over long periods. Controls that clog easily are not appropriate for controlling long-term dewatering operations.
- Pumped water that has sheen or other evidence of pollutants shall be collected and sampled before it is discharged. State or local discharge permit requirements may exist for the pollutant(s) suspected of being in the water.
- Regulations or effluent criteria that apply to stormwater discharges from a construction activity typically also apply to water discharged from dewatering activities.
- The dewatering controls in this section are most effective with sands and coarse silts. Dewatering controls may be combined with a passive treatment system to provide higher sediment removal rates for fine silt and clay soil particles. Liquid polymers injected at the pump or solid and gel forms installed at the discharge generally work well to promote floc growth and settling of clay soil. Design criteria are contained in [Section 3.7 Passive Treatment System](#).

Conventional Controls

- Discharges from dewatering are typically concentrated and have relatively high flow rates and velocities. If conventional controls are used, velocity dissipaters and/or flow spreaders or levelers are required before the control to prevent the discharge from causing erosion and damaging the control.
- The best control for pumped water is to discharge it to a vegetated area.
- Pumped water should be sprayed through a nozzle on the end of a discharge hose or directed to a device that dissipates velocity and disperses flow before the water enters the vegetated area.
- The vegetated area must be large enough to detain the volume being dewatered. The size of area needed is dependent on type of vegetation (interception storage and water uptake capacity) and soil type (infiltration rate) and condition (wet or dry). Vegetation may not be a feasible option if dewatering is due to a large or prolonged storm event and the vegetated area is saturated or if the soil has high clay content.

- If a vegetated area is not available or feasible, the discharge from dewatering may be directed to a conventional sediment barrier, such silt fence, organic filter tubes, sediment basin, or stone outlet sediment trap.
- Opportunities for using the water onsite should be considered, particularly where groundwater intrusion results in frequent or continuous dewatering. The water may be collected in a temporary, onsite storage container or holding pit and used to water vegetation for stabilization, applied for dust control, or used for pavement subgrade preparation. If any of these water needs are present at the time of dewatering, the water may be applied directly to this use without sediment controls, since no discharge occurs.

Sediment Filter Bag

- Sediment filter bags are specifically designed to control pumped water and connect directly to the pump discharge line.
- Show location of the filter bag on the drawings. The bag installed where its discharge will flow away from the disturbed area and onto vegetation or into a swale or drainage ditch with erosion and sediment controls.
- Bags should be placed on a level, stable surface that is prepared with mulch, straw, small aggregate, or other material as recommended by the manufacturer. In some cases, the bag may be placed directly on vegetation or well graded soil. The key is to have a surface without rocks or other protrusions that could puncture the bag.
- The bag should be made of a non-woven, needle-punched, geotextile that meets the following minimum criteria:
 - 205 lbs minimum tensile strength using ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles.
 - 130 lbs minimum puncture strength using ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
 - 400 psi minimum Mullen burst strength using ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method.
 - Minimum 70 percent at 500 hours ultraviolet resistance using ASTM D4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus.
 - 85 to 110 gpm/ft² water flow rate using ASTM D4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
- Apparent opening size using ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile should be specified based on the type of soil that will be in the discharge. A size that is too large will not trap the sediment; however, a size that is too small will create an unnecessary head for the dewatering pump to work against.
- The smallest apparent opening size currently available is 70 microns. This size will not capture fine silt and clay particles. A passive treatment system will be necessary with the bag to capture these soils.
- Bags are available in sizes ranging from 6 feet x 6 feet to 15 feet x 25 feet. The size of the bag should be specified based on availability of space, flow rates, and duration of use. If space is available, larger bags will last longer between replacements and may have a lower price per square foot. However, larger bags are heavier when sediment-laden. Equipment must be available to lift and remove the bag from the site for disposal.
- Bags are not reusable. Make sure they are installed at a location where equipment has access to the bags for lifting and removal without causing erosion or damaging other erosion and sediment controls.

Temporary Sediment Tank

- A temporary sediment tank is a compartmented container through which sediment-laden water is pumped to trap and retain sediment before discharging the water to drainage ways, adjoining properties, and rights-of-way below the sediment tank site.
- A temporary sediment tank is typically used at construction sites in urban areas where conventional methods of sediment removal are not practical. It is also used on sites where excavations are deep and space is limited, such as urban construction, where direct discharge of sediment-laden water to streams and storm drainage systems should be avoided.
- The location of temporary sediment tanks should facilitate easy cleanout and disposal of the trapped sediment to minimize interference with construction activities and pedestrian traffic. The tank size should be determined according to the storage volume of the sediment tank, with 1 cubic foot of storage for each gallon per minute of pump discharge capacity.
- A temporary sediment tank can be used as either a sedimentation or filtration device. If an oil sheen is present in the runoff, an underflow baffle may be used in the tank to remove it. However, local and state discharge regulations and permits may apply and should be checked before discharging.
- For use as a small scale sedimentation basin, de-watering discharge is directed into the temporary sediment tank to a level below the tank midpoint and held for a minimum of 2 hours to allow settlement of a majority of the suspended particles. This detention time is insufficient for removal of fine silt and clay soil particles. Passive treatment systems should be combined with the tank if these soil particles will be present.
- The tank should be designed for a controlled release when the contents of the tank reach a level higher than the midpoint.
- As a filtration device, a temporary sediment tank is used for collecting de-watering discharge and passing it through a filtered opening at the outlet of the tank to reduce suspended sediment volume. The filter opening in the temporary sediment tank should have an Apparent Opening Size (AOS) (see [Section 3.10 Silt Fence](#)) of 70 or smaller.
- The trapped sediment and stormwater must be disposed of properly.

3.3.4 Design Guidance and Specifications

No specification for dewatering controls is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

3.3.5 Inspection and Maintenance Requirements

Dewatering controls should be inspected regularly (at least as often as required by the TPDES Construction Permit). Dewatering discharge points should be checked for erosion. Eroded areas should be repaired, and erosion controls should be installed to prevent future erosion.

Dewatering pumps and sediment controls should be monitored frequently, at least hourly, while pumps are in operation to prevent unauthorized discharges and to catch erosion problems or control failure.

Conventional sediment controls should be inspected at least weekly when used for continuous dewatering, because they will become overcome with sediment more quickly than when used to control runoff from storm events. The controls shall be maintained according to the criteria in their respective sections. They should be replaced when they no longer provide the necessary level of sediment removal.

Sediment filter bags should be checked to determine if they need replacing. The bags cannot be cleaned or reused. They should be used until they reach the manufacturer's recommended capacity. The entire bag with sediment can be disposed of as solid waste. If a controlled location onsite or a spoil site is available, the bag can be cut open and the sediment spread on the ground. Only the bag is waste in this case.

Sediment tanks should be cleaned when they become $\frac{1}{3}$ full of sediment. To facilitate maintenance, the tanks need to be located with easy access for regular pump out. The rate at which a tank is pumped depends on site-specific considerations such as rainfall and sediment loads to the system. Regular inspections will help determine pump out frequency and prevent overloading and failure of the system.

3.3.6 *Example Schematics*

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

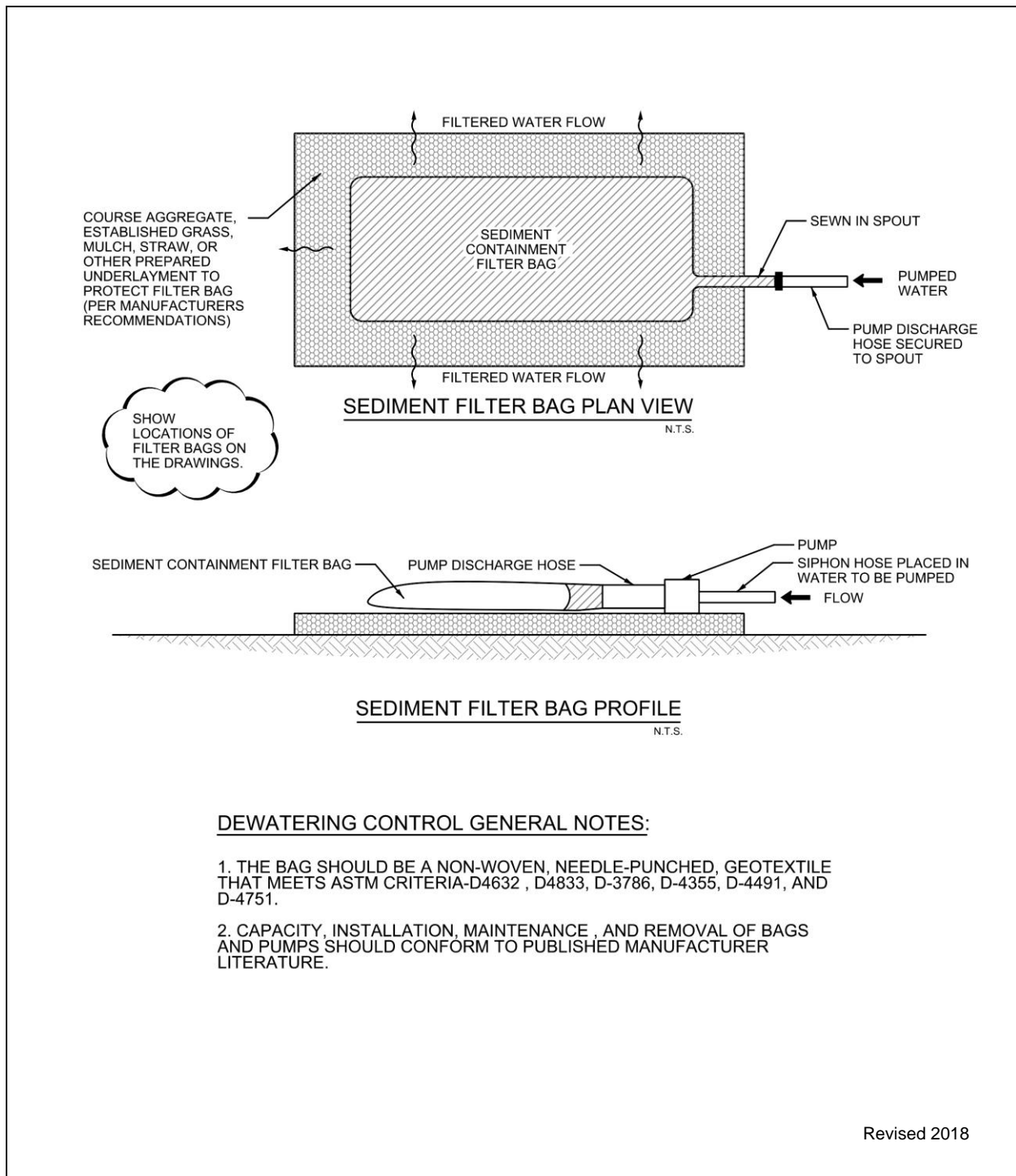
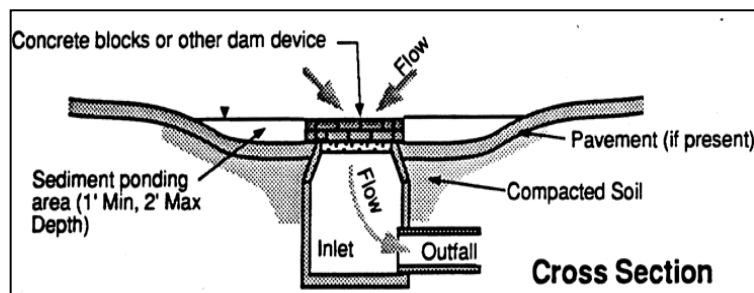


Figure 3.4 Schematics of Dewatering Controls

3.4 Inlet Protection

Sediment Control



Description: Inlet protection consists of a variety of methods to intercept sediment at low point inlets through the use of depressed grading, filter stone, filter fabric, inlet inserts, organic filter tubes and other materials. The protection devices are placed around or across the inlet openings to provide localized detention or filtration of sediment and floatable materials in stormwater. Protection devices may be assembled onsite or purchased as manufactured assemblies.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Evaluate drainage patterns to ensure inlet protection will not cause flooding of roadway, property or structures
- Never block entire inlet opening
- Size according to drainage area and flow rates
- Include flow bypass for clogged controls and large storm events

ADVANTAGES / BENEFITS:

- May be the only feasible sediment control when all construction is located within rights-of-way

DISADVANTAGES / LIMITATIONS:

- Limited effectiveness and reliability
- High maintenance requirements
- Has potential to flood roadways or adjacent properties

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Check for and remove blockage of inlet after every storm event
- Remove sediment before it reaches half the design height or volume of the inlet protection, more frequently for curb inlets
- Repair or replace damaged materials
- Clean or replace filter stone and organic filter tubes is when clogged with sediment

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.35-0.65

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- Traffic hazards
- Passage of larger storm events without causing flooding
- Flow diversion to other inlets or drainage points

3.4.1 Primary Use

Inlet protection is typically used as a secondary sediment barrier, due to its limited effectiveness and numerous disadvantages. It is used to reduce sediment in storm sewer systems by serving as a back-up system for areas that have newly applied erosion controls or for other sediment controls that cannot achieve adequate sediment removal by themselves.

Inlet protection may be used as a primary sediment control only when all other primary controls are infeasible because of site configuration or the type of construction activity.

3.4.2 Applications

Inlet protection is best applied at low point (sump) inlets where stormwater runoff will pond behind the protection measure, and then either filter through the protection measure or flow over a weir created by it. Most inlet protection measures depend on ponding to be effective. These types of inlet protection are not applicable to on-grade curb inlets, where the inlet protection will cause stormwater runoff to bypass the inlet and overload downstream inlets. Only inlet protection measures that allow for use of the inlet opening (e.g. inlet inserts) are applicable as inlet protection for on-grade inlets.

Inlet protection is normally used in new developments with new inlets and roads that are not in public use. It has limited applications in developed areas due to the potential for flooding, traffic safety, pedestrian safety, and maintenance problems. Potential applications in developed areas are on parking lot inlets where water can pond without causing damage and during major repairs to existing roadways where no other controls are viable.

The application of inlet protection is highly variable due to the wide variety of inlet configurations (existing and new) and site conditions. The schematics in Section 6 show example applications; however, applications in most cases must be site adapted. Different methods and materials may be used. It is the responsibility of the designer to ensure that the methods and materials applied for inlet protection are appropriate to the site and flow conditions following the design criteria in Section 3.

3.4.3 Design Criteria

General

- Drainage patterns shall be evaluated to ensure inlet protection will not divert flow or flood the roadway or adjacent properties and structures.
- Inlet protection measures or devices that completely block the inlet are prohibited. They must also include a bypass capability in case the protection measures are clogged.
- Inlet protection must be designed to pass the conveyance storm (25-year, 24-hour) without creating a road hazard or damaging adjacent property. This may be accomplished by any of the following measures:
 - An overflow weir on the protection measure.
 - An existing positive overflow swale on the inlet.
 - Sufficient storage volume around the inlet to hold the ponded water until it can all filter into the inlet.
 - Other engineered method.
- Positive overflow drainage is critical in the design of inlet protection. If overflow is not provided for at the inlet, temporary means shall be provided to route excess flows through established swales, streets, or other watercourses to minimize damage due to flooding.
- Filter fabric and wire mesh used for inlet protection shall meet the material requirements specified in [Section 3.10 Silt Fence](#).

- Block and gravel (crushed stone or recycled concrete) protection is used when flows exceed 0.5 cubic feet per second and it is necessary to allow for overtopping to prevent flooding.
- The tube and filler for organic filter tubes shall be in accordance with the criteria in [Section 3.6 Organic Filter Tube](#).
- Bags used to secure inlet protection devices on pavement shall be filled with aggregate, filter stone, or crushed rock that is less likely than sand to be washed into an inlet if the bag is broken. Filled bags shall be 24 to 30 inches long, 16 to 18 inches wide, and 6 to 8 inches thick. Bags shall be polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of 4 ounces per square yard and meet the following criteria:
 - Greater than 300 psi Mullen Burst Strength using ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method.
 - Greater than 70 percent UV Stability using ASTM D4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus.

Curb Inlet Protection

- Municipality approval is required before installing inlet protection on public streets.
- Special caution must be exercised when installing curb inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.
- A two inch overflow gap or weir is required on all curb inlet protection devices.
- Traffic cones, warning signs, or other measures shall be installed to warn motorists when the inlet protection measures extend beyond the gutter line.
- 2 inch X 4 inch Weir Protection:
 - Bend wire mesh around the 2 inch x 4 inch board and staple to the board. Bend wire mesh around the bottom of the board, the curb opening, and along the pavement to form a cage for the rock.
 - Rock bags shall be placed perpendicular to the curb, at both ends of the wooden frame, to disrupt the flow and direct water into the rock filter. Stack the bags two high if needed.
- Organic Filter Tube Protection:
 - The diameter of the tube shall be at least 2 inches less than the height of the inlet opening. The tube should not be allowed to block the entire opening, since it will clog.
 - The tube shall be placed on 4 inch x 4 inch or 2 inch x 4 inch wire mesh to prevent the tube from sagging into the inlet.
 - The tube should be long enough to extend a minimum of 12 inches past the curb opening on each side of the inlet.
- Hog Wire Weir Protection:
 - The filter fabric and wire mesh shall extend a minimum of 12 inches past the curb opening on each side of the inlet.
 - Filter fabric shall be placed on 2 inch x 4 inch wire mesh to prevent the tube from sagging into the inlet.
 - Rock bags are used to hold the wire mesh and filter fabric in contact with the pavement. At least one bag shall be placed on either side of the opening, parallel to and up against the concrete curb. The bags are intended to disrupt and slow the flow and ensure it does not go under the fabric. Add bags if needed.

- If a board is used to anchor the wire mesh and fabric instead of rock bags, the board shall be secured with concrete nails at 3 inches on center. Upon removal clean any dirt or debris from the nailing locations, apply chemical sanding agent, and apply non-shrink grout flush with surface of concrete.
- Block and Gravel Protection:
 - Concrete blocks shall be standard 8 inch x 8 inch x 16 inch concrete masonry units and shall be in accordance with ASTM C139, Concrete Masonry Units for Construction. Filter gravel shall be $\frac{3}{4}$ inch washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
 - Concrete blocks are to be placed on their sides in a single row around the perimeter of the inlet, with ends abutting. Openings in the blocks should face outward, not upward. $\frac{1}{2}$ inch x $\frac{1}{2}$ inch wire mesh shall then be placed over the outside face of the blocks covering the holes. Filter gravel shall then be piled against the wire mesh to the top of the blocks with the base of the stone being a minimum of 18 inches from the blocks.
 - Alternatively, where loose stone is a concern (streets, etc.), the filter gravel may be placed in appropriately sized filter fabric bags.
 - Periodically, when the gravel filter becomes clogged, the gravel must be removed and cleaned in a proper manner or replaced with new gravel and piled back against the wire mesh.
- Organic Filter Tube On-Grade Protection:
 - Organic filter tubes may be used to provide sediment control at on-grade curb inlets where the tube will not be a traffic hazard, such as on residential streets where the pavement adjacent to the curb is allocated to parked cars. Tubes should not be used in this manner where they will extend into an active travel lane.
 - The filter tube shall be secured in a U-shape by rock bags. Runoff flowing in the gutter will pond within the U until it filters through the tube or overflows around the end.
- Inlet protection shall be phased on curb inlets being constructed. Controls shall be installed on the pipe inlet at the bottom of the catch basin as soon as it is installed and while the inlet box and top are being formed or placed.

Area Inlet Protection

- Installation methods for protection on area inlets vary depending on the type of inlet (drop, “Y,” or other) and the type and use of the surface surrounding the inlet (parking lot, playground, etc.). It is the responsibility of the designer to appropriately adapt inlet protection measures and their installation methods for each site condition. Several types may be needed on one project.
- Filter Fabric Protection:
 - Filter fabric protection is appropriate where the drainage area is less than one acre and the basin slope is less than five (5) percent. Filter fabric, posts, and wire mesh shall meet the material requirements specified in [Section 3.10 Silt Fence](#).
 - A 6 inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel. This entrenchment prevents any bypass of runoff under the fence.
 - Stone overflow structures, according to the criteria in [Section 3.10 Silt Fence](#) shall be installed where flow to the inlet is concentrated and more than 1 cubic feet per second.
- Excavated Impoundment Protection:
 - Excavated inlet protection is usually the most effective type of area inlet protection; however, it is only applicable to drop inlets. It should not be applied to Y inlets because it will undermine the concrete pad surrounding the inlet opening. Nor can it be used for inlets on pavement.

- With this protection method, it is necessary to install weep holes to allow the impoundment to drain completely.
- The impoundment shall be sized such that the volume of excavation is equal to or exceeds the runoff volume from the temporary control design storm (2-year, 24-hour) for the inlet's drainage area.
- The trap shall have a minimum depth of one foot and a maximum depth of 2 feet as measured from the top of the inlet and shall have side slopes of 2:1 or flatter.
- **Block and Gravel Protection:**
 - Block and gravel inlet protection is the most stable area inlet protection and can handle more concentrated flows. It may be installed on paved or vegetated surfaces. Loose stone shall be carefully removed from vegetated surfaces at the end of construction to prevent the stone from becoming a mowing hazard.
 - The inlet protection may be one or two blocks high. Single block heights are applicable for drainage areas up to 3 acres in size. The double block height shall be used for larger drainage areas.
 - Concrete blocks shall be standard 8 inch x 8 inch x 16 inch concrete masonry units and shall be in accordance with ASTM C139, Concrete Masonry Units for Construction. Filter gravel shall be ¾ inch washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- **Organic Filter Tube Protection:**
 - Organic filter tubes may be used on paved or unpaved surfaces.
 - On paved surfaces, tubes shall be secured in place by rock bags. On unpaved surfaces, the tubes shall be embedded in the ground a minimum of 3 inches and staked at 4 foot spacing.
 - Designer shall provide calculations and specify the diameter of tube to be used based on the inlet's drainage area and the flow rate of runoff to the inlet. The minimum allowable diameter is 12 inches.

Proprietary Inlet Protection

- Numerous proprietary protection devices are available from commercial vendors. The devices often have the advantage of being reusable on several projects if they are maintained in good condition.
- It is the policy of this manual not to recommend any specific commercial vendors for proprietary controls. However, this subsection is included in order to provide municipalities with a rationale for approving the use of a proprietary inlet protection device within their jurisdiction.
- The designer shall work with the supplier to provide the municipality with flow calculations or independent third-party tests that document the device's performance for conditions similar to the ones in which it is proposed to be installed. The conditions that should be considered include: type and size of inlet, inlet configuration, size of contributing drainage area, design flow rate, soil particle sizes to be removed, and other pollutants to be removed.
- The designer or vendor of the proprietary device shall provide a minimum of three references for projects where the device has been installed and maintained in operation at a construction site for at least six months. Local references are preferred; but references from other regions can be accepted if a similarity between the reference project and the proposed application can be demonstrated.
- Proprietary devices must not completely block the inlet. The device shall have a minimum of a 2 inch wide opening for the length of the inlet when it will be used in areas that water can safely pond to depths deeper than the design depths for the inlet. If ponding is not an option, then the device must have overflow capacity equal to the inlet design flow rate.
- Some proprietary devices are available with replaceable pads or filters. These pads or filters have the added benefit of removing pollutants such as metals and oils in addition to removing sediment.

These types of inserts are recommended in applications where prior or current land use in or adjacent to the construction areas may result in the discharge of pollutants.

- Proprietary protection devices shall be in accordance with the General criteria at the beginning of this section and any criteria listed under Curb Inlet Protection and Area Inlet Protection that are not specific to an inlet protection method.

3.4.4 *Design Guidance and Specifications*

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.15 Inlet Protection.

3.4.5 *Inspection and Maintenance Requirements*

Inlet protection should be inspected regularly (at least as often as required by the TPDES Construction General Permit). Inlet controls should also be inspected after every storm event to check for collapse into the inlet or other damages that may block flow in the inlet. In addition to routine inspection, inlet protection devices should be observed and monitored during larger storm events to verify that they are not ponding or diverting water in a manner that floods a roadway or damages property.

Floatable debris and other trash caught by the inlet protection should be removed after each storm event. Sediment should also be removed from curb inlet protection after each storm event because of the limited storage area associated with curb inlets.

Sediment collected at area inlet protection should be removed before it reaches half the height of the protection device. Sediment should be removed from inlets with excavated impoundment protection before the volume of the excavation is reduced by 50 percent. In addition, the weep holes should be checked and kept clear of blockage.

Concrete blocks, 2 inch x 4 inch boards, stakes, and other materials used to construct inlet protection should be checked for damaged and repaired or replaced if damaged.

When filter fabric or organic filter tubes are used, they should be cleaned or replaced when the material becomes clogged. For systems using filter stone, when the filter stone becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced.

Because of the potential for inlet protection to divert runoff or cause localized flooding, remove inlet protection as soon as the drainage area contributing runoff to the inlet is stabilized. Ensure that all inlet protection devices are removed at the end of the construction.

3.4.6 *Example Schematics*

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

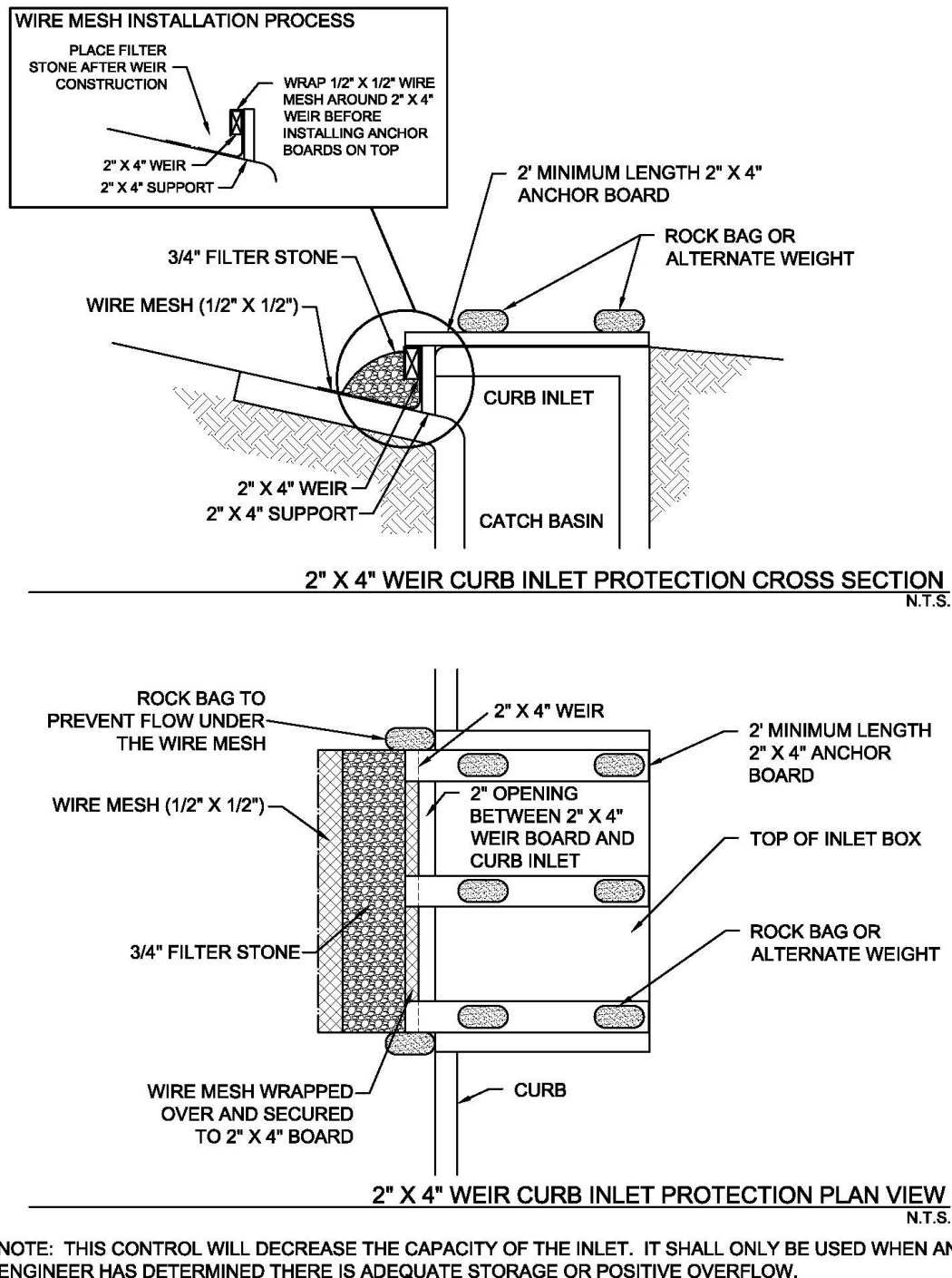


Figure 3.5 Schematics of 2"x4" Weir Curb Inlet Protection
(Source: Modified from Washington Suburban Sanitary Commission Detail SC-16.0)

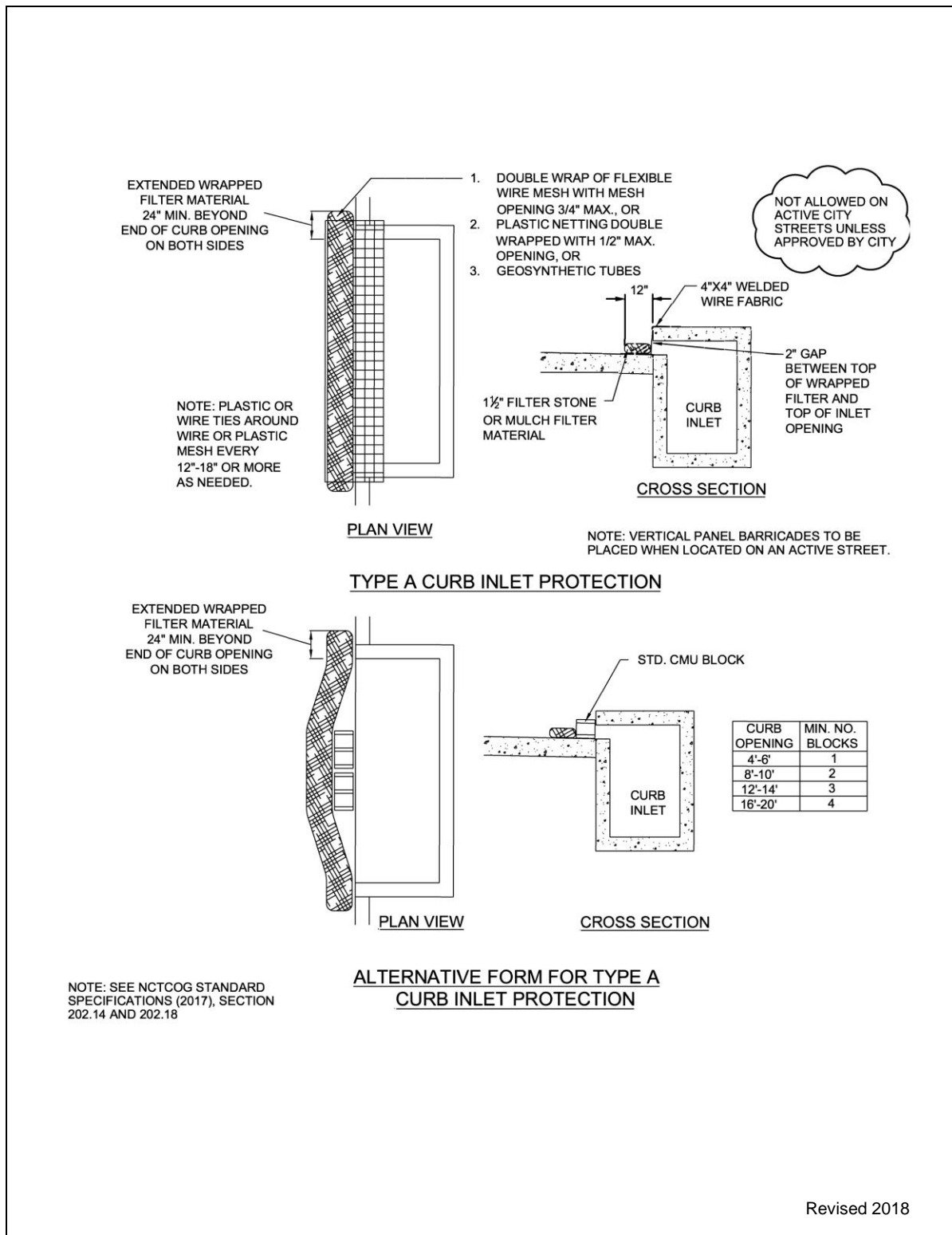


Figure 3.6 Schematics of Organic Filter Tube Curb Inlet Protection

(Source: Modified from City of Plano BMP SP-4)

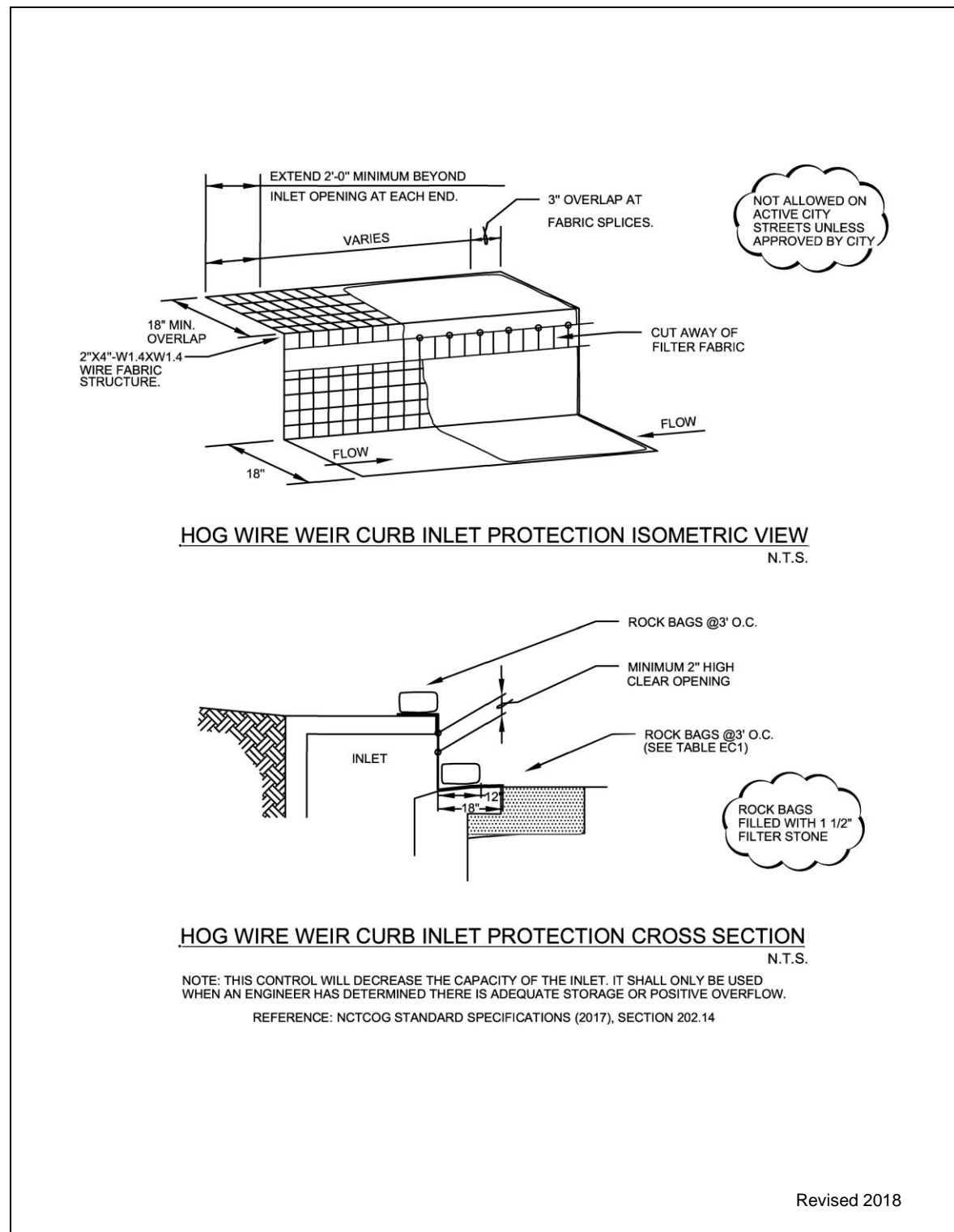
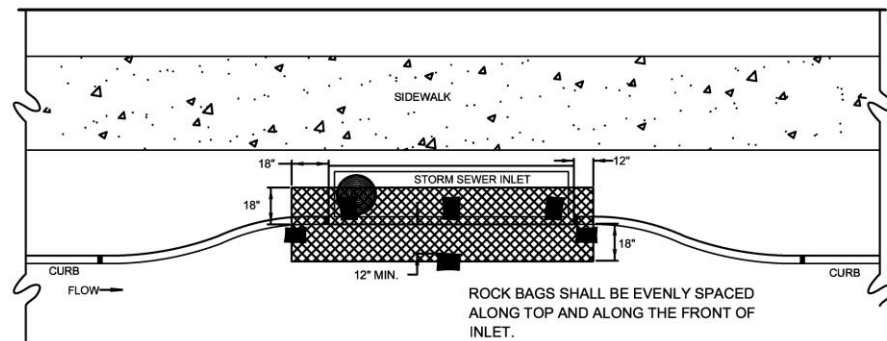


Figure 3.7 Schematics of Hog Wire Weir Curb Inlet Protection
(Source: Modified from City of Round Rock Detail E-03)



HOG WIRE WEIR CURB INLET PROTECTION PLAN VIEW

N.T.S.

TABLE EC1

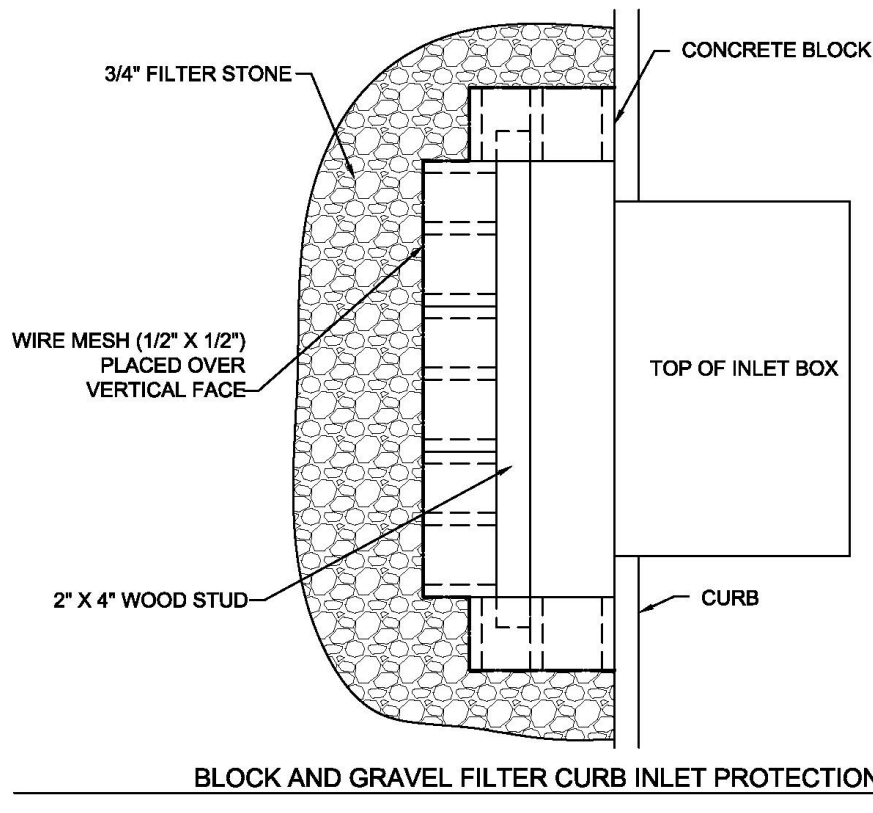
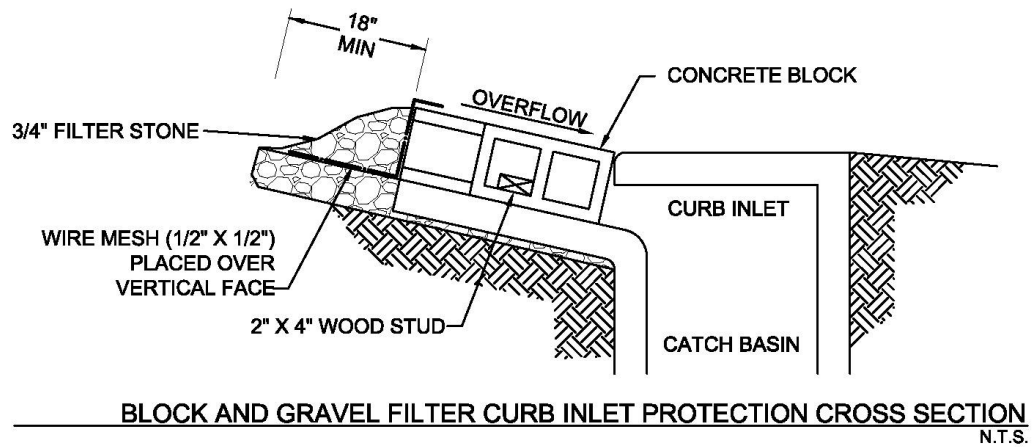
INLET OPENING	MINIMUM NUMBER OF ROCK BAGS	
	TOP	FRONT
5'	2	3
10'	3	3
15'	3	4
20'	4	4

NOTES:

1. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL TO PROVIDE A 2" MINIMUM CLEAR OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
2. INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
3. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

Revised 2018

Figure 3.8 Hog Wire Weir Curb Inlet Protection



- NOTES:**
1. DO NOT INSTALL ON INLETS IN A PUBLIC STREET OR OTHER ACTIVE TRAVEL LANE. BLOCK AND GRAVEL FILTER IS INTENDED FOR USE ON LOW POINT (SUMP) INLETS IN PARKING LOTS AND OTHER PAVEMENT THAT IS NOT AN ACTIVE TRAVEL LANE. THIS INLET PROTECTION METHOD ALLOWS FOR FULL USE OF THE INLET DESIGN CAPACITY.
 2. INSTALL TRAFFIC CONES AS NEEDED TO MINIMIZE THE POTENTIAL FOR CARS HITTING THE BLOCK AND GRAVEL.

Figure 3.9 Schematics of Block and Gravel Filter Curb Inlet Protection

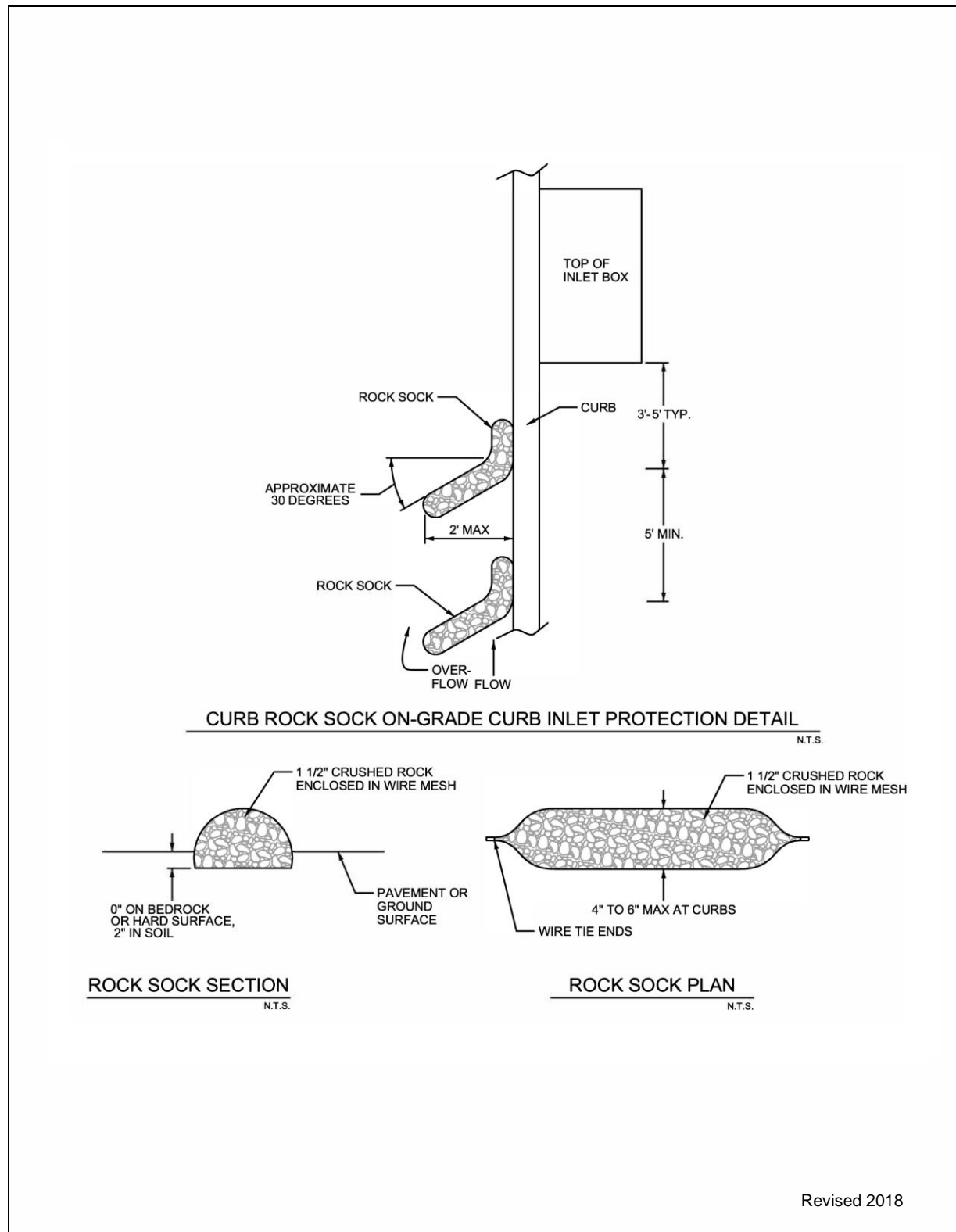


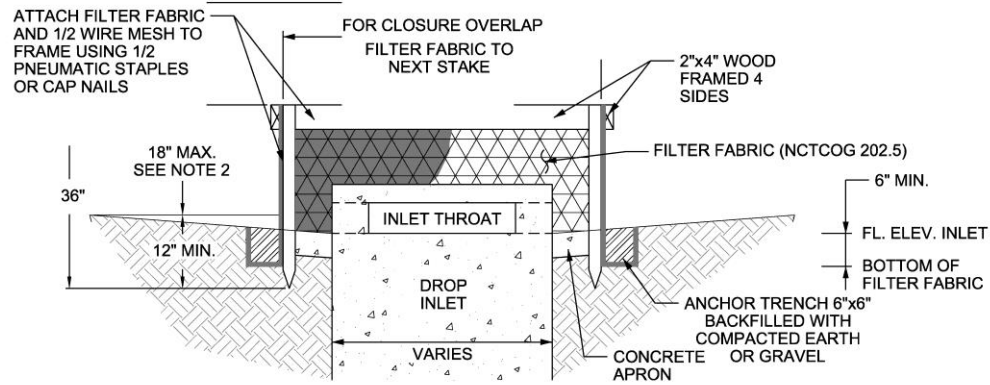
Figure 3.10 Schematic of Organic Filter Tube On-Grade Curb Inlet Protection

CURB ROCK SOCK ON-GRADE CURB INLET PROTECTION GENERAL NOTES:

1. THIS DETAIL IS INTENDED FOR USE WITH ON-GRADE INLETS (NOT A LOW POINT) TO TRAP SEDIMENT.
2. DO NOT INSTALL ON INLETS WHERE THE ROCK SOCKS WOULD EXTEND INTO AN ACTIVE TRAVEL LANE.
3. ROCK SOCKS MAY BE USED ON PAVED OR UNPAVED SURFACES.
4. MAXIMUM ROCK SOCK DIAMETER 4" TO 6".
5. MINIMUM OF 2 CURB ROCK SOCKS.

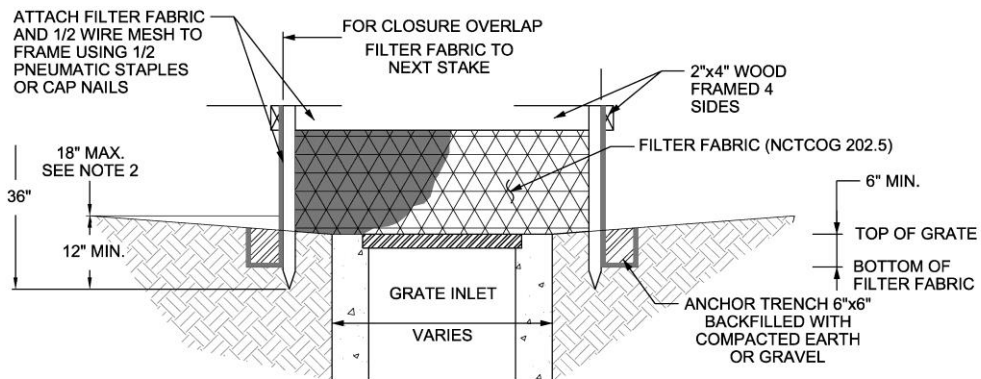
Revised 2018

Figure 3.11 Organic Filter Tube On-Grade Curb Inlet Protection General Notes



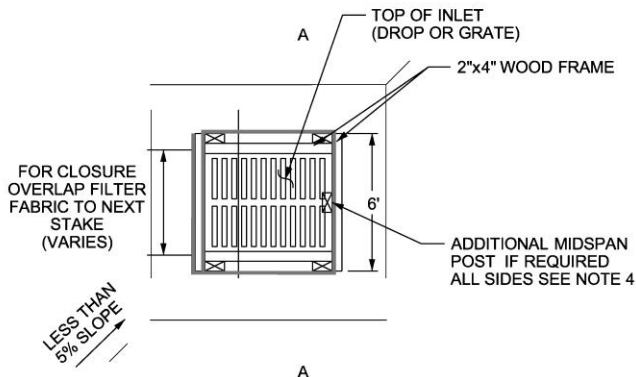
FILTER FABRIC DROP INLET PROTECTION CROSS SECTION (A-A)

N.T.S.



FILTER FABRIC GRATE INLET PROTECTION CROSS SECTION (A-A)

N.T.S.



AREA INLET PROTECTION FILTER BARRIER PLAN VIEW

N.T.S.

- NOTE:**
1. STAKES SHALL CONFORM TO SPECIFICATIONS SECTION 202.5.2.2
 2. HEIGHT OF INLET PROTECTION SURROUNDING THE INLET SHALL BE SHOWN ON THE PLANS AND MUST BE CHECKED TO VERIFY PONDING WATER WILL NOT CAUSE FLOODING OF PROPERTY OR DAMAGE.
 3. CONCENTRATED DITCH FLOW COMING FROM ONE OR MORE SIDES TOWARD THE INLET MAY REQUIRE A STONE OVERFLOW STRUCTURE TO BE CONSTRUCTED ON ONE SIDE OF THE INLET.
 4. POST SHALL BE INSTALLED AT EACH CORNER AND BETWEEN CORNERS IF THE DISTANCE IS GREATER THAN 6' BETWEEN CORNER POSTS.

Revised 2019

Figure 3.12 Schematics of Filter Fabric Area Inlet Protection

(Source: City of Plano BMP SP-4)

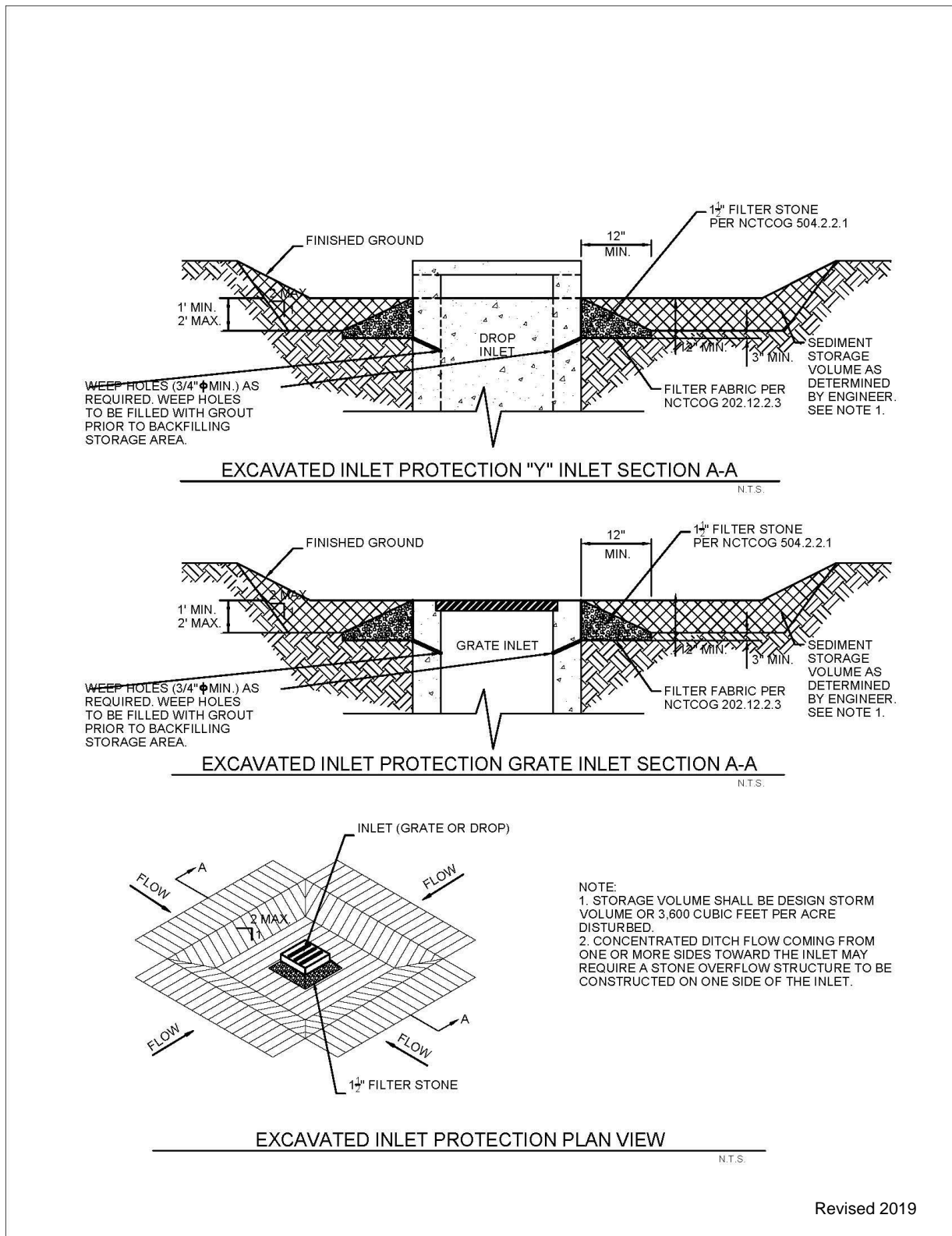
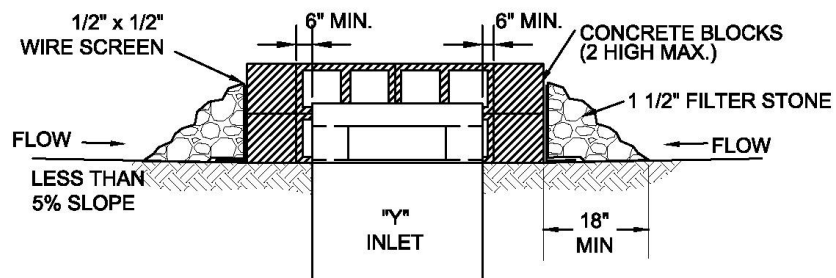
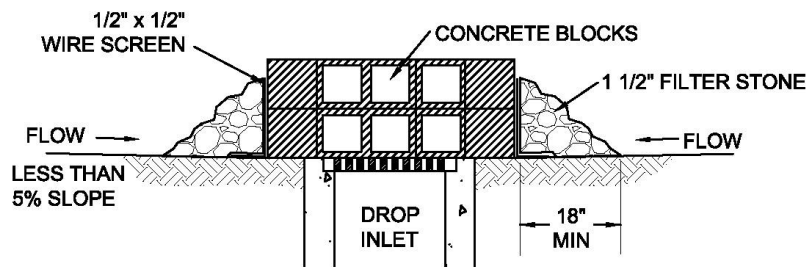


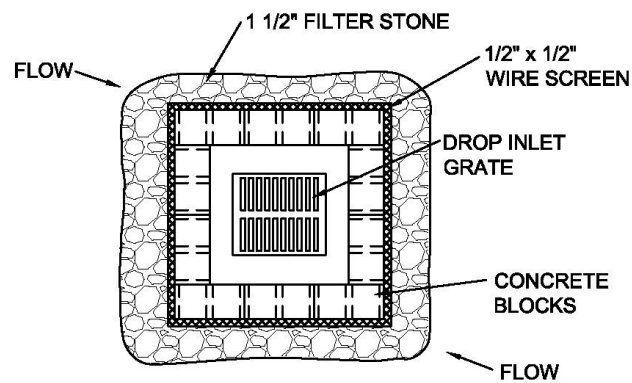
Figure 3.13 Schematics of Excavated Impoundment Area Inlet Protection



BLOCK AND GRAVEL "Y" INLET PROTECTION CROSS SECTION
N.T.S.



BLOCK AND GRAVEL DROP INLET PROTECTION CROSS SECTION
N.T.S.



BLOCK AND GRAVEL AREA INLET PROTECTION PLAN VIEW
N.T.S.

Figure 3.14 Schematics of Block and Gravel Area Inlet Protection
(Source: Modified from City of Plano BMP SP-4)

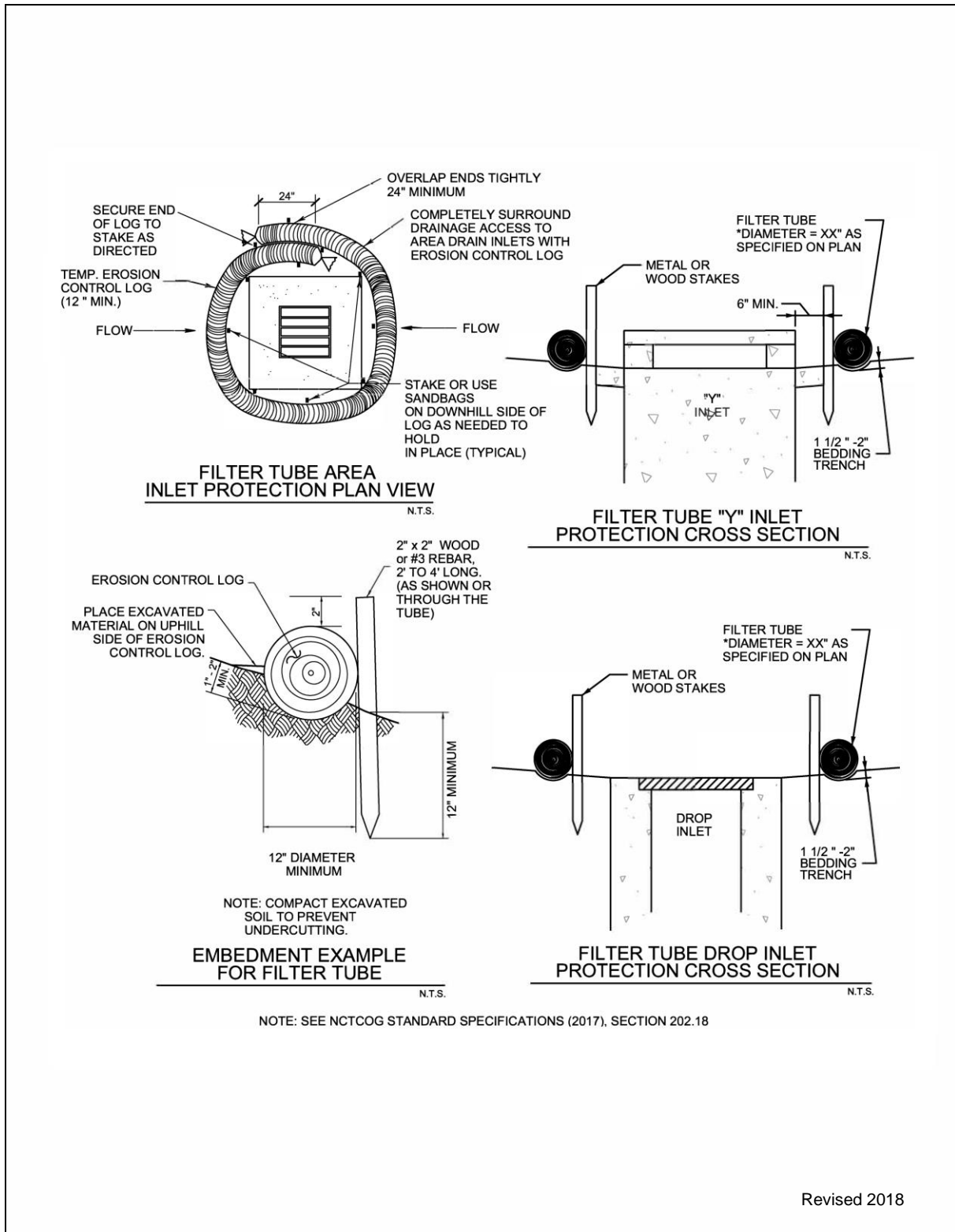
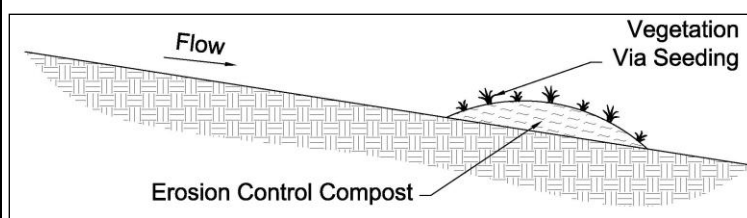


Figure 3.15 Schematics of Organic Filter Tube Area Inlet Protection

3.5 Organic Filter Berm

Sediment Control



Description: Organic filter berms, also called compost filter berms, are linear berms constructed of a mix of compost and wood chips. They are placed on a contour to control runoff. The organic filter berm provides both filtration and time for sediment settling by reducing the velocity of the runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Maximum drainage area of 0.25 acre per 100 linear feet of berm
- Maximum 200 feet distance of flow to silt fence; 50 feet if slope exceeds 10 percent
- 1½ to 3 feet high, top width of 2 to 3 feet, and base of 3 to 5 feet for trapezoidal shaped berms
- 1 to 2 feet high and 2 to 4 feet wide for windrow (triangular) berms

ADVANTAGES / BENEFITS:

- Economical means to trap sediment
- Most effective with coarse to silty soil types
- May be tilled into the soil at end of project, thus adding organic content to the soil

DISADVANTAGES / LIMITATIONS:

- Localized flooding due to minor ponding upslope of the filter berm
- Not for use in swales or low areas where berms will be subject to concentrated flow
- Can interfere with construction operations
- Repeated clogging may require replacement of berm with another control

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Repair undercutting and other failures
- Remove sediment when before it reaches one-half the height of the berm
- Maintain dimensions of the berm by replacing organic filter material when necessary

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.50-0.75

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations

- Effects of ponding on adjacent areas and property

3.5.1 Primary Use

Organic filter berms are used as perimeter controls down slope of disturbed areas and on side slopes where stormwater may runoff the area. They are very well suited to sites with small disturbed drainage areas that are not subjected to concentrated flows and that will ultimately be seeded, sodded, or landscaped.

3.5.2 Applications

Properly designed, the organic filter berm is economical due to the ease of installation and because it can be tilled into the soil at the end of project, limiting the cost of removal and adding to the organic content of the soil. The berms are used as perimeter control devices for both development sites and linear (roadway) type projects. They are most effective with coarse to silty soil types. Additional controls, such as a passive treatment system, may be needed to remove fine silts and clay soils suspended in stormwater.

3.5.3 Design Criteria

- Filter berms are to be constructed along a line of constant elevation (along a contour line) where possible.
- Berms can interfere with construction operations; therefore planning of access routes onto the site is critical.
- Maximum drainage area shall be 0.25 acre per 100 linear feet of filter berm.
- Maximum flow to any 20 foot section of filter berm shall be 1 cubic feet per second.
- Maximum distance of flow to berm shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- Maximum slope adjacent to the filter berm shall be 4:1.
- Trapezoidal shaped berms should be 1½ to 3 feet high with a top width of 2 to 3 feet and a base of 3 to 6 feet wide.
- Windrow (triangular) shaped berms should be 1 to 2 feet high and 2 to 4 feet wide.
- Berm side slopes shall be 2:1 or flatter.
- Roughen the soil surface before placing the berm to increase adherence of the compost.
- Compost shall conform to the requirements for Erosion Control Compost in Item 161 of the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (TxDOT 2004).
- Organic filter berms should be stabilized by seeding if there are no other sediment controls down slope of the filter berm. Seeding shall be as specified in [Section 2.9 Vegetation](#) at a seed loading of 1 lb. per 10 linear feet for small berms (1ft. by 2 ft.) or 2.25 lbs per 10 linear ft. for larger berms (1.5 ft. by 3 ft.)

3.5.4 Design Guidance and Specifications

Specifications for Erosion Control Compost to be used as filter material may be found in Item 161 of the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (TxDOT 2004).

3.5.5 Inspection and Maintenance Requirements

Filter berms should be inspected regularly (at least as often as required by the TPDES Construction General Permit) for buildup of excess sediment, undercutting, and other failures. Silt must be removed

when before it reaches half the height of the berm. Silt may be raked from the disturbed side of the device to clean side the berm for the first few times that it becomes clogged to prevent ponding. Repeated clogging of the berm at one location will require replacement of the organic filter material or may require installation of another control to prevent failure of the berm.

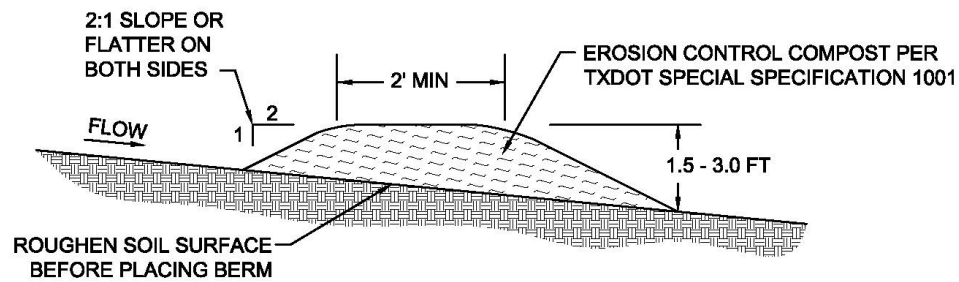
Dimensions of the berm must be maintained by replacing organic filter material when necessary. Typically excess material is stockpiled onsite for repairs to berms disturbed by construction activity.

There shall be no signs of erosion, breeching or runoff around or under the berm.

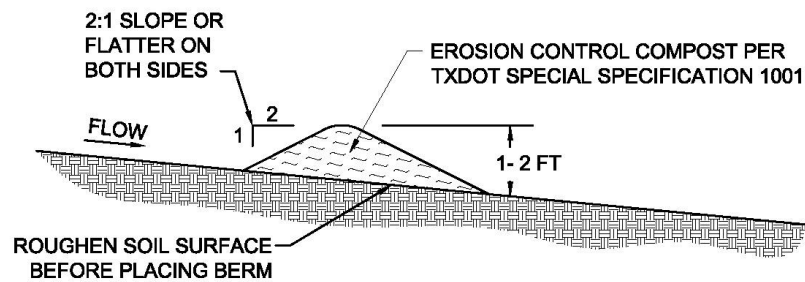
3.5.6 *Example Schematics*

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



TRAPEZOIDAL SHAPED ORGANIC FILTER BERM
N.T.S.



TRIANGULAR SHAPED ORGANIC FILTER BERM
N.T.S.

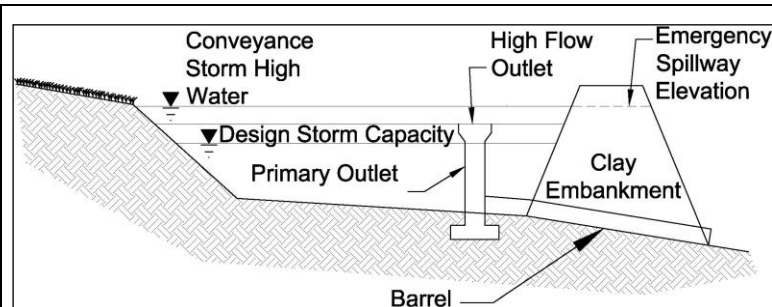
NOTE: DIMENSIONS OF THE BERM SHALL BE DESIGNED BASED ON FLOW CONDITIONS. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS TO DESIGN THE SWALE:

- SIZE OF CONTRIBUTING DRAINAGE AREA
- DESIGN STORM
- FLOW RATE
- BERM HEIGHT AND WIDTH

Figure 3.16 Schematics of Organic Filter Berm

3.9 Sediment Basin

Sediment Control



Description: A sediment basin is an embankment with a controlled outlet that detains stormwater runoff, resulting in the settling of suspended sediment. The basin provides treatment for the runoff as well as detention and controlled release of runoff, decreasing erosion and flood impacts downstream.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Minimum 4:1 length to width ratio
- Maximum embankment height and storage capacity limited by TCEQ requirements
- Minimum dewatering time of 36 hours
- Safely pass 25-year, 24-hour storm event without structure damage

ADVANTAGES / BENEFITS:

- Effective at removing suspended sand and loam
- May be both a temporary and permanent control
- Can be used in combination with passive treatment

DISADVANTAGES / LIMITATIONS:

- Effectiveness depends on type of outlet
- Limited effectiveness in removing fine silt and clay
- May require a relatively large portion of the site
- Storm events that exceed the design storm event may damage the structure and cause downstream impacts

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Remove obstructions from discharge structures
- Remove sediment and re-grade basin when storage capacity reduced by 20 percent

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.50-0.90

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- Public safety
- Mosquito breeding habitat
- Requires comprehensive planning and design

3.9.1 Primary Use

Sediment basins should be used for all sites with adequate open space for a basin and where the site topography directs a majority of the site drainage to one point. Sediment basins are necessary as either temporary or permanent controls for sites with disturbed areas of 10 acres and larger that are part of a common drainage area unless specific site conditions limit their use.

3.9.2 Applications

Sediment basins serve as treatment devices that can be used on a variety of project types. They are normally used in site development projects in which large areas of land are available for the basin, a minor stream or off-line drainage way crosses the site, or a specific water feature is planned for the site. Sediment basins are highly effective at reducing sediment and other pollutants for design storm conditions. Sediment basins are typically easier to maintain than other structural controls (e.g. silt fences, etc).

A sediment basin by itself does not typically remove a sufficient percentage of fine silts and clays to be an effective sediment barrier. Table 3.3 provides a summary of sediment basin effectiveness based on soil type.

Soil Type	Runoff Potential	Settling Rate	Sediment Basin Effectiveness	Efficiency Rating (Fe)
Sand	Low	High	High	0.90
Sandy Loam	Low	High	High	0.90
Sandy Silt Loam	Moderate	Moderate	Moderate	0.75
Silt Loam	Moderate	Moderate	Moderate	0.75
Silty Clay Loam	Moderate	Low	Low	0.75
Clay Loam	Great	Low	Low	0.50
Clay	Great	Low	Low	0.50

(Source: Michigan Department of Environmental Quality Soil Erosion and Sedimentation Control Training Manual)

When the disturbed area contains a high percentage of fine silt or clay soil types, the sediment basin may be used with a passive or active treatment system to remove these finer suspended solids. Design criteria may be found in [Section 3.1 Active Treatment System](#) and [Section 3.7 Passive Treatment System](#).

3.9.3 Design Criteria

Texas Administrative Code Title 30, Chapter 299 (30 TAC 299), Dams and Reservoirs, contains specific requirements for dams that:

- Have a height greater than or equal to 25 feet and a maximum storage capacity greater than or equal to 15 acre-feet; or
- Have a height greater than six feet and a maximum storage capacity greater than or equal to 50 acre feet.

If the size of the detention basin meets or exceeds the above applicability, the design must be in accordance with state criteria, and the final construction plans and specifications must be submitted to the TCEQ for review and approval.

The following design criteria are for temporary sediment basins that are smaller than the TCEQ thresholds. The sediment basin shall be designed by a licensed engineer in the State of Texas. The criteria and schematics are the minimum and, in some cases, only concept level. It is the responsibility of the engineer to design and size the embankment, outfall structures, overflow spillway, and downstream

energy dissipaters and stabilization measures. Alternative designs may be acceptable if submitted to the reviewing municipality with supporting design calculations.

Sediment Basin Location and Planning

- Design of the sediment basin should be coordinated with design of the permanent drainage infrastructure for the development.
- The basin shall not be located within a mapped 100-year floodplain unless its effects on the floodplain are modeled, and the model results are approved by the reviewing municipality.
- Basins shall not be located on a live stream that conveys stormwater from upslope property through the construction site.
- Basins may be located at the discharge point of a drainage swale that collects runoff from construction activities, or the basin may be located off-channel with a swale or dike constructed to divert runoff from disturbed areas to the basin. Design criteria for these controls are in [Section 2.2 Diversion Dike](#) and [Section 2.4 Interceptor Swale](#).
- Sediment basins must be designed, constructed, and maintained to minimize mosquito breeding habitats by minimizing the creation of standing water.
- Temporary stabilization measures should be specified for all areas disturbed to create the basin.

Basin Size

- Minimum capacity of the basin shall be the calculated volume of runoff from a 2-year, 24-hour duration storm event plus sediment storage capacity of at least 1,000 cubic feet.
- The basin must be laid out such that the effective flow length to width ratio of the basin is a minimum of 4:1. Settling efficiencies are dependent on flow velocity, basin length, and soil type. Smaller particle sizes require slower velocities and longer basins. Basin dimensions should be designed based on flow velocities and anticipated particle sizes.
- Stoke's equation for settling velocities, as modified to Newton's equation for turbulent flow, may be used to estimate length required based on depth of the basin.

$$\text{Settling Velocity (ft/s)} = 1.74 [(\rho_p - \rho)gd/\rho]^{1/2} \quad (3.1)$$

Where:

ρ_p = density of particles (lb/ ft³)

ρ = density of water (lb/ft³)

g = gravitational acceleration (ft/s²)

d = diameter of particles (ft)

- The effective length of sediment basins may be increased with baffles. Baffles shall be spaced at a minimum distance of 100 feet. Spacing should be proportional to the flow rate, with greater spacing for higher flow rates. Check the flow velocity in the cross section created by the baffles to ensure settling will occur.
- Baffles may be constructed by using excavated soil to create a series of berms within the basin; however, porous baffles are recommended. Porous baffles may consist of coir fiber, porous geotextiles, porous turbidity barriers, and similar materials. Porous materials disrupt the flow patterns, decrease velocities, and increase sedimentation.
- Basins have limited effectiveness on suspended clay soil particles. The basin's length to width ratio typically should be 10:1 to effectively remove suspended clay particles. The use of passive treatment systems can significantly reduce this ratio and improve removal rates. Criteria are in [Section 3.7 Passive Treatment System](#).

Embankment

- Top width shall be determined by the engineer based on the total height of the embankment as measured from the toe of the slope on the downstream side.
- Embankment side slopes shall be 3:1 or flatter.
- The embankment shall be constructed with clay soil, minimum Plasticity Index of 30 using ASTM D4318 Standard Test for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- Clay soil for the embankment shall be placed in 8 inch lifts and compacted to 95 percent Standard Proctor Density at optimum moisture content using ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
- The embankment should be stabilized with rock riprap or temporary vegetation.

Outlet and Spillway

- The primary outlet shall have a minimum design dewatering time of 36 hours for the temporary control design storm (2-year, 24-hour).
- Whenever possible, the outlet shall be designed to drain the basin in less than 72 hours to minimize the potential for breeding mosquitoes.
- The basin's primary outlet and spillway shall be sized to pass the difference between the conveyance storm (25-year, 24-hour) and the temporary control design storm without causing damage to the embankment and structures.
- Unless infeasible, the primary outlet structure should withdraw water from the surface of the impounded water. Outlet structures that do this include surface skimmers, solid risers (non-perforated), flashboard risers, and weirs.
- Surface skimmers use a floating orifice to discharge water from the basin. Skimmers have the advantage of being able to completely drain the detention basin. Skimmers typically result in the greatest sediment removal efficiency for a basin, because they allow for a slower discharge rate than other types of surface outlets. Due to this slower discharge rate, a high flow riser may still be needed to discharge the conveyance storm if a large enough spillway is not feasible due to site constraints.
- Discharge rates for surface skimmers are dependent on the orifice configuration in the skimmer. Use manufacturer's flow rate charts to select the skimmer based on the flow rate needed to discharge the design storm from the basin within a selected time period (i.e. $Q = \text{Volume}/\text{time}$).
- Risers shall be designed using the procedures in [Section 3.9.7 Design Procedures](#).
- Weir outlets should be designed using the guidance in [Section 2.2.2 of the Hydraulics Technical Manual](#).
- Use of overflow risers and weirs result in a pool of water that should be accounted for in the design capacity of the basin. These outlet structures are good options when the temporary sediment basin will be retained as a permanent site feature upon completion of construction. If the basin is temporary and standing water is not acceptable during construction, the construction plans shall include procedures for dewatering the basin following criteria in [Section 3.3 Dewatering Controls](#).
- Flashboard risers function like an overflow riser pipe, but they contain a series of boards that allow for adjustment of the pool level. The boards may be removed for draining the basin to a lower level. However, this operation can be difficult and a safety hazard when done manually.
- A perforated riser may be used as an outlet when surface discharge is not feasible. A perforated riser has the advantage of dewatering the basin; however, it also results in the lowest sediment removal efficiency. Perforated risers provide a relatively rapid drawdown of the pool, and they discharge water from the entire water column, resulting in more suspended sediment being discharged than with a surface outlet.

- Size and spacing of the orifices on a perforated riser shall be designed to provide the minimum detention time while allowing for the drawdown of detained water.
- Gravel (1½ to 3 inches) may be placed around the perforated riser to aid sediment removal, particularly the removal of fine soil particles, and to keep trash from plugging the perforations. The gravel is most effective when the basin will be used for less than a year. When installed for longer periods of time, the gravel may become clogged with fine sediments and require cleaning while submerged.
- The outlet of the outfall pipe (barrel) shall be stabilized with riprap or other materials designed using the conveyance storm flow rate and velocity. Velocity dissipation measures shall be used to reduce outfall velocities in excess of 5 feet per second.
- The outfall pipe through the embankment shall be provided with anti-seep collars connected to the exterior of the pipe section or at a normal joint of the pipe material. The anti-seep collar material shall be compatible with the pipe material used and shall have a watertight bond to the exterior of the pipe section. The size and number of collars shall be selected by the designer in accordance with the following formula and table:

Collar Outside Dimension = X + Diameter of pipe in feet

Example: Pipe Length = 45 feet
 Barrel Pipe Diameter = 12 inches = 1 foot
 2 anti-seep collars

Anti-seep Collar Dimensions:

3.4 feet (from table) + 1.0 foot (Pipe dia.) = 4.4 feet

Use 2 anti-seep collars each being 4.4 feet square or 4.4 feet diameter if round.

Table 3.4 Number and Spacing of Anti-Seep Collars				
Pipe Length	X Values - Feet			
	Number of Anti-Seep Collars			
	1	2	3	4
40	6.0	3.0		
45	6.8	3.4		
50	7.5	3.8	2.5	
55		4.2	2.8	
60		4.5	3.0	
65		4.9	3.3	
70		5.3	3.5	2.6
75		5.6	3.8	2.8
80		6.0	4.0	3.0

- Risers used to discharge high flows shall be equipped with an anti-vortex device and trash rack.
- Spillways shall be constructed in undisturbed soil material (not fill) and shall not be placed on the embankment that forms the basin.

3.9.4 Design Guidance and Specifications

Design guidance for temporary sediment basins is in [Section 3.9.7 Design Procedures](#). Criteria for sediment basins that will become permanent detention basins are in [Section 3.6.3 of the iSWM Criteria Manual](#). Additional design guidance for different types of outlet structures is in [Section 2.2 of the Hydraulics Technical Manual](#).

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

3.9.5 *Inspection and Maintenance Requirements*

Sediment basins should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to check for damage and to insure that obstructions are not diminishing the effectiveness of the structure. Sediment shall be removed and the basin shall be re-graded to its original dimensions when the sediment storage capacity of the impoundment has been reduced by 20 percent. The removed sediment may be stockpiled or redistributed onsite in areas that are protected by erosion and sediment controls.

Inspect temporary stabilization of the embankment and graded basin and the velocity dissipaters at the outlet and spillway for signs of erosion. Repair any eroded areas that are found. Install additional erosion controls if erosion is frequently evident.

3.9.6 *Example Schematics*

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. Dimensions of the sediment basin, embankment, and appurtenances shall be designed by an engineer licensed in the State of Texas. Construction drawings submitted to the municipality for review shall include, but are not limited to, the following information and supporting calculations.

- Embankment height, side slopes and top width.
- Dimensions of the skimmer, riser, weir or other primary outlet.
- Diameter of outfall pipe (barrel).
- Pool elevation for the temporary control design storm and conveyance storm.
- Outfall pipe flow rate and velocity for the temporary control design storm and conveyance storm.
- Spillway cross section, slope, flow rate, and velocity for the conveyance storm.
- Depth, width, length, and mean stone diameter for riprap apron or other velocity dissipation device at the outfall pipe and spillway discharge points.

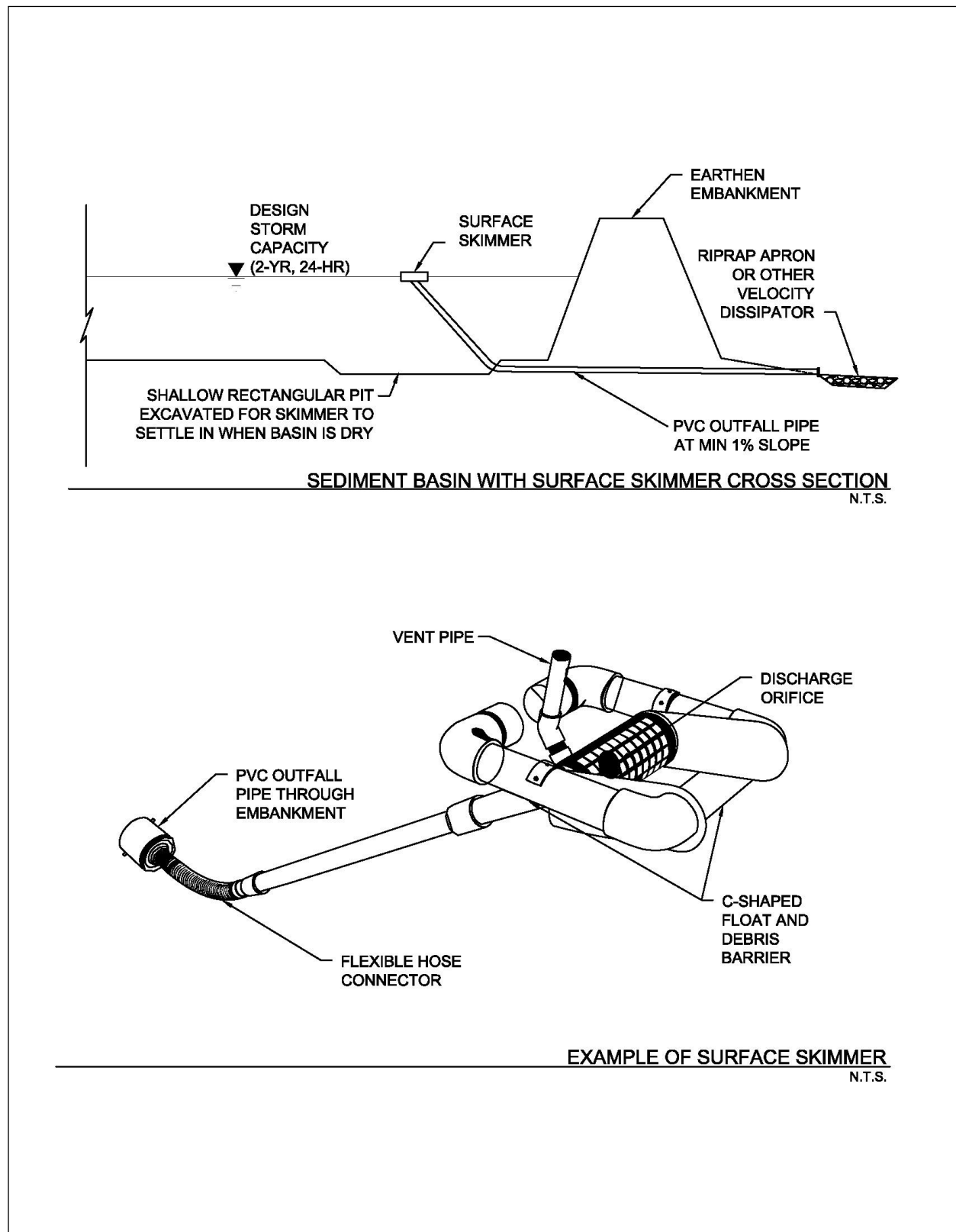


Figure 3.21 Schematics of Sediment Basin with Surface Skimmer

(Source: J.W. Faircloth & Son, Inc.)

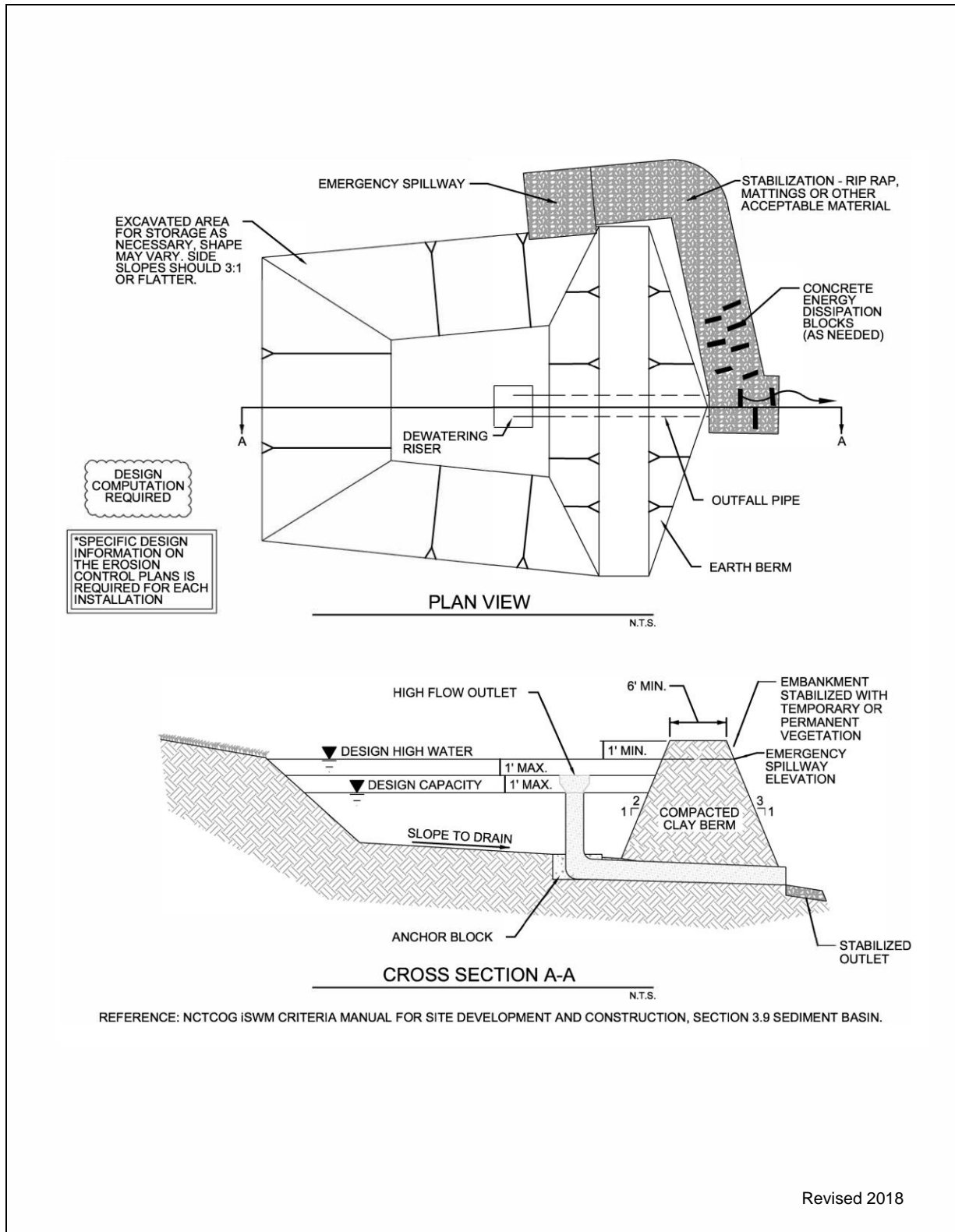


Figure 3.22 Schematics of Sediment Basin with Overflow Riser

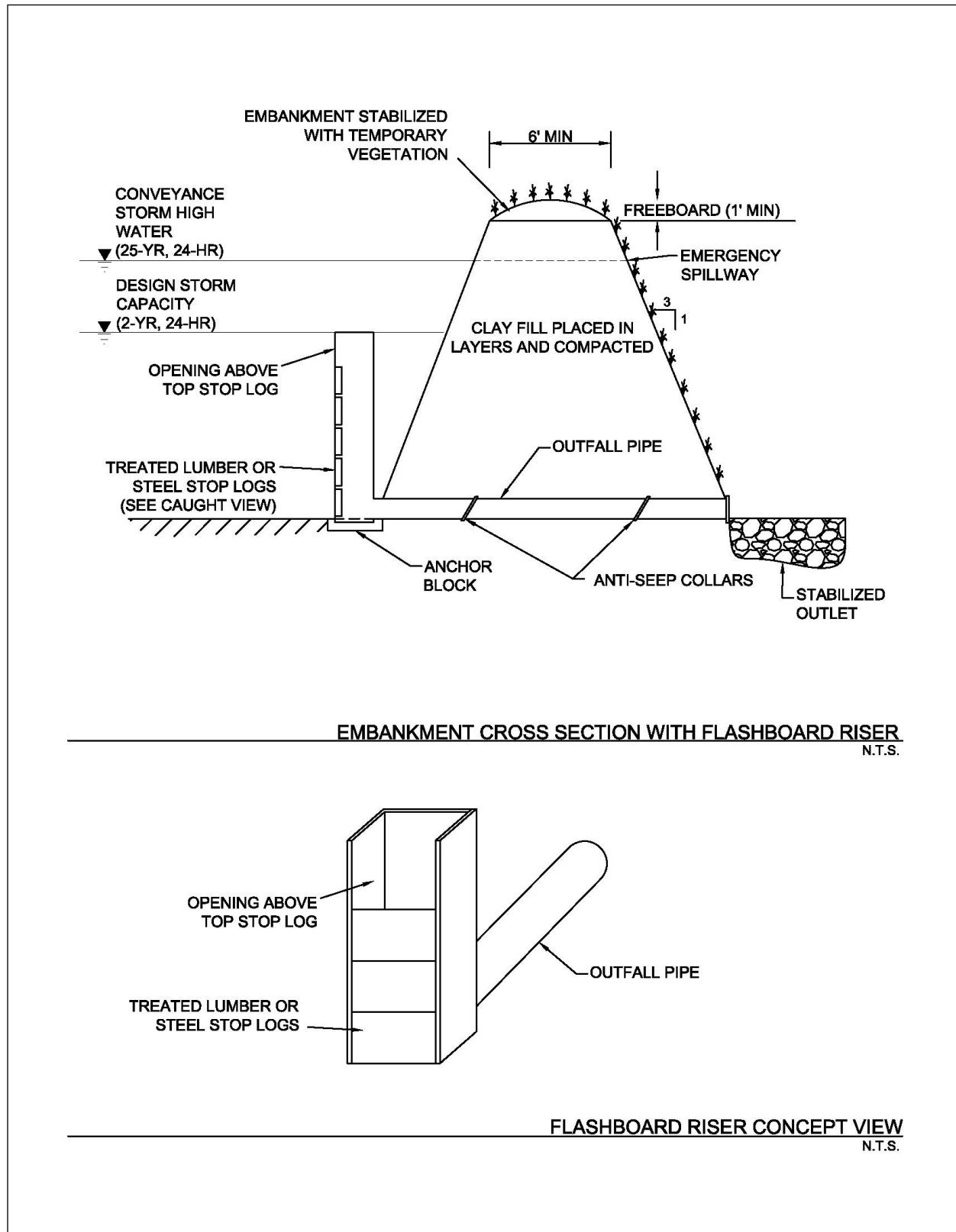


Figure 3.23 Schematics of Basin Embankment with Flashboard Riser

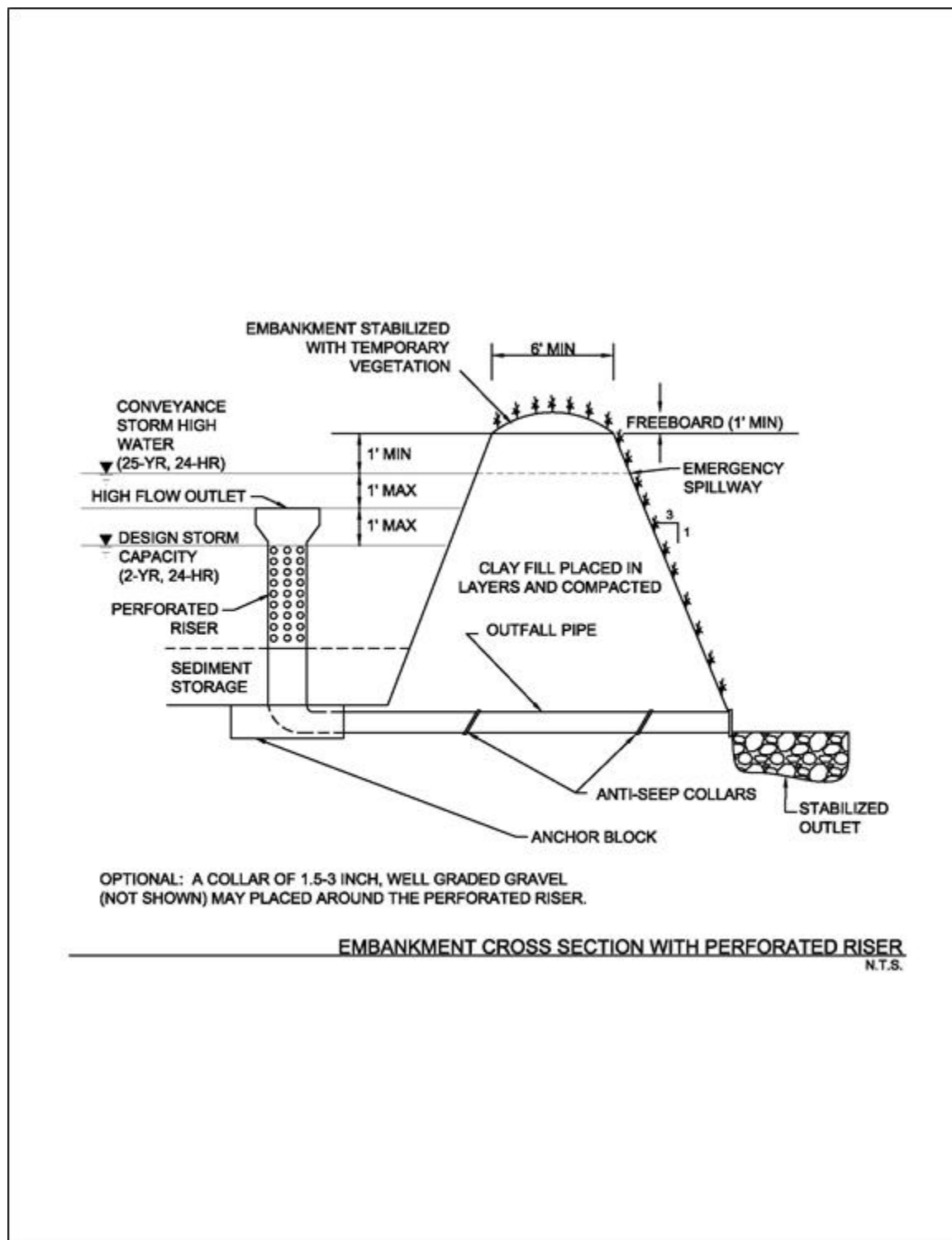


Figure 3.24 Schematic of Basin Embankment with Perforated Riser

3.9.7 Design Procedures

The following procedures provide a step-by-step method for the design of a temporary sediment basin that is smaller than the TCEQ thresholds for state requirements to apply. Criteria in [Section 3.8 of the iSWM Criteria Manual](#) should be used for the design of permanent basins (dry detention/extended dry detention) and stormwater ponds. [Section 3.9.8 Design Form](#) should be used to document the design values calculated for the temporary sediment basin.

These design procedures are provided as an example of the steps required to design a temporary sediment basin and are based on a specific type of primary outlet. When designing a sediment basin for a construction site, it's the engineer's responsibility to select the type of outlet that is appropriate based on criteria in the preceding sections and to modify the following procedures as needed to use appropriate calculations for the selected outlet, particularly in Steps 12, 13, and 14.

Step 1 Determine the required basin volume.

The basin volume shall be the calculated volume of runoff from the temporary control design storm (2-year, 24-hour) from each disturbed acre draining to the basin. When rainfall data is not available, a design volume of 3600 cubic feet of storage per acre drained may be used.

For a natural basin, the storage volume may be approximated as follows:

$$V_1 = 0.4 \times A_1 \times D_1 \quad (3.2)$$

where:

V_1 = the storage volume in cubic feet

A_1 = the surface area of the flooded area at the crest of the basin outlet, in square feet

D_1 = the maximum depth in feet, measured from the low point in the basin to the crest of the basin riser

Note 1: The volumes may be computed from more precise contour information or other suitable methods.

Note 2: Conversion between cubic feet and cubic yards is as follows:

$$\text{Number of cubic feet} \times 0.037 = \text{number of cubic yards}$$

If the volume of the basin is inadequate or embankment height becomes excessive, pursue the use of excavation to obtain the required volume.

Step 2 Determine the basin shape.

The shape of the basin must be such that the length-to-width ratio is at least 4 to 1 according to the following equation:

$$\text{Length-to-width Ratio} = \frac{L}{W_e} \quad (3.3)$$

where:

W_e = A/L = the effective width

A = the surface area of the normal pool

L = the length of the flow path from the inflow to the outflow. If there is more than one inflow point, any inflow that carries more than 30 percent of the peak rate of inflow must meet these criteria.

The correct basin length can be obtained by proper site selection, excavation, or the use of baffles. Baffles increase the flow length by interrupting flow and directing it through the basin in a circuitous path to prevent short-circuiting. Porous baffles are recommended. Spacing of baffles should be wide enough to not cause a channeling effect within the basin. Analyze the

flow cross section and velocity between baffles to ensure that velocities are not too fast for settling to occur.

Step 3 Design the embankment.

The side slopes of the embankment should be 3:1 or flatter.

Top width shall be determined by the engineer based on the total height of the embankment.

The area under the embankment should be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable materials. The pool area should also be cleared of all brush and trees.

The embankment fill material should be clay soil from an approved borrow area. It should be clean soil, free from roots, woody vegetation, oversized stones, and rocks.

Step 4 Select the type(s) of outlet(s).

The outlets for the basin may consist of a combination of a primary outlet and emergency spillway or a primary outlet alone. In either case, the outlet(s) must pass the peak runoff expected from the drainage area for the conveyance storm (25-year, 24-hour) without damage to the embankment, structures, or basin.

Step 5 Determine whether the basin will have a separate emergency spillway.

A side channel emergency spillway is required for sediment basins receiving stormwater from more than 10 acres.

Step 6 Determine the elevation of the crest of the basin outlet riser for the required volume.

Step 7 Estimate the elevation of the conveyance storm and the required height of the dam.

- (a) If an emergency spillway is included, the crest of the basin outlet riser must be at least 1.0 foot below the crest of the emergency spillway.
- (b) If an emergency spillway is included, the elevation of the peak flow through the emergency spillway (which will be the design high water for the conveyance storm) must be at least 1.0 foot below the top of embankment.
- (c) If an emergency spillway is not included, the crest of the basin outlet riser must be at least 3 feet below the top of the embankment.
- (d) If an emergency spillway is not included, the elevation of the design high water for the conveyance storm must be 2.0 feet below the top of the embankment.

Step 8 Determine the peak rate of runoff for a 25-year storm.

Using SCS TR 55 Urban Hydrology for Small Watersheds or other methods, determine the peak rate of runoff expected from the drainage area of the basin for the conveyance storm. The "C" factor or "CN" value used in the runoff calculation should be derived from analysis of the contributing drainage area at the peak of land disturbance (condition which will create greatest peak runoff).

Step 9 Design the basin outlet.

- (a) If an emergency spillway is included, the basin outfall must at least pass the peak rate of runoff from the basin drainage area for the temporary control design storm (2-year, 24-hour).

Q_p = the 2-year peak rate of runoff.

- (b) If an emergency spillway is not included, the basin outfall must pass the peak rate of runoff from the basin drainage area for the conveyance storm (25-year, 24-hour).

Q_{25} = the 25-year peak rate of runoff.

- (c) Refer to Figure 3.23, where h is the difference between the elevation of the crest of the basin outlet riser and the elevation of the crest of the emergency spillway.
- (d) Enter Figure 3.24 with Q_p . Choose the smallest riser which will pass the required flow with the available head, h .
- (e) Refer to Figure 3.23, where H is the difference in elevation of the centerline of the outlet of the outfall and the crest of the emergency spillway. L is the length of the barrel through the embankment.
- (f) Enter Table 3.5 or Table 3.6 with H . Choose the smallest size outlet that will pass the flow provided by the riser. If L is other than 70 feet, make the necessary correction.
- (g) The basin riser shall consist of a solid (non-perforated), vertical pipe or box of corrugated metal joined by a watertight connection to a horizontal pipe (outfall) extending through the embankment and discharging beyond the downstream toe of the fill. Another approach is to utilize a perforated vertical riser section surrounded by filter stone.
- (h) The basin outfall, which extends through the embankment, shall be designed to carry the flow provided by the riser with the water level at the crest of the emergency spillway. The connection between the riser and the outfall must be watertight. The outlet of the outfall must be protected to prevent erosion or scour of downstream areas.
- (i) Weirs, skimmers and other types of outlets may be used if accompanied with appropriate calculations.

Step 10 Design the emergency spillway.

- (a) The emergency spillway must pass the remainder of the 25-year peak rate of runoff not carried by the basin outlet.
- (b) Compute: $Q_e = Q_{25} - Q_p$
- (c) Refer to Figure 3.25 and Table 3.7.
- (d) Determine approximate permissible values for b , the bottom width; s , the slope of the exit channel; and X , minimum length of the exit channel.
- (e) Enter Table 3.7 and choose the exit channel cross-section which passes the required flow and meets the other constraints of the site.
- (f) Notes:
 - 1. The maximum permissible velocity for vegetated waterways must be considered when designing an exit channel.
 - 2. For a given H_p , a decrease in the exit slope from S as given in the table decreases spillway discharge, but increasing the exit slope from S does not increase discharge. If an exit slope (S_e) steeper than S is used, then the exit should be considered an open channel and analyzed using the Manning's Equation.
 - 3. Data to the right of heavy vertical lines should be used with caution, as the resulting sections will be either poorly proportioned or have excessive velocities.
- (g) The emergency spillway should not be constructed over fill material.
- (h) The emergency spillway should be stabilized with rock riprap or temporary vegetation upon completion of the basin.

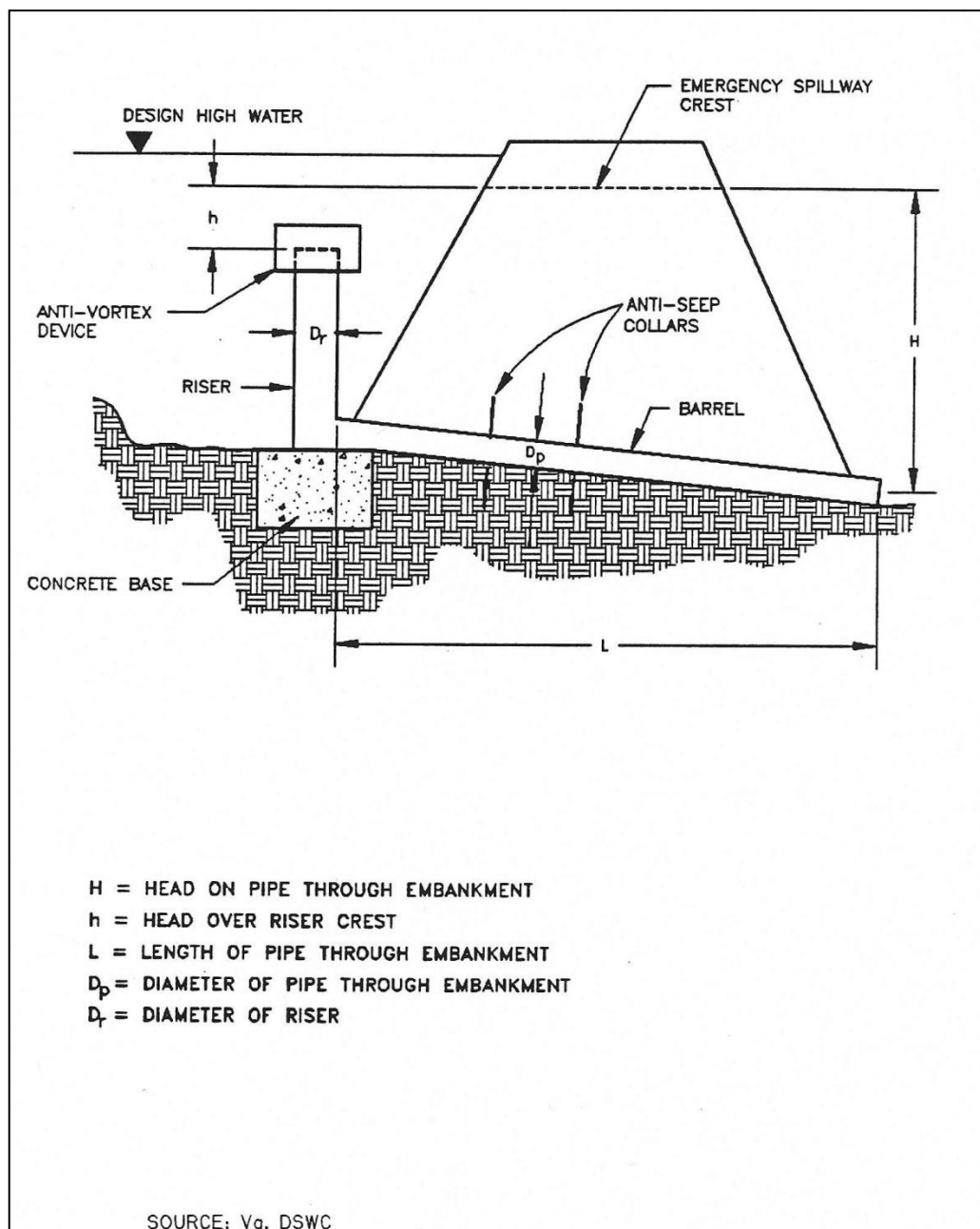


Figure 3.25 Example of Basin Outlet Design

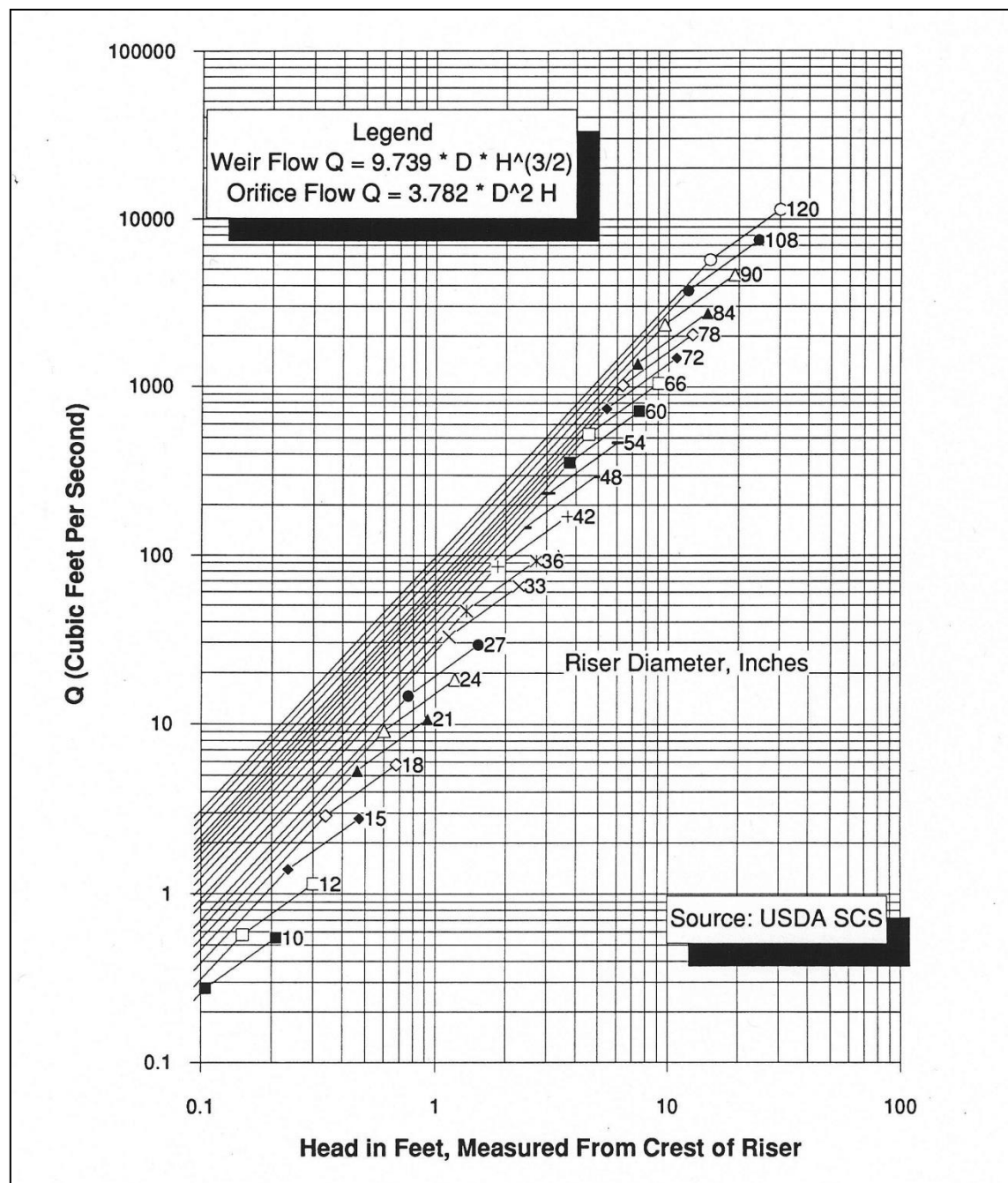


Figure 3.26 Riser Inflow Curves for Basin Outlet Design

Table 3.5 Pipe Flow Chart, $n=0.013$ For Reinforced Concrete Pipe Inlet $K_m = K_e + K_b = 0.65$ and 70 Feet of Reinforced Concrete Pipe Conduit (Full Flow Assumed)

Note: Correction Factors for pipe lengths other than 70 feet

Head (in feet)	Pipe Diameter in Inches														
	12	15	18	21	24	30	36	42	48	54	60	66	72	78	84
1	3.22	5.44	8.29	11.8	15.9	26	38.6	53.8	71.4	91.5	114	139	167	197	229
2	4.55	7.69	11.7	16.7	22.5	36.8	54.6	76	101	129	161	197	236	278	324
3	5.57	9.42	14.4	20.4	27.5	45	66.9	93.1	124	159	198	241	289	341	397
4	6.43	10.9	16.6	23.5	31.8	52	77.3	108	143	183	228	278	334	394	459
5	7.19	12.2	18.5	26.3	35.5	58.1	86.4	120	160	205	255	311	373	440	513
6	7.88	13.3	20.3	28.8	38.9	63.7	94.6	132	175	224	280	341	409	482	562
7	8.51	14.4	21.9	31.1	42	68.8	102	142	189	242	302	368	441	521	607
8	9.1	15.4	23.5	33.3	44.9	73.5	109	152	202	259	323	394	472	557	645
9	9.65	16.3	24.9	35.3	47.7	78	116	161	214	275	342	418	500	590	688
10	10.2	17.2	26.2	37.2	50.2	82.2	122	170	226	289	361	440	527	622	725
11	10.7	18	27.5	39	52.7	86.2	128	178	237	304	379	462	553	653	761
12	11.1	18.9	28.7	40.8	55	90.1	134	186	247	317	395	482	578	682	794
13	11.6	19.6	29.9	42.4	57.3	93.7	139	194	257	330	411	502	601	710	827
14	12	20.4	31	44.1	59.4	97.3	145	201	267	342	427	521	624	736	858
15	12.5	21.1	32.1	45.6	61.5	101	150	208	277	354	442	539	646	762	888
16	12.9	21.8	33.2	47.1	63.5	104	155	215	286	366	457	557	667	787	917
17	13.3	22.4	34.2	48.5	65.5	107	159	222	294	377	471	574	688	812	946
18	13.7	23.1	35.2	49.9	67.4	110	164	228	303	388	484	591	708	835	973
19	14	23.7	36.1	51.3	69.2	113	168	234	311	399	497	607	727	858	1000
20	14.4	24.3	37.1	52.6	71	116	173	240	319	409	510	623	746	880	1026
21	14.7	24.9	38	53.9	72.8	119	177	246	327	419	523	638	764	902	1051
22	15.1	25.5	38.9	55.2	74.5	122	181	252	335	429	535	653	782	923	1076
23	15.4	26.1	39.8	56.5	76.2	125	186	258	342	439	547	668	800	944	1100
24	15.8	26.7	40.6	57.7	77.8	127	189	263	350	448	559	682	817	964	1123
25	16.1	27.2	41.5	58.9	79.4	130	193	269	357	458	571	696	834	984	1147
26	16.4	27.7	42.3	60	81	133	197	274	364	467	582	710	850	1004	1169
27	16.7	28.3	43.1	61.2	82.5	135	201	279	371	476	593	723	867	1023	1192
28	17	28.8	43.9	62.3	84.1	138	204	285	378	484	604	737	883	1041	1214
29	17.3	29.3	44.7	63.4	85.5	140	208	290	384	493	615	750	898	1060	1235
30	17.6	29.8	45.4	64.5	87	142	212	294	391	501	625	763	913	1078	1256

Correction Factors for Other Pipe Lengths														
	20	30	40	50	60	70	80	90	100	110	120	130	140	150
20	1.3	1.24	1.21	1.18	1.15	1.12	1.1	1.08	1.07	1.06	1.05	1.04	1.03	1.03
30	1.22	1.18	1.15	1.13	1.12	1.09	1.08	1.06	1.05	1.05	1.04	1.04	1.03	1.02
40	1.15	1.13	1.11	1.1	1.08	1.07	1.05	1.04	1.03	1.03	1.03	1.02	1.02	1.02
50	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.02	1.02	1.01	1.01
60	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.01	1.01	1.01	1.01	1.01	1.01
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	0.96	0.97	0.97	0.97	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99
90	0.93	0.94	0.94	0.95	0.95	0.96	0.96	0.97	0.97	0.98	0.98	0.98	0.99	0.99
100	0.9	0.91	0.92	0.93	0.93	0.95	0.95	0.96	0.96	0.97	0.97	0.98	0.98	0.99
120	0.84	0.86	0.87	0.89	0.9	0.91	0.93	0.94	0.94	0.95	0.96	0.96	0.97	0.98
140	0.8	0.82	0.83	0.85	0.86	0.88	0.9	0.91	0.92	0.93	0.94	0.94	0.95	0.96
160	0.76	0.78	0.8	0.82	0.83	0.86	0.88	0.89	0.9	0.91	0.92	0.93	0.94	0.95

Source: USDA SCS

Table 3.6 Pipe Flow Chart, n=0.025

For Corrugated Metal Pipe Inlet Km = Ke + Kb =0.65 and 70 Feet of Corrugated Metal Pipe Conduit (Full Flow Assumed)																							
Note: Correction Factors for pipe lengths other than 70 feet																							
Head (in feet)	Pipe Diameter in Inches																				Correction Factors for Other Pipe Lengths		
	6	8	10	12	15	18	21	24	30	36	42	48	54	60	66	72	78	84	90	96			
1	0.33	0.7	1.25	1.98	3.48	5.47	7.99	11	18.8	28.8	41.1	55.7	72.6	91.8	113	137	163	191	222	255	290		
2	0.47	0.99	1.76	2.8	4.92	7.74	11.3	15.6	26.6	40.8	58.2	78.8	103	130	160	194	231	271	314	360	410		
3	0.58	1.22	2.16	3.43	6.02	9.48	13.8	19.1	32.6	49.9	71.2	96.5	126	159	196	237	282	331	384	441	502		
4	0.67	1.4	2.49	3.97	6.96	10.9	16	22.1	37.6	57.7	82.3	111	145	184	226	274	326	383	444	510	580		
5	0.74	1.57	2.79	4.43	7.78	12.2	17.9	24.7	42.1	64.5	92	125	162	205	253	306	365	428	496	570	648		
6	0.82	1.72	3.05	4.86	8.52	13.4	19.6	27	46.1	70.6	101	136	178	225	277	336	399	469	544	624	710		
7	0.88	1.86	3.3	5.25	9.2	14.5	21.1	29.2	49.8	76.3	109	147	192	243	300	362	431	506	587	674	767		
8	0.94	1.99	3.53	5.61	9.84	15.5	22.6	31.2	53.2	81.5	116	158	205	260	320	388	461	541	628	721	820		
9	1	2.11	3.74	5.95	10.4	16.4	24	33.1	56.4	86.5	123	167	218	275	340	411	489	574	666	764	870		
10	1.05	2.22	3.94	6.27	11	17.3	25.3	34.9	59.5	91.2	130	176	230	290	358	433	516	605	702	806	917		
11	1.1	2.33	4.13	6.58	11.5	18.2	26.5	36.6	62.4	95.6	136	185	241	304	376	454	541	635	736	845	962		
12	1.15	2.43	4.32	6.87	12.1	19	27.7	38.2	65.2	99.9	142	193	252	318	392	475	565	663	769	883	1004		
13	1.2	2.53	4.49	7.15	12.6	19.7	28.8	39.8	67.8	104	148	201	262	331	408	494	588	690	800	919	1045		
14	1.25	2.63	4.66	7.42	13	20.5	29.9	41.3	70.4	108	154	208	272	343	424	513	610	716	830	953	1085		
15	1.29	2.72	4.83	7.68	13.5	21.2	30.9	42.8	72.8	112	159	216	281	355	439	531	631	741	860	987	1123		
16	1.33	2.81	4.99	7.93	13.9	21.9	32	44.2	75.2	115	165	223	290	367	453	548	652	765	888	1019	1160		
17	1.37	2.9	5.14	8.18	14.3	22.6	32.9	45.5	77.5	119	170	230	300	378	467	565	672	789	915	1051	1195		
18	1.41	2.98	5.29	8.41	14.8	23.2	33.9	46.8	79.8	120	174	236	308	389	480	581	692	812	942	1081	1230		
19	1.45	3.06	5.43	8.64	15.2	23.9	34.8	48.1	82	126	179	243	316	400	494	597	711	834	967	1111	1264		
20	1.49	3.14	5.57	8.87	15.6	24.5	35.7	49.4	84.1	129	184	249	325	410	506	613	729	856	993	1139	1297		
21	1.53	3.22	5.71	9.09	15.9	25.1	36.6	50.6	86.2	132	188	255	333	421	519	628	747	877	1017	1168	1329		
22	1.56	3.29	5.85	9.3	16.3	25.7	37.5	51.8	88.2	135	193	261	341	430	531	643	765	898	1041	1195	1360		
23	1.6	3.37	5.98	9.51	16.7	26.2	38.3	53	90.2	138	197	267	348	440	543	657	782	918	1064	1222	1390		
24	1.63	3.44	6.11	9.72	17	26.8	39.1	54.1	92.1	141	201	273	356	450	555	671	799	937	1087	1248	1420		
25	1.66	3.51	6.23	9.92	17.4	27.4	39.9	55.2	94	144	206	279	363	459	566	685	815	957	1110	1274	1450		
26	1.7	3.58	6.36	10.1	17.7	27.9	40.7	56.3	95.9	147	210	284	370	468	577	699	831	976	1132	1299	1478		
27	1.73	3.65	6.48	10.3	18.1	28.4	41.5	57.4	97.7	150	214	290	377	477	588	712	847	994	1153	1324	1507		
28	1.76	3.72	6.6	10.5	18.4	29	42.3	58.4	99.5	153	218	295	384	486	599	725	863	1013	1174	1348	1534		
29	1.79	3.78	6.71	10.7	18.7	29.5	43	59.5	101	155	221	300	391	494	610	738	878	1030	1195	1372	1561		
30	1.82	3.85	6.83	10.9	19.1	30	43.7	60.5	103	158	225	305	398	503	620	750	893	1048	1216	1396	1588		
20	1.69	1.63	1.58	1.53	1.47	1.42	1.37	1.34	1.28	1.24	1.2	1.18	1.16	1.14	1.13	1.11	1.1	1.1	1.09	1.08	1.08		
30	1.44	1.41	1.39	1.36	1.32	1.29	1.27	1.24	1.21	1.18	1.15	1.13	1.12	1.11	1.1	1.09	1.08	1.07	1.07	1.06	1.06		
40	1.28	1.27	1.25	1.23	1.21	1.2	1.18	1.17	1.14	1.12	1.11	1.1	1.09	1.08	1.07	1.06	1.06	1.05	1.05	1.05	1.04		
50	1.16	1.16	1.15	1.14	1.13	1.12	1.11	1.1	1.09	1.08	1.07	1.06	1.06	1.05	1.05	1.04	1.04	1.04	1.03	1.03	1.03		
60	1.07	1.07	1.07	1.06	1.06	1.05	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.01		
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
80	0.94	0.94	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99		
90	0.89	0.89	0.9	0.9	0.91	0.91	0.92	0.92	0.93	0.94	0.94	0.95	0.95	0.96	0.96	0.96	0.97	0.97	0.97	0.97	0.97		
100	0.85	0.85	0.86	0.86	0.87	0.88	0.89	0.89	0.9	0.91	0.91	0.92	0.93	0.93	0.94	0.94	0.95	0.95	0.96	0.96	0.96		
120	0.78	0.79	0.79	0.8	0.81	0.82	0.83	0.83	0.85	0.86	0.87	0.88	0.89	0.89	0.9	0.91	0.91	0.92	0.93	0.93	0.94		
140	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.81	0.82	0.84	0.85	0.86	0.87	0.88	0.88	0.89	0.9	0.91	0.91	0.92		
160	0.68	0.69	0.69	0.7	0.71	0.73	0.74	0.75	0.77	0.79	0.8	0.82	0.85	0.86	0.87	0.88	0.89	0.9	0.91	0.91	0.92		

Source: USDA SCS

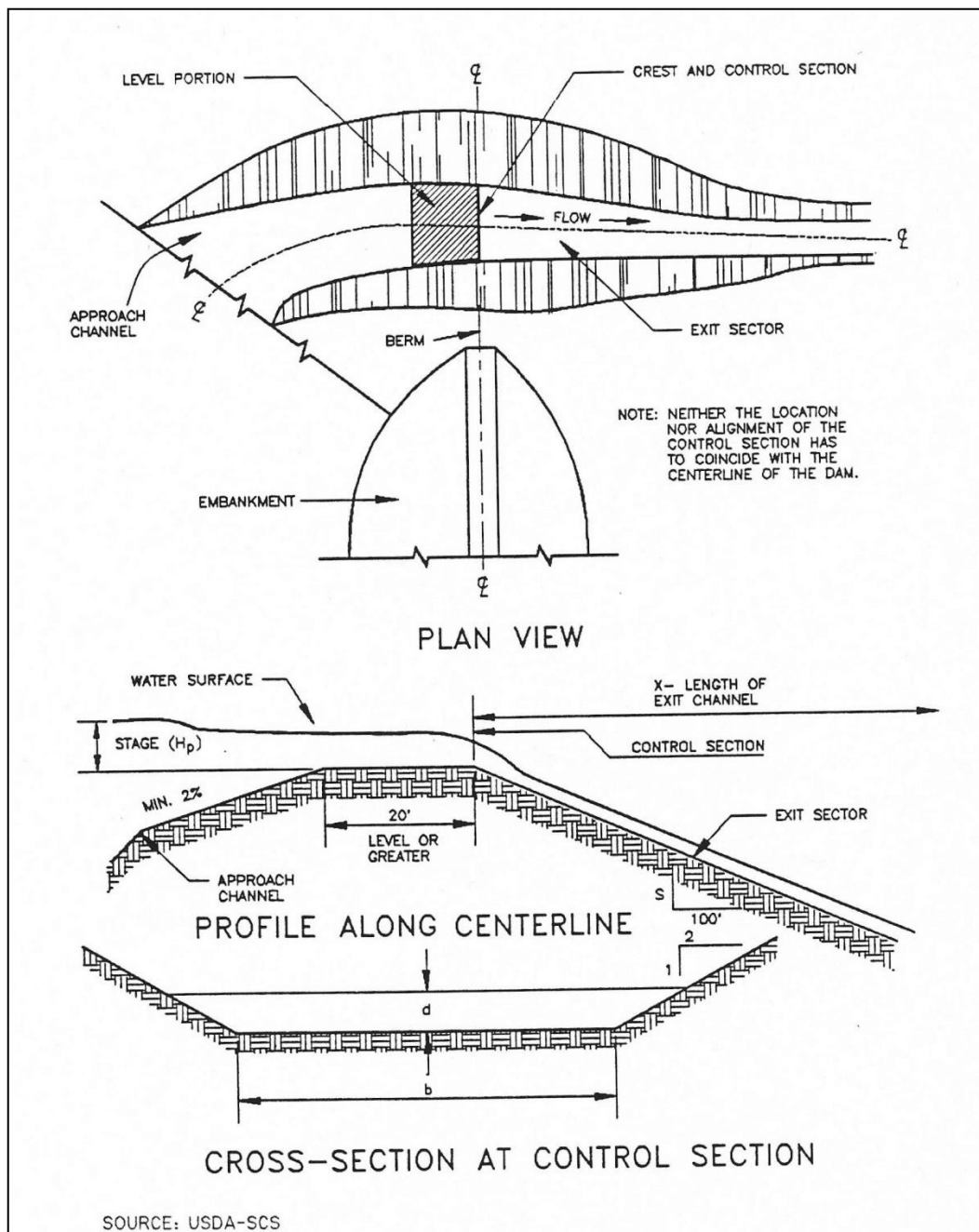


Figure 3.27 Example of Excavated Earth Spillway Design

Table 3.7 Design Data for Earth Spillways

Stage (Hp) In Feet	Spillway Variables	Bottom Width (b) in Feet																
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	Q	6	7	8	10	11	13	14	15	17	18	20	21	22	24	25	27	28
	V	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	S	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
	X	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
0.6	Q	8	10	12	14	16	18	20	22	24	26	28	30	32	34	35	37	39
	V	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	S	3.7	3.7	3.7	3.7	3.6	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
	X	36	36	36	36	36	36	37	37	37	37	37	37	37	37	37	37	37
0.7	Q	11	13	16	18	20	23	25	28	30	33	35	38	41	43	44	46	48
	V	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
	S	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
	X	39	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41
0.8	Q	13	16	19	22	26	29	32	35	38	42	45	46	48	51	54	57	60
	V	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
	S	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
	X	44	44	44	44	44	45	45	45	45	45	45	45	45	45	45	45	45
0.9	Q	17	20	24	28	32	35	39	43	47	51	53	57	60	64	68	71	75
	V	3.7	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
	S	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
	X	47	47	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49
1	Q	20	24	29	33	38	42	47	51	56	61	63	68	72	77	81	86	90
	V	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	S	3.1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	X	51	51	51	51	52	52	52	52	52	52	52	52	52	52	52	52	52
1.1	Q	23	28	34	39	44	49	54	60	65	70	74	79	84	89	95	100	105
	V	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	S	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	X	55	55	55	55	55	55	55	56	56	56	56	56	56	56	56	56	56
1.2	Q	28	33	40	45	51	58	64	69	76	80	86	92	98	104	110	116	122
	V	4.4	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	S	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	X	58	58	59	59	59	59	59	59	60	60	60	60	60	60	60	60	60
1.3	Q	32	38	46	53	58	65	73	80	86	91	99	106	112	119	125	133	140
	V	4.5	4.6	4.6	4.6	4.6	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
	S	2.8	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	X	62	62	62	63	63	63	63	63	63	63	63	64	64	64	64	64	64
1.4	Q	37	44	51	59	66	74	82	90	96	103	111	119	127	134	143	150	158
	V	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
	S	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
	X	65	66	66	66	66	67	67	67	67	67	67	68	68	68	68	68	69

Table 3.7 Design Data for Earth Spillways (continued)

Stage (Hp) In Feet	Spillway Variables	Bottom Width (b) In Feet																
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1.5	Q	41	50	58	66	75	85	92	101	108	116	125	133	142	150	160	169	178
	V	4.8	4.9	5	5	5	5	5	5	5	5	5	5	5	5	5.1	5.1	5.1
	S	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5
	X	69	69	70	70	71	71	71	71	71	71	71	72	72	72	72	72	72
1.6	Q	46	56	65	75	84	94	104	112	122	132	142	149	158	168	178	187	197
	V	5	5.1	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
	S	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	X	72	74	74	75	75	76	76	76	76	76	76	76	76	76	76	76	76
1.7	Q	52	62	72	83	94	105	115	126	135	145	156	167	175	187	196	206	217
	V	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
	S	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	X	76	78	79	80	80	80	80	80	80	80	80	80	80	80	80	80	80
1.8	Q	58	69	81	93	104	116	127	138	150	160	171	182	194	204	214	226	233
	V	5.3	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.6	5.6
	S	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	X	80	82	83	84	84	84	84	84	84	84	84	84	84	84	84	84	84
1.9	Q	64	76	88	102	114	127	140	152	164	175	188	201	213	225	235	248	260
	V	5.5	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
	S	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	X	84	85	86	87	88	88	88	88	88	88	88	88	88	88	88	88	88
2	Q	71	83	97	111	125	138	153	164	178	193	204	218	232	245	256	269	283
	V	5.6	5.7	5.7	5.7	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.9	5.9	5.9	5.9	5.9	5.9
	S	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	X	88	90	91	91	91	91	92	92	92	92	92	92	92	92	92	92	92
2.1	Q	77	91	107	122	135	149	162	177	192	207	220	234	250	267	276	291	305
	V	5.7	5.8	5.9	5.9	5.9	5.9	5.9	6	6	6	6	6	6	6	6	6	6
	S	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	X	92	93	95	95	95	95	95	95	95	96	96	96	96	96	96	96	96
2.2	Q	84	100	116	131	146	163	177	194	210	224	238	253	269	288	301	314	330
	V	5.9	5.9	6	6	6	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.2	6.2	6.2
	S	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	X	96	98	99	99	99	99	99	100	100	100	100	100	100	100	100	100	100
2.3	Q	90	108	124	140	158	175	193	208	226	243	258	275	292	306	323	341	354
	V	6	6.1	6.1	6.1	6.2	6.2	6.2	6.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
	S	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
	X	100	102	102	103	103	103	104	104	104	105	105	105	105	105	105	105	105
2.4	Q	99	116	136	152	170	189	206	224	241	260	275	294	312	327	346	364	378
	V	6.1	6.2	6.2	6.3	6.3	6.3	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
	S	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
	X	105	105	106	107	107	108	108	108	108	109	109	109	109	109	109	109	109

Source: USDA - SCS

Step 11 Re-estimate the elevation of the design high water and the top of the dam based upon the design of the basin outlet and the emergency spillway.

Step 12 Design the anti-vortex device and trash rack.

If an outfall riser is used, an anti-vortex device and trash rack shall be attached to the top of the basin riser to improve the flow of water into the outfall and prevent floating debris from being carried out of the basin.

This design procedure for the anti-vortex device and trash rack refers only to round riser pipes of corrugated metal. There are numerous ways to provide protection for concrete pipe; these include various hoods and grates and rebar configurations which should be a part of project-specific design and will frequently be a part of a permanent structure.

Refer to Figure 3.26 and Table 3.8. Choose cylinder size, support bars, and top requirements from Table 3.8 based on the diameter of the riser pipe.

Step 13 Design the anchoring for the basin outlet.

The basin outlet must be firmly anchored to prevent its floating.

If the riser is over 10 feet high, the forces acting on the spillway must be calculated. A method of anchoring the spillway which provides a safety factor of 1.25 must be used (downward forces = 1.25 x upward forces).

If the riser is 10 feet or less in height, choose one of the two methods in Figure 3.27 to anchor the basin outlet.

Determine the number and spacing of anti-seep collars for the outfall pipe through the embankment.

Step 14 Provide for dewatering.

(a) Use a modified version of the discharge equation for a vertical orifice and a basic equation for the area of a circular orifice.

Naming the variables:

A = flow area of orifice, in square feet

D = diameter of circular orifice, in inches

h = average driving head (maximum possible head measured from radius of orifice to crest of basin outlet divided by 2), in feet

Q = volumetric flow rate through orifice needed to achieve approximate 6-hour drawdown, cubic feet per second

S = total storage available in dry storage area, cubic feet

Q = S/21,600 seconds

(b) An alternative approach for dewatering is the use of a perforated riser (0.75" to 1" diameter holes spaced every 12 inch horizontally and 8 inch vertically) with 1½ inch to 2 inch filter stone stacked around the exterior.

Use S for basin and find Q. Then substitute in calculated Q and find A:

$$A = \frac{Q}{(0.6) \times (64.32 \times \frac{h}{2})} \quad (3.4)$$

Then, substitute in calculated A and find d:

$$d^* = 2 \times \frac{(\frac{A}{3.14})}{(3.14)} \quad (3.5)$$

Diameter of the dewatering orifice should never be less than 3 inches in order to help prevent clogging by soil or debris.

Flexible tubing should be at least 2 inches larger in diameter than the calculated orifice to promote improved flow characteristics.

Additional design guidance for orifices and perforated risers are in [Section 2.2.2 of the Hydraulics Technical Manual](#).

- (c) If a surface skimmer is used as the basin's primary outlet, it may also be used to dewater the basin. Orifice flowrates for the skimmer will be provided by the manufacturer.

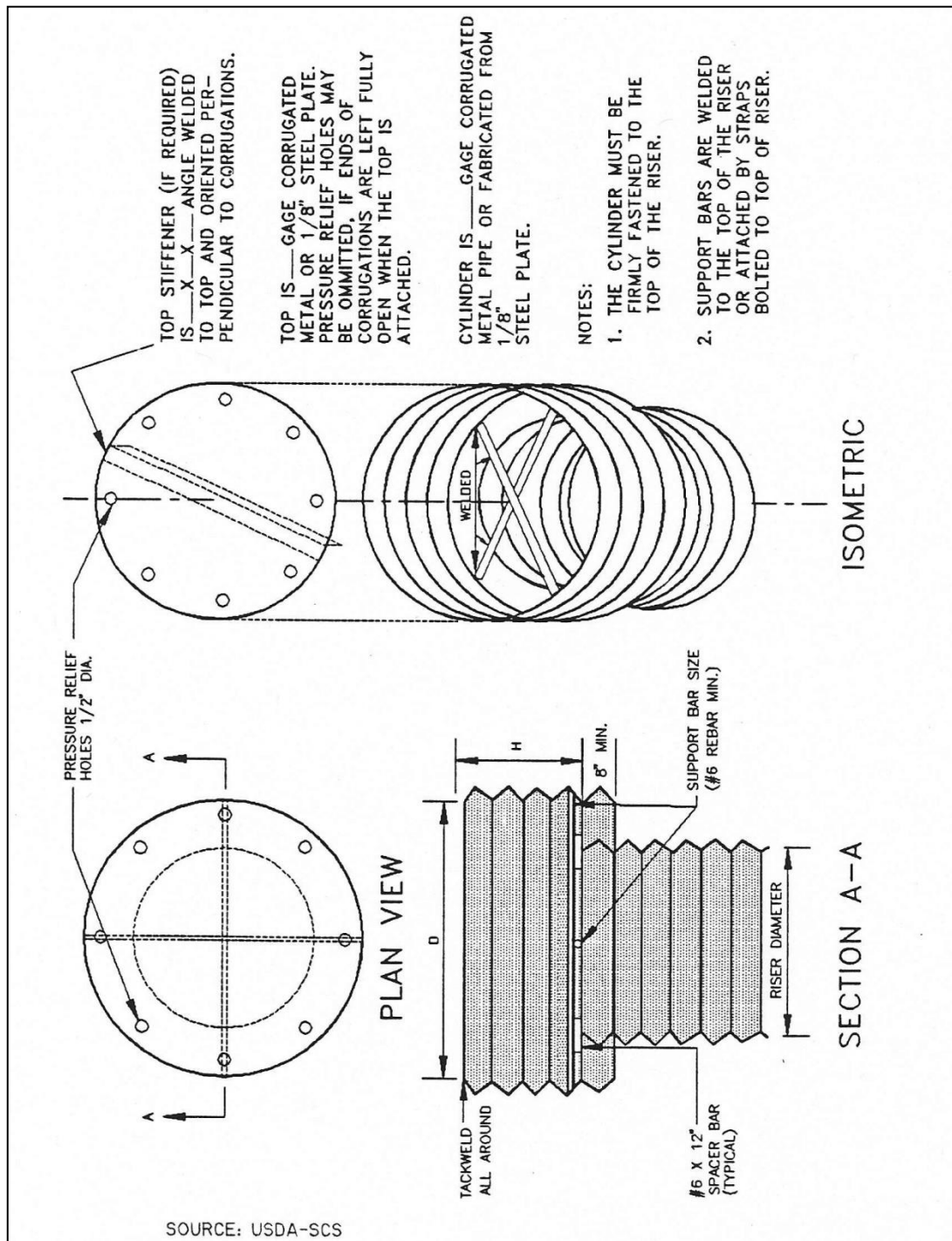


Figure 3.28 Example of Anti-Vortex Design for Corrugated Metal Pipe Riser

Table 3.8 Trash Rack and Anti-Vortex Device Design Table

Riser Diam., in.	Cylinder		Height inches	Minimum Size Support Bar	Minimum Top	
	Diameter inches	Thickness gage			Thickness	Stiffener
12	18	16	6	#6 Rebar or 1 ½ x 1 ½ x 3/16 angle	16 ga. (F&C)	-
15	21	16	7	" "	" "	-
18	27	16	8	" "	" "	-
21	30	16	11	" "	16 ga.(C), 14 ga.(F)	-
24	36	16	13	" "	" "	-
27	42	16	13	" "	" "	-
36	54	14	17	#8 Rebar	14 ga.(C), 12 ga.(F)	-
42	60	16	19	" "	" "	-
48	72	16	21	1 ½" pipe or 1 ½ x 1 ½ x ¼ angle	14 ga.(C), 10 ga.(F)	-
54	78	16	25	" "	" "	-
60	90	14	29	1 ½" pipe or 1 ½ x 1 ½ x ¼ angle	12 ga.(C), 8 ga.(F)	-
66	96	14	33	2" pipe or 2 x 2 x 3/16 angle	12 ga.(C), 8	2 x 2 x ¼ angle
72	102	14	36	" "	" "	2 ½ x 2 ½ x ¼ angle
78	114	14	39	2 ½" pipe or 2 ½ x ¼ angle	" "	" "
84	120	12	42	2 ½" pipe or 2 ½ x 2 ½ x ¼ angle	" "	2 ½ x 2 ½ x 5/16 angle
<p>Note₁: The criterion for sizing the cylinder is that the area between the inside of the cylinder and the outside of the riser is equal to or greater than the area inside the riser. Therefore, the above table is invalid for use with concrete pipe risers.</p> <p>Note₂: Corrugation for 12"-36" pipe measures 2 ¾ x ½"; for 42"-84" the corrugation measures 5" x 1" or 8" x 1".</p> <p>Note₃: C = corrugated; F = flat.</p>						

Source: Adapted from USDA-SCS and Carl M. Henshaw Drainage Products Information.

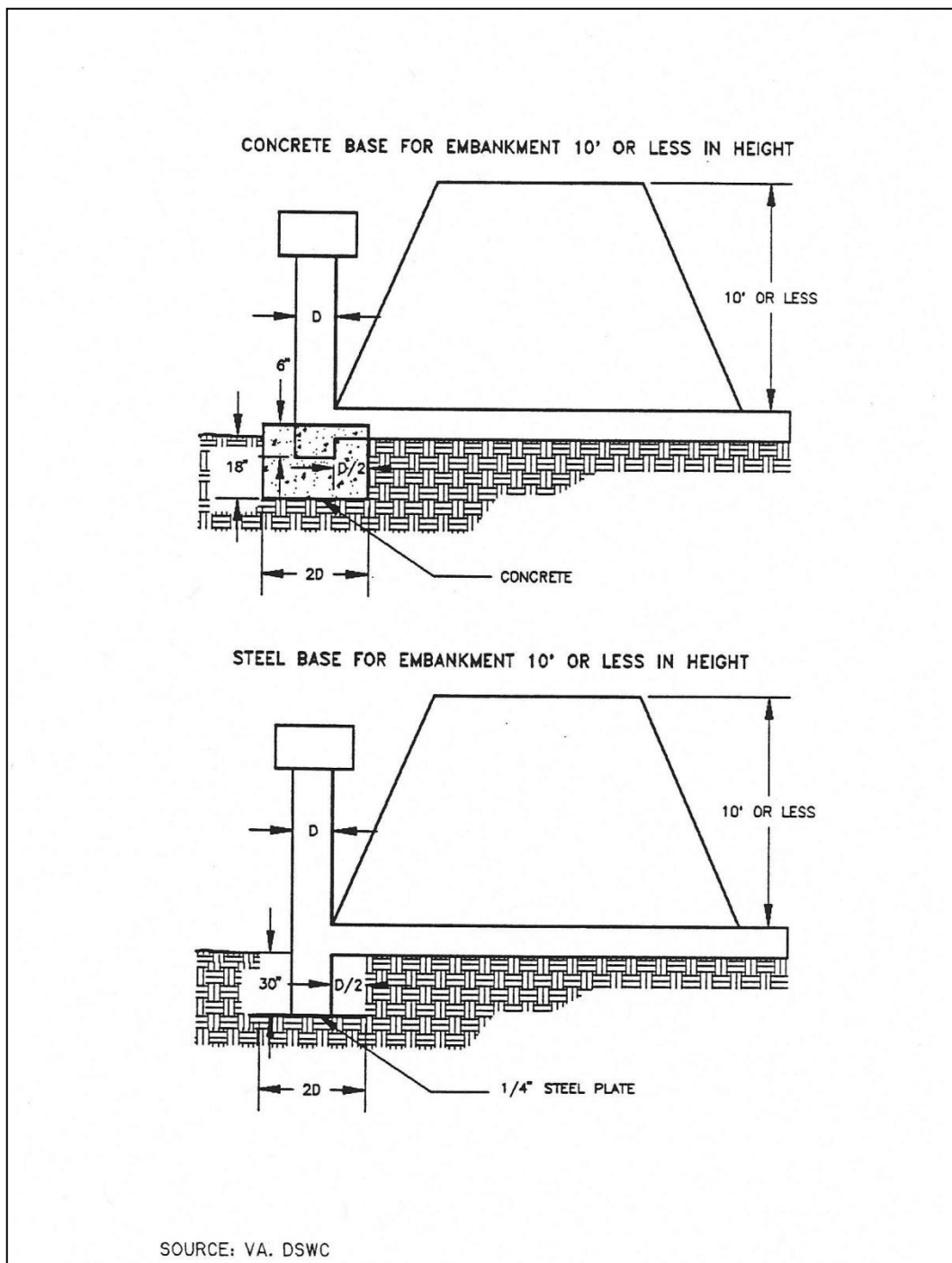


Figure 3.29 Riser Pipe Base Design for Embankment Less Than 10 Feet High

3.9.8 Design Form

Note: This design form is for basins designed with a riser as its primary outlet. It is provided as an example of the type of documentation required for a sediment basin. Different calculations will be needed for other types of outlets.

Project _____

Basin # _____ Location _____

Total area draining to basin: _____ acres.

Total disturbed area draining to basin: _____ acres.

Basin Volume Design

1. Minimum required volume is the lesser of

a.) $(3600 \text{ cu. ft.} \times \text{total drainage acres}) / 27 = \text{_____ cu. yds.}$

b.) 2 yr, 24 hr storm volume in cubic yards = _____ cu. yds.

2. Total available basin volume at crest of riser* = _____ cu. yds. at elevation _____.
(From Storage - Elevation Curve)

* Minimum = Lesser of 3600 cubic feet/acre of Total Drainage Area or
2yr. 24 hr. storm volume from Disturbed Area drained

3. Excavate _____ cu. yds. to obtain required volume*.

*Elevation corresponding to required volume = invert of the dewatering orifice.

4. Diameter of dewatering orifice = _____ in.

5. Diameter of flexible tubing = _____ in. (diameter of dewatering orifice plus 2 inches).

Preliminary Design Elevations

6. Crest of Riser = _____

Top of Dam = _____

Design High Water = _____

Upstream Toe of Dam = _____

Basin Shape

7. $\frac{\text{Length of Flow}}{\text{Effective Width}} = \frac{L}{We} = \underline{\hspace{2cm}}$

If > 2 , baffles are not required $\underline{\hspace{2cm}}$

If < 2 , baffles are required $\underline{\hspace{2cm}}$

Runoff

8. $Q_2 = \underline{\hspace{2cm}}$ cfs (From TR-55)

9. $Q_{25} = \underline{\hspace{2cm}}$ cfs (From TR-55)

Basin Outlet Design

10. With emergency spillway, required basin outlet capacity $Q_p = Q_2 = \underline{\hspace{2cm}}$ cfs.
(riser and outfall)

Without emergency spillway, required basin outlet capacity $Q_p = Q_{25} = \underline{\hspace{2cm}}$ cfs.
(riser and outfall)

11. With emergency spillway:

Assumed available head (h) = $\underline{\hspace{2cm}}$ ft. (Using Q_2)

$h = \text{Crest of Emergency Spillway Elevation} - \text{Crest of Riser Elevation}$

Without emergency spillway:

$h = \text{Design High Water Elevation} - \text{Crest of Riser Elevation}$

12. Riser diameter (D_r) = $\underline{\hspace{2cm}}$ in. Actual head (h) = $\underline{\hspace{2cm}}$ ft.

(Figure 3.23)

Note: Avoid orifice flow conditions.

13. Barrel length (l) = $\underline{\hspace{2cm}}$ ft.

Head (H) on outfall through embankment = $\underline{\hspace{2cm}}$ ft.

(Figure 3.24)

14. Barrel Diameter = $\underline{\hspace{2cm}}$ in.

(From Table 3.5 [concrete pipe] or Table 3.6 [corrugated pipe]).

15. Trash rack and anti-vortex device

Diameter = _____ inches.

Height = _____ inches.

(From Table 3.8).

Emergency Spillway Design16. Required spillway capacity $Q_e = Q_{25} - Q_p =$ _____ cfs.

17. Bottom width (b) = _____ ft.; the slope of the exit channel(s) = _____ ft./foot; and the minimum length of the exit channel (x) = _____ ft.
(From Figure 3.25 and Table 3.7).

Final Design Elevations

18. Top of Dam = _____

Design High Water = _____

Emergency Spillway Crest = _____

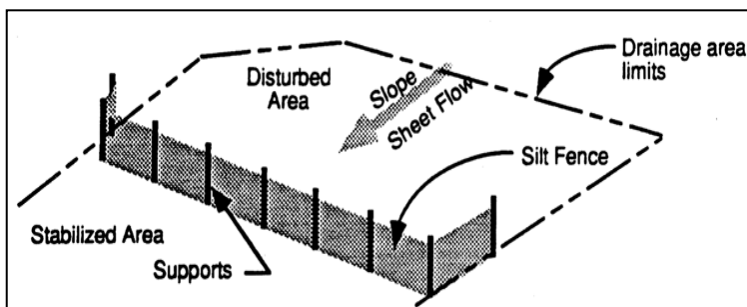
Basin Riser Crest = _____

Dewatering Orifice Invert = _____

Elevation of Upstream Toe of Dam
(if excavation was performed) = _____

3.10 Silt Fence

Sediment Control



Description: A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between metal posts with the lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Maximum drainage area of 0.25 acre per 100 linear feet of silt fence
- Maximum 200 feet distance of flow to silt fence; 50 feet if slope exceeds 10 percent
- Minimum fabric overlap of 3 feet at abutting ends; join fabric to prevent leakage
- Turn end of silt fence line upslope a minimum of 10 feet
- Install stone overflow structure at low points or spaced at approximately 300 feet if no apparent low point

ADVANTAGES / BENEFITS:

- Economical means to treat sheet flow
- Most effective with coarse to silty soil types

DISADVANTAGES / LIMITATIONS:

- Limited effectiveness with clay soils due to clogging
- Localized flooding due to minor ponding at the upslope side of the silt fence
- Not for use as check dams in swales or low areas subject to concentrated flow
- Not for use where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches
- Can fail structurally under heavy storm flows, creating maintenance problems and reducing effectiveness

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Repair undercutting, sags and other fence failures
- Remove sediment before it reaches half the height of the fence
- Repair or replace damaged or clogged filter fabric

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.50-0.75

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- *Effects of ponding or the redirection of flow onto adjacent areas and property*

3.10.1 Primary Use

Silt fence is normally used as a perimeter control on the down slope side of disturbed areas and on side slopes where stormwater may runoff the area. It is only feasible for non-concentrated, sheet flow conditions. If it becomes necessary to place a silt fence where concentrated flows may occur (e.g. where two silt fences join at an angle, or across minor channels or gullies), it will be necessary to reinforce the silt fence at that area by a rock berm or sand bag berm, or other structural measures that will support the silt fence.

3.10.2 Applications

Silt fence is an economical means to treat overland, non-concentrated flows for all types of projects. Silt fences are used as perimeter control devices for both site developers and linear (roadway) type projects. They are most effective with coarse to silty soil types. Due to the potential of clogging and limited effectiveness, silt fences should be used with caution in areas that have predominantly clay soil types. In this latter instance, a soils engineer or soil scientist should confirm the suitability of silt fence for that application. Additional controls may be needed to remove fine silts and clay soils suspended in stormwater.

3.10.3 Design Criteria

- Fences are to be constructed along a line of constant elevation (along a contour line) where possible.
- Silt fence can interfere with construction operations; therefore, planning of access routes onto the site is critical.
- Maximum drainage area shall be 0.25 acre per 100 linear feet of silt fence.
- Maximum flow to any 20 foot section of silt fence shall be 1 CFS.
- Maximum distance of flow to silt fence shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- Maximum slope adjacent to the fence shall be 2:1.
- Silt fences shall not be used where there is a concentration of water in a channel, drainage ditch or swale, nor should it be used as a control on a pipe outfall.
- If 50 percent or less soil, by weight, passes the U.S. Standard Sieve No. 200; select the apparent opening size (A.O.S.) to retain 85percent of the soil.
- If 85 percent or more of soil by weight, passes the U.S. Standard Sieve No. 200, silt fences shall not be used unless the soil mass is evaluated and deemed suitable by a soil scientist or geotechnical engineer concerning the erodibility of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.
- Stone overflow structures or other outlet control devices shall be installed at all low points along the fence or spaced at approximately 300 feet if there is no apparent low point.
- Filter stone for overflow structure shall be 1 ½ inches washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- Silt fence fabric must meet the following minimum criteria:
 - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 90-lbs.
 - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 60-lbs.
 - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 280-psi.

- Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 30(max) to No. 100 (min).
- Ultraviolet Resistance, ASTM D4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus, Minimum 70 percent.
- Fence posts shall be steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum. Wood posts may be used depending on anticipated length of service and provided they are 4 feet in length minimum and have a nominal cross section of 2 inches by 4 inches for pine or 2 inches by 2 inches for hardwoods.
- Silt fence shall be supported by steel wire fence fabric as follows:
 - 4 inch x 4 inch mesh size, W1.4 /1.4, minimum 14 gauge wire fence fabric;
 - Hog wire, 12 gauge wire, small openings installed at bottom of silt fence;
 - Standard 2 inch x 2 inch chain link fence fabric; or
 - Other welded or woven steel fabrics consisting of equal or smaller spacing as that listed herein and appropriate gauge wire to provide support.
- Silt Fence shall consist of synthetic fabric supported by wire mesh and steel posts set a minimum of 1-foot depth and spaced not more than 6-feet on center.
- A 6 inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel to prevent bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3 feet and shall be joined such that no leakage or bypass occurs. If soil conditions prevent a minimum toe-in depth of 6 inches or installation of support post to depth of 12 inches, silt fences shall not be used.
- Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence.
- The last 10 feet (or more) at the ends of a line of silt fence shall be turned upslope to prevent bypass of stormwater. Additional upslope runs of silt fence may be needed every 200 to 400 linear feet, depending on the traverse slope along the line of silt fence.

3.10.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.5 Silt Fence and in the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDot 2004) Item 506.2.J and Item 506.4.C.9.

The American Society for Testing and Materials has established standard specifications for silt fence materials (ASTM D6461) and silt fence installation (ASTM D6462).

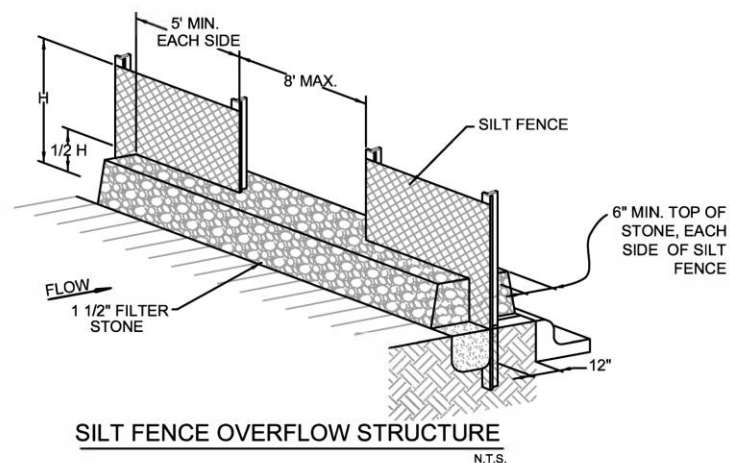
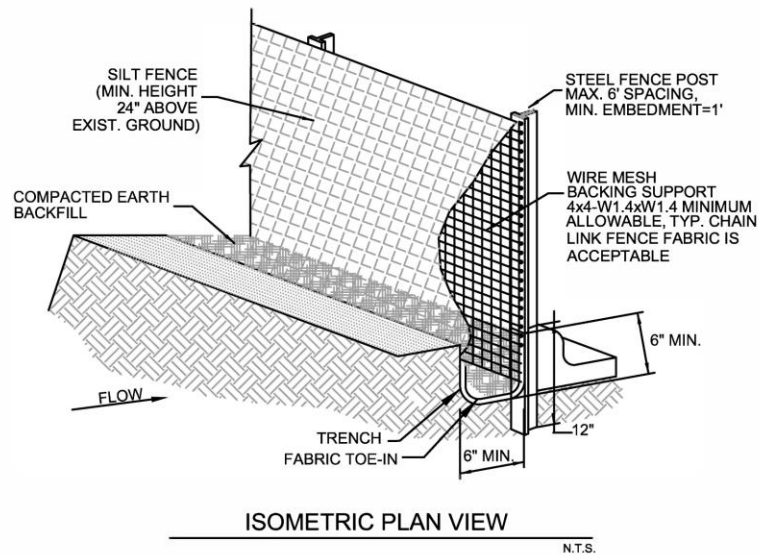
3.10.5 Inspection and Maintenance Requirements

Silt fence should be inspected regularly (at least as often as required by the TPDES Construction General Permit) for buildup of excess sediment, undercutting, sags, and other failures. Sediment should be removed before it reaches half the height of the fence. In addition, determine the source of excess sediment and implement appropriate measures to control the erosion. Damaged or clogged fabric must be repaired or replaced as necessary.

3.10.6 *Example Schematics*

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



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Figure 3.30 Schematics of Silt Fence

SILT FENCE GENERAL NOTES:

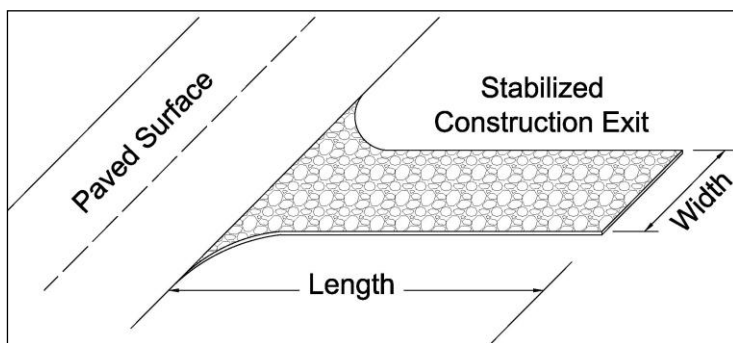
1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL LOW POINTS AND AT A SPACING OF APPROXIMATELY 300 FEET WHERE NO LOW POINT IS APPARENT.
2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE AT THE ENDS. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.
3. POST WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
4. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
5. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
6. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
7. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
8. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
9. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
10. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.5

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Figure 3.31 Silt Fence General Notes

3.11 Stabilized Construction Exit

Sediment Control



Description: A stabilized construction exit is a pad of crushed stone, recycled concrete or other rock material placed on geotextile filter cloth to dislodge soil and other debris from construction equipment and vehicle tires prior to exiting the construction site. The object is to minimize the tracking of soil onto public roadways where it will be suspended by stormwater runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Slope exit away from offsite paved surface
- Minimum width and length dependent on size of disturbed area, which correlates to traffic volume
- 6 inches minimum thickness of stone layer
- Stone of 3 to 5 inches in size
- Add a wheel cleaning system when inspections reveal the stabilized exit does not prevent tracking

ADVANTAGES / BENEFITS:

- Reduces tracking of soil onto public streets
- Directs traffic to a controlled access point
- Protects other sediment controls by limiting the area disturbed

DISADVANTAGES / LIMITATIONS:

- Effectiveness dependent on limiting ingress and egress to the stabilized exit
- A wheel washing system may also be required to remove clay soil from tires, particularly in wet conditions

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Replace rock when sediment in the void area between the rocks is visible on the surface
- Periodically re-grade and top dress with additional stone to maintain efficiency

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=N/A

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- None

3.11.1 Primary Use

Stabilized construction exits are used to remove soil, mud and other matter from vehicles that drive off of a construction site onto public streets. Stabilized exits reduce the need to remove sediment from streets. When used properly, they also control traffic by directing vehicles a single (or two for larger sites) location. Controlling traffic onto and off of the site reduces the number and quantity of disturbed areas and provides protection for other sediment controls by decreasing the potential for vehicles to drive over the control.

3.11.2 Applications

Stabilized construction exits are used on all construction sites with a disturbed area of one acre or larger and are a recommended practice for smaller construction sites. A stabilized exit is used on individual residential lots until the driveway is placed. Stabilized construction exits may be used in conjunction with wheel cleaning systems as described in [Section 3.16 Wheel Cleaning Systems](#).

3.11.3 Design Criteria

- Limit site access to one route during construction, if possible; two routes for linear and larger projects.
- Prevent traffic from avoiding or shortcutting the full length of the construction exit by installing barriers. Barriers may consist of silt fence, construction safety fencing, or similar barriers.
- Design the access point(s) to be at the upslope side of the construction site. Do not place construction access at the lowest point on the construction site.
- Stabilized construction exits are to be constructed such that drainage across the exit is directed to a controlled, stabilized outlet onsite with provisions for storage, proper filtration, and removal of wash water.
- The exit must be sloped away from the paved surface so that stormwater from the site does not discharge through the exit onto roadways.
- Minimum width of exit shall be 15 feet.
- The construction exit material shall be a minimum thickness of 6 inches. The stone or recycled concrete used shall be 3 to 5 inches in size with little or no fines.
- The geotextile fabric must meet the following minimum criteria:
 - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 300 lbs.
 - Puncture Strength, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 120 lbs.
 - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 600 psi.
 - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 40 (max).
- Rock by itself may not be sufficient to remove clay soils from wheels, particularly in wet conditions. When necessary, vehicles must be cleaned to remove sediment prior to entering paved roads, streets, or parking lots. Refer to [Section 3.16 Wheel Cleaning Systems](#) for additional controls.
- Using water to wash sediment from streets is prohibited
- Minimum dimensions for the stabilized exit shall be as follows:

Table 3.9 Minimum Exit Dimensions		
<i>Disturbed Area</i>	<i>Min. Width of Exit</i>	<i>Min. Length of Exit</i>
< 1 Acre	15 feet	20 feet
≥ 1 Acre but < 5 Acres	25 feet	50 feet
≥ 5 Acres	30 feet	50 feet

- If a wheel cleaning system is used, the width of the stabilized exit may be reduced to funnel traffic into the system. Refer to [Section 3.16 Wheel Cleaning](#).

3.11.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.10 Stabilized Construction Entrance and in the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDOT 2004) Item 506.2.E and Item 506.4.C.5.

3.11.5 Inspection and Maintenance Requirements

Construction exits should be inspected regularly (at least as often as required by the TPDES Construction General Permit). The stabilized construction exit shall be maintained in a condition that prevents tracking or flow of sediment onto paved surfaces. Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the exit from diminishing. The rock shall be re-graded when ruts appear. Additional rock shall be added when soil is showing through the rock surface.

Additional controls are needed if inspections reveal a properly installed and maintained exit, but tracking of soil outside the construction area is still evident. Additional controls may be daily sweeping of all soil spilled, dropped, or tracked onto public rights-of-way or the installation of a wheel cleaning system.

3.11.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

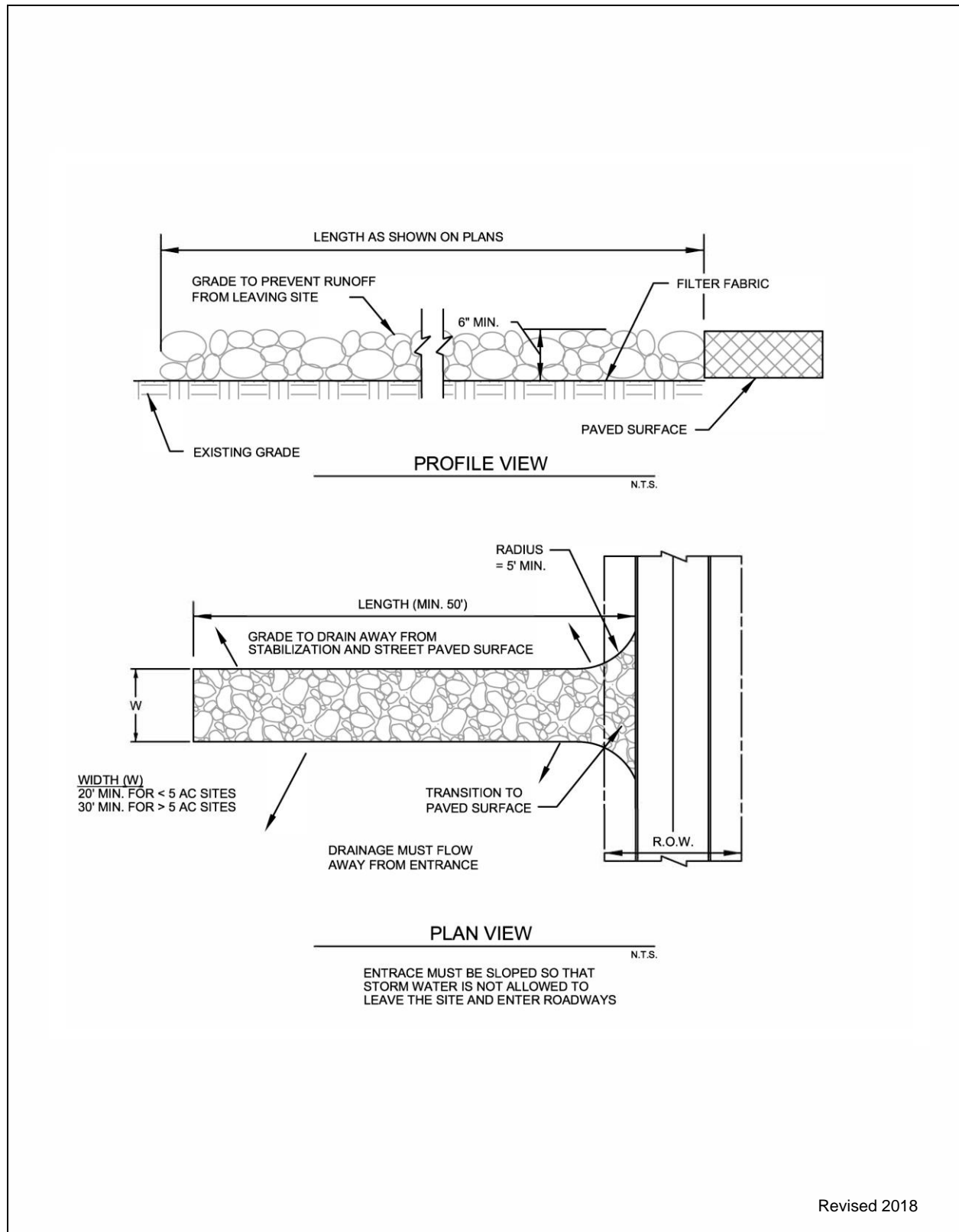


Figure 3.32 Schematics of Stabilized Construction Exit

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

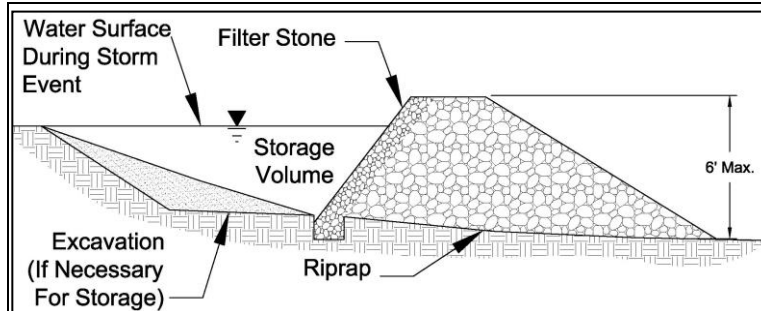
1. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.11
2. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.
3. STONE SHALL BE 3 TO 5 INCH DIAMETER COURSE AGGREGATE, NO CRUSHED PORTLAND CEMENT CONCRETE ALLOWED.
4. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 50 FEET.
5. THE WIDTH SHALL BE NO LESS THAN 20' FOR SITES LESS THAN 5 AC, AND 30' FOR SITES GREATER THAN 5 AC, AT ALL POINTS OF INGRESS OR EGRESS.
6. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
8. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
9. INSPECTION SHALL BE SPECIFIED IN THE SWPPP.

Revised 2018

Figure 3.33 Stabilized Construction Entrance General Notes

3.12 Stone Outlet Sediment Trap

Sediment Control



Description: A stone outlet sediment trap is a small detention area formed by placing a stone embankment with an integral stone filter outlet across a drainage swale for the purpose of detaining sediment-laden runoff from construction activities. The sediment trap detains runoff long enough to allow most of the suspended sediment to settle while still allowing for diffused flow of runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Maximum contributing drainage area of 10 acres for excavated trap and 5 acres for bermed trap
- Provide storage volume for the 2-year, 24-hour design storm
- Maximum embankment height of 6 feet
- Embankment slope of 1.5:1 or flatter
- 2 foot minimum top width

ADVANTAGES / BENEFITS:

- Effectively traps sediment in a drainage swale
- Reduces flow velocities
- Relatively long effective life

DISADVANTAGES / LIMITATIONS:

- Amount of land required
- Can cause minor upstream flooding, possibly impacting construction operations
- Not for use in "live" (normally flowing) channels

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Replace filter stone when it appears to be silted in such that efficiency is diminished
- Remove trash and debris after each storm event
- Remove deposited sediment when before the storage capacity is reduced by one third or has reached a depth of one foot, whichever is less

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.50-0.85

(Depends on soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- *Re-grading and stabilization of the control area after construction*

3.12.1 Primary Use

A sediment trap is used where flows are concentrated in a drainage swale or channel. The sediment trap detains and temporarily impounds stormwater, which allows for settling of sediment as the water is slowly discharged from the trap. Sediment traps may be used in combination with check dams when erosive velocities exist in the swale upstream of the sediment trap.

3.12.2 Applications

Temporary stone outlet sediment traps are installed at locations where concentrated flows require a protected outlet to contain sediment or spread flow prior to discharge. They are an effective, long term (12 – 18 months) application for sediment control on large construction sites where a sediment basin is not feasible due to site or construction method restrictions. Several traps may be used to control sediment on drainage sub-basins within the construction site, instead of one large sediment basin at the discharge point from the entire construction site. Sediment traps may also be used with a passive treatment system to provide better removal of fine silt and clay soil particles.

3.12.3 Design Criteria

- Design calculations are required for the use of this control. The designer shall provide drainage computations and dimensions for the stone outlet, berms, and excavated areas associated with this control.
- The maximum drainage area contributing to the trap shall be less than 10 acres for the excavated stone outlet sediment trap and 5 acres or less for the bermed trap.
- The minimum storage volume shall be the volume of runoff from the temporary control design storm (2-year, 24 hour) for the sediment trap's drainage area.
- The surface area of the design storage area shall not be less than 1 percent of the area draining to the device.
- The maximum height of the rock shall be 6 feet, as measured from the toe of the slope on the downstream side to the low point in the rock dam.
- Minimum width of the rock dam at the top shall be 2 feet.
- Rock dam slope shall be 1.5:1 or flatter.
- The rock dam shall have a depressed area, over the center of swale, to serve as the outlet with a minimum width of 4 feet.
- A six inch minimum thickness layer of 1½ inch filter stone shall be placed on the upstream face of the stone embankment when the stormwater runoff contains fine silt and clay soil particles.
- The embankment shall be comprised of well graded stone with a size range of 6 to 12 inches in diameter. The stone may be enclosed in wire mesh or gabion basket and anchored to the channel bottom to prevent washing away.
- The dam shall consist of stone riprap or a combination of compacted fill with a stone riprap outlet.
- Fill placed to constrict the swale for construction of the excavated stone outlet sediment trap and fill placed for the berm in the bermed stone outlet sediment trap shall consist of clay material, minimum Plasticity Index of 30, using ASTM D4318 Standard Test for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- Fill shall be placed in 8 inch loose lifts (maximum) and compacted to 95% Standard Proctor Density at optimum moisture content using ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
- The outlet shall be designed to have a minimum freeboard of 6" at design flow.

- Rock shall be placed on geotextilefilter fabric meeting the following minimum criteria:
 - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 250-lbs.
 - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 135-lbs.
 - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 420-psi.
 - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max).
- The geotextile fabric, covered with a layer of stone, shall extend past the base of the embankment on the downstream side a minimum of 2 feet.

3.12.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.12 Stone Outlet Sediment Trap.

3.12.5 Inspection and Maintenance Requirements

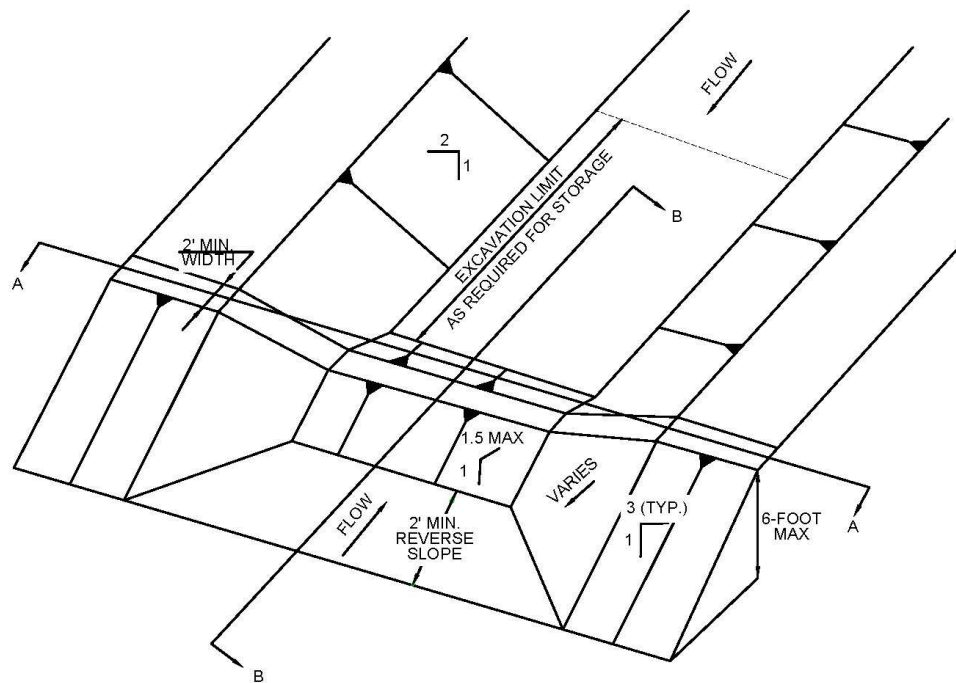
The stone outlet sediment trap should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to check for clogging of the void spaces between stones. If the filter stone appears to be clogged, such that the basin will not completely drain, then the filter stone will require maintenance. If the filter stone is not completely clogged it may be raked with a garden rake to allow the water to release from the basin. If filter stone is completely clogged with mud and sediment, then the filter stone will have to be removed and replaced. Failure to keep the filter stone material properly maintained will lead to clogging of the stone riprap embankment. When this occurs, the entire stone rip-rap structure will need to be replaced. If the aggregate appears to be silted in such that efficiency is diminished, the stone should be replaced.

Trash and debris should be removed from the trap after each storm event to prevent it from plugging the rock. Deposited sediment shall be removed before the storage capacity is decreased by one-third, or sediment has reached a depth of one foot, whichever is less. The removed sediment shall be stockpiled or redistributed in areas that are protected with erosion and sediment controls.

3.12.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



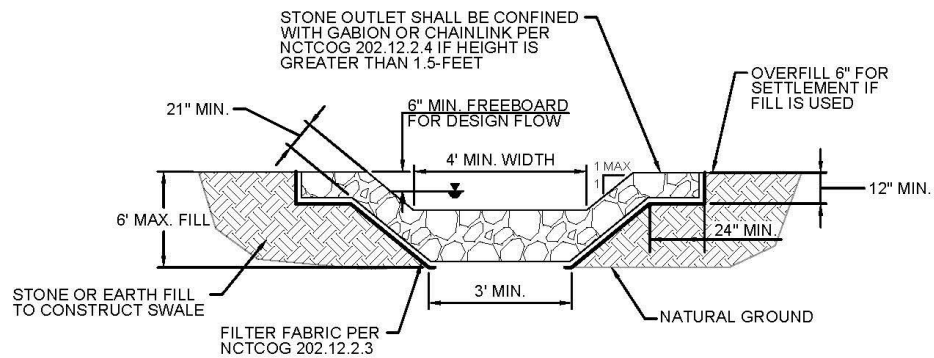
EXCAVATED STONE OUTLET SEDIMENT TRAP ISOMETRIC VIEW

NOTE: ACTUAL DIMENSIONS OF THE SEDIMENT TRAP SHALL BE DESIGNED BASED ON FLOW CONDITIONS AND SITE TOPOGRAPHY. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETER USED TO DESIGN THE TRAP.

- SIZE OF CONTRIBUTING DRAINAGE AREA
- DESIGN STORM VOLUME AND FLOW RATE AT THE TRAP
- HEIGHT, SLOPE, AND LENGTH OF STONE OUTLET
- STORAGE VOLUME
- EXTENT OF GRADING TO PROVIDE THE CONTROLLED OUTLET

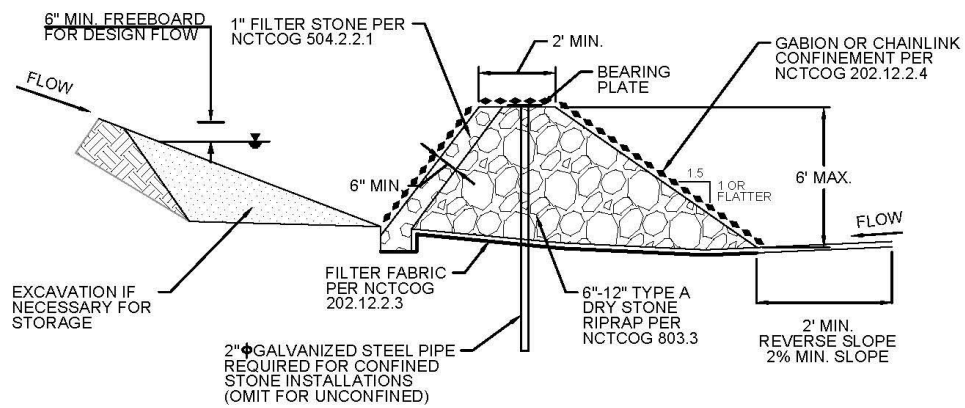
Revised 2019

Figure 3.34 Schematics of Excavated Stone Outlet Sediment Trap



EXCAVATED STONE OUTLET SEDIMENT TRAP VIEW LOOKING UPSTREAM (A-A)

N.T.S.

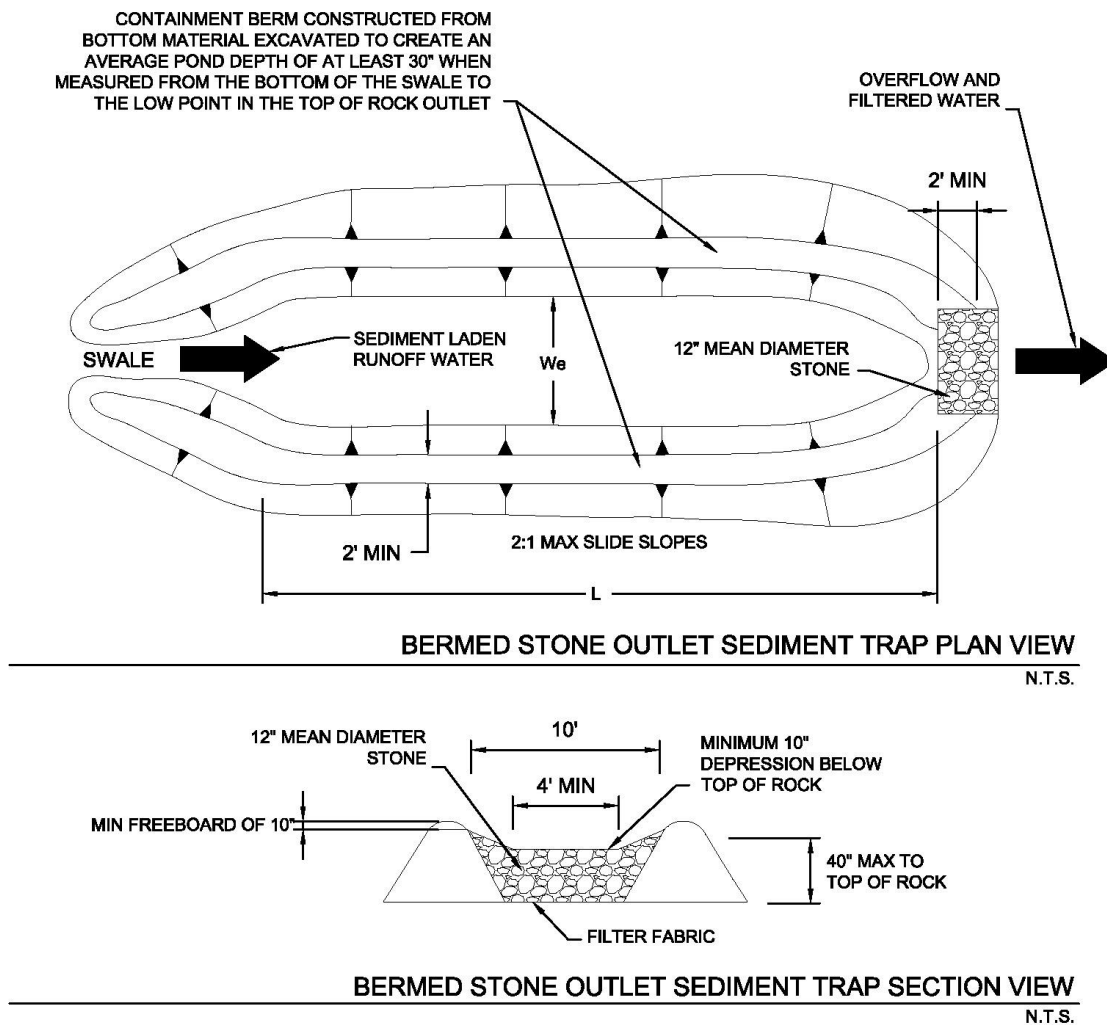


EXCAVATED STONE OUTLET SEDIMENT TRAP SECTION VIEW (B-B)

N.T.S.

Revised 2019

Figure 3.35 Schematics of Excavated Stone Outlet Sediment Trap



NOTE: ACTUAL DIMENSIONS OF THE SEDIMENT TRAP SHALL BE DESIGNED BASED ON FLOW CONDITIONS AND SITE TOPOGRAPHY. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETER USED TO DESIGN THE TRAP.

- SIZE OF CONTRIBUTING DRAINAGE AREA
- DESIGN STORM VOLUME AND FLOW RATE AT THE TRAP
- HEIGHT, SLOPE, AND LENGTH OF STONE OUTLET
- STORAGE VOLUME
- EXTENT OF GRADING TO PROVIDE THE CONTROLLED OUTLET

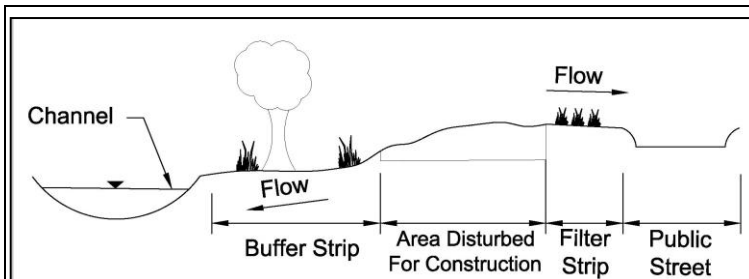
TRIBUTARY AREA (ACRES)	L (FT)	W_e (FT)
< 0.5	59	13
0.51-1.0	82	16
1.01-1.5	102	20
1.51-2.0	118	23
2.01-2.5	131	26
2.51-3.0	144	30
3.01-3.5	154	30
3.51-4.0	167	33
4.01-4.5	177	36
4.51-5.0	187	36

Figure 3.36 Schematics of Bermed Stone Outlet Sediment Trap

(Source: City of Chesterfield Department of Public Works Detail SC 7.2)

3.15 Vegetated Filter Strips and Buffers

Sediment Control



Description: Buffer strips (existing vegetation) and filter strips (planted vegetation) are sections of vegetated land adjacent to disturbed areas. They are designed with low slopes to convey sheet flow runoff from disturbed areas, resulting in the removal of sediment and other pollutants as the runoff passes through vegetation and infiltration occurs.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Minimum width (direction of flow across the vegetation) dependent on slope of disturbed area
- Maximum ratio of disturbed area to vegetated area dependent on slope
- Existing vegetation must meet criteria for type and coverage
- Dense grass required for planted vegetation
- Demarcate limits of vegetation and protect from traffic

ADVANTAGES / BENEFITS:

- Effective secondary control for removing clay particles
- Disperses flow and slows velocities to decrease erosion potential in receiving water
- Preserves the character of existing riparian corridor
- May become part of the permanent stormwater controls

DISADVANTAGES / LIMITATIONS:

- Appropriate as a primary control only for drainage areas of 2 acres or less and under certain site conditions
- Maximum 150 feet of flow to vegetated strip or buffer is used as a primary control
- Cannot treat large volumes or concentrated flows
- Not effective as a perimeter control when the perimeter cuts across contours instead of following contours
- Must limit access to vegetated portion of the site

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Rake accumulations of sediment from the vegetation
- Repair bare areas

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.35-0.85

(Depends on many conditions in addition to soil type)

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- *Coordination with final landscaping*

3.15.1 Primary Use

Vegetated filter strips and buffers are used to reduce the velocity of sheet flow and reduce the volume of runoff through infiltration. In the process, sediment is removed as the runoff is filtered through the vegetation and infiltration occurs.

Vegetated filter strips and buffers are frequently used as a secondary sediment control, since their performance is highly variable. They may be used as a primary sediment control only for small areas and under select site conditions.

3.15.2 Applications

Vegetated buffers are most applicable on development projects that are adjacent or near to floodplains, wetlands, streams and other natural waterways. Vegetated strips may be established along roads and property lines as a perimeter control for development. They are also applicable along the down slope side of utility line projects.

Vegetated buffers may be a primary sediment control for small areas where the conditions meet design criteria. They are also commonly used as a secondary control with other perimeter controls to provide higher levels of sediment removal. Vegetated areas have more capability to remove fine particle sizes than many conventional sediment controls. Combinations such as an organic filter tube or silt fence at the upslope edge of a vegetated strip are very effective.

In addition to perimeter control, vegetated strips are applicable for slope protection. Strips may be established at regular intervals to interrupt long or steep slopes. The strips maintain sheet flow, decrease velocities, and decrease erosion on the slopes.

3.15.3 Design Criteria

Vegetated buffers should be preserved along existing floodplains, wetlands, channels, and other natural waters whenever possible, even when the buffer is not a primary sediment control. Check for local requirements, as many municipalities mandate a vegetated buffer to maintain the character of the riparian corridor along a natural waterway. Vegetated buffers are encouraged to protect existing waterways by decreasing velocities, dispersing flow, and attenuating volume before the runoff reaches the waterway. If the development plans necessitate disturbing the riparian corridor, phase the development (when possible) to retain a vegetated buffer until final grading and landscaping at the end construction.

The evaluation and use of vegetated strips and buffers for use as a sediment control are unique to each site. The designer should carefully consider slope, vegetation, soils, depth to impermeable layer, depth to ground water, and runoff sediment characteristics before specifying a vegetated strip or buffer as a primary sediment control. This consideration is especially true for buffer strips of existing vegetation. If the buffer is not correctly planned, the first storm event can damage the natural vegetation beyond repair.

Design criteria in this section are only applicable when a vegetated strip or buffer is intended to be a primary or secondary sediment control for the construction site. As discussed above, a vegetated buffer may be preserved for other reasons that do not necessitate the use of these criteria if other sediment controls are provided for the construction site.

General

- Maximum slope of the vegetated strip or buffer shall be 5% across the width of the vegetation in the direction of flow.
- To maintain sheet flow, maximum distance of flow to the vegetated filter shall be 150 feet.
- Vegetated buffers and strips may only serve as a primary sediment control when the contributing drainage area has a slope of 15% or less. On steeper slopes, another perimeter control (e.g. organic filter tube, silt fence) may be installed at the upslope edge of the vegetated buffer or strip as a primary control, with the vegetation serving as a secondary control.

- Maximum disturbed area contributing runoff to the vegetated strip or buffer shall be 2 acres.
- Vegetated filter strips and buffers shall be a minimum of 15 feet wide. Width shall be increased based on the slope of the disturbed area as shown in the following table. Although the slope of the disturbed area may be up to 15%, the slope of the vegetated strip or buffer is still limited to 5% maximum if used as a primary control for sediment.

Table 3.10 Sizing of Vegetated Buffers and Strips

<i>Maximum Slope of Contributing Drainage Area</i>	<i>Maximum Ratio of Disturbed Area to Vegetated Area</i>	<i>Minimum Width of Vegetated Area (Direction of Flow)</i>
5%	8:1	15 feet
10%	5:1	30 feet
15%	3:1	50 feet

- Access to vegetated buffers and strips shall be prohibited. These areas shall be protected from all traffic. No activities should occur in these areas, including no parking of the workers' vehicles, no eating of lunch, etc.
- Install controlled and stabilized ingress/egress points to manage traffic and direct it away from vegetation. Fence the vegetation or provide other means of protection to prevent vehicles and equipment from driving on the vegetated areas.
- Vegetated buffers and filter strips should not be used when high ground water, shallow depth to bedrock, or low soil permeability will inhibit infiltration of runoff.

Buffers of Existing Vegetation

- Fencing, flagged stakes spaced at a maximum of 6 feet, or other measures shall be used to clearly mark existing vegetation that is being preserved as a buffer before the start of any clearing, grubbing, or grading.
- Existing vegetation must be well established to be used as a vegetated buffer. It may be a mix of trees, sapling/shrubs, vines and herbaceous plants. However, the herbaceous plants shall cover at least 80 percent of the ground area.
- Bare soil shall not be visible within the buffer. Area between herbaceous plants shall be covered with a natural litter of organic matter (e.g. leaves, dead grass).
- Lots with a thick stand of existing grasses may preserve strips of the grasses as perimeter control in addition to using vegetation as a buffer along a natural waterway.

Strips of Planted Vegetation

- Vegetated strips should only be used when the site perimeter is along (parallel to) contours. Erosion of the vegetated strip will be a problem when the strip is placed along roads or site perimeters that cut across contours, resulting in runoff flowing along, instead of across, the filter strip.
- Minimize vehicle and equipment traffic and other activities that could compact soils on areas that will be planted for vegetated strips.
- Sod is required when the strip is intended to immediately function as a sediment control.
- Erosion control blankets (ECBs) should be used to prevent erosion and provide sediment control while establishing vegetation for a filter strip. If ECBs are not used, then another perimeter control is required until the vegetation is mature. Refer to [Section 2.3 Erosion Control Blankets](#).
- Refer to the [Section 2.9 Vegetation](#) for criteria on establishing vegetation.
- When using vegetated strips for slope protection, spacing of the strips should be designed based on

slope steepness and type of soil. The strips may be planted directly on the slope grade when the slope is flatter than 2:1. For slopes of 2:1 and steeper, vegetation should be established on terraces. Terraces shall have a transverse slope of 1 percent in the opposite direction of the slope (i.e. back into the ground).

3.15.4 *Design Guidance and Specifications*

Guidance for analysis of the hydraulic loading on filter strips is in [Section 13.3 of the Stormwater Controls Technical Manual](#).

No specification for vegetated filter strips and buffers is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

3.15.5 *Inspection and Maintenance Requirements*

Vegetated filter strips and buffers should be inspected regularly (at least as often as required by the TPDES Construction General Permit). If rill erosion is developing, additional controls are needed to spread the flow before it enters the vegetated area. Rake light accumulations of sediment from the vegetation. Remove trash that accumulates in the vegetation. Additional sediment controls (e.g. a line of organic filter tubes or silt fence), are needed if sediment accumulations are large enough to bury the vegetation.

Inspect established planted vegetation for bare areas and place sod or install seeded erosion control blankets, as appropriate. Mow as needed after planted vegetation is mature.

3.15.6 *Example Schematics*

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

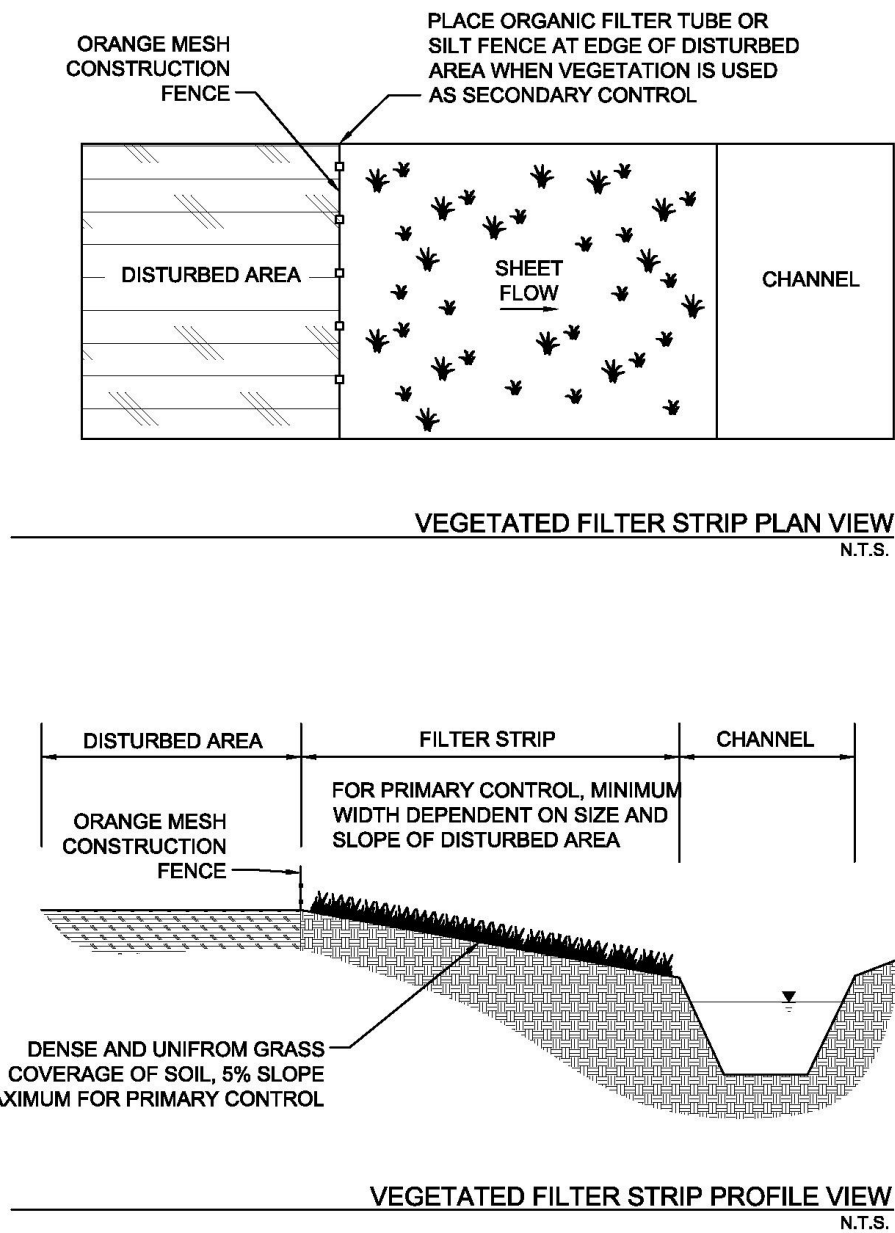
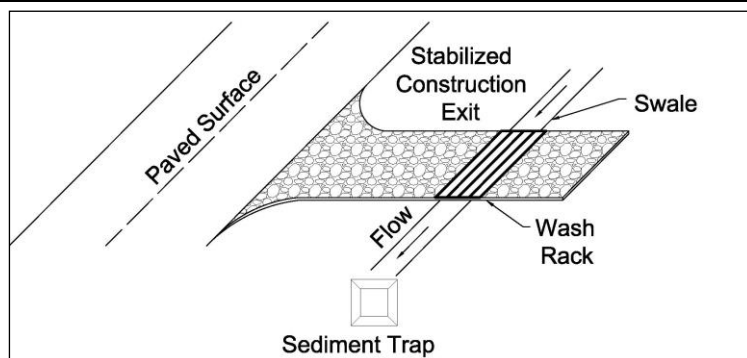


Figure 3.40 Schematics of Vegetated Filter Strip

3.16 Wheel Cleaning Systems

Sediment Control



Description: Wheel cleaning systems are used with a stabilized construction exit to remove soil from vehicle wheels and undercarriages prior to leaving the construction site. The cleaning system may be as simple as uneven, steel racks that “rumble” the vehicle or as complex as a pre-manufactured wash bay. Systems that include wash water must provide for collecting the water and removing sediments and other pollutants prior to discharge.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Locate within the stabilized construction exit
- Design according to type of soil and the number and size of vehicles using the cleaning system
- Provide a means of collecting wash water and removing sediment before discharge

ADVANTAGES / BENEFITS:

- Effectively reduces off-site sediment tracking
- Components of the system may be re-used on different projects

DISADVANTAGES / LIMITATIONS:

- Requires separate construction entrances and exits
- Requires frequent cleaning to remain functional
- Effectiveness dependent on operator training
- Sediment trapping controls won't remove oils or other pollutants in the wash water
- Potential overflows and discharges of wash water if sediment controls not carefully designed for the maximum amount of wash water to be generated

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Remove sediment from wheel cleaning device before sediment accumulates to half the depth of the device
- Remove sediment from sediment traps before it reaches a depth of half the design depth or 12 inches, whichever is less
- Dewater and clean wash basins using dewatering controls

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=N/A

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- Management of wash water
- Prohibitions on the discharge of soaps and petroleum products

3.16.1 Primary Use

Wheel cleaning systems are used to remove soil from construction vehicles and equipment before they leave the site and enter paved streets. Wheel cleaning systems are used with a stabilized construction exit to minimize the tracking of soil from disturbed areas. They provide added protection and reduce the need to remove sediment from streets.

3.16.2 Applications

Wheel cleaning systems can be used on any construction site where a stabilized construction exit is not adequate to prevent off-site tracking of soil. However, because of their cost, they are most applicable for:

- Sites with large areas (> 10 acres) that are disturbed for long periods of time;
- Sites with a large number of vehicles and/or heavy equipment entering and exiting the site, which that will quickly and repeatedly degrade rock exits;
- Sites with clay soils or wet site conditions that result in tires accumulating large amounts of soil; or
- Sites where contaminated soils might be present.

3.16.3 Design Criteria

General

- Provide separate entrances and exits to the construction site so that incoming vehicles do not drive through the wheel cleaning system. Signage and employee training is critical to making the system work.
- Wheel cleaning systems should be located within the stabilized construction exit so that the vehicle does not pick up additional sediment load by traversing disturbed areas. A minimum of 25 feet of stabilized exit shall be maintained between the cleaning system and the paved road.
- The stabilized exit shall be sloped at 1 percent toward the cleaning system.
- The width of the stabilized exit may be reduced to 10 to 20 feet, depending on the size and number of vehicles using the exit, as long as all exiting traffic is funneled through the cleaning system.
- Post a sign requiring all vehicles to use the cleaning system before leaving the site. Posted speed limit through the wheel cleaning system should be 5 mph.
- Wheel cleaning systems should be designed with ease of access to areas where sediment will accumulate, so the system can be frequently cleaned.

Rumble Racks

- The minimum cleaning system shall consist of 10 foot wide, 8 foot long, steel grates with individual bars of the grates at varying heights to shake the vehicle and knock off soil. These grates are also known as rumble racks.
- Minimum length of the rumble rack shall be the length of the circumference of the largest tire on vehicles that will be using the construction exit. Two to three lengths of grates are typically necessary to provide adequate soil removal, depending on soil type and size of vehicles.
- Grates shall be placed over an excavated pit that is a minimum of one foot deep.
- Grates may be purchased pre-made from vendors or constructed by welding 10 foot lengths of structural steel tubing (rectangular section) or angle. The lengths of steel ("bars" of the rumble rack) should be welded to steel beams or other cross supports in a manner that provides for alternating heights. This is accomplished with rectangular steel tube by alternating the long and short sides of

the tube upward. Angle iron, welded to the support structure with the angle pointed upward, may also be used. Round tubing shall not be used, as it does not adequately shake the tires.

- Size and spacing of bars and support beams shall be designed based on the size and weight of vehicles expected to be using the rumble rack.
- Welded or manufactured grates may be cleaned and re-used on multiple projects.

Wheel Washes

- Two common types of wheel wash systems constructed onsite are the corrugated metal wheel wash and the flooded basin wheel wash. In addition, several companies manufacture packaged wash systems that can be assembled onsite and re-used. All of these require a source of water, and several of the packaged systems require electricity to run pumps for water pressure.
- All wheel washes must provide a means to collect the wash water in a sediment basin or other sediment control that provides equivalent or better treatment prior to discharge from the site.
- For the flooded basin wheel wash, sedimentation occurs in the wash basin, meaning the basin cannot be used for a period of time while settling is allowed to occur. Cleaning of the basin should be done first thing in the morning after particles have settled overnight, and ideally the basin would be cleaned on Monday after settling all weekend. If the basin is pumped for cleaning, it should be accomplished using the controls in [Section 3.3 Dewatering Controls](#).
- Corrugated metal wheel washes shall be constructed over a drainage swale that conveys the wash water to a sediment barrier, typically a sediment basin. However, a passive or active treatment system may be needed to adequately remove suspended solids depending on the permit requirements for the site.
- Swales, sediment basins, stone outlet sediment traps, and other controls for the wash water must be sized for the anticipated flows from the wheel wash using criteria in their respective sections of this manual. Depending on the volume of water, two sediment controls may be needed in parallel, to allow for settling and cleaning of one sediment control while the other is in operation for the wheel wash.
- Manufactured wash systems frequently collect, filter, and recycle the wash water, resulting in the use of less water and producing less wash water to treat for sediment removal. For this reason, they may be more cost-effective over the life of the project, even if their initial cost is higher.
- If a packaged wheel wash system does not include a sediment collection area, then a swale and sediment trap is required, similar to the corrugated metal wheel wash.
- Prohibit the use of soap for wheel washing. The purpose of a wheel wash is to remove soil that would otherwise fall off on the roadway, not to clean the vehicle. Refer to [Section 4.10 Vehicle and Equipment Management](#) for proper vehicle washing procedures. The discharge of wash water with soap in it is prohibited, and soap is not removed by a sediment control.
- Train employees to only use water in the wheel wash for removing accumulations of soil from the wheels and undercarriage. Minimize water contact with other portions of the vehicle or equipment. Wash water contaminated with oil, grease or fuel requires special handling and disposal. Refer to [Section 4.10 Vehicle and Equipment Management](#).

3.16.4 Design Guidance and Specifications

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

3.16.5 *Inspection and Maintenance Requirements*

Wheel cleaning systems should be inspected regularly (at least as often as required by the TPDES Construction General Permit). Systems should be cleaned frequently, at least weekly and sometimes daily, to ensure proper operation. Grated systems should be cleaned before sediment accumulates to half the depth of the pit below the grates. Depending on volume of traffic, flooded basin systems often needed daily pumping, cleaning and refilling to be effective.

The sediment basin or other sediment trapping device shall be inspected for damaged areas and repaired as necessary. Sediment that has accumulated in the wash water sediment control (must be removed before it reaches half the design depth of the device or 12 inches, whichever is less. The removed sediment shall be stockpiled or redistributed to areas of the site that are protected by erosion and sediment controls.

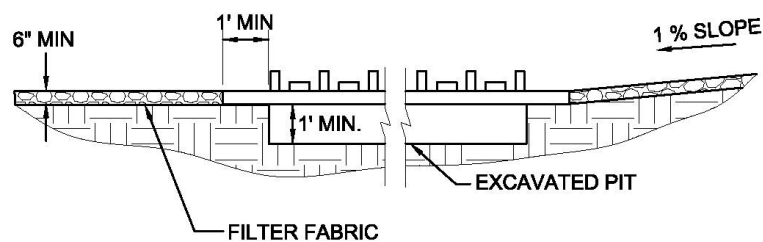
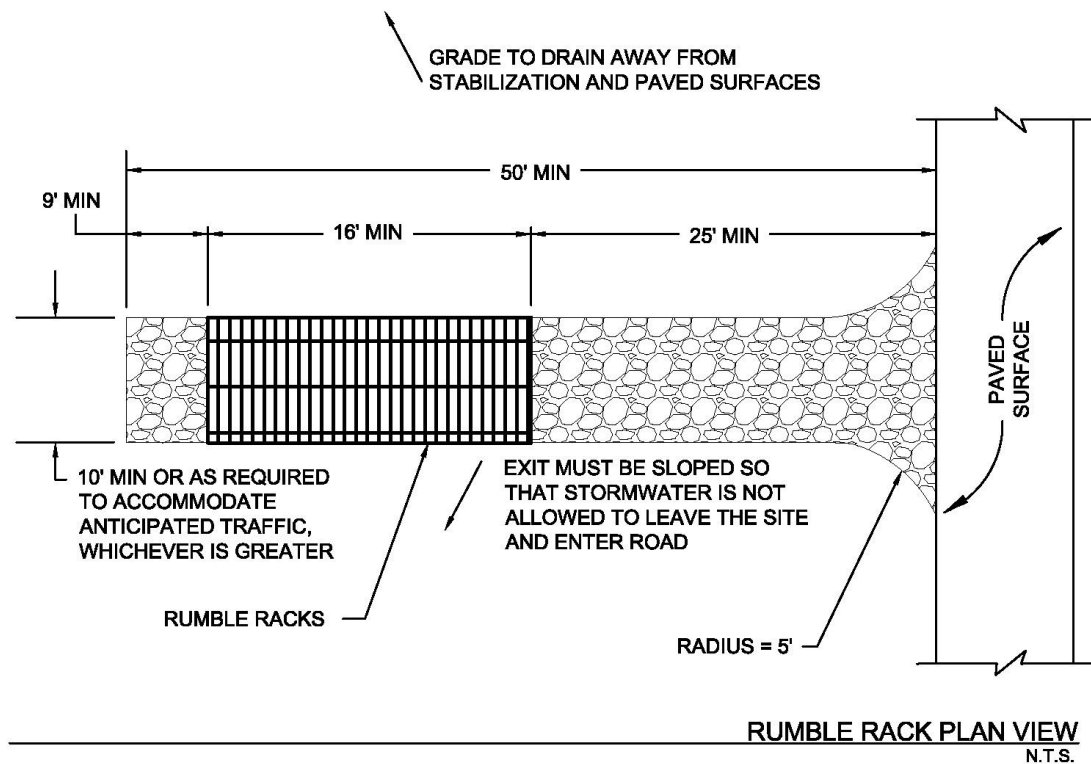
Water that ponds in the sediment basin should be inspected for sheen. If sheen is present, the water is considered contaminated by a petroleum product. Regulations of the TCEQ require this water to be pumped into containers and disposed of appropriately. It is not an authorized discharge from the construction site. Proper vehicle and equipment maintenance is essential to preventing this problem from occurring.

Manufacturer's recommendations should be followed for cleaning and maintaining packaged wheel wash systems.

3.16.6 *Example Schematics*

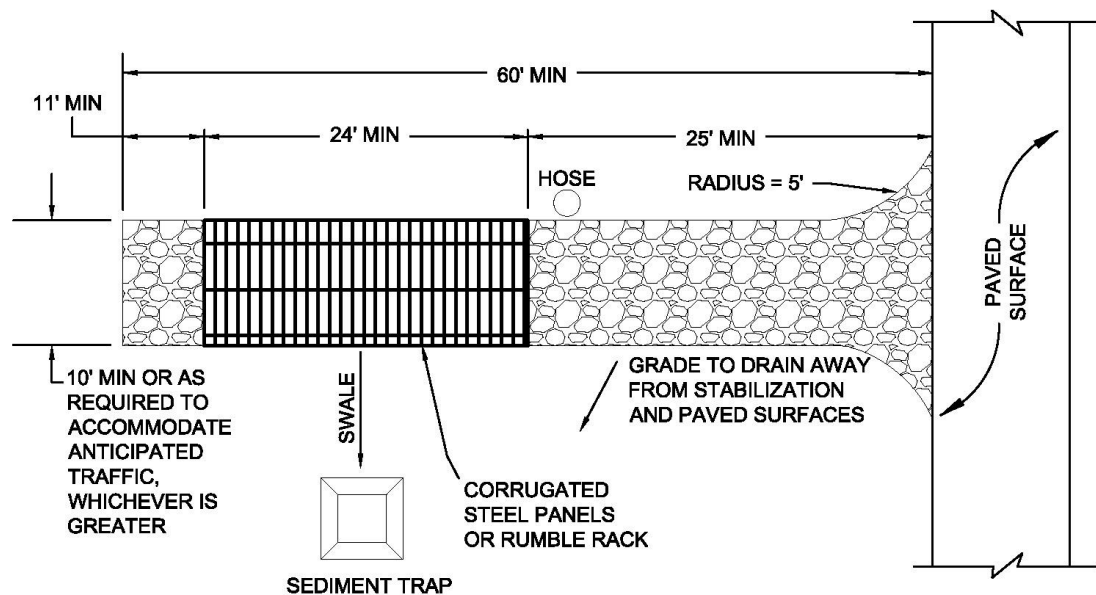
The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

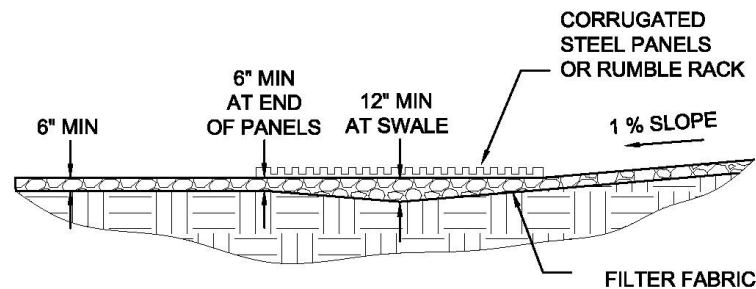


NOTE: DESIGNER SHALL SPECIFY SIZE AND SPACING OF THE STEEL BARS AND SUPPORT BEAMS BASED ON SIZE AND WEIGHT OF VEHICLES EXPECTED TO BE EXITING THE CONSTRUCTION SITE.

Figure 3.41 Schematics of Rumble Rack Wheel Cleaning



CORRUGATED METAL WHEEL WASH PLAN VIEW
N.T.S.



TYPICAL CORRUGATED METAL WHEEL WASH SECTION
N.T.S.

NOTE: PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED FOR THE DESIGN.

- NUMBER AND TYPE OF VEHICLES USING THE SYSTEM DAILY
- SOURCE OF WASH WATER
- VOLUME OF WASTE WASH WATER GENERATED DAILY
- SIZE AND TYPE OF SEDIMENT TRAP
- DESIGN PARAMETERS FOR THE SWALE
- PARAMETERS REQUIRED FOR DESIGN OF THE SEDIMENT TRAP
- ESTIMATE OF WHEEL WASH DOWN-TIME FOR CLEANING THE SEDIMENT TRAP

Figure 3.42 Schematics of Corrugated Metal Wheel Wash

(Source: Modified from California Stormwater Quality Association BMP Handbook BMP Detail TC-1)

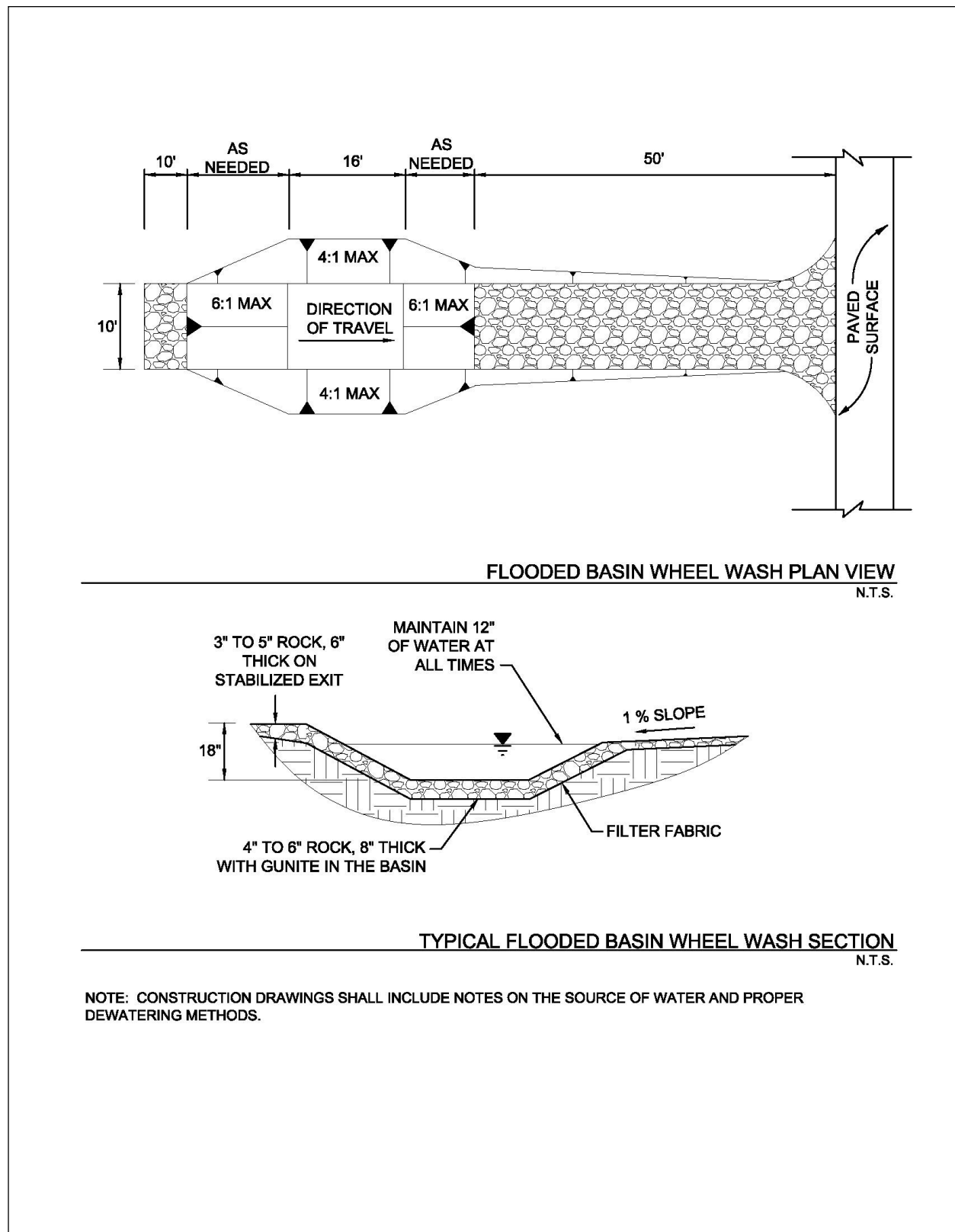


Figure 3.43 Schematics of Flooded Basin Wheel Wash

(Source: Modified from Oregon Department of Environmental Quality Erosion and Control Sediment Manual Detail SC-11)

4.0 Material and Waste Controls

4.1 Chemical Management

Material and Waste Control

Description: Chemical management addresses the potential for stormwater to be polluted with chemical materials and wastes that are used or stored on a construction site. The objective of chemical management is to minimize the potential of stormwater contamination by construction chemicals through appropriate recognition, handling, storage, and disposal practices.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Designate a person responsible for chemical management
- Minimize the amount of chemicals and waste stored onsite
- Provide secondary containment that's 110 percent of the largest container in the containment
- Label all containers
- Prohibit the discharge of washout water
- Train workers in proper procedures
- Provide timely removal of waste materials

LIMITATIONS:

- Not intended to address site-assessment and pre-existing contamination
- Does not address demolition activities and potential pre-existing materials, such as lead and asbestos
- Does not address contaminated soils
- Does not address spill and leak response procedures
- Does not address chemicals associated with vehicle and equipment management

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Check for proper storage and evidence of leaks and spills
- Make sure all containers are labeled
- Check waste containers and dispose of the waste when 90 percent full
- Verify procedures are being followed
- Train new employees and regularly re-train all employees

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- *TCEQ regulations for hazardous waste*

4.1.1 Primary Use

These management practices, along with applicable OSHA, EPA, and TCEQ requirements, are implemented at construction sites to prevent chemicals, hazardous materials, and their wastes from becoming stormwater pollutants.

4.1.2 Applications

Chemical management is applicable on all construction sites where chemicals and hazardous materials are stored or used and could result in pollutants being discharged with stormwater. Many chemicals, such as paints, grease, concrete curing compounds, and pesticide are present at most construction sites. Chemical management is most effective when used in conjunction with controls in [Section 4.8 Spill and Leak Response Procedures](#).

Management of vehicle and equipment maintenance chemicals is applicable to all construction activities. These chemicals are the most common ones on construction sites; plus, there are specific stormwater permit requirements for vehicle and equipment maintenance. For these reasons, the management of chemicals associated with vehicles and equipment are found in [Section 4.10 Vehicle and Equipment Maintenance](#).

Chemical management techniques are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements are education and modification of workers' behavior and provisions for safe storage and disposal. Cooperation and vigilance is required on the part of supervisors and workers to ensure that the procedures are followed.

The following list (not all inclusive) gives examples of targeted chemicals:

- Paints
- Solvents
- Stains
- Wood preservatives
- Cutting oils
- Greases
- Roofing tar
- Pesticides, herbicides, & fertilizers
- Concrete curing compound

It is not the intent of chemical management to supersede or replace normal site assessment and remediation procedures. Significant spills and/or contamination warrant immediate response by trained professionals. Chemical management shall be applied in combination with criteria in [Section 4.8 Spill and Leak Response Procedures](#).

4.1.3 Design Criteria

- Construction plan notes shall require controls for all chemicals, hazardous materials, and their wastes that are potentially exposed to precipitation or stormwater runoff.
- Show the location of chemical and hazardous waste storage and secondary containment on the drawings, or require the contractor to add this information.
- The contractor should be required to designate a site superintendent, foreman, safety officer, or other senior person who is onsite daily to be responsible for implementing chemical management.
- Specify use of the least hazardous chemical to perform a task when alternatives are available. To the extent possible, do not use chemicals that are classified as hazardous materials or that will generate

a hazardous waste. A hazardous material is any compound, mixture, solution, or substance containing a chemical listed on the EPA's Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act (EPA 550-B-01-003, October 2001), available at:

<http://www.epa.gov/ceppo/pubs/title3.pdf>

Chemical and Hazardous Material Storage

- As much as possible, minimize the exposure of building materials, building products, landscape materials, fertilizers, pesticides, herbicides, detergents, and other materials to precipitation and stormwater runoff.
- Chemicals and hazardous materials shall be stored in their original, manufacturers' containers, inside a shelter that prevents contact with rainfall and runoff.
- The amount of chemicals and hazardous materials stored onsite shall be minimized and limited to the materials necessary for the current phase of construction.
- Material Safety and Data Sheets (MSDSs) shall be available for all chemicals used or stored onsite.
- Chemical and hazardous materials shall be stored a minimum of 50 feet away from inlets, swales, drainage ways, channels, and other waters, if the site configuration provides sufficient space to do so. In no case shall material and waste sources be closer than 20 feet from inlets, swales, drainage ways, channels, and other waters.
- Use secondary containment controls for all hazardous materials. Containment shall be a minimum size of 110 percent of the largest chemical container stored within the containment.
- If an earthen pit or berm is used for secondary containment, it shall be lined with plastic or other material that is compatible with the chemical being stored.
- Chemical and hazardous material storage shall be in accordance with Federal and State of Texas regulations and with the municipality's fire codes.
- Storage locations shall have appropriate placards for emergency responders.
- Containers shall be kept closed except when materials are added or removed.
- Chemicals shall be dispensed using drip pans or within a lined, bermed area or using other spill/overflow protection measures.

Washout Procedures

- Many chemicals (e.g. stucco, paint, form release oils, curing compounds) used during construction may require washing of applicators or containers after use. The discharge of this wash water is prohibited.
- Wash water shall be collected in containers, labeled, and classified for correct waste disposal.
- A licensed waste hauler shall be used for wash water.

Chemical and Hazardous Waste Handling

- Ensure that adequate waste storage volume is available.
- Ensure that waste collection containers are conveniently located and compatible with the waste chemicals.
- Waste containers shall have lids and be emptied or hauled for disposal when they are 90 percent full or more frequently.
- Segregate potentially hazardous waste from non-hazardous construction waste and debris.

- Do not mix different chemical wastes. First, dangerous reactions may result. Second, all of the waste will be classified as the most hazardous waste in the container and will increase disposal costs.
- Clearly label all chemical and hazardous waste containers to identify which wastes are to be placed in each container.
- Based on information in the Material Safety Data Sheet, ensure that proper spill containment material is available onsite and maintained near the storage area.
- Do not allow potentially hazardous waste to be stored on the site for more than 90 days.
- Enforce hazardous waste handling and disposal procedures.

Disposal Procedures

- Regularly schedule waste removal to minimize onsite storage.
- Use only licensed waste haulers.
- For special and hazardous wastes, use licensed hazardous waste transporter that can classify, manifest and transport the special or hazardous wastes for disposal.
- Where possible, send wastes such as used oil to a recycler instead of a disposal facility.
- No chemical waste shall be buried, burned or otherwise disposed of onsite.

Education

- Instruct workers on safe chemical storage and disposal procedures.
- Instruct workers in identification of chemical pollutants and proper methods to contain them during storage and use.
- Educate workers of potential dangers to humans and the environment from chemical pollutants.
- Educate all workers on chemical storage and disposal procedures.
- Have regular meetings to discuss and reinforce identification, handling and disposal procedures (incorporate in regular safety seminars).
- Establish a program to train new employees.

Quality Control

- Designated personnel shall monitor onsite chemical storage, use, and disposal procedures.
- Educate and if necessary, discipline workers who violate procedures.
- Retain trip reports and manifests that document the recycling or disposal location for all chemical, special, and hazardous wastes that all hauled from the site.

4.1.4 *Design Guidance and Specifications*

National guidance for response procedures are established by the Environmental Protection Agency (EPA) in the Code of Federal Regulations (CFR). Specific sections addressing spills are governed by:

- 40 CFR Part 261 Identification and Listing of Hazardous Waste.
- 40 CFR Part 262 Standards Applicable to Generators of Hazardous Waste.
- 40 CFR Part 263 Standards Applicable to Transporters of Hazardous Waste.
- 49 CFR Parts 171-178 of the Transportation Hazardous Materials Regulations.

Guidance for storing, labeling, and managing hazardous waste in the State of Texas are established by the Texas Commission on Environmental Quality (TCEQ) in the Texas Administrative Code Title 30, Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste.

No specification for chemical management measures is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

4.1.5 Inspection and Maintenance Requirements

Chemical management measures should be inspected regularly (at least as often as required by the TPDES Construction General Permit) for proper storage and evidence of leaks or spills. Check that all chemicals, hazardous materials, and wastes are properly stored and labeled. If not stored properly, take corrective action, and reinforce procedures through re-education of employees.

If leaks or spills have occurred, check that proper clean up and reporting procedures have been followed. If procedures have not been followed, take corrective action. Check that all employees have been trained in spill and leak procedures as detailed in [Section 4.8 Spill and Leak Response Procedure](#).

4.2 Concrete Sawcutting Waste Management

Waste Control

Description: Sawcutting of concrete pavement is a routine practice used to control shrinkage cracking immediately following placement of plastic concrete. It is also used to remove curb sections and pavement sections for pavement repairs, utility trenches, and driveways. Sawcutting for joints involves sawing a narrow, shallow groove in the concrete, while sawcutting for removals is usually done full depth through the slab. Water is used to control saw blade temperature and to flush the detritus from the sawed groove. The objective of concrete sawcutting waste management is to prevent the resulting slurry of process water and fine particles with its high pH from becoming a water pollutant.

<p style="text-align: center;"><u>KEY CONSIDERATIONS</u></p> <p>DESIGN CRITERIA:</p> <ul style="list-style-type: none"> • Prohibit discharge of untreated slurry • Educate employees on proper procedures • Continuously vacuum slurry and cuttings during sawcutting operation • Block inlets to prevent discharges • Establish an onsite containment area (minimum 1 ft freeboard) if immediate disposal of the vacuumed slurry is not feasible • Water evaporation and concrete recycling are the recommended disposal methods when slurry is not vacuumed <p>LIMITATIONS:</p> <ul style="list-style-type: none"> • Only one part of concrete waste management • Does not address concrete demolition waste <p>MAINTENANCE REQUIREMENTS:</p> <ul style="list-style-type: none"> • Check for uncollected slurry after all sawcutting operations • Inspect collection areas and repair containment as needed • Dispose of sediment and cuttings when collection area volume is reduced by 50 percent • Train new employees and regularly re-train all employees 	<p style="text-align: center;"><u>APPLICATIONS</u></p> <p>Perimeter Control</p> <p>Slope Protection</p> <p>Sediment Barrier</p> <p>Channel Protection</p> <p>Temporary Stabilization</p> <p>Final Stabilization</p> <div style="border: 1px solid black; padding: 2px; text-align: center;">Waste Management</div> <p>Housekeeping Practices</p>
<p style="text-align: center;"><u>TARGETED POLLUTANTS</u></p> <ul style="list-style-type: none"> ○ Sediment ● Nutrients & Toxic Materials ○ Oil & Grease ○ Floatable Materials ● Other Construction Wastes 	<p style="text-align: center;"><u>IMPLEMENTATION CONSIDERATIONS</u></p> <ul style="list-style-type: none"> ○ Capital Costs ● Maintenance ● Training ○ Suitability for Slopes > 5% <p>Other Considerations:</p> <ul style="list-style-type: none"> • <i>Coordinate with concrete waste management</i>

4.2.1 Primary Use

Pavement sawcutting is performed on almost all construction projects that include removal or installation of pavement. Properly managing the slurry and cuttings from sawcutting prevents them from affecting surface and ground water resources.

4.2.2 Applications

Concrete sawcutting waste management is applicable on construction activities where sawcutting is part of the work, regardless of the size of the total area disturbed. It is also applicable on repair and maintenance projects that may not be required to implement erosion and sediment controls.

Concrete sawcutting waste management is based on the proper collection and disposal of the slurry and cuttings. Employee education is critical to ensuring correct procedures are followed.

4.2.3 Design Criteria

- Construction plan notes shall include proper concrete sawcutting waste management procedures.
- The contractor should be required to designate the site superintendent, foreman, or other person who is responsible for concrete sawcutting to also be responsible for concrete sawcutting waste management.

Slurry Collection

- During sawcutting operations, the slurry and cuttings shall be continuously vacuumed or otherwise recovered and not be allowed to discharge from the site.
- If the pavement to be cut is near a storm drain inlet, the inlet shall be blocked by sandbags or equivalent temporary measures to prevent the slurry from entering the inlet. Remove the sandbags immediately after completing sawcutting operations, so they do not cause drainage problems during storm events.
- The slurry and cuttings shall not be allowed to remain on the pavement to dry out.

Slurry Disposal

- Develop pre-determined, safe slurry disposal areas.
- Collected slurry and cuttings should be immediately hauled from the site for disposal at a waste facility. If this is not possible, the slurry and cuttings shall be discharged into onsite containment.
- The onsite containment may be an excavated or bermed pit lined with plastic that is a minimum of 10 millimeters thick. Refer to [Section 4.3 Concrete Waste Management](#) for additional design criteria and an example schematic. If the project includes placement of new concrete, slurry from sawcutting may be disposed of in facilities designated for the washout of concrete trucks instead constructing a separate containment.
- The containment shall be located a minimum of 50 feet away from inlets, swales, drainage ways, channels, and other waters, if the site configuration provides sufficient space to do so. In no case shall the collection area be closer than 20 feet from inlets, swales, drainage ways, channels and other waters.
- Several, portable, pre-fabricated, concrete washout, collection basins are commercially available and are an acceptable alternative to an onsite containment pit.
- Remove waste concrete when the containment is half full. Always maintain a minimum of one foot freeboard.

- Onsite evaporation of slurry water and recycling of the concrete waste is the preferred disposal method. When this is not feasible, discharge from the collection area shall only be allowed if a passive treatment system is used to remove the fines. Criteria are in [Section 3.7 Passive Treatment System](#). Mechanical mixing is required in the collection area. The pH must be tested, and discharge is allowed only if the pH does not exceed 8.0. The pH may be lowered by adding sulfuric acid to the slurry water. Dewatering of the collection area after treatment shall follow the criteria in [Section 3.3 Dewatering Controls](#).
- Care shall be exercised when treating the slurry water for discharge. Monitoring must be implemented to verify that discharges from the collection area do not violate groundwater or surface water quality standards.
- Geotextile fabrics such as those used for silt fence should not be used to control sawcutting waste, since the grain size is significantly smaller than the apparent opening size of the fabric.
- Use waste and recycling haulers and facilities approved by the local municipality.

Education

- Supervisors must be made aware of the potential environmental consequences of improperly handling sawcutting slurry and waste.
- Train all workers performing sawcutting operations on the proper slurry and cuttings collection and disposal procedures.

4.2.4 Design Guidance and Specifications

No specification for concrete sawcutting waste management is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

4.2.5 Inspection and Maintenance Requirements

Concrete sawcutting waste management measures should be inspected regularly (at least as often as required by the TPDES Construction General Permit). Project personnel should inspect the operations to assure that operators are diligent in controlling the water produced by the sawcutting activities. Pavement should be inspected each day after operations to ensure that waste removal has been adequately performed. Residual waste should be cleaned. Reinforce proper procedures with workers.

Inspect the collection area for signs of unauthorized discharges. Repair containment area as needed. Remove sediment and fines when the collection area volume is reduced by 50 percent.

4.3 Concrete Waste Management

Waste Control

Description: Concrete waste at construction sites comes in two forms: 1) excess fresh concrete mix, including residual mix washed from trucks and equipment, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through stormwater runoff contact with the waste. The objective of concrete waste management is to dispose of these wastes in a manner that protects surface and ground water.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Prohibit the discharge of untreated concrete washout water
- Prohibit dumping waste concrete anywhere except at pre-determined, regulated, recycling or disposal sites
- Provide a washout containment with a minimum of 6 cubic feet of containment volume for every 10 cubic yards of concrete placed
- Minimum 1 foot freeboard on containment
- Minimum 10 mil plastic lining of containment
- Washout water evaporation and concrete recycling are the recommended disposal methods
- Educate drivers and operators on proper disposal and equipment cleaning procedures

LIMITATIONS:

- Does not address concrete sawcutting waste

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Check for and repair any damage to washout containment areas
- Clean up any overflow of washout pits
- Regularly remove and properly dispose of concrete waste

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

IMPLEMENTATION CONSIDERATIONS

- Capital Costs
- Maintenance
- Training
- Suitability for Slopes > 5%

Other Considerations:

- None

TARGETED POLLUTANTS

- Sediment
- Nutrients & Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Construction Wastes

4.3.1 Primary Use

Concrete waste management is used to prevent the discharge of concrete wash water and waste into stormwater runoff. A number of water quality parameters can be affected by the introduction of concrete, especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of both cement and aggregated dust are also generated from both fresh and demolished concrete waste.

4.3.2 Applications

Concrete waste management is applicable to all construction sites where existing concrete is being demolished or new concrete is being placed, regardless of the size of the total area disturbed. It is also applicable on repair and maintenance projects that may not be required to implement erosion and sediment controls.

4.3.3 Design Criteria

- The discharge of washout water to an inlet, swale, or any portion of the storm drainage system or a natural drainage system (e.g. channel) shall be prohibited.
- Construction plan notes shall state that the discharge of concrete washout to anything except a designated containment area is prohibited.
- Show the location of the concrete washout containment on the drawings, or require the contractor to provide this information.
- The contractor should be required to designate the site superintendent, foreman, or other person who is responsible for concrete placement to also be responsible for concrete waste management.

Unacceptable Waste Concrete Disposal Practices

- Dumping in vacant areas on the job-site.
- Illicit dumping onto off-site lots or any other placed not permitted to receive construction demolition debris.
- Dumping into ditches, drainage facilities, or natural water ways.
- Using concrete waste as fill material or bank stabilization.

Recommended Disposal Procedures

- Identify pre-determined, regulated, facilities for disposal of solid concrete waste. Whenever possible, haul the concrete waste to a recycling facility. Disposal facilities must have a Class IV (or more stringent) municipal solid waste permit from the TCEQ.
- A concrete washout pit or other containment shall be installed a minimum of 50 feet away from inlets, swales, drainage ways, channels, and other waters, if the site configuration provides sufficient space to do so. In no case shall concrete washout occur closer than 20 feet from inlets, swales, drainage ways, channels and other waters.
- Provide a washout area with a minimum of 6 cubic feet of containment volume for every 10 cubic yards of concrete poured. Alternatively, the designer may provide calculations sizing the containment based on the number of concrete trucks and pumps to be washed out.
- The containment shall be lined with plastic (minimum 10 millimeters thick) or an equivalent measure to prevent seepage to groundwater.
- Mosquitoes do not typically breed in the high pH of concrete washout water. However, the concrete washout containment should be managed in a manner that prevents the collection of other water that could be a potential breeding habitat.

- Do not excavate the washout area until the day before the start of concrete placement to minimize the potential for collecting stormwater.
- Do not discharge any water or wastewater into the containment except for concrete washout to prevent dilution of the high pH environment that is hostile to mosquitoes.
- Remove the waste concrete and grade the containment closed within a week of completing concrete placement. Do not leave it open to collect stormwater.
- If water must be pumped from the containment, it shall be collected in a tank, neutralized to lower the pH, and then hauled to a treatment facility for disposal. Alternatively, it may be hauled to a batch plant that has an onsite collection facility for concrete washout water.
- Do **not** pump water directly from the containment to the Municipal Separate Storm Sewer System or a natural drainage way without treating for removal of fine particles and neutralization of the pH.
- Multiple concrete washout areas may be needed for larger projects to allow for drying time and proper disposal of the washout water and waste concrete.
- Portable, pre-fabricated, concrete washout containers are commercially available and are an acceptable alternative to excavating a washout area.
- Evaporation of the washout water and recycling of the concrete waste is the preferred disposal method. After the water has evaporated from the washout containment, the remaining cuttings and fine sediment shall be hauled from the site to a concrete recycling facility or a solid waste disposal facility.
- Remove waste concrete when the washout containment is half full. Always maintain a minimum of one foot freeboard.
- Use waste and recycling haulers and facilities approved by the local municipality.
- When evaporation of the washout water is not feasible, discharge from the collection area shall only be allowed if a passive treatment system is used to remove the fines. Criteria are in [Section 3.7 Passive Treatment System](#). Mechanical mixing is required within the containment for passive treatment to be effective. The pH must be tested, and discharge is allowed only if the pH does not exceed 8.0. The pH may be lowered by adding sulfuric acid to the water. Dewatering of the collection area after treatment shall follow the criteria in [Section 3.3 Dewatering Controls](#).
- Care shall be exercised when treating the concrete washout water for discharge. Monitoring must be implemented to verify that discharges do not violate groundwater or surface water quality standards.
- On large projects that are using a nearby batch plant, a washout facility associated with the plant and under the plant's TPDES Multi-Sector General Permit may be used instead of installing an onsite containment area for truck washout.

Education

- Drivers and equipment operators should be instructed on proper disposal and equipment washing practices (see above).
- Supervisors must be made aware of the potential environmental consequences of improperly handled concrete waste.

Enforcement

- The construction site manager or foreman must ensure that employees and pre-mix companies follow proper procedures for concrete disposal and equipment washing.
- Employees violating disposal or equipment cleaning directives must be re-educated or disciplined if necessary.

Demolition Practices

- Monitor weather and wind direction to ensure concrete dust is not entering drainage structures and surface waters.
- Spray water on structures being demolished to wet them before start of demolition operations. Reapply water whenever dust is observed.
- Construct sediment traps or other types of sediment detention devices downstream of demolition activities to capture and treat runoff from demolition wetting operations.

4.3.4 *Design Guidance and Specifications*

No specification for concrete waste management is currently available in the Standard Specifications for Public Works – North Central Texas Council of Governemtns.

4.3.5 *Inspection and Maintenance Requirements*

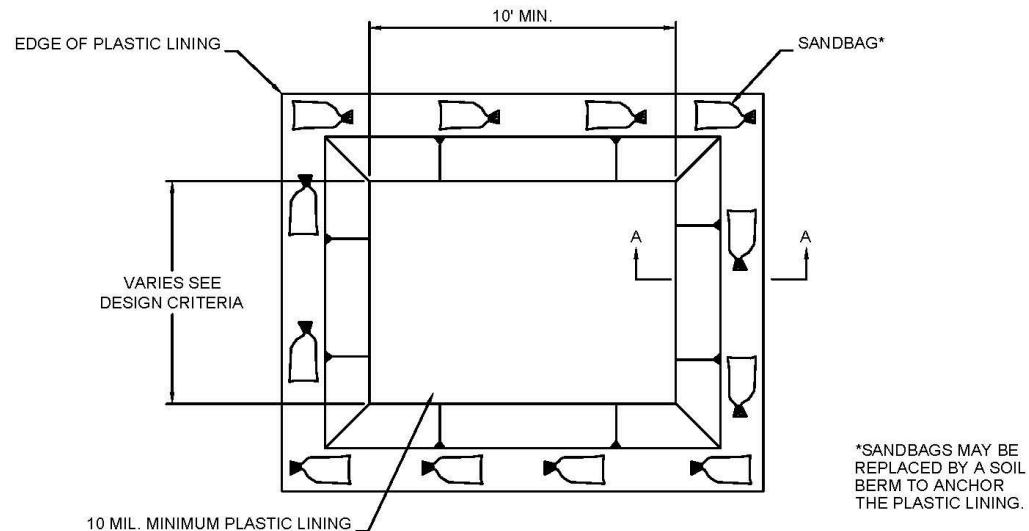
Concrete waste management controls should be inspected regularly (at least as often as required by the TPDES Construction General Permit) for proper handling of concrete waste. Check concrete washout pits and make repairs as needed. Washout pits should not be allowed to overflow. Maintain a schedule to regularly remove concrete waste and prevent over-filling.

If illicit dumping of concrete is found, remove the waste and reinforce proper disposal methods through education of employees.

4.3.6 *Example Schematics*

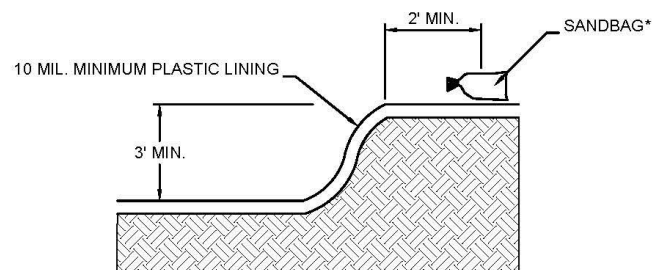
The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



CONCRETE WASHOUT PLAN VIEW

N.T.S.



CONCRETE WASHOUT SECTION VIEW

N.T.S.

CONCRETE WASHOUT NOTES:

1. WASHOUT AREA MUST BE CLEARLY MARKED WITH SIGNAGE NOTING THE WASHOUT AREA.
2. WASHOUT STRUCTURES SHALL BE CLEANED OUT WHEN THE STRUCTURE IS 75% FULL. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY.

Revised 2019

Figure 4.1 Schematics of Concrete Washout Containment

APPENDIX D

INSPECTION AND MAINTENANCE REPORTS

Inspector Qualifications*

Inspector Name: _____

Qualifications (Check as appropriate and provide description): _____

- ☐ Training Course _____
- ☐ Supervised Experience _____
- ☐ Other _____

Inspector Name: _____

Qualifications (Check as appropriate and provide description): _____

- ☐ Training Course _____
- ☐ Supervised Experience _____
- ☐ Other _____

Inspector Name: _____

Qualifications (Check as appropriate and provide description): _____

- ☐ Training Course _____
- ☐ Supervised Experience _____
- ☐ Other _____

**Personnel conducting inspections must be knowledgeable of the general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site.*

INSPECTION SCHEDULE

Inspections must be conducted:

- **Option 1** – at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inch or greater
- **Option 2** – at least once every 7 calendar days, regardless of whether or not there has been a rainfall event since the previous inspection.

Any changes to the schedule are conducted in accordance with the following:

- the schedule is changed a maximum of one time each month,
- the schedule change must be implemented at the beginning of a calendar month, and
- the reason for the schedule change must be documented below.

[illegible]

Status	<input type="checkbox"/> Complies	
	<input type="checkbox"/> Warning	No.
	<input type="checkbox"/> Project Shutdown	

SWP3	On-Site		Up-to-date	
	Yes	No ¹	Yes	No ²

General Information	Project:	Date:
	Address:	Inspector:
		Qualifications: see Appendix E of SWP3
		Weather Conditions:
	Owner:	Contractor:

[illegible]

²Items marked in this column need to be addressed in the Actions to be Taken table.

ACTIONS TO BE TAKEN	RESPONSIBLE PERSON(S)	DUE DATE	DATE COMPLETED	INITIALS

NOTE: These reports will be kept on file as part of the Storm Water Pollution Prevention Plan for at least three years. A copy of the SWP3 will be kept at the site at all times during construction.

CERTIFICATION STATEMENT: *"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."*

Name:

Address:

Telephone:

Site Location:

Inspector Signature:

Date:

MAINTENANCE GUIDELINES

1. Below are some maintenance practices to be used to maintain erosion and sediment controls:
 - All control measures will be inspected according to the schedule identified in Appendix E.
 - All measures will be maintained in good working order. The operator should correct any damage or deficiencies as soon as practicable after the inspection, but in no case later than seven (7) calendar days after the inspection.
 - BMP Maintenance (as applicable)
 - Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
 - Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
 - Drainage swale will be inspected and repaired as necessary.
 - Inlet control will be inspected and repaired as necessary.
 - Check dam will be inspected and repaired as necessary.
 - Straw bale dike will be inspected and repaired as necessary.
 - Diversion dike will be inspected and any breaches promptly repaired.
 - Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
 - If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee must work with the owner or operator of the property to remove the sediment.
 - Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.
2. To maintain the above practices, the following will be performed:
 - Maintenance and repairs will be conducted before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. Following an inspection, deficiencies should be corrected no later than seven (7) calendar days after the inspection.
 - Any necessary revisions to the SWP3 as a result of the inspection must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event.
 - Personnel selected for inspection and maintenance responsibilities must be knowledgeable of the general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site.

APPENDIX E

ROLES AND RESPONSIBILITIES CHECKLIST AND CERTIFICATION STATEMENT

PRIMARY AND SECONDARY OPERATOR GENERAL RESPONSIBILITIES

DEFINITIONS:

Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary operator as defined below:

Primary Operator – the person or persons associated with a large or small construction activity that meets either of the following two criteria:

- (a.) the person or persons have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications, or
- (b.) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan (SWP3) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

Secondary Operator – The person whose operational control is limited to the employment of other operators or to the ability to approve or disapprove changes to plans and specifications. A secondary operator is also defined as a primary operator and must comply with the permit requirements for primary operators if there are no other operators at the construction site.

Please note that both Owners and Contractors can meet the definition of being an Operator and will need to fulfill the associated requirements. The Roles and Responsibilities Checklist and Certification Statement located in Appendix F are to be completed and signed by the Owner and Contractor(s).

Secondary Operators and Primary Operators with Control Over Construction Plans and Specifications

All secondary operators and primary operators with control over construction plans and specifications must:

- (a.) ensure the project specifications allow or provide that adequate BMPs are developed to meet the requirements of the general permit,
- (b.) ensure that the SWP3 indicates the areas of the project where they have control over project specifications, including the ability to make modifications in specifications,
- (c.) ensure all other operators affected by modifications in project specifications are notified in a timely manner so that those operators may modify their best management practices as necessary to remain compliant with the conditions of this general permit, and
- (d.) ensure that the SWP3 for portions of the project where they are operators indicates the name and site-specific TPDES authorization numbers for permittees with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. If the party with day-to-day operational control has not been authorized or has abandoned

the site, the person with control over project specifications is considered to be the responsible party until the authority is transferred to another party and the SWP3 is updated.

Primary Operators with Day-to-Day Operational Control

Primary Operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with the SWP3 and other permit conditions must ensure that the SWP3 accomplishes the following requirements:

- (a.) meets the requirements of the general permit for those portions of the project where they are operators,
- (b.) the parties responsible for implementation of BMPs described in the SWP3,
- (c.) indicates areas of the project where they have operational control over day-to-day activities, and
- (d.) includes, for areas where they have operational control over day-to-day activities, the name and site-specific TPDES authorization number of the parties with control over project specifications, including the ability to make modifications in specifications.

Roles and Responsibilities Checklist

Role/Responsibility	Project Owner*	Primary Operator	Secondary Operator
Development of initial design specifications			
Payment for proposed construction activity			
Maintain SWP3 records for three years from the date that a NOT is submitted			
Complete, sign, and postmark NOI at least seven days prior to beginning of construction activity, or Complete, sign, and electronically submit NOI prior to the beginning of construction activity			
Post a copy of the signed NOI at project site and maintain through duration of project			
Post copy of completed construction site notice(s) at project site through duration of project			
Provide a copy of the signed NOI to any secondary operator and to the operator of any MS4 receiving construction site discharge, at least seven days prior to commencing construction activities			
Maintain schedule of major construction activities, keep a copy with SWP3, and retain a copy of the SWP3 at the construction site at all times			
Update SWP3 to reflect daily operations (e.g., revisions, installation dates, grading operation dates, BMP maintenance, and inspection information)			
Update SWP3 to reflect changes in the Contractor's contact information			
Identify, maintain and modify BMPs (as necessary) to control erosion and sedimentation due to construction activities throughout life of project			
Provide stabilized construction entrances and sediment barriers, and clean existing rock and/or add rock to prevent mud and dirt from entering streets or alleys			
Maintain and/or replace sediment barriers and silt traps (if installed), etc. throughout life of project			
Maintain erosion control on stockpiles without blocking drainage paths			
Perform SWP3 inspections in accordance with TPDES General Permit, and keep inspection reports with SWP3			
Based on inspection results, modify SWP3 and pollution prevention controls to maintain that storm water (or identified non-storm water discharges) are the only discharges leaving the site			

Role/Responsibility	Project Owner*	Primary Operator	Secondary Operator
Provide proper management of project-generated trash and debris, including debris collected from storm water protection devices			
Stabilize all disturbed areas related to construction for temporary or permanent ceasing of activities			
Comply with all State and local sanitary sewer or septic system regulations			
Provide copies of all SWP3 records to the Project Owner			
Complete, sign, and submit NOT form to the TCEQ and MS4 Operators when the project has been completed and stabilized			
Complete applicable portion of the site notice related to removal of the notice and submit to the operator of any MS4 receiving site discharge			

**Please note that the Project Owner can meet the definition of an operator. Please refer to the definitions of "primary operator" and "secondary operator" for more information.*

Each operator engaged in activities that disturb surface soils must be identified and must sign the following certification statement. Signatory requirement guidance and an additional certification statement form are attached (Appendix F).

Certification Statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign this document and can provide documentation in proof of such authorization upon request."

Project Owner

Name: Austin Evetts_____

Title: Vice President of Land Development__

Company: GRBK Edgewood, LLC_____

Signature:_____

Date:_____

Operator Type:_____

Subcontractor (as appropriate)

Name:_____

Title:_____

Company:_____

Signature:_____

Date:_____

Operator Type:_____

General Contractor

Name: _____

Title: _____

Company: _____

Signature:_____

Date:_____

Operator Type:_____

Subcontractor (as appropriate)

Name:_____

Title:_____

Company:_____

Signature:_____

Date:_____

Operator Type:_____

NOTICE OF INTENT (NOI) LOG			
Name	Company	Date Submitted NOI	TPDES Permit No.

APPENDIX F

TPDES GENERAL PERMIT (TXR150000) FOR
STORM WATER DISCHARGES FROM
CONSTRUCTION ACTIVITIES

Texas Commission on Environmental Quality

P.O. Box 13087, Austin, Texas 78711-3087



GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

This permit supersedes and replaces
TPDES General Permit No. TXR150000,
effective March 5, 2018, and amended January 28, 2022

Construction sites that discharge stormwater associated with construction activity located in the state of Texas may discharge to surface water in the state only according to monitoring requirements and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or Commission), the laws of the State of Texas, and other orders of the Commission of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of stormwater and certain non-stormwater discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this general permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This general permit and the authorization contained herein shall expire at midnight, on March 5, 2028.

EFFECTIVE DATE: March 5, 2023

ISSUED DATE: February 27, 2023



For the Commission

TPDES GENERAL PERMIT NUMBER TXR150000
RELATING TO STORMWATER DISCHARGES ASSOCIATED WITH
CONSTRUCTION ACTIVITIES

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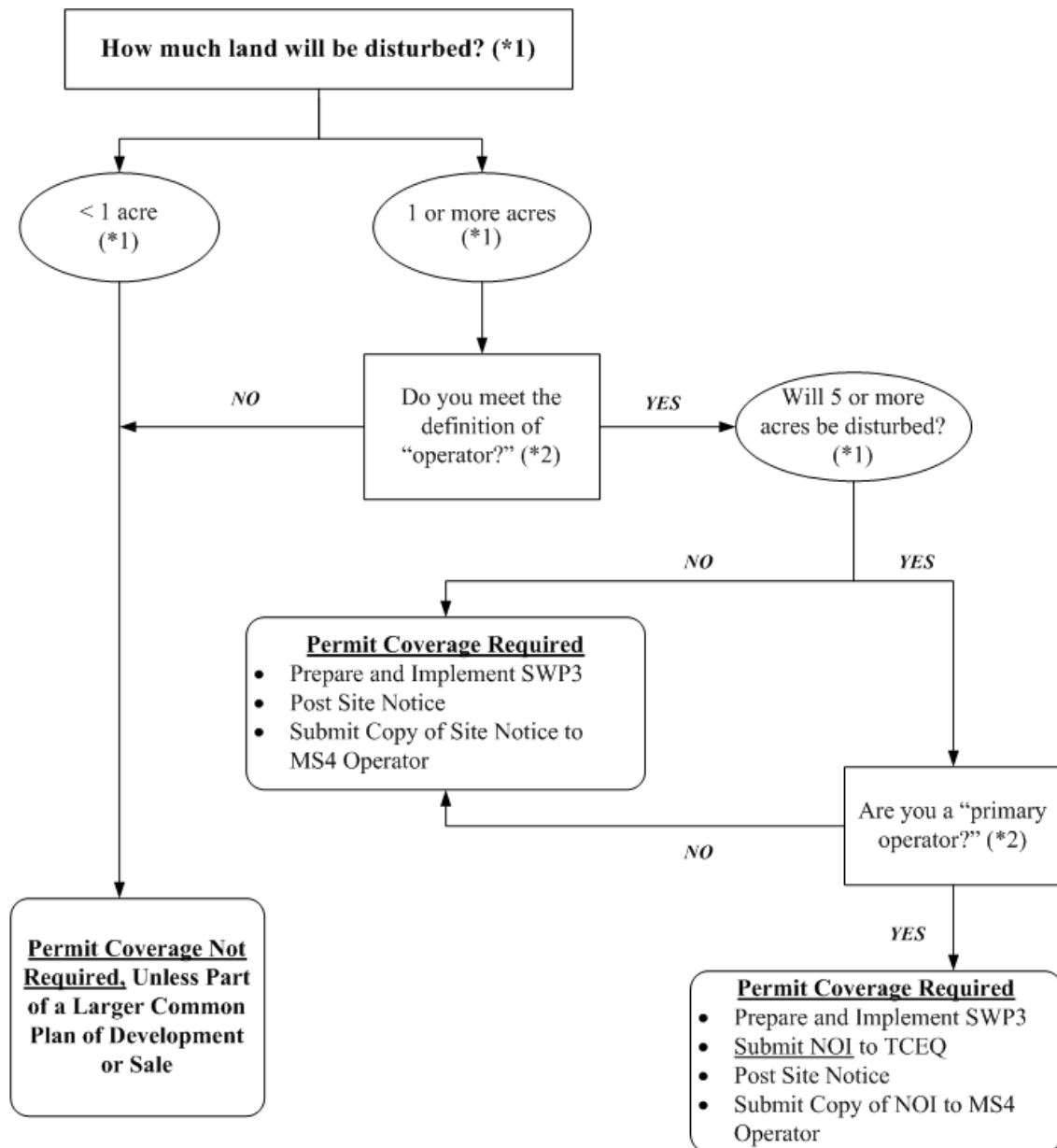
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Part I. Flow Chart and Definitions**Section A. Flow Chart to Determine Whether Coverage is Required**

When calculating the acreage of land area disturbed, include the disturbed land-area of all construction and construction support activities.



- (*1) To determine the size of the construction project, use the size of the entire area to be disturbed, and include the size of the larger common plan of development or sale, if the project is part of a larger project (refer to Part I.B., "Definitions," for an explanation of "common plan of development or sale").
- (*2) Refer to the definitions for "operator," "primary operator," and "secondary operator" in Part I., Section B. of this permit.

Section B. Definitions

Arid Areas – Areas with an average annual rainfall of zero (0) to ten (10) inches.

Best Management Practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Commencement of Construction – The initial disturbance of soils associated with clearing, grading, or excavation activities, as well as other construction-related activities (e.g., demolition; grubbing; stockpiling of fill material; placement of raw materials at the site).

Common Plan of Development – A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development (also known as a “common plan of development or sale”) is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities. A common plan of development does not necessarily include all construction projects within the jurisdiction of a public entity (e.g., a city or university). Construction of roads or buildings in different parts of the jurisdiction would be considered separate “common plans,” with only the interconnected parts of a project being considered part of a “common plan” (e.g., a building and its associated parking lot and driveways, airport runway and associated taxiways, a building complex, etc.). Where discrete construction projects occur within a larger common plan of development or sale but are located one quarter (1/4) mile or more apart, and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale, provided that any interconnecting road, pipeline or utility project that is part of the same “common plan” is not included in the area to be disturbed.

Construction Activity – Includes soil disturbance activities, including clearing, grading, excavating, construction-related activity (e.g., stockpiling of fill material, demolition), and construction support activity. This does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (e.g., the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing rights-of-way, and similar maintenance activities). Regulated construction activity is defined in terms of small and large construction activity.

Construction Support Activity – A construction-related activity that specifically supports construction activity, which can involve earth disturbance or pollutant-generating activities of its own, and can include, but are not limited to, activities associated with concrete or asphalt batch plants, rock crushers, equipment staging or storage areas, chemical storage areas, material storage areas, material borrow areas, and excavated material disposal areas. Construction support activity must only directly support the construction activity authorized under this general permit.

Dewatering – The act of draining accumulated stormwater or groundwater from building foundations, vaults, trenches, and other similar points of accumulation.

Discharge – For the purposes of this permit, the drainage, release, or disposal of pollutants in stormwater and certain non-stormwater from areas where soil disturbing activities (e.g., clearing, grading, excavation, stockpiling of fill material, and demolition), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck wash out, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

Drought-Stricken Area – For the purposes of this permit, an area in which the National Oceanic and Atmospheric Administration’s U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely: (1) “Drought to persist or intensify”, (2) “Drought ongoing, some improvement”, (3) “Drought likely to improve, impacts ease”, or (4) “Drought development likely”. See http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html.

Edwards Aquifer – As defined under Texas Administrative Code (TAC) § 213.3 of this title (relating to the Edwards Aquifer), that portion of an arcuate belt of porous, water-bearing, predominantly carbonate rocks known as the Edwards and Associated Limestones in the Balcones Fault Zone trending from west to east to northeast in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson Counties; and composed of the Salmon Peak Limestone, McKnight Formation, West Nueces Formation, Devil’s River Limestone, Person Formation, Kainer Formation, Edwards Formation, and Georgetown Formation. The permeable aquifer units generally overlie the less-permeable Glen Rose Formation to the south, overlie the less-permeable Comanche Peak and Walnut Formations north of the Colorado River, and underlie the less-permeable Del Rio Clay regionally.

Edwards Aquifer Recharge Zone – Generally, that area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer. The recharge zone is identified as that area designated as such on official maps located in the offices of the Texas Commission on Environmental Quality (TCEQ) and the appropriate regional office. The Edwards Aquifer Map Viewer, located at <https://www.tceq.texas.gov/gis/edwards-viewer.html>

Edwards Aquifer Contributing Zone – The area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards Aquifer. The contributing zone is located upstream (upgradient) and generally north and northwest of the recharge zone for the following counties: all areas within Kinney County, except the area within the watershed draining to Segment No. 2304 of the Rio Grande Basin; all areas within Uvalde, Medina, Bexar, and Comal Counties; all areas within Hays and Travis Counties, except the area within the watersheds draining to the Colorado River above a point 1.3 miles upstream from Tom Miller Dam, Lake Austin at the confluence of Barrow Brook Cove, Segment No. 1403 of the Colorado River Basin; and all areas within Williamson County, except the area within the watersheds draining to the Lampasas River above the dam at Stillhouse Hollow reservoir, Segment No. 1216 of the Brazos River Basin. The contributing zone is illustrated on the Edwards Aquifer map viewer at <https://www.tceq.texas.gov/gis/edwards-viewer.html>

Effluent Limitations Guideline (ELG) – Defined in 40 Code of Federal Regulations (CFR) § 122.2 as a regulation published by the Administrator under § 304(b) of the Clean Water Act (CWA) to adopt or revise effluent limitations.

Facility or Activity – For the purpose of this permit, referring to a construction site, the location of construction activity, or a construction support activity that is regulated under this general permit, including all contiguous land and fixtures (for example, ponds and materials stockpiles), structures, or appurtenances used at a construction site or industrial site.

Final Stabilization – A construction site status where any of the following conditions are met:

- (a) All soil disturbing activities at the site have been completed and a uniform (that is, evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, or gabions) have been employed.
- (b) For individual lots in a residential construction site by either:
 - (1) the homebuilder completing final stabilization as specified in condition (a) above; or
 - (2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization. If temporary stabilization is not feasible, then the homebuilder may fulfill this requirement by retaining perimeter controls or BMPs, and informing the homeowner of the need for removal of temporary controls and the establishment of final stabilization. Fulfillment of this requirement must be documented in the homebuilder's stormwater pollution prevention plan (SWP3).
- (c) For construction activities on land used for agricultural purposes (such as pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to surface water and areas that are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.
- (d) In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:
 - (1) temporary erosion control measures (for example, degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and
 - (2) the temporary erosion control measures are selected, designed, and installed to achieve 70% of the native background vegetative coverage within three years.

High-Level Radioactive Waste – Meaning as assigned by 42 United States Code (U.S.C.) Section 10101 (12) and includes spent nuclear fuel as defined by 42 U.S.C. Section 10101 (23).

Hyperchlorination of Waterlines – Treatment of potable water lines or tanks with chlorine for disinfection purposes, typically following repair or partial replacement of the waterline or tank, and subsequently flushing the contents.

Impaired Water – A surface water body that is identified as impaired on the latest approved CWA § 303(d) List or waters with an EPA-approved or established total maximum daily load (TMDL) that are found on the latest EPA approved *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)*, which lists the category 4 and 5 water bodies.

Indian Country Land – (1) All land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation; (2) all dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. (40 CFR § 122.2)

Indian Tribe – Any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation (40 CFR § 122.2).

Infeasible – Not technologically possible, or not economically practicable and achievable in light of best industry practices. (40 CFR § 450.11(b)).

Large Construction Activity – Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities).

Linear Project – Includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

Low Rainfall Erosivity Waiver (LREW) – A written submission to the executive director from an operator of a construction site that is considered as small construction activity under the permit, which qualifies for a waiver from the requirements for small construction activities, only during the period of time when the calculated rainfall erosivity factor is less than five (5).

Minimize – To reduce or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) – A separate storm sewer system owned or operated by the United States, a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, that discharges to surface water in the state.

Notice of Change (NOC) – Written notification to the executive director from a discharger authorized under this permit, providing changes to information that was previously provided to the agency in a notice of intent form.

Notice of Intent (NOI) – A written submission to the executive director from an applicant requesting coverage under this general permit.

Notice of Termination (NOT) – A written submission to the executive director from a discharger authorized under this general permit requesting termination of coverage.

Operator – The person or persons associated with a large or small construction activity that is either a primary or secondary operator as defined below:

Primary Operator – The person or persons associated with construction activity that meets either of the following two criteria:

- (a) the person or persons have on-site operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

- (b) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a Stormwater Pollution Prevention Plan (SWP3) for the site or other permit conditions (for example, they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

Secondary Operator – The person or entity, often the property owner, whose operational control is limited to:

- (a) the employment of other operators, such as a general contractor, to perform or supervise construction activities; or
- (b) the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

Secondary operators must either prepare their own SWP3 or participate in a shared SWP3 that covers the areas of the construction site, where they have control over the construction plans and specifications.

If there is not a primary operator at the construction site, then the secondary operator is defined as the primary operator and must comply with the requirements for primary operators.

Outfall – For the purpose of this permit, a point source at the point where stormwater runoff associated with construction activity discharges to surface water in the state and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other water of the U.S. and are used to convey waters of the U.S.

Permittee – An operator authorized under this general permit. The authorization may be gained through submission of a notice of intent, by waiver, or by meeting the requirements for automatic coverage to discharge stormwater runoff and certain non-stormwater discharges from construction activity.

Point Source – Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are, or may be, discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff (40 CFR § 122.2).

Pollutant – Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any surface water in the state. The term "pollutant" does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, and farmland. For the purpose of this permit, the term "pollutant" includes sediment.

Pollution – The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose (Texas Water Code (TWC) § 26.001(14)).

Rainfall Erosivity Factor (R factor) – The total annual erosive potential that is due to climatic effects, and is part of the Revised Universal Soil Loss Equation (RUSLE).

Receiving Water – A “Water of the United States” as defined in 40 CFR § 122.2 or a surface water in the state into which the regulated stormwater discharges.

Semi-arid Areas – Areas with an average annual rainfall of 10 to 20 inches.

Separate Storm Sewer System – A conveyance or system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), designed or used for collecting or conveying stormwater; that is not a combined sewer, and that is not part of a publicly owned treatment works (POTW).

Small Construction Activity – Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities).

Steep Slopes – Where a state, Tribe, local government, or industry technical manual (e.g., stormwater BMP manual) has defined what is to be considered a “steep slope”, this permit’s definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 15 percent or greater in grade.

Stormwater (or Stormwater Runoff) – Rainfall runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Associated with Construction Activity – Stormwater runoff, as defined above, from a construction activity.

Structural Control (or Practice) – A pollution prevention practice that requires the construction of a device, or the use of a device, to reduce or prevent pollution in stormwater runoff. Structural controls and practices may include but are not limited to: silt fences, earthen dikes, drainage swales, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State – Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark (MHW) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Temporary Stabilization – A condition where exposed soils or disturbed areas are provided a protective cover or other structural control to prevent the migration of pollutants. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either permanent stabilization can be achieved or until further construction activities take place.

Thawing Conditions – For the purposes of this permit, thawing conditions are expected based on the historical likelihood of two (2) or more days with daytime temperatures greater than 32 degrees Fahrenheit (°F). This date can be determined by looking at historical weather data.

NOTE: The estimation of thawing conditions is for planning purposes only. During construction, the permittee will be required to conduct site inspections based upon actual conditions (i.e., if thawing conditions occur sooner than expected, the permittee will be required to conduct inspections at the regular frequency).

Total Maximum Daily Load (TMDL) – The total amount of a pollutant that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

Turbidity – A condition of water quality characterized by the presence of suspended solids and/or organic material.

Waters of the United States – Waters of the United States or waters of the U.S. means the term as defined in 40 CFR § 122.2.

Part II. Permit Applicability and Coverage

Section A. Discharges Eligible for Authorization

1. Stormwater Associated with Construction Activity

Discharges of stormwater runoff and certain non-stormwater discharges from small and large construction activities may be authorized under this general permit, except as described in Part II.C. of this permit.

2. Discharges of Stormwater Associated with Construction Support Activities

Discharges of stormwater runoff and certain non-stormwater discharges from construction support activities as defined in Part I.B. of this general permit may be authorized, provided that the following conditions are met:

- (a) the construction support activities are located within one (1) mile from the boundary of the construction site where the construction activity authorized under the permit is being conducted that requires the support of these activities;
- (b) an SWP3 is developed and implemented for the permitted construction site according to the provisions in Part III.F. of this general permit, including appropriate controls and measures to reduce erosion and the discharge of pollutants in stormwater runoff according to the provisions in Part IV. of this general permit;
- (c) the activities are directly related to the construction site;
- (d) the activities are not a commercial operation, nor serve other unrelated construction projects; and
- (e) the activities do not continue to operate beyond the completion of the construction activity at the project it supports.

Construction support activities that operate outside the terms provided in (a) through (e) above must obtain authorization under a separate Texas Pollutant Discharge Elimination System (TPDES) permit, which may include the TPDES Multi-Sector General Permit (MSGP), TXR050000 (related to stormwater discharges associated with industrial activity), an alternative general permit (if available), or an individual water quality permit.

3. Non-Stormwater Discharges

The following non-stormwater discharges from sites authorized under this general permit are also eligible for authorization under this general permit:

- (a) discharges from emergency fire-fighting activities (emergency fire-fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, or similar activities);
 - (b) uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);
 - (c) water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where solvents, detergents, and soaps are not used, where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;
 - (d) uncontaminated water used to control dust;
 - (e) potable water sources, including waterline flushings, but excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life;
 - (f) uncontaminated air conditioning condensate;
 - (g) uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and
 - (h) lawn watering and similar irrigation drainage.
4. Other Permitted Discharges

Any discharge authorized under a separate National Pollutant Discharge Elimination System (NPDES), TPDES, or TCEQ permit may be combined with discharges authorized by this general permit, provided those discharges comply with the associated permit.

Section B. Concrete Truck Wash Out

The wash out of concrete trucks at regulated construction sites must be performed in accordance with the requirements of Part VI of this general permit.

Section C. Limitations on Permit Coverage

1. Post Construction Discharges

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization, are not eligible for coverage under this general permit. Discharges originating from the sites are not authorized under this general permit following the submission of the Notice of Termination (NOT) or removal of the appropriate TCEQ site notice, as applicable, for the regulated construction activity.

2. Prohibition of Non-Stormwater Discharges

Except as otherwise provided in Part II.A. of this general permit, only discharges that are composed entirely of stormwater associated with construction activity may be authorized under this general permit.

3. Compliance with Water Quality Standards

Discharges to surface water in the state that would cause, have the reasonable potential to cause, or contribute to a violation of water quality standards or that would fail to protect and maintain existing designated uses of surface water in the state are not eligible for coverage under this general permit. The executive director may require an application for an individual permit or alternative general permit (see Parts II.H.2. and 3.) to authorize discharges to surface water in the state if the executive director determines that any activity will cause, has the reasonable potential to cause, or contribute to a violation of water quality standards or is found to cause, has the reasonable potential to cause, or contribute to, the impairment of a designated use. The executive director may also require an application for an individual permit considering factors described in Part II.H.3. of this general permit.

4. Impaired Receiving Waters and Total Maximum Daily Load (TMDL) Requirements

The permittee shall determine whether the authorized discharge is to an impaired water body on the latest EPA-approved CWA § 303(d) List or waters with an EPA-approved or established TMDL that are found on the latest EPA-approved *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)*, which lists the category 4 and 5 water bodies.

New sources or new discharges of the pollutants of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standard(s) and are listed as category 4 or 5 in the current version of the *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)*, and waterbodies listed on the CWA § 303(d) List. Pollutants of concern are those for which the water body is listed as impaired.

Discharges of the pollutants of concern to impaired water bodies for which there is a TMDL are not eligible for coverage under this general permit unless they are consistent with the approved TMDL. Permittees must incorporate the conditions and requirements applicable to their discharges into their SWP3, in order to be eligible for coverage under this general permit. For consistency with the construction stormwater-related items in an approved TMDL, the SWP3 must be consistent with any applicable condition, goal, or requirement in the TMDL, TMDL Implementation Plan (I-Plan), or as otherwise directed by the executive director.

5. Discharges to the Edwards Aquifer Recharge or Contributing Zone

Discharges cannot be authorized by this general permit where prohibited by 30 TAC Chapter 213 (relating to Edwards Aquifer). In addition, commencement of construction (see definition for commencement of construction in Part I.B. above)) at a site regulated under 30 TAC Chapter 213, may not begin until the appropriate Edwards Aquifer Protection Plan (EAPP) has been approved by the TCEQ's Edwards Aquifer Protection Program.

- (a) For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone (CZ), operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

- (b) For existing discharges located within the Edwards Aquifer Recharge Zone, the requirements of the agency-approved Water Pollution Abatement Plan (WPAP) under the Edwards Aquifer Rule are in addition to the requirements of this general permit. BMPs and maintenance schedules for structural stormwater controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in stormwater runoff are in addition to the requirements in this general permit for this pollutant.
- (c) For discharges located within ten (10) stream miles upstream of the Edwards Aquifer recharge zone, applicants shall also submit a copy of the NOI to the appropriate TCEQ regional office.

Counties: Comal, Bexar, Medina, Uvalde, and Kinney

Contact: TCEQ Water Program Manager
San Antonio Regional Office
14250 Judson Road
San Antonio, Texas 78233-4480
(210) 490-3096

Counties: Williamson, Travis, and Hays

Contact: TCEQ Water Program Manager
Austin Regional Office
12100 Park 35 Circle
Room 179, Building A
Austin, Texas 78753
(512) 339-2929

6. Discharges to Specific Watersheds and Water Quality Areas

Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.

7. Protection of Streams and Watersheds by Other Governmental Entities

This general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities.

8. Indian Country Lands

Stormwater runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of stormwater require authorization under federal NPDES regulations, authority for these discharges must be obtained from the U.S. Environmental Protection Agency (EPA).

9. Exempt Oil and Gas Activities

The CWA § 402(l)(2) provides that stormwater discharges from construction activities related to oil and gas exploration, production, processing, or treatment, or transmission facilities are exempt from regulation under this permit. The term “oil and gas exploration, production, processing, or treatment operations, or transmission facilities” is defined in 33 U.S.C. Annotated § 1362 (24).

The exemption in CWA § 402(l)(2) *includes* stormwater discharges from construction activities regardless of the amount of disturbed acreage, which are necessary to prepare a site for drilling and the movement and placement of drilling equipment, drilling waste management pits, in field treatment plants, and in field transportation infrastructure (e.g., crude oil pipelines, natural gas treatment plants, and both natural gas transmission pipeline compressor and crude oil pumping stations) necessary for the operation of most producing oil and gas fields. Construction activities are defined in 33 U.S. Code § 1362(24) and interpreted by EPA in the final rule. *See* June 12, 2006 Amendments to the NPDES Regulations for Storm Water Discharges Associated with Oil and Gas Exploration, Production, Processing, or Treatment Operations or Transmission Facilities (71 FR 33628, Part V. Terminology).

The exemption *does not include* stormwater discharges from the construction of administrative buildings, parking lots, and roads servicing an administrative building at an oil and gas site, as these are considered traditional construction activities.

As described in 40 CFR § 122.26(c)(1)(iii) [*regulations prior to 2006*], discharges from oil and gas construction activities are waived from CWA § 402(l)(2) permit coverage *unless* the construction activity (or construction support activity) has had a discharge of stormwater resulting in the discharge of a reportable quantity of oil or hazardous substances or the discharge contributes to a violation of water quality standards.

Exempt oil and gas activities which have lost their exemption as a result of one of the above discharges, must obtain permit coverage under this general permit, an alternative general permit, or a TPDES individual permit prior to the next discharge.

10. Stormwater Discharges from Agricultural Activities

Stormwater discharges from agricultural activities that are not point source discharges of stormwater are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities. Discharges of stormwater runoff associated with the construction of facilities that are subject to TPDES regulations, such as the construction of concentrated animal feeding operations, would be point sources regulated under this general permit.

11. Endangered Species Act

Discharges that would adversely affect a listed endangered or threatened aquatic or aquatic-dependent species or its critical habitat are not authorized by this permit, unless the requirements of the Endangered Species Act are satisfied. Federal requirements related to endangered species apply to all TPDES permitted discharges and site-specific controls may be required to ensure that protection of endangered or threatened species is achieved. If a permittee has concerns over potential impacts to listed species, the permittee may contact TCEQ for additional information.

12. Storage of High-Level Radioactive Waste

Discharges of stormwater from construction activities associated with the construction of a facility that is licensed for the storage of high-level radioactive waste by the United States Nuclear Regulatory Commission under 10 CFR Part 72 are not authorized by this general permit. Texas Health and Safety Code (THSC) § 401.0525 prohibits TCEQ from issuing any TPDES authorizations for the construction or operation of these facilities.

Discharges of stormwater from the construction activities associated with the construction of a facility located at the site of currently or formerly operating nuclear power reactors and currently or formerly operating nuclear research and test reactors operated by a university are not prohibited under THSC § 401.0525 and continue to be regulated under this general permit.

13. Other

Nothing in Part II. of the general permit is intended to negate any person's ability to assert *force majeure* (act of God, war, strike, riot, or other catastrophe) defenses found in 30 TAC § 70.7

Section D. Deadlines for Obtaining Authorization to Discharge

1. Large Construction Activities

- (a) New Construction – Discharges from sites where the commencement of construction activity occurs on or after the effective date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.
- (b) Ongoing Construction – Operators of large construction activities continuing to operate after the effective date of this permit, and authorized under the TPDES Construction General Permit (CGP) TXR150000 (effective on March 5, 2018, and amended on January 28, 2022), must submit an NOI to renew authorization or an NOT to terminate coverage under this general permit within 90 days of the effective date of this general permit. During this interim or grace period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the issued and amended 2018 TPDES CGP.

2. Small Construction Activities

- (a) New Construction – Discharges from sites where the commencement of construction activity occurs on or after the effective date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.
- (b) Ongoing Construction – Discharges from ongoing small construction activities that commenced prior to the effective date of this general permit, and that do not meet the conditions to qualify for termination of this permit as described in Part II.F. of this general permit, must meet the requirements to be authorized, either under this general permit or a separate TPDES permit, within 90 days of the effective date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the issued and amended 2018 TPDES CGP.

Section E. Obtaining Authorization to Discharge

1. Automatic Authorization for Small Construction Activities with Low Potential for Erosion

Operators of small construction activity, as defined in Part I.B. of this general permit, shall not submit an NOI for coverage, unless otherwise required by the executive director.

Operators of small construction activities, which occur in certain counties and during periods of low potential for erosion that do not meet the conditions of the waiver described in Part II.G. of this general permit, may be automatically authorized under this general permit if all the following conditions are met prior to the commencement of construction.

- (a) The construction activity occurs in a county and during the corresponding date range(s) listed in Appendix A;

- (b) The construction activity is initiated and completed, including either final or temporary stabilization of all disturbed areas, within the time frame identified in Appendix A for the location of the construction site;
- (c) All temporary stabilization is adequately maintained to effectively reduce or prohibit erosion, permanent stabilization activities have been initiated, and a condition of final stabilization is completed no later than 30 days following the end date of the time frame identified in Appendix A for the location of the construction site; the permittee signs a completed TCEQ Small Construction Site Notice for low potential for erosion (Form TCEQ-20964), including the certification statement;
- (d) A signed and certified copy of the TCEQ Small Construction Site Notice for low potential for erosion is posted at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and maintained in that location until final stabilization has been achieved;

NOTE: Posted TCEQ site notices may have a redacted signature as long as there is an original signed and certified TCEQ site notice, with a viewable signature, located on-site and available for review by any applicable regulatory authority.

- (e) A copy of the signed and certified TCEQ Small Construction Site Notice for low potential for erosion is provided to the operator of any MS4 receiving the discharge at least two (2) days prior to commencement of construction activities;
- (f) Discharges of stormwater runoff or other non-stormwater discharges from any supporting concrete batch plant or asphalt batch plant is separately authorized under an individual TPDES permit, another TPDES general permit, or under an individual TCEQ permit where stormwater and non-stormwater is disposed of by evaporation or irrigation (discharges are adjacent to water in the state); and
- (g) Any non-stormwater discharges are either authorized under a separate permit or authorization, are not considered by TCEQ to be a wastewater, or are captured and routed for disposal at a publicly operated treatment works or licensed waste disposal facility.

If all of the conditions in (a) – (h) above are met, then the operator(s) of small construction activities with low potential for erosion are not required to develop a SWP3.

If an operator is conducting small construction activities and any of the above conditions (a) – (h) are not met, the operator cannot declare coverage under the automatic authorization for small construction activities with low potential for erosion and must meet the requirements for automatic authorization (all other) small construction activities, described below in Part II.E.2.

For small construction activities that occur during a period with a low potential for erosion, where automatic authorization under this section is not available, an operator may apply for and obtain a waiver from permitting (Low Rainfall Erosivity Waiver – LREW), as described in Part II.G. of this general permit. Waivers from coverage under the LREW do not allow for any discharges of non-stormwater and the operator must ensure that discharges on non-stormwater are either authorized under a separate permit or authorization.

2. Automatic Authorization for Small Construction Activities

Operators of small construction activities as defined in Part I.B. of this general permit shall not submit an NOI for coverage, unless otherwise required by the executive director.

Operators of small construction activities, as defined in Part I.B. of this general permit or as defined but who do not meet in the conditions and requirements located in Part II.E.1 above, may be automatically authorized for small construction activities, provided that they meet all of the following conditions:

- (a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant is the operator, and implement the SWP3 prior to commencing construction activities;
- (b) all operators of regulated small construction activities must post a copy of a signed and certified TCEQ Small Construction Site Notice (Form TCEQ-20963), the notice must be posted at the construction site in a location where it is safely and readily available for viewing by the general public, local, state, and federal authorities, at least two (2) days prior to commencing construction activity, and maintain the notice in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the TCEQ site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities);
- (c) operators must maintain a posted TCEQ Small Construction Site Notice on the approved TCEQ form at the construction site until final stabilization has been achieved; and

NOTE: Posted TCEQ site notices may have a redacted signature as long as there is an original signed and certified TCEQ Small Construction Site Notice, with a viewable signature, located on-site and available for review by an applicable regulatory authority.

- (d) provide a copy of the signed and certified TCEQ Small Construction Site Notice to the operator of any municipal separate storm sewer system (MS4) receiving the discharge at least two (2) days prior to commencement of construction activities.
- (e) if signatory authority is delegated by an authorized representative, then a Delegation of Signatory form must be submitted as required by 30 TAC § 305.128 (relating to Signatories to Reports). Operators for small construction activities must submit this form via mail following the instructions on the approved TCEQ paper form. A new Delegation of Signatory form must be submitted if the delegation changes to another individual or position.

As described in Part I.B of this general permit, large construction activities include those that will disturb less than five (5) acres of land, but that are part of a larger common plan of development or sale that will ultimately disturb five (5) or more acres of land and must meet the requirements of Part II.E.3. below.

3. Authorization for Large Construction Activities

Operators of large construction activities that qualify for coverage under this general permit must meet all of the following conditions:

- (a) develop a SWP3 according to the provisions of this general permit that covers either the entire site or all portions of the site where the applicant is the operator. The SWP3 must be developed and implemented prior to obtaining coverage and prior to commencing construction activities;
- (b) primary operators of large construction activities must submit an NOI prior to commencing construction activity at a construction site. A completed NOI must be submitted to TCEQ electronically using the online ePermits system on TCEQ's website.

Operators with an electronic reporting waiver must submit a completed paper NOI to TCEQ at least seven (7) days prior to commencing construction activity to obtain provisional coverage 48-hours from the postmark date for delivery to the TCEQ. An authorization is no longer provisional when the executive director finds the NOI is administratively complete, and an authorization number is issued to the permittee for the construction site indicated on the NOI.

If an additional primary operator is added after the initial NOI is submitted, the additional primary operator must meet the same requirements for existing primary operator(s), as indicated above.

If the primary operator changes due to responsibility at the site being transferred from one primary operator to another after the initial NOI is submitted, the new primary operator must submit an electronic NOI, unless they request and obtain a waiver from electronic reporting, at least ten (10) days prior to assuming operational control of a construction site and commencing construction activity.

- (c) all operators of large construction activities must post a TCEQ Large Construction Site Notice on the approved TCEQ form (Form TCEQ-20961) in accordance with Part III.D.2. of this permit. The TCEQ site notice must be located where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and must be maintained in that location until final stabilization has been achieved. For linear construction activities, e.g., pipeline or highway, the TCEQ site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public, local, state, and federal authorities;
- (d) two days prior to commencing construction activities, all primary operators must:
 - i. provide a copy of the signed NOI to the operator of any MS4 receiving the discharge and to any secondary construction operator, and
 - ii. list in the SWP3 the names and addresses of all MS4 operators receiving a copy;
- (e) if signatory authority is delegated by an authorized representative, then a Delegation of Signatories form must be submitted as required by 30 TAC § 305.128 (relating to Signatories to Reports). Primary operators must submit this form electronically using the State of Texas Environmental Electronic Reporting System (STEERS), TCEQ's online permitting system, or by paper if the permittee requested and obtained an electronic reporting waiver. A new Delegation of Signatories form must be submitted, if the delegation changes to another individual or position;
- (f) all persons meeting the definition of "secondary operator" in Part I of this permit are hereby notified that they are regulated under this general permit, but are not required to submit an NOI, provided that a primary operator at the site has submitted an NOI, or prior to commencement of construction activities, a primary operator is required to submit an NOI and the secondary operator has provided notification to the operator(s) of the need to obtain coverage (with records of notification available upon request). Any secondary operator notified under this provision may alternatively submit an NOI under this general permit, may seek coverage under an alternative TPDES individual permit, or may seek coverage under an alternative TPDES general permit if available; and

- (g) all secondary operators of large construction activities must post a copy of the signed and certified TCEQ Large Construction Site Notice for Secondary Operators on the approved TCEQ form (Form TCEQ-20962) and provide a copy of the signed and certified TCEQ site notice to the operator of any MS4 receiving the discharge at least two (2) days prior to the commencement construction activities.

NOTE: Posted TCEQ site notices may have a redacted signature as long as there is an original signed and certified TCEQ Large Construction Site Notice for Secondary Operators, with a viewable signature, located on-site and available for review by an applicable regulatory authority.

Applicants must submit an NOI using the online ePermits system (accessed using STEERS) available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge.

4. Waivers for Small Construction Activities:

Operators of certain small construction activities may obtain a waiver from coverage under this general permit, if applicable. The requirements are outlined in Part II.G. below.

5. Effective Date of Coverage

- (a) Operators of small construction activities as described in either Part II.E.1. or II.E.2. above are authorized immediately following compliance with the applicable conditions of Part II.E.1. or II.E.2. Secondary operators of large construction activities as described in Part II.E.3. above are authorized immediately following compliance with the applicable conditions in Part II.E.3. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.
- (b) Primary operators of large construction activities as described in Part II.E.3. above that electronically submit an NOI are authorized immediately following confirmation of receipt of the electronic form by the TCEQ, unless otherwise notified by the executive director.

Operators with an electronic reporting waiver are provisionally authorized 48-hours from the date that a completed paper NOI is postmarked for delivery to the TCEQ, unless otherwise notified by the executive director. An authorization is no longer provisional when the executive director finds the NOI is administratively complete and an authorization number is issued to the permittee for the construction site indicated on the NOI.

For construction activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction activities may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

- (c) Operators are not prohibited from submitting late NOIs or posting late site notices to obtain authorization under this general permit. The TCEQ reserves the right to take appropriate enforcement action for any unpermitted activities that may have occurred between the time construction commenced and authorization under this general permit was obtained.

- (d) If operators that submitted NOIs have active authorizations for construction activities that are ongoing when this general permit expires on March 5, 2028, and a new general permit is issued, a 90-day interim (grace) period is granted to provide coverage that is administratively continued until operators with active authorizations can obtain coverage under the newly issued CGP. The 90-day grace period starts on the effective date of the newly issued CGP.

6. Contents of the NOI

The NOI form shall require, at a minimum, the following information:

- (a) the TPDES CGP authorization number for existing authorizations under this general permit, where the operator submits an NOI to renew coverage within 90 days of the effective date of this general permit;
- (b) the name, address, and telephone number of the operator filing the NOI for permit coverage;
- (c) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;
- (d) the number of acres that will be disturbed by the applicant;
- (e) the estimated construction project start date and end date;
- (f) confirmation that the project or site will not be located on Indian Country lands;
- (g) confirmation if the construction activity is associated with an oil and gas exploration, production, processing, or treatment, or transmission facility (see Part II.C.9.);
- (h) confirmation that the construction activities are not associated with the construction of a facility that is licensed for the storage of high-level radioactive waste by the United States Nuclear Regulatory Commission under 10 CFR Part 72 (see Part II.C.12.);
- (i) confirmation that a SWP3 has been developed in accordance with all conditions of this general permit, that it will be implemented prior to commencement of construction activities, and that it is compliant with any applicable local sediment and erosion control plans; for multiple operators who prepare a shared SWP3, the confirmation for an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator;
- (j) name of the receiving water(s);
- (k) the classified segment number for each classified segment that receives discharges from the regulated construction activity (if the discharge is not directly to a classified segment, then the classified segment number of the first classified segment that those discharges reach); and
- (l) the name of all surface waters receiving discharges from the regulated construction activity that are on the latest EPA-approved CWA § 303(d) List of impaired waters or *Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d)* as not meeting applicable state water quality standards.

7. Notice of Change (NOC)

- (a) If relevant information provided in the NOI changes, the operator that has submitted the NOI must submit an NOC to TCEQ at least fourteen (14) days before the change occurs. Where a 14-day advance notice is not possible, the operator must submit an NOC to TCEQ within fourteen (14) days of discovery of the change. If the operator becomes aware that it failed to submit any relevant facts or submitted

incorrect information in an NOI, the correct information must be submitted to TCEQ in an NOC within fourteen (14) days after discovery.

- (b) Information on an NOC may include, but is not limited to, the following:
- i. a change in the description of the construction project;
 - ii. an increase in the number of acres disturbed (for increases of one (1) or more acres);
 - iii. or the name of the operator (where the name of the operator has changed).
- (c) Electronic NOC.

Applicants must submit an NOC using the online ePermits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. All waivers from electronic reporting are not transferrable. Electronic reporting waivers expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance. A copy of the NOC form or letter must also be placed in the SWP3 and provided to the operator of any MS4 receiving the discharge. Operators are authorized immediately following confirmation of receipt of the electronic form by the TCEQ, unless otherwise notified by the executive director.

- (d) Paper NOC.

Applicants who request and obtain an electronic reporting waiver shall submit the NOC on a paper form provided by the executive director, or by letter if an NOC form is not available.

- (e) A copy of the NOC form or letter must also be placed in the SWP3 and provided to the operator of any MS4 receiving the discharge. A list that includes the names and addresses of all MS4 operators receiving a copy of the NOC (or NOC letter) must be included in the SWP3. Information that may not be included on an NOC includes but is not limited to the following:
- i. transfer of operational control from one operator to another, including a transfer of the ownership of a company. A transfer of ownership of a company includes changes to the structure of a company, such as changing from a partnership to a corporation or changing corporation types, so that the filing or charter number that is on record with the Texas Secretary of State (SOS) must be changed.
 - ii. coverage under this general permit is not transferable from one operator to another. Instead, the new operator will need to submit an NOI or LREW, as applicable, and the previous operator will need to submit an NOT.
 - iii. a decrease in the number of acres disturbed. This information must be included in the SWP3 and retained on site.

8. Signatory Requirement for NOI Forms, NOT Forms, NOC Forms, and Construction Site Notices

NOI forms, NOT forms, NOC forms, and Construction Site Notices that require a signature must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications).

Section F. Terminating Coverage**1. Notice of Termination (NOT) Required**

Each operator that has submitted an NOI for authorization of large construction activities under this general permit must apply to terminate that authorization following the conditions described in this section of the general permit.

Authorization of large construction must be terminated by submitting an NOT electronically via the online ePermits system available through the TCEQ website, or on a paper NOT form to TCEQ supplied by the executive director with an approved waiver from electronic reporting. Authorization to discharge under this general permit terminates at midnight on the day a paper NOT is postmarked for delivery to the TCEQ or immediately following confirmation of the receipt of the NOT submitted electronically by the TCEQ.

Applicants must submit an NOT using the online ePermits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance.

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge (with a list in the SWP3 of the names and addresses of all MS4 operators receiving a copy), within 30 days after any of the following conditions are met:

- (a) final stabilization has been achieved on all portions of the site that are the responsibility of the operator;
- (b) a transfer of operational control has occurred (See Section II.F.4. below); or
- (c) the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

Compliance with the conditions and requirements of this permit is required until the NOT is submitted and approved by TCEQ.

2. Minimum Contents of the NOT

The NOT form shall require, at a minimum, the following information:

- (a) if authorization for construction activity was granted following submission of an NOI, the permittee's site-specific TPDES authorization number for a specific construction site;
- (b) an indication of whether final stabilization has been achieved at the site and a NOT has been submitted or if the permittee is simply no longer an operator at the site;
- (c) the name, address, and telephone number of the permittee submitting the NOT;
- (d) the name (or other identifier), address, county, and location (latitude/longitude) of the construction project or site; and
- (e) a signed certification that either all stormwater discharges requiring authorization under this general permit will no longer occur, or that the applicant is no longer the operator of the facility or construction site, and that all temporary structural erosion controls have either been removed, will be removed on a schedule defined in the SWP3, or have been transferred to a new operator if the new operator has applied for permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

3. Termination of Coverage for Small Construction Sites and for Secondary Operators at Large Construction Sites

- (a) Each operator that has obtained automatic authorization for small construction or is a secondary operator for large construction must perform the following when terminating coverage under the permit:
 - i. remove the TCEQ site notice;
 - ii. complete the applicable portion of the TCEQ site notice related to removal of the TCEQ site notice; and
 - iii. submit a copy of the completed TCEQ site notice to the operator of any MS4 receiving the discharge (or provide alternative notification as allowed by the MS4 operator, with documentation of such notification included in the SWP3).
- (b) The activities described in Part II.F.3.(a) above must be completed by the operator within 30 days of meeting any of the following conditions:
 - i. final stabilization has been achieved on all portions of the site that are the responsibility of the operator;
 - ii. a transfer of day-to-day operational control over activities necessary to ensure compliance with the SWP3 and other permit conditions has occurred (See Section II.F.4. below); or
 - iii. the operator has obtained alternative authorization under an individual or general TPDES permit.

For Small Construction Sites and Secondary Operators at Large Construction Sites, authorization to discharge under this general permit terminates immediately upon removal of the applicable TCEQ construction site notice. Compliance with the conditions and requirements of this permit is required until the TCEQ construction site notice is removed. The construction site notice cannot be removed until final stabilization has been achieved.

4. Transfer of Day-to-Day Operational Control

- (a) When the primary operator of a large construction activity changes or operational control over activities necessary to ensure compliance with the SWP3 and other permit conditions is transferred to another primary operator, the original operator must do the following:
 - i. submit an NOT within ten (10) days prior to the date that responsibility for operations terminates, and the new operator must submit an NOI at least ten (10) days prior to the transfer of operational control, in accordance with condition (c) below; and
 - ii. submit a copy of the NOT from the primary operator terminating its coverage under the permit and its operational control of the construction site and submit a copy of the NOI from the new primary operator to the operator of any MS4 receiving the discharge in accordance with Part II.F.1. above.
- (b) For transfer of operational control, operators of small construction activities and secondary operators of large construction activities who are not required to submit an NOI must do the following:
 - i. the existing operator must remove the original TCEQ construction site notice, and the new operator must post the required TCEQ construction site notice prior to the transfer of operational control, in accordance with the conditions in Part II.F.4.(c) i or ii below; and

- ii. a copy of the TCEQ construction site notice, which must be completed and provided to the operator of any MS4 receiving the discharge, in accordance with Part II.F.3. above.
- (c) Each operator is responsible for determining its role as an operator as defined in Part I.B. and obtaining authorization under the permit, as described above in Part II.E. 1. - 3. Where authorization has been obtained by submitting an NOI for coverage under this general permit, permit coverage is not transferable from one operator to another. A transfer of operational control can include changes to the structure of a company, such as changing from a partnership to a corporation, or changing to a different corporation type such that a different filing (or charter) number is established with the Texas Secretary of State (SOS). A transfer of operational control can also occur when one of the following criteria is met, as applicable:
 - i. another operator has assumed control over all areas of the site that do not meet the definition for final stabilization;
 - ii. all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator, provided that the original permitted operator has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Records of this notification (or attempt at notification) shall be retained by the operator transferring operational control to another operator in accordance with Part VI of this permit. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal; or
 - iii. a homebuilder has purchased one (1) or more lots from an operator who obtained coverage under this general permit for a common plan of development or sale. The homebuilder is considered a new operator and shall comply with the requirements of this permit. Under these circumstances, the homebuilder is only responsible for compliance with the general permit requirements as they apply to the lot(s) it has operational control over in a larger common plan of development, and the original operator remains responsible for common controls or discharges, and must amend its SWP3 to remove the lot(s) transferred to the homebuilder.

Section G. Waivers from Coverage

The executive director may waive the otherwise applicable requirements of this general permit for stormwater discharges from small construction activities under the terms and conditions described in this section.

1. Waiver Applicability and Coverage

Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit, when the calculated rainfall erosivity (R) factor for the entire period of the construction project is less than five (5).

The operator must submit a Low Rainfall Erosivity Waiver (LREW) certification form to the TCEQ electronically via the online ePermits system available through the TCEQ website. The LREW form is a certification by the operator that the small construction activity will commence and be completed within a period when the value of the calculated R factor is less than five (5).

Applicants who request and obtain an electronic reporting waiver shall submit the LREW on a paper form provided by the executive director at least seven (7) days prior to commencing construction activity to obtain provisional coverage 48-hours from the postmark date for delivery to the TCEQ. An authorization is no longer provisional when the executive director finds the LREW is administratively complete, and an authorization number is issued to the permittee for the construction site indicated on the LREW. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge, except for temporary waivers that expire one (1) year from issuance.

This LREW from coverage does not apply to any non-stormwater discharges, including what is allowed under this permit. The operator must ensure that all non-stormwater discharges are either authorized under a separate permit or authorization or are captured and routed to an authorized treatment facility for disposal.

2. Steps to Obtaining a Waiver

The construction site operator may calculate the R factor to request a waiver using the following steps:

- (a) estimate the construction start date and the construction end date. The construction end date is the date that final stabilization will be achieved.
- (b) find the appropriate Erosivity Index (EI) zone in Appendix B of this permit.
- (c) find the EI percentage for the project period by adding the results for each period of the project using the table provided in Appendix D of this permit, in EPA Fact Sheet 2.1, or in USDA Handbook 703, by subtracting the start value from the end value to find the percent EI for the site.
- (d) refer to the Isoerodent Map (Appendix C of this permit) and interpolate the annual isoerodent value for the proposed construction location.
- (e) multiply the percent value obtained in Step (c) above by the annual isoerodent value obtained in Step (d). This is the R factor for the proposed project. If the value is less than five (5), then a waiver may be obtained. If the value is five (5) or more, then a waiver may not be obtained, and the operator must obtain coverage under Part II.E.2. of this permit.

Alternatively, the operator may calculate a site-specific R factor utilizing the following online calculator: <https://lew.epa.gov/>, or using another available resource.

A copy of the LREW certification form is not required to be posted at the small construction site.

3. Effective Date of an LREW

Unless otherwise notified by the executive director, operators of small construction activities seeking coverage under an LREW are provisionally waived from the otherwise applicable requirements of this general permit 48-hours from the date that a completed paper LREW certification form is postmarked for delivery to TCEQ, or immediately upon receiving confirmation of approval of an electronic submittal, made via the online ePermits system available through the TCEQ website.

Applicants seeking coverage under an LREW must submit an application for an LREW using the online ePermits system available through the TCEQ website, or request and obtain a waiver from electronic reporting from the TCEQ. Waivers from electronic reporting are not transferrable and expire on the same date as the authorization to discharge.

4. Activities Extending Beyond the LREW Period

If a construction activity extends beyond the approved waiver period due to circumstances beyond the control of the operator, the operator must either:

- (a) recalculate the R factor using the original start date and a new projected ending date, and if the R factor is still under five (5), submit a new LREW form at least two (2) days before the end of the original waiver period; or
- (b) obtain authorization under this general permit according to the requirements for automatic authorization for small construction activities in Part II.E.2. of this permit, prior to the end of the approved LREW period.

Section H. Alternative TPDES Permit Coverage

1. Individual Permit Alternative

Any discharge eligible for coverage under this general permit may alternatively be authorized under an individual TPDES permit according to 30 TAC Chapter 305 (relating to Consolidated Permits). Applications for individual permit coverage must be submitted at least 330 days prior to commencement of construction activities to ensure timely authorization. Existing coverage under this general permit should not be terminated until an individual permit is issued and in effect.

2. General Permit Alternative

Any discharges eligible for authorization under this general permit may alternatively be authorized under a separate general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges), as applicable.

3. Individual Permit Required

The executive director may require an operator of a construction site, otherwise eligible for authorization under this general permit, to apply for an individual TPDES permit in the following circumstances:

- (a) the conditions of an approved TMDL or TMDL I-Plan on the receiving water;
- (b) the activity being determined to cause, has a reasonable potential to cause, or contribute to a violation of water quality standards or being found to cause, or contribute to, the loss of a designated use of surface water in the state; and
- (c) any other consideration defined in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges) including 30 TAC § 205.4(c)(3)(D), which allows the commission to deny authorization under the general permit and require an individual permit if a discharger has been determined by the executive director to have been out of compliance with any rule, order, or permit of the commission, including non-payment of fees assessed by the executive director.

A discharger with a TCEQ compliance history rating of “unsatisfactory” is ineligible for coverage under this general permit. In that case, 30 TAC § 60.3 requires the executive director to deny or suspend an authorization to discharge under a general permit. However, per TWC § 26.040(h), a discharger is entitled to a hearing before the commission prior to having an authorization denied or suspended for having an “unsatisfactory” compliance history.

Denial of authorization to discharge under this general permit or suspension of a permittee’s authorization under this general permit for reasons other than compliance history shall be done according to commission rules in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges).

Section I. Permit Expiration

1. This general permit is effective for a term not to exceed five (5) years. All active discharge authorizations expire on the date provided on page one (1) of this permit. Following public notice and comment, as provided by 30 TAC § 205.3 (relating to Public Notice, Public Meetings, and Public Comment), the commission may amend, revoke, cancel, or renew this general permit. All authorizations that are active at the time the permit term expires will be administratively continued as indicated in Part II.I.2. below and in Part II.D.1.(b) and D.2.(b) of this permit.
2. If the executive director publishes a notice of the intent to renew or amend this general permit before the expiration date, the permit will remain in effect for existing, authorized discharges until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization.
3. If the commission does not propose to reissue this general permit within 90 days before the expiration date, permittees shall apply for authorization under an individual permit or an alternative general permit. If the application for an individual permit is submitted before the expiration date, authorization under this expiring general permit remains in effect until the issuance or denial of an individual permit. No new NOIs will be accepted nor new authorizations honored under the general permit after the expiration date.

Part III. Stormwater Pollution Prevention Plans (SWP3)

All regulated construction site operators shall prepare an SWP3, prior to submittal of an NOI, to address discharges authorized under Parts II.E.2. and II.E.3. of this general permit that will reach waters of the U.S. This includes discharges to MS4s and privately owned separate storm sewer systems that drain into surface water in the state or waters of the U.S.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project, provided reference is made to the other operators at the site. Where there is more than one (1) SWP3 for a site, operators must coordinate to ensure that BMPs and controls are consistent and do not negate or impair the effectiveness of each other.

Regardless of whether a single comprehensive SWP3 is developed or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure compliance with the terms and conditions of this general permit in the areas of the construction site where that operator has control over construction plans and specifications or day-to-day operations.

An SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater associated with construction activity and non-stormwater discharges described in Part II.A.3., in compliance with the terms and conditions of this permit.

An SWP3 must also identify any potential sources of pollution that have been determined to cause, have a reasonable potential to cause, or contribute to a violation of water quality standards or have been found to cause or contribute to the loss of a designated use of surface water in the state from discharges of stormwater from construction activities and construction support activities. Where potential sources of these pollutants are present at a construction site, the SWP3 must also contain a description of the management practices that will be used to prevent these pollutants from being discharged into surface water in the state or waters of the U.S.

NOTE: Construction support activities can also include vehicle repair areas, fueling areas, etc. that are present at a construction site solely for the support construction activities and are only used by operators at the construction site.

The SWP3 is intended to serve as a road map for how the construction operator will comply with the effluent limits and other conditions of this permit. Additional portions of the effluent limits are established in Part IV. of the permit.

Section A. Shared SWP3 Development

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators of small and large construction activities must independently obtain authorization under this permit but may work together with other regulated operators at the construction site to prepare and implement a single, comprehensive SWP3, which can be shared by some or all operators, for the construction activities that each of the operators are performing at the entire construction site.

1. The SWP3 must include the following:
 - (a) for small construction activities – the name of each operator that participates in the shared SWP3;
 - (b) for large construction activities – the name of each operator that participates in the shared SWP3, the general permit authorization numbers of each operator (or the date that the NOI was submitted to TCEQ by each operator that has not received an authorization number for coverage under this permit); and
 - (c) for large and small construction activities – the signature of each operator participating in the shared SWP3.
2. The SWP3 must clearly indicate which operator is responsible for satisfying each shared requirement of the SWP3. If the responsibility for satisfying a requirement is not described in the plan, then each permittee is entirely responsible for meeting the requirement within the boundaries of the construction site where they perform construction activities. The SWP3 must clearly describe responsibilities for meeting each requirement in shared or common areas.
3. The SWP3 may provide that one operator is responsible for preparation of a SWP3 in compliance with the CGP, and another operator is responsible for implementation of the SWP3 at the project site.

Section B. Responsibilities of Operators

1. Secondary Operators and Primary Operators with Control Over Construction Plans and Specifications

All secondary operators and primary operators with control over construction plans and specifications shall:

- (a) ensure the project specifications allow or provide that adequate BMPs are developed to meet the requirements of Part III of this general permit;
- (b) ensure that the SWP3 indicates the areas of the project where they have control over project specifications, including the ability to make modifications in specifications;
- (c) ensure that all other operators affected by modifications in project specifications are notified in a timely manner so that those operators may modify their BMP s as necessary to remain compliant with the conditions of this general permit; and

- (d) ensure that the SWP3 for portions of the project where each operator has control indicates the name and site-specific TPDES authorization number(s) for operators with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. If a primary operator has not been authorized or has abandoned the site, the secondary operator is considered to be the responsible party and must obtain authorization as a primary operator under the permit, until the authority for day-to-day operational control is transferred to another primary operator. The new primary operator must update or develop a new SWP3 that will reflect the transfer of operational control and include any additional updates to the SWP3 to meet requirements of the permit.

2. Primary Operators with Day-to-Day Operational Control

Primary operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with an SWP3 and other permit conditions must ensure that the SWP3 accomplishes the following requirements:

- (a) meets the requirements of this general permit for those portions of the project where they are operators;
- (b) identifies the parties responsible for implementation of BMPs described in the SWP3;
- (c) indicates areas of the project where they have operational control over day-to-day activities; and
- (d) the name and site-specific TPDES authorization number of the parties with control over project specifications, including the ability to make modifications in specifications for areas where they have operational control over day-to-day activities.

Section C. Deadlines for SWP3 Preparation, Implementation, and Compliance

The SWP3 must be prepared prior to obtaining authorization under this general permit, and implemented prior to commencing construction activities that result in soil disturbance. The SWP3 must be prepared so that it provides for compliance with the terms and conditions of this general permit.

Section D. Plan Review and Making Plans Available

1. The SWP3 must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site. If the SWP3 is retained off-site, then it shall be made available as soon as reasonably possible. In most instances, it is reasonable that the SWP3 shall be made available within 24 hours of the request.

NOTE: The SWP3 may be prepared and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read in a similar manner as a paper record; (b) legally valid with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be, if the records were stored in paper form.

2. Operators with authorization for construction activity under this general permit must post a TCEQ site notice at the construction site at a place readily available for viewing by the general public, and local, state, and federal authorities.

- (a) Primary and secondary operators of large construction activities must each post a TCEQ construction site notice, respective to their role as an operator at the construction site, as required above and according to requirements in Part II.E.3. of this general permit.
 - (b) Primary and secondary operators of small construction activities must post the TCEQ site notice as required in Part III.D.2.(a) above and for the specific type of small construction described in Part II.E.1. and 2. of the permit.
 - (c) If the construction project is a linear construction project, such as a pipeline or highway, the notices must be placed in a publicly accessible location near where construction is actively underway. TCEQ construction site notices for small and large construction activities at these linear construction sites may be relocated, as necessary, along the length of the project, but must still be readily available for viewing by the general public; local, state, and federal authorities; and contain the following information:
 - i. the site-specific TPDES authorization number for the project if assigned;
 - ii. the operator name, contact name, and contact phone number;
 - iii. a brief description of the project; and
 - iv. the location of the SWP3.
3. This permit does not provide the general public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the general public access to a construction site.

Section E. Revisions and Updates to SWP3s

The permittee must revise or update the SWP3, including the site map, within seven (7) days of when any of the following occurs:

1. a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3;
2. changing site conditions based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs; or
3. results of inspections or investigations by construction site personnel authorized by the permittee, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

Section F. Contents of SWP3

The SWP3 must be developed and implemented by primary operators of small and large construction activities and include, at a minimum, the information described in this section and must comply with the construction and development effluent guidelines in Part IV. of the general permit.

1. A site or project description, which includes the following information:
 - (a) a description of the nature of the construction activity;
 - (b) a list of potential pollutants and their sources;
 - (c) a description of the intended schedule or sequence of activities that will disturb soils for major portions of the site, including estimated start dates and duration of activities;

- (d) the total number of acres of the entire property and the total number of acres where construction activities will occur, including areas where construction support activities (defined in Part I.B. of this general permit) occur;
- (e) data describing the soil or the quality of any discharge from the site;
- (f) a map showing the general location of the site (e.g., a portion of a city or county map);
- (g) a detailed site map (or maps) indicating the following:
 - i. property boundary(ies);
 - ii. drainage patterns and approximate slopes anticipated before and after major grading activities;
 - iii. areas where soil disturbance will occur (note any phasing), including any demolition activities;
 - iv. locations of all controls and buffers, either planned or in place;
 - v. locations where temporary or permanent stabilization practices are expected to be used;
 - vi. locations of construction support activities, including those located off-site;
 - vii. surface waters (including wetlands) either at, adjacent, or in close proximity to the site, and also indicate whether those waters are impaired;

NOTE: Surface waters adjacent to or in close proximity to the site means any receiving waters within the site and all receiving waters within one mile downstream of the site's discharge point(s).
 - viii. locations where stormwater discharges from the site directly to a surface water body or a municipal separate storm sewer system;
 - ix. vehicle wash areas; and
 - x. designated points on the site where vehicles will exit onto paved roads (for instance, this applies to construction transition from unstable dirt areas to exterior paved roads).

Where the amount of information required to be included on the map would result in a single map being difficult to read and interpret, the operator shall develop a series of maps that collectively include the required information.

- (h) the location and description of support activities authorized under the permittee's NOI, including asphalt plants, concrete plants, and other activities providing support to the construction site that is authorized under this general permit;
- (i) the name of receiving waters at or near the site that may be disturbed or that may receive discharges from disturbed areas of the project;
- (j) a copy of this TPDES general permit (an electronic copy of this TPDES general permit or a current link to this TPDES general permit on the TCEQ webpage is acceptable);
- (k) the NOI and the acknowledgement of provisional and non-provisional authorization for primary operators of large construction sites, and the TCEQ site notice for small construction sites and for secondary operators of large construction sites;
- (l) if signatory authority is delegated by an authorized representative, then a copy of the formal notification to TCEQ, as required by 30 TAC 305.128 relating to Signatories to Reports must be filed in the SWP3 and made available for review upon request by TCEQ or local MS4 Operator. For primary operators of large construction activities, the formal notification to TCEQ must be submitted either electronically through

STEERS, TCEQ's electronic reporting system, or, if qualifying for an electronic reporting waiver, by paper on a Delegation of Signatories form. For operators or small construction activities, the formal notification to TCEQ must be submitted by paper on a Delegation of Signatories form.

- (m) stormwater and allowable non-stormwater discharge locations, including storm drain inlets on site and in the immediate vicinity of the construction site where construction support activities will occur; and
- (n) locations of all pollutant-generating activities at the construction site and where construction support activities will occur, such as the following: Paving operations; concrete, paint and stucco washout and water disposal; solid waste storage and disposal; and dewatering operations.

2. A description of the BMPs that will be used to minimize pollution in runoff.

The description must identify the general timing or sequence for installation and implementation. At a minimum, the description must include the following components:

(a) General Requirements

- i. Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.
- ii. Control measures must be properly selected, installed, and maintained according to good engineering practices, and the manufacturer's or designer's specifications.
- iii. Controls must be developed to minimize the offsite transport of litter, construction debris, construction materials, and other pollutants required of Part IV.D.

(b) Erosion Control and Stabilization Practices

The SWP3 must include a description of temporary and permanent erosion control and stabilization practices for the construction site, where small or large construction activity will occur. The erosion control and stabilization practices selected by the permittee must be compliant with the requirements for sediment and erosion control, located in Part IV. of this permit. The description of the SWP3 must also include a schedule of when the practices will be implemented. Site plans must ensure that existing vegetation at the construction site is preserved where it is possible.

- i. Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanisms, and other similar measures.
- ii. The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties listed in Part III.D.1 of this general permit:
 - (A) the dates when major grading activities occur;
 - (B) the dates when construction activities temporarily or permanently cease on a portion of the site; and
 - (C) the dates when stabilization measures are initiated.
- iii. Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding fourteen (14) calendar days. Stabilization

measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased. The term “immediately” is used to define the deadline for initiating stabilization measures. In the context of this requirement, “immediately” means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. Except as provided in (A) through (D) below, these measures must be completed as soon as practicable, but no more than fourteen (14) calendar days after the initiation of soil stabilization measures:

- (A) where the immediate initiation of vegetative stabilization measures after construction activity has temporarily or permanently ceased due to frozen conditions, non-vegetative controls must be implemented until thawing conditions (as defined in Part I.B. of this general permit) are present, and vegetative stabilization measures can be initiated as soon as practicable.
 - (B) in arid areas, semi-arid areas, or drought-stricken areas, as they are defined in Part I.B. of this general permit, where the immediate initiation of vegetative stabilization measures after construction activity has temporarily or permanently ceased or is precluded by arid conditions, other types of erosion control and stabilization measures must be initiated at the site as soon as practicable. Where vegetative controls are infeasible due to arid conditions, and within fourteen (14) calendar days of a temporary or permanent cessation of construction activity in any portion of the site, the operator shall immediately install non-vegetative erosion controls in areas of the construction site where construction activity is complete or has ceased. If non-vegetative controls are infeasible, the operator shall install temporary sediment controls as required in Part III.F.2.(b)iii.(C) below.
 - (C) in areas where non-vegetative controls are infeasible, the operator may alternatively utilize temporary perimeter controls. The operator must document in the SWP3 the reason why stabilization measures are not feasible, and must demonstrate that the perimeter controls will retain sediment on site to the extent practicable. The operator must continue to inspect the BMPs at the frequencies established in Part III.F.8.(c) for unstabilized sites.
 - (D) the requirement for permittees to initiate stabilization is triggered as soon as it is known with reasonable certainty that construction activity at the site or in certain areas of the site will be stopped for 14 or more additional calendar days. If the initiation or completion of vegetative stabilization is prevented by circumstances beyond the control of the permittee, the permittee must employ and implement alternative stabilization measures immediately. When conditions at the site changes that would allow for vegetative stabilization, then the permittee must initiate or complete vegetative stabilization as soon as practicable.
- iv. Final stabilization must be achieved prior to termination of permit coverage.
 - v. TCEQ does not expect that temporary or permanent stabilization measures to be applied to areas that are intended to be left un-vegetated or un-stabilized following construction (e.g., dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, or materials).

(c) Sediment Control Practices

The SWP3 must include a description of any sediment control practices used to remove eroded soils from stormwater runoff, including the general timing or sequence for implementation of controls. Controls selected by the permittee must be compliant with the requirements in Part IV. of this permit.

i. Sites With Drainage Areas of Ten (10) or More Acres

(A) Sedimentation Basin(s) or Impoundments

- (1) A sedimentation basin or similar impoundment is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time. A sedimentation basin or impoundment may be temporary or permanent, and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin or similar impoundment. Capacity calculations shall be included in the SWP3. Sedimentation basins must be designed for and appropriate for controlling runoff at the site and existing detention or retention ponds at the site may not be appropriate.
- (2) Where rainfall data is not available, or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.
- (3) If a sedimentation basin or impoundment is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin or impoundment is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins or impoundments are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins or impoundments.
- (4) Unless infeasible, when discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface.

- (B) Perimeter Controls: At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

ii. Controls for Sites with Drainage Areas Less than Ten (10) Acres:

- (A) Sediment traps and sediment basins may be used to control solids in stormwater runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

- (B) Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained may be utilized. Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained may be provided. If a calculation is performed, then the calculation shall be included in the SWP3.
- (C) If sedimentation basins or impoundments are used, the permittee shall comply with the requirements in Part IV.F. of this general permit.

3. Description of Permanent Stormwater Controls

A description of any stormwater control measures that will be installed during the construction process to control pollutants in stormwater discharges that may occur after construction operations have been completed must be included in the SWP3. Permittees are responsible for the installation and maintenance of stormwater management measures, as follows:

- (a) permittees authorized under the permit for small construction activities are responsible for the installation and maintenance of stormwater control measures prior to final stabilization of the site; or
- (b) permittees authorized under the permit for large construction activities are responsible for the installation and maintenance of stormwater control measures prior to final stabilization of the site and prior to submission of an NOT.

4. Other Required Controls and BMPs

- (a) Permittees shall minimize, to the extent practicable, the off-site vehicle tracking of sediments and dust. The SWP3 shall include a description of controls utilized to control the generation of pollutants that could be discharged in stormwater from the site.
- (b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to minimize pollutants from these materials.
- (c) The SWP3 must include a description of potential pollutant sources in discharges of stormwater from all areas of the construction site where construction activity, including construction support activities, will be located, and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.
- (d) Permittees shall place velocity dissipation devices at discharge locations and along the length of any outfall channel (i.e., runoff conveyance) to provide a non-erosive flow velocity from the structure to a water course, so that the natural physical and biological characteristics and functions are maintained and protected.
- (e) Permittees shall design and utilize appropriate controls in accordance with Part IV. of this permit to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.
- (f) Permittees shall ensure that all other required controls and BMPs comply with all of the requirements of Part IV. of this general permit.
- (g) For demolition of any structure with at least 10,000 square feet of floor space that was built or renovated before January 1, 1980, and the receiving waterbody is impaired for polychlorinated biphenyls (PCBs):
 - i. implement controls to minimize the exposure of PCB-containing building materials, including paint, caulk, and pre-1980 fluorescent lighting fixtures to precipitation and to stormwater; and

- ii. ensure that disposal of such materials is performed in compliance with applicable state, federal, and local laws.
5. Documentation of Compliance with Approved State and Local Plans
- (a) Permittees must ensure that the SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by federal, state, or local officials.
 - (b) SWP3s must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or stormwater management site plans or site permits approved by state or local official for which the permittee receives written notice.
 - (c) If the permittee is required to prepare a separate management plan, including but not limited to a WPAP or Contributing Zone Plan in accordance with 30 TAC Chapter 213 (related to the Edwards Aquifer), then a copy of that plan must be either included in the SWP3 or made readily available upon request to authorized personnel of the TCEQ. The permittee shall maintain a copy of the approval letter for the plan in its SWP3.
6. Maintenance Requirements
- (a) All protective measures identified in the SWP3 must be maintained in effective operating condition. If, through inspections or other means, as soon as the permittee determines that BMPs are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWP3 and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.
 - (b) If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the operator shall replace or modify the control as soon as practicable after making the discovery.
 - (c) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
 - (d) If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee shall work with the owner or operator of the property to remove the sediment.
7. Observation and Evaluation of Dewatering Controls Pursuant to Part IV.C. of this General Permit
- (a) Personnel provided by the permittee must observe and evaluate dewatering controls at a minimum of once per day on the days where dewatering discharges from the construction site occur. Personnel conducting these evaluations must be knowledgeable of this general permit, the construction activities at the site, and the SWP3 for the site. Personnel conducting these evaluations are not required to have signatory authority for reports under 30 TAC § 305.128 (relating to Signatories to Reports).

(b) Requirements for Observations and Evaluations

- i. A report summarizing the scope of any observation and evaluation must be completed within 24-hours following the evaluation. The report must also include, at a minimum, the following:
 - (A) date of the observations and evaluation;
 - (B) name(s) and title(s) of personnel making the observations and evaluation;
 - (C) approximate times that the dewatering discharge began and ended on the day of evaluation, or if the dewatering discharge is a continuous discharge that continues after normal business hours, indicate that the discharge is continuous (this information can be reported by personnel initiating the dewatering discharge);
 - (D) estimates of the rate (in gallons per day) of discharge on the day of evaluation;
 - (E) whether or not any indications of pollutant discharge were observed at the point of discharge (e.g., foam, oil sheen, noticeable odor, floating solids, suspended sediments, or other obvious indicators of stormwater pollution); and
 - (F) major observations, including: the locations of where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.
- ii. Actions taken as a result of evaluations, including the date(s) of actions taken, must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be retained as part of the SWP3 and signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).
- iii. The names and qualifications of personnel making the evaluations for the permittee may be documented once in the SWP3 rather than being included in each report.

8. Inspections of All Controls

- (a) Personnel provided by the permittee must inspect disturbed areas (cleared, graded, or excavated) of the construction site that do not meet the requirements of final stabilization in this general permit, all locations where stabilization measures have been implemented, areas of construction support activity covered under this permit, stormwater controls (including pollution prevention controls) for evidence of, or the potential for, the discharge of pollutants, areas where stormwater typically flows within the construction site, and points of discharge from the construction site.
 - i. Personnel conducting these inspections must be knowledgeable of this general permit, the construction activities at the site, and the SWP3 for the site.
 - ii. Personnel conducting these inspections are not required to have signatory authority for inspection reports under 30 TAC § 305.128 (relating to Signatories to Reports).

(b) Requirements for Inspections

- i. Inspect all stormwater controls (including sediment and erosion control measures identified in the SWP3) to ensure that they are installed properly, appear to be operational, and minimizing pollutants in discharges, as intended.
- ii. Identify locations on the construction site where new or modified stormwater controls are necessary.
- iii. Check for signs of visible erosion and sedimentation that can be attributed to the points of discharge where discharges leave the construction site or discharge into any surface water in the state flowing within or adjacent to the construction site.
- iv. Identify any incidents of noncompliance observed during the inspection.
- v. Inspect locations where vehicles enter or exit the site for evidence of off-site sediment tracking.
- vi. If an inspection is performed when discharges from the construction site are occurring: identify all discharge points at the site, and observe and document the visual quality of the discharge (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other such indicators of pollutants in stormwater).
- vii. Complete any necessary maintenance needed, based on the results of the inspection and in accordance with the requirements listed in Part III.F.6. above.

(c) Inspection frequencies:

- i. Inspections of construction sites must be conducted at least once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, unless as otherwise provided below in Part III.F.8.(c)ii. – v. below.
 - (A) If a storm event produces 0.5 inches or more of rain within a 24-hour period (including when there are multiple, smaller storms that alone produce less than 0.5 inches but together produce 0.5 inches or more in 24 hours), you are required to conduct one inspection within 24 hours of when 0.5 inches of rain or more has fallen. When the 24-hour inspection time frame occurs entirely outside of normal working hours, you must conduct an inspection by no later than the end of the next business day.
 - (B) If a storm event produces 0.5 inches or more of rain within a 24-hour period on the first day of a storm and continues to produce 0.5 inches or more of rain on subsequent days, you must conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.5 inches or more of rain (i.e., only two (2) inspections would be required for such a storm event). When the 24-hour inspection time frame occurs entirely outside of normal working hours, you must conduct an inspection by no later than the end of the next business day.
- ii. Inspection frequencies must be conducted at least once every month in areas of the construction site that meet final stabilization or have been temporarily stabilized.
- iii. Inspection frequencies for construction sites, where runoff is unlikely due to the occurrence of frozen conditions at the site, must be conducted at least once every month until thawing conditions begin to occur (see definitions for thawing conditions in Part I.B.). The SWP3 must also contain a record of the approximate beginning and ending dates of when frozen conditions occurred at the site, which resulted in inspections being conducted monthly, while those

conditions persisted, instead of at the interval of once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

- iv. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. The SWP3 must also contain a record of the total rainfall measured, as well as the approximate beginning and ending dates of when drought conditions occurred at the site, which resulted in inspections being conducted monthly, while those conditions persisted, instead of at the interval of once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.
 - v. As an alternative to the inspection schedule in Part III.F.8.(c)i. above, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, then the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.
 - vi. The inspection procedures described in Part III.F.8.(c)i. – v above can be performed at the frequencies and under the applicable conditions indicated for each schedule option, provided that the SWP3 reflects the current schedule and that any changes to the schedule are made in accordance with the following provisions: the inspection frequency schedule can only be changed a maximum of once per calendar month and implemented within the first five (5) business days of a calendar month; and the reason for the schedule change documented in the SWP3 (e.g., end of “dry” season and beginning of “wet” season).
- (d) Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described in Part III.F.8.(a) above.
- i. Inspection of linear construction sites could require the use of vehicles that could compromise areas of temporary or permanent stabilization, cause additional disturbance of soils, and result in the increase the potential for erosion. In these circumstances, controls must be inspected at least once every fourteen (14) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, but representative inspections may be performed.
 - ii. For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described in Part III.F.8.(a) above. The conditions of the controls along each inspected 0.25-mile portion may be considered as representative of the condition of controls along that reach extending from the end of the 0.25-mile portion to either the end of the next 0.25-mile inspected portion, or to the end of the project, whichever occurs first.

As an alternative to the inspection schedule described in Part III.F.8.(c)i. above, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

- iii. the SWP3 for a linear construction site must reflect the current inspection schedule. Any changes to the inspection schedule must be made in accordance with the following provisions:
 - (A) the schedule may be changed a maximum of one time each month;

- (B) the schedule change must be implemented at the beginning of a calendar month, and
 - (C) the reason for the schedule change must be documented in the SWP3 (e.g., end of “dry” season and beginning of “wet” season).
- (e) Adverse Conditions.
- Requirements for inspections may be temporarily suspended for adverse conditions. Adverse conditions are conditions that are either dangerous to personnel (e.g., high wind, excessive lightning) or conditions that prohibit access to the site (e.g., flooding, freezing conditions). Adverse conditions that result in the temporary suspension of a permit requirement to inspect must be documented and included as part of the SWP3. Documentation must include:
- i. the date and time of the adverse condition,
 - ii. names of personnel that witnessed the adverse condition, and
 - iii. a narrative for the nature of the adverse condition.
- (f) In the event of flooding or other adverse conditions which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.
- Inspection Reports.
- i. A report summarizing the scope of any inspection must be completed within 24-hours following the inspection. The report must also include the date(s) of the inspection and major observations relating to the implementation of the SWP3. Major observations in the report must include: the locations of where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.
 - ii. Actions taken as a result of inspections, including the date(s) of actions taken, must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be retained as part of the SWP3 and signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).
 - iii. The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.
- (g) The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable. If necessary, modify your site map to reflect changes to your stormwater controls that are no longer accurately reflected on the current site map.
9. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-stormwater components of the discharge, as listed in Part II.A.3. of this permit.
10. The SWP3 must include the information required in Part III.B. of this general permit.

11. The SWP3 must include pollution prevention procedures that comply with Part IV.D. of this general permit.

Part IV. Erosion and Sediment Control Requirements Applicable to All Sites

Except as provided in 40 CFR §§ 125.30-125.32, any discharge regulated under this general permit, with the exception of sites that obtained waivers based on low rainfall erosivity, must achieve, at a minimum, the following effluent limitations representing the degree of effluent reduction attainable by application of the best practicable control technology currently available (BPT). The BPT are also required by and must satisfy the Effluent Limitations Guideline (ELG) permitting requirement for application of 40 CFR § 450.24 New Source Performance Standards (NSPS), 40 CFR § 450.22 Best Available Technology Economically Achievable (BAT), and 40 CFR § 450.23 Best Conventional Pollutant Control Technology (BCT).

Section A. Erosion and Sediment Controls

Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed, and maintained to:

1. control stormwater volume and velocity within the site to minimize soil erosion in order to minimize pollutant discharges;
2. control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge point(s);
3. minimize the amount of soil exposed during construction activity;
4. minimize the disturbance of steep slopes;
5. minimize sediment discharges from the site. The design, installation, and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;
6. provide and maintain appropriate natural buffers around surface water in the state. Direct stormwater to vegetated areas and maximize stormwater infiltration to reduce pollutant discharges, unless infeasible. If providing buffers is infeasible, the permittee shall document the reason that natural buffers are infeasible and shall implement additional erosion and sediment controls to reduce sediment load;
7. preserve native topsoil at the site, unless the intended function of a specific area of the site dictates that the topsoil be disturbed or removed, or it is infeasible; and
8. minimize soil compaction. In areas of the construction site where final vegetative stabilization will occur or where infiltration practices will be installed, either:
 - (a) restrict vehicle and equipment use to avoid soil compaction; or
 - (b) prior to seeding or planting areas of exposed soil that have been compacted, use techniques that condition the soils to support vegetative growth, if necessary and feasible.

Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted.

9. TCEQ does not consider stormwater control features (e.g., stormwater conveyance channels, storm drain inlets, sediment basins) to constitute "surface water" for the purposes of triggering the buffer requirement in Part IV.A.(6) above.

Section B. Soil Stabilization

Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding fourteen (14) calendar days. In the context of this requirement, “immediately” means as soon as practicable, but no later than the end of the next workday, following the day when the earth-disturbing activities have temporarily or permanently ceased. Temporary stabilization must be completed no more than fourteen (14) calendar days after initiation of soil stabilization measures, and final stabilization must be achieved prior to termination of permit coverage. In arid, semi-arid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative non-vegetative stabilization measures must be employed as soon as practicable. Refer to Part III.F.2.(b) for complete erosion control and stabilization practice requirements. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed.

Section C. Dewatering

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited, unless managed by appropriate controls to address sediment and prevent erosion. Operators must observe and evaluate the dewatering controls once per day while the dewatering discharge occurs as described in Part III.F.7. of this general permit.

Section D. Pollution Prevention Measures

Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:

1. minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
2. minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater;
3. minimize the exposure of waste materials by closing waste container lids at the end of the workday and during storm events. For waste containers that do not have lids, where the container itself is not sufficiently secure enough to prevent the discharge of pollutants absent a cover and could leak, the permittee must provide either a cover (e.g., a tarp, plastic sheeting, temporary roof) to minimize exposure of wastes to precipitation, stormwater, and wind, or a similarly effective means designed to minimize the discharge of pollutants (e.g., secondary containment). Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use);
4. minimize exposure of wastes by implementing good housekeeping measures. Wastes must be cleaned up and disposed of in designated waste containers on days of operation at the site. Wastes must be cleaned up immediately if containers overflow;

5. minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, you must notify the National Response Center (NRC) at (800) 424-8802 in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117, and 40 CFR Part 302 as soon as you have knowledge of the release. You must also, within seven (7) calendar days of knowledge of the release, provide a description of the release, the circumstances leading to the release, and the date of the release; and
6. minimize exposure of sanitary waste by positioning portable toilets so that they are secure and will not be tipped or knocked over, and so that they are located away from surface water in the state and stormwater inlets or conveyances.

Section E. Prohibited Discharges

The following discharges are prohibited:

1. wastewater from wash out of concrete, unless managed by an appropriate control;
2. wastewater from wash out and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
3. fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
4. soaps or solvents used in vehicle and equipment washing; and
5. toxic or hazardous substances from a spill or other release.

Section F. Surface Outlets

When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible. If infeasible, the permittee must provide documentation in the SWP3 to support the determination, including the specific conditions or time periods when this exception will apply.

Part V. Stormwater Runoff from Concrete Batch Plants

Discharges of stormwater runoff from concrete batch plants present at regulated construction sites and operated as a construction support activity may be authorized under the provisions of this general permit, provided that the following requirements are met for concrete batch plant(s) authorized under this permit. Only the discharges of stormwater runoff and non-stormwater from concrete batch plants that meet the requirements of a construction support activity can be authorized under this permit (see the requirements for “Non-Stormwater Discharges” in Part II.A.3. and “Discharges of Stormwater Associated with Construction Support Activity” in Part II.A.2.).

If discharges of stormwater runoff or non-stormwater from concrete batch plants are not authorized under this general permit, then discharges must be authorized under an alternative general permit or individual permit [see the requirement in Part II.A.2.(c)].

This permit does not authorize the discharge or land disposal of any wastewater from concrete batch plants at regulated construction sites. Authorization for these wastes must be obtained under an individual permit or an alternative general permit.

Section A. Benchmark Sampling Requirements

1. Operators of concrete batch plants authorized under this general permit shall sample the stormwater runoff from the concrete batch plants according to the requirements of this section of this general permit, and must conduct evaluations on the effectiveness of the SWP3 based on the following benchmark monitoring values:

Table 1. Benchmark Parameters

Benchmark Parameter	Benchmark Value	Sampling Frequency	Sample Type
Oil and Grease (*1)	15 mg/L	1/quarter (*2) (*3)	Grab (*4)
Total Suspended Solids (*1)	50 mg/L	1/quarter (*2) (*3)	Grab (*4)
pH	6.0 – 9.0 Standard Units	1/quarter (*2) (*3)	Grab (*4)
Total Iron (*1)	1.3 mg/L	1/quarter (*2) (*3)	Grab (*4)

- (*1) All analytical results for these parameters must be obtained from a laboratory that is accredited based on rules located in 30 TAC § 25.4 (a) or through the National Environmental Laboratory Accreditation Program (NELAP). Analysis must be performed using sufficiently sensitive methods for analysis that comply with the rules located in 40 CFR §§ 136.1(c) and 122.44(i)(1)(iv).
- (*2) When discharge occurs. Sampling is required within the first 30 minutes of discharge. If it is not practicable to take the sample, or to complete the sampling, within the first 30 minutes, sampling must be completed within the first hour of discharge. If sampling is not completed within the first 30 minutes of discharge, the reason must be documented and attached to all required reports and records of the sampling activity.
- (*3) Sampling must be conducted at least once during each of the following periods. The first sample must be collected during the first full quarter that a stormwater discharge occurs from a concrete batch plant authorized under this general permit.
- January through March
April through June
July through September
October through December
- For projects lasting less than one full quarter, a minimum of one sample shall be collected, provided that a stormwater discharge occurred at least once following submission of the NOI or following the date that automatic authorization was obtained under Part II.E.2., and prior to terminating coverage.
- (*4) A grab sample shall be collected from the stormwater discharge resulting from a storm event that is at least 0.1 inches of measured precipitation that occurs at least 72 hours from the previously measurable storm event. The sample shall be collected downstream of the concrete batch plant, and where the discharge exits any BMPs utilized to handle the runoff from the batch plant, prior to commingling with any other water authorized under this general permit.

2. The permittee must compare the results of sample analyses to the benchmark values above, and must include this comparison in the overall assessment of the SWP3's effectiveness. Analytical results that exceed a benchmark value are not a violation of this permit, as these values are not numeric effluent limitations. Results of analyses are indicators that modifications of the SWP3 should be assessed and may be necessary to protect water quality. The operator must investigate the cause for each exceedance and must document the results of this investigation in the SWP3 by the end of the quarter following the sampling event.

The operator's investigation must identify the following:

- (a) any additional potential sources of pollution, such as spills that might have occurred;
- (b) necessary revisions to good housekeeping measures that are part of the SWP3;
- (c) additional BMPs, including a schedule to install or implement the BMPs; and
- (d) other parts of the SWP3 that may require revisions in order to meet the goal of the benchmark values.

Background concentrations of specific pollutants may also be considered during the investigation. If the operator is able to relate the cause of the exceedance to background concentrations, then subsequent exceedances of benchmark values for that pollutant may be resolved by referencing earlier findings in the SWP3. Background concentrations may be identified by laboratory analyses of samples of stormwater run-on to the permitted facility, by laboratory analyses of samples of stormwater run-off from adjacent non-industrial areas, or by identifying the pollutant is a naturally occurring material in soils at the site.

Section B. Best Management Practices (BMPs) and SWP3 Requirements

Minimum SWP3 Requirements – The following are required in addition to other SWP3 requirements listed in this general permit, which include, but are not limited to the applicable requirements located in Part III.F.8. of this general permit, as follows:

1. Description of Potential Pollutant Sources – The SWP3 must provide a description of potential sources (activities and materials) that can cause, have a reasonable potential to cause or contribute to a violation of water quality standards or have been found to cause, or contribute to, the loss of a designated use of surface water in the state in stormwater discharges associated with concrete batch plants authorized under this permit. The SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater discharges associated with industrial activity and non-stormwater discharges (described in Part II.A.3. of this general permit), in compliance with the terms and conditions of this general permit, including the protection of water quality, and must ensure the implementation of these practices.

The following must be developed, at a minimum, in support of developing this description:

- (a) Drainage – The site map must include the following information:
 - i. the location of all outfalls for stormwater discharges associated with concrete batch plants that are authorized under this permit;
 - ii. a depiction of the drainage area and the direction of flow to the outfall(s);
 - iii. structural controls used within the drainage area(s);

- iv. the locations of the following areas associated with concrete batch plants that are exposed to precipitation: vehicle and equipment maintenance activities (including fueling, repair, and storage areas for vehicles and equipment scheduled for maintenance); areas used for the treatment, storage, or disposal of wastes; liquid storage tanks; material processing and storage areas; and loading and unloading areas; and
 - v. the locations of the following: any bag house or other dust control device(s); recycle/sedimentation pond, clarifier or other device used for the treatment of facility wastewater (including the areas that drain to the treatment device); areas with significant materials; and areas where major spills or leaks have occurred.
 - (b) Inventory of Exposed Materials – A list of materials handled at the concrete batch plant that may be exposed to stormwater and precipitation and that have a potential to affect the quality of stormwater discharges associated with concrete batch plants that are authorized under this general permit.
 - (c) Spills and Leaks – A list of significant spills and leaks of toxic or hazardous pollutants that occurred in areas exposed to stormwater and precipitation and that drain to stormwater outfalls associated with concrete batch plants authorized under this general permit must be developed, maintained, and updated as needed.
 - (d) Sampling Data – A summary of existing stormwater discharge sampling data must be maintained, if available.
2. Measures and Controls – The SWP3 must include a description of management controls to regulate pollutants identified in the SWP3’s “Description of Potential Pollutant Sources” from Part V.B.1. of this permit, and a schedule for implementation of the measures and controls. This must include, at a minimum:
- (a) Good Housekeeping – Good housekeeping measures must be developed and implemented in the area(s) associated with concrete batch plants.
 - i. Operators must prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), settled dust, or other significant materials from paved portions of the site that are exposed to stormwater. Measures used to minimize the presence of these materials may include regular sweeping or other equivalent practices. These practices must be conducted at a frequency that is determined based on consideration of the amount of industrial activity occurring in the area and frequency of precipitation, and shall occur at least once per week when cement or aggregate is being handled or otherwise processed in the area.
 - ii. Operators must prevent the exposure of fine granular solids, such as cement, to stormwater. Where practicable, these materials must be stored in enclosed silos, hoppers or buildings, in covered areas, or under covering.
 - (b) Spill Prevention and Response Procedures – Areas where potential spills that can contribute pollutants to stormwater runoff and precipitation, and the drainage areas from these locations, must be identified in the SWP3. Where appropriate, the SWP3 must specify material handling procedures, storage requirements, and use of equipment. Procedures for cleaning up spills must be identified in the SWP3 and made available to the appropriate personnel.
 - (c) Inspections – Qualified facility personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) must be identified to inspect designated equipment and areas of the facility specified in the SWP3. Personnel conducting these inspections are not required to have signatory authority for inspection reports under 30 TAC § 305.128. Inspections of facilities in operation must be performed

once every seven (7) days. Inspections of facilities that are not in operation must be performed at a minimum of once per month. The current inspection frequency being implemented at the facility must be recorded in the SWP3. The inspection must take place while the facility is in operation and must, at a minimum, include all areas that are exposed to stormwater at the site, including material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, truck wash down and equipment cleaning areas. Follow-up procedures must be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections must be maintained and be made readily available for inspection upon request.

- (d) Employee Training – An employee training program must be developed to educate personnel responsible for implementing any component of the SWP3, or personnel otherwise responsible for stormwater pollution prevention, with the provisions of the SWP3. The frequency of training must be documented in the SWP3, and at a minimum, must consist of one (1) training prior to the initiation of operation of the concrete batch plant.
 - (e) Record Keeping and Internal Reporting Procedures – A description of spills and similar incidents, plus additional information that is obtained regarding the quality and quantity of stormwater discharges, must be included in the SWP3. Inspection and maintenance activities must be documented and records of those inspection and maintenance activities must be incorporated in the SWP3.
 - (f) Management of Runoff – The SWP3 shall contain a narrative consideration for reducing the volume of runoff from concrete batch plants by diverting runoff or otherwise managing runoff, including use of infiltration, detention ponds, retention ponds, or reusing of runoff.
3. Comprehensive Compliance Evaluation – At least once per year, one or more qualified personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) shall conduct a compliance evaluation of the plant. The evaluation must include the following:
- (a) visual examination of all areas draining stormwater associated with regulated concrete batch plants for evidence of, or the potential for, pollutants entering the drainage system. These include, but are not limited to: cleaning areas, material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, and truck wash down and equipment cleaning areas. Measures implemented to reduce pollutants in runoff (including structural controls and implementation of management practices) must be evaluated to determine if they are effective and if they are implemented in accordance with the terms of this permit and with the permittee's SWP3. The operator shall conduct a visual inspection of equipment needed to implement the SWP3, such as spill response equipment.
 - (b) based on the results of the evaluation, the following must be revised as appropriate within two (2) weeks of the evaluation: the description of potential pollutant sources identified in the SWP3 (as required in Part V.B.1., "Description of Potential Pollutant Sources"); and pollution prevention measures and controls identified in the SWP3 (as required in Part V.B.2., "Measures and Controls"). The revisions may include a schedule for implementing the necessary changes.
 - (c) the permittee shall prepare and include in the SWP3 a report summarizing the scope of the evaluation, the personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the SWP3, and actions taken in response to the findings of the evaluation. The report must identify any incidents of noncompliance. Where the report does not identify incidences of noncompliance, the report must contain a statement that the evaluation did not identify any

incidence(s), and the report must be signed according to 30 TAC § 305.128 (relating to Signatories to Reports).

- (d) the Comprehensive Compliance Evaluation may substitute for one of the required inspections delineated in Part V.B.2.(c) of this general permit.

Section C. Prohibition of Wastewater Discharges

Wastewater discharges associated with concrete production including wastewater disposal by land application are not authorized under this general permit. These wastewater discharges must be authorized under an alternative TCEQ water quality permit or otherwise disposed of in an authorized manner. Discharges of concrete truck wash out at construction sites may be authorized if conducted in accordance with the requirements of Part VI of this general permit.

Part VI. Concrete Truck Wash Out Requirements

This general permit authorizes the land disposal of wash out from concrete trucks at construction sites regulated under this general permit, provided the following requirements are met. Any discharge of concrete production wastewater to surface water in the state must be authorized under a separate TCEQ general permit or individual permit.

- A.** Discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by this general permit.
- B.** Concrete truck wash out water shall be disposed in areas at the construction site where structural controls have been established to prevent discharge to surface water in the state, or to areas that have a minimal slope that allow infiltration and filtering of wash out water to prevent discharge to surface water in the state. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the construction site.
- C.** Wash out of concrete trucks during rainfall events shall be minimized. The discharge of concrete truck wash out water is prohibited at all times, and the operator shall insure that its BMPs are sufficient to prevent the discharge of concrete truck wash out as the result of rainfall or stormwater runoff.
- D.** The disposal of wash out water from concrete trucks, made under authorization of this general permit must not cause or contribute to groundwater contamination.
- E.** If a SWP3 is required to be implemented, the SWP3 shall include concrete wash out areas on the associated site map.

Part VII. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required in Part II.F.1. and 2. of this permit. For activities in which an NOT is not required, records shall be retained for a minimum period of three (3) years from the date that the operator terminates coverage under Section II.F.3. of this permit. Records include:

- A.** a copy of the SWP3;
- B.** all reports and actions required by this permit, including a copy of the TCEQ construction site notice;
- C.** all data used to complete the NOI, if an NOI is required for coverage under this general permit; and
- D.** all records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

Part VIII. Standard Permit Conditions

- A.** The permittee has a duty to comply with all permit conditions. Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued (CWA and TWC), and is grounds for enforcement action, for terminating, revoking and reissuance, or modification, or denying coverage under this general permit, or for requiring a discharger to apply for and obtain an individual TPDES permit, based on rules located in TWC § 23.086, 30 TAC § 305.66, and 40 CFR § 122.41 (a).
- B.** Authorization under this general permit may be modified, suspended, revoked and reissued, terminated or otherwise suspended for cause, based on rules located in TWC § 23.086, 30 TAC § 305.66, and 40 CFR § 122.41(f). Filing a notice of planned changes or anticipated non-compliance by the permittee does not stay any permit condition. The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for modifying, revoking and reissuing, terminating or, otherwise suspending authorization under this permit, based on rules located in TWC § 23.086, 30 TAC § 305.66, and 40 CFR § 122.41 (h). Additionally, the permittee must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of this general permit.
- C.** It is not a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.
- D.** Inspection and entry shall be allowed under TWC Chapters 26-28, Texas Health and Safety Code §§ 361.032-361.033 and 361.037, and 40 CFR § 122.41(i). The statement in TWC § 26.014 that commission entry of a facility shall occur according to an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the facility or site, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.
- E.** The discharger is subject to administrative, civil, and criminal penalties, as applicable, under TWC Chapter 7 for violations including but not limited to the following:
 - 1. negligently or knowingly violating the federal CWA §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under CWA § 402, or any requirement imposed in a pretreatment program approved under CWA §§ 402(a)(3) or 402(b)(8);
 - 2. knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance; and
 - 3. knowingly violating CWA §303 and placing another person in imminent danger of death or serious bodily injury.
- F.** All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).
- G.** Authorization under this general permit does not convey property or water rights of any sort and does not grant any exclusive privilege.
- H.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

- I.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- J.** The permittee shall comply with the monitoring and reporting requirements in 40 CFR § 122.41(j) and (l), as applicable.
- K.** Analysis must be performed using sufficiently sensitive methods for analysis that comply with the rules located in 40 CFR §§ 136.1(c) and 122.44(i)(1)(iv).

Part IX. Fees

- A.** A fee of must be submitted along with the NOI:
 - 1. \$225 if submitting an NOI electronically, or
 - 2. \$325 if submitting a paper NOI.
- B.** Fees are due upon submission of the NOI. An NOI will not be declared administratively complete unless the associated fee has been paid in full.
- C.** No separate annual fees will be assessed for this general permit. The Water Quality Annual Fee has been incorporated into the NOI fees as described above.

Appendix A: Automatic Authorization

Periods of Low Erosion Potential by County – Eligible Date Ranges

Andrews: Nov. 15 - Apr. 30	Foard: Dec. 15 - Feb. 14
Archer: Dec. 15 - Feb. 14	Gaines: Nov. 15 - Apr. 30
Armstrong: Nov. 15 - Apr. 30	Garza: Nov. 15 - Apr. 30
Bailey: Nov. 1 - Apr. 30, or Nov. 15 - May 14	Glasscock: Nov. 15 - Apr. 30
Baylor: Dec. 15 - Feb. 14	Hale: Nov. 15 - Apr. 30
Borden: Nov. 15 - Apr. 30	Hall: Feb. 1 - Mar. 30
Brewster: Nov. 15 - Apr. 30	Hansford: Nov. 15 - Apr. 30
Briscoe: Nov. 15 - Apr. 30	Hardeman: Dec. 15 - Feb. 14
Brown: Dec. 15 - Feb. 14	Hartley: Nov. 15 - Apr. 30
Callahan: Dec. 15 - Feb. 14	Haskell: Dec. 15 - Feb. 14
Carson: Nov. 15 - Apr. 30	Hockley: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Castro: Nov. 15 - Apr. 30	Howard: Nov. 15 - Apr. 30
Childress: Dec. 15 - Feb. 14	Hudspeth: Nov. 1 - May 14
Cochran: Nov. 1 - Apr. 30, or Nov. 15 - May 14	Hutchinson: Nov. 15 - Apr. 30
Coke: Dec. 15 - Feb. 14	Irion: Dec. 15 - Feb. 14
Coleman: Dec. 15 - Feb. 14	Jeff Davis: Nov. 1 - Apr. 30 or Nov. 15 - May 14
Collingsworth: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28	Jones: Dec. 15 - Feb. 14
Concho: Dec. 15 - Feb. 14	Kent: Nov. 15 - Jan. 14 or Feb. 1 - Mar. 30
Cottle: Dec. 15 - Feb. 14	Kerr: Dec. 15 - Feb. 14
Crane: Nov. 15 - Apr. 30	Kimble: Dec. 15 - Feb. 14
Crockett: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30	King: Dec. 15 - Feb. 14
Crosby: Nov. 15 - Apr. 30	Kinney: Dec. 15 - Feb. 14
Culberson: Nov. 1 - May 14	Knox: Dec. 15 - Feb. 14
Dallam: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30	Lamb: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Dawson: Nov. 15 - Apr. 30	Loving: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Deaf Smith: Nov. 15 - Apr. 30	Lubbock: Nov. 15 - Apr. 30
Dickens: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30	Lynn: Nov. 15 - Apr. 30
Dimmit: Dec. 15 - Feb. 14	Martin: Nov. 15 - Apr. 30
Donley: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28	Mason: Dec. 15 - Feb. 14
Eastland: Dec. 15 - Feb. 14	Maverick: Dec. 15 - Feb. 14
Ector: Nov. 15 - Apr. 30	McCulloch: Dec. 15 - Feb. 14
Edwards: Dec. 15 - Feb. 14	Menard: Dec. 15 - Feb. 14
El Paso: Jan. 1 - Jul. 14, or May 15 - Jul. 31, or Jun. 1 - Aug. 14, or Jun. 15 - Sept. 14, or Jul. 1 - Oct. 14, or Jul. 15 - Oct. 31, or Aug. 1 - Apr. 30, or Aug. 15 - May 14, or Sept. 1 - May 30, or Oct. 1 - Jun. 14, or Nov. 1 - Jun. 30, or Nov. 15 - Jul. 14	Midland: Nov. 15 - Apr. 30
Fisher: Dec. 15 - Feb. 14	Mitchell: Nov. 15 - Apr. 30
Floyd: Nov. 15 - Apr. 30	Moore: Nov. 15 - Apr. 30
	Motley: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30
	Nolan: Dec. 15 - Feb. 14
	Oldham: Nov. 15 - Apr. 30

Construction General Permit

TPDES General Permit No. TXR150000
Appendix A

Parmer: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Pecos: Nov. 15 - Apr. 30
Potter: Nov. 15 - Apr. 30
Presidio: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Randall: Nov. 15 - Apr. 30
Reagan: Nov. 15 - Apr. 30
Real: Dec. 15 - Feb. 14
Reeves: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Runnels: Dec. 15 - Feb. 14
Schleicher: Dec. 15 - Feb. 14
Scurry: Nov. 15 - Apr. 30
Shackelford: Dec. 15 - Feb. 14
Sherman: Nov. 15 - Apr. 30
Stephens: Dec. 15 - Feb. 14
Sterling: Nov. 15 - Apr. 30
Stonewall: Dec. 15 - Feb. 14
Sutton: Dec. 15 - Feb. 14

Swisher: Nov. 15 - Apr. 30
Taylor: Dec. 15 - Feb. 14
Terrell: Nov. 15 - Apr. 30
Terry: Nov. 15 - Apr. 30
Throckmorton: Dec. 15 - Feb. 14
Tom Green: Dec. 15 - Feb. 14
Upton: Nov. 15 - Apr. 30
Uvalde: Dec. 15 - Feb. 14
Val Verde: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30
Ward: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30
Wichita: Dec. 15 - Feb. 14
Wilbarger: Dec. 15 - Feb. 14
Winkler: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Yoakum: Nov. 1 - Apr. 30, or Nov. 15 - May 14
Young: Dec. 15 - Feb. 14
Wheeler: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28
Zavala: Dec. 15 - Feb. 14

Appendix B: Storm Erosivity (EI) Zones in Texas

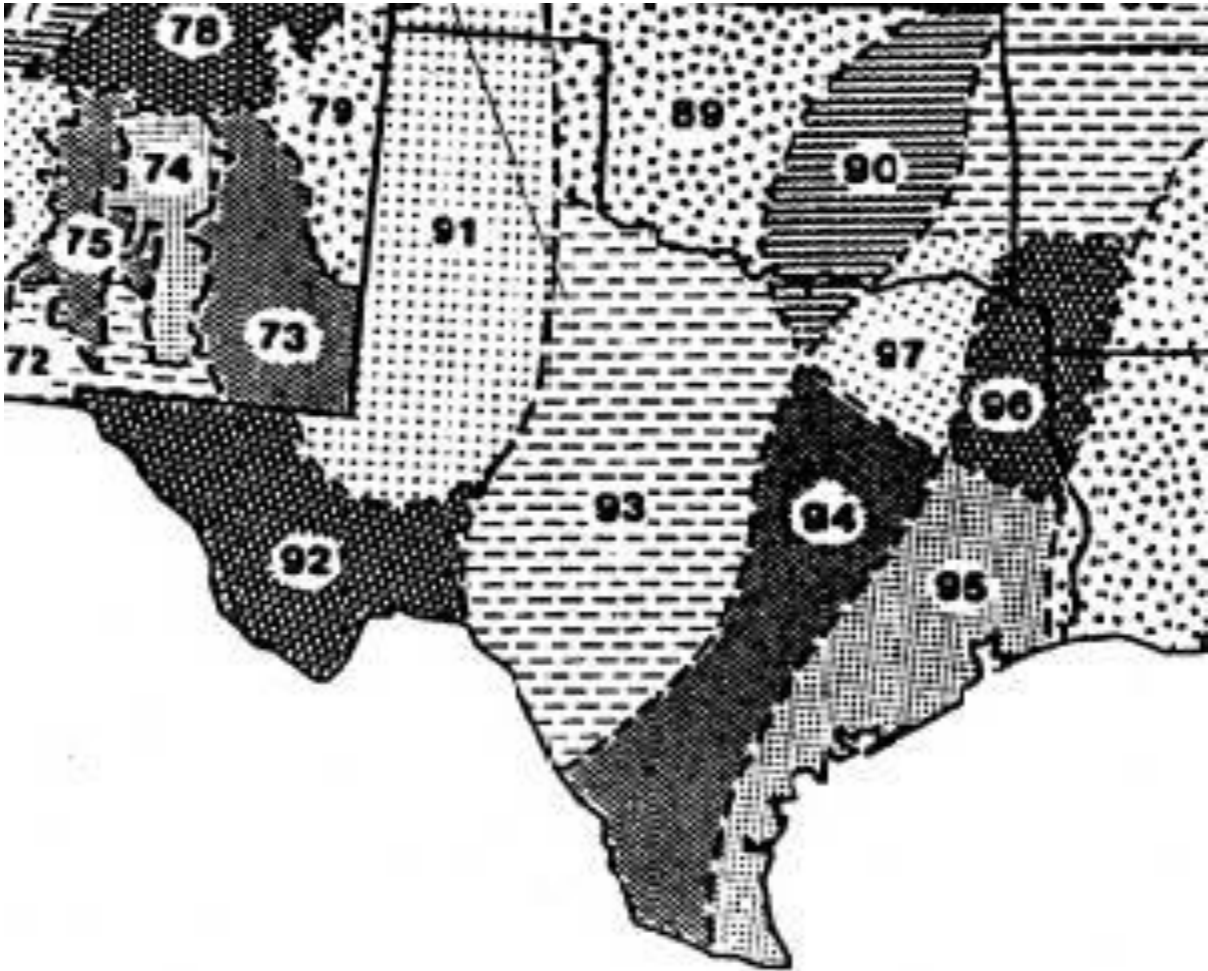


Figure B. EI Distribution Zones

Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

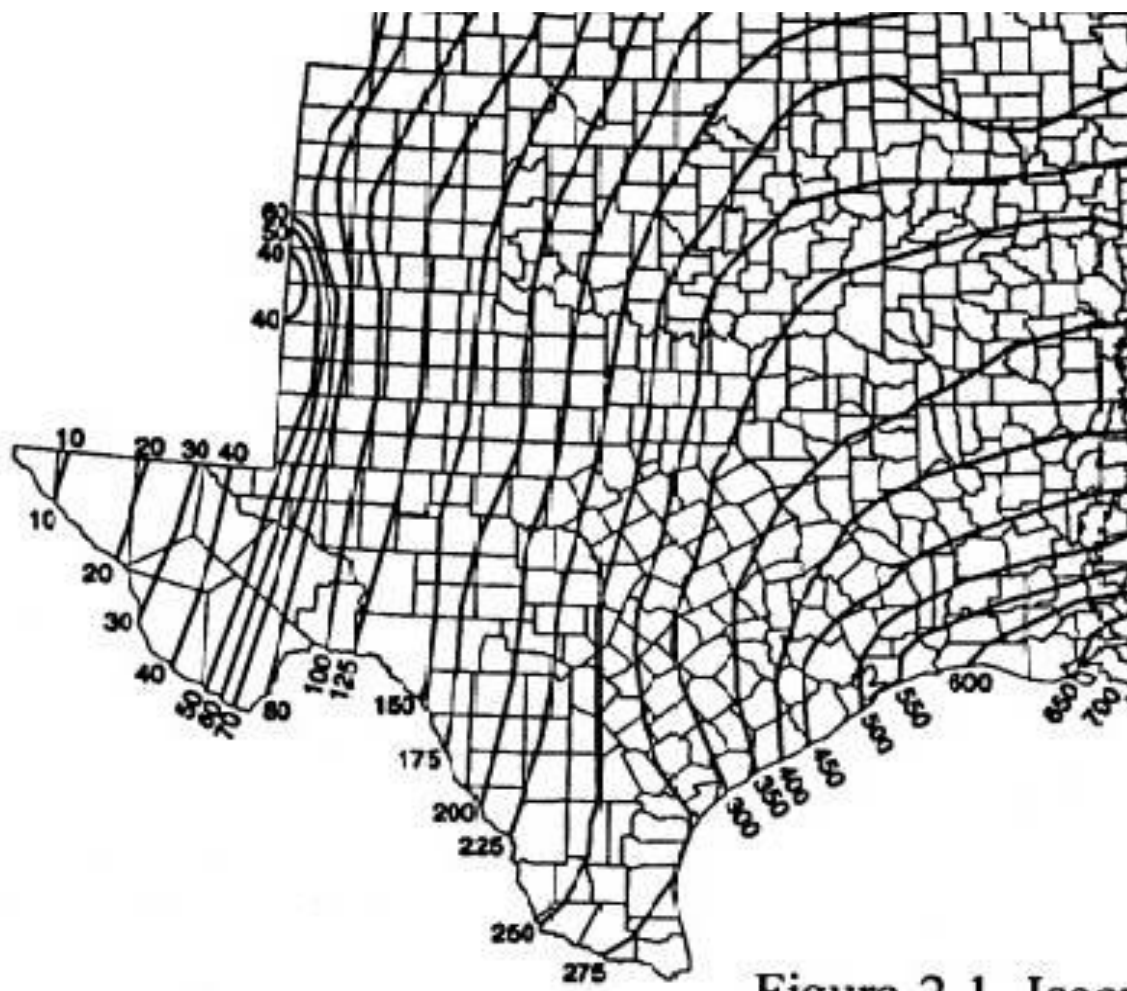
Appendix C: Isoerodent Map

Figure C. Isoerodent Map of Texas. Units are hundreds $\text{ft} \cdot \text{tonf} \cdot \text{in} (\text{ac} \cdot \text{h} \cdot \text{yr})^{-1}$

Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix D: Erosivity Indices for EI Zones in Texas**Table D.** EI as percentage of average annual computed selected geographic areas (EI number) by date period (month/day).

Date Periods* (Month/Day)																									
EI #	1/1	1/16	1/31	2/15	3/1	3/16	3/31	4/15	4/30	5/15	5/30	6/14	6/29	7/14	7/29	8/13	8/28	9/12	9/27	10/12	10/27	11/11	11/26	12/11	12/31
89	0	1	1	2	3	4	7	2	8	27	38	48	55	62	69	76	83	90	94	97	98	99	100	100	100
90	0	1	2	3	4	6	8	13	21	29	37	46	54	60	65	69	74	81	87	92	95	97	98	99	100
91	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
92	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
93	0	1	1	2	3	4	6	8	13	25	40	49	56	62	67	72	76	80	85	91	97	98	99	99	100
94	0	1	2	4	6	8	10	15	21	29	38	47	53	57	61	65	70	76	83	88	91	94	96	98	100
95	0	1	3	5	7	9	11	14	18	27	35	41	46	51	57	62	68	73	79	84	89	93	96	98	100
96	0	2	4	6	9	12	17	23	30	37	43	49	54	58	62	66	70	74	78	82	86	90	94	97	100
97	0	1	3	5	7	10	14	20	28	37	48	56	61	64	68	72	77	81	86	89	92	95	98	99	100
106	0	3	6	9	13	17	21	27	33	38	44	49	55	61	67	71	75	78	81	84	86	90	94	97	100

*Each period begins on the date listed in the table above and lasts until the day before the following period. The final period begins on December 11 and ends on December 31.

Table adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service.

APPENDIX G

SITE NOTICE, NOTICE OF INTENT, NOTICE OF CHANGE AND NOTICE OF TERMINATION FORMS

Operator Notes

Construction Site Notice

The construction site notice located in Appendix H should be posted along with a signed copy of the Notice of Intent. The site notice must be located where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction.

Notice of Intent (NOI)

The TPDES General Permit TXR 150000 requires that a NOI be submitted before construction activities begin. The NOI is essentially an application and contains items such as important information about your site, including site location, owner information, operator (general contractor) information, receiving water(s), and a brief description of the project.

TCEQ has developed a form to be used by industrial facilities and construction activities when they submit NOIs. This form indicates all the information that you are required to provide and must be used in order for the NOI to be processed correctly.

Primary Operators

Please note that both Owners and Contractors can meet the definition of being a “primary operator.”

Primary operators must submit a NOI at least seven days prior to commencing construction activities, or if utilizing electronic submittal, prior to commencing construction activities.

If an additional primary operator is added after the initial NOI is submitted, the new primary operator must:

- submit a paper NOI at least seven days before assuming operational control, or
- submit an electronic NOI prior to assuming operational control.

If the primary operator changes after the initial NOI is submitted, the new primary operator must:

- submit a paper NOI at least ten days before assuming operational control, or
- submit an electronic NOI at least ten days before assuming operational control

All primary operators must post a copy of the signed NOI at the construction site in allocation where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities. A copy of the signed NOI must be submitted to the operator of any MS4 receiving the discharge and to any secondary operator, at least seven days prior to commencing construction activities. A list of the MS4 operators receiving a copy of the NOI is located in Appendix H.

Secondary Operators

Secondary operators are not required to submit a NOI, provided that another operator(s) at the site has submitted a NOI, or is required to submit a NOI and the secondary operator has provided notification to the operator(s) of the need to obtain coverage under the permit. Please refer to the general permit for more information.

NOI Fees

Please note the fees associated with NOI submission:

- \$325 if submitting a paper NOI, or
- \$225 if submitting an electronic NOI.

No separate annual fees will be assessed. The Water Quality Annual fee has been incorporated into the NOI fees.

It is anticipated that there will be projects where more than one entity (e.g., the owner, developer, or general contractor) will need to submit an NOI so that the requirements for an operator are met. In this case, those persons will share the Storm Water Pollution Plan, and the submittal of the NOI and the TPDES Permit Number will need to be recorded in the NOI log located in Appendix F.

Please refer to the general permit and NOI form instructions for more information.

Notice of Change (NOC)

The operators are responsible for updating the SWP3 to implement and maintain sediment controls and submit a Notice of Change (NOC) if off-site material, waste, borrow, fill or equipment storage areas are being utilized and are not under a separate permit. An operator must submit a NOC letter in conformance with TPDES General Permit TXR150000 if they become aware of any incorrect information in an NOI or failed to submit any relevant facts.

Information that may be included on an NOC includes, but is not limited to, the following: the description of the construction project, an increase in the number of acres disturbed (for increases of one or more acres), or the operator name. A transfer of operational control from one operator to another, including a transfer of the ownership of a company, may not be included in an NOC. A transfer of ownership of a company includes changes to the structure of a company, such as changing from a partnership to a corporation or changing corporation types, so that the filing number (or charter number) that is on record with the Texas Secretary of State must be changed.

An NOC is not required for notifying TCEQ of a decrease in the number of acres disturbed. This information must be included in the storm water pollution prevention plan (SWP3) and retained on site.

A list of the MS4 operators receiving a copy of the NOC is located in Appendix H.

Notice of Termination (NOT)

Any operator that has submitted a NOI must apply to terminate authorization of the general permit. The NOT is a form which should be completed and submitted to the TCEQ within 30 days of the following:

- final stabilization has been achieved on all portions of the site that are the responsibility of the permittee,

- a transfer of operational control has occurred, or
- the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

Information to be included on the NOT includes the location of the construction site; the name, address, and telephone number of the operator terminating coverage; the TPDES General Permit Number; an indication of why coverage under the permit should be terminated for the operator; and a signed certification statement.

Authorization under the general permit terminates at midnight on the day the NOT is postmarked for delivery to the TCEQ. If the NOT is submitted electronically, the permit terminates immediately following confirmation of receipt of the NOT by TCEQ.

Note that when there is a change in operators of a construction activity, then the new operator must submit an NOI.

NOT's should be submitted to MS4 Operator(s). A list of the MS4 operator(s) receiving a copy of the NOT is located in Appendix H.



TCEQ Large Construction Site Notice

Primary Operator

Large construction sites disturb more than five acres or are part of a larger common plan of development that disturbs more than five acres. Primary operators of large construction sites will fill out this notice. Primary operators will then post this notice at the construction site in a location where it is safely and readily available for viewing by the general public and local, state, and federal authorities. Additional information about the TCEQ Construction Stormwater General Permit may be found on TCEQ's webpage on [Assistance Tools for Construction Stormwater General Permits](#).

Note: You must also develop a Stormwater Pollution Prevention Plan prior to the commencement of construction.

Site-Specific TPDES Authorization Number: TXR15_____

Primary Operator Name:_____

Contact Name and Phone Number: _____

Project Description:

Physical

Location/Description_____

Estimated Start Date_____

Projected End Date or Date Disturbed Soils Will Be Stabilized_____

Location of Stormwater Pollution Prevention Plan (SWP3):_____



TCEQ Large Construction Site Notice

Secondary Operator

Large construction sites disturb more than five acres or are part of a larger common plan of development that disturbs more than five acres. Secondary operators of large construction sites will fill out this notice. Secondary operators will then post this notice at the construction site in a location where it is safely and readily available for viewing by the general public and local, state, and federal authorities. Additional information about the TCEQ Construction Stormwater General Permit may be found on TCEQ's webpage on [Assistance Tools for Construction Stormwater General Permits](#).

Note: You must also develop a Stormwater Pollution Prevention Plan prior to the commencement of construction.

Site-Specific TPDES Authorization Number: TXR15 _____

Secondary Operator Name: _____

Contact Name and Phone Number: _____

Project Description:

Physical

Location/Description _____

Estimated Start Date _____

Projected End Date or Date Disturbed Soils Will Be Stabilized _____

Location of Stormwater Pollution Prevention Plan (SWP3): _____

For Large Construction Activities Authorized Under Part II.E.3. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.E.3. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A stormwater pollution prevention plan has been developed and will be implemented prior to construction, according to permit requirements. A copy of this signed notice is supplied to the operator of the Municipal Separate Storm Sewer System (MS4) if discharges enter an MS4. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title _____ Date _____

Name of MS4 Operator notified: _____ and Date notified (per Part II.F.3.): _____

Date Site Notice Removed _____



Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly.

Incomplete applications delay approval or result in automatic denial.

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: <https://www3.tceq.texas.gov/steers/index.cfm>

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is \$325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is \$225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: <http://www.tceq.texas.gov/epay>.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
 - Check/Money Order Number:
 - Name printed on Check:
- If payment was made via ePay, provide the following:
 - Voucher Number:
 - A copy of the payment voucher is attached to this paper NOI form.

RENEWAL (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? ☐ Yes ☐ No

If Yes, provide the authorization number here: TXR15

NOTE: If an authorization number is not provided, a new number will be assigned.

SECTION 1. OPERATOR (APPLICANT)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss):

First and Last Name:

Suffix:

Title:

Credentials:

Phone Number:

Fax Number:

E-mail:

Mailing Address:

City, State, and Zip Code:

Mailing Information if outside USA:

Territory:

Country Code:

Postal Code:

d) Indicate the type of customer:

☐ Individual

☐ Limited Partnership

☐ General Partnership

☐ Trust

☐ Sole Proprietorship (D.B.A.)

☐ Corporation

☐ Estate

☐ Federal Government

☐ County Government

☐ State Government

☐ City Government

☐ Other Government

☐ Other:

e) Is the applicant an independent operator? ☐ Yes

☐ No

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

☐ 0-20

☐ 251-500

☐ 21-100

☐ 501 or higher

☐ 101-250

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number:

Federal Tax ID:

Texas Secretary of State Charter (filing) Number:

DUNS Number (if known):

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3

☐ No, complete this section

Prefix (Mr. Ms. Miss):

First and Last Name: Suffix:

Title: Credential:

Organization Name:

Phone Number: Fax Number:

E-mail:

Mailing Address:

Internal Routing (Mail Code, Etc.):

City, State, and Zip Code:

Mailing information if outside USA:

Territory:

Country Code: Postal Code:

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN

(Refer to Section 3.a) of the Instructions)

b) Name of project or site (the name known by the community where it's located):

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other):

d) County or Counties (if located in more than one):

e) Latitude: Longitude:

f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*.
Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name:

City, State, and Zip Code:

Section B:

Location Description:

City (or city nearest to) where the site is located:

Zip Code where the site is located:

SECTION 4. GENERAL CHARACTERISTICS

a) Is the project or site located on Indian Country Lands?

☐ Yes, do not submit this form. You must obtain authorization through EPA Region 6.

☐ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.

☐ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?

d) What is the Secondary SIC Code(s), if applicable?

e) What is the total number of acres to be disturbed?

f) Is the project part of a larger common plan of development or sale?

☐ Yes

☐ No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project?

h) What is the estimated end date of the project?

i) Will concrete truck washout be performed at the site? ☐ Yes ☐ No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site?

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach?

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

☐ Yes ☐ No

If Yes, provide the name of the MS4 operator:

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

☐ Yes, complete the certification below.

☐ No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. ☐ Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☐ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☐ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☐ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). ☐ Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name:

Operator Signatory Title:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

NOTICE OF INTENT CHECKLIST (TXR150000)

Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Confirm each item (or applicable item) in this form is complete. This checklist is for use by the applicant to ensure a complete application is being submitted. **Missing information may result in denial of coverage under the general permit.** (See NOI process description in the General Information and Instructions.)

APPLICATION FEE

If paying by check:

- ☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)
- ☐ Check number and name on check is provided in this application.

If using ePay:

- ☐ The voucher number is provided in this application and a copy of the voucher is attached.

RENEWAL

- ☐ If this application is for renewal of an existing authorization, the authorization number is provided.

OPERATOR INFORMATION

- ☐ Customer Number (CN) issued by TCEQ Central Registry
- ☐ Legal name as filed to do business in Texas. (Call TX SOS 512-463-5555 to verify.)
- ☐ Name and title of responsible authority signing the application.
- ☐ Phone number and e-mail address
- ☐ Mailing address is complete & verifiable with USPS. www.usps.com
- ☐ Type of operator (entity type). Is applicant an independent operator?
- ☐ Number of employees.
- ☐ For corporations or limited partnerships - Tax ID and SOS filing numbers.
- ☐ Application contact and address is complete & verifiable with USPS. <http://www.usps.com>

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

- ☐ Regulated Entity Number (RN) (if site is already regulated by TCEQ)
- ☐ Site/project name and construction activity description
- ☐ County
- ☐ Latitude and longitude <http://www.tceq.texas.gov/gis/sqmaview.html>

- ☐ Site Address/Location. Do not use a rural route or post office box.

GENERAL CHARACTERISTICS

- ☐ Indian Country Lands -the facility is not on Indian Country Lands.
- ☐ Construction activity related to facility associated to oil, gas, or geothermal resources
- ☐ Primary SIC Code that best describes the construction activity being conducted at the site.
www.osha.gov/oshstats/sicser.html
- ☐ Estimated starting and ending dates of the project.
- ☐ Confirmation of concrete truck washout.
- ☐ Acres disturbed is provided and qualifies for coverage through a NOI.
- ☐ Common plan of development or sale.
- ☐ Receiving water body or water bodies.
- ☐ Segment number or numbers.
- ☐ MS4 operator.
- ☐ Edwards Aquifer rule.

CERTIFICATION

- ☐ Certification statements have been checked indicating Yes.
- ☐ Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original.

Instructions for Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

By Regular Mail:
TCEQ
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711-3087

By Overnight or Express Mail:
TCEQ
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX

Application Fee:

The application fee of \$325 is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit. Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Mailed Payments:

Use the attached General Permit Payment Submittal Form. The application fee is submitted to a different address than the NOI. Read the General Permit Payment Submittal Form for further instructions, including the address to send the payment.

ePAY Electronic Payment: <http://www.tceq.texas.gov/epay>

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

TCEQ Contact List:

Application - status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

- **Administrative Review:** Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(es) on the form must be verified with the US Postal service as receiving regular mail delivery. Do not give an overnight/express mailing address.

- **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.
- **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

or

Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site <http://www.tceq.texas.gov>. Search using keyword TXR150000.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated project or site changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number, if one has not already been assigned to this customer or site.

For existing customers and sites, you can find the Customer Number and Regulated Entity Number by entering the following web address into your internet browser: <http://www15.tceq.texas.gov/crpub/> or you can contact the TCEQ Stormwater Processing Center at 512-239-3700 for assistance. On the website, you can search by your permit number, the Regulated Entity (RN) number, or the Customer Number (CN). If you do not know these numbers, you can select "Advanced Search" to search by permittee name, site address, etc.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For this permit, a Notice of Change form must be submitted to the program area.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied, a new permit number will be issued.

Section 1. OPERATOR (APPLICANT)

a) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number.**

If the applicant is an existing TCEQ customer, the Customer Number is available at the following website: <http://www15.tceq.texas.gov/crpub/>. If the applicant is not an existing TCEQ customer, leave the space for CN blank.

b) Legal Name of Applicant

Provide the current legal name of the applicant. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, as filed in the county. You may contact the SOS at 512-463-5555, for more information related to filing in Texas. If filed in the county, provide a copy of the legal documents showing the legal name.

c) Contact Information for the Applicant (Responsible Authority)

Provide information for the person signing the application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: <https://tools.usps.com/go/ZipLookupAction!input.action>.

The phone number should provide contact to the applicant.

The fax number and e-mail address are optional and should correspond to the applicant.

d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for an authorization.

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). If the customer is a 'General Partnership' or 'Joint Venture' filed in the county (not filed with TX SOS), the legal name of each partner forming the 'General Partnership' or 'Joint Venture' must be provided. Each 'legal entity' must apply as a co-applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Sole Proprietorship (DBA)

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

1. be under the person's name
2. have its own name (doing business as or DBA)
3. have any number of employees.

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Corporation

A customer that meets all of these conditions:

1. is a legally incorporated entity under the laws of any state or country
2. is recognized as a corporation by the Texas Secretary of State
3. has proper operating authority to operate in Texas

The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization is not recognized as the 'legal name'.

Other

This may include a utility district, water district, tribal government, college district, council of governments, or river authority. Provide the specific type of government.

e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter the Tax ID number.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512-463-5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

Section 2. APPLICATION CONTACT

Provide the name and contact information for the person that TCEQ can contact for additional information regarding this application.

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) Regulated Entity Number (RN)

The RN is issued by TCEQ's Central Registry to sites where an activity is regulated by TCEQ. This is not a permit number, registration number, or license number. Search TCEQ's Central Registry to see if the site has an assigned RN at <http://www15.tceq.texas.gov/crpub/>. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, an RN may already be assigned for the larger site. Use the RN assigned for the larger site.

If the site is found, provide the assigned RN and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Name of the Project or Site

Provide the name of the site or project as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Provide the name of the county where the site or project is located. If the site or project is located in more than one county, provide the county names as secondary.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to:

<http://www.tceq.texas.gov/gis/sqmapview.html>.

f) Site Address/Location

If a site has an address that includes a street number and street name, enter the complete address for the site in *Section A*. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street number and street name, provide a complete written location description in *Section B*. For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and zip code of the site location.

Section 4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas (RRC) and may need to obtain authorization from EPA Region 6.

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a

carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the RRC's jurisdiction must be authorized by the EPA and the RRC, as applicable. Activities under RRC jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the RRC; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The RRC also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the RRC. Under 33 U.S.C. § 1342(l)(2) and § 1362(24), EPA cannot require a permit for discharges of stormwater from field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under § 3.8 of this title (relating to Water Protection), the RRC prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

For more information about the jurisdictions of the RRC and the TCEQ, read the Memorandum of Understanding (MOU) between the RRC and TCEQ at 16 Texas Administrative Code, Part 1, Chapter 3, Rule 3.30, by entering the following link into an internet browser:

[http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30) or contact the TCEQ Stormwater Team at 512-239-4671 for additional information.

c) Primary Standard Industrial Classification (SIC) Code

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Buildings Other than Single Family Homes
- 1541 - Construction of Industrial Buildings and Warehouses

- 1542 - Construction of Non-residential Buildings, other than Industrial Buildings and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, enter the following link into your internet browser: <http://www.osha.gov/pls/imis/sicsearch.html> or you can contact the TCEQ Small Business and Local Government Assistance Section at 800-447-2827 for assistance.

d) Secondary SIC Code

Secondary SIC Code(s) may be provided. Leave this blank if not applicable. For help with SIC Codes, enter the following link into your internet browser: <http://www.osha.gov/pls/imis/sicsearch.html> or you can contact the TCEQ Small Business and Environmental Assistance Section at 800-447-2827 for assistance.

e) Total Number of Acres Disturbed

Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at 512-239-4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development

Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on what a common plan of development is, refer to the definition of "Common Plan of Development" in the Definitions section of the general permit or enter the following link into your internet browser:

www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage enter the following link into your internet browser: www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If you have any further questions about the Common Plan of Development you can contact the TCEQ Stormwater Team at 512-239-4671 or the TCEQ Small Business and Environmental Assistance at 800-447-2827.

g) Estimated Start Date of the Project

This is the date that any construction activity or construction support activity is initiated at the site. If renewing the permit provide the original start date of when construction activity for this project began.

h) Estimated End Date of the Project

This is the date that any construction activity or construction support activity will end and final stabilization will be achieved at the site.

i) Will concrete truck washout be performed at the site?

Indicate if you expect that operators of concrete trucks will washout concrete trucks at the construction site.

j) Identify the water body(s) receiving stormwater runoff

The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

k) Identify the segment number(s) of the classified water body(s)

Identify the classified segment number(s) receiving a discharge directly or indirectly. Enter the following link into your internet browser to find the segment number of the classified water body where stormwater will flow from the site:

www.tceq.texas.gov/waterquality/monitoring/viewer.html or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

You may also find the segment number in TCEQ publication GI-316 by entering the following link into your internet browser: www.tceq.texas.gov/publications/gi/gi-316 or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at 512-239-4671 for further assistance.

l) Discharge into MS4 – Identify the MS4 Operator

The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a

copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at 512-239-4671.

m) Discharges to the Edwards Aquifer Recharge Zone and Certification

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer by entering the following link into an internet browser:

www.tceq.texas.gov/field/eapp/viewer.html or by contacting the TCEQ Water Quality Division at 512-239-4671 for assistance.

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site-specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

Section 5. NOI CERTIFICATION

Note: Failure to indicate Yes to all of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. Electronic applications submitted through ePermits have immediate provisional coverage. You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site by entering the following link into an internet browser: www.tceq.texas.gov/goto/construction or you may contact the TCEQ Stormwater processing Center at 512-239-3700 for assistance.

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512-463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under the Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has

been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Section 6. APPLICANT CERTIFICATION SIGNATURE

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

If you are a corporation:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

If you are a municipality or other government entity:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the TCEQ's Environmental Law Division at 512-239-0600.

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the

corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

Instructions:

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- *Do not mail this form with your NOI form*
- *Do not mail this form to the same address as your NOI.*

Mail this form and your check to either of the following:

By Regular U.S. Mail

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

By Overnight or Express Mail

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check or Money Order No:

2. Amount of Check/Money Order:

3. Date of Check or Money Order:

4. Name on Check or Money Order:

5. NOI Information:

If the check is for more than one NOI, list each Project or Site (RE) Name and Physical Address exactly as provided on the NOI. **Do not submit a copy of the NOI with this form, as it could cause duplicate permit application entries!**

If there is not enough space on the form to list all of the projects or sites the authorization will cover, then attach a list of the additional sites.

Project/Site (RE) Name:

Project/Site (RE) Physical Address:

Staple the check or money order to this form in this space.



Notice of Change to an Authorization for Stormwater Discharges Associated With Construction Activity under TPDES General Permit TXR150000

IMPORTANT – Please read the following information and [INSTRUCTIONS](#) before filling out this form.

ePERMITS: Sign up now for online NOC: <https://www3.tceq.texas.gov/steers/index.cfm>

This form will be returned for any of the following reasons:

- 1) The permit number is not provided, is invalid, or is no longer active,
- 2) Wet ink signature of person meeting signatory requirements is not provided,
- 3) The current permittee is not the applicant, and;
- 4) A requested change in operator name is not a legal name change.

This form cannot be used for a change in operator. Refer to your general permit for information.

What is the permit number of the authorization to be changed?

TXR15_____ or TXRCW_____

1) APPLICANT INFORMATION

a) What is the full Legal Name of the current operator as on the authorization?

b) What is the Customer Number (CN) assigned to this operator? You may search for your CN at: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

CN_____

c) What is the name and title of the person signing the application? (The person must be an executive official meeting signatory requirements in TAC 305.44(a).)

Prefix (Mr. Ms. Miss): _____

First/Last Name: _____ Suffix: _____

Title: _____ Credential: _____

d) What is the Regulated Entity Reference Number (RN) assigned to this site?

RN_____

2) APPLICATION CONTACT

If TCEQ needs additional information regarding this application, who should be contacted?

Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____
Organization Name: _____
Phone Number: _____ Extension: _____ Fax Number: _____
E-mail Address: _____
Mailing Address: _____
Internal Routing (Mail Code, Etc.): _____
City: _____ State: _____ ZIP Code: _____
Mailing Information if outside USA:
Territory: _____ Country Code: _____ Postal Code: _____

3) REQUESTED CHANGE TO PERMITTED INFORMATION

What information has changed or needs to be corrected? Check one or more of the following options and enter the new information below.

Operator legal name change with Texas Secretary of State (TX SOS).

Fill out sections a) and b) as applicable.

Note: Permits are not transferable. If a change in entity has occurred, this NOC will not be processed.

Address and contact information for the operator. Fill out section b).

Site Information (Regulated Entity). Fill out section c).

Note: Permits under a general permit are site specific. If a change in site location has occurred, this NOC will not be processed.

General characteristics relating to the regulated activity. Fill out section d).

a) Operator Legal Name Change

- i. What is the NEW active Legal Name with TX SOS or on other legal document?

New Legal Name: _____

- ii. What is the TX SOS Filing Number for us to confirm this official name change?

This is only applicable to Limited Partnerships or Corporations.

TX SOS Filing number: _____

b) Address and Contact Information for Operator

Verify mailing addresses with USPS: <http://zip4.usps.com/zip4/welcome.jsp>.

Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____
Organization Name: _____

Phone Number:_____ Extension:_____ Fax Number:_____
E-mail Address:_____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____ State:_____ ZIP Code:_____
Mailing Information if outside USA:
Territory:_____ Country Code:_____ Postal Code:_____

c) Regulated Entity (Site) Information Correction

- i. Is this a change to the location of the permitted activity?
Yes This NOC will not be processed since the authorizations are site specific.
No Continue with NOC form.

ii. Corrected Name of Project or Site:

iii. Updated Physical Address (new 911 address):

Street Number:_____ Street Name:_____
City:_____ State:_____ ZIP Code:_____

iv. Corrected location access description, if no physical address (street number/street name):

v. Corrected Latitude:_____ N

vi. Corrected Longitude:_____ W

vii. Corrected County (Counties if >1):_____

d) Change in General Characteristics Provided on Original Form

Identify the specific change and provide the updates information. If an attachment is needed, please reference it below.

4) OPERATOR CERTIFICATION

I, _____
Typed or printed name *Title*

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date: _____
(Use blue ink)

Notice of Change (NOC) for Authorizations for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

General Information and Instructions

GENERAL INFORMATION

Where to Send the NOC:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX 78753

TCEQ Contact list:

Application – status and form questions:

512/239-3700, swpermit@tceq.texas.gov

Technical questions:

512/239-4671, swgp@tceq.texas.gov

Environmental Law Division:

512/239-0600

Records Management - obtain copies of forms:

512/239-0900

Reports from databases (as available):

512/239-DATA (3282)

Cashier's office:

512/239-0357 or 512/239-0187

NOC Process:

1. Administrative Review: The form will be reviewed to ensure the request is from the permittee (operator) on the authorization, the permit is active and initial coverage was acknowledged. Each item on the form will be reviewed for a complete response. In addition, the operator's legal name change must be verified with Texas Secretary of State (if applicable). The address(s) on the form must be verified with the US Postal Service (USPS) as an address receiving regular mail delivery. Never give an overnight/express mailing address. If an item is incomplete or not verifiable, the operator may be notified by letter, phone call or email. In some instances as noted at the beginning of the form, the request may simply be returned.

2. NOC Confirmation: An updated Acknowledgment Certificate will be mailed to the operator only if the NOC is to change information provided on the acknowledgment certificate. The original coverage effective date will not change.

General Permit (Your Permit) and Forms

You may view and print your general permit on the TCEQ web site <http://www.tceq.texas.gov>. Search using key word TXR150000. General Permit Forms (NOI, Waiver, NOT, and NOC) and instructions are available on the TCEQ web site <http://www.tceq.texas.gov>.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a NOT and the new operator must submit a NOI. The NOI must be submitted not later than 10 days prior to the change in Operator status. Note that the NOT is effective on the postmarked date. It may be necessary to not terminate the existing permit until coverage by the new entity is confirmed.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. You can find the information on the Central Registry web site at <http://www12.tceq.texas.gov/crpub/index.cfm>.

You can search by the Regulated Entity (RN), Customer Number (CN) or Name (Permittee), or by your permit number under the search field labeled "Additional ID".

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all associated authorizations as changes occur. For General Permits, a Notice of Change form must be submitted to the program area for approval to update the CN and RN data in central registry.

INSTRUCTIONS FOR FILLING OUT THE NOC FORM

1) APPLICANT INFORMATION

a) Legal Name

Provide the current legal name of the permittee, as on the permit.

b) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. You may search for your CN at: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>.

If the name(s) provided do not match the current permittee name(s), this form will be returned. It is the responsibility of the permittee(s) to comply with the general permit.

Note: If a change is being made to the CN and the CN has other TCEQ authorization types, it is the entity's responsibility to update those authorizations at the same time. If an authorization has been cancelled or terminated, the name cannot be changed on the permit. Because of this, a new CN may be issued for the new name.

c) Person Signing this Application

Provide the name and title of the person signing the application. The person must be an executive official meeting signatory requirements in TAC §305.44.

d) Regulated Entity Reference Number (RN)

This is a number issued by TCEQ's Central Registry to sites (a location where a regulated activity occurs) regulated by TCEQ. This is not a permit number, registration number, or license number. Search for your

RN: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch>.

If the site has changed or the information provided indicates a new location, this form will be returned. It is the responsibility of the permittee to comply with the general permit.

2) APPLICATION CONTACT

Provide the name, title and contact information of the person that TCEQ can contact for additional information regarding this application.

3) REQUESTED CHANGE TO PERMITTED INFORMATION

Check one or more of the available options indicating the information in the form that is to be updated. Provide the updated information in 3 a) for Legal Name Change, 3 b) for Address and Contact Information Change, 3 c) for Regulated Entity Site Information Change, or 3 d) for General Characteristics Change, as applicable.

a) Legal Name Change

Provide the new legal name. If the entity is a Limited Partnership or Corporation, the name change must be verifiable with Texas Secretary of State. The TX SOS filing number must be provided to verify only a name change occurred. You may contact the SOS at (512)463 5555, for more information related to filing in Texas. If filed in the county where doing business, provide a copy of the legal documents showing the legal name change.

Legal name changes of a Corporation and Limited Partnership will be verified with Texas Secretary of State. If the entity is filed as a new entity with a new filing number, then the change cannot be made through a NOC. The permits are not transferable. If the operator changes, the old entity must terminate their permit and the new entity must submit a form for a new permit.

b) Address and Contact Information Change

Indicate the type of address and contact information for the operator that has changed from the original NOI or last NOC submitted to TCEQ.

Verify mailing addresses with USPS <http://zip4.usps.com/zip4/welcome.jsp> for regular mail delivery (not overnight express mail). If you find that the address is not verifiable please indicate the address is used by the USPS for regular mail delivery. Failure to provide a valid mailing address will delay or prohibit us from updating the permit.

Please note that address updates relating to a general permit authorization can ONLY be made through a Notice of Change. Address changes submitted through any other form cannot be processed.

c) Regulated Entity Site Information Change

The NOC form is only for use to update or correct information submitted on the original application or last NOC for the authorization. The authorization under a general permit is site specific. If this change is related to a new location, a Notice of Change will not be processed.

Provide the updated site name, updated site addresses, corrected latitude and longitude, and/or corrected county, as applicable to your NOC request. A new physical address for an existing location is usually the result of a newly assigned 911 address for emergencies.

If providing a corrected latitude and longitude, enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to <http://www.tceq.texas.gov/gis/sqmapview.html> or <http://nationalmap.gov/ustopo/>.

d) Change in General Characteristics Provided on Original Form

Describe any other change that is not addressed through any question in this section of the application.

4) OPERATOR CERTIFICATION

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

IF YOU ARE A CORPORATION:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at 512/239-0600.

30 Texas Administrative Code

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).



TCEQ Office Use Only
Permit No:
CN:
RN:
Region:

Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000

IMPORTANT INFORMATION:

Please read and use the General Information and Instructions prior to filling out each question in the form.

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

ePermits: This form is available on our online permitting system.

Sign up for online permitting at: <https://www3.tceq.texas.gov/steers/>

What is the permit number to be terminated?

TXR15 TXRCW

Section 1. OPERATOR (Permittee)

a) What is the Customer Number (CN) issued to this entity?

CN

b) What is the Legal Name of the current permittee?

c) Provide the contact information for the Operator (Responsible Authority).

Prefix (Mr. Ms. or Miss):

First and Last Name: Suffix:

Title: Credentials:

Phone Number: Fax Number:

Email:

Mailing Address:

City, State, and Zip Code:

Country Mailing Information, if outside USA:

Section 2. APPLICATION CONTACT

This is the person TCEQ will contact if additional information is needed regarding this application.

Is the application contact the same as the permittee identified above?

☐ Yes, go to Section 3.

☐ No, complete section below

Prefix (Mr. Ms. or Miss):
First and Last Name: Suffix:
Title: Credentials:
Phone Number: Fax Number:
Email:
Mailing Address:
City, State, and Zip Code:
Country Mailing Information, if outside USA:

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

- a) TCEQ issued RE Reference Number (RN): RN
- b) Name of project or site as known by the local community:
- c) County, or counties if more than 1:
- d) Latitude: Longitude:
- e) Site Address/Location:
If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Section 3A.
If the site does not have a physical address, provide a location description in Section 3B. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section 3A: Physical Address of Project or Site:

Street Number and Name:
City, State, and Zip Code:

Section 3B: Site Location Description:

Location description:

City where the site is located or, if not in a city, what is the nearest city:
Zip Code where the site is located:

Section 4. REASON FOR TERMINATION

Check the reason for termination:

- ☐ Final stabilization has been achieved on all portions of the site that are the responsibility of the Operator and all silt fences and other temporary erosion controls have been removed, or scheduled for removal as defined in the SWP3.
- ☐ Another permitted Operator has assumed control over all areas of the site that have not been finally stabilized, and temporary erosion controls that have been identified in the SWP3 have been transferred to the new Operator.

- ☐ The discharge is now authorized under an alternate TPDES permit.
- ☐ The activity never began at this site that is regulated under the general permit.

Section 5. CERTIFICATION

Signatory Name:

Signatory Title:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

Instructions for Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000

GENERAL INFORMATION

Where to Send the Notice of Termination (NOT):

BY REGULAR U.S. MAIL:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
12100 Park 35 Circle
Austin, TX 78753

TCEQ Contact List:

Application status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Termination Process:

A Notice of Termination is **effective on the date postmarked for delivery to TCEQ.**

When your NOT is received by the program, the form will be processed as follows:

- 1) Administrative Review: The form will be reviewed to confirm the following:
 - the permit number is provided;
 - the permit is active and has been approved;
 - the entity terminating the permit is the current permittee;
 - the site information matches the original permit record; and
 - the form has the required original signature with title and date.
- 2) Notice of Deficiency: If an item is incomplete or not verifiable as indicated above, a phone call will be made to the applicant to clear the deficiency. A letter will not be sent to the permittee if unable to process the form.
- 3) Confirmation of Termination: A Notice of Termination Confirmation letter will be mailed to the operator.

Change in Operator:

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted not later than 10 days prior to the change in Operator status.

INSTRUCTIONS FOR FILLING OUT THE FORM

The majority of permit information related to the current operator and regulated entity are available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.

Section 1. Operator (Current Permittee):

- a) Customer Number (CN)
TCEQ's Central Registry assigns each customer a number that begins with CN, followed by nine digits. This is not a permit number, registration number, or license number. The Customer Number, for the current permittee, is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.

- b) Legal Name of Operator
The operator must be the same entity as previously submitted on the original Notice of Intent for the permit number provided. The current operator name, as provided on the current authorization, is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.

- c) Contact Information for the Operator (Responsible Authority)
Provide information for person signing the NOT application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. Update the address if different than previously submitted for the Notice of Intent or Notice of Change. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: <https://tools.usps.com/go/ZipLookupAction!input.action>.

The phone number should provide contact to the operator.

The fax number and e-mail address are optional and should correspond to the operator.

Section 2. Application Contact:

Provide the name, title and contact information of the person that TCEQ can contact for additional information regarding this application.

Section 3. Regulated Entity (RE) Information on Project or Site:

- a) Regulated Entity Reference Number (RN)
A number issued by TCEQ's Central Registry to sites where an activity regulated by TCEQ. This is not a permit number, registration number, or license number. The Regulated Entity Reference Number is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.
- b) Name of the Project or Site
Provide the name of the site as known by the public in the area where the site is located.
- c) County
Identify the county or counties in which the regulated entity is located.
- d) Latitude and Longitude
Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. The latitude and longitude as provided on the current authorization is available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.
- e) Site/Project (RE) Physical Address/Location Information
The physical address/location information, as provided on the current authorization, is available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.

Section 3A. If a site has an address that includes a street number and street name, enter the complete address for the site. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate the site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

Section 3B. If a site does not have an address that includes a street number and street name, provide a complete written location description. For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and Zip Code of the facility location.

Section 4. Reason for Termination:

The Notice of Termination form is only for use to terminate the authorization (permit). The Permittee must indicate the specific reason for terminating by checking one of the options. If the reason is not listed then provide an attachment that explains the reason for termination.

Please read your general permit carefully to determine when to terminate your permit. Permits will not be reactivated after submitting a termination form. The termination is effective on the date postmarked for delivery to TCEQ.

Section 5. Certification:

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code §305.44.

IF YOU ARE A CORPORATION:

The regulation that controls who may sign an application form is 30 Texas Administrative Code §305.44(a), which is provided below. According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a), which is provided below. According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statutes under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a) (3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at 512-239-0600.

30 Texas Administrative Code §305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Record of Submittals to MS4s

[illegible]

APPENDIX H

RECORD OF TEMPORARY/PERMANENT CEASING OF CONSTRUCTION ACTIVITIES

Record of Temporary/Permanent Ceasing of Construction Activities

Project Activity Area	Date Activities Ceased	Temporary* or Permanent	Date Soil Stabilization Implemented	Date Activities Resumed	Initials

* “Temporarily Ceased” means inactive for less than 21 consecutive days.

APPENDIX I

DELEGATION OF SIGNATORIES

Executive Director
Texas Commission on Environmental Quality
Storm Water and Pretreatment Team
P.O. Box 13087, MC-148
Austin, TX 78711-3087

Subject: Delegation of Signatories to Reports

Facility/Company/Site Name: _____

TPDES Permit Number: _____

Dear Executive Director:

This letter serves to designate the following people or positions as authorized personnel for signing reports, storm water pollution prevention plans, certifications or other information requested by the Executive Director or required by the general permit, as set forth by 30 TAC §305.128 (see page 2).

Name or Position	
Name or Position	
Name or Position	
Name or Position	

I understand that this authorization does not extend to the signing of a Notice of Intent for obtaining coverage under a storm water general permit.

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in 30 TAC §305.44 (see page 2).

Sincerely,

Name

Title

Date

RELEVANT PROVISIONS

305.128(a) All reports requested by permits and other information requested by the executive director shall be signed by a person described in §305.44(a) of this title (relating to Signatories to Applications) or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) the authorization is made in writing by a person described in §305.44(a) of this title (relating to Signatories to Applications);

(2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or for environmental matters for the applicant, such as the position of plant manager, operator of a well or well field, environmental manager, or a position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(3) the written authorization is submitted to the executive director.

(b) If an authorization under this section is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of this section must be submitted to the executive director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(c) Any person signing a report required by a permit shall make the certification set forth in §305.44(b) of this title (relating to Signatories to Applications).

305.44(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

(b) A person signing an application shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

APPENDIX J

MATERIAL MANAGEMENT PRACTICES

MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce risk of spills or other accidental exposure of materials and substances to storm water runoff:

1. Good Housekeeping: The following good housekeeping practices will be followed onsite during the construction project:
 - An effort will be made to store only enough product required to do the job.
 - All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
 - Products will be kept in their original containers with the original manufacturer's label.
 - Substances will not be mixed with one another unless recommended by the manufacturer.
 - Whenever possible, all of a product will be used up before disposing of the container.
 - Manufacturers' recommendations for proper use and disposal will be followed.
 - Designated areas for equipment maintenance and repair (control of oil, grease and fuel spills).
 - Waste receptacles with regular collection for litter and construction debris.
 - Equipment washdown area on-site with appropriate control of wash waters (including concrete truck wash down).
 - Protected storage areas for chemicals, paints, solvents, fertilizers and other potentially toxic materials.
 - Adequately maintained sanitary facilities.
 - Proper control of raw materials stored on-site (for example, sand, aggregate and cement used in the manufacture of concrete or stockpiles of topsoil).
 - Street sweeping or cleaning.
 - Removal of inlet protection barriers during major rainfall events if flooding occurs and verification that reinforced filter fabric fences are in proper condition prior to all rainfall events.
 - The site superintendent will ensure proper use and disposal of materials onsite.
2. Hazardous Products: The following practices are used to reduce the risks associated with hazardous materials.
 - Products will be kept in original containers unless they are not re-sealable.
 - Paints, solvents, fertilizer, fuel (small containers), and other stored chemical substances will be kept within an enclosure to protect the containers and the floor of the enclosure, from wind, precipitation, and storm water runoff.
 - Fuel storage and filling areas will be bermed off to provide collection of any spills and prevent exposure to storm water runoff.
 - Original labels and Material Safety Data Sheets (MSDS) will be retained on-site and available for review by workers.
 - If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal will be followed.

PRODUCT SPECIFIC PRACTICES

The following product specific practices will be followed onsite:

1. Petroleum Products: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.
2. Fertilizers: Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Storage will be in a covered shed.
3. Paints: All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions or State and local regulations.
4. Concrete Trucks: Discharges of concrete truck wash out at construction sites may be authorized if conducted in accordance with the requirements of Part V of the general permit.

SPILL CONTROL PRACTICES

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be maintained on-site in the material data sheets (MSDS) 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, dust pans, 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.
- Contact the MS4 Operator, TCEQ (800-832-8224), and the National Response Center (800-424-8802) to inform of any spill of toxic or hazardous material regardless of the size.

The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring 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.

APPENDIX K

NON-STORM WATER DISCHARGE INVENTORY

NON-STORM WATER DISCHARGE INVENTORY

Mark the materials or substances listed below expected to be present onsite during construction:

- | | | |
|---|---|---|
| <input type="checkbox"/> Concrete | <input type="checkbox"/> Detergents | <input type="checkbox"/> Paints
(enamel/latex) |
| <input type="checkbox"/> Metal Studs | <input type="checkbox"/> Fuels | <input type="checkbox"/> Lubricants |
| <input type="checkbox"/> Fertilizers | <input type="checkbox"/> Petroleum Based
Products | <input type="checkbox"/> Cleaning Solvents |
| <input type="checkbox"/> Masonry Block | <input type="checkbox"/> Electrical
Equipment and
Materials | <input type="checkbox"/> Asphalt and
Asphalt Related
Products |
| <input type="checkbox"/> Tar | <input type="checkbox"/> Roof Shingles | <input type="checkbox"/> Wood |
| <input type="checkbox"/> Steel Products | <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |
| <input type="checkbox"/> _____ | <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |

AUTHORIZED NON STORMWATER DISCHARGES ANTICIPATED DURING THE PROJECT

Mark the following non-storm water discharges expected to occur from the site during the construction period (refer to general permit in Appendix G for additional information):

- ☐ discharges from firefighting activities,
- ☐ uncontaminated fire hydrant flushings, which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants,
- ☐ water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred and where the purpose is to remove mud, dirt, or dust,
- ☐ uncontaminated water used to control dust,
- ☐ potable water sources including waterline flushings,
- ☐ uncontaminated air conditioning condensate,
- ☐ uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents,
- ☐ lawn watering and similar irrigation drainage,
- ☐ runoff from concrete batch plants (refer to Part IV of general permit),
- ☐ concrete truck wash out (refer to Part V of general permit).

APPENDIX L

REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES

Each substance in Table 117.3 that is listed in Table 302.4, 40 CFR part 302, is assigned the reportable quantity listed in Table 302.4 for that substance.

TABLE 117.3 -- REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

Note: The first number under the column headed "RQ" is the reportable quantity in pounds. The number in parentheses is the metric equivalent in kilograms. For convenience, the table contains a column headed "Category" which lists the code letters "X", "A", "B", "C", and "D" associated with reportable quantities of 1, 10, 100, 1000, and 5000 pounds, respectively.

Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act

Material	Category	RQ in pounds (kilograms)
Acetaldehyde.....	C.....	1,000 (454)
Acetic acid.....	D.....	5,000 (2,270)
Acetic anhydride.....	D.....	5,000 (2,270)
Acetone cyanohydrin.....	A.....	10 (4.54)
Acetyl bromide.....	D.....	5,000 (2,270)
Acetyl chloride.....	D.....	5,000 (2,270)
Acrolein.....	X.....	1 (0.454)
Acrylonitrile.....	B.....	100 (45.4)
Adipic acid.....	D.....	5,000 (2,270)
Aldrin.....	X.....	1 (0.454)
Allyl alcohol.....	B.....	100 (45.4)
Allyl chloride.....	C.....	1,000 (454)
Aluminum sulfate.....	D.....	5,000 (2,270)
Ammonia.....	B.....	100 (45.4)
Ammonium acetate.....	D.....	5,000 (2,270)
Ammonium benzoate.....	D.....	5,000 (2,270)
Ammonium bicarbonate.....	D.....	5,000 (2,270)
Ammonium bichromate.....	A.....	10 (4.54)
Ammonium bifluoride.....	B.....	100 (45.4)
Ammonium bisulfite.....	D.....	5,000 (2,270)
Ammonium carbamate.....	D.....	5,000 (2,270)
Ammonium carbonate.....	D.....	5,000 (2,270)
Ammonium chloride.....	D.....	5,000 (2,270)
Ammonium chromate.....	A.....	10 (4.54)
Ammonium citrate dibasic.....	D.....	5,000 (2,270)
Ammonium fluoborate.....	D.....	5,000 (2,270)
Ammonium fluoride.....	B.....	100 (45.4)
Ammonium hydroxide.....	C.....	1,000 (454)
Ammonium oxalate.....	D.....	5,000 (2,270)
Ammonium silicofluoride.....	C.....	1,000 (454)
Ammonium sulfamate.....	D.....	5,000 (2,270)
Ammonium sulfide.....	B.....	100 (45.4)
Ammonium sulfite.....	D.....	5,000 (2,270)
Ammonium tartrate.....	D.....	5,000 (2,270)
Ammonium thiocyanate.....	D.....	5,000 (2,270)
Amyl acetate.....	D.....	5,000 (2,270)
Aniline.....	D.....	5,000 (2,270)

Antimony pentachloride.....	C.....	1,000 (454)
Antimony potassium tartrate.....	B.....	100 (45.4)
Antimony tribromide.....	C.....	1,000 (454)
Antimony trichloride.....	C.....	1,000 (454)
Antimony trifluoride.....	C.....	1,000 (454)
Antimony trioxide.....	C.....	1,000 (454)
Arsenic disulfide.....	X.....	1 (0.454)
Arsenic pentoxide.....	X.....	1 (0.454)
Arsenic trichloride.....	X.....	1 (0.454)
Arsenic trioxide.....	X.....	1 (0.454)
Arsenic trisulfide.....	X.....	1 (0.454)
Barium cyanide.....	A.....	10 (4.54)
Benzene.....	A.....	10 (4.54)
Benzoic acid.....	D.....	5,000 (2,270)
Benzonitrile.....	D.....	5,000 (2,270)
Benzoyl chloride.....	C.....	1,000 (454)
Benzyl chloride.....	B.....	100 (45.4)
Beryllium chloride.....	X.....	1 (0.454)
Beryllium fluoride.....	X.....	1 (0.454)
Beryllium nitrate.....	X.....	1 (0.454)
Butyl acetate.....	D.....	5,000 (2,270)
Butylamine.....	C.....	1,000 (454)
n-Butyl phthalate.....	A.....	10 (4.54)
Butyric acid.....	D.....	5,000 (2,270)
Cadmium acetate.....	A.....	10 (4.54)
Cadmium bromide.....	A.....	10 (4.54)
Cadmium chloride.....	A.....	10 (4.54)
Calcium arsenate.....	X.....	1 (0.454)
Calcium arsenite.....	X.....	1 (0.454)
Calcium carbide.....	A.....	10 (4.54)
Calcium chromate.....	A.....	10 (4.54)
Calcium cyanide.....	A.....	10 (4.54)
Calcium dodecylbenzenesulfonate.....	C.....	1,000 (454)
Calcium hypochlorite.....	A.....	10 (4.54)
Captan.....	A.....	10 (4.54)
Carbaryl.....	B.....	100 (45.4)
Carbofuran.....	A.....	10 (4.54)
Carbon disulfide.....	B.....	100 (45.4)
Carbon tetrachloride.....	A.....	10 (4.54)
Chlordane.....	X.....	1 (0.454)
Chlorine.....	A.....	10 (4.54)
Chlorobenzene.....	B.....	100 (45.4)
Chloroform.....	A.....	10 (4.54)
Chlorosulfonic acid.....	C.....	1,000 (454)
Chlorpyrifos.....	X.....	1 (0.454)
Chromic acetate.....	C.....	1,000 (454)
Chromic acid.....	A.....	10 (4.54)
Chromic sulfate.....	C.....	1,000 (454)
Chromous chloride.....	C.....	1,000 (454)
Cobaltous bromide.....	C.....	1,000 (454)
Cobaltous formate.....	C.....	1,000 (454)
Cobaltous sulfamate.....	C.....	1,000 (454)
Coumaphos.....	A.....	10 (4.54)
Cresol.....	B.....	100 (45.4)
Crotonaldehyde.....	B.....	100 (45.4)

Cupric acetate.....	B.....	100 (45.4)
Cupric acetoarsenite.....	X.....	1 (0.454)
Cupric chloride.....	A.....	10 (4.54)
Cupric nitrate.....	B.....	100 (45.4)
Cupric oxalate.....	B.....	100 (45.4)
Cupric sulfate.....	A.....	10 (4.54)
Cupric sulfate, ammoniated.....	B.....	100 (45.4)
Cupric tartrate.....	B.....	100 (45.4)
Cyanogen chloride.....	A.....	10 (4.54)
Cyclohexane.....	C.....	1,000 (454)
2,4-D Acid.....	B.....	100 (45.4)
2,4-D Esters.....	B.....	100 (45.4)
DDT.....	X.....	1 (0.454)
Diazinon.....	X.....	1 (0.454)
Dicamba.....	C.....	1,000 (454)
Dichlobenil.....	B.....	100 (45.4)
Dichlone.....	X.....	1 (0.454)
Dichlorobenzene.....	B.....	100 (45.4)
Dichloropropane.....	C.....	1,000 (454)
Dichloropropene.....	B.....	100 (45.4)
Dichloropropene-Dichloropropane (mixture).	B.....	100 (45.4)
2,2-Dichloropropionic acid.....	D.....	5,000 (2,270)
Dichlorvos.....	A.....	10 (4.54)
Dicofol.....	A.....	10 (4.54)
Dieldrin.....	X.....	1 (0.454)
Diethylamine.....	B.....	100 (45.4)
Dimethylamine.....	C.....	1,000 (454)
Dinitrobenzene (mixed).....	B.....	100 (45.4)
Dinitrophenol.....	A.....	10 (45.4)
Dinitrotoluene.....	A.....	10 (4.54)
Diquat.....	C.....	1,000 (454)
Disulfoton.....	X.....	1 (0.454)
Diuron.....	B.....	100 (45.4)
Dodecylbenzenesulfonic acid.....	C.....	1,000 (454)
Endosulfan.....	X.....	1 (0.454)
Endrin.....	X.....	1 (0.454)
Epichlorohydrin.....	B.....	100 (45.4)
Ethion.....	A.....	10 (4.54)
Ethylbenzene.....	C.....	1,000 (454)
Ethylenediamine.....	D.....	5,000 (2,270)
Ethylenediamine-tetraacetic acid (EDTA).	D.....	5,000 (2,270)
Ethylene dibromide.....	X.....	1 (0.454)
Ethylene dichloride.....	B.....	100 (45.4)
Ferric ammonium citrate.....	C.....	1,000 (454)
Ferric ammonium oxalate.....	C.....	1,000 (454)
Ferric chloride.....	C.....	1,000 (454)
Ferric fluoride.....	B.....	100 (45.4)
Ferric nitrate.....	C.....	1,000 (454)
Ferric sulfate.....	C.....	1,000 (454)
Ferrous ammonium sulfate.....	C.....	1,000 (454)
Ferrous chloride.....	B.....	100 (45.4)
Ferrous sulfate.....	C.....	1,000 (454)
Formaldehyde.....	B.....	100 (45.4)
Formic acid.....	D.....	5,000 (2,270)

Fumaric acid.....	D.....	5,000 (2,270)
Furfural.....	D.....	5,000 (2,270)
Guthion.....	X.....	1 (0.454)
Heptachlor.....	X.....	1 (0.454)
Hexachlorocyclopentadiene.....	A.....	10 (4.54)
Hydrochloric acid.....	D.....	5,000 (2,270)
Hydrofluoric acid.....	B.....	100 (45.4)
Hydrogen cyanide.....	A.....	10 (4.54)
Hydrogen sulfide.....	B.....	100 (45.4)
Isoprene.....	B.....	100 (45.4)
Isopropanolamine dodecylbenzenesulfonate.	C.....	1,000 (454)
Kepone.....	X.....	1 (0.454)
Lead acetate.....	A.....	10 (4.54)
Lead arsenate.....	X.....	1 (0.454)
Lead chloride.....	A.....	10 (4.54)
Lead fluoborate.....	A.....	10 (4.54)
Lead fluoride.....	A.....	10 (4.54)
Lead iodide.....	A.....	10 (4.54)
Lead nitrate.....	A.....	10 (4.54)
Lead stearate.....	A.....	10 (4.54)
Lead sulfate.....	A.....	10 (4.54)
Lead sulfide.....	A.....	10 (4.54)
Lead thiocyanate.....	A.....	10 (4.54)
Lindane.....	X.....	1 (0.454)
Lithium chromate.....	A.....	10 (4.54)
Malathion.....	B.....	100 (45.4)
Maleic acid.....	D.....	5,000 (2,270)
Maleic anhydride.....	D.....	5,000 (2,270)
Mercaptodimethur.....	A.....	10 (4.54)
Mercuric cyanide.....	X.....	1 (0.454)
Mercuric nitrate.....	A.....	10 (4.54)
Mercuric sulfate.....	A.....	10 (4.54)
Mercuric thiocyanate.....	A.....	10 (4.54)
Mercurous nitrate.....	A.....	10 (4.54)
Methoxychlor.....	X.....	1 (0.454)
Methyl mercaptan.....	B.....	100 (45.4)
Methyl methacrylate.....	C.....	1,000 (454)
Methyl parathion.....	B.....	100 (45.4)
Mevinphos.....	A.....	10 (4.54)
Mexacarbate.....	C.....	1,000 (454)
Monoethylamine.....	B.....	100 (45.4)
Monomethylamine.....	B.....	100 (45.4)
Naled.....	A.....	10 (4.54)
Naphthalene.....	B.....	100 (45.4)
Naphthenic acid.....	B.....	100 (45.4)
Nickel ammonium sulfate.....	B.....	100 (45.4)
Nickel chloride.....	B.....	100 (45.4)
Nickel hydroxide.....	A.....	10 (4.54)
Nickel nitrate.....	B.....	100 (45.4)
Nickel sulfate.....	B.....	100 (45.4)
Nitric acid.....	C.....	1,000 (454)
Nitrobenzene.....	C.....	1,000 (454)
Nitrogen dioxide.....	A.....	10 (4.54)
Nitrophenol (mixed).....	B.....	100 (45.4)

Nitrotoluene.....	C.....	1,000 (454)
Paraformaldehyde.....	C.....	1,000 (454)
Parathion.....	A.....	10 (4.54)
Pentachlorophenol.....	A.....	10 (4.54)
Phenol.....	C.....	1,000 (454)
Phosgene.....	A.....	10 (4.54)
Phosphoric acid.....	D.....	5,000 (2,270)
Phosphorus.....	X.....	1 (0.454)
Phosphorus oxychloride.....	C.....	1,000 (454)
Phosphorus pentasulfide.....	B.....	100 (45.4)
Phosphorus trichloride.....	C.....	1,000 (454)
Polychlorinated biphenyls.....	X.....	1 (0.454)
Potassium arsenate.....	X.....	1 (0.454)
Potassium arsenite.....	X.....	1 (0.454)
Potassium bichromate.....	A.....	10 (4.54)
Potassium chromate.....	A.....	10 (4.54)
Potassium cyanide.....	A.....	10 (4.54)
Potassium hydroxide.....	C.....	1,000 (454)
Potassium permanganate.....	B.....	100 (45.4)
Propargite.....	A.....	10 (4.54)
Propionic acid.....	D.....	5,000 (2,270)
Propionic anhydride.....	D.....	5,000 (2,270)
Propylene oxide.....	B.....	100 (45.4)
Pyrethrins.....	X.....	1 (0.454)
Quinoline.....	D.....	5,000 (2,270)
Resorcinol.....	D.....	5,000 (2,270)
Selenium oxide.....	A.....	10 (4.54)
Silver nitrate.....	X.....	1 (0.454)
Sodium.....	A.....	10 (4.54)
Sodium arsenate.....	X.....	1 (0.454)
Sodium arsenite.....	X.....	1 (0.454)
Sodium bichromate.....	A.....	10 (4.54)
Sodium bifluoride.....	B.....	100 (45.4)
Sodium bisulfite.....	D.....	5,000 (2,270)
Sodium chromate.....	A.....	10 (4.54)
Sodium cyanide.....	A.....	10 (4.54)
Sodium dodecylbenzenesulfonate..	C.....	1,000 (454)
Sodium fluoride.....	C.....	1,000 (454)
Sodium hydrosulfide.....	D.....	5,000 (2,270)
Sodium hydroxide.....	C.....	1,000 (454)
Sodium hypochlorite.....	B.....	100 (45.4)
Sodium methylate.....	C.....	1,000 (454)
Sodium nitrite.....	B.....	100 (45.4)
Sodium phosphate, dibasic.....	D.....	5,000 (2,270)
Sodium phosphate, tribasic.....	D.....	5,000 (2,270)
Sodium selenite.....	B.....	100 (45.4)
Strontium chromate.....	A.....	10 (4.54)
Strychnine.....	A.....	10 (4.54)
Styrene.....	C.....	1,000 (454)
Sulfuric acid.....	C.....	1,000 (454)
Sulfur monochloride.....	C.....	1,000 (454)
2,4,5-T acid.....	C.....	1,000 (454)
2,4,5-T amines.....	D.....	5,000 (2,270)
2,4,5-T esters.....	C.....	1,000 (454)
2,4,5-T salts.....	C.....	1,000 (454)
TDE.....	X.....	1 (0.454)

2,4,5-TP acid.....	B.....	100 (45.4)
2,4,5-TP acid esters.....	B.....	100 (45.4)
Tetraethyl lead.....	A.....	10 (4.54)
Tetraethyl pyrophosphate.....	A.....	10 (4.54)
Thallium sulfate.....	B.....	100 (45.4)
Toluene.....	C.....	1,000 (454)
Toxaphene.....	X.....	1 (0.454)
Trichlorfon.....	B.....	100 (45.4)
Trichloroethylene.....	B.....	100 (45.4)
Trichlorophenol.....	A.....	10 (4.54)
Triethanolamine dodecylbenzenesulfonate.	C.....	1,000 (454)
Triethylamine.....	D.....	5,000 (2,270)
Trimethylamine.....	B.....	100 (45.4)
Uranyl acetate.....	B.....	100 (45.4)
Uranyl nitrate.....	B.....	100 (45.4)
Vanadium pentoxide.....	C.....	1,000 (454)
Vanadyl sulfate.....	C.....	1,000 (454)
Vinyl acetate.....	D.....	5,000 (2,270)
Vinylidene chloride.....	B.....	100 (45.4)
Xylene (mixed).....	B.....	100 (45.4)
Xylenol.....	C.....	1,000 (454)
Zinc acetate.....	C.....	1,000 (454)
Zinc ammonium chloride.....	C.....	1,000 (454)
Zinc borate.....	C.....	1,000 (454)
Zinc bromide.....	C.....	1,000 (454)
Zinc carbonate.....	C.....	1,000 (454)
Zinc chloride.....	C.....	1,000 (454)
Zinc cyanide.....	A.....	10 (4.54)
Zinc fluoride.....	C.....	1,000 (454)
Zinc formate.....	C.....	1,000 (454)
Zinc hydrosulfite.....	C.....	1,000 (454)
Zinc nitrate.....	C.....	1,000 (454)
Zinc phenolsulfonate.....	D.....	5,000 (2,270)
Zinc phosphide.....	B.....	100 (45.4)
Zinc silicofluoride.....	D.....	5,000 (2,270)
Zinc sulfate.....	C.....	1,000 (454)
Zirconium nitrate.....	D.....	5,000 (2,270)
Zirconium potassium fluoride....	C.....	1,000 (454)
Zirconium sulfate.....	D.....	5,000 (2,270)
Zirconium tetrachloride.....	D.....	5,000 (2,270)

APPENDIX M

SEDIMENTATION BASIN INFORMATION

Sites With Drainage Areas of Ten or More Acres

A sedimentation basin is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time.

A sedimentation basin may be temporary or permanent and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin. Capacity calculations shall be included in Appendix M of this SWP3.

Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

If a sedimentation basin is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins.

Sites With Drainage Areas Less than Ten Acres

Sediment traps and sediment basins may be used to control solids in storm water runoff for drainage locations serving less than ten (10) acres.

Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained may be utilized. Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained may be provided. If a calculation is performed, then the calculation shall be included in Appendix N of this SWP3.

Proposed Sedimentation Basin Calculations

For Rivina Phase 1, the proposed onsite batch detention ponds and detention ponds will serve as a storage for on-site drainage. The basins will be designed to contain the 3,600 cubic feet per acre of disturbed area draining to the ponds.

Temporary Sedimentation:

The batch detention ponds will serve as storage for on-site drainage for Rivina Phase 1 (as shown on sheets 50-58 of the construction drawings) during the construction phase. The total drainage area includes 94.50 acres and generates a volume of 340,200 ft³. The proposed detention ponds will contain a volume of 1,360,749 ft³, thus the constructed detention ponds will be adequately sized for required sedimentation purposes. Batch Detention Pond F will be able to store a volume of 522,415 ft³. Batch Detention Pond G will be able to store a volume of 456,635 ft³. Batch Detention Pond H will be able to store a volume of 381,699 ft³. Refer to the detention plan sheets in construction plans for details.

APPENDIX N

LOCAL REQUIREMENTS

City of Georgetown, Texas
Storm Water Management Program
(SWMP)
TPDES (Phase II) Municipal
Separate Storm Sewer System
(MS4)



2019-2024

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1.0 Introduction

The City of Georgetown has developed a Storm Water Management Program (SWMP) as required for coverage under the Texas Pollutant Discharge Elimination System Program (TPDES) General Permit No. TXR040000. The SWMP describes the minimum control measures and Best Management Practices (BMPs) that will be implemented by the City of Georgetown in order to achieve the regulatory standard of reducing pollutants in the City's storm water to the "maximum extent practicable". The City's existing programs and activities designed to protect the environment and water quality will be enhanced and supplemented with new BMP activities. The BMPs were selected based on general assessment of BMP effectiveness, applicability to the City of Georgetown and costs associated with implementation. The BMPs, measurable goals and implementation schedule in the SWMP were developed by Engineering and Development Services Department with input from multiple City departments.

1.1 Regulatory Background

The Federal Water Pollution Control Act was passed in 1972. After the law was amended in 1977, it became commonly known as the Clean Water Act. The Act established the structure for federal regulation of pollutant discharges into the waters of the United States, authorized the Environmental Protection Agency (EPA) to implement pollution control programs, extended the requirement to establish standards for surface water contaminants, and made it unlawful to discharge unpermitted point source pollutants into navigable waters. The Act also established funding for construction of sewage treatment plants and promoted planning to address non-point source pollution. In order to reduce stormwater pollution, amendments were made to the Clean Water Act in 1987, requiring stormwater discharges to be permitted in two phases.

1.2 Phases

Phase 1 applied, among other things, to larger cities (population > 100,000) with separate stormwater sewer systems. The regulations required these cities to obtain National Pollutant Discharge Elimination System (NPDES) permits. The permit process imposed controls on the cities to reduce pollution in stormwater discharges.

Phase 2 applies to smaller cities (population <100,000 with Urbanized Areas). In 1999, the EPA issued final regulations for Phase 2. The Texas Commission on Environmental Quality (TCEQ) issued the Texas Pollutant Discharge Elimination System (TPDES) General Permit Number TXR040000 (General Permit) for Phase 2 Stormwater on August 13, 2007 in order to create a mechanism for Phase 2 Texas cities to come into compliance with the federal regulations.

1.1 Process

The processes of applying for coverage under and maintaining conformance to the General Permit begins with submittal of two documents to the TCEQ. The first document is a form provided by the TCEQ, called a Notice of Intent (NOI). The second document is the proposed Implementation Program for the Stormwater Management Plan (SWMP).

The Implementation Program for the SWMP proposes to reduce stormwater pollution by increasing the city's control of pollution sources. The Implementation Program provides maps (see Tab 3) and photos (see Tab 3), which identify many of the points where stormwater is discharged from the city to other municipalities. The plan must be fully implemented within 5 years of the TCEQ's issuance of the General Permit.

2.0 City of Georgetown Background

The City of Georgetown is located in Williamson County in Central Texas. The 2010 census placed Georgetown in an urbanized area that includes Austin. With a population of approximately 47,000, Georgetown is categorized as a Level 3 Small Municipal Separate Storm Sewer System (MS4). The estimated population, utilizing City of Georgetown's Population and Demographics information, in City Limits as of April 2019, is 64,716. The City was not previously classified as an urbanized area, and therefore the City is required to obtain coverage under Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR040000 for the first time.

Hydrologically, the City is located in the San Gabriel River watershed of the Brazos River Basin. Seventy-four percent of the City is over the Edwards Aquifer Recharge Zone. Development in areas of the City lying over the Recharge Zone is subject to requirements of the Edwards Aquifer Recharge Zone (EARZ) rules.

2.1 City Facilities and Stormwater Systems

The City of Georgetown's stormwater system and facilities are designed and operated to efficiently convey runoff, minimize flooding risks and eliminate standing water on publicly owned and highly traveled surfaces. For public safety, runoff is directed off publically owned areas such as roadways through drainage systems on site or with the use of easements. Structures are sized for both existing public properties and flow from off-site areas conveyed by natural or pre-existing drainage patterns.

Stormwater is collected from a variety of land uses and vegetation types throughout the city. Conveyance occurs through a system of channels, culverts, underground pipes, and storage ponds owned and maintained by private entities, TxDOT, The City of Georgetown and Williamson County. Treatment facilities in the city are built to treat diverse contaminants from urban city centers, suburban neighborhoods and rural farmlands before discharging to surface or groundwater.

2.2 City's Drainage Basins (Watersheds)

The City of Georgetown is located in the San Gabriel River subwatershed of the Little River watershed located in the Brazos River Basin as shown in Figure-1. Both the North and South forks of the San Gabriel River flow through the city center of Georgetown. Runoff from the outskirts of town flow into the Georgetown reservoir on the west end of town, tributaries to Granger Lake on the East side of town, and south towards Brushy Creek.

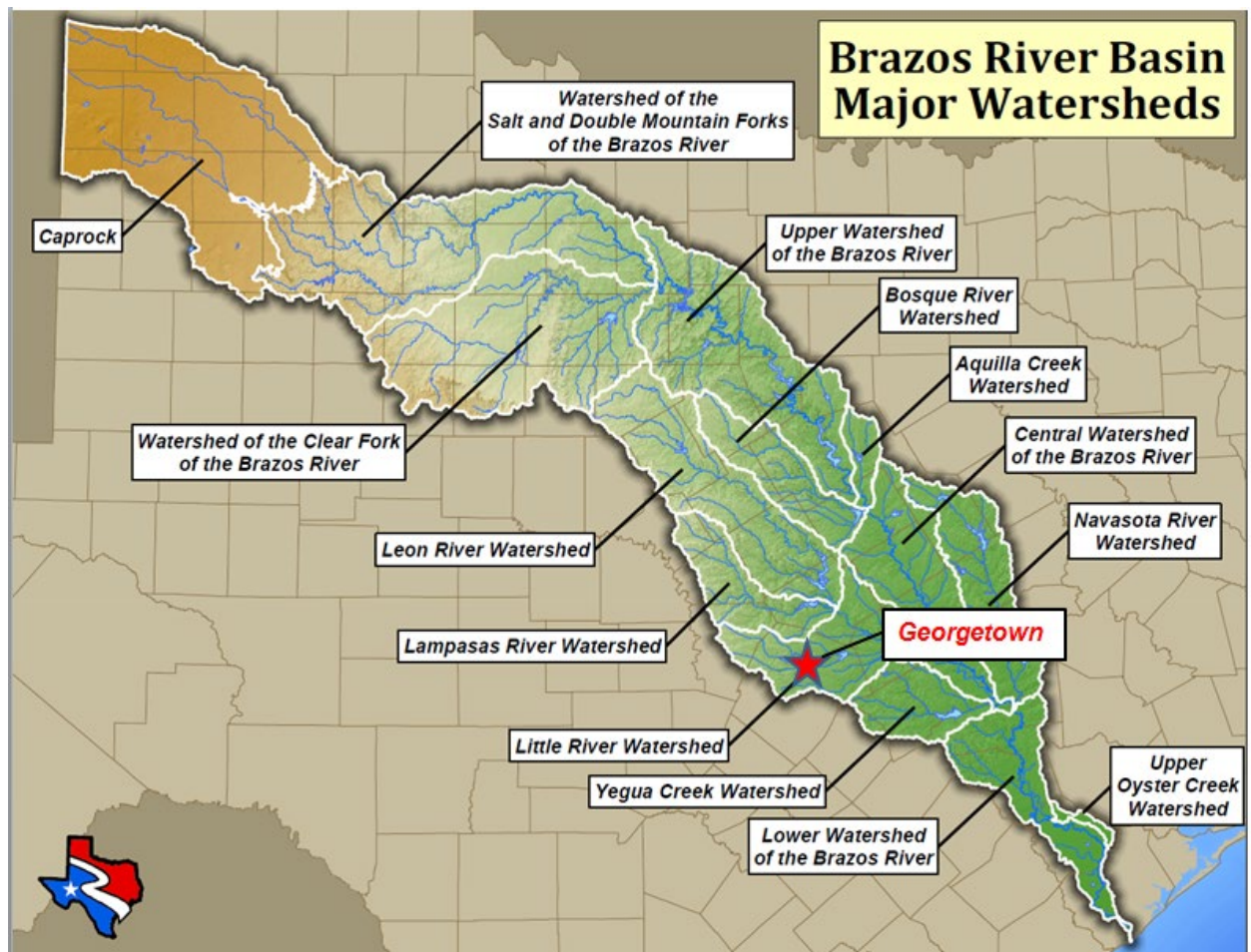


Figure 1. City of Georgetown Location within Brazos River Basin (Brazos.org).

2.3 Existing Stormwater Management Practices

2.3.1 Public Education and Outreach on Stormwater Impacts

The City's Public Communications Department provides information to the public through City of Georgetown websites, a monthly resident newsletter called the [Georgetown City Reporter](#), City cable access channel 10 on the Suddenlink basic tier, news releases, and advertisements.

The City of Georgetown maintains two separate Facebook pages and Twitter feeds:

1. **City News:** The City News Facebook Page and Twitter feed keeps you up-to-date on all city news, such as road closings, construction updates, election information, and crime alerts.
2. **Live & Play:** Georgetown's Live & Play Facebook and Twitter feed are set up to list events and programs sponsored by the City of Georgetown that are geared toward recreational activities such as Parks & Recreation programs, trips, races, and announcements; programming for all ages and author events at the Georgetown Public Library; and Downtown festivals and special events. These links will keep you up to date on things you can do with your family and friends and also on community programs that will benefit you.

Public Safety

In an effort to keep people apprised of public safety situations, the City has recently set up a Twitter feed to which it will try to send notices of brush fires, major traffic accidents and other emergency notifications.

2.3.2 Public Involvement / Participation

The City provides opportunities for public involvement and participation at various municipal meetings. Interested residents are encouraged to attend or contact city staff or council members about concerns at these meetings.

The City currently engages the community about environmental issues through outreach and education. Georgetown is involved in a “Go Green!” initiative which provides information to citizens on its website about how recycling in the city works and ways they can get involved in sustainable practices such as urban farming. The Forestry department organizes volunteer tree planting and gardening events throughout the community. The City of Georgetown currently has a FOG campaign regarding fats, oils, and greases in sanitary sewers. Information about all of these initiatives and other programs are easily accessed by the public through the City of Georgetown’s website.

2.3.3 Illicit Discharge Detection and Elimination

The City of Georgetown has a curbside single stream recycling program, household hazardous waste program, and curbside yard trimmings collection program. Regular residential and non-residential solid waste collection services are provided through a contract with Texas Disposal Systems (TDS).

The City currently maintains a Geographic Information System (GIS) database of the existing wastewater collection system.

Because 74% of the City is over the Edwards Aquifer Recharge Zone, Georgetown is subject to requirements of the Edwards Aquifer Recharge Zone (EARZ) rules. The regulatory requirements of the Texas Commission on Environmental Quality (TCEQ) require annual testing of at least 20% of the collection system every year, resulting in the testing of the entire system every 5 years. The testing is included in the Wastewater CIP program. As problems are identified, the City has twelve (12) months to make repairs. A significant portion of the capital budget for the Wastewater Utility is dedicated for inspection and repair of existing mains.

2.3.4 Construction Site Stormwater Runoff Control

The City ensures that construction stormwater runoff is managed through two regulating ordinances of the TCEQ. The City requires temporary erosion and sediment control best management practices (BMPs) and inspects for compliance with established measures in accordance with the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (TXR150000). The TXR15000 regulates stormwater discharge from construction sites and other associated activities. Coverage must be obtained under this permit for construction activities that disturb one or more acre or are part of a larger common plan of development that would disturb one or more acre. The permit requires preparation of a stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include BMPs aimed at reducing the discharge of pollutants from the site in stormwater runoff.

The majority of the City of Georgetown lies over the Edwards Aquifer Recharge Zone (EARZ), all development that occurs in these central and western areas of the City must adhere to the EARZ

rules (30 TAC § 213) as administered by the TCEQ. For parcels within the EARZ, a SWPPP must be submitted to TCEQ, which must include documentation of a WPAP to control site runoff both during and after construction.

2.3.5 Post-Construction Stormwater Management in New Development and Redevelopment

Nearly the entire City of Georgetown resides within the Edwards Aquifer Recharge Zone (Recharge Zone), as shown in Figure 2, which is the State-regulated area of land for which stormwater surface runoff enters the Edwards Aquifer. The Recharge Zone stretches across eight counties from Williamson County to Kinney County and is regulated by the Texas Commission on Environmental Quality (TCEQ). Since the late 1990's, TCEQ has required installation of stormwater quality treatment measures for development within the Recharge Zone. The requirements apply to development conducted by both private and public entities and have resulted in numerous permanent Best Management Practices (BMPs) across the City of Georgetown, mostly in the form of structural BMPs that impound water to settle or filter out total suspended solids (TSS) from stormwater.

Section 3.17 of the City's Unified Development Code (UDC) requires that a stormwater permit be obtained prior to any land disturbance. Issuance of the stormwater permit is contingent upon issuance of all applicable related permits from the TCEQ, the U.S. Environmental Protection Agency, or any other state or federal agency. The permit application must be prepared or reviewed, approved, and sealed by a professional engineer licensed in the State of Texas. The engineer must also verify that the development meets the stormwater and pollution management requirements of Chapter 11 of the UDC. These requirements include impervious cover limitations, pollution attenuation plans for industrial facilities, and collection and conveyance of stormwater runoff as described in the City of Georgetown Drainage Criteria Manual. Chapter 11 includes provisions to encourage development in areas intended for low density single family residential to be designed as Conservation Subdivisions, which include special provisions for watershed and other environmental protection measures.

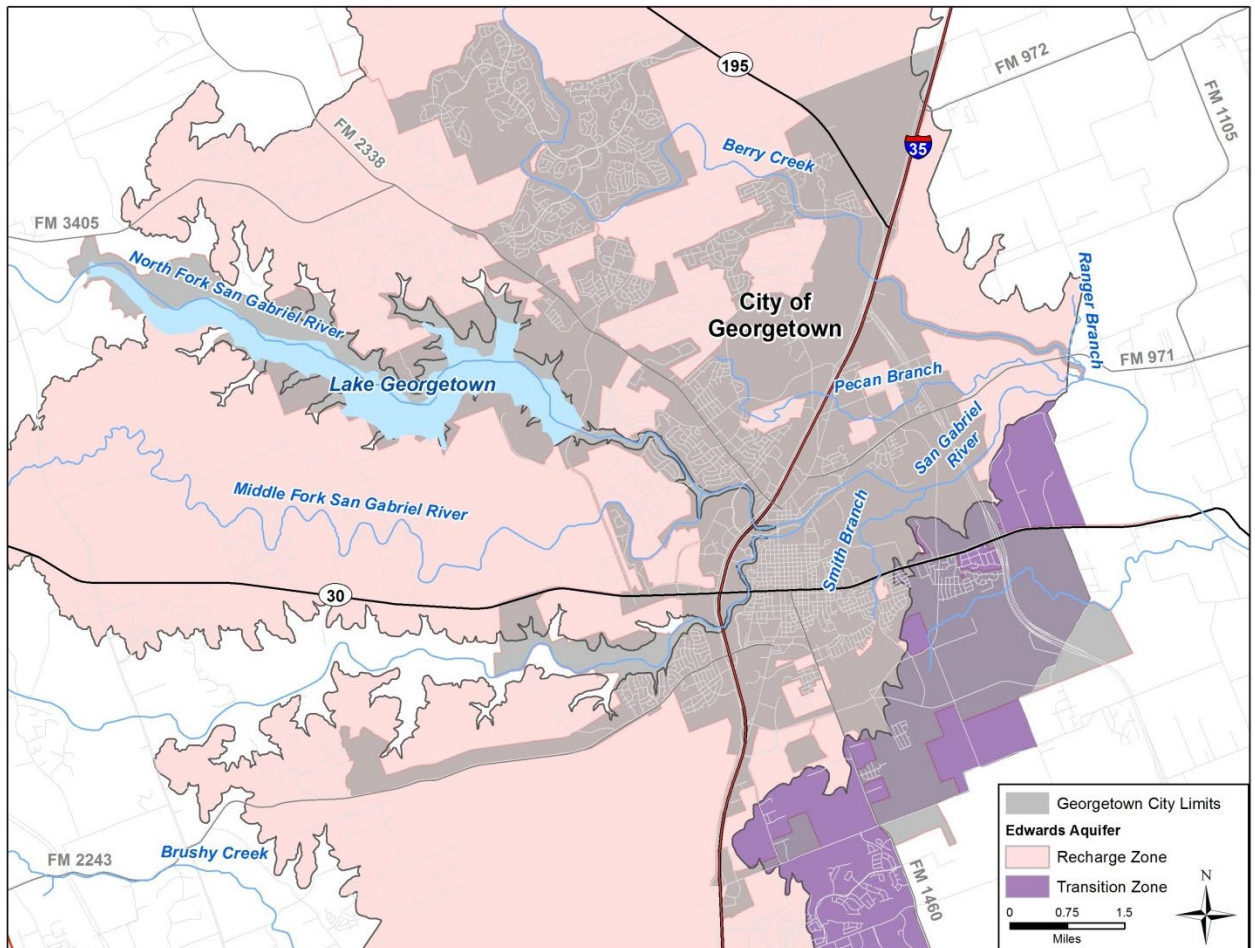


Figure 2. Edwards Aquifer Recharge Zone in the vicinity of the City of Georgetown.

2.3.6 Pollution Prevention / Good Housekeeping for Municipal Operation

The estimated City budget (FY17) for stormwater operations and maintenance and capital costs is approximately \$3.3 million. Revenue for stormwater management is generated through a Stormwater Management Fee assessed to all residents and businesses within corporate limits. The fee is based on average residential lot size. The City adopted a standard rate (sometimes called a fee) for one Billing Unit (BU) of impervious cover in 2011. The current rate is \$6.50/BU/month. The applicable rate times the number of billing units for a customer is the basis for that customer's monthly bill. Stormwater management is a function within the Transportation Services department. The department is responsible for maintaining the public stormwater conveyance system in public right-of-ways and easements receiving stormwater runoff. This system consists of inlets or catch basins, open channels and ditches, underground pipelines, and detention ponds.

The City maintains a number of Geographic Information System (GIS) databases that are relevant to stormwater management. These include City and Extra Territorial Jurisdiction (ETJ) limits, street centerlines, parcels, zoning districts, future land use, Edwards Aquifer recharge zone, and FEMA flood hazard areas. This data is publicly available through the City's website, which includes a web-based map viewer for displaying the data over various base maps. The City also maintains electronic files of site plans through its development review process.

A number of other entities also provide publicly available GIS data that is relevant to stormwater management. Aerial imagery, LiDAR ground elevation data, rivers and streams, and soil and vegetation classification data are available from Williamson County. Watershed boundaries are

available from the U.S. Geological Survey National Hydrography Dataset. The Capital Area Council of Governments (CAPCOG) and Texas Natural Resources Information System (TNRIS) also provide a number of GIS datasets for download from their websites.

In 2011, the City contracted with HDR for the inventory of privately owned water quality basins located within the City limits. The basins were identified through review of the TCEQ permit database and examination of aerial imagery, and their locations were recorded in a GIS database.

In 2003, the City adopted a Master Drainage Plan and Drainage Criteria Manual for the city corporate limits as well as the ETJ. The master plan includes all tributaries of San Gabriel River located within the City and its ETJ area including Berry Creek, Pecan Branch, Middle Fork of San Gabriel River, Smith Branch and Mankins Creek.

3.0 Stormwater Management Program Overview

3.1 Development of the SWMP

Following notification by the Texas Commission on Environmental Quality (TCEQ) in December 2013, the City began the development of the SWMP with the assistance of relevant City staff and HDR Engineering, Inc. (HDR). The City's SWMP was developed through numerous public meetings, outreach to elected city officials, peer jurisdictions and technical stormwater management experts and is in accordance with the requirements of the TPDES General Permit TXR040000 administered under the TCEQ.

The SWMP addresses the six minimum control measures (MCM's) that are required under the EPA Stormwater Phase II Final Rule for small Municipal Separate Storm Sewer System (MS4) and includes BMPs that will eliminate or reduce pollutants discharging from the City's MS4. The City has not chosen to develop and include the optional seventh minimum control measure in the SWMP to obtain permit coverage for municipal construction activities.

3.2 Organization of the SWMP

The City of Georgetown's SWMP is organized around the following seven major minimum control measures with the selected best management practices and impaired waterbodies with the selected best management practices:

MCM #1 - Public Education, Outreach and Involvement

- PE-1 Community Education
- PE-2 Garden and Lawn Care Education
- PE-3 Household Hazardous Waste Education
- PE-4 Volunteer Inlet Marketing
- PE-5 Stream Clean-Up Projects
- PE-6 Tree Planting Program
- PE-7 Attitude Survey
- PE-8 FOG Campaign
- PE-9 Public Access to SWMP
- PE-10 Public Access to Annual Reports

MCM #2 - Illicit Discharge Detection and Elimination

- ID-1 Illicit Discharge Ordinance
- ID-2 Citizen Complaint Hotline
- ID-3 Storm Drain and Outlet Mapping
- ID-4 The Collection System
- ID-5 Staff IDDE Education
- ID-6 Illicit Discharge Investigation
- ID-7 Sanitary Sewer System Cleaning

MCM #3 - Construction Site Stormwater Runoff Control

- C-1 Staff Training
- C-2 Preconstruction Meetings
- C-3 Construction Site Inspection and Enforcement

MCM #4 - Post-Construction Stormwater Management in New Development

- PC-1 Review of Permanent BMP's
- PC-2 Private Water Quality Pond Education
- PC-3 Long Term Maintenance of PC BMPs

PC-4 Post-Construction Storm Water Management Ordinance

MCM #5 - Pollution Prevention / Good Housekeeping for Municipal Operations

GH-1	Permittee- Owned Facilities Control
GH-2	Staff Training and Reporting
GH-3	City Facility Ponds
GH-4	Street Sweeping
GH-5	Inlet Drain and Structure Cleaning
GH-6	Facilities Assessment and SOPs
GH-7	Licensed Applicators
GH-8	Dog Station Management
GH-9	Transfer Station Improvements
GH-10	Dead Animal Program

MCM #6 – Industrial Storm Water Sources

Not Applicable for Level 3 Small MS4s

MCM #7 – Authorization for Municipal Construction Activities

Not Applicable

Impaired Waterbodies-Best Management Practices

IW-1	Mankins Branch (Bacteria)
IW-2	San Gabriel/North Fork San Gabriel River (TDS)
IW-3	San Gabriel/North Fork San Gabriel River (Chloride)

Each of the minimum control measure sections describes regulatory permit requirements and selected best management practices with measurable goal(s), implementation schedule, target audience and the responsible party. The City's SWMP will be implemented over a five-year permit period which coincides with the City's fiscal year. The five-year permit term begins October 1st, 2019 and runs through September 30th, 2023.

3.3 List of Allowable Non-Stormwater Discharges

The City has assessed a list of non-stormwater discharges and identified them to be non-significant contributors of pollution to the City's MS4. Below is a list of common and incidental non- stormwater discharges that will not be addressed in the City's SWMP. However, if any of these allowable discharges are identified as contributors of pollutants by City or TCEQ, then the SWMP will be amended to include BMPs for those discharges.

1. De-chlorinated swimming pool discharges
2. Individual residential vehicle washing
3. Water line flushing (excludes discharges of hyper-chlorinated water)
4. Air conditioning condensation
5. Uncontaminated pumped groundwater
6. Uncontaminated groundwater infiltration
7. Pavement and exterior building wash water conducted without use of detergent/soap or chemicals
8. Foundation or footing drains
9. Runoff or return flow from landscape irrigation and lawn irrigation
10. Discharges from potable water sources
11. Diverted stream flows
12. Rising ground waters and springs
13. Water from crawl space pumps
14. Flows from wetlands and riparian habitats

15. Street wash water
16. Discharges or flows from firefighting activities (discharges or flows from firefighting activities are excluded from the effective prohibition against non-stormwater and need only be addressed where identified as significant sources of pollutants to the City's MS4).

3.4 NPDES Stormwater Final MS4 General Permit Remand Rule

The final rule for the Environmental Protection Agency went in effect on January 9, 2017. EPA issued this final rule to revise the way regulations and governing over small municipal separate storm sewer systems obtain coverage under the National Pollutant Discharge Elimination System Permit and the permit is authorized. The final rules states all terms must be listed as "clear, specific, and measurable." Performance expectations must be addressed and schedules are clearly understood. Requirements can be quantitative and qualitative.

3.5 Annexations

The permit states all annexations and de-annexations must be listed in the SWMP. Below is all the annexations in the City of Georgetown since 2014.

ORDINANCE	YEAR ANNEXED	ACRES	NAME/AREA	DATE ANNEXED
2014-34	2014	45.79	Lakeside at Lake Georgetown Annexation	6/10/2014
2014-32	2014	98.22	Celebration Church Annexation	6/10/2014
2014-43	2014	4.92	Wright Survey 3816 Williams Annexation	7/22/2014
2014-69	2014	25.25	Hills at Georgetown Village	10/14/2014
2014-71	2014	768.90	Sun City Somerset Annexation	10/14/2014
2014-73	2014	405.95	Sun City Queen Tract Annexation	10/14/2014
2014-79	2014	1.37	Evans Annexation	10/28/2014
2014-80	2014	1.23	Wright Annexation	10/28/2014
2014-82	2014	54.54	Southwest Bypass (Wolf)	10/28/2014
2014-83	2014	10.76	First Baptist GT (Wolf)	10/28/2014
2014-81	2014	753.30	Wolf Ranch Hillwood	10/28/2014
2014-28	2014	3.40	Bluffview/Weir Ranch Annexation	5/27/2014
2016-13	2016	207.15	Kasper Tract	2/23/2016
2016-12	2016	2.73	Williams ROW	2/23/2016
2016-19	2016	17.81	1000 FM 1460	3/8/2016
2016-34	2016	10.06	Enterprise Pump Station	4/26/2016
2016-41	2016	11.17	Oak Meadow Corner	5/10/2016
2016-69	2016	14.46	Berry Creek	11/22/2016
2017-35	2017	113.00	Wolf Lakes Tract	5/23/2017
2017-37	2017	25.71	Oakmont Annexation	5/23/2017

2017-36	2017	12.23	Echo Park	5/23/2017
2017-73	2017	244.50	Somerset Hills-1 Tract	11/28/2017
2017-74	2017	133.10	Somerset Hills-2 Tract	11/28/2017
2017-75	2017	120.53	Highland Village	11/28/2017
2018-16	2018	106.21	Berry Creek Highlands	5/8/2018
2018-17	2018	208.33	Berry Creek Highlands	5/8/2018
2018-28	2018	44.69	Keyes Tract	6/26/2018
2018-43	2018	18.33	Morning Dove Annexation	8/14/2018
2018-62	2018	553.46	Garey Park	10/9/2018
2018-67	2018	1.42	Fire Station No. 7	11/13/2018
2018-70	2018	22.90	GISD No. 11	11/27/2018
2018-79	2018	6.38	Highland Village 2	12/11/2018
2019-19	2019	262.01	Shell Road Development	3/26/2019
2019-20	2019	23.10	Maravilla	3/26/2019
2019-1-ANX	2019	0.63	8350 RM 2338	05/10/2019
2019-4-ANX	2019	2.54	Old 1460 Trail	07/09/2019

3.5 Endangered Species

The Endangered Species Act was enacted in 1973 to help protect and recover species which are classified as threatened or endangered along with the ecosystems of found endangered species. The following endangered species are located within the waterbodies of the City of Georgetown Limits as according to the TCEQ.

- Coffin Cave mold beetle (*Batrissodes texamus*)
- Tooth Cave ground beetle (*Rhadine Persephone*)*
- Bee Creek Cave harvestman (*Texella reddelli*)
- Bone Cave harvestman (*Texella reyesi*)
- Navasota ladies'-tresses (*Spiranthes parksii*)*

*Note: These endangered species at this time are not found in the City of Georgetown's City Limits according to the Williamson County Conservation Foundation. If this information changes, the Stormwater Management Plan will be updated.

4.0 MCM #1 - Public Education, Outreach and Involvement

The Public Education, Outreach and Involvement minimum control measure consists of BMPs that focus on the development of educational materials designed to inform the public about the impacts that stormwater discharges have on local water bodies. The BMPs describe how the target audience will be informed about the steps they can take to reduce stormwater pollution; how to become involved in the SWMP; and the mechanisms that will be used to reach target audiences. The Public Education, Outreach and Involvement program is developed to reach all of the constituents (residents, visitors, public service employees, businesses, commercial and industrial facilities and construction site personnel) within the City Limits.

4.1 Regulatory Requirements

I. Public Education and Outreach

Implement and maintain a comprehensive stormwater education and outreach program to educate public employees, businesses and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges can have on local waterways, as well as steps that the public can take to reduce pollutants in stormwater.

The program must at a minimum:

- a. Define the goals and objectives of the program based on high priority community-wide issues;
- b. Identify the target audience(s);
- c. Develop or utilize appropriate educational materials, such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, and websites;
- d. Determine cost effective and practical methods and procedures for distribution of materials.

Throughout the permit term of the SWMP, education materials must be available to convey the program's message to the target audiences at least annually.

City of Georgetown has a public website and shall post the SWMP and annual reports as required under Part IV.B.2 on the website. The SWMP must be posted no later than 30 days after the approval date from the Texas Commission on Environmental Quality (TCEQ) and the annual report no later than 30 days after the due date, by January 28 of every year.

To view the City's SWMP and annual reports, please click the following link:
<https://transportation.georgetown.org/storm-water-plan/>

II. Public Involvement


Involve the public, and, at a minimum, comply with any state and local public notice requirements in the planning and implementation activities related to developing and implementing the SWMP. At a minimum:

- a. If feasible, consider using public input (for example, the opportunity for public comment, or public meetings) in the implementation of the program;
- b. If feasible, create opportunities for citizens to participate in the implementation of control measures, such as stream cleanups, storm drain stenciling, volunteer monitoring, volunteer "Adopt-A-Highway" programs, and education materials;


- c. Ensure the public can easily find information about the SWMP.

4.2 Selected Best Management Practices

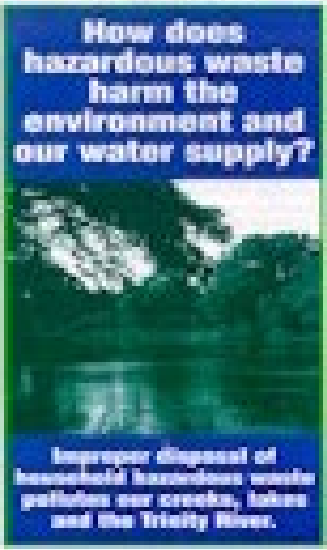
PE-1 Community Education

PE-1		Community Education	
		<p>BMP Description:</p> <p>The City will continue to develop or obtain a public education and outreach campaign focused on the reduction of the bacteria, floatables and fertilizer. Special consideration will be paid to aquifer and salamander concerns.</p>	
<p>Responsible Department Public Works/ Stormwater</p>		<p>Target Audience</p>	<p>Residents, visitors, public service employees, businesses, commercial and industrial facilities, construction site personnel</p>
<p>Supporting Departments</p> <p>Public Comm GUS-Sys. Eng. GUS-Conservation Police-Code Building Officials</p>	<p>Year</p>	<p>Measurable Goal</p>	
	1	The City will hold four events annually and hand out a total of 100 educational materials annually by September 30, 2019.	
	2	The City will hold four events annually and hand out a total of 100 educational materials annually by September 30, 2020.	
	3	The City will hold four events annually and hand out a total of 100 educational materials annually by September 30, 2021.	
	4	The City will hold four events annually and hand out a total of 100 educational materials annually by September 30, 2022.	
	5	The City will hold four events annually and hand out a total of 100 educational materials annually by September 30, 2023.	


PE-2 Garden and Lawn Care Education

PE-2	Garden and Lawn Care Education		
	<p>BMP Description:</p> <p>The City will continue to acquire, create or support the creation of public education and outreach materials focused on garden and lawn care education. Update as needed.</p>		
	<p>Responsible Department GUS-Conservation Public Works-Stormwater.</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Public Comm Parks</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2019.</p>	
	<p>2</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2020.</p>	
	<p>3</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2021.</p>	
	<p>4</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2022.</p>	
	<p>5</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2023.</p>	


PE-3 Household Hazardous Waste Education

PE-3	Household Hazardous Waste Education	
	<p>BMP Description:</p> <p>The City will continue to collect household Hazardous Waste from residents at designated facilities. Refine communication efforts to maximize citizen participation in proper disposal.</p> <p>The City will continue to acquire, create or support the creation of public education and outreach materials focused on use of less toxic alternatives.</p>	
<p>Responsible Department Environmental Services.</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Public Comm Public Works- Stormwater</p>	<p>Year</p>	<p>Measurable Goal</p>
	<p>1</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2019.</p>
	<p>2</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2020.</p>
	<p>3</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2021.</p>
	<p>4</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2022.</p>
	<p>5</p>	<p>The City will hand out 50 educational materials at one event annually by September 30, 2023.</p>


PE-4 Volunteer Inlet Marking

PE-4		Volunteer Inlet Marking	
		<p>BMP Description:</p> <p>Staff shall continue to recruit and manage volunteer efforts to install inlet markers throughout the city. Volunteers will be educated about water quality impacts. The City will continue to acquire, create or support the creation of public education and outreach materials to be distributed in target neighborhoods to explain the purpose of the recent inlet marker installation and concepts associated with “Flows to Waterway”.</p>	
<p>Responsible Department Public Works-Stormwater</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>GIS</p>		Year	Measurable Goal
		1	Hold one volunteer inlet marking event once a year and utilize GIS mapping. Review materials online once a year and update if applicable by September 30, 2019.
		2	Hold one volunteer inlet marking event once a year and utilize GIS mapping. Review materials online once a year and update if applicable by September 30, 2020.
		3	Hold one volunteer inlet marking event once a year and utilize GIS mapping. Review materials online once a year and update if applicable by September 30, 2021.
		4	Hold one volunteer inlet marking event once a year and utilize GIS mapping. Review materials online once a year and update if applicable by September 30, 2022.
		5	Hold one volunteer inlet marking event once a year and utilize GIS mapping. Review materials online once a year and update if applicable by September 30, 2023.


PE-5 Stream Cleanup Projects

PE-5		Stream Cleanup Projects	
		<p>BMP Description:</p> <p>The City will continue recruiting volunteers, identifying public spaces, facilitating clean-up and documenting activities. Volunteers will be educated about water quality impacts.</p>	
<p>Responsible Department Public Works-Stormwater.</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Parks Environmental Services</p>		Year	Measurable Goal
		1	City will host one (1) clean up event and track smaller events during the year by September 30, 2019 Track list of cleanup locations & dates
		2	City will host one (1) clean up event and track smaller events during the year by September 30, 2020. Track list of cleanup locations & dates
		3	City will host one (1) clean up event and track smaller events during the year by September 30, 2021. Track list of cleanup locations & dates
		4	City will host one (1) clean up event and track smaller events during the year by September 30, 2022. Track list of cleanup locations & dates
		5	City will host one (1) clean up event and track smaller events during the year by September 30, 2023. Track list of cleanup locations & dates

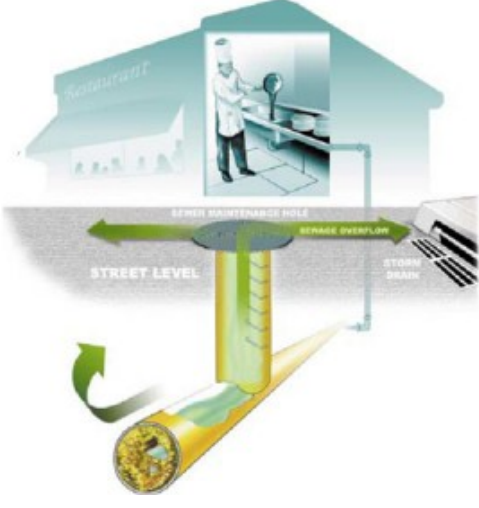
PE-6 Tree Planting Program

PE-6		Tree Planting Program	
		<p>BMP Description:</p> <p>The City will continue to promote multiple tree planting events. Staff shall develop/acquire and provide supplemental materials to make the connection between tree planting and creek water quality.</p>	
<p>Responsible Department</p> <p>Parks-Horiculture</p>	<p>Target Audience</p>	<p>Residents, public service employees, schools, businesses, commercial and industrial facilities</p>	
<p>Supporting Departments</p> <p>Public Communications Environmental Services Public Works-Stormwater Conservation</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Hold (1) tree planting event. Report numbers of tree plantings and planting events/dates. Distribute education and outreach materials by September 30, 2019.</p>	
	<p>2</p>	<p>Hold (1) tree planting event. Report numbers of tree plantings and planting events/dates. Distribute education and outreach materials by September 30, 2020.</p>	
	<p>3</p>	<p>Hold (1) tree planting event. Report numbers of tree plantings and planting events/dates. Distribute education and outreach materials by September 30, 2021.</p>	
	<p>4</p>	<p>Hold (1) tree planting event. Report numbers of tree plantings and planting events/dates. Distribute education and outreach materials by September 30, 2022.</p>	
	<p>5</p>	<p>Hold (1) tree planting event. Report numbers of tree plantings and planting events/dates. Distribute education and outreach materials by September 30, 2023.</p>	


PE-7 Attitude Survey

PE-7		Attitude Survey	
		BMP Description: The City will utilize a survey every year targeting citizens. Conduct survey and analyze responses. If warranted, revise outreach articles and materials in response to the survey.	
Responsible Department Public Works-Stormwater		Target Audience	Residents, public service employees, businesses, commercial and industrial facilities
Supporting Departments Communications GUS – Conservation Environmental Services	Year	Measurable Goal	
	1	Conduct survey once a year and evaluate success of outreach materials, make changes if applicable by September 30, 2019.	
	2	Conduct survey once a year and evaluate success of outreach materials, make changes if applicable by September 30, 2020.	
	3	Conduct survey once a year and evaluate success of outreach materials, make changes if applicable by September 30, 2021.	
	4	Conduct survey once a year and evaluate success of outreach materials, make changes if applicable by September 30, 2022.	
	5	Conduct survey once a year and evaluate success of outreach materials, make changes if applicable by September 30, 2023.	


PE-8 FOG Campaign

PE-8	FOG Campaign		
		<p><i>BMP Description:</i></p> <p>The City will Continue the FOG (Fats, Oil or Grease) campaign. Refine communication efforts to maximize citizen awareness.</p>	
<p>Responsible Department Environmental Services</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>	
<p>Supporting Departments</p> <p>Pub Comm Public Works-Stormwater</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>The City will hand out 50 education materials at one event annually by September 20, 2019.</p>	
	<p>2</p>	<p>The City will hand out 50 education materials at one event annually by September 20, 2020.</p>	
	<p>3</p>	<p>The City will hand out 50 education materials at one event annually by September 20, 2021.</p>	
	<p>4</p>	<p>The City will hand out 50 education materials at one event annually by September 20, 2022.</p>	
	<p>5</p>	<p>The City will hand out 50 education materials at one event annually by September 20, 2023.</p>	

PE-9 Public Access to SWMP

PE-9		Public Access to SWMP	
		<p>BMP Description:</p> <p>The City will make the SWMP publicly available online along with brief description of SWMP purpose and regulatory driver. Announce SWMP adoption through traditional social media.</p>	
<p>Responsible Department Public Works-Stormwater</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Communications</p>	Year	Measurable Goal	
	1	Review SWMP on City website and verify if accessible to the public once a year by September 30, 2019.	
	2	Post new SWMP. Review SWMP on City website and verify is accessible to the public once a year by September 30, 2020.	
	3	Review SWMPs on City website and verify is accessible to the public once a year by September 30, 2021.	
	4	Review SWMPs on City website and verify is accessible to the public once a year by September 30, 2022.	
	5	Review SWMPs on City website and verify is accessible to the public once a year by September 30, 2023.	

PE-10 Public Access to Annual Reports

PE-10	Public Access to Annual Reports		
	<p>BMP Description:</p> <p>The City will make the annual reports publically available online along with brief description of annual report purpose and regulatory driver. Announce annual report adoption through traditional or social media.</p>		
	<p>Responsible Department</p> <p>Public Works-Stormwater</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Communications</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Post annual report from Year 4 on City Website. Review 100% of existing annual reports for accessibility on website once a year by September 30, 2019.</p>	
	<p>2</p>	<p>Post annual report from Year 5/1 on City Website. Review 100% of existing annual reports for accessibility on website once a year by September 30, 2020.</p>	
	<p>3</p>	<p>Post annual report from Year 2 on City Website. Review 100% of existing annual reports for accessibility on website once a year by September 30, 2021.</p>	
	<p>4</p>	<p>Post annual report from Year 3 on City Website. Review 100% of existing annual reports for accessibility on website once a year by September 30, 2022.</p>	
	<p>5</p>	<p>Post annual report from Year 4 on City Website. Review 100% of existing annual reports for accessibility on website once a year by September 30, 2023.</p>	

5.0 MCM #2 - Illicit Discharge Detection and Elimination

The Illicit Discharge Detection and Elimination minimum control measure consists of BMPs that focus on the detection and elimination of illicit discharges into the City's MS4. An illicit discharge is defined as "a point source discharge of pollutants to a separate storm drain system which is not composed entirely of stormwater and not authorized by an NPDES permit." The BMPs describe development and update of storm sewer map; the legal authority mechanism (to the extent allowable under State or local law) which will be used to effectively prohibit illicit discharges; enforcement procedures and actions to ensure that the regulatory mechanism is implemented; and programs to detect and eliminate non-stormwater discharges from the City's MS4. BMPs also focus on education and training of public service employees, businesses, and the general public with regard to the hazards associated with illegal discharges and improper disposal of waste as described in the Public Education and Outreach minimum control measure. The City has developed a list of non-stormwater discharges that will not be considered illicit, see section 3.3, List of Allowable Non-Stormwater Discharges.

5.1 Regulatory Requirements

I. Program Development

Implement and enforce a program to detect, investigate and eliminate illicit discharges into the small MS4. The SWMP must include a plan to detect and address non-stormwater discharges, including illegal dumping to the MS4 system. Elements must include:

- a. An up-to-date MS4 map (see Part III.B.2.(c)(1))
- b. Methods for informing and training MS4 field staff
- c. Procedures for tracing and removing the source of an illicit discharge
- d. Procedures for removing the source of the illicit discharge (see Part III.B.2.(c)(5));
- e. For Level 2, 3, and 4 small MS4s, if applicable, procedures to prevent and correct any leaking on-site sewage disposal systems that discharge into the small MS4;
- f. For Level 3 and 4 small MS4s, will create procedures for follow-up Investigations to verify illicit discharge has been removed.

II. Allowable Non-Stormwater Discharges

Non-stormwater flows listed in Part II.C of the TPDES General Permit do not need to be considered by the MS4 operator as an illicit discharge requiring elimination unless the operator of the MS4 or the TCEQ identifies the flow as a significant source of pollutants to the MS4.

II. MS4 Mapping

Maintain an up-to-date MS4 map which must be located on site and available for review by the TCEQ. The MS4 map must show at a minimum the following information:

- a. The location of all small MS4 outfalls that are operated by the City and discharge into the waters of the U.S.
- b. The names and locations of all waters of the U.S. that receive discharges from the outfalls; and
- c. Priority areas identified under Part III.B.2.(e)(1) if applicable.

III. Education and Training

- a. Implement training for all of the City field staff that may come into contact with or otherwise observe an illicit discharge or illicit connection to the small MS4 as part of their normal job responsibilities. Training program materials and attendance lists must be maintained on site and made available for review by the TCEQ.
- b. All permittees shall develop and maintain on-site procedures for responding to illicit discharges and spills.

IV. Public Reporting of Illicit Discharges and Spills

To the extent feasible, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from the small MS4. Provide a central contact point to receive reports, for example by including a phone number for complaints and spill reporting. Develop and maintain on site procedures for responding to illicit discharges and spills.

V. Source Investigation and Elimination

Minimum Investigation Requirements – Upon becoming aware of an illicit discharge, conduct an investigation to identify and locate the source of such illicit discharge as soon as practicable. The investigation shall include:

- a. Prioritize the investigation of discharges based on their relative risk of pollution. For example sanitary sewage may be considered a high priority discharge.
- b. Report to the TCEQ immediately upon becoming aware of the occurrence of any illicit flows believed to be an immediate threat to human health or the environment.
- c. Track all investigations and document, at a minimum, the date(s) the illicit discharge was observed, the results of the investigation, any follow-up of the investigation and the date the investigation was closed.
- d. If the source of the illicit discharge extends outside the City's jurisdiction, notify the adjacent permitted MS4 operator or TCEQ's Field operations Support division in accordance with Part III.A.3.b
- e. If and when the source of the illicit discharge has been determined, immediately notify the responsible party of the problem, and require the responsible party to perform all necessary corrective actions to eliminate the illicit discharge.


VI. Inspections

Conduct inspections, as determined appropriate, in response to complaints, and conduct follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party.

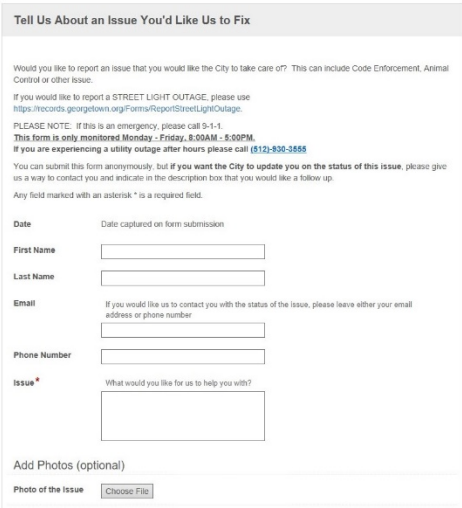
The permittee developed procedures describing the basis for conducting inspections in response to complaints and conducting follow-up inspections.

5.2 Selected Best Management Practices


ID-1 Illicit Discharge Ordinance

ID-1		Illicit Discharge Ordinance	
		<p>BMP Description:</p> <p>The City will review and revise, if needed, relevant ordinance(s) to provide authority to: prohibit illicit discharges and illicit connections, respond to and contain other releases, and prohibit dumping or disposal of materials other than stormwater.</p>	
<p>Responsible Department</p> <p>Code Enforcement</p>		<p>Target Audience</p> <p>Residents, public service employees, businesses, commercial and industrial facilities</p>	
<p>Supporting Departments</p> <p>Legal Public Works- Stormwater</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Enforce ordinance 100%. Review ordinance once a year and update if applicable by September 30, 2019.</p>	
	<p>2</p>	<p>Enforce ordinance 100%. Review ordinance once a year and update if applicable by September 30, 2020.</p>	
	<p>3</p>	<p>Enforce ordinance 100%. Review ordinance once a year and update if applicable by September 30, 2021.</p>	
	<p>4</p>	<p>Enforce ordinance 100%. Review ordinance once a year and update if applicable by September 30, 2022.</p>	
	<p>5</p>	<p>Enforce ordinance 100%. Review ordinance once a year and update if applicable by September 30, 2023.</p>	


ID-2 Citizen Complaint Webpage

ID-2	Citizen Complaint Webpage		
	<p>BMP Description:</p> <p>The City will continue using written procedures for responding to illicit discharge complaints, maintaining a complaint hotline webpage and promote the hotline to the residents.</p>		
<p>Responsible Department</p> <p>GUS Util</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>	
<p>Supporting Departments</p> <p>Police- Code, Public Works, Communications</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>The City will utilize the Citizen Complaint webpage to respond to 100% of reportable illicit discharges by September 30, 2019.</p>	
	<p>2</p>	<p>The City will utilize the Citizen Complaint webpage to respond to 100% of reportable illicit discharges by September 30, 2020.</p>	
	<p>3</p>	<p>The City will utilize the Citizen Complaint webpage to respond to 100% of reportable illicit discharges by September 30, 2021.</p>	
	<p>4</p>	<p>The City will utilize the Citizen Complaint webpage to respond to 100% of reportable illicit discharges by September 30, 2022.</p>	
	<p>5</p>	<p>The City will utilize the Citizen Complaint webpage to respond to 100% of reportable illicit discharges by September 30, 2023.</p>	


ID-3 Storm Drain and Outlet Mapping

ID-3		Storm Drain and Outlet Mapping	
		<p><i>BMP Description:</i></p> <p>The City will continue to update the City's storm drain map as needed with identification of new, altered, and newly discovered storm drain features.</p>	
<p>Responsible Department Public Works-Stormwater</p>		<p>Target Audience Residents, public service employees, businesses, commercial and industrial facilities</p>	
<p>Supporting Departments GIS</p>	Year	Measurable Goal	
	1	Map 100% of Berry Creek Watershed by September 30, 2019.	
	2	Map 100% of Chandler Branch – Brushy Creek watershed by September 30, 2020.	
	3	Map 100% of Cottonwood Creek – Brushy Creek watershed by September 30, 2021.	
	4	Map 100% of Mileham Branch – San Gabriel River watershed by September 30, 2022.	
	5	Map 100% assets from new development by September 30, 2023.	


ID-4 The Collection Station

ID-4	The Collection Station		
	<p>BMP Description:</p> <p>The City will continue to manage contractual services of operation provided by the City's solid waste contractor and promote use of The Collection Station. Refine communication efforts to increase citizen participation in proper disposal.</p>		
	<p>Responsible Department Environmental Services</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Public Works</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>The City will host or partner with another MS4 for one household hazardous waste event annually and report 100% of items received at the event by September 2019.</p>	
	<p>2</p>	<p>The City will host or partner with another MS4 for one household hazardous waste event annually and report 100% of items received at the event by September 2020.</p>	
	<p>3</p>	<p>The City will host or partner with another MS4 for one household hazardous waste event annually and report 100% of items received at the event by September 2021.</p>	
	<p>4</p>	<p>The City will host or partner with another MS4 for one household hazardous waste event annually and report 100% of items received at the event by September 2022.</p>	
	<p>5</p>	<p>The City will host or partner with another MS4 for one household hazardous waste event annually and report 100% of items received at the event by September 2023.</p>	


ID-5 Staff IDDE Education

ID-5		Staff IDDE Education	
		<p>BMP Description: The City will provide education on elimination and detection for illicit discharge and dumping issues.</p>	
<p>Responsible Department Public Works - Stormwater</p>	<p>Target Audience</p>	Public Service Employees	
<p>Supporting Departments Police-Code</p>	Year	Measurable Goal	
	1	1 training for all employees, once a year, list of attendees / dates by September 30, 2019.	
	2	1 training for all employees, once a year, list of attendees / dates by September 30, 2020.	
	3	1 training for all employees, once a year, list of attendees / dates by September 30, 2021.	
	4	1 training for all employees, once a year, list of attendees / dates by September 30, 2022.	
	5	1 training for all employees, once a year, list of attendees / dates by September 30, 2023.	

ID-6 Illicit Discharge Investigations

ID-6		Illicit Discharge Investigations	
		<p><i>BMP Description:</i></p> <p>The City will continue to respond to complaints utilizing the complaint hotline and will track investigations.</p>	
<p>Responsible Department Code Enforcement</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Public Works – Stormwater Environmental Services Customer Care</p>		Year	Measurable Goal
		1	List 100% of investigation types and locations by September 30, 2019.
		2	List 100% of investigation types and locations by September 30, 2020.
		3	List 100% of investigation types and locations by September 30, 2021.
		4	List 100% of investigation types and locations by September 30, 2022.
		5	List 100% of investigation types and locations by September 30, 2023.

ID-7 Sanitary Sewer System Cleaning

ID-7		Sanitary Sewer System Cleaning	
		<p>BMP Description: The City's water services department will continue to clean the sanitary sewer collection system</p>	
<p>Responsible Department GUS Util</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments Public Works-Stormwater</p>	Year	Measurable Goal	
	1	Clean 30,000 feet of sanitary sewer by September 30, 2019.	
	2	Clean 30,000 feet of sanitary sewer by September 30, 2020.	
	3	Clean 30,000 feet of sanitary sewer by September 30, 2021.	
	4	Clean 30,000 feet of sanitary sewer by September 30, 2022.	
	5	Clean 30,000 feet of sanitary sewer by September 30, 2023.	

6.0 MCM #3 - Construction Site Stormwater Runoff Control

The Construction Site Runoff minimum control measure consists of BMPs that focus on the reduction of pollutants in any stormwater runoff to the City's MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. The BMPs describe the legal authority mechanism (to the extent allowable under State or local law); procedures for site plan review and project acceptance; procedures for site inspection and enforcement; development of a list of appropriate erosion and sediment control BMPs; construction community education; citizen complaint hotline and construction site stormwater runoff employee training.

6.1 Regulatory Requirements

The MS4 operator, to the extent allowable under State and local law, must develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre or if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more of land. The MS4 operator is not required to develop, implement, and/or enforce a program to reduce pollutant discharges from sites where the construction site operator has obtained a waiver from permit requirements under NPDES or TPDES construction permitting requirements based on a low potential for erosion. The Program requires operators of construction sites (one acre or greater or common plan of development) to select, install, implement, and maintain stormwater control measures. The program must include the development and implementation of an ordinance or other regulatory mechanism to require install of erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable, under local, state, and federal law.

- I. The program must include the development and implementation of, at a minimum, an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State and local law.
- II. Requirements for all Permittees

All permittees shall include the requirements described below in Parts III.B.3(b)(1)-(7)

All permittees shall require that construction site operators implement appropriate erosion and sediment control BMPs. The permittee's construction program must ensure the following minimum requirements are effectively implemented for all small and large construction activities discharging to its small MS4s.

- (a). Erosion and Sediment Controls – Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants.

The permittee shall develop written procedures that describes initiating and completing stabilization measures for construction sites

The permittee must:

- (i). Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters
- (ii). Minimize the exposure of building material, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater

- (iii). Minimize the discharge of pollutants from spills and leaks.

The permittee shall ensure that all small and large construction sites have developed a stormwater pollution prevention plan (SWP3) under the TPDES TXR1500 general permit.

III. Prohibited Discharges – The following discharges are prohibited:

- (1). Wastewater from washout of concrete and wastewater from water well drilling operations, unless managed by an appropriate control
- (2). Wastewater from washout and cleanout of stucco, paint, from release oils, and other construction materials;
- (3). Fuels, oils, or other pollutants, used in vehicle and equipment operation and maintenance;
- (4). Soaps or solvents used in vehicle and equipment washing; and
- (5). Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed by appropriate BMPS.

IV. Construction Plan Review

To the extent allowable by state, federal, and local law, all permittees shall maintain and implement site plan review procedures that describe which plans will be reviewed as well as when an operator may begin construction. For those permittees without legal authority to enforce site plan reviews, this requirement is limited to those sites operated by the permittee and its contractors and located within the permittee's regulated area. The site plan procedures must meet the following minimum requirements:

- (a). The site plan reviews procedures must incorporate consideration of potential water quality impacts.
- (b). The permittee may not approve any plans unless the plans contain appropriate site specific construction site control measures that, at a minimum, meet the requirements described in Part III.B.3.(a) or in the TPDES CGP, TXR150000

V. Construction Site Inspections and Enforcement

To the extent allowable by state, federal, and local law, all permittees shall implement procedures for inspecting large and small construction projects. Permittees without legal authority to inspect construction sites shall at a minimum conduct inspection of sites operated by the permittee or its contractors and that are located in the permittees regulated area.

VI. Information submitted by the Public

All permittees shall develop, implement, and maintain procedures for receipt and consideration of information submitted by the public.

VII. MS4 Staff Training

All permittees shall ensure that all staff whose primary job duties are related to implementing the construction stormwater program (including permitting, plan review, construction site

inspections, and enforcement) are informed or trained to conduct these activities. The training may be conducted by the permittee or by outside trainers. Procedures have been developed for MS4 staff.

VII. Construction Site Inventory


In addition to the requirements described in Parts II.B.3(b)(1)-(7) above, permittees who operate Level 3 and 4 small MS4s shall meet the following requirements:

Construction Site Inventory


Permittees who operate Level 3 and 4 small MS4s shall maintain an inventory of all permitted active public and private construction sites that result in a total land disturbance of one or more acres or that result in a total land disturbance of less than one acre if part of a larger common plan or development or sale. Notification to the small MS4 must be made by submittal of a copy of an NOI or a small construction site notice, as applicable. The permittee shall make this inventory available to the TCEQ upon request.

6.2 Selected Best Management Practices


C-1 Staff Training

C-1		Staff Training	
		<p>BMP Description:</p> <p>The City will develop and implement staff training for procedures, regulations and policies.</p>	
<p>Responsible Department</p> <p>Public Works-Stormwater</p>	<p>Target Audience</p>	Public service employees	
<p>Supporting Departments</p> <p>GUS-Sys. Eng. Building Officials</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2019.	
	<p>2</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2020.	
	<p>3</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2021.	
	<p>4</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2022.	
	<p>5</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2023.	

C-2 Preconstruction Meetings

C-2		Preconstruction Meetings	
		<p>BMP Description:</p> <p>The City will document procedures for plan review. Review and refine plan review and permitting for all projects to add in compliance with the TPDES CGP.</p>	
<p>Responsible Department Public Works</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, contractors</p>
<p>Supporting Departments</p> <p>Systems Engineering Building Inspections Planning GUS Utilities</p>		Year	Measurable Goal
		1	The Stormwater Management Coordinator or qualified employee will attend 50% of preconstruction meetings to discuss the site plans and SWP3 by September 30, 2019.
		2	The Stormwater Management Coordinator or qualified employee will attend 50% of preconstruction meetings to discuss the site plans and SWP3 by September 30, 2020.
		3	The Stormwater Management Coordinator or qualified employee will attend 50% of preconstruction meetings to discuss the site plans and SWP3 by September 30, 2021.
		4	The Stormwater Management Coordinator or qualified employee will attend 50% of preconstruction meetings to discuss the site plans and SWP3 by September 30, 2022.
		5	The Stormwater Management Coordinator or qualified employee will attend 50% of preconstruction meetings to discuss the site plans and SWP3 by September 30, 2023.

C-3 Construction Site Inspection and Enforcement

C-3		Construction Site Inspection and Enforcement	
		<p>BMP Description:</p> <p>The City developed procedures for inspecting construction sites for erosion, sedimentation, and other sources of stormwater pollution. The City will document procedures for site inspection and enforcement. Review and update procedures for all projects to add in compliance with the TPDES CGP.</p>	
<p>Responsible Department GUS-Sys Eng. Building Inspection</p>		<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Planning Public Works- Stormwater</p>		Year	Measurable Goal
		1	Inspect 50% of active construction sites for erosion, sedimentation, and other sources of stormwater pollution annually by September 30, 2019.
		2	Inspect 50% of active construction sites for erosion, sedimentation, and other sources of stormwater pollution annually by September 30, 2020.
		3	Inspect 50% of active construction sites for erosion, sedimentation, and other sources of stormwater pollution annually by September 30, 2021.
		4	Inspect 50% of active construction sites for erosion, sedimentation, and other sources of stormwater pollution annually by September 30, 2022.
		5	Inspect 50% of active construction sites for erosion, sedimentation, and other sources of stormwater pollution annually by September 30, 2023.

7.0 MCM #4 - Post-Construction Stormwater Management in New Development and Redevelopment

The Post-Construction Stormwater Management minimum control measure consists of BMPs that focus on the prevention or minimization of water quality impacts from new development and redevelopment projects that disturb greater than or equal to one acre. The BMPs describe the legal authority mechanism (to the extent allowable under State or local law); plan review, project acceptance and site inspection procedures; permanent erosion and sediment control BMPs and long term operation and maintenance plan to address post construction runoff from new development and redevelopment projects.

7.1 Regulatory Requirements

To the extent allowable under State and local law, the MS4 operator must develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre of land, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. The MS4 Operator shall:

(a) Post-Construction Stormwater Management Program

(1) All permittees shall develop, implement, and enforce a program to the extent allowable under state, federal, and local law, to control stormwater discharges from new development and redeveloped sites that discharge into the small MS4 that disturb one acre or more, including projects that disturb less than one acre that are part of a larger common plan of development or sale. The program must be established for private and public development sites. The program may utilize an offsite mitigation and payment in lieu of components to address this requirement.

(2) All permittees shall use, to the extent allowable under state, federal, and local law and local development standards, an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects. The permittees shall establish, implement, and enforce a requirement that owners or operators of new development and redeveloped sites design, install, implement, and maintain a combination of structural and non-structural BMPs appropriate for the community and that protects water quality. If the construction of permanent structures is not feasible due to space limitation, health, and safety concerns, cost effectiveness, or highway construction codes, the permittee may propose an alternative approval to TCEQ. Newly regulated permittees shall have the program element fully implemented by the end of the permit term.

(b) All permittees shall document and maintain records of enforcement and make them available for review by TCEQ.

(c) Long-Term Maintenance of Post-Construction Stormwater Control Measure

All measures shall, to the extent allowable under state, federal, and local law, ensure the long-term operation and maintenance of structural stormwater control measures installed through one or both of the following approaches:

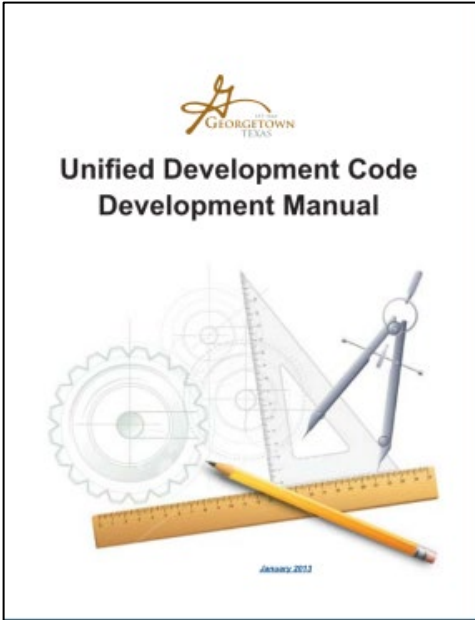
(1) Maintenance performed by the permittee (See Part III.B.5)

(2) Maintenance performed by the owner or operator of a new development or redeveloped site under a maintenance plan. The maintenance plan must be filed in the real property records of the county in which the property is located. The permittee shall require the owner or operator of any new development or maintenance requirements for any structural control measures installed on site. The permittee shall require operation and maintenance performed is documented and retained on site, such as the offices of the owner or operator, and made available for review by the small MS4.


Procedures have been developed to ensure long-term operation and maintenance post construction stormwater control measures.

7.2 Selected Best Management Practices

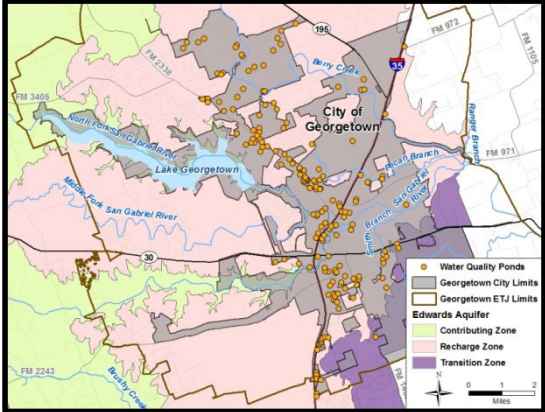
PC-1 Review of Permanent BMPs

PC-1		Review of Permanent BMPs	
		<p>BMP Description:</p> <p>The City will document procedures and standards for plan review. Conduct plan review for all new construction and redevelopment projects to ensure designs address permanent water quality measures in the most sensitive areas of the City (i.e. Edwards Aquifer Recharge Zone).</p>	
<p>Responsible Department GUS-Sys Eng.</p>	<p>Target Audience</p>	<p>Commercial and industrial facilities, construction site personnel, businesses</p>	
<p>Supporting Departments</p> <p>Transportation Planning</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Review 100% of construction plans. Review procedures and update if applicable by September 30, 2019.</p>	
	<p>2</p>	<p>Review 100% of construction plans. Review procedures and update if applicable by September 30, 2020.</p>	
	<p>3</p>	<p>Review 100% of construction plans. Review procedures and update if applicable by September 30, 2021.</p>	
	<p>4</p>	<p>Review 100% of construction plans. Review procedures and update if applicable by September 30, 2022.</p>	
	<p>5</p>	<p>Review 100% of construction plans. Review procedures and update if applicable by September 30, 2023.</p>	


PC-2 Private Water Quality Pond Education

PC-2		Private Water Quality Pond Education	
		<p>BMP Description:</p> <p>The City will offer an annual educational workshop to HOA and private pond owners on maintenance and reporting requirements of the state. Create and update education materials in accordance with changes in state regulations.</p>	
<p>Responsible Department Public Works-Stormwater</p>	<p>Target Audience</p>	<p>Commercial and industrial facilities, construction site personnel, businesses</p>	
<p>Supporting Departments</p> <p>GUS-Sys Eng.Planning</p>	Year	Measurable Goal	
	1	Create education program, meet with 100% of City Departments by September 30, 2019.	
	2	Review education materials once a year and update if applicable. Hold 1 event, once a year, track list of event/dates by September 30, 2020.	
	3	Review education materials once a year and update if applicable. Hold 1 event, once a year, track list of event/dates by September 30, 2021.	
	4	Review education materials once a year and update if applicable. Hold 1 event, once a year, track list of event/dates by September 30, 2022.	
	5	Review education materials once a year and update if applicable. Hold 1 event, once a year, track list of event/dates by September 30, 2023.	

PC-3 Long-Term Maintenance of PC BMPs

PC-3		Long-Term Maintenance of PC BMPs	
		<p>BMP Description:</p> <p>The City will continue to use processes and procedures to ensure maintenance by initial owner and subsequent property owners by requiring developers to create a maintenance plan in the Edwards Aquifer Recharge and Contributing Zone and require that plan be recorded in the Williamson County property records.</p>	
<p>Responsible Department GUS-Sys Eng.Planning</p>		<p>Target Audience</p>	<p>Commercial and industrial facilities, construction site personnel, businesses</p>
<p>Supporting Departments</p> <p>Planning Public Works - Stormwater Legal</p>		<p>Year</p>	<p>Measurable Goal</p>
		1	The city will review 100% of procedures and continue tracking maintenance plans by September 30, 2019.
		2	The city will review 100% of procedures and continue tracking maintenance plans by September 30, 2020.
		3	The city will review 100% of procedures and continue tracking maintenance plans by September 30, 2021.
		4	The city will review 100% of procedures and continue tracking maintenance plans by September 30, 2022.
		5	The city will review 100% of procedures and continue tracking maintenance plans by September 30, 2023.

PC-4 Post-Construction Stormwater Management Ordinance

PC-4	Post-Construction Stormwater Management Ordinance		
	<p><i>BMP Description:</i></p> <p>The City will continue to inspect city owned ponds and perform operation and maintenance. The City will inspect and keep documentation of city-owned ponds.</p>		
<p>Responsible Department</p> <p>Public Works-Stormwater</p>	<p>Target Audience</p>	<p>Commercial and industrial facilities, construction site personnel, businesses</p>	
<p>Supporting Departments</p> <p>Parks Code Enforcement Facilities</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Inspect 100% of City owned ponds. Document pond inspections and make/schedule repairs accordingly by September 30, 2019.</p>	
	<p>2</p>	<p>Inspect 100% of City owned ponds. Document pond inspections and make/schedule repairs accordingly by September 30, 2020.</p>	
	<p>3</p>	<p>Inspect 100% of City owned ponds. Document pond inspections and make/schedule repairs accordingly by September 30, 2021.</p>	
	<p>4</p>	<p>Inspect 100% of City owned ponds. Document pond inspections and make/schedule repairs accordingly by September 30, 2022.</p>	
	<p>5</p>	<p>Inspect 100% of City owned ponds. Document pond inspections and make/schedule repairs accordingly by September 30, 2023.</p>	

8.0 MCM #5 - Pollution Prevention/Good Housekeeping for Municipal Operations

The Pollution Prevention/Good Housekeeping minimum control measure consists of BMPs that focus on training and on the prevention or reduction of pollutant runoff from municipal operations. Municipal operations that are subject to operation and maintenance programs include park and open space maintenance, street and road maintenance, fleet and building maintenance, stormwater system maintenance, new construction and land disturbances, municipal parking lots, vehicle and equipment maintenance and storage yards, waste transfer stations and salt/sand storage locations. The BMPs describe the specific maintenance activities, schedules and long term inspection procedures for controls to reduce floatables and other pollutants from municipal operations; employee training program to prevent and reduce stormwater pollution from municipal operations; procedures for the proper disposal of waste removed from the MS4; structural control maintenance programs and developing a list of the municipally-owned industrial facilities which require other stormwater discharge permits.

8.1 Regulatory Requirements

A section within the SWMP must be developed to establish an operation and maintenance program, including an employee training component that has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

I. Good Housekeeping and Best Management Practices (BMPs)

Housekeeping measures and BMPs (which may include new or existing structural and non-structural controls) must be identified and either continued or implemented with the goal of preventing or reducing pollutant runoff from municipal operations. Examples of municipal operations and municipally owned areas include, but are not limited to:

- (1) park and open space maintenance;
- (2) street, road, or highway maintenance;
- (3) fleet and building maintenance;
- (4) stormwater system maintenance;
- (5) new construction and land disturbances.
- (6) municipal parking lots;
- (7) vehicle and equipment maintenance and storage yards;
- (8) waste transfer stations; and
- (9) salt/sand storage locations.

II. Training

A training program has been developed for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program. The training program must include training materials directed at preventing and reducing stormwater pollution from municipal operations. Materials may be developed, or obtained from the EPA, states, or other organizations and sources. Examples or descriptions of training materials being used must be included in the SWMP. MS4 must maintain training attendance records. Procedures were created to inform or train staff involved in implementing pollution prevention and good housekeeping measures. MS4 staff are trained utilizing the Stormwatch Municipal Storm Water Pollution Prevention training by Excal Visual along with other training opportunities throughout the year.

III. Structural Control Maintenance

If BMPs include structural controls, maintenance of the controls must be performed at a frequency determined by the MS4 operator and consistent with maintaining the effectiveness of the BMP. The permittee shall develop written procedures that define the frequency of inspections and how they will be conducted.

IV. Facility Inventory

The MS4 must keep an active inventory of all permittee owned facilities along with stormwater controls. In the inventory, all facilities must have permits, authorizations, and registration numbers. The following facilities to be on the list. The list must be made available for TCEQ. The following facilities on the inventory list are:

- A). Composting facilities
- B). Equipment storage and maintenance facilities
- C). Fuel storage facilities
- D). Hazardous waste disposal facilities
- E). Hazardous waste handling and transfer facilities
- F). Incinerators
- G). Landfills
- H). Materials storage yards
- I). Pesticide Storage facilities
- J). Buildings, including schools, libraries, police stations, fire stations, and office buildings
- K). Parking Lots.
- L). Golf courses;
- M). Swimming Pools
- N). Public Works yards
- O). Recycling facilities
- P). Salt storage facilities
- Q). Solid waste handling and transfer facilities
- R). Street repair and maintenance sites
- S). Vehicle storage and maintenance yards
- T). Structural Stormwater controls.

V. Disposal of Waste

Waste removed from the MS4 and waste collected from maintenance of stormwater structural controls must be properly disposed. Procedures have been written for proper waste disposal. Equipment and vehicle washing will stay at the Georgetown Municipal Complex in the designated wash area or will be taken to a local car wash.

VI. Contractor Requirements and Oversight

Contractors hired by the MS4 to perform maintenance of permittee-owned facilities must be contractually required to comply with all stormwater, good housekeeping, and stormwater management procedures. All contractors must have oversight to ensure contractors are in compliance with appropriate control measures and SOPs. Procedures must be retained on site and made available for review from TCEQ.

VII. Municipal Operations and Maintenance Activities

a). Assessment of permittee-owned operations

All permittees shall evaluate operation and maintenance (O&M) activities for their potential to discharge pollutants in stormwater, including, not limited to:

- (i). Road and parking lot maintenance, including such areas as pothole repair; pavement marking, sealing, and re-paving;
- (ii). Bridge maintenance, including such areas as re-chipping, grinding, and saw cutting;
- (iii). Cold weather operations, including plowing, sanding, and application of deicing and anti-icing compounds and maintenance of snow disposal areas;
- (iv). Right-of-way maintenance, including mowing, herbicide and pesticide application and planting vegetation.

b). All permittees shall identify pollutants of concern that could be discharged from the above O&M activities (for example, metals; chlorides, hydrocarbons, such as benzene, toluene, ethyl benzene, and xylenes; sediment; and trash).

c). All permittees shall develop and implement a set of pollution prevention measures that will reduce the discharge of pollutants in stormwater from the above activities. These pollution prevention measures may include the following examples:

- (i). Replacing materials and chemicals with more environmentally benign materials or methods
 - (ii). Changing operations to minimize the exposure or mobilization of pollutants to prevent them from entering surface water; and
 - (iii.) Placing barriers around or conducting runoff away from deicing chemical storage areas to prevent discharge into surface waters
- d). Inspections of pollution prevention measures – All pollution prevention measures implemented at permittee-owned facilities must be visually inspected to ensure they are working properly. The permittee shall develop written procedures that describes frequency of inspections and how they will be conducted. A log of inspections must be maintained and made available for review by the TCEQ upon request.

VIII. Structural Controls

If BMPs include structural controls, maintenance of the controls must be performed by the permittee and consistent with maintaining the effectiveness of the BMP. The permittee shall develop written procedures that define the frequency of inspections and how they will be conducted.

Additional Requirements for Level 3 and 4 small MS4s:

In addition to the requirements described in Parts.B.5(b)(1)-(6) above, permittees who operate Level 3 or 4 small MS4s shall meet the following requirements:

(1). Storm Sewer System Operation and Maintenance

- a). Permittees who operate Level 3 or 4 small MS4s shall develop and implement an O&M program to reduce to the maximum extent practicable the collection of pollutants in catch basins and other surface drainage structures
- b). Permittees who operate Level 3 and 4 small MS4s shall develop a list of potential problem areas. The permittees shall identify and prioritize problem areas for increase inspection (for example, areas with recurrent illegal dumping).

IX. Operation and Maintenance Program to Reduce Discharges of Pollutants from Roads

Permittees who operate Level 3 or 4 small MS4s shall implement an O&M program that includes at least a street sweeping and cleaning program or an equipment BMP such as an inlet protection program. A street sweeping program will be utilized and streets will be swept annually. The permittee will develop a procedure to dewater and properly dispose street sweeper waste appropriately, to prevent from re-entering the MS4.

X. Facility Assessment

Permittees who operate Level 3 or 4 small MS4s shall perform the following facility assessment in the regulated portion of the small MS4 operated by the permittee:


- a). Assessment of Facilities' Pollutant Discharge Potential – The permittee shall review the facilities identified in Part III.B.5(b) once per permit term for their potential to discharge pollutants into stormwater
- b). Identification of high priority facilities – Based on the Part III.B.5.(c)(4)a. assessment, the permittee shall identify as high priority those facilities that have a high potential to generate stormwater pollutants and shall document this in a list of these facilities. Among the factors that must be considered in giving a facility a high priority ranking are the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must not be performed outside (for example, changing automotive fluids, vehicle washing), proximity to waterbodies, proximity to sensitive aquifer recharge features, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s). High priority facilities must include, at a minimum, the permittee's maintenance yards, hazardous waste facilities, fuel storage locations and any other facilities at which chemicals or other materials have a high potential to be discharged in stormwater.
- c). Documentation of Assessment Results – The permittee shall document the results of the assessments and maintain copies of all site evaluation checklists used to conduct the assessments. The documentation must include the results of the permittees' assessments. The documentation must include the results of the permittees initial assessment, and any identified deficiencies and corrective actions taken. The permittee will develop specific stormwater management standard operation procedures for high priority facilities.

XI. Inspections

Permittees who operate Level 3 or 4 small MS4s shall develop and implement an inspection program, which at a minimum must include periodic inspections of high priority permittee-owned facilities. The results of the inspections and observations must be documented and available for review by the TCEQ.


8.2 Selected Best Management Practices

GH-1 Permittee-Owned Facilities and Control Inventory


GH-1	Permittee-Owned Facilities and Control Inventory	
	<p>BMP Description:</p> <p>The City will update the City's maps to include City owned facilities and controls.</p>	
<p>Responsible Department GIS</p>	<p>Target Audience</p>	<p>Public service employees</p>
<p>Supporting Departments</p> <p>Facilities GUS Sys. Eng. Police-Code Parks</p>	<p>Year</p>	<p>Measurable Goal</p>
	<p>1</p>	<p>Maintain/update database once a year by September 30, 2019.</p>
	<p>2</p>	<p>Maintain/update database once a year by September 30, 2020.</p>
	<p>3</p>	<p>Maintain/update database once a year by September 30, 2021.</p>
	<p>4</p>	<p>Maintain/update database once a year by September 30, 2022.</p>
	<p>5</p>	<p>Maintain/update database once a year by September 30, 2023.</p>

GH-2		Staff Training and Reporting	
		<p>BMP Description:</p> <p>The City will develop and implement staff training for procedures, regulations and policies.</p>	
<p>Responsible Department</p> <p>Public Works-Stormwater</p>	<p>Target Audience</p>	Public service employees	
<p>Supporting Departments</p> <p>GUS Sys. Eng. Code Enforcement Building Inspection</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2019.	
	<p>2</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2020.	
	<p>3</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2021.	
	<p>4</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2022.	
	<p>5</p>	1 training for all employees, once a year, list of attendees / dates by September 30, 2023.	


GH-3 City Facility Ponds

GH-3		City Facility Ponds	
		<p>BMP Description:</p> <p>The City will inspect city facility ponds to keep ponds in working condition and improve water quality in waterbodies within City limits. A list will be kept up to date of all facility ponds.</p>	
<p>Responsible Department Public Works</p>		<p>Target Audience</p>	<p>Residents</p>
<p>Supporting Departments</p> <p>GIS</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>None, this goal did not exist.</p>	
	<p>2</p>	<p>None, this goal did not exist.</p>	
	<p>3</p>	<p>None, this goal did not exist. This goal was submitted to TCEQ at beginning of Year 4.</p>	
	<p>4</p>	<p>The City will inspect 25% of City facility ponds once a year and will either perform or schedule maintenance and repairs by September 30, 2022.</p>	
	<p>5</p>	<p>The City will inspect 25% of City facility ponds once a year and will either perform or schedule maintenance and repairs by September 30, 2023.</p>	



GH-4 Street Sweeping

GH-4	Street Sweeping	
	<p>BMP Description:</p> <p>The City will continue sweeping public streets and high priority facilities, document disposal procedure. The City will continue the Street Sweeping Program to reduce the amount of sediment and associated pollutants discharged to the City's MS4 from roadways. The City has a street inventory to identify the streets that will be swept throughout the year. Additional sweeping services are performed as needed for accidents, citizen requests, special events or leaf collection.</p>	
	Responsible Department Public Works-Stormwater	Target Audience Public service employees
Supporting Departments NA	Year	Measurable Goal
	1	Sweep 100% of streets in City, once a year, by September 30, 2019.
	2	Sweep 100% of streets in City, once a year, by September 30, 2020.
	3	Sweep 100% of streets in City, once a year, by September 30, 2021.
	4	Sweep 100% of streets in City, once a year, by September 30, 2022.
	5	Sweep 100% of streets in City, once a year, by September 30, 2023.


GH-5 Inlet Drain and Structure Cleaning

GH-5	Inlet Drain and Structure Cleaning		
		<p>BMP Description:</p> <p>The City will continue system cleaning, develop a list of potential problem areas and prioritize problem areas for increased inspection (for example, areas with recurrent illegal dumping)</p>	
<p>Responsible Department Public Works-Stormwater</p>	<p>Target Audience</p>	<p>Public service employees</p>	
<p>Supporting Departments</p> <p>NA</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Update list of high priority areas, clean 200 inlets by September 30, 2019.</p>	
	<p>2</p>	<p>Update list of high priority areas, clean 200 inlets by September 30, 2020.</p>	
	<p>3</p>	<p>Update list of high priority areas, clean 200 inlets by September 30, 2021.</p>	
	<p>4</p>	<p>Update list of high priority areas, clean 200 inlets by September 30, 2022.</p>	
	<p>5</p>	<p>Update list of high priority areas, clean 200 inlets by September 30, 2023.</p>	


GH-6 Facility Assessments and SOPs

GH-6 Facility Assessments and SOPs		
 	<p>BMP Description:</p> <p>The City will inspect City owned facilities to determine which ones have a high potential to release pollutants. The City will review Standard Operating Procedures (SOPs) specific to each identified high priority facility.</p>	
	<p>Responsible Department Facilities</p>	<p>Target Audience Public service employees</p>
<p>Supporting Departments</p> <p>Public Works- Stormwater Parks and Rec Communications</p>	Year	Measurable Goal
	1	The City will inspect the Parks Administration Building, Georgetown Swimming Pools, Georgetown Municipal Complex, Georgetown Animal Shelter, and Georgetown Rec Center (5 inspections total) annually by September 30, 2019.
	2	The City will inspect the Parks Administration Building, Georgetown Swimming Pools, Georgetown Municipal Complex, Georgetown Animal Shelter, and Georgetown Rec Center (5 inspections total) annually by September 30, 2020.
	3	The City will inspect the Parks Administration Building, Georgetown Swimming Pools, Georgetown Municipal Complex, Georgetown Animal Shelter, and Georgetown Rec Center (5 inspections total) annually by September 30, 2021.
	4	The City will inspect the Parks Administration Building, Georgetown Swimming Pools, Georgetown Municipal Complex, Georgetown Animal Shelter, and Georgetown Rec Center (5 inspections total) annually by September 30, 2022.
	5	The City will inspect the Parks Administration Building, Georgetown Swimming Pools, Georgetown Municipal Complex, Georgetown Animal Shelter, and Georgetown Rec Center (5 inspections total) annually by September 30, 2023.


GH-7 Licensed Applicators

GH-7		Licensed Applicators	
		<p>BMP Description:</p> <p>To reduce water quality impacts from fertilizers and pesticides, maintain licensed applicators by the Texas Department of Agriculture with annual training and certification on proper storage and application techniques.</p>	
<p>Responsible Department</p> <p>Parks Public Works</p>		<p>Target Audience</p> <p>Public service employees</p>	
<p>Supporting Departments</p> <p>none</p>	Year	Measurable Goal	
	1	Obtain 100% of license renewals for annual report by September 30, 2019.	
	2	Obtain 100% of license renewals for annual report by September 30, 2020.	
	3	Obtain 100% of license renewals for annual report by September 30, 2021.	
	4	Obtain 100% of license renewals for annual report by September 30, 2022.	
	5	Obtain 100% of license renewals for annual report by September 30, 2023.	


GH-8 Dog Station Management

GH-8	Dog Station Management		
	<p>BMP Description:</p> <p>The City has installed over 65 dog bag stations with trash bins throughout city-owned parks to reduce the amount of pet waste entering the MS4. Bags are replaced depending on rate of consumption. The city continues to educate residents on the impact of pet waste in the MS4.</p>		
	<p>Responsible Department</p> <p>Parks</p>	<p>Target Audience</p>	<p>Parks, Residents</p>
<p>Supporting Departments</p> <p>None</p>	<p>Year</p>		
	<p>1</p>	<p>None. A NOC is filed after submittal of Year 1 Annual Report to TCEQ.</p>	
	<p>2</p>	<p>Replace 30,000 bags in dog stations at city parks by September 30, 2020.</p>	
	<p>3</p>	<p>Replace 30,000 bags in dog stations at city parks by September 30, 2021.</p>	
	<p>4</p>	<p>Replace 30,000 bags in dog stations at city parks by September 30, 2022.</p>	
	<p>5</p>	<p>Replace 30,000 bags in dog stations at city parks by September 30, 2023.</p>	

GH-9 Transfer Station Improvements

GH-9	Transfer Station Improvements		
	<p>BMP Description:</p> <p>The Transfer Station will undergo construction and improvements for the growth of City of Georgetown. These improvements will help with educating the public along with improving water quality.</p>		
<p>Responsible Department Environmental Services</p>	<p>Target Audience</p>	<p>Public service employees, Residents</p>	
<p>Supporting Departments</p> <p>Public Works-Stormwater Facilities GUS Sys. Eng</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>None. A NOC is filed after submittal of Year 1 Annual Report to TCEQ.</p>	
	<p>2</p>	<p>Make improvements on the one existing pond at transfer station by September 30, 2020.</p>	
	<p>3</p>	<p>Install one outdoor classroom on site by September 30, 2021.</p>	
	<p>4</p>	<p>Install one rain harvesting system if economically feasible. If not, install two rain harvesting barrels by September 30, 2022.</p>	
	<p>5</p>	<p>Identify three different uses for the closed landfill space by September 30, 2023.</p>	

GH-10 Dead Animal Program

GH-10	Dead Animal Program		
	<p>BMP Description:</p> <p>The City removes dead animals to prevent the spread of parasites, diseases, and pathogens from entering the MS4. Work orders will be created and tracked for animal carcass removal.</p>		
	<p>Responsible Department</p> <p>Public Works-Stormwater</p>	<p>Target Audience</p>	<p>Public service employees</p>
<p>Supporting Departments</p> <p>Public Works-Transportation</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>None. A NOC is filed after submittal of Year 1 Annual Report to TCEQ.</p>	
	<p>2</p>	<p>The City will respond to 100% of work orders for dead animals by September 30, 2020.</p>	
	<p>3</p>	<p>The City will respond to 100% of work orders for dead animals by September 30, 2021.</p>	
	<p>4</p>	<p>The City will respond to 100% of work orders for dead animals by September 30, 2022.</p>	
	<p>5</p>	<p>The City will respond to 100% of work orders for dead animals by September 30, 2023.</p>	

9.0 MCM #7 - Authorization for Municipal Construction Activities

The City has chosen not to develop the Authorization for Municipal Construction Activities, the optional seventh minimum control measure.

10.0 Impaired Waterbodies

Discharges of the pollutant(s) of concern to impaired water bodies or which there is a TCEQ and EPA approved TMDL are not eligible for this general permit unless they are consistent with the approved TMDL. A water body is impaired for purposes of the permit if it has been identified, pursuant to the latest TCEQ and EPA approved CWA 303(d) list or the Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(s) which lists category 4 and 5 water bodies, as not meeting Texas Surface Quality Standards.

10.1 Impaired Water Bodies and Total Maximum Daily Load (TMDL)

As of February 2019, there are no impaired waterbodies with a TMDL in City of Georgetown.

The permittee shall check annually, in conjunction with preparation of the annual report, whether an impaired water within its permitted area has been added to the latest EPA approved 303(d) list or the Texas Integrated Report of Surface Water Quality for CWA Sections 305(b) and 303(d) which lists the category 4 and 5 water bodies. Within two years following the approval date of the new list(s) of impaired waters, the permittee shall comply with the requirements of Part II.D.4.(b) (with the exception of (b)(1)c), and identify any newly listed waters in the annual report (consistent with Part IV.B.2.f) and SWMP (consistent with Part II.A.2.f) submitting a notice of change (NOC).

10.2 Impaired Waterbodies without an approved TMDL

The permittee shall also determine whether the permitted discharge is directly to one or more water quality impaired water bodies where a TMDL has not yet been approved by TCEQ and EPA. If the permittee discharges directly into an impaired water body without an approved TMDL, the permittee shall perform the following activities.

1) Discharging a pollutant of Concern

a) The permittee shall determine whether the MS4 may be a source of the pollutant(s) of concern by referring to the CWA 303(d) list and then determining if discharges from the MS4 would be likely to contain the pollutant(s) of concern at levels of concern.

b) If the permittee determines that the small MS4 may discharge the pollutant(s) of concern to an impaired waterbody without an approved TMDL, the permittee shall ensure that the SWMP includes focused BMPS, along with corresponding measurable goals, that the permittee will implement, to reduce, the discharge of pollutant(s) of concern that contribute to the impairment of the water body.

c) In addition, the permittee shall submit an NOC to amend the SWMP in accordance with Part II.E.6 to include any additional BMPS to address the pollutant(s) of concern. This requirement does not apply to BMPs implemented to address impaired waters that are listed after permit authorization pursuant to II.D.4.

Creek Name	Segment #	Parameter	TMDL
San Gabriel/North Fork San Gabriel River	1248	Chloride, TDS	None
Mankins Branch	1248C	Bacteria	None

10.3 Impairment for Bacteria

One of the impaired waterbodies in the City is Mankins Branch, which the pollutant of concern is bacteria. The City shall identify potential significant sources and develop BMPs to focus reducing the amount of bacteria entering the waterbody. The City may utilize the BMPs listed in Part II D 4(a)(5) or proposed alternative BMPs as appropriate for reducing the contribution of bacteria to the impaired waterbody.

1). Sanitary Sewer Systems

- (i). Make improvements to sanitary sewers to reduce overflows
- (ii). Address lift station inadequacies
- (iii). Improve reporting of overflows
- (iv). Strengthen sanitary sewer use requirements to reduce blockage from fats, oils, and grease

2) On-site Sewage Facilities (for entities with appropriate jurisdiction)

- (i). Identify and address failing systems
- (ii). Address inadequate maintenance of On-site Sewage Facilities (OOSFs)

3) Illicit Discharges and Dumping

Place additional effort to reduce waste sources of bacteria; for example, from septic systems, grease traps, and grit traps

4) Animal Sources

Expand existing management programs to identify and target animal sources such as zoos, pet waste, and horse stables.


5) Residential Education

Increase focus to educate residents on:


- (i). Bacteria discharging from a residential site either during runoff events or directly
- (ii). Fats, oils, and grease clogging sanitary sewer lines and resulting overflows
- (iii). Maintenance and operation of decorative ponds
- (iv). Proper disposal of pet waste

10.4 Selected Best Management Practices


IW-1 Mankins Branch (Bacteria)

IW-1	Mankins Branch (Bacteria)	
	<p>BMP Description:</p> <p>Determined the MS4 is contributing to bacteria in Mankins Branch. The City will educate residents on activities, which contribute to the impact of water quality and aquatic life.</p>	
<p>Responsible Department Public Works</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Parks GUS-Utilities Communications Environmental Services</p>	<p>Year</p>	<p>Measurable Goal</p>
	<p>1</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions related to activities, which contribute to bacteria in rivers by September 30, 2019.</p>
	<p>2</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions related to activities, which contribute to bacteria in rivers by September 30, 2020.</p>
	<p>3</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions related to activities, which contribute to bacteria in rivers by September 30, 2021.</p>
	<p>4</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions related to activities, which contribute to bacteria in rivers by September 30, 2022.</p>
	<p>5</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions related to activities, which contribute to bacteria in rivers by September 30, 2023.</p>

IW-2 San Gabriel/North Fork San Gabriel River (TDS)

IW-2	San Gabriel/North Fork San Gabriel River (TDS)		
	<p>BMP Description:</p> <p>Determined total dissolved solids (TDS) is being contributed by the MS4. The City will educate residents on different pollutants associated with TDS and the impact TDS has in our water quality and aquatic life.</p>		
	<p>Responsible Department Public Works</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Conservation</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to TDS in rivers by September 30, 2019.</p>	
	<p>2</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to TDS in rivers by September 30, 2020.</p>	
	<p>3</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to TDS to rivers by September 30, 2021.</p>	
	<p>4</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to TDS in rivers by September 30, 2022.</p>	
	<p>5</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to TDS in rivers by September 30, 2023.</p>	

IW-3 San Gabriel/North Fork San Gabriel River (Chloride)

IW-3	San Gabriel/North Fork San Gabriel River (Chloride)		
	<p>BMP Description: Determined chloride is being contributed by the MS4. The City will educate residents on chloride and the impact chloride has in our water quality and aquatic life.</p>		
	<p>Responsible Department Public Works</p>	<p>Target Audience</p>	<p>Residents, public service employees, businesses, commercial and industrial facilities</p>
<p>Supporting Departments</p> <p>Code Enforcement GUS-Utilities</p>	<p>Year</p>	<p>Measurable Goal</p>	
	<p>1</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to chloride in rivers by September 30, 2019.</p>	
	<p>2</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to chloride in rivers by September 30, 2020.</p>	
	<p>3</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to chloride in rivers by September 30, 2021.</p>	
	<p>4</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to chloride in rivers by September 30, 2022.</p>	
	<p>5</p>	<p>Review existing outreach materials online once a year and update if applicable. Conduct Attitude survey annually and have questions on activities, which contribute to chloride in rivers by September 30, 2023.</p>	

11.0 Discharges to the Edwards Aquifer Recharge Zone

Discharges of stormwater from regulated small MS4s, and other non-stormwater discharges, are not authorized by this general permit where those discharges are prohibited by 30 TAC Chapter 213 (Edwards Aquifer Rule). New discharges located within the Edwards Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone, must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

The permittee's agency-approved WPAPs (City-owned) that are required by the Edwards Aquifer Rule must be referenced in the SWMP. Any Additional plans not mentioned in the SWMP must be referenced in the annual reports. For discharges originating from the small MS4 permitted area, and located on or within ten stream miles upstream of the Edwards Aquifer recharge zone, applicants must also submit a copy of the MS4 NOI to the appropriate MS4 and TCEQ Regional Office.

For Williamson County: Submit the NOI to the following address:

TCEQ, Water Program Manager
Austin Regional Office
12100 Park 35 Circle, Bldg. A, Rm 179
Austin, Texas 78753
(512)339-2929

Name	Type of Plan	Plan Number	RN Number	Date Active
GEORGETOWN MUNICIPAL AIRPORT	WPAP	1111040402	RN103887279	05/26/2011
CITY OF GEORGETOWN PECAN BRANCH WWTP EXTENSION	WPAP	11000576	RN102731270	06/09/2017
BRAUN 3 MG ELEVATED STORAGE TANK	WPAP	11001292	RN110500469	11/13/2018
10 th AND 11 th STREET IMPROVEMENTS	WPAP	11001374	RN110588977	01/09/2019

12.0 Record Keeping and Reporting

The City will keep records and follow reporting procedures in compliance with the TPDES General Permit. The record keeping and reporting will allow the City to evaluate the implementation of the SWMP. In the first year of the program, the City developed a report format to follow when completing and submitting their annual report to the TCEQ.

12.1 Record Keeping

The City will retain the following documents for the permit period of five years to comply with the General Permit requirements:

1. Copy of the TPDES General Permit TXR040000.
2. Records of all data used to complete the NOI.
3. Any Notice of Changes (NOC's).
4. City's SWMP retained at a location accessible by TCEQ.
5. Copy of each annual report.
6. Any correspondence with TCEQ.

The original files will be kept at the Georgetown Municipal Complex building (300-1 Industrial Ave, Georgetown, TX 78627). The City will make the NOI and SWMP available to the public if requested to do so in writing. All other records will be provided in accordance with the Texas Public Information Act and Freedom of Information Act. See the General Permit for additional record keeping requirements.

12.2.1 Reporting Requirements

The City will report any noncompliance, which may endanger human health or safety, or the environment to the TCEQ. Within 24 hours of becoming aware of each noncompliance, an oral or fax notification will be sent to the TCEQ regional office. Within five days of becoming aware of each noncompliance, a written report will be sent to the TCEQ Regional office and to the TCEQ Enforcement Division (MC-224). The Written report will contain the following:

1. a description of the noncompliance and its cause;
2. the potential danger to human health or safety, or the environment;
3. the period of the noncompliance, including exact dates and times;
4. if the noncompliance has not been corrected, the anticipated time it is expected to continue
5. steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

If the City becomes aware that it submitted incorrect information or failed to submit complete and accurate information in any of the reports, records, NOI, NOT or NOC, then the City will promptly correct facts and send notification or information to the TCEQ executive director.

12.2.2 Annual Report

The City will submit a concise annual report to the TCEQ Executive Director within 90 days of the end of each permit year. The City will keep a copy of the annual report in the original files at the Administration Building, which will be readily available for review by authorized TCEQ personnel upon request. An annual report will be prepared whether or not the NOI and SWMP have been approved by the TCEQ. If the City has not received approval of the NOI and SWMP, then this information will be included in the report. The SWMP will be reviewed annually in preparation of the annual report required in Part IV.B.2. Results of the review will be documented in the annual report.

The annual report will include the following:

- (a) The status of the compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable (MEP), the measurable goals for each of the MCM's, and an evaluation of the success of the implementation of the measurable goals;
- (b) The status of any additional control measures implemented by the City;
- (c) Any MCM activities initiated before permit issuance may be included, under appropriate headings, as part of the first year's annual report;
- (d) A summary of the results of information (including monitoring data) collected and analyzed, if any, during the reporting period used to assess the success of the program at reducing the discharge of pollutants to the MEP;
- (e) A summary of the stormwater activities the City is planning to undertake during the next reporting cycle;
- (f) Proposed changes to the SWMP including changes to any BMPs or any identified measurable goals that apply to the program elements;
- (g) The number of municipal construction activities authorized under this general permit and the total number of acres disturbed.
- (h) The number of non-municipal construction activities that have occurred within the jurisdiction of the City (as given notice to the City by the construction operator);
- (i) An Indication if any requirements of the permit is being satisfied by another government agency;
- (j) A signature and certification by the City that the annual report is in accordance with 30 TAC §305.128.

The annual report will be submitted to the following address (with a copy to the TCEQ Regional Office):

Texas Commission on Environmental Quality
Stormwater & Pretreatment Team; MC – 148
P.O. Box 13087
Austin, Texas 78711-3087
Or electronically at www.tceq.state.tx.us

***SECTION 4:
ADDITIONAL FORMS***

Copy of Notice of Intent



Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly.

Incomplete applications delay approval or result in automatic denial.

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: <https://www3.tceq.texas.gov/steers/index.cfm>

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is \$325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is \$225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: <http://www.tceq.texas.gov/epay>.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
 - Check/Money Order Number:
 - Name printed on Check:
- If payment was made via ePay, provide the following:
 - Voucher Number:
 - A copy of the payment voucher is attached to this paper NOI form.

RENEWAL (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? ☐ Yes ☐ No

If Yes, provide the authorization number here: TXR15

NOTE: If an authorization number is not provided, a new number will be assigned.

SECTION 1. OPERATOR (APPLICANT)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss):

First and Last Name:

Suffix:

Title:

Credentials:

Phone Number:

Fax Number:

E-mail:

Mailing Address:

City, State, and Zip Code:

Mailing Information if outside USA:

Territory:

Country Code:

Postal Code:

d) Indicate the type of customer:

☐ Individual

☐ Limited Partnership

☐ General Partnership

☐ Trust

☐ Sole Proprietorship (D.B.A.)

☐ Corporation

☐ Estate

☐ Federal Government

☐ County Government

☐ State Government

☐ City Government

☐ Other Government

☐ Other:

e) Is the applicant an independent operator? ☐ Yes

☐ No

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

☐ 0-20

☐ 251-500

☐ 21-100

☐ 501 or higher

☐ 101-250

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number:

Federal Tax ID:

Texas Secretary of State Charter (filing) Number:

DUNS Number (if known):

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3

☐ No, complete this section

Prefix (Mr. Ms. Miss):

First and Last Name: Suffix:

Title: Credential:

Organization Name:

Phone Number: Fax Number:

E-mail:

Mailing Address:

Internal Routing (Mail Code, Etc.):

City, State, and Zip Code:

Mailing information if outside USA:

Territory:

Country Code: Postal Code:

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN

(Refer to Section 3.a) of the Instructions)

b) Name of project or site (the name known by the community where it's located):

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other):

d) County or Counties (if located in more than one):

e) Latitude: Longitude:

f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*.
Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name:

City, State, and Zip Code:

Section B:

Location Description:

City (or city nearest to) where the site is located:

Zip Code where the site is located:

SECTION 4. GENERAL CHARACTERISTICS

a) Is the project or site located on Indian Country Lands?

☐ Yes, do not submit this form. You must obtain authorization through EPA Region 6.

☐ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.

☐ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?

d) What is the Secondary SIC Code(s), if applicable?

e) What is the total number of acres to be disturbed?

f) Is the project part of a larger common plan of development or sale?

☐ Yes

☐ No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project?

h) What is the estimated end date of the project?

i) Will concrete truck washout be performed at the site? ☐ Yes ☐ No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site?

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach?

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

☐ Yes ☐ No

If Yes, provide the name of the MS4 operator:

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

☐ Yes, complete the certification below.

☐ No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. ☐ Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☐ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☐ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☐ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). ☐ Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name:

Operator Signatory Title:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

NOTICE OF INTENT CHECKLIST (TXR150000)

Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Confirm each item (or applicable item) in this form is complete. This checklist is for use by the applicant to ensure a complete application is being submitted. **Missing information may result in denial of coverage under the general permit.** (See NOI process description in the General Information and Instructions.)

APPLICATION FEE

If paying by check:

- ☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)
- ☐ Check number and name on check is provided in this application.

If using ePay:

- ☐ The voucher number is provided in this application and a copy of the voucher is attached.

RENEWAL

- ☐ If this application is for renewal of an existing authorization, the authorization number is provided.

OPERATOR INFORMATION

- ☐ Customer Number (CN) issued by TCEQ Central Registry
- ☐ Legal name as filed to do business in Texas. (Call TX SOS 512-463-5555 to verify.)
- ☐ Name and title of responsible authority signing the application.
- ☐ Phone number and e-mail address
- ☐ Mailing address is complete & verifiable with USPS. www.usps.com
- ☐ Type of operator (entity type). Is applicant an independent operator?
- ☐ Number of employees.
- ☐ For corporations or limited partnerships - Tax ID and SOS filing numbers.
- ☐ Application contact and address is complete & verifiable with USPS. <http://www.usps.com>

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

- ☐ Regulated Entity Number (RN) (if site is already regulated by TCEQ)
- ☐ Site/project name and construction activity description
- ☐ County
- ☐ Latitude and longitude <http://www.tceq.texas.gov/gis/sqmaview.html>

- ☐ Site Address/Location. Do not use a rural route or post office box.

GENERAL CHARACTERISTICS

- ☐ Indian Country Lands -the facility is not on Indian Country Lands.
- ☐ Construction activity related to facility associated to oil, gas, or geothermal resources
- ☐ Primary SIC Code that best describes the construction activity being conducted at the site.
www.osha.gov/oshstats/sicser.html
- ☐ Estimated starting and ending dates of the project.
- ☐ Confirmation of concrete truck washout.
- ☐ Acres disturbed is provided and qualifies for coverage through a NOI.
- ☐ Common plan of development or sale.
- ☐ Receiving water body or water bodies.
- ☐ Segment number or numbers.
- ☐ MS4 operator.
- ☐ Edwards Aquifer rule.

CERTIFICATION

- ☐ Certification statements have been checked indicating Yes.
- ☐ Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original.

Instructions for Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

By Regular Mail:
TCEQ
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711-3087

By Overnight or Express Mail:
TCEQ
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX

Application Fee:

The application fee of \$325 is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit. Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Mailed Payments:

Use the attached General Permit Payment Submittal Form. The application fee is submitted to a different address than the NOI. Read the General Permit Payment Submittal Form for further instructions, including the address to send the payment.

ePAY Electronic Payment: <http://www.tceq.texas.gov/epay>

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

TCEQ Contact List:

Application - status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

- **Administrative Review:** Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(es) on the form must be verified with the US Postal service as receiving regular mail delivery. Do not give an overnight/express mailing address.

- **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.
- **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

or

Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site <http://www.tceq.texas.gov>. Search using keyword TXR150000.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated project or site changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number, if one has not already been assigned to this customer or site.

For existing customers and sites, you can find the Customer Number and Regulated Entity Number by entering the following web address into your internet browser: <http://www15.tceq.texas.gov/crpub/> or you can contact the TCEQ Stormwater Processing Center at 512-239-3700 for assistance. On the website, you can search by your permit number, the Regulated Entity (RN) number, or the Customer Number (CN). If you do not know these numbers, you can select "Advanced Search" to search by permittee name, site address, etc.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For this permit, a Notice of Change form must be submitted to the program area.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied, a new permit number will be issued.

Section 1. OPERATOR (APPLICANT)

a) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number.**

If the applicant is an existing TCEQ customer, the Customer Number is available at the following website: <http://www15.tceq.texas.gov/crpub/>. If the applicant is not an existing TCEQ customer, leave the space for CN blank.

b) Legal Name of Applicant

Provide the current legal name of the applicant. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, as filed in the county. You may contact the SOS at 512-463-5555, for more information related to filing in Texas. If filed in the county, provide a copy of the legal documents showing the legal name.

c) Contact Information for the Applicant (Responsible Authority)

Provide information for the person signing the application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: <https://tools.usps.com/go/ZipLookupAction!input.action>.

The phone number should provide contact to the applicant.

The fax number and e-mail address are optional and should correspond to the applicant.

d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for an authorization.

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). If the customer is a 'General Partnership' or 'Joint Venture' filed in the county (not filed with TX SOS), the legal name of each partner forming the 'General Partnership' or 'Joint Venture' must be provided. Each 'legal entity' must apply as a co-applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Sole Proprietorship (DBA)

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

1. be under the person's name
2. have its own name (doing business as or DBA)
3. have any number of employees.

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Corporation

A customer that meets all of these conditions:

1. is a legally incorporated entity under the laws of any state or country
2. is recognized as a corporation by the Texas Secretary of State
3. has proper operating authority to operate in Texas

The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization is not recognized as the 'legal name'.

Other

This may include a utility district, water district, tribal government, college district, council of governments, or river authority. Provide the specific type of government.

e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter the Tax ID number.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512-463-5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

Section 2. APPLICATION CONTACT

Provide the name and contact information for the person that TCEQ can contact for additional information regarding this application.

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) Regulated Entity Number (RN)

The RN is issued by TCEQ's Central Registry to sites where an activity is regulated by TCEQ. This is not a permit number, registration number, or license number. Search TCEQ's Central Registry to see if the site has an assigned RN at <http://www15.tceq.texas.gov/crpub/>. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, an RN may already be assigned for the larger site. Use the RN assigned for the larger site.

If the site is found, provide the assigned RN and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Name of the Project or Site

Provide the name of the site or project as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Provide the name of the county where the site or project is located. If the site or project is located in more than one county, provide the county names as secondary.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to:

<http://www.tceq.texas.gov/gis/sqmapview.html>.

f) Site Address/Location

If a site has an address that includes a street number and street name, enter the complete address for the site in *Section A*. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street number and street name, provide a complete written location description in *Section B*. For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and zip code of the site location.

Section 4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas (RRC) and may need to obtain authorization from EPA Region 6.

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a

carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the RRC's jurisdiction must be authorized by the EPA and the RRC, as applicable. Activities under RRC jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the RRC; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The RRC also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the RRC. Under 33 U.S.C. § 1342(l)(2) and § 1362(24), EPA cannot require a permit for discharges of stormwater from field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under § 3.8 of this title (relating to Water Protection), the RRC prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

For more information about the jurisdictions of the RRC and the TCEQ, read the Memorandum of Understanding (MOU) between the RRC and TCEQ at 16 Texas Administrative Code, Part 1, Chapter 3, Rule 3.30, by entering the following link into an internet browser:

[http://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30](http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30) or contact the TCEQ Stormwater Team at 512-239-4671 for additional information.

c) Primary Standard Industrial Classification (SIC) Code

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Buildings Other than Single Family Homes
- 1541 - Construction of Industrial Buildings and Warehouses

- 1542 - Construction of Non-residential Buildings, other than Industrial Buildings and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, enter the following link into your internet browser: <http://www.osha.gov/pls/imis/sicsearch.html> or you can contact the TCEQ Small Business and Local Government Assistance Section at 800-447-2827 for assistance.

d) Secondary SIC Code

Secondary SIC Code(s) may be provided. Leave this blank if not applicable. For help with SIC Codes, enter the following link into your internet browser: <http://www.osha.gov/pls/imis/sicsearch.html> or you can contact the TCEQ Small Business and Environmental Assistance Section at 800-447-2827 for assistance.

e) Total Number of Acres Disturbed

Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at 512-239-4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development

Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on what a common plan of development is, refer to the definition of "Common Plan of Development" in the Definitions section of the general permit or enter the following link into your internet browser:

www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage enter the following link into your internet browser: www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If you have any further questions about the Common Plan of Development you can contact the TCEQ Stormwater Team at 512-239-4671 or the TCEQ Small Business and Environmental Assistance at 800-447-2827.

g) Estimated Start Date of the Project

This is the date that any construction activity or construction support activity is initiated at the site. If renewing the permit provide the original start date of when construction activity for this project began.

h) Estimated End Date of the Project

This is the date that any construction activity or construction support activity will end and final stabilization will be achieved at the site.

i) Will concrete truck washout be performed at the site?

Indicate if you expect that operators of concrete trucks will washout concrete trucks at the construction site.

j) Identify the water body(s) receiving stormwater runoff

The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

k) Identify the segment number(s) of the classified water body(s)

Identify the classified segment number(s) receiving a discharge directly or indirectly. Enter the following link into your internet browser to find the segment number of the classified water body where stormwater will flow from the site:

www.tceq.texas.gov/waterquality/monitoring/viewer.html or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

You may also find the segment number in TCEQ publication GI-316 by entering the following link into your internet browser: www.tceq.texas.gov/publications/gi/gi-316 or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at 512-239-4671 for further assistance.

l) Discharge into MS4 – Identify the MS4 Operator

The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a

copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at 512-239-4671.

m) Discharges to the Edwards Aquifer Recharge Zone and Certification

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer by entering the following link into an internet browser:

www.tceq.texas.gov/field/eapp/viewer.html or by contacting the TCEQ Water Quality Division at 512-239-4671 for assistance.

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site-specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

Section 5. NOI CERTIFICATION

Note: Failure to indicate Yes to all of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. Electronic applications submitted through ePermits have immediate provisional coverage. You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site by entering the following link into an internet browser: www.tceq.texas.gov/goto/construction or you may contact the TCEQ Stormwater processing Center at 512-239-3700 for assistance.

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512-463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under the Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has

been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Section 6. APPLICANT CERTIFICATION SIGNATURE

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

If you are a corporation:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

If you are a municipality or other government entity:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the TCEQ's Environmental Law Division at 512-239-0600.

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the

corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

Instructions:

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- *Do not mail this form with your NOI form*
- *Do not mail this form to the same address as your NOI.*

Mail this form and your check to either of the following:

By Regular U.S. Mail

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

By Overnight or Express Mail

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check or Money Order No:

2. Amount of Check/Money Order:

3. Date of Check or Money Order:

4. Name on Check or Money Order:

5. NOI Information:

If the check is for more than one NOI, list each Project or Site (RE) Name and Physical Address exactly as provided on the NOI. **Do not submit a copy of the NOI with this form, as it could cause duplicate permit application entries!**

If there is not enough space on the form to list all of the projects or sites the authorization will cover, then attach a list of the additional sites.

Project/Site (RE) Name:

Project/Site (RE) Physical Address:

Staple the check or money order to this form in this space.



Notice of Change to an Authorization for Stormwater Discharges Associated With Construction Activity under TPDES General Permit TXR150000

IMPORTANT – Please read the following information and [INSTRUCTIONS](#) before filling out this form.

ePERMITS: Sign up now for online NOC: <https://www3.tceq.texas.gov/steers/index.cfm>

This form will be returned for any of the following reasons:

- 1) The permit number is not provided, is invalid, or is no longer active,
- 2) Wet ink signature of person meeting signatory requirements is not provided,
- 3) The current permittee is not the applicant, and;
- 4) A requested change in operator name is not a legal name change.

This form cannot be used for a change in operator. Refer to your general permit for information.

What is the permit number of the authorization to be changed?

TXR15_____ or TXRCW_____

1) APPLICANT INFORMATION

a) What is the full Legal Name of the current operator as on the authorization?

b) What is the Customer Number (CN) assigned to this operator? You may search for your CN at: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

CN_____

c) What is the name and title of the person signing the application? (The person must be an executive official meeting signatory requirements in TAC 305.44(a).)

Prefix (Mr. Ms. Miss): _____

First/Last Name: _____ Suffix: _____

Title: _____ Credential: _____

d) What is the Regulated Entity Reference Number (RN) assigned to this site?

RN_____

2) APPLICATION CONTACT

If TCEQ needs additional information regarding this application, who should be contacted?

Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____
Organization Name: _____
Phone Number: _____ Extension: _____ Fax Number: _____
E-mail Address: _____
Mailing Address: _____
Internal Routing (Mail Code, Etc.): _____
City: _____ State: _____ ZIP Code: _____
Mailing Information if outside USA:
Territory: _____ Country Code: _____ Postal Code: _____

3) REQUESTED CHANGE TO PERMITTED INFORMATION

What information has changed or needs to be corrected? Check one or more of the following options and enter the new information below.

Operator legal name change with Texas Secretary of State (TX SOS).

Fill out sections a) and b) as applicable.

Note: Permits are not transferable. If a change in entity has occurred, this NOC will not be processed.

Address and contact information for the operator. Fill out section b).

Site Information (Regulated Entity). Fill out section c).

Note: Permits under a general permit are site specific. If a change in site location has occurred, this NOC will not be processed.

General characteristics relating to the regulated activity. Fill out section d).

a) Operator Legal Name Change

- i. What is the NEW active Legal Name with TX SOS or on other legal document?

New Legal Name: _____

- ii. What is the TX SOS Filing Number for us to confirm this official name change?

This is only applicable to Limited Partnerships or Corporations.

TX SOS Filing number: _____

b) Address and Contact Information for Operator

Verify mailing addresses with USPS: <http://zip4.usps.com/zip4/welcome.jsp>.

Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____
Organization Name: _____

Phone Number:_____ Extension:_____ Fax Number:_____
E-mail Address:_____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____ State:_____ ZIP Code:_____
Mailing Information if outside USA:
Territory:_____ Country Code:_____ Postal Code:_____

c) Regulated Entity (Site) Information Correction

- i. Is this a change to the location of the permitted activity?
Yes This NOC will not be processed since the authorizations are site specific.
No Continue with NOC form.

ii. Corrected Name of Project or Site:

iii. Updated Physical Address (new 911 address):

Street Number:_____ Street Name:_____
City:_____ State:_____ ZIP Code:_____

iv. Corrected location access description, if no physical address (street number/street name):

v. Corrected Latitude:_____ N

vi. Corrected Longitude:_____ W

vii. Corrected County (Counties if >1):_____

d) Change in General Characteristics Provided on Original Form

Identify the specific change and provide the updates information. If an attachment is needed, please reference it below.

4) OPERATOR CERTIFICATION

I, _____
Typed or printed name *Title*

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date: _____
(Use blue ink)

Notice of Change (NOC) for Authorizations for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

General Information and Instructions

GENERAL INFORMATION

Where to Send the NOC:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX 78753

TCEQ Contact list:

Application – status and form questions:	512/239-3700, swpermit@tceq.texas.gov
Technical questions:	512/239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512/239-0600
Records Management - obtain copies of forms:	512/239-0900
Reports from databases (as available):	512/239-DATA (3282)
Cashier's office:	512/239-0357 or 512/239-0187

NOC Process:

1. Administrative Review: The form will be reviewed to ensure the request is from the permittee (operator) on the authorization, the permit is active and initial coverage was acknowledged. Each item on the form will be reviewed for a complete response. In addition, the operator's legal name change must be verified with Texas Secretary of State (if applicable). The address(s) on the form must be verified with the US Postal Service (USPS) as an address receiving regular mail delivery. Never give an overnight/express mailing address. If an item is incomplete or not verifiable, the operator may be notified by letter, phone call or email. In some instances as noted at the beginning of the form, the request may simply be returned.

2. NOC Confirmation: An updated Acknowledgment Certificate will be mailed to the operator only if the NOC is to change information provided on the acknowledgment certificate. The original coverage effective date will not change.

General Permit (Your Permit) and Forms

You may view and print your general permit on the TCEQ web site <http://www.tceq.texas.gov>. Search using key word TXR150000. General Permit Forms (NOI, Waiver, NOT, and NOC) and instructions are available on the TCEQ web site <http://www.tceq.texas.gov>.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a NOT and the new operator must submit a NOI. The NOI must be submitted not later than 10 days prior to the change in Operator status. Note that the NOT is effective on the postmarked date. It may be necessary to not terminate the existing permit until coverage by the new entity is confirmed.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. You can find the information on the Central Registry web site at <http://www12.tceq.texas.gov/crpub/index.cfm>.

You can search by the Regulated Entity (RN), Customer Number (CN) or Name (Permittee), or by your permit number under the search field labeled "Additional ID".

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all associated authorizations as changes occur. For General Permits, a Notice of Change form must be submitted to the program area for approval to update the CN and RN data in central registry.

INSTRUCTIONS FOR FILLING OUT THE NOC FORM

1) APPLICANT INFORMATION

a) Legal Name

Provide the current legal name of the permittee, as on the permit.

b) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. You may search for your CN at: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>.

If the name(s) provided do not match the current permittee name(s), this form will be returned. It is the responsibility of the permittee(s) to comply with the general permit.

Note: If a change is being made to the CN and the CN has other TCEQ authorization types, it is the entity's responsibility to update those authorizations at the same time. If an authorization has been cancelled or terminated, the name cannot be changed on the permit. Because of this, a new CN may be issued for the new name.

c) Person Signing this Application

Provide the name and title of the person signing the application. The person must be an executive official meeting signatory requirements in TAC §305.44.

d) Regulated Entity Reference Number (RN)

This is a number issued by TCEQ's Central Registry to sites (a location where a regulated activity occurs) regulated by TCEQ. This is not a permit number, registration number, or license number. Search for your

RN: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch>.

If the site has changed or the information provided indicates a new location, this form will be returned. It is the responsibility of the permittee to comply with the general permit.

2) APPLICATION CONTACT

Provide the name, title and contact information of the person that TCEQ can contact for additional information regarding this application.

3) REQUESTED CHANGE TO PERMITTED INFORMATION

Check one or more of the available options indicating the information in the form that is to be updated. Provide the updated information in 3 a) for Legal Name Change, 3 b) for Address and Contact Information Change, 3 c) for Regulated Entity Site Information Change, or 3 d) for General Characteristics Change, as applicable.

a) Legal Name Change

Provide the new legal name. If the entity is a Limited Partnership or Corporation, the name change must be verifiable with Texas Secretary of State. The TX SOS filing number must be provided to verify only a name change occurred. You may contact the SOS at (512)463 5555, for more information related to filing in Texas. If filed in the county where doing business, provide a copy of the legal documents showing the legal name change.

Legal name changes of a Corporation and Limited Partnership will be verified with Texas Secretary of State. If the entity is filed as a new entity with a new filing number, then the change cannot be made through a NOC. The permits are not transferable. If the operator changes, the old entity must terminate their permit and the new entity must submit a form for a new permit.

b) Address and Contact Information Change

Indicate the type of address and contact information for the operator that has changed from the original NOI or last NOC submitted to TCEQ.

Verify mailing addresses with USPS <http://zip4.usps.com/zip4/welcome.jsp> for regular mail delivery (not overnight express mail). If you find that the address is not verifiable please indicate the address is used by the USPS for regular mail delivery. Failure to provide a valid mailing address will delay or prohibit us from updating the permit.

Please note that address updates relating to a general permit authorization can ONLY be made through a Notice of Change. Address changes submitted through any other form cannot be processed.

c) Regulated Entity Site Information Change

The NOC form is only for use to update or correct information submitted on the original application or last NOC for the authorization. The authorization under a general permit is site specific. If this change is related to a new location, a Notice of Change will not be processed.

Provide the updated site name, updated site addresses, corrected latitude and longitude, and/or corrected county, as applicable to your NOC request. A new physical address for an existing location is usually the result of a newly assigned 911 address for emergencies.

If providing a corrected latitude and longitude, enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to <http://www.tceq.texas.gov/gis/sqmapview.html> or <http://nationalmap.gov/ustopo/>.

d) Change in General Characteristics Provided on Original Form

Describe any other change that is not addressed through any question in this section of the application.

4) OPERATOR CERTIFICATION

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

IF YOU ARE A CORPORATION:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at 512/239-0600.

30 Texas Administrative Code

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).



TCEQ Office Use Only
Permit No:
CN:
RN:
Region:

Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000

IMPORTANT INFORMATION:

Please read and use the General Information and Instructions prior to filling out each question in the form.

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

ePermits: This form is available on our online permitting system.

Sign up for online permitting at: <https://www3.tceq.texas.gov/steers/>

What is the permit number to be terminated?

TXR15 TXRCW

Section 1. OPERATOR (Permittee)

a) What is the Customer Number (CN) issued to this entity?

CN

b) What is the Legal Name of the current permittee?

c) Provide the contact information for the Operator (Responsible Authority).

Prefix (Mr. Ms. or Miss):

First and Last Name: Suffix:

Title: Credentials:

Phone Number: Fax Number:

Email:

Mailing Address:

City, State, and Zip Code:

Country Mailing Information, if outside USA:

Section 2. APPLICATION CONTACT

This is the person TCEQ will contact if additional information is needed regarding this application.

Is the application contact the same as the permittee identified above?

☐ Yes, go to Section 3.

☐ No, complete section below

Prefix (Mr. Ms. or Miss):
First and Last Name: Suffix:
Title: Credentials:
Phone Number: Fax Number:
Email:
Mailing Address:
City, State, and Zip Code:
Country Mailing Information, if outside USA:

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

- a) TCEQ issued RE Reference Number (RN): RN
- b) Name of project or site as known by the local community:
- c) County, or counties if more than 1:
- d) Latitude: Longitude:
- e) Site Address/Location:
If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Section 3A.
If the site does not have a physical address, provide a location description in Section 3B. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section 3A: Physical Address of Project or Site:

Street Number and Name:
City, State, and Zip Code:

Section 3B: Site Location Description:

Location description:

City where the site is located or, if not in a city, what is the nearest city:
Zip Code where the site is located:

Section 4. REASON FOR TERMINATION

Check the reason for termination:

- ☐ Final stabilization has been achieved on all portions of the site that are the responsibility of the Operator and all silt fences and other temporary erosion controls have been removed, or scheduled for removal as defined in the SWP3.
- ☐ Another permitted Operator has assumed control over all areas of the site that have not been finally stabilized, and temporary erosion controls that have been identified in the SWP3 have been transferred to the new Operator.

- ☐ The discharge is now authorized under an alternate TPDES permit.
- ☐ The activity never began at this site that is regulated under the general permit.

Section 5. CERTIFICATION

Signatory Name:

Signatory Title:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

Instructions for Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000

GENERAL INFORMATION

Where to Send the Notice of Termination (NOT):

BY REGULAR U.S. MAIL:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
12100 Park 35 Circle
Austin, TX 78753

TCEQ Contact List:

Application status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Termination Process:

A Notice of Termination is **effective on the date postmarked for delivery to TCEQ.**

When your NOT is received by the program, the form will be processed as follows:

- 1) Administrative Review: The form will be reviewed to confirm the following:
 - the permit number is provided;
 - the permit is active and has been approved;
 - the entity terminating the permit is the current permittee;
 - the site information matches the original permit record; and
 - the form has the required original signature with title and date.
- 2) Notice of Deficiency: If an item is incomplete or not verifiable as indicated above, a phone call will be made to the applicant to clear the deficiency. A letter will not be sent to the permittee if unable to process the form.
- 3) Confirmation of Termination: A Notice of Termination Confirmation letter will be mailed to the operator.

Change in Operator:

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted not later than 10 days prior to the change in Operator status.

INSTRUCTIONS FOR FILLING OUT THE FORM

The majority of permit information related to the current operator and regulated entity are available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.

Section 1. Operator (Current Permittee):

- a) Customer Number (CN)
TCEQ's Central Registry assigns each customer a number that begins with CN, followed by nine digits. This is not a permit number, registration number, or license number. The Customer Number, for the current permittee, is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.

- b) Legal Name of Operator
The operator must be the same entity as previously submitted on the original Notice of Intent for the permit number provided. The current operator name, as provided on the current authorization, is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.

- c) Contact Information for the Operator (Responsible Authority)
Provide information for person signing the NOT application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. Update the address if different than previously submitted for the Notice of Intent or Notice of Change. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: <https://tools.usps.com/go/ZipLookupAction!input.action>.

The phone number should provide contact to the operator.

The fax number and e-mail address are optional and should correspond to the operator.

Section 2. Application Contact:

Provide the name, title and contact information of the person that TCEQ can contact for additional information regarding this application.

Section 3. Regulated Entity (RE) Information on Project or Site:

- a) Regulated Entity Reference Number (RN)
A number issued by TCEQ's Central Registry to sites where an activity regulated by TCEQ. This is not a permit number, registration number, or license number. The Regulated Entity Reference Number is available at the following website:
http://www2.tceq.texas.gov/wq_dpa/index.cfm.
- b) Name of the Project or Site
Provide the name of the site as known by the public in the area where the site is located.
- c) County
Identify the county or counties in which the regulated entity is located.
- d) Latitude and Longitude
Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. The latitude and longitude as provided on the current authorization is available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.
- e) Site/Project (RE) Physical Address/Location Information
The physical address/location information, as provided on the current authorization, is available at the following website: http://www2.tceq.texas.gov/wq_dpa/index.cfm.

Section 3A. If a site has an address that includes a street number and street name, enter the complete address for the site. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate the site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

Section 3B. If a site does not have an address that includes a street number and street name, provide a complete written location description. For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and Zip Code of the facility location.

Section 4. Reason for Termination:

The Notice of Termination form is only for use to terminate the authorization (permit). The Permittee must indicate the specific reason for terminating by checking one of the options. If the reason is not listed then provide an attachment that explains the reason for termination.

Please read your general permit carefully to determine when to terminate your permit. Permits will not be reactivated after submitting a termination form. The termination is effective on the date postmarked for delivery to TCEQ.

Section 5. Certification:

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code §305.44.

IF YOU ARE A CORPORATION:

The regulation that controls who may sign an application form is 30 Texas Administrative Code §305.44(a), which is provided below. According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a), which is provided below. According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statutes under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a) (3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at 512-239-0600.

30 Texas Administrative Code §305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Agent Authorization Form

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

I Austin Evetts,
Print Name
Vice President of Land Development,
Title - Owner/President/Other
of GRBK Edgewood, LLC,
Corporation/Partnership/Entity Name
have authorized Alex Granados, P.E.
Print Name of Agent/Engineer
of Kimley-Horn and Associates, Inc.
Print Name of Firm

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

I also understand that:

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

SIGNATURE PAGE:

Austin E
Applicant's Signature

7/25/25
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Austin Everett 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 25 day of July, 2025.

Jared Collin Jehl
NOTARY PUBLIC

Jared Collin Jehl
Typed or Printed Name of Notary



MY COMMISSION EXPIRES: 1/28/2029

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Rivina Phase 1

Regulated Entity Location: East of Ronald Reagan Blvd. and FM 3405, Georgetown, TX

Name of Customer: GRBK Edgewood, LLC Contact Person: Austin Evetts

Phone: (512) 694-5303 Customer Reference Number (if issued): CN _____

Regulated Entity Reference Number (if issued): RN _____

Austin Regional Office (3373)

☐ Hays

☐ Travis

☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar

☐ Medina

☐ Uvalde

☐ Comal

☐ Kinney

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

☒ Austin Regional Office

☐ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone

☒ Contributing Zone

☐ Transition Zone

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	N/A Acres	\$ 0
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	335.84 Acres	\$ 8,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	N/A Acres	\$ 0
Sewage Collection System	N/A L.F.	\$ 0
Lift Stations without sewer lines	N/A Acres	\$ 0
Underground or Aboveground Storage Tank Facility	N/A Tanks	\$ 0
Piping System(s)(only)	N/A Each	\$ 0
Exception	N/A Each	\$ 0
Extension of Time	N/A Each	\$ 0

Signature: 

Date: August 14, 2025 Application Fee Schedule

Application Fee Schedule

Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plants 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	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

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

Check Payable to the "Texas Commission on
Environmental Quality"

Core Data Form



TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input type="checkbox"/> Other
2. Customer Reference Number (if issued)		3. Regulated Entity Reference Number (if issued)
CN		RN

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

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		07/25/2025	
<input checked="" type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership					
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
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) <i>If new Customer, enter previous Customer below:</i>					
GRBK Edgewood, LLC					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	
0802442152		32060270439			
11. Type of Customer:		<input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Individual		Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
12. Number of Employees				13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator					
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:					
15. Mailing Address:					
9430 Research Blvd. Echelon Bldg. IV Suite #180					
City		Austin		State	TX
ZIP		78759		ZIP + 4	6586
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
				aevetts@greenbrickpartners.com	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	
(512) 694-5303				() -	

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	
Rivina Phase 1	

23. Street Address of the Regulated Entity: (No PO Boxes)	FM 3405						
	City		State	TX	ZIP	78633	ZIP + 4
24. County	Williamson						

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Approximately 0.95 miles East of the intersection of Ronald Reagan Blvd. and FM 3405						
26. Nearest City	Georgetown				State	TX	Nearest ZIP Code
27. Latitude (N) In Decimal:	30.706375			28. Longitude (W) In Decimal:	-97.835631		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
30	42	22.95	97	50	8.27		
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)		
6552	N/A		237210		N/A		
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)							
Single-Family Homes							
34. Mailing Address:							
	City		State	TX	ZIP	78633	ZIP + 4
35. E-Mail Address:	aevetts@greenbrickpartners.com						
36. Telephone Number		37. Extension or Code		38. Fax Number (if applicable)			
(512) 694-5303				() -			

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


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

SECTION IV: Preparer Information

40. Name:	Alex Granados	41. Title:	Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 782-0602		() -	alex.granados@kimley-horn.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:	GRBK Edgewood LLC	Job Title:	Authorized Signer
Name (In Print):	Austin Evetts	Phone:	(512) 694- 5303
Signature:		Date:	7/25/25