CONTRIBUTING ZONE PLAN APPLICATION
HARDY DRIVEWAY

Prepared For:
HARDY T LAND, LLC

Prepared By:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

CEC Project: 324-199



JUNE 2025

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:						**2. Regulated Entity No.:**			
3. Customer Name: Hardy T Land, LLC						**4. Customer No.:**			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			3.706
9. Application Fee:	$1,500		**10. Permanent BMP(s):**			Extended Detention			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Hays		**14. Watershed:**			Onion Creek			

Application Distribution

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

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

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

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	✓	___	___
Region (1 req.)	✓	___	___
County(ies)	✓	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ✓Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ✓Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Michael Theone Print Name of Customer/Authorized Agent
MTheone 06/27/2025 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):	

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: Michael Theone

Date: 6/27/2025

Signature of Customer/Agent:



Regulated Entity Name: Hardy T Land, LLC

Project Information

1. County: Hays
2. Stream Basin: _____
3. Groundwater Conservation District (if applicable): Hays Trinity
4. Customer (Applicant):

   Contact Person: Steve Harren
   Entity: Hardy T Land, LLC
   Mailing Address: 317 Grace Lane, Suite 240
   City, State: Austin, Texas Zip: 78620
   Telephone: (512) 970-7271 Fax: N/A
   Email Address: steveharren@aol.com

5. Agent/Representative (If any):

   Contact Person: Michael Theone
   Entity: Civil & Environmental Consultants, Inc.
   Mailing Address: 1221 S. MoPac Expressway, Suite 350
   City, State: Austin, Texas Zip: 78746
   Telephone: 512-439-0400 Fax: _____
   Email Address: mtheone@cecinc.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 Dripping Springs.
   ☐ 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.

   W US 290, Dripping Springs, Texas 78620

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: _____
☐ Residential: # of Living Unit Equivalents: _____
☐ Commercial
☐ Industrial
☒ Other: Private Driveway

13. Total project area (size of site): 3.706 Acres

Total disturbed area: 3.706 Acres

14. Estimated projected population: 0

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

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	***Sq. Ft.***	***Sq. Ft./Acre***	***Acres***
Structures/Rooftops		÷ 43,560 =	
Parking		÷ 43,560 =	
Other paved surfaces	75,586	÷ 43,560 =	1.74
Total Impervious Cover		÷ 43,560 =	

Total Impervious Cover 1.74 **÷ Total Acreage** 3.706 **X 100 =** 46.8**% 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.

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

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
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

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

Length of R.O.W.: 89 feet.
Width of R.O.W.: 33 feet.
L x W = 2937Ft² ÷ 43,560 Ft²/Acre = 0.067 acres.

21. Pavement Area:

Length of pavement area: 30 feet.
Width of pavement area: 24 feet.
L x W = 720Ft² ÷ 43,560 Ft²/Acre = 0.017 acres.
Pavement area 0.017 acres ÷ R.O.W. area 0.067 acres x 100 = 25% 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 _____ (name) 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:

Table 2 - Tanks and Substance Storage

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
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):

Table 3 - Secondary Containment

Length (L)(Ft.)	*Width(W)(Ft.)*	*Height (H)(Ft.)*	*L x W x H = (Ft3)*	*Gallons*

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): _____.

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.

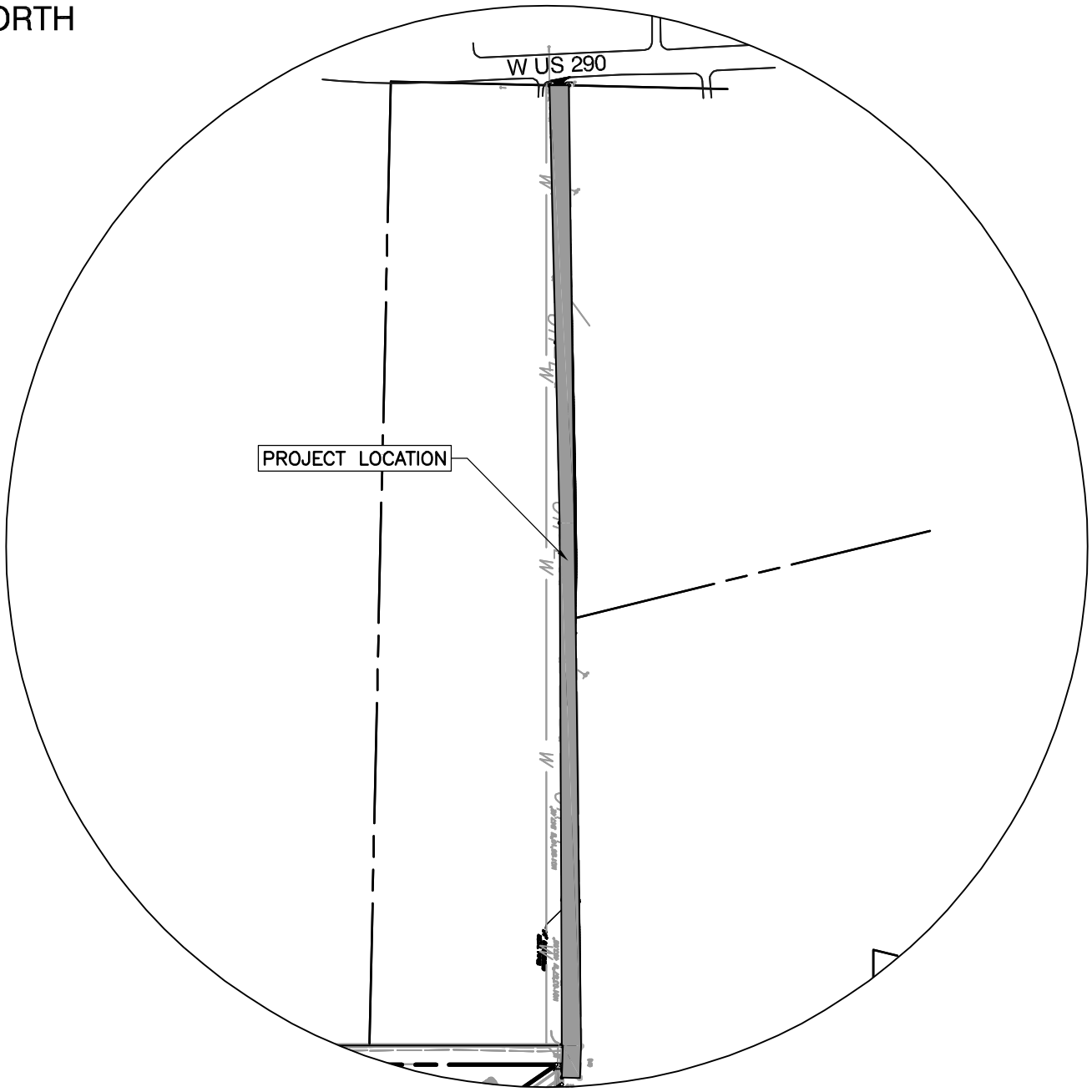
62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

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.

HARDY DRIVEWAY
SITE DEVELOPMENT
ZONING: ETJ
CITY OF DRIPPING SPRINGS

NORTH



VICINITY MAP

SCALE IN FEET
0 500 1000

Civil & Environmental Consultants, Inc.
3711 South MoPac Expressway · Building 1, Suite 550 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com
Texas Registered Engineering Firm F-38

HARDY DRIVEWAY
W US HIGHWAY 290
PRIVATE DRIVEWAY
CODS ETJ

VICINITY MAP

DRAWN BY:	CSB	CHECKED BY:	SB	APPROVED BY:	MAT	FIGURE NO.:	EXH
DATE:	AUGUST 12, 2022	DWG SCALE:	1"=500'	PROJECT NO:	324-199		

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

The National Map OnDemand Topo

7.5-MINUTE TOPO 1 QUADRANGLE
Custom Extent
7.5-MINUTE TOPO



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

Data is provided by The National Map (TNM), is the best available at the time of map generation, and includes data content from supporting themes of Elevation, Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover, and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC) Metadata for additional source data information.

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. Temporal changes may have occurred since these data were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: https://nationalmap.gov

MN
GN
0°28'
8 MILS
3°39'
65 MILS
UTM GRID AND 2021 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
NU
Grid Zone Designation
14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
CONTOUR SMOOTHNESS = Medium

TEXAS

QUADRANGLE LOCATION
Dripping Springs
Signal Hill
Driftwood
Mountain City
ADJOINING QUADRANGLES

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

7.5-MINUTE TOPO 1, TX
2022

ATTACHMENT C
Project Description

A. Site Location: The Hardy Driveway site is located abutting West US Highway 290, Hays County, Dripping Springs, Texas. The Hardy Driveway property runs north to south, perpendicular to West US Highway 290, adjacent to Patriot Way on the West and Bunker Ranch Boulevard on the East. The proposed Project will be within the City of Dripping Springs extra territorial jurisdiction of the city of Dripping Springs in Hays County.

B. Area of Site: The site is 3.706 acres, and the legal description is "A0222 BENJAMIN F HANNA SURVEY, ACRES 3.706". According to the FEMA FIRMETTE Panel number 48209C0085F there are no portions of this site that lie within the 100-year flood plain. All portions of this site lie within the Edwards Aquifer Contributing Zone.

C. Offsite Areas: The Hardy Driveway is located within a single lot and has been assigned R15122 as the quick reference ID number with Hays County. There is roughly 110 acres of offsite water than enters onto the subject property within the Limits of Construction due to existing topography of the adjacent property.

D. Impervious Cover: The existing 3.706 acres subject property is currently developed with a 16 foot wide private driveway spanning roughly 3,000 linear feet. This proposed development consists of the expansion of the existing 16 foot wide drive to 24 feet in width. Due to the existing development on this property, there will be areas of demo, specified in section H of this attachment. The site lies within the Edwards Aquifer Contributing Zone. The total impervious cover will be 1.74 acres.

E. Permanent BMP(s): Stormwater onsite is collected via two underground detention systems and three Extended Detention systems. The SCS Type 3 method was utilized to determine the quantity of flow for the purposes of inlet sizing, based on the City of Dripping Springs DCM, which accounts for Atlas 14 precipitation data. Onsite facilities have been sized to adequately take the 1.74 acres of impervious cover. After the improvements proposed by this site plan are constructed, the site will increase impervious cover from 1.14 acres to 1.74 acres. All of the impervious cover being added to the site with this site plan will be treated and detained by the three extended detention systems.

F. Proposed Site Use: The overall subject site is 3.706 acres and water and sewer utilities will not be required to service this property. The proposed 24 foot wide driveway will be used as a private residential driveway.

G. Site History: The Subject Property has an existing 16 foot wide driveway spanning roughly 3,000 linear feet.

H. Area (s) to be demolished: Demolition within the subject property will include culvert and storm pipe removals, curbs, and roadway pavement.

ATTACHMENT D

Factors Affecting Surface Water Quality

Possible factors that could affect ground water quality during construction:

Activities include sediment laden storm water and pollutants from construction materials and equipment including concrete, petroleum, oil, diesel, detergents, lubricants, fertilizers, lead-based paint, solvents, cleaners, concrete water, concrete curing compound, pipe joint lubrication and sanitary waste from onsite portable units.

Possible factors that could affect ground water quality post construction:

Activities include pollutants from oil, petroleum, and diesel spills, landscape fertilizers, concrete wash, solvents and cleaners.

ATTACHMENT E

Volume and Character of Stormwater

The water quality and detention facilities the Hardy Driveway Site will be utilizing, which are to be constructed with the Hardy Driveway Site Development Plans, are to be constructed of sufficient size to effectuate the drainage and water quality requirements of the 3.706 acre tract.

ATTACHMENT F

Suitability Letter from Authorized Agent

There will be no wastewater with the proposal of this private driveway therefore Suitability Letter from an Authorized Agent will not be necessary for this project.

ATTACHMENT G

Alternative Secondary Containment Method

There are no Aboveground Storage Tanks proposed for this site, therefore an alternative secondary containment method will not be necessary for the purposes of this development.

ATTACHMENT H

AST Containment Structure Drawings

There are no Aboveground Storage Tanks proposed for this site, therefore an alternative secondary containment method will not be necessary for the purposes of this development.

ATTACHMENT I

20% or Less Impervious Cover Waiver

The proposed impervious cover is approximately 46.8%. The BMPs proposed were designed for the entirety of the Hardy Driveway tract. Therefore, a waiver is not allowed.

ATTACHMENT J

BMPs for Upgradient Stormwater

The permanent BMPs have been sufficiently sized for all upgradient water. Bypass drainage areas have been formulated for the sizing of these BMPs.

ATTACHMENT K
BMPs for On-site Stormwater

The facilities have been designed under the rules and regulations set forth by TCEQ. All calculations have been included in the construction plans submitted under Attachment M.

ATTACHMENT L
BMPs for Surface Streams

There are no surface streams found on this site.

ATTACHMENT M
Constructions Plans

Submitted under a separate cover.

ATTACHMENT N

Inspection, Maintenance, Repair and Retrofit Plan

3.5.6 Extended Detention Basins

Extended detention basins have moderate to high maintenance requirements, depending on the extent to which future maintenance needs are anticipated during the design stage. Responsibilities for both routine and nonroutine maintenance tasks need to be clearly understood and enforced. If regular maintenance and inspections are not undertaken, the basin will not achieve its intended purposes.

There are many factors that may affect the basin's operation and that should be periodically checked. These factors can include mowing, control of pond vegetation, removal of accumulated bottom sediments, removal of debris from all inflow and outflow structures, unclogging of orifice perforations, and the upkeep of all physical structures that are within the detention pond area. One should conduct periodic inspections and after each significant storm. Remove floatables and correct erosion problems in the pond slopes and bottom. Pay particular attention to the outlet control perforations for signs of clogging. If the orifices are clogged, remove sediment and other debris. The generic aspects that must be considered in the maintenance plan for a detention facility are as follows:

• **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. 3-88

• **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.

• **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.

Responsible Party for Maintenance: Hardy TLand, LLC

Address: 817 Grace Lane Suite 240

City, State, Zip: Austin, TX 78746

Signature of Responsible party:

ATTACHMENT O
Pilot-Scale Field Testing Plan

No Pilot-Scale Testing Plan is necessary.

ATTACHMENT P

Measures for Minimizing Surface Stream Contamination

There are no surface streams found on this site.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Construction General Permit Stormwater Pollution Prevention Plan (SWP3) Worksheets
February 2018

Texas Pollutant Discharge Elimination Systems (TPDES)

Construction Stormwater General Permit (TXR150000)

Stormwater Pollution Prevention Plan (SWP3)

Company: CEC, Inc.

Role: Agent/Civil Engineer

Project Name: Hardy Driveway

and/or Other Operators:

Plan Date: 6/27/2025

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Certification Page: Primary and/or Secondary operator

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2. Schedule or Sequence of Major Grading Activities
   Part III, Sect. F.1.(c)

3. Acreage, Material Storage, and Soil Type *Part III, Sect.F.1. (d-e)*

4. Location Map *Part III, Sect. F.1.(f)*

5. Detailed Site Map *Part III, Sect. F.1.g.(i)-(-ix)*

6. Site Description, Support Facilities *Part III, Sect. F.1.(h - i)*

7. Copy of TXR150000 NOI, certificate, and/or site notice

Description of Best Management Practices:

8. Best Management Practices (BMPs), Erosion and Sediment Controls
   Part III, Sect. F.2.a.(i)-(ii) and F.2. (c)

9. BMPs, Off-site Transfer of Pollutant Controls
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10. BMPs, Erosion Control and Stabilization Practices
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11. Dates of Major Grading Activities and Construction Stoppage
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12. Sediment Control Practices *Part III, Sect. F.2. (c)*

13. Permanent Stormwater Controls *Part III, Sect. F.3*

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17. Stormwater runoff from Concrete Batch Plants *Part IV*

18. Concrete Truck Washout Requirements, *Part V*

Certification Page

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.

Sign as required by 30 TAC 305.128

Signed: MTheone _____ Date: 6/27/2025

name Michael Theone, P.E.
title Project Manager

If plan is shared by more than one entity:

Signed: _____ Date: TPDES#:_____

name
title

Signed: _____ Date: TPDES#:_____

name
title

Signed: _____ Date: TPDES#:_____

name
title

Primary Operators

_____

_____

_____

Site Description

Section 1

Nature of Construction and List of Pollutants

Part III, Sect. F.1. (a)

Description of the general nature of construction activities:

The 3.706 acre tract will be utilized as a private residential driveway.

Part III, Sect. F.1. (b)

List of ALL potential pollutants and their sources:

Potential Pollutants	*Source*
Acid and Caustic Chemicals	Construction/Equipment
Asphalt	Construction/Equipment
Anitfreeze	Construction/Equipment
Brick and Other Siding Material	Construction/Equipment
Concrete	Construction/Equipment
Concrete Curing Compound	Construction/Equipment
Fertilizer, Herbicides, & Pesticides	Construction/Equipment
Glue Adhesives	Construction/Equipment
Grease	Construction/Equipment
Hydrocarbons	Construction/Equipment
Joint Compound	Construction/Equipment
Lead Acid Batteries	Construction/Equipment
Paint, Thinner, & Solvents	Construction/Equipment
Roofing Tar	Construction/Equipment
Roofing Materials	Construction/Equipment
Sand and Base Material	Construction/Equipment
Sanitary Waste	Construction/Equipment
Solid Waste	Construction/Equipment

Section 2

Construction Schedule

Part III Sect. F.1. (c)

Description of the intended schedule, or a sequence of the major activities that will be disturbing soil for the major portions of the site. Add or subtract rows as needed.

Name of Operator	*Phase of Project Projected dates Month/year*	*Activity Disturbing Soil clearing, excavation, etc.*	*Location on-site where activity will be conducted*	*Acreage being disturbed*
Hardy T Land, LLC		Install Sediment and Erosion Controls		
Hardy T Land, LLC		Clearing, Grubbing, and Grading		
Hardy T Land, LLC		Excavate and Install Utilities		
Hardy T Land, LLC		Grade, Form, and Pave Drive Aisle		
Hardy T Land, LLC		Stabilization and Re-vegetation		

Section 3

Acreage, Material Storage, and Soil Type

Part III, Sect. F.1. (d)

The total acreage of the entire property and the total acreage where construction activity will occur. Include off-site material storage areas, overburden and stockpiles of dirt or aggregates, and borrow areas. Also, include the acreage for construction support activities, such as equipment staging or storage areas, and chemical storage areas.

Material Storage	*Material (s)/Equipment*	*Acreage*	*Location*
Off-site			
On-site			
Overburden/Stockpiles of Dirt			
Borrow Areas			
Other areas used as part of the project			
Construction Support Activities			
Total acreage of project property:	3.706	**Total acreage of disturbed soil:**	3.706

Part III Sect. F.1. (e)

Description of the soil type (e.g., loamy, clayey, sandy, rocky) or the quality of any discharge from the site.

DeB - Denton Silty Clay
1 to 3 percent slopes
Hydrologic soil group: D
CrD - Comfort-Rock Outcrop Complex
1 to 8 percent slopes
Hydrologic soil group: D
RcD - Real-Comfort-Doss Complex
1 to 8 percent slopes
Hydrologic soil group: D

Section 4

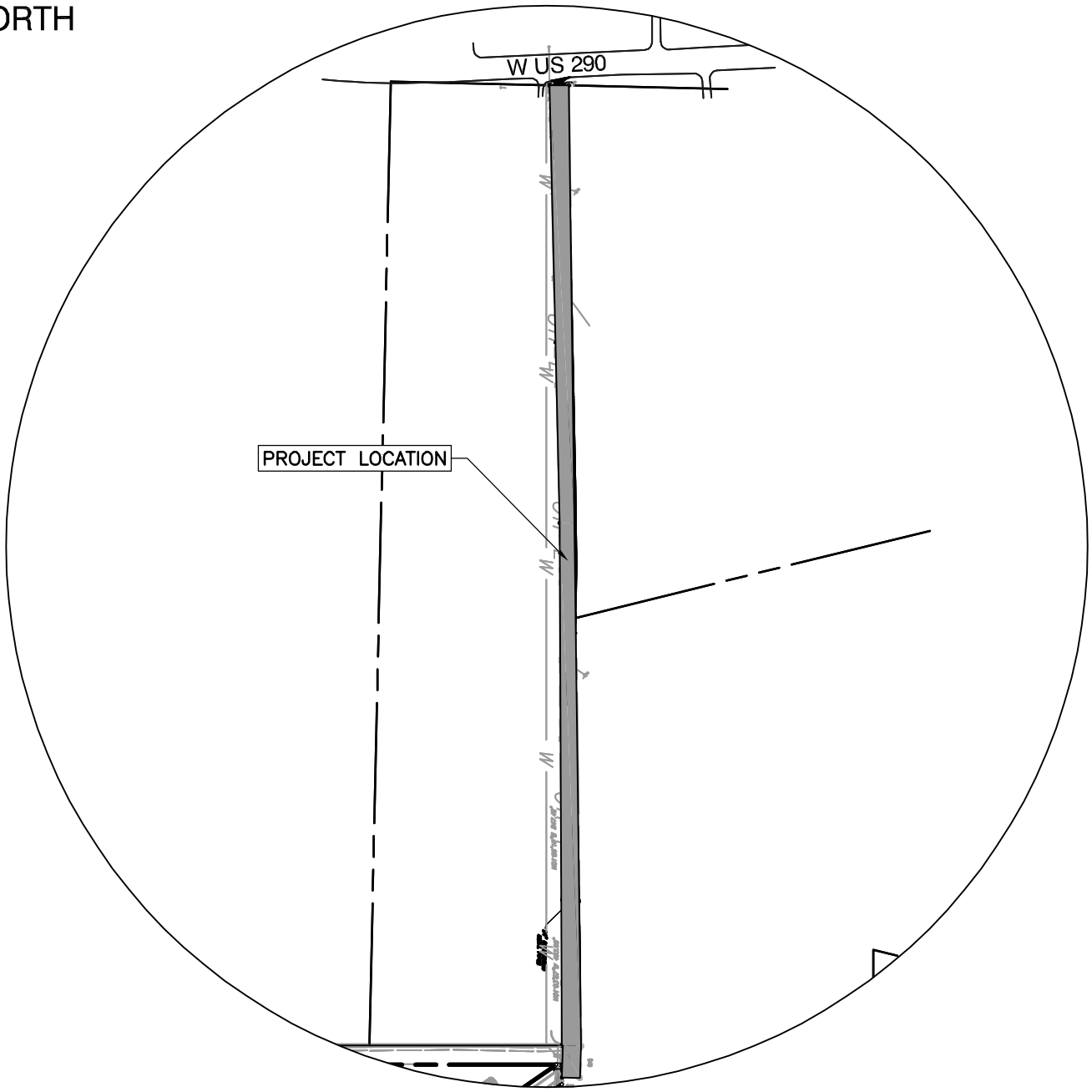
Location Map

Part III Sect. F.1. (f)

Attach Map

HARDY DRIVEWAY
SITE DEVELOPMENT
ZONING: ETJ
CITY OF DRIPPING SPRINGS

NORTH



VICINITY MAP

SCALE IN FEET
0 500 1000

Civil & Environmental Consultants, Inc.
3711 South MoPac Expressway · Building 1, Suite 550 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com
Texas Registered Engineering Firm F-38

HARDY DRIVEWAY
W US HIGHWAY 290
PRIVATE DRIVEWAY
CODS ETJ

VICINITY MAP

DRAWN BY:	CSB	CHECKED BY:	SB	APPROVED BY:	MAT	FIGURE NO.:	EXH
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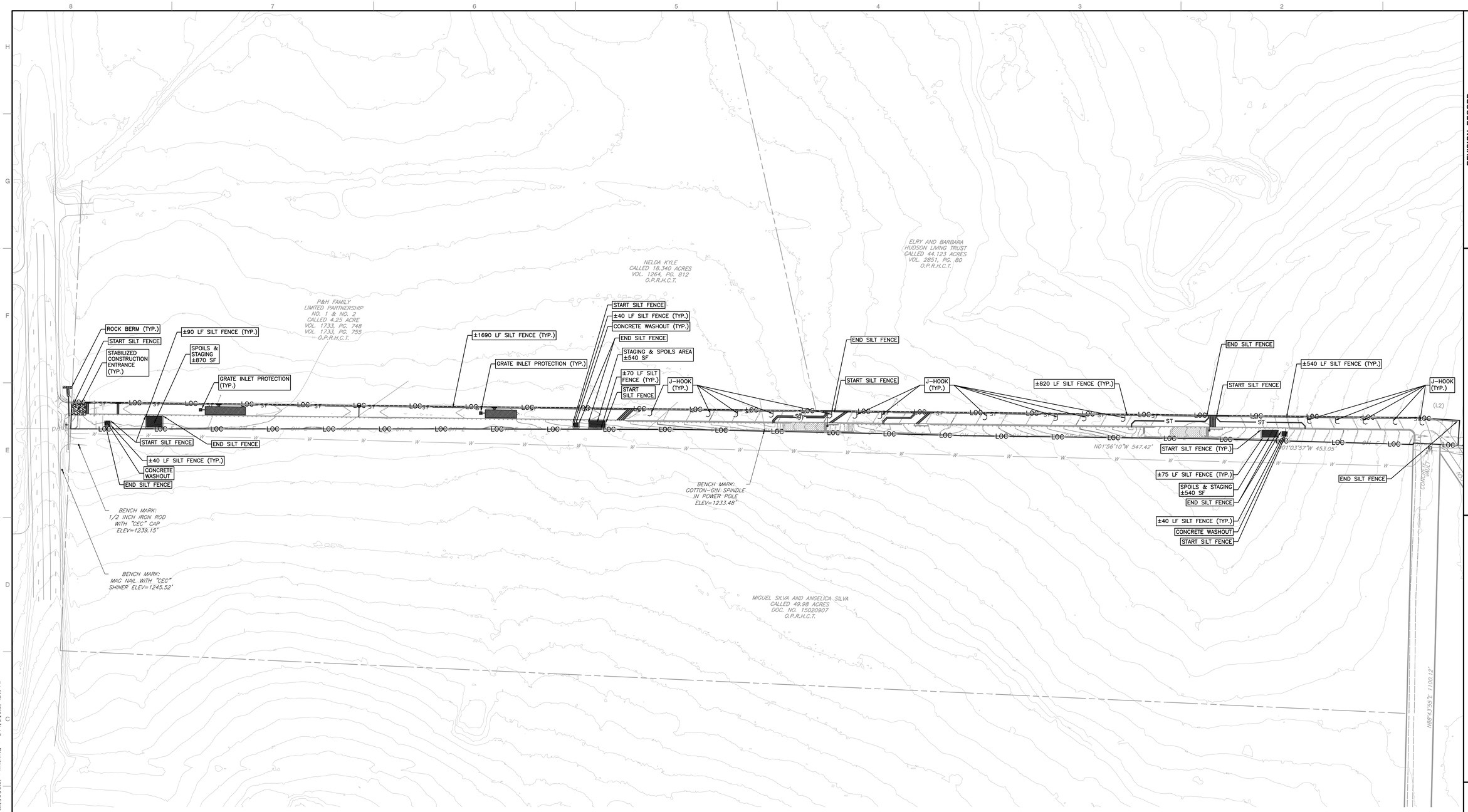
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Section 5

Detailed Site Map(s)

Part III Sect. F.1.g (i)-(viii)

Attach Map(s)



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
J	J	PIPE CAP			SAFETY END TREATMENT
›	›	PIPE FLOW			DRAINAGE FLOW
	◁	REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 100 200

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

EROSION PLAN SHEET

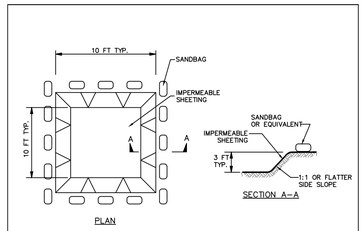
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DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: **07**

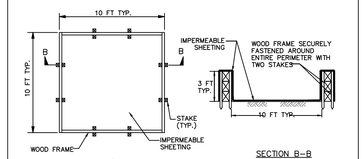
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SD-2022-0025

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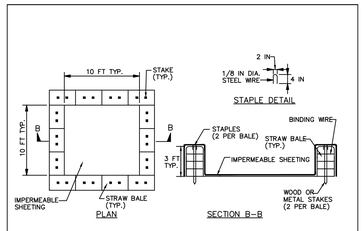
EXCAVATED WASHOUT STRUCTURE



WASHOUT STRUCTURE WITH WOOD PLANKS

1 OF 2

ONSITE CONCRETE WASHOUT STRUCTURE



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

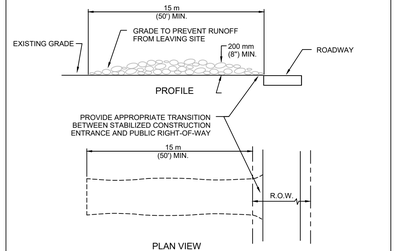
WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

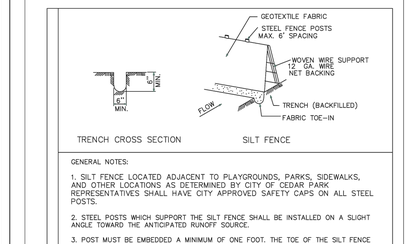
ONSITE CONCRETE WASHOUT STRUCTURE



NOTES:

1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: 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 DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY 5/23/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1



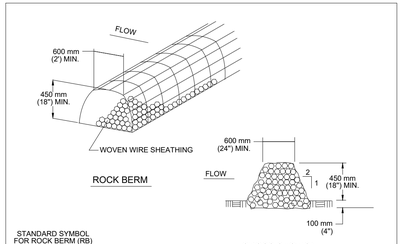
GENERAL NOTES:

1. SILT FENCE LOCATED ADJACENT TO PLAYGROUNDS, PARKS, SIDEWALKS, AND OTHER LOCATIONS AS DETERMINED BY CITY OF CEDAR PARK REPRESENTATIVES SHALL HAVE CITY APPROVED SAFETY CAPS ON ALL STEEL POSTS.
2. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
3. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT. 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.
4. WHERE FENCE CAN NOT BE TRENCHED IN (E.G. PAVEMENT) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE. 6 INCHES DEEP AND 8 INCHES WIDE TO THE TRENCH MUST BE A MINIMUM OF ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
6. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
7. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES.
8. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

STANDARD SYMBOL SF / L=

REV. DATE: 09/13/201

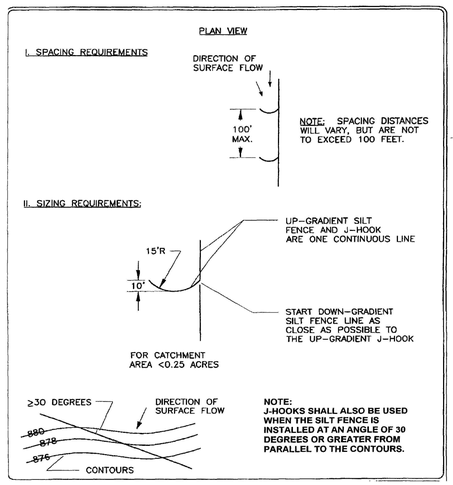
CITY OF CEDAR PARK ENGINEERING DEPARTMENT	SILT FENCE	
DARWIN MARCHELL 09/13/2001 APPROVED DATE	ADOPTED: 09/13/2001 SCALE: N.T.S. INITIAL:	



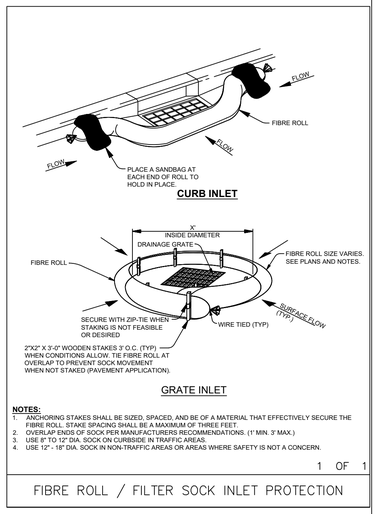
NOTES:

1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
RECORD COPY SIGNED BY MORGAN BYARS 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



CITY OF AUSTIN E.C.M. FIGURE 1.4.5.G.4 SILT FENCE J – HOOK DETAIL

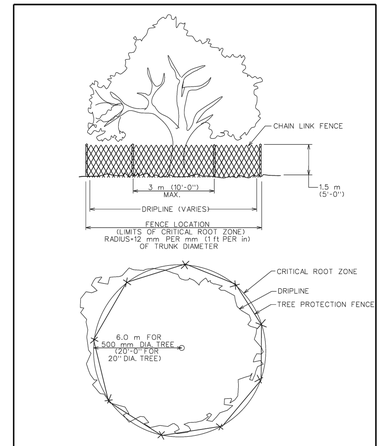


NOTES:

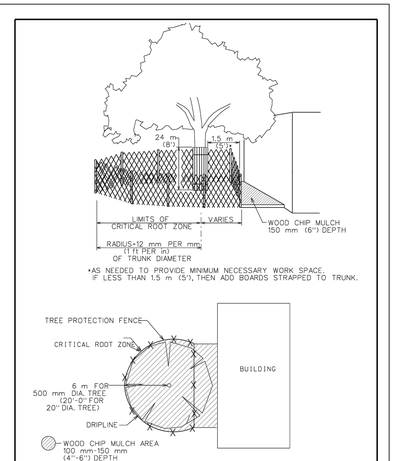
1. ANCHORING STAKES SHALL BE SIZED, SPACED, AND BE OF A MATERIAL THAT EFFECTIVELY SECURE THE FIBRE ROLL. STAKE SPACING SHALL BE A MAXIMUM OF THREE FEET.
2. OVERLAP ENDS OF SOCK PER MANUFACTURERS RECOMMENDATIONS. (1' MIN. 3' MAX.)
3. USE 8" TO 12" DIA. SOCK ON CURBSIDE IN TRAFFIC AREAS.
4. USE 12" - 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

1 OF 1

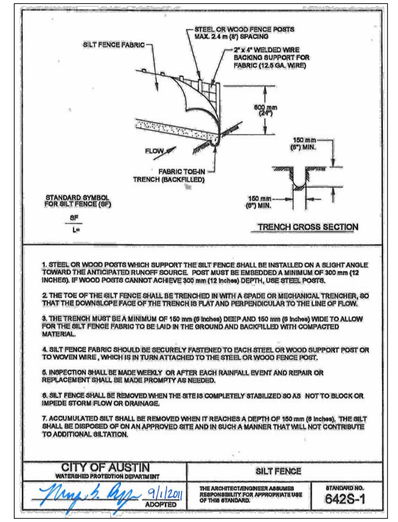
FIBRE ROLL / FILTER SOCK INLET PROTECTION



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2

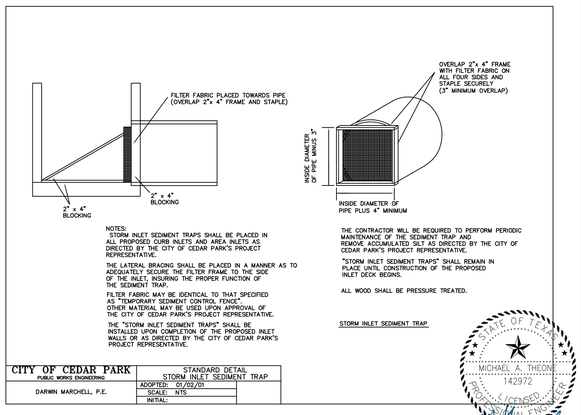


CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE MODIFIED TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-4



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. 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.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
9/11/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



NOTES:
STORM INLET SEDIMENT TRAPS SHALL BE PLACED IN ALL PROPOSED CURB INLETS AND AREA INLETS AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE LATERAL BRACING SHALL BE PLACED IN A MANNER AS TO ADEQUATELY SECURE THE FILTER FRAME TO THE SIDE OF THE INLET, INSURING THE PROPER FUNCTION OF THE SEDIMENT TRAP.

FILTER FABRIC MAY BE IDENTICAL TO THAT SPECIFIED AS "TEMPORARY SEDIMENT CONTROL FENCE". OTHER MATERIAL MAY BE USED UPON APPROVAL OF THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE "STORM INLET SEDIMENT TRAPS" SHALL BE INSTALLED UPON COMPLETION OF THE PROPOSED INLET WALLS OR AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE CONTRACTOR WILL BE REQUIRED TO PERFORM PERIODIC MAINTENANCE OF THE SEDIMENT TRAP AND REMOVE ACCUMULATED SILT AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

"STORM INLET SEDIMENT TRAPS" SHALL REMAIN IN PLACE UNTIL CONSTRUCTION OF THE PROPOSED INLET DECK BEGINS.

ALL WOOD SHALL BE PRESSURE TREATED.

STORM INLET SEDIMENT TRAP

CITY OF CEDAR PARK PUBLIC WORKS ENGINEERING	STANDARD DETAIL STORM INLET SEDIMENT TRAP
DARWIN MARCHELL, P.E.	ADOPTED: 01/02/20 SCALE: NTS INITIAL:

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811 !!! CAUTION !!! IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. !!! CAUTION !!!

REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Texas Registered Engineering Firm F-58
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

EROSION DETAILS

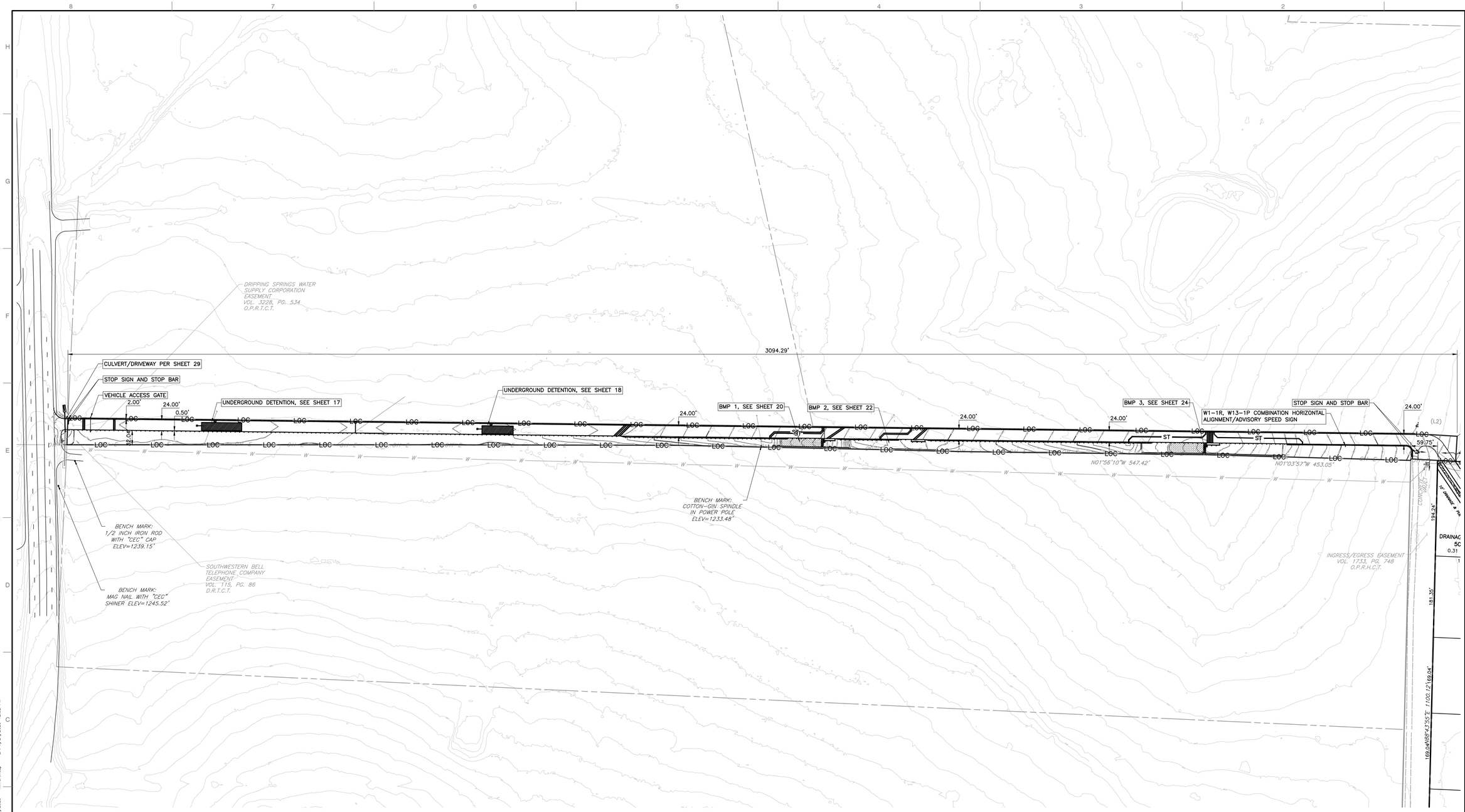
DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	AS SHOWN	CHECKED BY:	CB
PROJECT NO:			324-199
APPROVED BY:			MAT

DRAWING NO.: 08

SHEET 08 OF 48

SD-2022-0025

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SITE DATA TABLE	
ZONING	ETJ
LAND USE DESIGNATION	PRIVATE DRIVEWAY
PROPOSED LAND USE	PRIVATE DRIVEWAY
TOTAL SITE AREA (AC)	3.71
EXISTING IMPERVIOUS COVER AREA (AC)	1.14
EXISTING IMPERVIOUS COVER PERCENT	30.7%
PROPOSED ONSITE IMPERVIOUS COVER AREA (AC)	1.74
PROPOSED ONSITE IMPERVIOUS COVER PERCENT	46.8%

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
//	//	FENCE: WOOD (PICKET)
□	□	FENCE: WOOD (PRIVACY)
○	○	FENCE: CHAIN LINK
I	I	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK	●	△	(MONITORING) WELL
	⊗	CUT IN CONCRETE	●	⊙	UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	Ⓢ	Ⓢ	SANITARY M.H.
	●	IRON ROD	Ⓒ	Ⓒ	CLEANOUT
	○	IRON ROD W/ CAP	Ⓓ	Ⓓ	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
	⤹	PIPE BREAK			HEADWALL
	⌋	PIPE CAP			SAFETY END TREATMENT
	›	PIPE FLOW			DRAINAGE FLOW
	◁	REDUCER	Ⓔ	Ⓔ	ELEC. M.H.
	⊛	AIR RELEASE VALVE	Ø	Ø	ELEC./TELE. POLE
	⊛	BLOW-OFF VALVE	←	←	GUY WIRE
	⊛	POST INDICATOR VALVE			LIGHT FIXTURE
	⊗	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
	⊘	UTILITY VALVE			PEDESTRIAN SIGNAL
	Ⓜ	UTILITY METER			UTILITY (PULL)BOX
	⊠	BACKFLOW PREVENTER			UTILITY RISER
	⊹	FLUSH CONNECTION	⊗	⊗	UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 100 200

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811

!!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD		
NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-58
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

LAYOUT SHEET

DRAWN BY:	MBM
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT
DATE:	07/24/2025
DWG SCALE:	1" = 100'

DRAWING NO.: 04

SHEET 04 OF 48

SD-2022-0025

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Section 6

Site Description – Support Facilities

Part III Sect. F.1. (h)

A description of the activities and their locations of any asphalt plants, concrete batch plants or other activity supporting this construction site.

Facility	*Description*	*Location*
Asphalt Plant	Off site	
Concrete Batch Plant	Off site	
Other Support Activity	Off site	

Part III Sect. F.1. (i)

List of receiving waters at or near the site that will be disturbed or that will receive discharges from the project's disturbed areas.

Name of Receiving	*Will Receiving Water Be Disturbed?*	*Location of Receiving water*

Section 7

Copies of Construction General Permit (CGP) TXR150000 or description of location of CGP NOI, certificate, and/or site notice

Best Management Practices

Section 8

Best Management Practices (BMPs) Erosion and Sediment Controls

Part III Section F.2.a.(i)-(ii) and F.2. (c)

Description of Erosion and Sediment Controls designed to retain sediment. Add as many rows as needed.

BMPs Installed	***Schedule of BMP installation***	***Location(s) On-Site***	***Inspection/Maintenance Schedule***	***Modifications/Replacement Activities***
Silt Fences		Reference Site Development Plans		
Inlet Protection		Reference Site Development Plans		
Stabilized Contruction Entrance		Reference Site Development Plans		

Are there sedimentation basins or traps?* *If yes, list the measures taken to reduce the pollutants transported off-site by pumping activities.*	***Yes*** ☐	***No*** ■
Prevention Measure	***Location On-Site***	***Implementation Date***

* Part III Section F.6. (c) Sediment must be removed from sediment traps and basins no later than the time that the design capacity has been reduced by 50 percent.

Section 9

BMPs, Off-Site Transfer of Pollutant Controls

Part III Section F.2.a. (iii)

List of good housekeeping practices implemented to limit the off-site transport of litter, construction debris, and construction materials.

Litter Controls:	
Good Housekeeping Activity	***Location(s) On-Site***
Contained on site	
Construction Debris Controls:	
Good Housekeeping Activity	***Location(s) On-Site***
Contained on site	
Removed appropriately	
Construction Material Controls:	
Good Housekeeping Activity	***Location(s) On-Site***
Stored on site	
Covered	
Kept in original container	
Appropriate disposal	

Section 10

BMPs, Stabilization and Erosion Control Practices

Part III Section F.2.b. (i)

Stabilization and erosion control practices may include, but are not limited to: establishing temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, and protecting existing trees and vegetation. List practices used where they are located, when they will be implemented, and whether they are temporary (interim) or permanent.

Stabilization Practices	*Location On-Site*	*Implementation Date*	*Interim or Permanent*
Stabilized Construction Entrance	Reference Site Development Plans		

Section 11

Dates of Major Grading Activities and Construction Stoppage

Part III Section F.2.b. (ii) (A)-(C), (iii-iv)

If you do not list activities below, either attach documentation or state where records for the activities can be accessed:

Documentation attached? Yes ☐ No ■

Where can documentation be found (if not included in SWP3)?
Contact Person Phone Number Steve Harren -

Dates when major grading activities will occur and locations on-site:

Activity	*Location*	*Dates when Activity is Scheduled*
Install Erosion & Sedimentation Controls	Reference Site Development Plans	
Demolish Existing Site Improvements	Reference Site Development Plans	
Rough Grading, Utility Installation	Reference Site Development Plans	
Fine Grading, Paving	Reference Site Development Plans	

Dates when construction activity will temporarily or permanently cease:

Location on-site	*Date activity is to be stopped*	*Temporary or Permanent?*	*Stabilization Initiation Date*

Section 12

Sediment Control Practices

Part III Section F.2. (c)

Will the project disturb 10 acres or more at one time? Yes☐ No■

If yes, is it feasible to install a sediment basin? Yes☐ No☐

Calculate the volume of runoff from a 2-year, 24 hour storm event. Volume of sediment basin: N/A

In determining feasibility have you considered (attach any additional justification in determining feasibility):

Site Factor	*Considered?*	*Site Factor*	*Considered?*
Site Soils	Yes	Precipitation pattern	Yes
Slope	Yes	Site geometry	Yes
Available area	Yes	Site vegetation	Yes
Public safety	Yes	Geotechnical factors	Yes
Groundwater depth	Yes	Infiltration capacity	Yes
Other? (list)		Other? (list)	

Based on above information, sedimentation basin will ☐ be used ***OR*** ■ is not feasible.

If a sediment basin is not feasible, list of alternative structural control practices that will be used:

Article II. Structural Control	*Used? Yes/No*	*Location On-Site*
A series of smaller sediment basins	Yes ■ No☐	See Site Plan
Silt fences	Yes ■ No ☐	See Site Plan
Vegetative buffer strips	Yes ☐ No ■	
Sediment traps	Yes ☐ No ■	
Other (list): Inlet Protection	Yes ■ No ☐	See Site Plan
Other (list):	Yes ☐ No ☐	
Other (list):	Yes ☐ No ☐	
Other (list):	Yes ☐ No ☐	

Section 13

Permanent Stormwater Controls

Part III Section F.3

The following measures will be constructed to control post-construction runoff:

Control Measure	*Location on Project Site*	*Control runoff from what areas*
Sedimentation & filtration pond		

Section 14

Other Stormwater Controls

Part III Section F.4. (a)

Control to minimize dust generation and off-site tracking of sediment:

Control Practice Used	*Location(s) On-Site*
Paved streets off-site cleaned	
Stabilized Construction Entrance	See Site Plan

Part III Section F.4. (b)

The following construction and waste materials will be stored on-site:

Materials Stored On-Site	*Average Amount Stored*	*Location On-Site*	*Controls Used to Prevent Pollutants*
Construction Debris			On-site dumpster
Trash			On-site dumpster

Other Stormwater Controls

Part III Section F.4. (c)- (d)

Describe pollutant sources from areas other than construction (make additional copies of this worksheet as needed):

Type of pollutant source	*Pollutant(s)*	*Control(s) or measure(s) used to minimize pollutants*
Portable restroom	Sanitary waste	Waste management contractor collect

Describe the velocity dissipation devices that will be placed at discharge locations and/or along the length of any outfall channels:

Dissipation Device (hay bales, silt fence, pond, etc.)	*Outfall Discharging to (MS4, bar ditch, creek/stream)*	*At Outfall or Channel (distance interval for channel)*

Section 15

Inspection of Controls Worksheets/Report

Part III Section F.7.

Complete this worksheet every seven days; **OR**, every 14 days and within 24 hours of a 0.5 inch rainfall event, and retain in your SWP3.

Inspector (name/title): **Inspection Date:** **Day:** **Time:** **am/pm**

Scope of inspection: 14 Day Inspection ☐ or Weekly Inspection ☐

Day of week normally conducted: _____ 0.5 inch Rainfall Event ☐

Inspection Type:	*Inspected? (Y/N)*	*Areas of Concern (Describe in detail in the narrative section)*
Disturbed Soil Areas	Yes ☐ No☐	
Material Storage Areas	Yes ☐ No☐	
Structural Controls	Yes☐ No☐	
Sediment & Erosion Controls	Yes☐ No☐	
Entrance(s) and Exit(s)	Yes☐ No ☐	

Discharges:

Nature of discharge (silt, gravel, sand, other pollutant)	*Location on-site discharge*

Inspection of Controls Worksheets (contd.)

Part III Section F.7.

Best Management Practices Inspected: Add additional rows if needed.

BMP and Location	*OK (no action required)*	*BMP failed (describe failure)*	*Required Maintenance (describe corrective actions needed)*
	☐		
	☐		
	☐		
	☐		
	☐		
	☐		

Additional BMPs Needed

Location	*Best Management Practice*	*Replacing Existing BMP?*

Inspection Narrative Description/Certification

Part III Section F.7.

Complete this worksheet every seven days; **OR**, every 14 days and within 24 hours of a 0.5 inch rainfall event and retain in your SWP3.

Describe the inspector's qualifications to conduct the inspections:

Describe how your inspection was conducted:

Describe all incidents of non-compliance (i.e. major discharges, BMP failures):

"I certify that the facility or site is in compliance with the stormwater pollution prevention plan and this permit."

I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128 (relating to Signatories to Reports)

Name/Title: Date:

Section 16

Eligible Non-Stormwater Discharges (listed in Part II.3. [a]-[h])

Part III, Sect. F.8

Eligible Non-stormwater Discharge	***Used? Yes/No***	***Pollution Prevention Measure(s)***	***Implementation Date***
Fire Fighting Activities	Yes ☐ No ☐		
Fire Hydrant Flushing	Yes ☐ No ☐		
Washing of Vehicles, Buildings, or Pavementwithout detergents or soap (see description in Part II.3.[c])	Yes ☐ No ☐		
Dust Control	Yes ☐ No ☐		
Potable Water Sources(water line flushing)	Yes ☐ No ☐		
Air Conditioning Condensate	Yes ☐ No ☐		
Uncontaminated Ground/Spring Water	Yes ☐ No ☐		
Other? (List)	Yes ☐ No ☐		

List any other non-stormwater discharge permitted by a separate NPDES, TPDES, or TCEQ Permit.

Non-stormwater Discharge	*Pollution Prevention Measure*	*Implementation Date*

Section 17

Stormwater Runoff from Concrete Batch Plants

Part IV

See Instructions for information regarding Concrete Batch Plants associated with Construction Projects.

Section 18

Concrete Truck Washout Requirements

Part V

Location of concrete washout area on site and description of BMPs established to prevent the concrete wash out water from contributing to groundwater contamination or entering the waters of the state.

2 Concrete washout areas are located adjacent to the Western property line, south of th

TCEQ Office Use Only
Permit No:
CN:
RN:

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: Click here to enter text
  - Name printed on Check: Click here to enter text
- If payment was made via ePay, provide the following:
  - Voucher Number: Click here to enter text
  - 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 Click here to enter text

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 Click here to enter text

(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.)

Click here to enter text

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss): Click here to enter text

First and Last Name: Click here to enter text Suffix: Click here to enter text

Title: Click here to enter text Credentials: Click here to enter text

Phone Number: Click here to enter text Fax Number: Click here to enter text

E-mail: Click here to enter text

Mailing Address: Click here to enter text

City, State, and Zip Code: Click here to enter text

Mailing Information if outside USA:

Territory: Click here to enter text

Country Code: Click here to enter text Postal Code: Click here to enter text

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: Click here to enter text

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
☐ 21-100
☐ 101-250
☐ 251-500
☐ 501 or higher

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: Click here to enter text.

Federal Tax ID: Click here to enter text.

Texas Secretary of State Charter (filing) Number: Click here to enter text.

DUNS Number (if known): Click here to enter text.

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): Click here to enter text.

First and Last Name: Click here to enter text. Suffix: Click here to enter text.

Title: Click here to enter text. Credential: Click here to enter text.

Organization Name: Click here to enter text.

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail: Click here to enter text.

Mailing Address: Click here to enter text.

Internal Routing (Mail Code, Etc.): Click here to enter text.

City, State, and Zip Code: Click here to enter text.

Mailing information if outside USA:

Territory: Click here to enter text.

Country Code: Click here to enter text. Postal Code: Click here to enter text.

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 Click here to enter text.

(Refer to Section 3.a) of the Instructions)

b) Name of project or site (the name known by the community where it's located): Click here to enter text

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Click here to enter text

d) County or Counties (if located in more than one): Click here to enter text

e) Latitude: Click here to enter text Longitude: Click here to enter text

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: Click here to enter text

City, State, and Zip Code: Click here to enter text

Section B:

Location Description: Click here to enter text

City (or city nearest to) where the site is located: Click here to enter text

Zip Code where the site is located: Click here to enter text

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? Click here to enter text

d) What is the Secondary SIC Code(s), if applicable? Click here to enter text

e) What is the total number of acres to be disturbed? Click here to enter text

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? Click here to enter text.

h) What is the estimated end date of the project? Click here to enter text.

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? Click here to enter text.

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? Click here to enter text.

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

☐ Yes ☐ No

If Yes, provide the name of the MS4 operator: Click here to enter text.

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: Click here to enter text.

Operator Signatory Title: Click here to enter text.

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/sqmaview.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 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.

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).

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: Click here to enter text
2. Amount of Check/Money Order: Click here to enter text
3. Date of Check or Money Order: Click here to enter text
4. Name on Check or Money Order: Click here to enter text
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: Click here to enter text

   Project/Site (RE) Physical Address: Click here to enter text

Staple the check or money order to this form in this space.

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

I Steve Harren,
Print Name

Owner,
Title - Owner/President/Other

of Hardy T Land, LLC,
Corporation/Partnership/Entity Name

have authorized Michael Theone
Print Name of Agent/Engineer

of Civil & Environmental Consultants, 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:

Applicant's Signature

8/8/22
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Steve Hanron 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 8 day of August, 2022

THERESA M HAGOOD
Notary ID #130023142
My Commission Expires
November 12, 2022

NOTARY PUBLIC

Theresa Hagood
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/12/22

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Hardy Driveway
Regulated Entity Location: West US Highway 290
Name of Customer: Hardy T Land, LLC
Contact Person: Michael Theone Phone: (512) 439-0400
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
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

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

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	3.706 Acres	$ 1500
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: MTheone

Date: 8/4/2022

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	***Fee***
Extension of Time Request	$150

TCEQ 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.*)

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

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

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

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	6/27/2025

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

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

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

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

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
803928769		#86-2434550	

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

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

12. Number of Employees

☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☒ **Yes** ☐ **No**

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

☒ Owner ☐ Operator ☐ Owner & Operator

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

15. Mailing Address:	6836 FM 2244 RD. BUILDING 1						
	City	Austin	State	TX	ZIP	78746	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 970-7271		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Hardy Driveway

23. Street Address of the Regulated Entity: *(No PO Boxes)*	2901 West US Highway 290							
	City	DrippingSprings	**State**	TX	**ZIP**	78628	**ZIP + 4**	
24. County	Hays							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**
27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	12	19.9	98	07	54.3

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
6552	1521	237210	236115

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

Sales

34. Mailing Address:	**6836 FM 2244 Rd. Building 1**							
	City	**Austin**	**State**	**TX**	**ZIP**	**78746**	**ZIP + 4**	
35. E-Mail Address:								

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

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

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

SECTION IV: Preparer Information

40. Name:	Michael Theone	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 439-0400	8155	( ) -	mtheone@cecinc.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:	Civil & Environmental Consultants, Inc.	**Job Title:**	Project Manager
Name *(In Print):*	Michael Theone	**Phone:**	(512) 439- **4000**
Signature:	Mtheone	**Date:**	8/21/2025

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

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

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

Signature

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

Print Name of Customer/Agent: Michael Theone

Date: 6/27/2025

Signature of Customer/Agent:



Regulated Entity Name: Hardy Driveway

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Onion Creek

Temporary Best Management Practices (TBMPs)

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

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

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

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

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☐ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

   ☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

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

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

    ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

    ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

    ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

    ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

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

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

☐ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

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

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

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

ATTACHMENT A
Spill Response Actions

In the event of a hydrocarbon or hazardous substance spill, the owner or operator of the vessel or facility from which the spill originated, herein referred to as "the responsible person," shall immediately abate and contain the spill or discharge and cooperate fully with the executive director and local law enforcement. Reasonable response actions may include but are not limited to:

1. Arrival of the responsible person or response personnel hired by the responsible person at the site of the discharge or spill.
2. Initiating efforts to stop the discharge or spill.
3. Minimizing the impact to the public health and environment.
4. Neutralizing the effects of the incident.
5. Removing the discharged or spilled substance.
6. Managing the wastes.
7. Notify the regional agency office during normal business hours or the agency 24-hour spill reporting number (1-800-832-8224) as soon as possible and within 24 hours after the discovery of the spill or discharge.

The information provided upon initial notification to the agency shall include but is not limited to:

1. The name, address and telephone of the responsible person and/or the person reporting the spill.
2. The date, time and location of the spill or discharge.
3. A specific description or identification of the oil, petroleum product, hazardous substances or other discharged substance.
4. An estimate of the quantity discharged or spilled.
5. The duration of the incident.
6. The name of the surface water or a description of the waters affected or threatened by the discharge or spill.
7. The source of the discharge or spill.
8. A description of the extent of actual or potential water pollution or harmful impacts to the environment and an identification of any environmentally sensitive areas or natural resources at risk.
9. A description of any actions that have been taken, are being taken, and will be taken to contain and respond to the discharge or spill.
10. Any known or anticipated health risks.
11. The identity of any governmental representatives, including local authorities or third parties, responding to the discharge or spill.

The responsible person shall submit a letter describing details of the discharge or spill and supporting the adequacy of the response action, to the appropriate TCEQ regional manager within 30 working days of the discovery of the reportable discharge or spill.

If the discharge or spill creates an imminent health threat, the responsible person shall immediately notify and cooperate with local emergency authorities (fire department, fire marshal, law enforcement authority, health authority or Local Emergency Planning Committee (LEPC) as appropriate). The responsible person will cooperate with the local emergency authority in providing support to implement appropriate notification and response actions.

As soon as possible, but no later than two weeks after discovery of the spill or discharge, the responsible person shall reasonably attempt to notify the owner or occupant of the property upon which the discharge or spill occurred as well as the occupants of any property that the responsible person reasonably believes is adversely affected.

Reportable Quantities:

1. The Final Reportable Quantity (RO) for crude oil and oil other than that defined as petroleum product or used oil shall be:
    a. For spills or discharges onto land – 210 gallons (five barrels).
    b. For spills or discharges directly into water in the state – quantity sufficient to create a sheen.
2. The RO for petroleum product and used oil shall be:
    a. Except as noted in subparagraph (B) of this paragraph, for spills or discharges onto land - 25 gallons.
    b. For spills or discharges to land from PST exempted facilities – 210 gallons (five barrels).
    c. For spills or discharges directly into water in the state – quantity sufficient to create a sheen.
3. Industrial solid waste or other substances. The RO for spills discharges into water in the state shall be 100 pounds.

Reportable Quantities Link:

https://protect-us.mimecast.com/s/qDkfC9rPg7Sz27X2CovSrq?domain=tceq.texas.gov

ATTACHMENT B

Potential Sources of Contamination

Potential pollutants from construction activities include sediment laden storm water and pollutants from construction materials and equipment including concrete, petroleum, oil, diesel, detergents, lubricants, fertilizers, lead-based paint, solvents, cleaners, concrete wash water, concrete curing compound, pipe joint lubrication and sanitary waste from onsite portable units.

ATTACHMENT C
Sequence of Major Activities

The installation of erosion and sedimentation controls shall occur prior to any excavation of materials or major disturbances on the site.

The sequence of major construction activities shall be as follows:

1. Install stabilized construction entrances where required.
2. Install tree protection.
3. Install all temporary erosion controls.
4. Rough grade water quality pond.
5. Demolish existing structures and impervious cover as described in the Construction Plans.
6. Clear and strip topsoil. Stockpile topsoil for later use.
7. Site grading.
8. Rough cut roads.
9. Install proposed utilities.
10. Construct building slabs and foundations.
11. Paving improvements and building construction.
12. After the completion of construction and prior to the removal of temporary erosion controls, the Project Engineer must inspect the job and write a concurrence letter to the city. Final inspection is scheduled upon receipt of the letter.
13. Revegetation.
14. Maintain vegetative watering to establish permanent grasses.
15. Remove and dispose of temporary erosion controls when restoration has been accepted.

ATTACHMENT D

Temporary Best Management Practices and Measures

The following are the Temporary Best Management Practices and Measures proposed to minimize adverse environmental impact throughout construction:

Temporary Construction Entrance/Exit

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way, sidewalk or parking area. Access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected where access is not necessary. A rock stabilized construction entrance is proposed at the two ingress/egress locations on site.

Materials:

1. The aggregate should consist of 4-to-8-inch washed stone over a stable foundation as specified in the plan.
2. The aggregate should be placed with a minimum thickness of 8 inches.
3. The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd, a mullen burst rating of 140 lb/in, and an equivalent opening size greater than a number 50 sieve.
4. If a washing facility is required, a level area with a minimum of 4-inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

Installation:

1. Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
2. The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.
3. The construction entrance should be at least 50 feet long.
4. If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.

5. Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.
6. Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
8. Install pipe under pad as needed to maintain proper public road drainage.

Silt Fence

The purpose of silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter or a disturbed area to intercept sediment while allowing water to percolate through and shall be installed immediately following the installation of the stabilized construction entrance. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Materials:

1. Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.
2. Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/in^2, and Brindell hardness exceeding 140.
3. Woven wire backing to support the fabric should be galvanized 2”x4” welded wire, 12 gauge minimum.
4. Wire mesh should be standard hardware cloth or comparable wire mesh with an opening size not to exceed ½ inch.

Guidelines for installation:

Curb Inlet Protection with 2-inch x 4-inch Wooden Weir

1. 1. Attach a continuous piece of wire mesh (30-inch minimum width x inlet throat length plus 4 feet) to the 2-inch x 4-inch wooden weir (with a total length of throat length plus 2 feet). Wood should be "construction grade" lumber.
2. Place a piece of approved filter cloth of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2-inch x 4-inch weir.
3. Securely nail the 2-inch x 4-inch weir to the 9-ich long vertical spacers which are to be located between the weir and inlet face at a maximum 6-foot spacing.
4. Place the assembly against the inlet throat and nail 2-foot (minimum) lengths of 2-inch x 4-inch board to the top of the weir at spacer locations. These 2-inch x 4-inch anchors should extend across the inlet tops and be held in place by sandbags or alternative weight.
5. The assembly should be placed so that the end spacers are a minimum 1 foot beyond both ends of the throat opening.
6. Form the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place coarse aggregate over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
7. This type of protection should be inspected frequently, and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.

Excavated Drop Inlet Sediment Trap (Area Inlets)

1. The excavated trap should be sized to provide a minimum storage capacity calculated at 3,600 cubic feet per acre of drainage area. A trap should be no less than 1-foot nor more than 2 feet deep measured from the top of the inlet structure. Side slopes should not be steeper than 2:1.
2. The slope of the basin may vary to fit the drainage area and terrain. Observations must be made to check trap efficiency and modifications should be made as necessary to ensure satisfactory trapping of sediment.
3. Sediment should be removed, and the trap restored to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. Removed sediment should be deposited in a suitable area and in a manner such that it will not erode.

Hydraulic Mulching

Hydraulic mulch is suitable for soil disturbed areas requiring temporary protection until permanent stabilization is established, and disturbed areas that will be re-disturbed following and extended period of inactivity. Disturbed areas in which each construction activity has ceased shall be stabilized within fourteen days unless activities are scheduled to resume and do so within twenty-one days.

Materials:

1. Hydraulic matrices include a mixture of wood fiber and acrylic polymer or other tackifier as binder. Apply as a liquid slurry using a hydraulic application machine (hydro seeder) as specified by the manufacturer.

Installation:

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

ATTACHMENT F

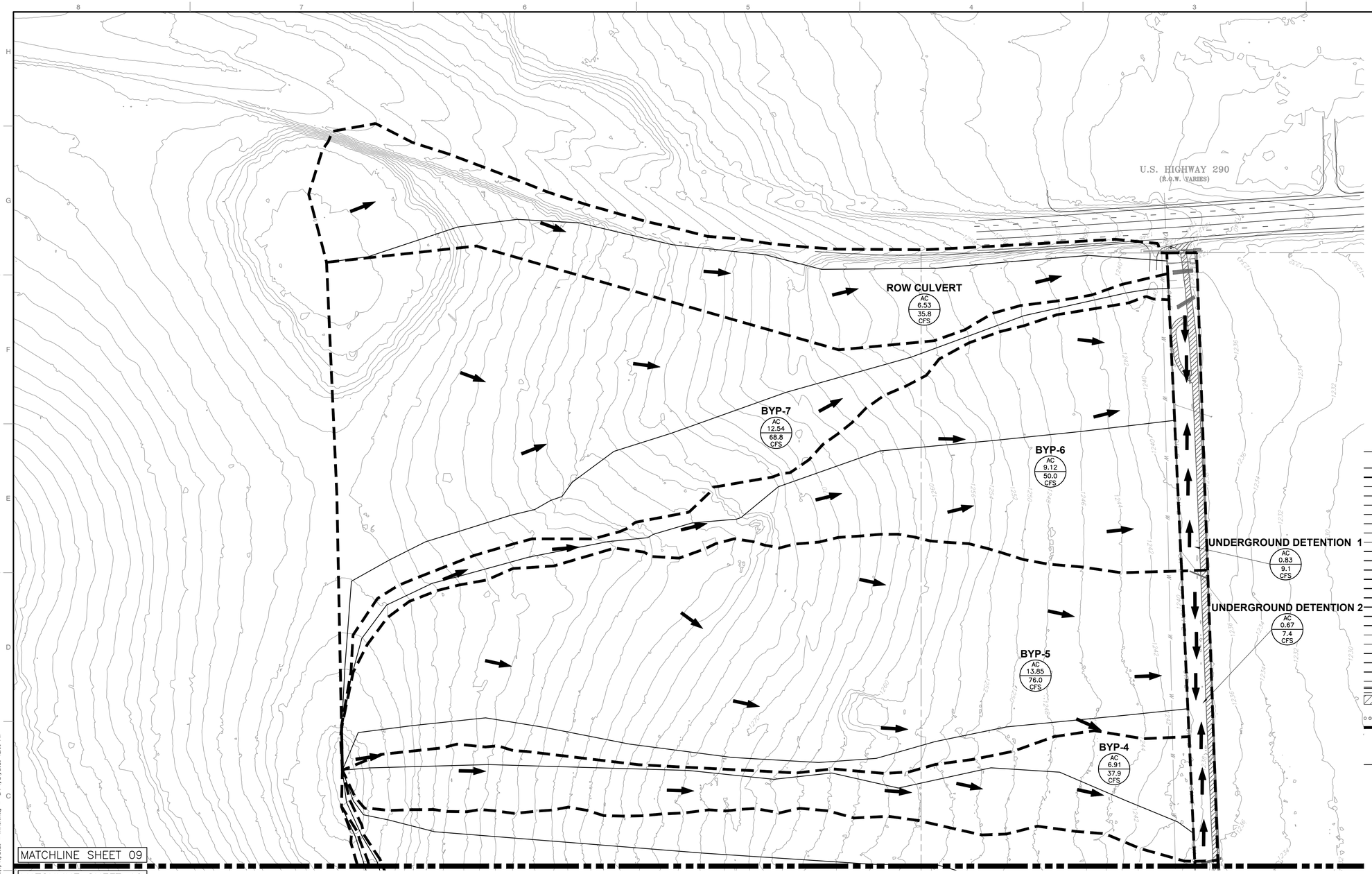
Structural Practices

Inlet protection for newly constructed and existing inlets is proposed and silt fencing will be placed to remove construction sediment from runoff.

The contractor shall supply a concrete truck washout area in the area set forth by construction plans.

A stabilized construction entrance will prevent sediment from vehicles to leave the site.

ATTACHMENT G



BLOCK LEGEND

PROPOSED / EXISTING

- BENCHMARK
- CUT IN CONCRETE
- CONTROL POINT
- IRON PIPE
- IRON ROD
- IRON ROD W/ CAP
- MONUMENT TYPE 1
- MONUMENT TYPE 2
- NAIL
- PIPE BREAK
- PIPE CAP
- PIPE FLOW
- REDUCER
- AIR RELEASE VALVE
- BLOW-OFF VALVE
- POST INDICATOR VALVE
- MISCELLANEOUS VALVE
- UTILITY VALVE
- UTILITY METER
- BACKFLOW PREVENTER
- FLUSH CONNECTION
- FIRE HYDRANT
- (MONITORING) WELL
- UTILITY RISER
- HOSE BIB
- SANITARY M.H.
- CLEANOUT
- DRAINAGE M.H.
- DOWN SPOUT
- AREA INLET
- CURB INLET
- HEADWALL
- SAFETY END TREATMENT
- DRAINAGE FLOW
- ELEC. M.H.
- ELEC./TELE. POLE
- GUY WIRE
- LIGHT FIXTURE
- TRAFFIC SIGNAL
- PEDESTRIAN SIGNAL
- UTILITY (PULL)BOX
- UTILITY RISER
- UTILITY SERVICE

LINETYPE LEGEND

PROPOSED / EXISTING

- RIGHT-OF-WAY
- LOT BOUNDARY
- EASEMENT
- FENCE: BARBED
- FENCE: WOOD (PICKET)
- FENCE: WOOD (PRIVACY)
- FENCE: CHAIN LINK
- FENCE: IRON
- MAJOR CONTOUR
- MINOR CONTOUR
- ELECTRIC LINE
- OVERHEAD ELECTRIC WIRE
- UNDERGROUND ELECTRIC LINE
- TELEPHONE
- COMMUNICATIONS LINE
- CABLE TELEVISION
- FIBER OPTIC LINE
- GAS LINE
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- SANITARY SEWER LINE
- WATER LINE
- FIRE LINE
- ROAD CENTERLINE
- CURB & GUTTER
- STRIPING
- FIRE LANE STRIPING
- H.C. ACCESSIBLE ROUTE
- LIMITS OF CONSTRUCTION
- RAIL ROAD
- FLOODWAY
- CWQZ
- STORM SEWER

- MATCHLINE
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION LINE

BYP-1
AC X.XX
X.X CFS
DRAINAGE AREA LABEL

Time of Concentration (TR-55 method) - Existing Site Conditions

Subbasin		BYP-1	EX-1	BYP-2	EX-2	BYP-3	EX-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTIO	UNDERGROUND DETENTIO
Area	sf	502600	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29010
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.00077221	0.0167054	0.00034373	0.0517223	0.00232477	0.0102031	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0%	35%	0%	31%	0%	30%	0%	0%	0%	0%	0%	28%	32%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	80	80	80	80	85	80	80	80	80	80	85	80
Sheet Flow														
Slope	m/m	0.0400	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0030	0.0030
Length	ft.	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.04	0.04
Shallow Concentrated														
Slope	m/m	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0030	0.0030
Length	ft.	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	y/n	n	p	n	p	n	p	n	n	n	n	n	p	p
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.13	0.12
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.17	0.16
Tc	min.	17.92	3.82	20.25	1.33	17.92	3.82	17.81	17.52	17.95	22.72	26.41	10.38	9.58
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	6.23	5.75
Existing Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.70	43.00	4.50	8.50	9.00	18.00	11.80	16.30	2.60	2.10
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	4.60	3.70
25 Year	cfs	38.30	3.70	35.50	1.70	109.90	11.10	21.70	22.90	46.00	30.30	41.60	6.00	4.90
100 Year	cfs	63.30	5.70	58.60	2.50	181.60	16.90	35.80	37.90	76.00	50.00	68.80	9.10	7.40

Point of Analysis Flow Summary Table

Storm Event	Existing	Proposed
02-YR	11.4	9.5
10-YR	20.6	18.2
25-YR	27.7	24.6
100-YR	41.6	38.3

NOTE: POINT OF ANALYSIS FLOW SUMMARY TABLE DESCRIBES ONLY THE ON-SITE FLOWS FOR EACH STORM EVENT, ALL BYPASS FLOWS REMAIN AS SHOWN WITHIN THE DRAINAGE AREA MAPS AND DO NOT CHANGE BETWEEN PROPOSED AND EXISTING CONDITIONS.

NORTH
SCALE IN FEET
0 100 200

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD		
NO	DATE	DESCRIPTION

CEC
Texas Registered Engineering Firm F-98
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

EXISTING DMAP 1 OF 2

DATE:	07/24/2025
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 09
SHEET 09 OF 48

SD-2022-0025

P:\320-000\324-199\-DWG\Dwg\CIVIL\324199-CIV1-EXDR-EXISTING DMAP 1 OF 2\ LS(7/15/2025 - mmortine) - LP: 7/24/2025 12:33 PM

MATCHLINE SHEET 09

MATCHLINE SHEET 10

BYP-1
AC 11.54
63.3 CFS

BYP-2
AC 10.69
58.6 CFS

BYP-3
AC 34.68
181.6 CFS

ON-1
AC 0.49
5.7 CFS

ON-2
AC 0.22
2.5 CFS

ON-3
AC 1.49
16.9 CFS

N88°43'55"E 1100.12'

N88°45'38"E 442.13'

CONCRETE VAULT

(L2)

(L3)

BLOCK LEGEND

PROPOSED	EXISTING	
		BENCHMARK
		CUT IN CONCRETE
		CONTROL POINT
		IRON PIPE
		IRON ROD
		IRON ROD W/ CAP
		MONUMENT TYPE 1
		MONUMENT TYPE 2
		NAIL
		PIPE BREAK
		PIPE CAP
		PIPE FLOW
		REDUCER
		AIR RELEASE VALVE
		BLOW-OFF VALVE
		POST INDICATOR VALVE
		MISCELLANEOUS VALVE
		UTILITY VALVE
		UTILITY METER
		BACKFLOW PREVENTER
		FLUSH CONNECTION
		FIRE HYDRANT
		(MONITORING) WELL
		UTILITY RISER
		HOSE BIB
		SANITARY M.H.
		CLEANOUT
		DRAINAGE M.H.
		DOWN SPOUT
		AREA INLET
		CURB INLET
		HEADWALL
		SAFETY END TREATMENT
		DRAINAGE FLOW
		ELEC. M.H.
		ELEC./TELE. POLE
		GUY WIRE
		LIGHT FIXTURE
		TRAFFIC SIGNAL
		PEDESTRIAN SIGNAL
		UTILITY (PULL)BOX
		UTILITY RISER
		UTILITY SERVICE

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER

MATCHLINE

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION LINE

BYP-1
AC
X.XX
X.X
CFS

DRAINAGE AREA LABEL

NORTH

SCALE IN FEET

0 100 200

Point of Analysis Flow Summary Table		
Storm Event	**Existing**	**Proposed**
02-YR	11.4	9.5
10-YR	20.6	18.2
25-YR	27.7	24.6
100-YR	41.6	38.3

NOTE: POINT OF ANALYSIS FLOW SUMMARY TABLE DESCRIBES ONLY THE ON-SITE FLOWS FOR EACH STORM EVENT, ALL BYPASS FLOWS REMAIN AS SHOWN WITHIN THE DRAINAGE AREA MAPS AND DO NOT CHANGE BETWEEN PROPOSED AND EXISTING CONDITIONS.

Time of Concentration (TR-55 method) - Existing Site Conditions

Subbasin		BYP-1	EX-1	BYP-2	EX-2	BYP-3	EX-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTIO	UNDERGROUND DETENTION
Area	sf	502660	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.01803004	0.00077221	0.01670764	0.00034375	0.0517223	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0%	35%	0%	31%	0%	30%	0%	0%	0%	0%	0%	28%	32%
Pervious	Cn	86	80	80	80	86	80	80	80	80	80	80	80	80
Composite	Cn	86	86	80	86	86	85	80	80	80	80	80	85	86
Sheet Flow														
Slope	m/n	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0030	0.0030
Length	ft	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.04	0.04
Shallow Concentrated														
Slope	m/n	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft	1783	475	1914	90	1783	475	1617	1637	1722	1906	2056	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	p
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.13	0.12
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.17	0.16
Tc	min	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	10.38	9.58
Lag Time	min	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	6.23	5.75
Existing Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.70	43.00	4.50	8.50	9.00	18.00	11.80	16.30	2.60	2.10
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	4.60	3.70
25 Year	cfs	38.30	3.70	35.50	1.70	109.90	11.10	21.70	22.90	46.00	30.30	41.60	6.00	4.90
100 Year	cfs	63.30	5.70	58.60	2.50	181.60	16.90	35.80	37.90	76.00	50.00	68.80	9.10	7.40

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811

STATE OF TEXAS
MICHAEL A. THEUNE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

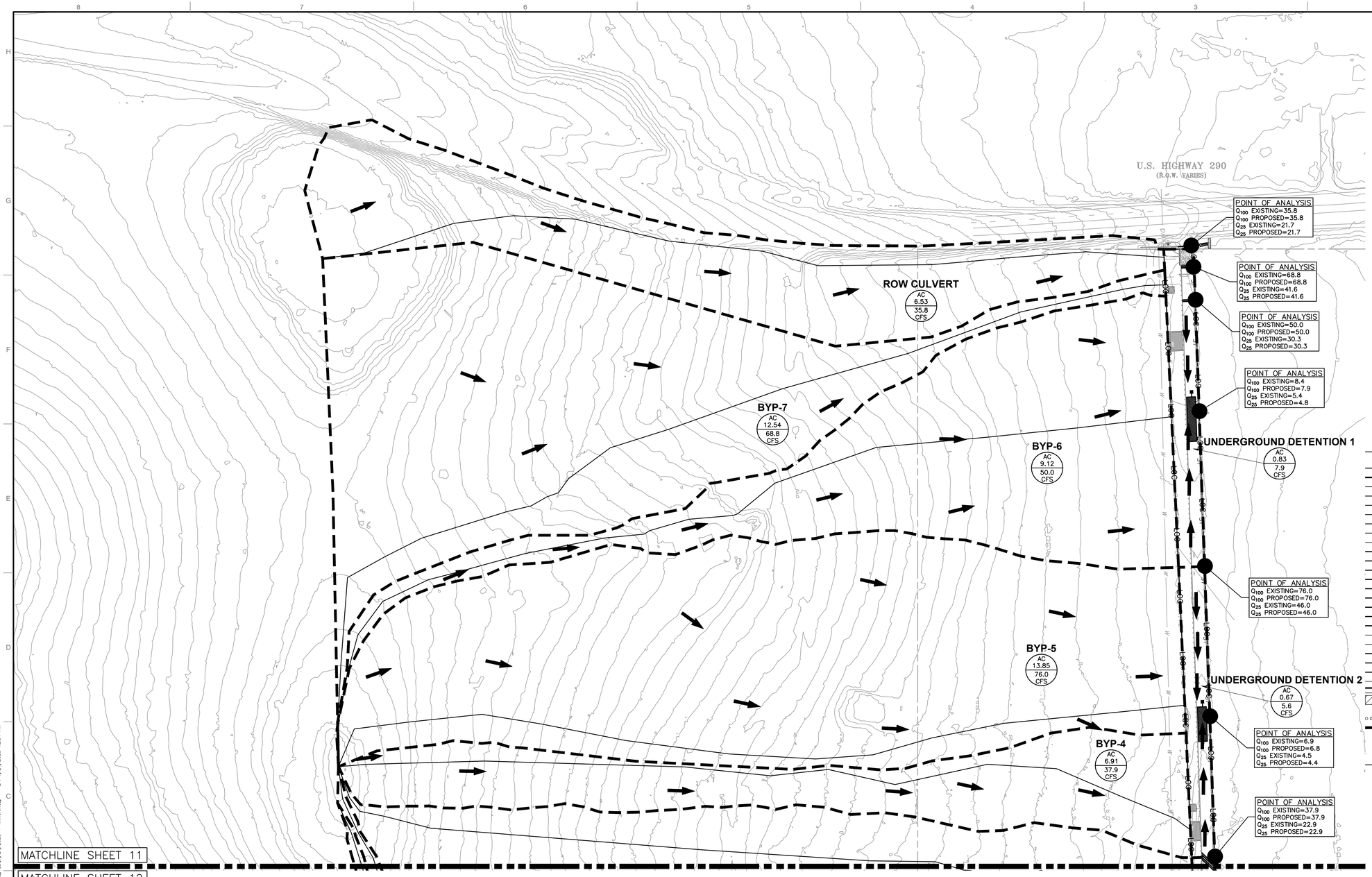
EXISTING DMAP 2 OF 2

DATE: 07/24/2025 DRAWN BY: MBM
DWG SCALE: 1" = 100' CHECKED BY: CB
PROJECT NO: 324-199
APPROVED BY: MAT

DRAWING NO.: 10
SHEET 10 OF 48

SD-2022-0025

A:\200-000\324-199\--DAGN\Dwg\CIVIL\324199-CIVIL-2400-EXISTING DMAP.dwg[EXISTING DMAP 2 OF 2] 5/17/2025 - mmartinez - LP: 7/24/2025 12:33 PM



BLOCK LEGEND

PROPOSED / EXISTING

- BENCHMARK
- CUT IN CONCRETE
- CONTROL POINT
- IRON PIPE
- IRON ROD
- IRON ROD W/ CAP
- MONUMENT TYPE 1
- MONUMENT TYPE 2
- NAIL
- PIPE BREAK
- PIPE CAP
- PIPE FLOW
- REDUCER
- AIR RELEASE VALVE
- BLOW-OFF VALVE
- POST INDICATOR VALVE
- MISCELLANEOUS VALVE
- UTILITY VALVE
- UTILITY METER
- BACKFLOW PREVENTER
- FLUSH CONNECTION
- FIRE HYDRANT
- (MONITORING) WELL
- UTILITY RISER
- HOSE BIB
- SANITARY M.H.
- CLEANOUT
- DRAINAGE M.H.
- DOWN SPOUT
- AREA INLET
- CURB INLET
- HEADWALL
- SAFETY END TREATMENT
- DRAINAGE FLOW
- ELEC. M.H.
- ELEC./TELE. POLE
- GUY WIRE
- LIGHT FIXTURE
- TRAFFIC SIGNAL
- PEDESTRIAN SIGNAL
- UTILITY (PULL)BOX
- UTILITY RISER
- UTILITY SERVICE

LINETYPE LEGEND

PROPOSED / EXISTING

- RIGHT-OF-WAY
- LOT BOUNDARY
- EASEMENT
- FENCE: BARBED
- FENCE: WOOD (PICKET)
- FENCE: WOOD (PRIVACY)
- FENCE: CHAIN LINK
- FENCE: IRON
- MAJOR CONTOUR
- MINOR CONTOUR
- ELECTRIC LINE
- OVERHEAD ELECTRIC WIRE
- UNDERGROUND ELECTRIC LINE
- TELEPHONE
- COMMUNICATIONS LINE
- CABLE TELEVISION
- FIBER OPTIC LINE
- GAS LINE
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- SANITARY SEWER LINE
- WATER LINE
- FIRE LINE
- ROAD CENTERLINE
- CURB & GUTTER
- STRIPING
- FIRE LANE STRIPING
- H.C. ACCESSIBLE ROUTE
- LIMITS OF CONSTRUCTION
- RAIL ROAD
- FLOODWAY
- CWQZ
- STORM SEWER

- MATCHLINE
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION LINE

BYP-1
AC X.XX
X.X CFS
DRAINAGE AREA LABEL

NORTH
SCALE IN FEET
0 100 200

!!! CAUTION !!! !!! CAUTION !!!
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Time of Concentration (TR-55 method) - Proposed Site Conditions

Subbasin		BYP-1	PR-1	BYP-2	PR-2	BYP-3	PR-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION1	UNDERGROUND DETENTION2
Area	sf	502660	21528	465720	9583.2	1510755	64811	284447	300918	603517	397267	546242	3607	29014
	ac	11.54	0.49	10.69	0.22	34.68	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.01803041	0.00077221	0.01670541	0.00034375	0.05419099	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0.0%	52%	0%	47%	0.0%	46%	0%	0%	0%	0%	0%	43%	49%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	89	80	88	80	88	80	80	80	80	80	88	89
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0050	0.0050
Length	ft.	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.03	0.03
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft.	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	p
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.10	0.09
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.14	0.13
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	8.14	7.51
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	4.88	4.51
Proposed Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.60	43.00	4.50	8.50	9.00	18.00	11.80	16.30	1.90	1
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	3.40	2.5
25 Year	cfs	38.30	3.70	35.50	1.60	109.90	11.10	21.70	22.90	46.00	30.30	41.60	4.80	3.4
100 Year	cfs	63.30	5.70	58.60	2.40	181.60	17.00	35.80	37.90	76.00	50.00	68.80	7.90	5.3

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-58
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
PH: 512.439.0400 · FAX: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

PROPOSED DMAP 1 OF 2

DATE:	07/24/2025
DRAWN BY:	MBM
CHECKED BY:	CB
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
APPROVED BY:	MAT

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.: 11
SHEET 11 OF 48

SD-2022-0025

P:\324-001\324-199\-DMAP\DWG\DWG\324199-DET-DMAP-PROPOSED DMAP.dwg PROPOSED DMAP 1 OF 2| LS|7/24/2025 - mmorrow| - LT: 7/24/2025 12:34 PM

MATCHLINE SHEET 09

MATCHLINE SHEET 10

BYP-1
AC 11.54
63.3 CFS

BYP-2
AC 10.69
58.6 CFS

BYP-3
AC 34.68
181.6 CFS

PR-1
AC 0.49
5.7 CFS

PR-2
AC 0.22
2.5 CFS

PR-3
AC 1.49
17.0 CFS

POINT OF ANALYSIS
Q_{100} EXISTING=69.0
Q_{100} PROPOSED=69.0
Q_{25} EXISTING=41.9
Q_{25} PROPOSED=41.9

POINT OF ANALYSIS
Q_{100} EXISTING=61.1
Q_{100} PROPOSED=61.0
Q_{25} EXISTING=37.1
Q_{25} PROPOSED=37.1

POINT OF ANALYSIS
Q_{100} EXISTING=198.3
Q_{100} PROPOSED=197.8
Q_{25} EXISTING=120.6
Q_{25} PROPOSED=120.2

CONCRETE VAULT

N88°43'55"E 1100.12'

N88°45'39"E 442.13'

N90°00'00"E

N01°51'30"W 1245.42'

N00°10'57"W 463.05'

(L2)

(L3)

BLOCK LEGEND

PROPOSED	EXISTING	
		BENCHMARK
		CUT IN CONCRETE
		CONTROL POINT
		IRON PIPE
		IRON ROD
		IRON ROD W/ CAP
		MONUMENT TYPE 1
		MONUMENT TYPE 2
		NAIL
		PIPE BREAK
		PIPE CAP
		PIPE FLOW
		REDUCER
		AIR RELEASE VALVE
		BLOW-OFF VALVE
		POST INDICATOR VALVE
		MISCELLANEOUS VALVE
		UTILITY VALVE
		UTILITY METER
		BACKFLOW PREVENTER
		FLUSH CONNECTION
		FIRE HYDRANT
		(MONITORING) WELL
		UTILITY RISER
		HOSE BIB
		SANITARY M.H.
		CLEANOUT
		DRAINAGE M.H.
		DOWN SPOUT
		AREA INLET
		CURB INLET
		HEADWALL
		SAFETY END TREATMENT
		DRAINAGE FLOW
		ELEC. M.H.
		ELEC./TELE. POLE
		GUY WIRE
		LIGHT FIXTURE
		TRAFFIC SIGNAL
		PEDESTRIAN SIGNAL
		UTILITY (PULL)BOX
		UTILITY RISER
		UTILITY SERVICE

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	*385*	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER

MATCHLINE

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION LINE

BYP-1
AC X.XX
X.X CFS

DRAINAGE AREA LABEL

NORTH

SCALE IN FEET

0 100 200

Time of Concentration (TR-55 method) - Proposed Site Conditions

Subbasin		BYP-1	PR-1	BYP-2	PR-2	BYP-3	PR-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION	UNDERGROUND DETENTION
Area	sf	502660	21528	465720	9583.2	1510755	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	34.68	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.000772211	0.01670541	0.00034375	0.05419099	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0.0%	52%	0%	47%	0.0%	40%	0%	0%	0%	0%	0%	43%	49%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	80	80	88	80	88	80	80	80	80	80	88	89
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0050	0.0050
Length	ft.	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.03	0.03
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft.	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	y/n	n	p	n	p	n	p	n	n	n	n	n	p	p
Time	hr.	0.15	0.03	0.16	0.01	0.15	0.03	0.13	0.14	0.14	0.19	0.24	0.10	0.09
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.14	0.13
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	8.14	7.51
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Proposed Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.60	43.00	4.50	8.50	9.00	18.00	11.80	16.30	1.90	1
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	3.40	2.5
25 Year	cfs	38.30	3.70	35.50	1.60	109.90	11.10	21.70	22.90	46.00	30.30	41.60	4.80	3.4
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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

REVISION RECORD

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Texas Registered Engineering Firm F-88
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

PROPOSED DMAP 2 OF 2

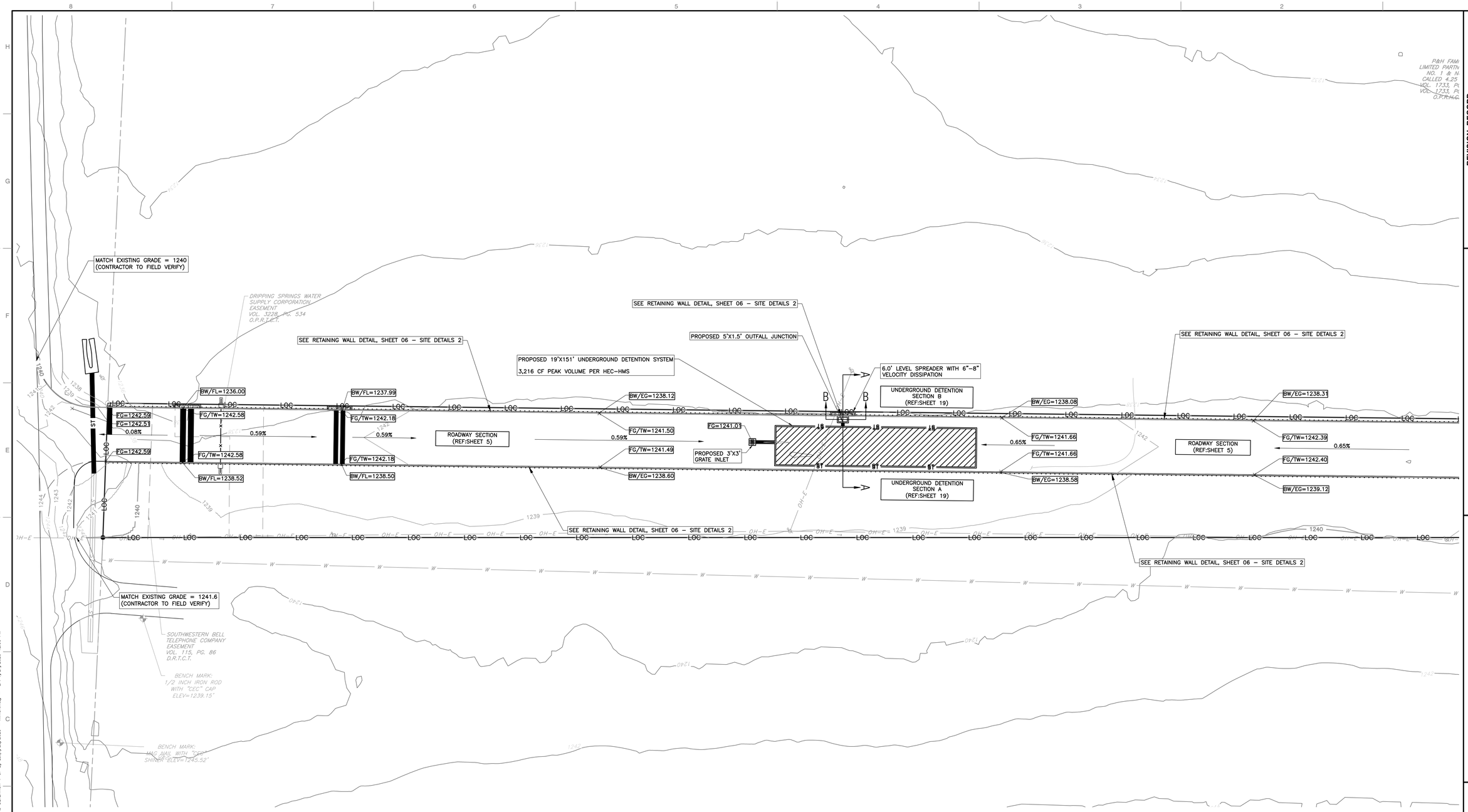
DRAWN BY:	MBM
CHECKED BY:	CB
DATE:	07/24/2025
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 12

SHEET 12 OF 48

SD-2022-0025

P:\320-200\324-199\-DWG\Dwg\CIVIL\324199-CIV1-EXSD-PROPOSED DMAP 2 OF 2\ LS(7/24/2025 - mmortine) - LP: 7/24/2025 12:34 PM



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
//	//	FENCE: WOOD (PICKET)
□	□	FENCE: WOOD (PRIVACY)
○	○	FENCE: CHAIN LINK
I	I	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
FIRE		FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
		IRON PIPE	S	S	SANITARY M.H.
		IRON ROD	CO	CO	CLEANOUT
		IRON ROD W/ CAP	D	D	DRAINAGE M.H.
		MONUMENT TYPE 1			DOWN SPOUT
		MONUMENT TYPE 2			AREA INLET
		NAIL			CURB INLET
	S	PIPE BREAK			HEADWALL
	J	PIPE CAP			SAFETY END TREATMENT
		PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 20 40

811 !!! CAUTION !!! !!! CAUTION !!!
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MICHAEL A. THEONE
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LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

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HARDY T LAND, LLC
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HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

UNDERGROUND DETENTION 1 OF 2

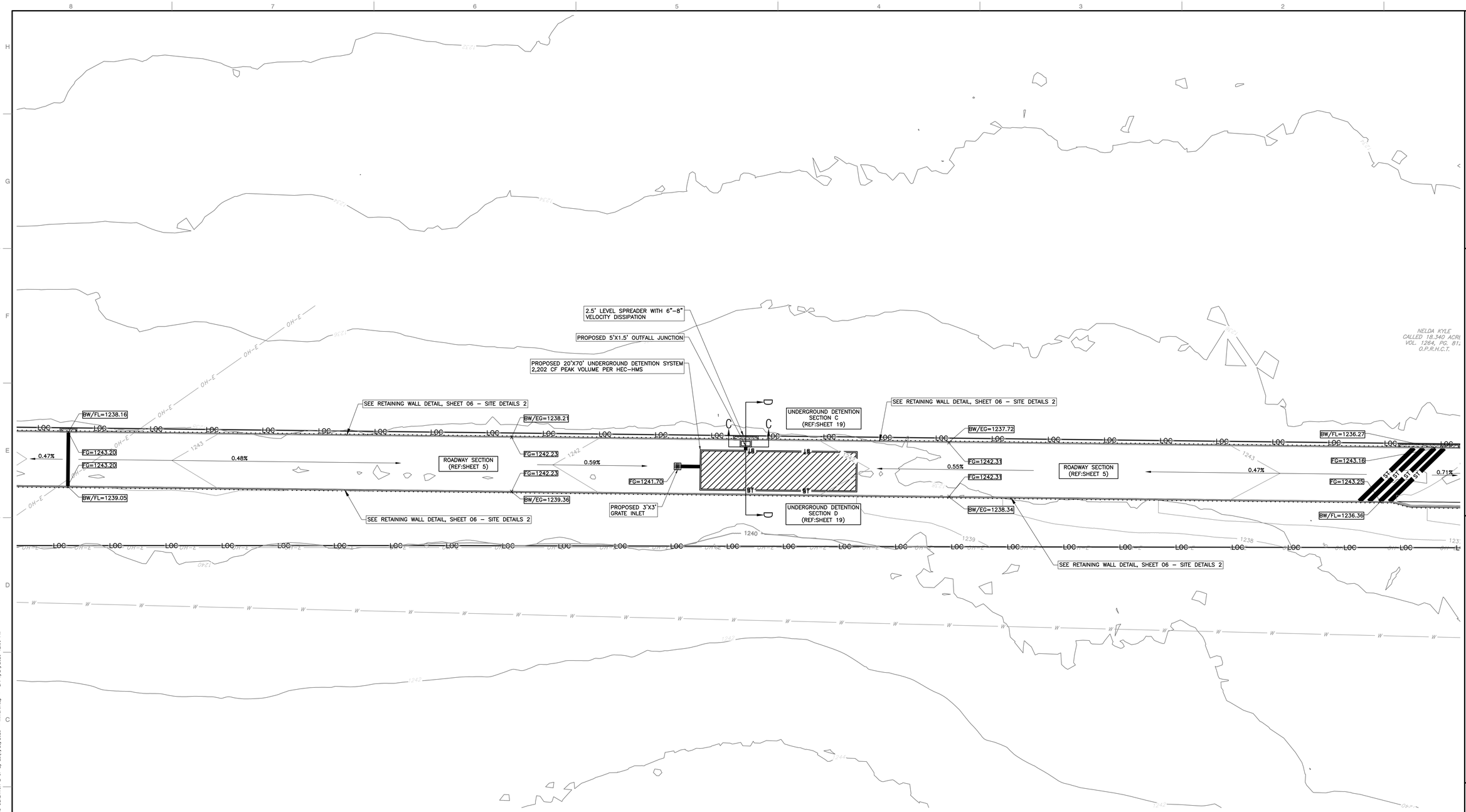
DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: **17**

SHEET 17 OF 48

SD-2022-0025

P:\324-199\324-199-CAD\Dwg\CIVIL\324199-C01-C200-UNDERGROUND DET.dwg||UNDERGROUND DETENTION 1 OF 2|| LS(7/23/2025 - mmartinez) - LP: 7/24/2025 12:35 PM



LINETYPE LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
		RIGHT-OF-WAY	G	G	GAS LINE
		LOT BOUNDARY	OU	OU	OVERHEAD UTILITY
		EASEMENT	UG	UG	UNDERGROUND UTILITY
X	X	FENCE: BARBED	SAN	SAN	SANITARY SEWER LINE
//	//	FENCE: WOOD (PICKET)	W	W	WATER LINE
□	□	FENCE: WOOD (PRIVACY)	F	F	FIRE LINE
○	○	FENCE: CHAIN LINK			ROAD CENTERLINE
I	I	FENCE: IRON			CURB & GUTTER
385	385	MAJOR CONTOUR			STRIPING
		MINOR CONTOUR	FIRE	FIRE	FIRE LANE STRIPING
E	E	ELECTRIC LINE			H.C. ACCESSIBLE ROUTE
OE	OE	OVERHEAD ELECTRIC WIRE	LOC	LOC	LIMITS OF CONSTRUCTION
UE	UE	UNDERGROUND ELECTRIC LINE			RAIL ROAD
T	T	TELEPHONE			FLOODWAY
C	C	COMMUNICATIONS LINE			CWQZ
TV	TV	CABLE TELEVISION	ST	ST	STORM SEWER
FO	FO	FIBER OPTIC LINE			DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	•	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
]	]	PIPE CAP			SAFETY END TREATMENT
›	›	PIPE FLOW			DRAINAGE FLOW
◄	◁	REDUCER	E	E	ELEC. M.H.
Ⓐ	Ⓐ	AIR RELEASE VALVE			ELEC./TELE. POLE
Ⓑ	Ⓑ	BLOW-OFF VALVE			GUY WIRE
Ⓘ	Ⓘ	POST INDICATOR VALVE			LIGHT FIXTURE
Ⓥ	Ⓥ	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
Ⓥ	Ⓥ	UTILITY VALVE			PEDESTRIAN SIGNAL
Ⓜ	Ⓜ	UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 20 40

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

811

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Texas Registered Engineering Firm F-88
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

UNDERGROUND DETENTION 2 OF 2

DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO.	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 18

SHEET 18 OF 48

SD-2022-0025

P:\320-000\324-199\--CAD\Dwg\CIVIL\324199-CIV01-C205-UNDERGROUND DET.dwg|UNDERGROUND DETENTION 2 OF 2| LS(7/23/2025 - mmartinez) - LP: 7/24/2025 12:35 PM

UNDERGROUND DETENTION 1 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software				
Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	2.1	2.4	1.9	1238.5
10-yr	4.0	4.4	3.4	1238.9
25-yr	5.4	5.9	4.8	1239.2
100-yr	8.4	9.0	7.9	1239.6

HARDY DRIVEWAY Detention Pond Stage Values - UNDERGROUND DETENTION 1					
Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1238.00	2000	0.045914	0 cf	0 cf	0.0000
1238.50	2000	0.045914	1,000	1,000	0.0230
1239.00	2000	0.045914	1,000	2,000	0.0459
1239.50	2000	0.045914	1,000	3,000	0.0689

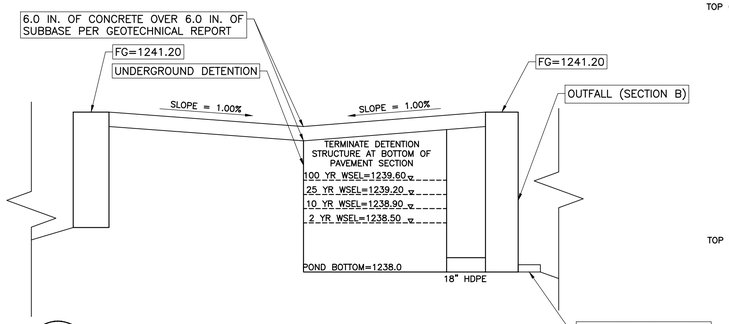
UNDERGROUND DETENTION 1 Outflow Velocity (Weir) [v=Q/A]			
Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	1.9	0.15	12.67
10-yr	3.4	0.2	22.67
25-yr	4.8	0.3	16.00
100-yr	7.9	0.9	8.78

UNDERGROUND DETENTION 1 Outflow Velocity (Orifice) [v=C_d(2gH)^(1/2)]			
Storm Event	Discharge	Head (ft) [H]	Orifice Velocity (fps)
2-yr	0.6	0.1	1.7
10-yr	0.6	0.5	3.5
25-yr	0.6	0.8	4.4
100-yr	0.6	1.2	5.3

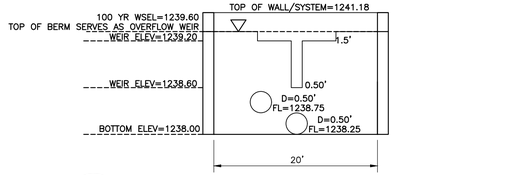
UNDERGROUND DETENTION 2 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software				
Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	1.7	2.0	1.7	1239.3
10-yr	3.3	3.7	3.3	1239.7
25-yr	4.5	4.9	4.4	1240.0
100-yr	6.9	7.4	6.8	1240.5

HARDY DRIVEWAY Detention Pond Stage Values - UNDERGROUND DETENTION 2					
Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1238.50	1000	0.022957	0 cf	0 cf	0.0000
1239.00	1000	0.022957	500	500	0.0115
1239.50	1000	0.022957	500	1,000	0.0230
1240.00	1000	0.022957	500	1,500	0.0344

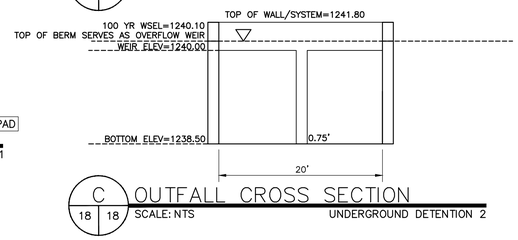
UNDERGROUND DETENTION 2 Outflow Velocity (Weir) [v=Q/A]			
Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	1.7	0.6	2.83
10-yr	3.3	0.9	3.67
25-yr	4.4	1.1	3.91
100-yr	6.8	1.5	4.53



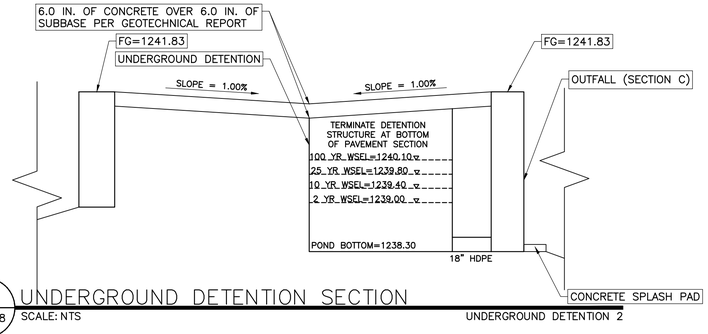
A UNDERGROUND DETENTION SECTION
17 | 17 SCALE: NTS
UNDERGROUND DETENTION 1



B OUTFALL CROSS SECTION
17 | 17 SCALE: NTS
UNDERGROUND DETENTION 1



C OUTFALL CROSS SECTION
18 | 18 SCALE: NTS
UNDERGROUND DETENTION 2



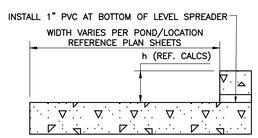
D UNDERGROUND DETENTION SECTION
18 | 18 SCALE: NTS
UNDERGROUND DETENTION 2

Time of Concentration (TR-55 method) - Proposed Site Conditions													
Subbasin		BYP-1	PR-1	BYP-2	PR-2	BYP-3	PR-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION	UNDERGROUND DETENTION 2
Area	sf	502660	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.00077221	0.01670541	0.00034375	0.0517223	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0.0%	57%	0%	50%	0.0%	48%	0%	0%	0%	0%	0%	46%	53%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	90	80	89	80	89	80	80	80	80	80	88	90
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0050	0.0050
Length	ft	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.03	0.05
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.10	0.09
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.14	0.13
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	8.14	7.51
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	4.88	4.51
Proposed Run-off Values														
2 Year	cfs	15.00	1.60	13.90	0.60	43.00	4.60	8.50	26.90	18.00	11.80	16.30	1.90	1.1
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.40	15.20	48.20	32.20	21.20	29.10	3.40	2.6
25 Year	cfs	38.30	3.80	35.50	1.60	109.90	11.20	21.70	68.90	46.00	30.30	41.60	4.80	3.4
100 Year	cfs	63.30	5.70	58.60	2.40	181.60	17.10	35.80	113.90	76.00	50.00	68.80	7.90	5.3

Underground Detention 1 Outflow Velocity (Level Spreader) [v=Q/A]					
Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	1.9	6.0	0.25	1.5	1.3
10-yr	3.4	6.0	0.25	1.5	2.3
25-yr	4.8	6.0	0.25	1.5	3.2
100-yr	7.9	6.0	0.25	1.5	5.3

SPLITTER BOX WEIR LENGTH CALC.

weir equation: $q = 3.33\ (b - 0.2\ h)\ h^{3/2}$	
Q (100-yr storm) =	58.20 cfs
max Q over weir	58.75 cfs
b = length of weir	50.00 ft.
h = head abv. Weir	0.50 ft.



TYPICAL LEVEL SPREADER DETAIL

Time of Concentration (TR-55 method) - Existing Site Conditions													
Subbasin		BYP-1	EX-1	BYP-2	EX-2	BYP-3	EX-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION	UNDERGROUND DETENTION 2
Area	sf	502660	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.00077221	0.0167054	0.00034375	0.0517223	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0%	35%	0%	31%	0%	30%	0%	0%	0%	0%	0%	28%	32%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	86	80	86	80	85	80	80	80	80	80	85	86
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0030	0.0030
Length	ft	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.04	0.04
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0030	0.0030
Length	ft	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.13	0.12
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.17	0.16
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	10.38	9.58
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	6.23	5.75
Existing Run-off Values														
2 Year	cfs	15.00	1.40	13.90	0.60	43.00	4.10	8.50	9.00	18.00	11.80	16.30	1.70	1.70
10 Year	cfs	26.80	2.70	24.80	1.20	76.90	7.90	15.20	16.00	32.20	21.20	29.10	3.30	3.30
25 Year	cfs	38.30	3.60	35.50	1.60	109.90	10.70	21.70	22.90	46.00	30.30	41.60	4.80	4.40
100 Year	cfs	63.30	5.60	58.60	2.50	181.60	16.70	35.80	37.90	76.00	50.00	68.80	6.80	6.80

Underground Detention 2 Outflow Velocity (Level Spreader) [v=Q/A]					
Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	1.7	2.5	0.50	1.25	1.4
10-yr	3.3	2.5	0.50	1.25	2.6
25-yr	4.4	2.5	0.50	1.25	3.5
100-yr	6.8	2.5	0.50	1.25	5.4

SPLITTER BOX WEIR LENGTH CALC.

weir equation: $q = 3.33\ (b - 0.2\ h)\ h^{3/2}$	
Q (100-yr storm) =	82.90 cfs
max Q over weir	86.06 cfs
b = length of weir	12.00 ft.
h = head abv. Weir	1.70 ft.

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

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REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-58
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

UNDERGROUND DETENTION CALCS

DRAWN BY:	MBM	DATE:	07/24/2025
CHECKED BY:	CB	DWG SCALE:	NTS
PROJECT NO:	324-199	APPROVED BY:	MAT

DRAWING NO.: 19
SHEET 19 OF 48

SD-2022-0025

P:\320-0001\324-1991-0400\Dwg\CIVIL\324199-CIV01-C200-UNDERGROUND DET.dwg[UNDERGROUND DETENTION CALCS] LS(7/23/2025 - mmorrow) - LP: 7/24/2025 12:55 PM

ATTACHMENT I
Inspection and Maintenance for Temporary BMPs

Each contractor will designate a qualified person or persons to perform the following inspections:

- Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
- Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
- Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- Locations where vehicles enter or exit the site will be inspected for evidence of off-site sediment tracking.

The inspection will be conducted by the responsible person at least once every 14 days and within 24 hours after a storm of 0.5 inches or greater.

After a portion of the site is finally stabilized, inspection will be conducted at least once every month.

Temporary Construction Entrance/Exit

Inspection and Maintenance Guidelines:

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

Silt Fence

Inspection and Maintenance Guidelines:

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

Inlet Protection

Inspection and Maintenance Guidelines:

1. Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
2. Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
3. Check placement of device to prevent gaps between device and burb.
4. Inspect filter fabric and patch or replace if torn of missing.
5. Structures should be removed, and the area stabilized only after the remaining drainage area has been properly stabilized.

Hydraulic Mulching

Inspection and Maintenance Guidelines:

1. Mulched areas should be inspected weekly and after each rain event to locate and repair any damage.
2. Areas damaged by storms or normal construction activities should be regarded and hydraulic mulch reapplied as soon as practical.

ATTACHMENT J

Schedule of Interim and Permanent Soil Stabilization Practices

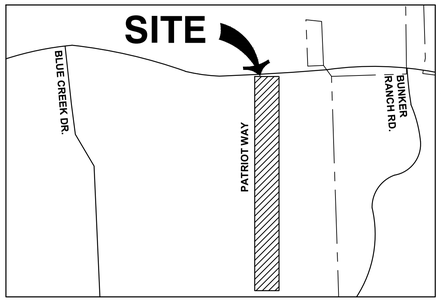
The maximum length of time between clearing and final revegetation shall not exceed 18 months, unless extended by the jurisdictional review authority. The contractor shall hydro mulch or sod between all exposed cuts and fills upon completion of construction except where cuts are made in solid rock. Seeding shall be applied at a the rate specified in the plans. Seeding shall be watered until uniform growth is established and the watering shall be applied in a manner that will not cause erosion of the topsoil. Watering shall be applied at least every 10 days during the first two months. Rainfall occurrences of ½ inch or greater shall postpone the water schedule for one week.

Note: Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

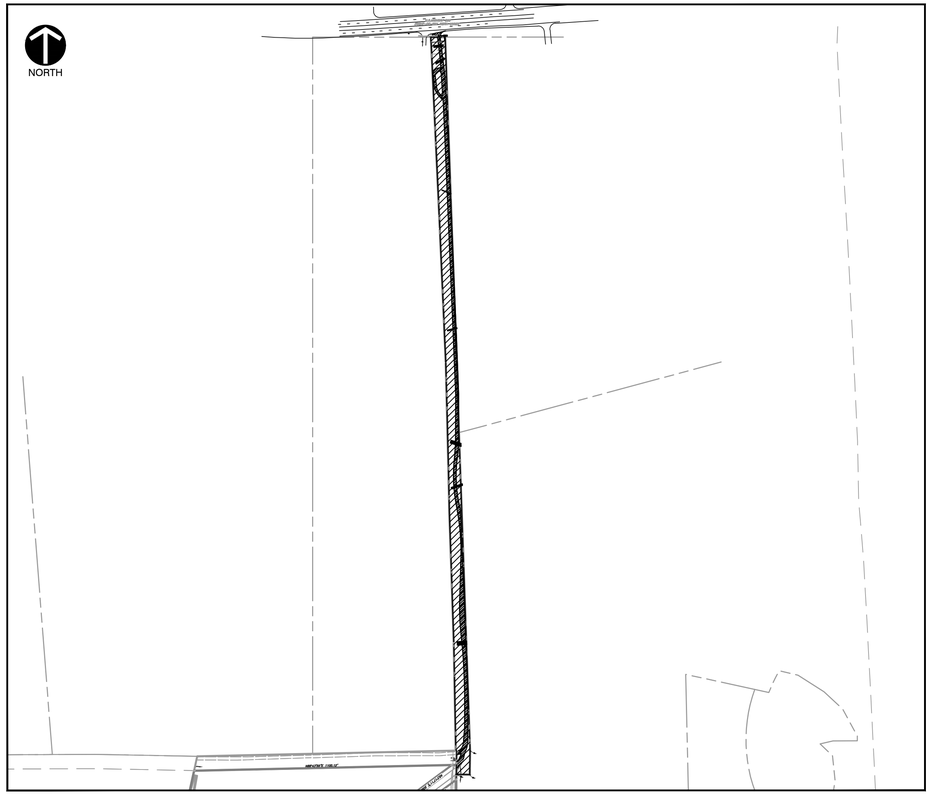
HARDY T LAND, LLC
HARDY DRIVEWAY

CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX
SITE DEVELOPMENT PLANS

SUBMITTAL DATE: 8/10/2022



VICINITY MAP
SCALE: 1"=1000'



SITE MAP
SCALE: 1"=300'

OWNER/TEAM INFORMATION

CIVIL ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
3711 S. MOPAC EXPRESSWAY, BUILDING 1, SUITE 550
AUSTIN, TX 78746
PH: 512-439-0400
CONTACT: MICHAEL THEONE, PE

OWNER / DEVELOPER

HARDY T LAND, LLC
317 GRACE LANE #240
AUSTIN, TEXAS 78746

LAND SURVEYOR

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
3711 S. MOPAC EXPRESSWAY, BUILDING 1, SUITE 550
AUSTIN, TX 78746
PH: 512-439-0400
CONTACT: SYDNEY XINOS, RPLS

IMPERVIOUS COVER

IMPERVIOUS COVER TOTAL: 1.74 AC
TOTAL AREA: 3.706 AC

IMPERVIOUS COVER: 46.8%

NOTES

ALL RESPONSIBILITY FOR ACCURACY OF THESE PLANS REMAIN WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF DRIPPING SPRINGS MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

THIS SITE LIES WITHIN THE EDWARDS AQUIFER CONTRIBUTING ZONE.

CZP EAPP ID NO. 11003502, REGULATED ENTITY NO. RN111601258

NO PORTION OF THIS SITE LIES WITHIN A FEMA FLOODPLAIN AS DEPICTED IN FEMA FIRM PANEL 48209C0085F, DATED 9/2/2005.

A WATER QUALITY BMP MAINTENANCE PLAN HAS BEEN PREPARED FOR THIS DEVELOPMENT AND IS ON FILE AT CITY HALL IN SITE DEVELOPMENT CASE# SD2022-0025.

THE OWNER OF THE PROPERTY - HARDY T LAND, LLC - IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER UTILITIES WITHIN THIS DEVELOPMENT.

THE EXISTING ROAD BASE IS TO BE UTILIZED IN THE CONSTRUCTION OF THIS ROADWAY PER THE APPROVAL OF THE GEOTECHNICAL ENGINEER.

FLOOD STATEMENT:
NO PORTION OF THE SITE IS LOCATED WITHIN THE 100-YEAR FLOODPLAIN AS DEFINED BY THE FLOOD INSURANCE RATE MAP PANEL NO. 48209C0085F FOR TRAVIS COUNTY, TEXAS, DATED SEPTEMBER 2, 2005.

WATERSHED INFORMATION:
ENTIRETY OF THE SITE LIES WITHIN EDWARDS AQUIFER CONTRIBUTING ZONE. SITE DEVELOPMENT PERMIT WILL REQUIRE A CONTRIBUTING ZONE PLAN (CZP) FROM TCEQ.

LEGAL DESCRIPTION

A0222 BENJAMIN F HANNA SURVEY, ACRES 3.706

ADDRESS

2901 W HWY 290
DRIPPING SPRINGS, TX 78620

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE EXPANSION OF AN EXISTING 16 FOOT WIDE PRIVATE DRIVEWAY TO 24 FEET IN WIDTH SPANNING APPROXIMATELY 3,000 LINEAR FEET.

SUBMITTED BY : MICHAEL A. THEONE

8/10/2022

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

REVISIONS							
NO.	DESCRIPTION	REVISE (R) / ADD (A) SHEET NO.	PLAN SET SHEET TOTAL	NET IC CHANGE	SITE IC	% IC	APPROVED / DATE
CORRECTIONS							
NO.	DESCRIPTION	REVISE (R) / ADD (A) SHEET NO.	PLAN SET SHEET TOTAL	NET IC CHANGE	SITE IC	% IC	APPROVED / DATE

CITY OF DRIPPING SPRINGS SITE DEVELOPMENT PERMIT # SD-2022-0025

APPROVED BY:	APPROVED BY:
CITY ADMINISTRATOR	DRIPPING SPRINGS WATER SUPPLY CORPORATION
CITY ENGINEER	HAYS COUNTY ESD #6
PLANNING DIRECTOR	

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

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03	EXISTING CONDITIONS & DEMO PLAN
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REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-38
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

COVER SHEET

DATE:	07/24/2025
DWG SCALE:	AS SHOWN
PROJECT NO.	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 01

SHEET 01 OF 48

P:\300-599\324-199\-CAD\Dwg\COR\324199-CVR1-COVER SHEET.dwg[COVER SHEET] LS(7/23/2025 - mmorrow) - LP: 7/24/2025 12:32 PM

GENERAL CONSTRUCTION NOTES:

1. SAW CUT AND MATCH ALL EXISTING PAVEMENT.
2. NO STREET LIGHTS OR SIGNS OF ANY KIND ARE TO BE PLACED WITHIN ANY SIDEWALKS.
3. NO BLASTING IS ALLOWED.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DRIPPING SPRINGS STANDARD SPECIFICATIONS.
5. ANY EXISTING UTILITIES, PAVEMENT, SIDEWALKS, STRUCTURES, TREES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
6. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.
7. MANHOLE FRAMES, COVERS, VALVES, CLEAN-OUTS, ETC. SHALL BE RAISED TO GRADE PRIOR TO FINAL PAVEMENT CONSTRUCTION.
8. THE CONTRACTOR SHALL GIVE THE CITY OF DRIPPING SPRINGS 48 HOURS NOTICE BEFORE BEGINNING CONSTRUCTION.
9. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH CITY SPECIFICATION AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION UNLESS OTHERWISE REQUESTED BY THE PROPERTY OWNER.
10. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF DRIPPING SPRINGS, HIMSELF, THE ENGINEER, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR THE ENGINEER MAY REQUIRE.
11. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF DRIPPING SPRINGS AN ACCURATE "RECORD" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION.
12. THE CITY OF DRIPPING SPRINGS SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
13. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. PRIOR TO ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER.
14. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
15. DENSITY TESTING FOR TRENCH BACKFILL IS TO BE DONE IN 12" LIFTS AT ONE TEST PER 500' OR EACH LINE SEGMENT.
16. A STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXITING THE PROJECT ONTO EXISTING PAVEMENT.
17. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE STATE LAW (VERNON'S ANNOTATED TEXAS STATUTES, ARTICLE 1436(C)) AND THE NEED FOR EFFECTIVE PRECAUTIONARY MEASURES WHEN OPERATING EQUIPMENT IN THE VICINITY OF ELECTRICAL LINES. IF THE CONTRACTOR CHOOSES TO USE EQUIPMENT WITH THE POTENTIAL OF COMING WITHIN THE DISTANCE PRESCRIBED BY STATUTE, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE WORK WITH THE APPROPRIATE ELECTRIC UTILITY COMPANY.
18. CONTRACTOR SHALL NOTIFY CITY OF DRIPPING SPRINGS AT LEAST 48 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET ROW. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S ROW MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.
19. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT, INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, ETC. SHALL BE A MINIMUM OF 36" BELOW SUBGRADE.
20. DEPTH OF COVER FOR WASTEWATER AND WATER LINES SHALL BE 36" UNDER NATURAL GROUND AND 42" UNDER PAVED AREAS.
21. EXTERIOR LIGHTING SHALL BE SHIELDED SUCH THAT THE LIGHT SOURCE IS NOT DIRECTLY VISIBLE FROM THE PUBLIC ROW OR ADJACENT RESIDENTIAL DISTRICTS OR USES AT THE PROPERTY LINE. UNSHIELDED "WALL" PACK LIGHTING IS NOT PROPOSED.
22. ALL SITE UTILITY LINES ARE PROPOSED TO BE LOCATED UNDERGROUND.
23. THE DEVELOPER AND SUBSEQUENT OWNERS OF THE LANDSCAPED PROPERTY, OR THE MANAGERS OR AGENT OF THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPED AREAS. SAID AREAS SHALL BE MAINTAINED SO AS TO PRESENT A HEALTHY, NEAT AND ORDERLY APPEARANCE AT ALL TIMES AND SHALL BE KEPT FREE OF REFUSE AND DEBRIS. ALL PLANTED AREAS SHALL BE PROVIDED WITH AN AUTOMATIC IRRIGATION SYSTEM AND WATERED AS NECESSARY TO ENSURE CONTINUOUS HEALTHY GROWTH AND DEVELOPMENT. MAINTENANCE SHALL INCLUDE THE REPLACEMENT OF ALL DEAD PLANT MATERIAL IF THAT MATERIAL WAS USED TO MEET THE REQUIREMENTS OF THE LANDSCAPE ORDINANCE.
24. ALL EASEMENTS OF RECORD AS INDICATED ON THE MOST RECENT TITLE RUN FOR THIS PROPERTY ARE SHOWN ON THIS SITE PLAN.

FIRE NOTES:

1. FIRE APPARATUS ACCESS ROADS FOR TWO WAY TRAFFIC SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 24 FEET (6096 MM), EXCLUSIVE OF SHOULDERS, EXCEPT FOR APPROVED SECURITY GATES , AND AN UNOBSTRUCTED VERTICAL CLEARANCE OF NOT LESS THAN 13 FEET 6 INCHES (4115 MM).
2. THE FIRE CODE OFFICIAL SHALL HAVE THE AUTHORITY TO REQUIRE AN INCREASE IN THE MINIMUM ACCESS WIDTHS WHERE THEY ARE INADEQUATE FOR FIRE OR RESCUE OPERATIONS.
3. FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF 80,000 LBS.
4. THE GRADE OF THE FIRE APPARATUS ACCESS ROAD SHALL BE WITHIN THE LIMITS ESTABLISHED BY THE FIRE CODE OFFICIAL BASED ON THE FIRE DEPARTMENT'S APPARATUS. NO GREATER THAN 8%.
5. THE ANGLES OF APPROACH AND DEPARTURE FOR FIRE APPARATUS ACCESS ROADS SHALL BE WITHIN THE LIMITS ESTABLISHED BY THE FIRE CODE OFFICIAL BASED ON THE FIRE DEPARTMENT'S APPARATUS.
6. WHERE REQUIRED BY THE FIRE CODE OFFICIAL, APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING—FIRE LANE SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS TO IDENTIFY SUCH ROADS OR PROHIBIT THE OBSTRUCTION THEREOF. THE MEANS BY WHICH FIRE LANES ARE DESIGNATED SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION AT ALL TIMES AND BE REPLACED OR REPAIRED WHEN NECESSARY TO PROVIDE ADEQUATE VISIBILITY.
7. SIGNS SHALL READ " FIRE LANE TOW AWAY ZONE " OR "FIRE ZONE TOW AWAY ZONE " AND SHALL BE 12" WIDE AND 18" HIGH. SIGNS SHALL BE PAINTED ON A WHITE BACKGROUND WITH LETTERS AND BORDERS IN RED, USING NOT LESS THAN 2" WIDE LETTERING. SIGNS SHALL BE PERMANENTLY AFFIXED TO A STATIONARY POST AND THE BOTTOM OF THE SIGN SHALL BE SIX FEET, SIX INCHES (6'6") ABOVE FINISHED GRADE. SIGNS SHALL BE SPACED NOT MORE THAN THIRTY-FIVE FEET (35') APART. SIGNS MAY BE INSTALLED ON PERMANENT BUILDINGS OR WALLS OR AS APPROVED BY THE FIRE CODE OFFICIAL.
8. FIRE APPARATUS ACCESS ROADS 20 TO 26 FEET WIDE (6096 TO 7925 MM) SHALL BE POSTED ON BOTH SIDES AS A FIRE LANE.
9. FIRE APPARATUS ACCESS ROADS SHALL NOT BE OBSTRUCTED IN ANY MANNER, INCLUDING THE PARKING OF VEHICLES.
10. FIRE APPARATUS ACCESS ROADS SHALL BE CONTINUOUSLY MARKED BY PAINTED LINES OF RED TRAFFIC PAINT SIX INCHES (6") IN WIDTH TO SHOW THE BOUNDARIES OF THE LANE. THE WORDS "FIRE LANE TOW AWAY ZONE" OR "FIRE ZONE TOW AWAY ZONE" SHALL APPEAR IN FOUR INCH (4") WHITE LETTERS AT 25 FEET INTERVALS OR LESS, ON THE RED BORDER MARKINGS ALONG BOTH SIDES OF THE FIRE LANES. WHERE A CURB IS AVAILABLE, THE STRIPING SHALL BE ON THE VERTICAL FACE OF THE CURB.

STREET AND DRAINAGE NOTES:

1. ALL TESTING SHALL BE DONE BY AN INDEPENDENT LABORATORY AT THE OWNERS EXPENSE. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. A CITY INSPECTOR SHALL BE PRESENT DURING ALL TESTS. TESTING SHALL BE COORDINATED WITH THE CITY INSPECTOR AND HE SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY TESTING.
2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
3. STREET RIGHT-OF-WAYS SHALL BE GRADED AT A SLOPE OF ¼" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF THE RIGHT-OF-WAY AT 14" PER FOOT SLOPE SHALL BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATIVE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF DRIPPING SPRINGS ENGINEERING DEPARTMENT.
4. ALL RCP SHALL BE MINIMUM OF CLASS III.

WATER NOTES:

1. ALL WATER VALVE COVERS ARE TO BE PAINTED BLUE.
2. THRUST RESTRAINTS SHALL BE IN ACCORDANCE WITH DSWSC.
3. ALL MECHANICAL RESTRAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
4. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP SHALL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED INTO SERVICE.
5. WATER LINE TESTING AND DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA STANDARD AND TCEQ.
6. ALL WATER MAINS, DISTRIBUTION LINES AND SERVICE LINES SHALL BE INSTALLED IN ENCASEMENT PIPE UNDERNEATH EXISTING STREETS AND OTHER PAVED SURFACES.
7. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900 MIN. CLASS 150) OR DUCTILE IRON (AWWA C-100 MIN. CLASS 150). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200 PSI, SDR-9).
8. ALL FIRE HYDRANTS SHALL BE DUCTILE IRON PIPE (AWWA C-100 MIN. CLASS 150).
9. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE.
10. THE CONTRACTOR SHALL CONTACT THE RETAIL WATER SUPPLY COMPANY AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING WATER LINES.
11. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIME BY ALL WHO USE WATER.
12. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM DISINFECTION OF ALL POTABLE WATER LIENS CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THIS STERILIZATION PROCEDURE.
13. THE TOP OF VALVE STEMS SHALL BE AT LEAST 18" AND NO MORE THAN 36" BELOW FINISHED GRADE. VALVE STEM RISERS SHALL BE WELDED ON EACH END TO THE CITY'S SATISFACTION.
14. FIRE HYDRANT LEADS TO BE DUCTILE IRON, CLASS 350 AND INSTALLED PER SPECIFICATIONS AND DETAIL.
15. PRIOR TO INSTALLATION OF FIRE HYDRANTS, THE ENGINEER WILL PROVIDE THE CONTRACTOR ONE (1) CUT FROM A HUB PIN, ESTABLISHING THE ELEVATION OF THE LINE.
16. BLUE REFLECTOR MARKERS SHALL BE LOCATED ON THE CENTERLINE OF THE PAVEMENT ACROSS FROM ALL FIRE HYDRANTS. PAVEMENT MARKERS AT INTERSECTIONS SHALL BE FOUR-SIDED.
17. DENSITY TESTING OF COMPACTED BACKFILL SHALL BE MADE AT A RATE OF ONE TEST PER TWO FOOT LIFTS PER 500 FEET OF INSTALLED PIPE.
18. THE LOCATION OF ANY EXISTING UTILITY LINES SHOWN ON THESE PLANS IS THE BEST AVAILABLE AND MAY NOT BE TOTALLY ACCURATE. ANY DAMAGE TO EXISTING UTILITY LINES, BOTH KNOWN AND UNKNOWN, SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
19. ALL WATER MAINS, WASTEWATER MAINS AND SERVICE LINES SHALL MEET RETAIL WATER SUPPLIER SPECIFICATIONS MINIMUM COVER REQUIREMENTS. ALL STREETS ARE TO BE CUT TO SUBGRADE PRIOR TO INSTALLATION OF WATER MAINS OR CUTS WILL BE ISSUED BY THE ENGINEER.
20. RETAIL WATER SUPPLIER TO BE GIVEN 48 HOURS NOTICE PRIOR TO ALL TESTING OF WATER AND WASTEWATER LINES. RETAIL WATER SUPPLIER INSPECTION IS REQUIRED FOR ALL TESTING OF WATER AND WASTEWATER LINES.
21. CONTRACTOR TO NOTIFY WATER UTILITY 48 HOURS PRIOR TO CONNECTING TO EXISTING UTILITIES.
22. ALL PIPE BEDDING MATERIAL SHALL CONFORM TO STANDARD SPECIFICATIONS.
23. TRACER TAPE SHALL BE INSTALLED ON ALL WATER AND WASTEWATER MAINS IN ACCORDANCE WITH CITY OF AUSTIN STANDARDS.

SEQUENCE OF CONSTRUCTION:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES WHERE REQUIRED.
2. INSTALL ALL TEMPORARY EROSION CONTROLS.
3. ROUGH GRADE PONDS TO 100% CAPACITY. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO CLEARING, EXCAVATION AND EMBANKMENT ACTIVITIES. THE PONDS AND OUTLETS SHALL BE MAINTAINED AND FUNCTIONAL AS TEMPORARY DETENTION AND SEDIMENTATION BASINS THROUGHOUT CONSTRUCTION UNTIL INSTALLATION OF THE PERMANENT PONDS IS COMPLETE.
4. CLEAR AND GRUB STRIP TOPSOIL. STOCKPILE TOPSOIL FOR LATER USE.
5. SITE GRADING.
6. ROUGH CUT ROADWAYS AND DITCHES
7. INSTALL PROPOSED UTILITIES.
8. PAVING IMPROVEMENTS AND BUILDING PAD PREPARATION.
9. FINALIZE DETENTION POND AND LANDSCAPE PLANTING.
10. AFTER THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE REMOVAL OF TEMPORARY EROSION CONTROLS, THE PROJECT ENGINEER MUST INSPECT THE JOB AND WRITE A CONCURRENCE LETTER TO THE CITY. FINAL INSPECTION IS SCHEDULED UPON RECEIPT OF THE LETTER.
11. REVEGETATION.
12. MAINTAIN VEGETATIVE WATERING TO ESTABLISH PERMANENT GRASSES.
13. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS WHEN RESTORATION HAS BEEN ACCEPTED.

SILT FENCE NOTES:

1. STEEL POSTS 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.
2. 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. WHERE FENCE CAN NOT BE TRENCHED (E.G. PAVEMENT) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. 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
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POSTS OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED AT IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. A PRE CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PM AND INSPECTOR TO DISCUSS CONSTRUCTION SEQUENCING, INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF DRIPPING SPRINGS AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.
3. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST OR CITY ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY THE CITY OF DRIPPING SPRINGS. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
4. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN A DEPTH REACHES SIX (6) INCHES.
5. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.
6. ALL WORK MUST STOP IF A VOID IN THE ROCK SUBSTRATE IS DISCOVERED WHICH IS; ONE SQUARE FOOT IN TOTAL AREA; BLOWS AIR FROM WITHIN THE SUBSTRATE AND/OR CONSISTENTLY RECEIVES WATER DURING ANY RAIN EVENT. AT THIS TIME IT IS THE RESPONSIBILITY OF THE PROJECT MANAGER TO IMMEDIATELY CONTACT A CITY OF DRIPPING SPRINGS ENVIRONMENTAL INSPECTOR FOR FURTHER INVESTIGATION.

TEMPORARY VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH COOL SEASON COVER CROPS (WHEAT AT 0.5 POUNDS PER 1000 SF, OATS AT 0.5 POUNDS PER 1000 SF, CEREAL RYE GRAIN AT 0.5 POUNDS PER 1000 SF) WITH A TOTAL RATE OF 1.5 POUNDS PER 1000 SF. COOL SEASON COVER CROPS ARE NOT PERMANENT EROSION CONTROL.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUNDS PER 1000 SF.
   A. FERTILIZER SHALL BE WATER SOLUBLE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF 1/2 POUND PER 1000 SF.
   B. HYDROMULCH SHALL COMPLY WITH TABLE1, BELOW.
   C. TEMPORARY EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.

PERMANENT VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING IS CONSIDERED TO BE TEMPORARY STABILIZATION ONLY. IF COOL SEASON COVER CROPS EXIST WHERE PERMANENT VEGETATIVE STABILIZATION IS DESIRED, THE GRASSES SHALL BE MOWED TO A HEIGHT OF LESS THAN ONE-HALF (1/2) INCH AND THE AREA SHALL BE RE-SEEDED IN ACCORDANCE WITH 2. BELOW.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION. BERMUDA GRASS IS A WARM SEASON GRASS AND IS CONSIDERED PERMANENT EROSION CONTROL.
   A. FERTILIZER SHALL BE A WATER SOLUBLE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF 1/2 POUND PER 1000 SF.
   B. HYDROMULCH
   C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX INCHES. THE IRRIGATION SHALL OCCUR AT DAILY INTERVALS (MINIMUM) DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF ½ INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.
   D. PERMANENT EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1½ INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.

TREE & NATURAL AREA PROTECTION NOTES:

1. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.
2. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO STANDARDS FOR TREE PROTECTION PER THIS SHEET.
3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
4. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIP LINES.
5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE) , FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, 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 6 INCHES CUT OR FILL), OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY ARBORIST;
   C. WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT;
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING, AND FIRES.
6. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;
   B. WHERE PERMEABLE PAVING IS TO BE INSTALLED WITHIN A TREE'S DRIP LINE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZED ROOT DAMAGE);
   C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW 6 TO 10 FEET OF WORK SPACE BETWEEN THE FENCE AND THE BUILDING;
   D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE CITY ARBORIST TO DISCUSS ALTERNATIVES.

SPECIAL NOTE: FOR THE PROTECTION OF NATURAL AREAS, NO EXCEPTIONS TO INSTALLING FENCES AT THE LIMIT OF CONSTRUCTION LINE WILL BE PERMITTED.

7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FT (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
8. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT IMMEDIATELY BACKFILLED WITHIN 3 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
10. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
11. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).
13. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES AVAILABLE ON REQUEST FROM THE CITY ARBORIST).
14. DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS SUBSTANTIAL NON-COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

ACCESSIBILITY NOTES:

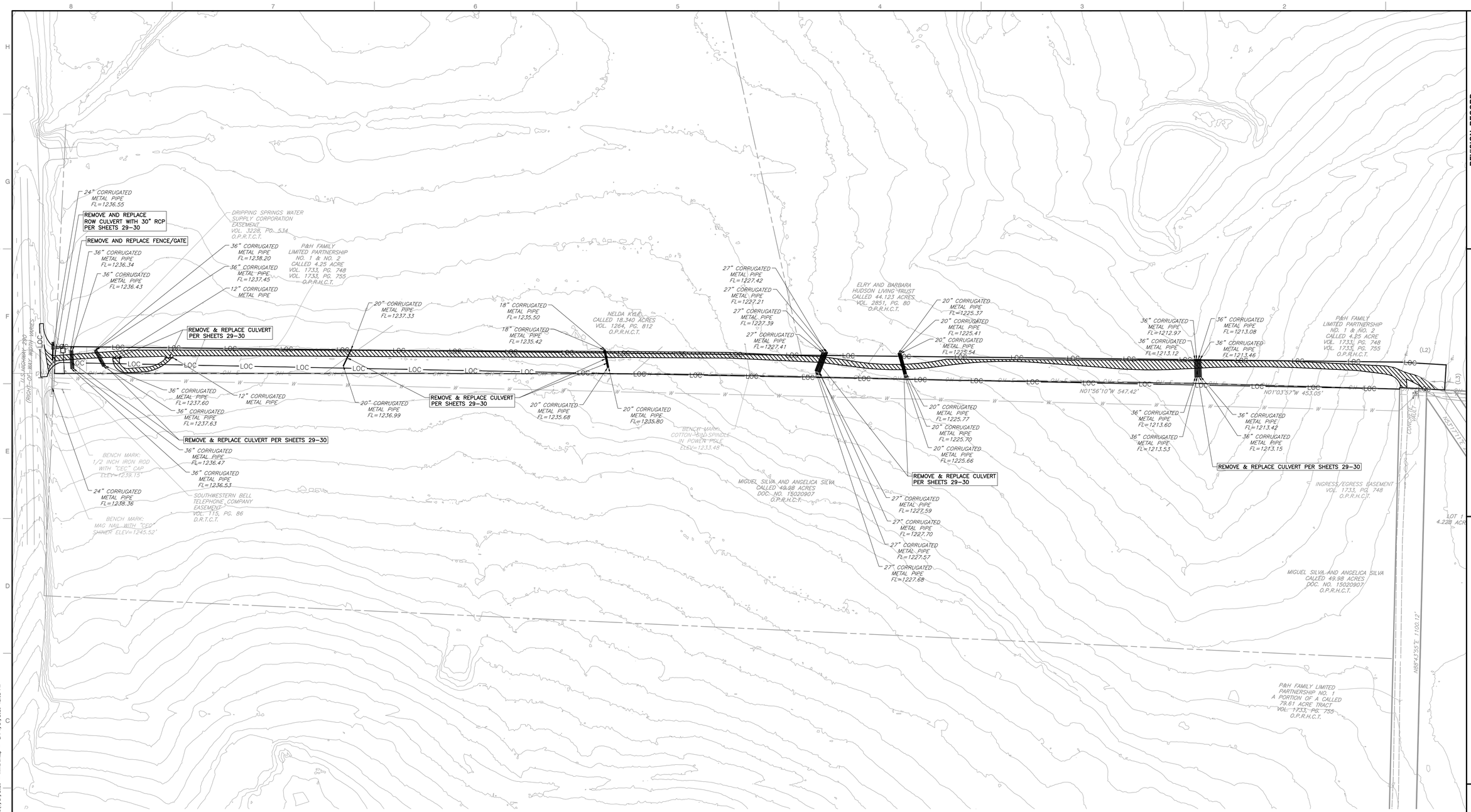
1. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP. [TAS 4.3.7]
2. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30 IN. [TAS 4.8.2]
3. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50. [TAS 4.3.7]
4. GROUND SURFACES ALONG ACCESSIBLE ROUTES MUST BE STABLE, FIRM AND SLIP RESISTANT. [TAS 4.5.1]

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT ARE DESCRIBED IN ITEM 509S "TRENCH SAFETY SYSTEMS" OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN EMPLOYEES ARE REQUIRED TO BE IN TRENCHES 4 FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT SUCH AS LADDER OR STEPS MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES: REVISED FEBRUARY 2019

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2.



LINETYPE LEGEND

EXISTING		EXISTING	
	RIGHT-OF-WAY	G	GAS LINE
	LOT BOUNDARY	OU	OVERHEAD UTILITY
	EASEMENT	UG	UNDERGROUND UTILITY
x x x	FENCE: BARBED	SAN	SANITARY SEWER LINE
	FENCE: WOOD (PICKET)	W	WATER LINE
	FENCE: WOOD (PRIVACY)	F	FIRE LINE
	FENCE: CHAIN LINK		ROAD CENTERLINE
	FENCE: IRON		CURB & GUTTER
385	MAJOR CONTOUR		STRIPING
	MINOR CONTOUR	FIRE	FIRE LANE STRIPING
E	ELECTRIC LINE		H.C. ACCESSIBLE ROUTE
OE	OVERHEAD ELECTRIC WIRE		LIMITS OF CONSTRUCTION
UE	UNDERGROUND ELECTRIC LINE		RAIL ROAD
T	TELEPHONE		FLOODWAY
C	COMMUNICATIONS LINE	CWQZ	CWQZ
TV	CABLE TELEVISION	ST	STORM SEWER
FO	FIBER OPTIC LINE		DRAINAGE CHANNEL

BLOCK LEGEND

EXISTING		EXISTING	
	BENCHMARK		(MONITORING) WELL
	CUT IN CONCRETE		UTILITY RISER
	CONTROL POINT	HB	HOSE BIB
	IRON PIPE	S	SANITARY M.H.
	IRON ROD	CO	CLEANOUT
	IRON ROD W/ CAP	D	DRAINAGE M.H.
	MONUMENT TYPE 1		DOWN SPOUT
	MONUMENT TYPE 2		AREA INLET
	NAIL		CURB INLET
	PIPE BREAK		HEADWALL
	PIPE CAP		SAFETY END TREATMENT
	PIPE FLOW		DRAINAGE FLOW
	REDUCER	E	ELEC. M.H.
	AIR RELEASE VALVE		ELEC./TELE. POLE
	BLOW-OFF VALVE		GUY WIRE
	POST INDICATOR VALVE		LIGHT FIXTURE
	MISCELLANEOUS VALVE		TRAFFIC SIGNAL
	UTILITY VALVE		PEDESTRIAN SIGNAL
	UTILITY METER		UTILITY (PULL)BOX
	BACKFLOW PREVENTER		UTILITY RISER
	FLUSH CONNECTION		UTILITY SERVICE
	FIRE HYDRANT		

NORTH

SCALE IN FEET

0 100 200

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

EXISTING CONDITIONS & DEMO PLAN

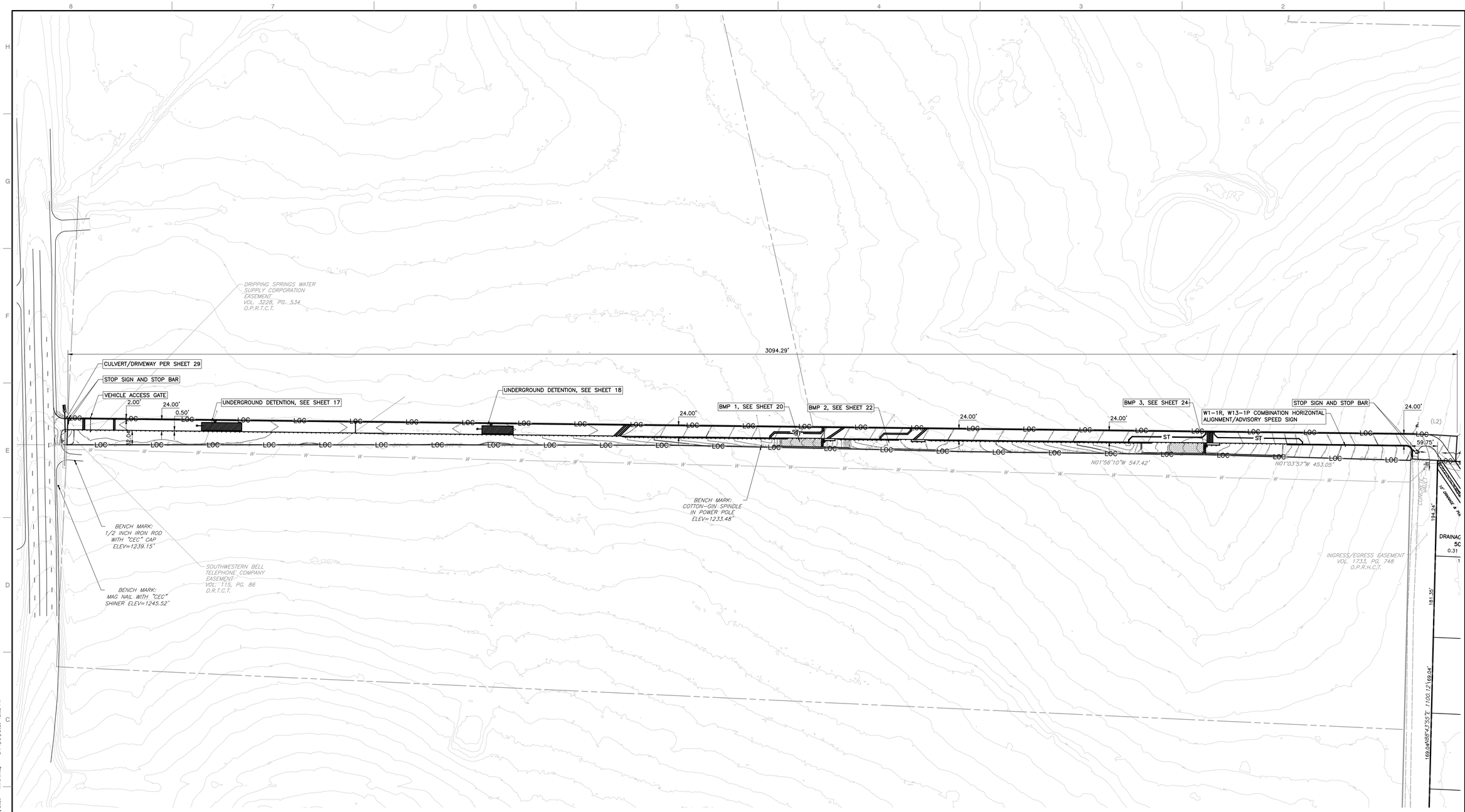
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DRAWN BY:	MBM
DWG SCALE:	1" = 100'
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 03

SHEET 03 OF 48

SD-2022-0025

A:\320-000\324-199\~CAD\Dwg\CIVIL\324199-CV01-C100-EXISTING.dwg[EXISTING CONDITIONS] LS(7/24/2025 - mmartinez) - LP: 7/24/2025 12:32 PM



SITE DATA TABLE	
ZONING	ETJ
LAND USE DESIGNATION	PRIVATE DRIVEWAY
PROPOSED LAND USE	PRIVATE DRIVEWAY
TOTAL SITE AREA (AC)	3.71
EXISTING IMPERVIOUS COVER AREA (AC)	1.14
EXISTING IMPERVIOUS COVER PERCENT	30.7%
PROPOSED ONSITE IMPERVIOUS COVER AREA (AC)	1.74
PROPOSED ONSITE IMPERVIOUS COVER PERCENT	46.8%

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
//	//	FENCE: WOOD (PICKET)
□	□	FENCE: WOOD (PRIVACY)
○	○	FENCE: CHAIN LINK
I	I	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK	●	△	(MONITORING) WELL
	⊗	CUT IN CONCRETE	●	⊙	UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	Ⓢ	Ⓢ	SANITARY M.H.
	●	IRON ROD	Ⓒ	Ⓒ	CLEANOUT
	○	IRON ROD W/ CAP	Ⓓ	Ⓓ	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
	⤹	PIPE BREAK			HEADWALL
	⌋	PIPE CAP			SAFETY END TREATMENT
	›	PIPE FLOW			DRAINAGE FLOW
	◁	REDUCER	Ⓔ	Ⓔ	ELEC. M.H.
	⊛	AIR RELEASE VALVE	Ø	Ø	ELEC./TELE. POLE
	⊛	BLOW-OFF VALVE	←	←	GUY WIRE
	⊛	POST INDICATOR VALVE			LIGHT FIXTURE
	⊗	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
	⊘	UTILITY VALVE			PEDESTRIAN SIGNAL
	Ⓜ	UTILITY METER			UTILITY (PULL)BOX
	⊠	BACKFLOW PREVENTER			UTILITY RISER
	⊹	FLUSH CONNECTION	⊗	⊗	UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 100 200

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811

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REVISION RECORD		
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SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

LAYOUT SHEET

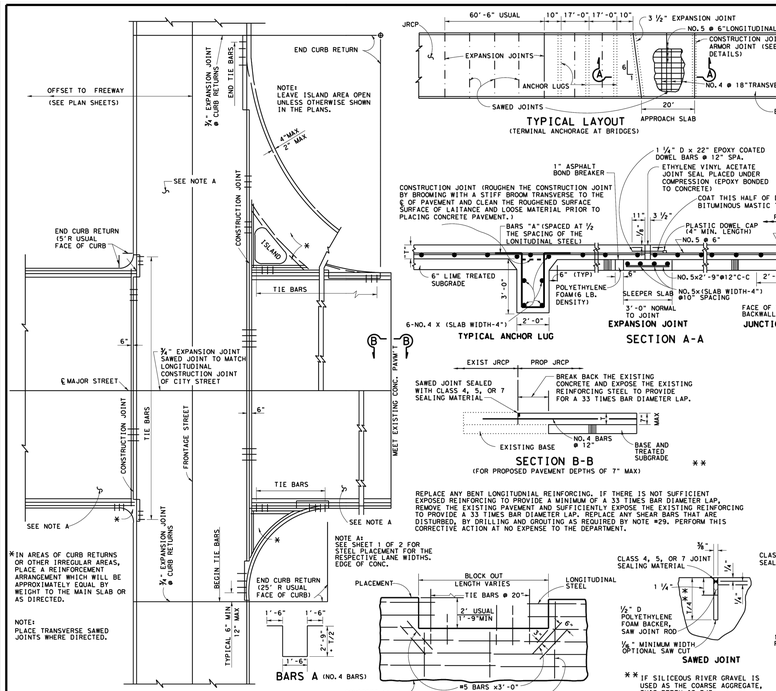
DRAWN BY:	MBM
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT
DATE:	07/24/2025
DWG SCALE:	1" = 100'

DRAWING NO.: 04

SHEET 04 OF 48

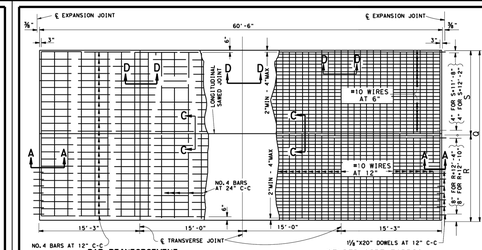
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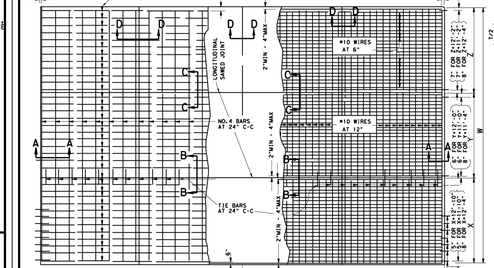


GENERAL NOTES (CONTINUED FROM SHEET 1 OF 2)

21. CONSTRUCT ANCHOR LUGS, EXPANSION JOINTS, AND SLEEPER SLABS AS DETAILED IN SECTION A-A. THESE WILL BE PAID FOR IN ACCORDANCE WITH ITEM, "CONCRETE PAVEMENT TERMINALS."
22. REINFORCING STEEL FOR TERMINAL ANCHOR SYSTEMS MAY BE GRADE 40 OR GRADE 60.
23. PLACE CONCRETE FOR ANCHOR LUGS AS SOON AS POSSIBLE AFTER COMPLETING EXCAVATION, TO PRESERVE THE INHERENT SOIL CHARACTERISTICS. EXCAVATING FOR AND PLACING CONCRETE FOR ANCHOR SYSTEMS MAY BE IN PREFORMED SECTIONS CORRESPONDING TO THE WIDTH OF PAVING PLACEMENT.
24. APPLY A STEEL TROWEL FINISH TO SLEEPER SLABS AND AND COAT WITH AN ASPHALT BOND BREAKER.
25. THE DETAILS FOR ANCHORS, LUGS, EXPANSION JOINTS, AND SLEEPER SLABS ARE NOT APPLICABLE UNLESS SHOWN ELSEWHERE IN THE PLANS.
26. APPROACH SLAB WILL BE PAID FOR IN ACCORDANCE WITH THE ITEM "CONCRETE PAVEMENT TERMINALS."
27. WITHIN 5 MINUTES OF SAWING, COMPLETELY REMOVE THE RESULTING SLURRY FROM THE JOINT BY FLUSHING WITH HIGH PRESSURE WATER, THEN ALLOW THE JOINT TO DRY FOR A MINIMUM OF 48 HOURS BEFORE SANDBLASTING THE JOINT.
28. DO NOT SHEAR CUT DOWEL BARS.
29. SIZE ADDITIONAL SHEAR BARS AS LONGITUDIAL BARS AND SPACE THEM MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE LEAVE-OUT.
30. IF THE CONCRETE DESIGN REQUIRES GREATER THAN 5.5 SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD, WRITTEN APPROVAL BY THE AREA ENGINEER WILL BE REQUIRED. ENSURE CONCRETE PAVEMENT MIXES PLACED FROM APRIL 1 TO OCTOBER 31 CONTAIN A MINIMUM OF 25 PERCENT BY WEIGHT OF CLASS "F" FLY ASH.
31. IN LOCATIONS WHERE THE PLANS CALL FOR FAST TRACK CONCRETE PAVEMENT IN LIEU OF JRCP (LAID ON COMPACTED OR STABILIZED SUBGRADE), USE DETAILS IN THIS STANDARD IN CONJUNCTION WITH THE APPROPRIATE FAST TRACK CONCRETE SPECIFICATIONS. IF THE JRCP IS LAID UPON A BASE STRUCTURE, ADD 3" TO THE FAST TRACK PAVEMENT THICKNESS TO COMPENSATE FOR THE BASE.

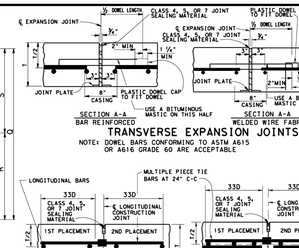


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S	11'-8"	12'-2"	12'-2"

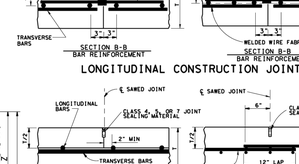


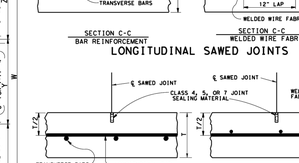
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Z	12'-2"	12'-4"	11'-2"

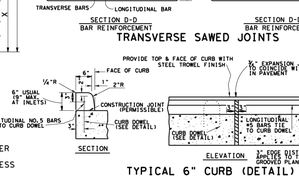
D = DIAMETER
R = RADIUS
T = THICKNESS

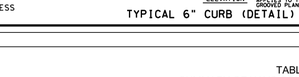


NOTE: DOWEL BARS CONFORMING TO ASTM A615 OR A616 GRADE 60 ARE ACCEPTABLE









GENERAL NOTES

1. MULTIPLE PIECE TIE BARS ARE REQUIRED AT LONGITUDINAL CONSTRUCTION JOINTS. USE MULTIPLE PIECE TIE BAR ASSEMBLIES WITH STOP TYPE COUPLINGS AND WITH THREADS ON THE BARS. ENSURE THE MULTIPLE PIECE TIE BAR ASSEMBLIES DEVELOP A MINIMUM ULTIMATE TENSILE STRENGTH EQUAL TO 1.25 TIMES THE YIELD STRENGTH OF THE TRANSVERSE BARS BEING JOINED. USE DEFORMED REINFORCING BARS FOR TIE BARS. TIE BAR ASSEMBLIES MADE FROM STEELS OTHER THAN ASTM GRADE 60 AND WITH DEFORMATIONS OTHER THAN ASTM STANDARD MAY BE USED IF IT CAN BE PROVEN TO THE ENGINEER THAT THEY ARE IN EVERY RESPECT THE EQUAL OF THE ASSEMBLIES SPECIFIED. LABORATORY TESTING OF THE PROPOSED ASSEMBLIES, AT THE CONTRACTOR'S EXPENSE, MAY BE REQUIRED.
2. FORM CONSTRUCTION JOINTS WITH METAL OR WOOD FORMS EQUAL IN DEPTH TO THE NOMINAL DEPTH OF THE PAVEMENT OR BY OTHER MEANS APPROVED PRIOR TO THEIR USE.
3. SAW LONGITUDINAL AND TRANSVERSE JOINTS AS SOON AS SAWING CAN BE ACCOMPLISHED WITHOUT DAMAGE TO THE PAVEMENT AND BEFORE 24 HOURS AFTER PLACING THE CONCRETE, THE EXACT TIME WILL BE APPROVED BY THE ENGINEER. PREFORMED JOINT WITH ASPHALT STRIP IS NOT ACCEPTABLE.
4. LONGITUDINAL JOINTS ARE SHOWN OFFSET FOUR INCHES FROM THE THEORETICAL LANE LINE AND MAY BE OFFSET TO EITHER SIDE IF THE WIDTH OF THE WIRE FABRIC IS PROPERLY ADJUSTED.
5. ONE OF THE LONGITUDINAL JOINTS OF PAVEMENT SLABS WIDER THAN TWO LANES MAY BE A CONSTRUCTION JOINT. FOR PAVEMENT SLABS WIDER THAN 15 FT, PROVIDE A LONGITUDINAL SAWED JOINT UNLESS OTHERWISE DIRECTED.
6. FORM THE JOINT SEAL SPACE AT TRANSVERSE EXPANSION JOINTS BY USING A STRAIGHT FORM PLACED BEHIND THE LONGITUDINAL FLOAT. LOOSEN THE FORM AS SOON AS THE CONCRETE WILL RETAIN ITS SHAPE AND TRIM IT WITH AN APPROVED EDGING TOOL. TOOL BOTH EDGES OF LONGITUDINAL CONSTRUCTION JOINTS TO A ⅛ IN. RADIUS AT THE PAVEMENT SURFACE.
7. DO NOT DISCHARGE CONCRETE FROM THE MIXER DIRECTLY ON TOP OF OR ON THE SIDES OF THE EXPANSION JOINT ASSEMBLIES.
8. LAP TRANSVERSE EDGES OF SHEETS OF WELDED WIRE FABRIC 12 INCHES EXCEPT AT TRANSVERSE EXPANSION JOINTS. LAP LONGITUDINAL EDGES 6 INCHES EXCEPT AT LONGITUDINAL CONSTRUCTION JOINTS.
9. DOWEL BARS MAY BE COATED WITH STAINLESS STEEL, MONEL METAL, OR IN ACCORDANCE WITH THE ITEM "REINFORCING STEEL" SECTION ON EPOXY COATING, WITH A WELDED DOWEL ASSEMBLY SUPPORT, AS APPROVED, ENSURE THE COATING CONFORMS TO THE REQUIREMENTS OF ONE OF THE GRADES OF ASTM A167-11 OR A176-11 AND IS NOT LESS THAN 0.010 INCH THICK. PROVIDE A CASING AT LEAST 8 INCHES LONG AND THAT COVERS THE MIDDLE 8 INCHES OF THE DOWEL.
10. SECURE DOWELS PARALLEL TO THE PAVEMENT SURFACE AND PERPENDICULAR TO THE JOINT WITH THE AID OF APPROVED WELDED WIRE BASKET ARRANGEMENTS. ENSURE WELDED WIRE BASKET ARRANGEMENTS DO NOT CROSS THE EXPANSION JOINT. UNIFORMLY COAT DOWELS WITH A BITUMINOUS MASTIC ON THE END WITH THE DOWEL CAP.
11. DO NOT BEND TIE BARS AND DOWEL BARS. TO PREVENT DISPLACEMENT OF WIRE FABRIC BY CONCRETE PLACEMENT, TIE THE FABRIC PANEL TOGETHER AND TIE THE INITIAL FABRIC PANELS OF EACH SLAB TO THE DOWEL BASKET OR AS DIRECTED.
12. TOOL PAVEMENT EDGES TO A RADIUS OF ½ IN. WITH AN APPROVED EDGING TOOL.
13. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS, AND CROWN-SLOPE ARE ELSEWHERE SHOWN ON THE PLANS.
14. THE CONTRACTOR HAS THE OPTION OF USING WELDED WIRE FABRIC OR BAR REINFORCEMENT. LOCATE THE LONGITUDINAL STEEL AT THE CENTER OF THE SLAB. TAKE NECESSARY PRECAUTIONS TO ENSURE THAT THE FINAL POSITION OF STEEL IS WITHIN ± 2 INCHES OF THE LONGITUDINAL CENTERLINE. SPACE THE TRANSVERSE STEEL SPACING DOES NOT VARY MORE THAN ONE-TWELFTH OF SPACING SHOWN.
15. LONGITUDINAL STEEL MAY BE SPLICED WITH 33 TIMES BAR DIAMETER LAPS.
16. FOR LANE WIDTHS NOT SHOWN OR FOR VARIABLE PANEL LENGTHS AND WIDTHS, SPACE REINFORCING STEEL AND DOWELS AS DIRECTED.
17. USE APPROVED BAR MAT CHAIRS. DO NOT EXCEED CHAIR SPACING OF 30 IN. C-C (TRANSVERSE) AND 48 IN. C-C (LONGITUDINAL). GALVANIZING THE CHAIRS IS NOT REQUIRED.
18. OBTAIN BOARDS FOR EXPANSION JOINT FILLER FROM REDWOOD TIMBER.
19. PROVIDE AND CONSTRUCT THE JOINT PLATE AS APPROVED.
20. WHEN CURB IS PLACED SEPARATELY FROM THE CONCRETE PAVEMENT, PROVIDE THE REINFORCING STEEL AS SHOWN IN THE CURB DETAIL. THE CURB REINFORCING STEEL MAY BE OMITTED WHEN THE CURB IS PLACED MONOLITHICALLY.

(GENERAL NOTES CONTINUED ON SHEET 2 OF 2)

Texas Department of Transportation
Houston District

JOINTED REINFORCED CONCRETE PAVEMENT DETAILS
EXPANSION JOINT DESIGN
(FOR PAVEMENT THICKNESS 10 INCHES OR LESS)

JRCP SHEET 2 OF 2

FILE: STDR-2.dgn	DN:	CK:	DW:	CK:
©TxDOT MAR.2004	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 5/05 2004 SPECS 9/2010 ADDED NOTE 9/2013 ADDED NOTE	HOU	6		
	COUNTY		CONTROL	SECT	JOB	HIGHWAY

Texas Department of Transportation
Houston District

JOINTED REINFORCED CONCRETE PAVEMENT DETAILS
(FOR PAVEMENT THICKNESS 10 INCHES OR LESS)

SHEET 1 OF 2

FILE: STDR-2.dgn	DN:	CK:	DW:	CK:
©TxDOT MAR.2004	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 5/05 2004 SPECS 7/10 ADDED NOTE 5/14 2014 SPECS	HOU			
	COUNTY		CONTROL	SECT	JOB	HIGHWAY

NOTES:

1. ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE RELEASED SITE PLAN. ANY ADDITIONAL IMPROVEMENTS WILL REQUIRE SITE PLAN AMENDMENT AND APPROVAL OF THE DEVELOPMENT SERVICES DEPARTMENT.
2. APPROVAL OF THIS SITE PLAN DOES NOT INCLUDE BUILDING AND FIRE CODE APPROVAL NOR BUILDING PERMIT APPROVAL.
3. STRIPING -- FIRE APPARATUS ACCESS ROADS SHALL BE CONTINUOUSLY MARKED BY PAINTED LINES OF RED TRAFFIC PAINT SIX INCHES (6") IN WIDTH TO SHOW THE BOUNDARIES OF THE LANE. THE WORDS "FIRE LANE - NO PARKING" SHALL APPEAR IN FOUR INCH (4") WHITE LETTERS AT 25 FEET INTERVALS ON THE RED BORDER MARKINGS ALONG BOTH SIDES OF THE FIRE LANES.
4. SIGNS SHALL READ 'FIRE LANE- NO PARKING" AND SHALL BE 12"WIDE AND 18" HIGH. SIGNS SHALL BE PAINTED ON A WHITE BACKGROUND WITH LETTERS AND BORDERS IN RED, USING NOT LESS THAN 2" LETTERING. SIGNS SHALL BE PERMANENTLY AFFIXED TO A STATIONARY POST AND THE BOTTOM OF THE SIGN SHALL BE SIX FEET, SIX INCHES (6'6") ABOVE FINISHED GRADE. SIGNS SHALL BE SPACED NOT MORE THAN FIFTY FEET (50') APART ALONG BOTH SIDES OF THE FIRE LANE.

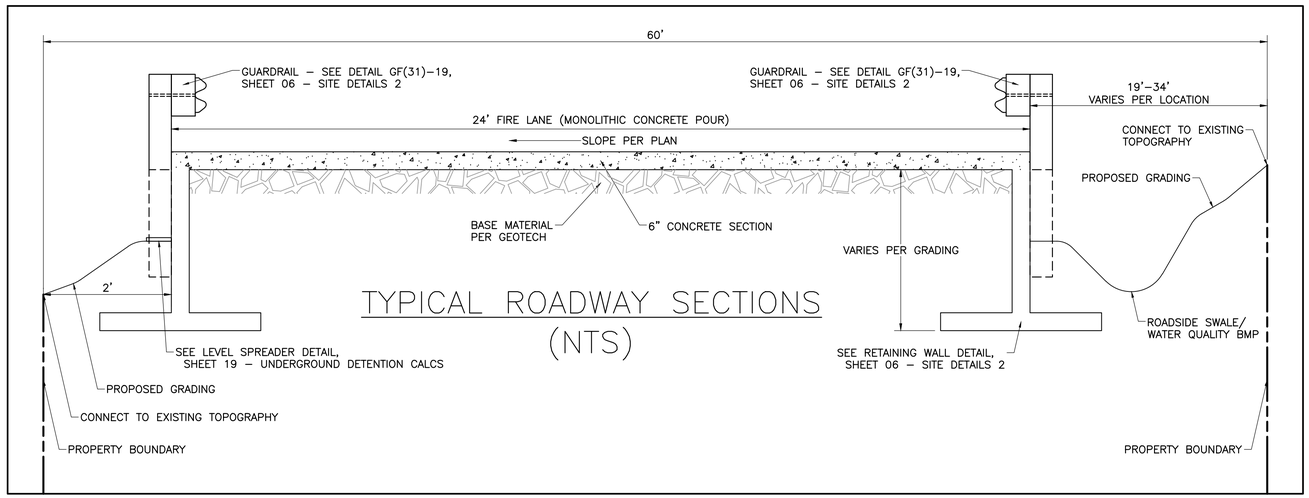


TABLE 7.3
SUMMARY OF HAYS COUNTY ROAD STANDARDS*

Average Daily Traffic (one-way trips)**	Not more than 100	101-1000	1001-2500	2501-5000	5001-15000	More than 15000
Functional Classification	Country Lane	Local Street	Minor Collector	Major Collector	Minor Arterial	Major Arterial
Design Speed	25 mph	25 mph	35 mph	45 mph	55mph	
Number of Lanes	2	2	2	2	4	***All elements***
ROW Width	50'	60'	60'	70'	100'	***including***
Width of Traveled way	18'	20'	22'	24'	48'	***geometric***
Width of Shoulders	2'	4'	5'	6'	8'	***layout and***
Minimum Centerline Radius	200'	300'	375'	675'	975'	***cross-section***
Minimum Tangent Length between Reverse Curves or Compound Curves	50'	100'	150'	300'	500'	***shall be approved***
Minimum Radius for Edge of Pavement at Intersections	25'	25'	25'	25'	25'	***by the***
Intersection Street Angle	80-100	80-100	80-100	80-100	80-100	***Road Director***
Maximum Grade:	11%	11%	10%	9%	8%	***on a case-by-case***
Minimum Street Centerline Offect at Adjacent Intersections	125'	125'	125'	125'	125'	***basis.***
Minimum Stopping Sight Distance	175'	175'	250'	350'	550'	
Minimum Intersection Sight Distance	250'	250'	350'	450'	550'	
Ditch Foreslope Grade	4:01	4:01	5:01	5:01	6:01	
Ditch Backslope Grade	3:01	3:01	4:01	4:01	4:01	
Minimum Cul-de-sac ROW Radius	65'	70'	70'	70'	70'	
Minimum Cul-de-sac Pavement Radius	35'	45'	45'	45'		
Notes:						
1) Any deviation from these standards must be the subject of an approved variance.						
2) Lots that are restricted by plat note to one single-family residence shall be presumed to generate 10 one-way trips per day. Average						
daily traffic for all other lots shall be determined on a case-by-case basis by the Road Director.						
3) Occasional short runs between intersections may exceed the amounts shown, but maximum grades through intersections may not exceed the amounts shown.						
4) The entire side ditch shall be contained entirely within the road right-of-way or a dedicated drainage easement. Guardrails shall be designed in accordance with						
current TXDOT standards.						
5) No cul-de-sac shall have a cross slope that exceeds 6 percent.						
6) Revegetation of disturbed areas within new road rights of way is required.						
required whereever ditch depth exceeds 8'-0" from edge of shoulder to bottom of ditch on Country Lanes and Local streets, 6'-0" from edge						
of shoulder to bottom of ditch on Minor Collectors, and 4'-0" from edge of shoulder to bottom of ditch on Major Collectors and Minor Arterials.						
Individual driveway entrances, if not shown on the approved constructions plans, must be approved by the Road Director. Maximum spacing between commerical						

TABLE 7.3
SUMMARY OF HAYS COUNTY ROAD STANDARDS*

driveways or curb cuts is 150ft. Safety-end treatment required on all driveways. (Minimum 6:1 slope)						
7) All design standards may be modified on a case-by-case basis as each project merits depending upon topography and other pertinent features. This is to include						
possible wider ROWs when designed backslopes will not fit within standard ROW.						
8) Utility construction and design, if intended to be underground, shall comply with USDOT utility guide. The design and installation of utilities needs to be coordinated						
with the Hays County Road Dept.						
9) No road and drainage construction may begin until a set of construction and drainage plans have been approved by the County Road Department.						
10) Seventy-Two (72) hours before construction is to begin a preconstruction meeting is required to be held. Contact the County Road Department for scheduling						
information.						

!!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
!!! CAUTION !!!

REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Texas Registered Engineering Firm F-58
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

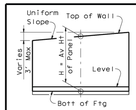
SITE DETAILS

DRAWN BY:	MBM
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT
DATE:	07/24/2025
DWG SCALE:	AS SHOWN

DRAWING NO.: 05
SHEET 05 OF 48

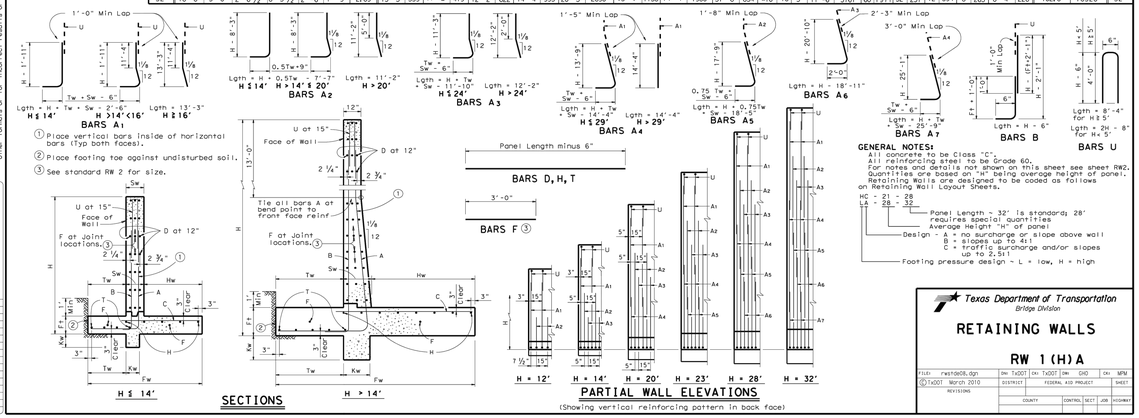
SD-2022-0025

P:\324-199\324-199-CAD\Dwg\CIVIL\324199-CIVIL-C200-SITE DETAILS.dwg[SITE DETAILS] LC(7/15/2025 - mmartinez) - LP: 7/24/2025 12:32 PM



H DEFINITION

Wall Height "H"	PROPERTIES: WALL DIMENSIONS							Max Soil Press	REINFORCING STEEL FOR ONE 32' PANEL (DESIGN A)																								QUANTITY FOR ONE 32' PANEL		Wall Height "H"
									A1 ~ 26 #5 at 15" c-c		A2 ~ 25 #6 at 15" c-c		A3 ~ 25 #7 at 15" c-c		A4 ~ 26 #8 at 15" c-c		A5 ~ 25 #9 at 15" c-c		A6 ~ 25 #11 at 15" c-c		A7 ~ 26 #11 at 15" c-c		B ~ 26 #5 at 15" c-c		C				D (#5) at 12" c-c		Dowel F at 12" c-c		H (#5) at 12" c-c		T (#5) at 12" c-c		U ~ 26 #5 at 15" c-c		CONC (CY)	REINF (LB)	
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	T/SF	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Siz	No	Spa	Lgth	No	Wt	No	Wt	No	Wt	No	Wt	Lgth	Wt			(Ft)
2	1'-4"	4"	1'-0"	0	9"	9"	0.19																							4	131	3	24			2	66	3'-4"	90	3.3	312	2
3	1'-6"	6"	1'-0"	0	9"	9"	0.31																							6	197	4	32	2	66	2	66	5'-4"	145	4.7	506	3
4	2'-0"	8"	1'-0"	4"	1'-0"	9"	0.42	3'-2"	86																					8	263	6	48	2	66	2	66	7'-4"	199	6.6	855	4
5	2'-7"	11"	1'-0"	8"	1'-0"	9"	0.47	4'-5"	120																					10	329	7	56	2	66	2	66	8'-4"	226	8.5	1024	5
6	3'-2"	1'-1"	1'-0"	1'-1"	1'-0"	9"	0.54	5'-7"	151																					12	394	8	64	3	99	2	66	8'-4"	226	10.3	1196	6
7	3'-9"	1'-3"	1'-0"	1'-4"	1'-0"	9"	0.61	6'-9"	183																					14	460	9	72	3	99	2	66	8'-4"	226	12.2	1334	7
8	4'-3"	1'-6"	1'-0"	1'-7"	1'-0"	9"	0.67	8'-0"	217																					16	526	10	80	3	99	3	99	8'-4"	226	14.0	1507	8
9	4'-9"	1'-7"	1'-0"	2'-2"	1'-0"	9"	0.77	9'-1"	246																					18	591	11	88	3	99	3	99	8'-4"	226	15.8	1644	9
10	5'-3"	1'-9"	1'-0"	2'-7"	1'-0"	9"	0.86	10'-3"	278	3'-4"	125																			20	657	12	96	4	131	3	99	8'-4"	226	17.6	1972	10
11	5'-10"	2'-0"	1'-0"	3'-0"	1'-0"	9"	0.89	11'-6"	312	4'-5"	166																			22	723	13	104	4	131	3	99	8'-4"	226	19.4	2287	11
12	6'-4"	2'-2"	1'-0"	3'-2"	1'-0"	9"	0.97	12'-8"	343	5'-6"	207																			24	789	14	112	4	131	4	131	8'-4"	226	21.2	2521	12
13	6'-10"	2'-4"	1'-0"	3'-6"	1'-0"	9"	1.05	13'-10"	375	6'-7"	247	4'-6"	230																	26	854	15	120	5	164	4	131	8'-4"	226	23.0	3081	13
14	7'-4"	2'-6"	1'-0"	3'-10"	1'-0"	1'-0"	1.14	15'-0"	407	7'-8"	288	5'-8"	290																	28	920	16	128	5	164	4	131	8'-4"	226	25.3	3470	14
15	7'-10"	2'-7"	1'-1⅛"	4'-1 ⅛"	1'-0"	1'-0"	1.24	16'-2"	438	8'-9"	329	6'-10"	349																	30	986	17	136	6	197	4	131	8'-4"	226	27.1	3928	15
16	8'-4"	2'-9"	1'-2"	4'-5"	1'-3"	1'-3"	1.34	13'-3"	359	9'-10"	369	8'-1"	413	5'-7"	388															15'-6"	420	#9	38	10"	6'-1"	786	32	1051	18	144	6	197	4	131	8'-4"	226	31.8	4484	16
17	8'-10"	3'-0"	1'-3⅛"	4'-6⅛"	1'-3"	1'-3"	1.40	13'-3"	359	10'-11"	410	9'-5"	481	6'-11"	480															16'-6"	447	#9	38	10"	6'-5"	809	34	1117	19	152	7	230	5	164	8'-4"	226	34.0	4895	17
18	9'-4"	3'-2"	1'-4"	4'-10"	1'-6"	1'-3"	1.50	13'-3"	359	12'-0"	451	10'-8"	545	8'-2"	567															17'-6"	475	#9	38	10"	6'-9"	832	34	1117	19	152	7	230	5	164	8'-4"	226	36.7	5158	18
19	10'-0"	3'-4"	1'-5"	5'-3"	1'-6"	1'-6"	1.56	13'-3"	359	13'-1"	491	11'-11"	609	9'-5"	654															18'-6"	502	#9	38	10"	7'-2"	926	36	1183	20	160	7	230	5	164	8'-4"	226	42.3	5504	19
20	10'-4"	3'-5"	1'-6¼"	5'-3¾"	1'-6"	1'-6"	1.67	13'-3"	359	14'-2"	532	13'-2"	673	10'-8"	740															19'-6"	529	#10	38	10"	7'-5"	1213	38	1248	21	168	8	263	5	164	8'-4"	226	44.6	6115	20
21	10'-11"	3'-8"	1'-7"	5'-8"	1'-9"	1'-6"	1.75	13'-3"	359	15'-2"	419	14'-5"	737	11'-11"	827	6'-11"	588													20'-6"	556	#10	38	10"	7'-9"	1267	40	1314	22	176	8	263	5	164	8'-4"	226	50.3	6896	21
22	11'-4"	3'-10"	1'-8⅛"	5'-9⅜"	1'-9"	1'-6"	1.85	13'-3"	359	15'-2"	419	15'-8"	801	13'-2"	914	8'-2"	694													21'-6"	583	#10	38	10"	8'-1"	1322	42	1380	23	184	8	263	5	164	8'-4"	226	53.1	7309	22
23	12'-0"	4'-0"	1'-9⅞"	6'-2⅛"	1'-9"	1'-6"	1.90	13'-3"	359	15'-2"	419	16'-11"	864	14'-5"	1001	9'-4"	793													22'-6"	610	#8	76	5"	8'-6"	1725	44	1446	24	192	9	296	6	197	8'-4"	226	56.5	8128	23
24	12'-4"	4'-2"	1'-10⅛"	6'-5⅜"	1'-9"	1'-6"	2.03	13'-3"	359	15'-2"	419	18'-2"	928	15'-8"	1088	10'-7"	890													23'-6"	637	#8	76	5"	8'-9"	1776	46	1511	25	200	9	296	6	197	8'-4"	226	62.5	8527	24
25	13'-0"	4'-4"	1'-11⅛"	6'-8⅜"	2'-0"	1'-6"	2.08	13'-3"	359	15'-2"	419	12'-2"	622	16'-11"	1174	11'-9"	999	6'-11"	808											24'-6"	664	#8	76	5"	9'-2"	1860	48	1577	26	208	9	296	6	197	8'-4"	226	66.3	9409	25
26	13'-8"	4'-7"	2'-0⅛"	6'-11⅝"	2'-0"	1'-6"	2.17	13'-3"	359	15'-2"	419	12'-2"	622	18'-2"	1261	13'-0"	1105	7'-1"	941											25'-6"	692	#8	76	5"	9'-6"	1928	50	1643	27	217	10	329	6	197	8'-4"	226	73.2	9936	26
27	14'-0"	4'-8"	2'-1¼"	7'-2⅜"	2'-3"	1'-6"	2.26	13'-3"	359	15'-2"	419	12'-2"	622	19'-5"	1348	14'-2"	1204	8'-1"	1074											26'-6"	719	#9	76	5"	9'-10"	2541	52	1708	28	225	10	329	6	197	8'-4"	226	77.0	10971	27
28	14'-6"	4'-10"	2'-2⅜"	7'-5⅝"	2'-3"	1'-9"	2.34	13'-3"	359	15'-2"	419	12'-2"	622	20'-8"	1435	15'-4"	1303	9'-1"	1206											27'-6"	746	#9	76	5"	10'-1"	2606	54	1774	29	233	10	329	7	230	8'-4"	226	81.8	11488	28
29	15'-0"	5'-0"	2'-3⅛"	7'-8½"	2'-3"	1'-9"	2.43	13'-3"	359	15'-2"	419	12'-2"	622	22'-0"	1527	16'-8"	1793	10'-1"	1339											28'-6"	773	#9	76	5"	10'-5"	2692	56	1840	30	241	11	361	7	230	8'-4"	226	85.8	12421	29
30	15'-6"	5'-2"	2'-4⅜"	7'-11½"	2'-3"	1'-9"	2.51	13'-3"	359	15'-2"	419	12'-2"	622	23'-4"	1616	17'-4"	1516	11'-1"	1472	11'-10"	1635	29'-6"	800	#10	76	5"	10'-9"	3516	58	1906	31	249	11	361	7	230	8'-4"	226	89.9	14305	30
31	16'-0"	5'-4"	2'-5⅜"	8'-2⅛"	2'-3"	1'-9"	2.59	13'-3"	359	15'-2"	419	12'-2"	622	24'-4"	995	18'-0"	1622	12'-1"	1605	13'-1"	1807	30'-6"	827	#10	76	5"	11'-2"	3652	60	1971	32	257	11	361	8	263	8'-4"	226	94.2	14986	31
32	16'-6"	5'-6"	2'-6½"	8'-5½"	2'-6"	1'-9"	2.69	13'-3"	359	15'-2"	419	12'-2"	622	24'-4"	995	20'-5"	2690	13'-1"	1738	14'-4"	1980	31'-6"	854	#10	76	5"	11'-6"	3761	60	1971	32	257	11	394	8	263	8'-4"	226	102.6	16528	32



DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT DISCLAIMS NO RESPONSIBILITY FOR THE CORRECTION OF THIS STANDARD BY OTHER USERS OR FOR DAMAGES RESULTING THEREFROM.

① Place vertical bars inside of horizontal bars (Typ both faces).

② Place footing toe against undisturbed soil.

③ See standard RW 2 for size.

GENERAL NOTES:
All concrete to be Class "C".
All reinforcing steel to be Grade 60.
For notes and details not shown on this sheet see sheet RW2.
Quantities are based on "H" being average height of panel.
Retaining Walls are designed to be coded as follows on Retaining Wall Layout Sheets.

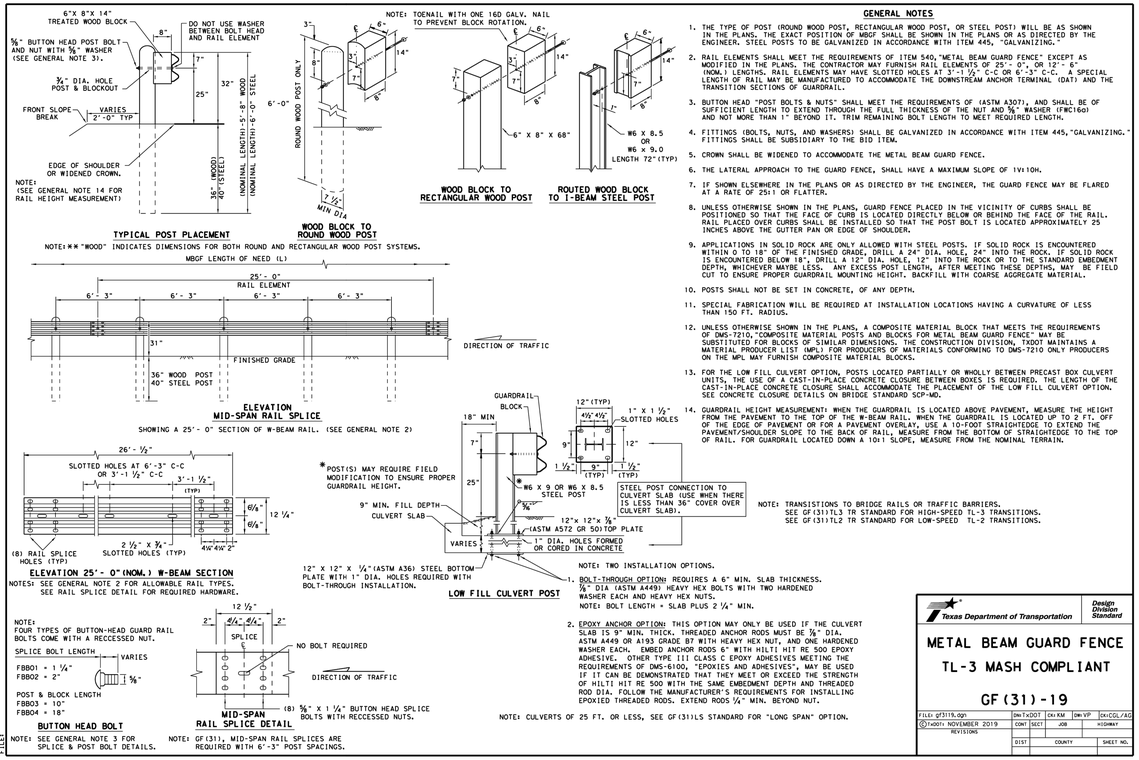
HC - 21 - 28
LA - 28 - 32
- Panel Length - 32' is standard; 28' requires special quantities
- Average Height "H" of panel
- Design - A = no surcharge or slope above wall; B = slopes up to 4:1; C = traffic surcharge and/or slopes up to 2.5:1
- Footing pressure design - L = low, H = high

Texas Department of Transportation
Bridge Division

RETAINING WALLS

RW 1(H)A

FILE: rw1a08.dgn	DN: TxDOT	CK: TxDOT	DW: GHD	CK: MFM
©TxDOT March 2010	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	COUNTY	CONTROL	SECT	JOB	HIGHWAY



NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.

NOTE: FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.

SPLICE BOLT LENGTH — VARIES
FBB01 = 1 ¼"
FBB02 = 2"
POST & BLOCK LENGTH
FBB03 = 10"
FBB04 = 18"

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½"- C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16G) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL. MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅞" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.
2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ⅞" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ¼" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT

GF(31)-19

FILE: gf3119.dgn	DW: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
FILE:

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

STATE OF TEXAS — MICHAEL A. THEONE — 142972 — LICENSED PROFESSIONAL ENGINEER

NO	DATE	REVISION RECORD DESCRIPTION

CEC
Texas Registered Engineering Firm F-58
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
PH: 512.439.0400 · FAX: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

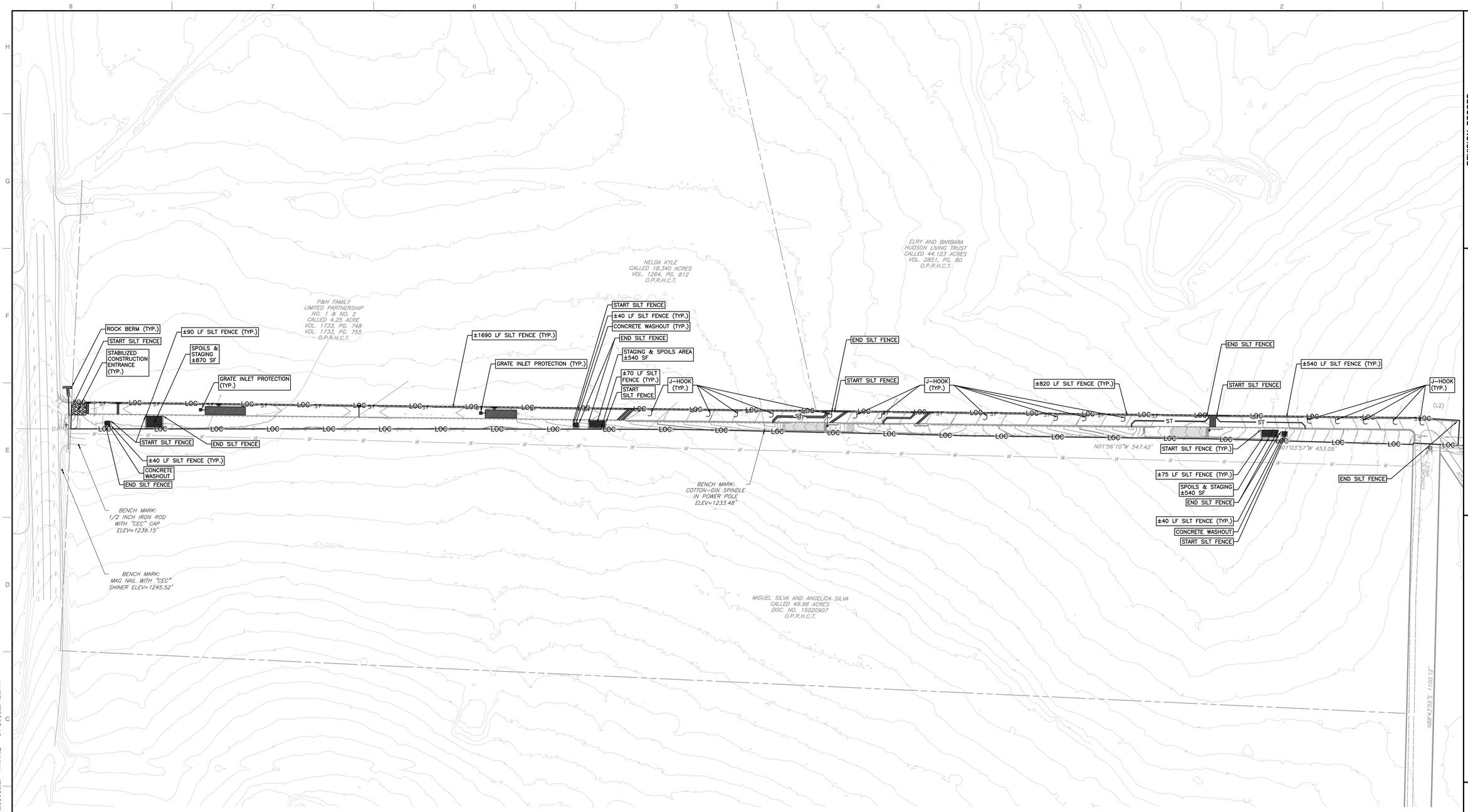
SITE DETAILS 2

DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	AS SHOWN	CHECKED BY:	CB
PROJECT NO:			324-199
APPROVED BY:			MAT

DRAWING NO.: 06
SHEET 06 OF 48

SD-2022-0025

P:\320-000\324-199\-CADD\Dwg\CIVIL\324199-CVD1-C200-SITE DETAILS 2.dwg(SITE DETAILS 2) LS(7/15/2025 - mmartinez) - LP: 7/24/2025 12:33 PM



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
J	J	PIPE CAP			SAFETY END TREATMENT
›	›	PIPE FLOW			DRAINAGE FLOW
	◁	REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 100 200

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

EROSION PLAN SHEET

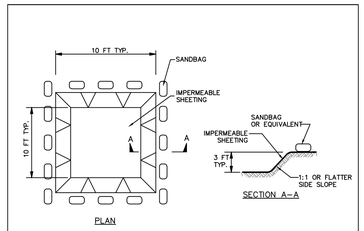
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PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: **07**

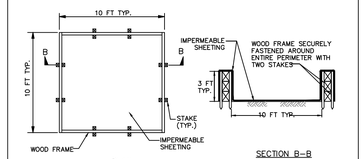
SHEET 07 OF 48

SD-2022-0025

P:\320-0001.324-199\~CAD\Dwg\0011.324199-CVD1-C900-EROSION.dwg[EROSION PLAN SHEET] LS:7/24/2025 - mmathieu - LP: 7/24/2025 12:33 PM



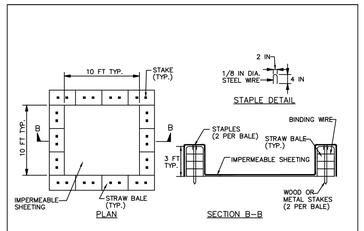
EXCAVATED WASHOUT STRUCTURE



WASHOUT STRUCTURE WITH WOOD PLANKS

1 OF 2

ONSITE CONCRETE WASHOUT STRUCTURE



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

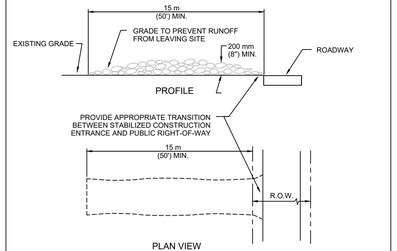
WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

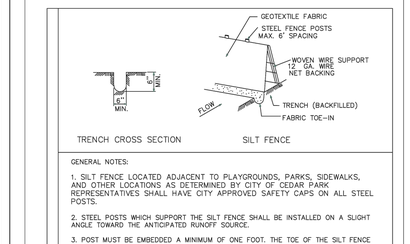
ONSITE CONCRETE WASHOUT STRUCTURE



NOTES:

1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: 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 DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY 5/23/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1



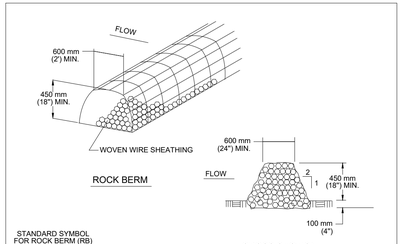
GENERAL NOTES:

1. SILT FENCE LOCATED ADJACENT TO PLAYGROUNDS, PARKS, SIDEWALKS, AND OTHER LOCATIONS AS DETERMINED BY CITY OF CEDAR PARK REPRESENTATIVES SHALL HAVE CITY APPROVED SAFETY CAPS ON ALL STEEL POSTS.
2. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
3. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT. 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.
4. WHERE FENCE CAN NOT BE TRENCHED IN (E.G. PAVEMENT) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE. 6 INCHES DEEP AND 8 INCHES WIDE TO THE TRENCH MUST BE A MINIMUM OF ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
6. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
7. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES.
8. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

STANDARD SYMBOL SF / L=

REV. DATE: 09/13/201

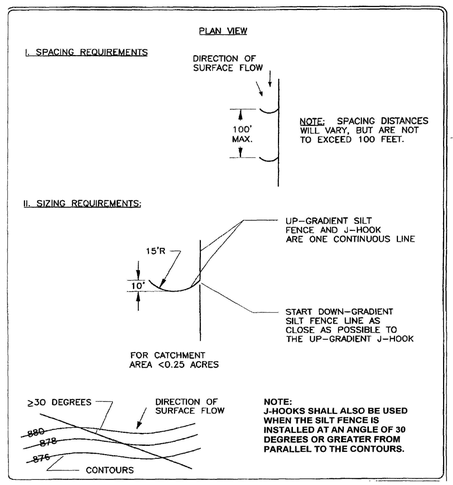
CITY OF CEDAR PARK ENGINEERING DEPARTMENT	SILT FENCE	
DARWIN MARCHELL 09/13/2001 APPROVED DATE	ADOPTED: 09/13/2001 SCALE: N.T.S. INITIAL:	



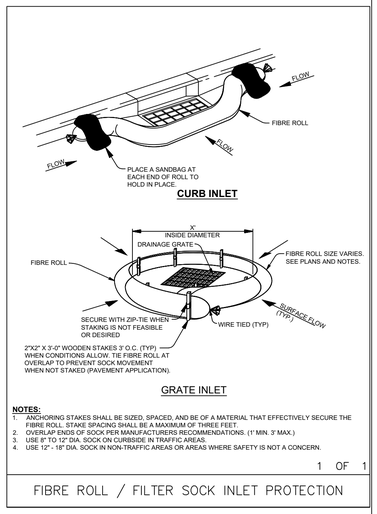
NOTES:

1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
RECORD COPY SIGNED BY MORGAN BYARS 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



CITY OF AUSTIN E.C.M. FIGURE 1.4.5.G.4 SILT FENCE J – HOOK DETAIL

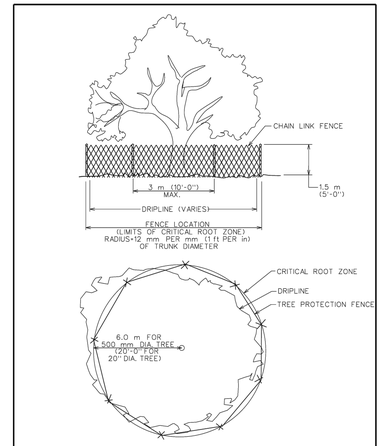


NOTES:

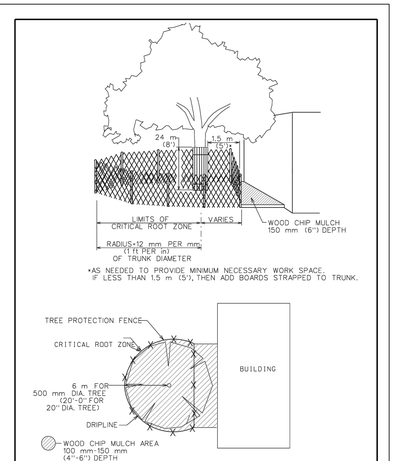
1. ANCHORING STAKES SHALL BE SIZED, SPACED, AND BE OF A MATERIAL THAT EFFECTIVELY SECURE THE FIBRE ROLL. STAKE SPACING SHALL BE A MAXIMUM OF THREE FEET.
2. OVERLAP ENDS OF SOCK PER MANUFACTURERS RECOMMENDATIONS. (1' MIN. 3' MAX.)
3. USE 8" TO 12" DIA. SOCK ON CURBSIDE IN TRAFFIC AREAS.
4. USE 12" - 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

1 OF 1

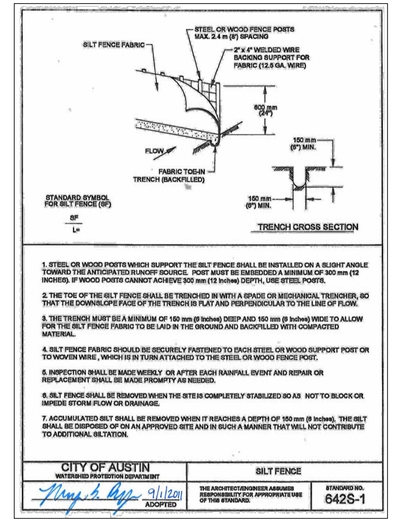
FIBRE ROLL / FILTER SOCK INLET PROTECTION



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2

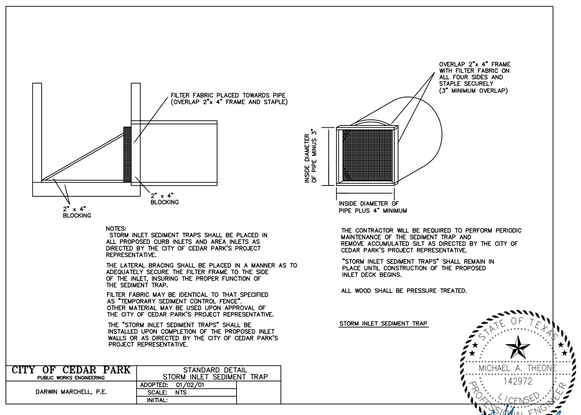


CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE MODIFIED TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-4



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. 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.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
9/11/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



NOTES:
STORM INLET SEDIMENT TRAPS SHALL BE PLACED IN ALL PROPOSED CURB INLETS AND AREA INLETS AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE LATERAL BRACING SHALL BE PLACED IN A MANNER AS TO ADEQUATELY SECURE THE FILTER FRAME TO THE SIDE OF THE INLET, INSURING THE PROPER FUNCTION OF THE SEDIMENT TRAP.

FILTER FABRIC MAY BE IDENTICAL TO THAT SPECIFIED AS "TEMPORARY SEDIMENT CONTROL FENCE". OTHER MATERIAL MAY BE USED UPON APPROVAL OF THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE "STORM INLET SEDIMENT TRAPS" SHALL BE INSTALLED UPON COMPLETION OF THE PROPOSED INLET WALLS OR AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE CONTRACTOR WILL BE REQUIRED TO PERFORM PERIODIC MAINTENANCE OF THE SEDIMENT TRAP AND REMOVE ACCUMULATED SILT AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

"STORM INLET SEDIMENT TRAPS" SHALL REMAIN IN PLACE UNTIL CONSTRUCTION OF THE PROPOSED INLET DECK BEGINS.

ALL WOOD SHALL BE PRESSURE TREATED.

STORM INLET SEDIMENT TRAP

CITY OF CEDAR PARK PUBLIC WORKS ENGINEERING	STANDARD DETAIL STORM INLET SEDIMENT TRAP
DARWIN MARCHELL, P.E.	ADOPTED: 01/02/20 SCALE: NTS INITIAL:

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811 !!! CAUTION !!! IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. !!! CAUTION !!!

REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Texas Registered Engineering Firm F-58
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

EROSION DETAILS

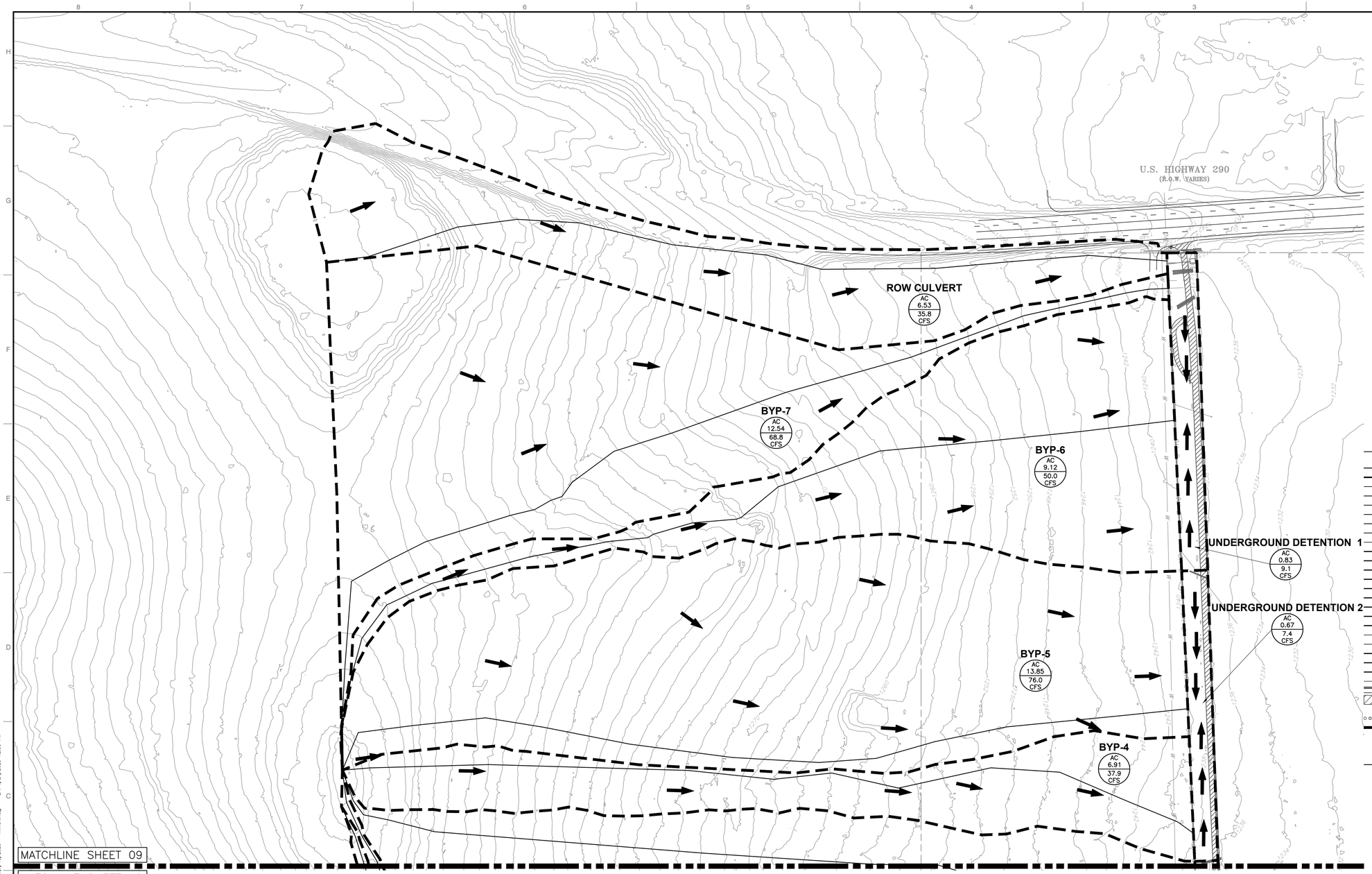
DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	AS SHOWN	CHECKED BY:	CB
PROJECT NO:			324-199
APPROVED BY:			MAT

DRAWING NO.: 08

SHEET 08 OF 48

SD-2022-0025

P:\320-0001\324-199\-CAD\Dwg\C07\324199-C07-C900-EROSION DETAILS.dwg[EROSION DETAILS(7/11/2025 - mmorrow)] - LP: 7/24/2025 12:33 PM



BLOCK LEGEND

PROPOSED / EXISTING

- BENCHMARK
- CUT IN CONCRETE
- CONTROL POINT
- IRON PIPE
- IRON ROD
- IRON ROD W/ CAP
- MONUMENT TYPE 1
- MONUMENT TYPE 2
- NAIL
- PIPE BREAK
- PIPE CAP
- PIPE FLOW
- REDUCER
- AIR RELEASE VALVE
- BLOW-OFF VALVE
- POST INDICATOR VALVE
- MISCELLANEOUS VALVE
- UTILITY VALVE
- UTILITY METER
- BACKFLOW PREVENTER
- FLUSH CONNECTION
- FIRE HYDRANT
- (MONITORING) WELL
- UTILITY RISER
- HOSE BIB
- SANITARY M.H.
- CLEANOUT
- DRAINAGE M.H.
- DOWN SPOUT
- AREA INLET
- CURB INLET
- HEADWALL
- SAFETY END TREATMENT
- DRAINAGE FLOW
- ELEC. M.H.
- ELEC./TELE. POLE
- GUY WIRE
- LIGHT FIXTURE
- TRAFFIC SIGNAL
- PEDESTRIAN SIGNAL
- UTILITY (PULL)BOX
- UTILITY RISER
- UTILITY SERVICE

LINETYPE LEGEND

PROPOSED / EXISTING

- RIGHT-OF-WAY
- LOT BOUNDARY
- EASEMENT
- FENCE: BARBED
- FENCE: WOOD (PICKET)
- FENCE: WOOD (PRIVACY)
- FENCE: CHAIN LINK
- FENCE: IRON
- MAJOR CONTOUR
- MINOR CONTOUR
- ELECTRIC LINE
- OVERHEAD ELECTRIC WIRE
- UNDERGROUND ELECTRIC LINE
- TELEPHONE
- COMMUNICATIONS LINE
- CABLE TELEVISION
- FIBER OPTIC LINE
- GAS LINE
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- SANITARY SEWER LINE
- WATER LINE
- FIRE LINE
- ROAD CENTERLINE
- CURB & GUTTER
- STRIPING
- FIRE LANE STRIPING
- H.C. ACCESSIBLE ROUTE
- LIMITS OF CONSTRUCTION
- RAIL ROAD
- FLOODWAY
- CWQZ
- STORM SEWER

- MATCHLINE
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION LINE

BYP-1
AC X.XX
X.X CFS
DRAINAGE AREA LABEL

Time of Concentration (TR-55 method) - Existing Site Conditions

Subbasin		BYP-1	EX-1	BYP-2	EX-2	BYP-3	EX-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTIO	UNDERGROUND DETENTIO
Area	sf	502600	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29010
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.00077221	0.0167054	0.00034373	0.0517223	0.00232477	0.0102031	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0%	35%	0%	31%	0%	30%	0%	0%	0%	0%	0%	28%	32%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	80	80	80	80	85	80	80	80	80	80	85	80
Sheet Flow														
Slope	m/m	0.0400	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0030	0.0030
Length	ft.	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.04	0.04
Shallow Concentrated														
Slope	m/m	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0030	0.0030
Length	ft.	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	y/n	n	p	n	p	n	p	n	n	n	n	n	p	p
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.13	0.12
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.17	0.16
Tc	min.	17.92	3.82	20.25	1.33	17.92	3.82	17.81	17.52	17.95	22.72	26.41	10.38	9.58
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	6.23	5.75
Existing Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.70	43.00	4.50	8.50	9.00	18.00	11.80	16.30	2.60	2.10
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	4.60	3.70
25 Year	cfs	38.30	3.70	35.50	1.70	109.90	11.10	21.70	22.90	46.00	30.30	41.60	6.00	4.90
100 Year	cfs	63.30	5.70	58.60	2.50	181.60	16.90	35.80	37.90	76.00	50.00	68.80	9.10	7.40

Point of Analysis Flow Summary Table

Storm Event	Existing	Proposed
02-YR	11.4	9.5
10-YR	20.6	18.2
25-YR	27.7	24.6
100-YR	41.6	38.3

NOTE: POINT OF ANALYSIS FLOW SUMMARY TABLE DESCRIBES ONLY THE ON-SITE FLOWS FOR EACH STORM EVENT, ALL BYPASS FLOWS REMAIN AS SHOWN WITHIN THE DRAINAGE AREA MAPS AND DO NOT CHANGE BETWEEN PROPOSED AND EXISTING CONDITIONS.

NORTH
SCALE IN FEET
0 100 200

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NO	DATE	DESCRIPTION

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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

EXISTING DMAP 1 OF 2

DATE:	07/24/2025
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 09
SHEET 09 OF 48

SD-2022-0025

P:\320-000\324-199\-DWG\Dwg\CIVIL\324199-CIV1-EXDR-EXISTING DMAP 1 OF 2\ LS(7/15/2025 - mmortine) - LP: 7/24/2025 12:33 PM

MATCHLINE SHEET 09

MATCHLINE SHEET 10

BYP-1
AC 11.54
63.3 CFS

BYP-2
AC 10.69
58.6 CFS

BYP-3
AC 34.68
181.6 CFS

ON-1
AC 0.49
5.7 CFS

ON-2
AC 0.22
2.5 CFS

ON-3
AC 1.49
16.9 CFS

N88°43'55"E 1100.12'

N88°45'38"E 442.13'

CONCRETE VAULT

(L2)

(L3)

BLOCK LEGEND

PROPOSED	EXISTING	
		BENCHMARK
		CUT IN CONCRETE
		CONTROL POINT
		IRON PIPE
		IRON ROD
		IRON ROD W/ CAP
		MONUMENT TYPE 1
		MONUMENT TYPE 2
		NAIL
		PIPE BREAK
		PIPE CAP
		PIPE FLOW
		REDUCER
		AIR RELEASE VALVE
		BLOW-OFF VALVE
		POST INDICATOR VALVE
		MISCELLANEOUS VALVE
		UTILITY VALVE
		UTILITY METER
		BACKFLOW PREVENTER
		FLUSH CONNECTION
		FIRE HYDRANT
		(MONITORING) WELL
		UTILITY RISER
		HOSE BIB
		SANITARY M.H.
		CLEANOUT
		DRAINAGE M.H.
		DOWN SPOUT
		AREA INLET
		CURB INLET
		HEADWALL
		SAFETY END TREATMENT
		DRAINAGE FLOW
		ELEC. M.H.
		ELEC./TELE. POLE
		GUY WIRE
		LIGHT FIXTURE
		TRAFFIC SIGNAL
		PEDESTRIAN SIGNAL
		UTILITY (PULL)BOX
		UTILITY RISER
		UTILITY SERVICE

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER

MATCHLINE

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION LINE

BYP-1
AC
X.XX
X.X
CFS

DRAINAGE AREA LABEL

NORTH

SCALE IN FEET

0 100 200

Point of Analysis Flow Summary Table		
Storm Event	**Existing**	**Proposed**
02-YR	11.4	9.5
10-YR	20.6	18.2
25-YR	27.7	24.6
100-YR	41.6	38.3

NOTE: POINT OF ANALYSIS FLOW SUMMARY TABLE DESCRIBES ONLY THE ON-SITE FLOWS FOR EACH STORM EVENT, ALL BYPASS FLOWS REMAIN AS SHOWN WITHIN THE DRAINAGE AREA MAPS AND DO NOT CHANGE BETWEEN PROPOSED AND EXISTING CONDITIONS.

Time of Concentration (TR-55 method) - Existing Site Conditions

Subbasin		BYP-1	EX-1	BYP-2	EX-2	BYP-3	EX-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTIO	UNDERGROUND DETENTION
Area	sf	502660	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.01803004	0.00077221	0.01670764	0.00034375	0.0517223	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0%	35%	0%	31%	0%	30%	0%	0%	0%	0%	0%	28%	32%
Pervious	Cn	86	80	80	80	86	80	80	80	80	80	80	80	80
Composite	Cn	86	86	80	86	86	85	80	80	80	80	80	85	86
Sheet Flow														
Slope	m/n	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0030	0.0030
Length	ft	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.04	0.04
Shallow Concentrated														
Slope	m/n	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft	1783	475	1914	90	1783	475	1617	1637	1722	1906	2056	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	p
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.13	0.12
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.17	0.16
Tc	min	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	10.38	9.58
Lag Time	min	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	6.23	5.75
Existing Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.70	43.00	4.50	8.50	9.00	18.00	11.80	16.30	2.60	2.10
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	4.60	3.70
25 Year	cfs	38.30	3.70	35.50	1.70	109.90	11.10	21.70	22.90	46.00	30.30	41.60	6.00	4.90
100 Year	cfs	63.30	5.70	58.60	2.50	181.60	16.90	35.80	37.90	76.00	50.00	68.80	9.10	7.40

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811

STATE OF TEXAS
MICHAEL A. THEUNE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

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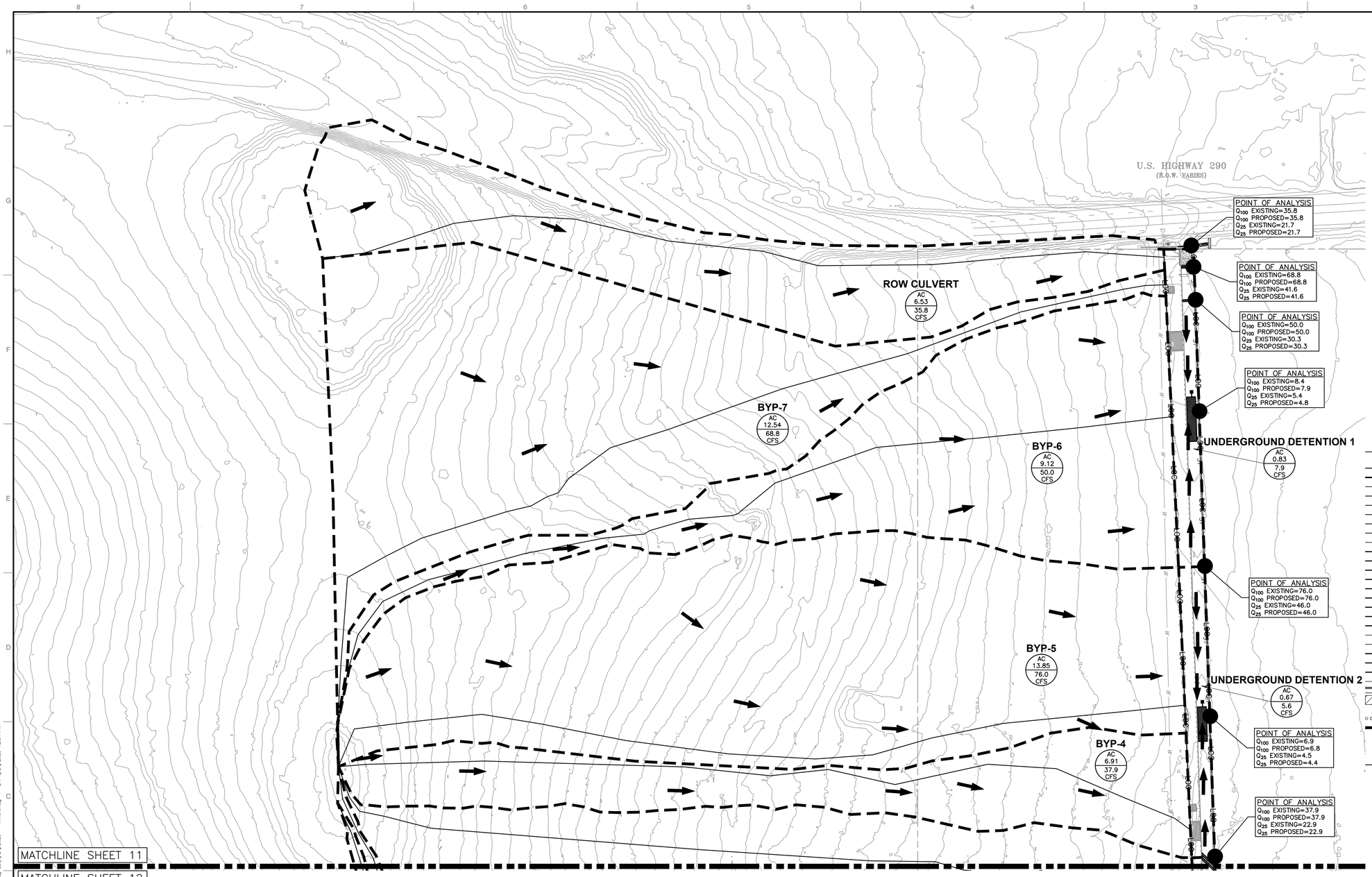
EXISTING DMAP 2 OF 2

DATE: 07/24/2025 DRAWN BY: MBM
DWG SCALE: 1" = 100' CHECKED BY: CB
PROJECT NO: 324-199
APPROVED BY: MAT

DRAWING NO.: 10
SHEET 10 OF 48

SD-2022-0025

A:\200-000\324-199\--DAGN\Dwg\CIVIL\324199-CIVIL-2400-EXISTING DMAP.dwg[EXISTING DMAP 2 OF 2] 5/17/2025 - mmartinez - LP: 7/24/2025 12:33 PM



BLOCK LEGEND

PROPOSED / EXISTING

- BENCHMARK
- CUT IN CONCRETE
- CONTROL POINT
- IRON PIPE
- IRON ROD
- IRON ROD W/ CAP
- MONUMENT TYPE 1
- MONUMENT TYPE 2
- NAIL
- PIPE BREAK
- PIPE CAP
- PIPE FLOW
- REDUCER
- AIR RELEASE VALVE
- BLOW-OFF VALVE
- POST INDICATOR VALVE
- MISCELLANEOUS VALVE
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- BACKFLOW PREVENTER
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- SAFETY END TREATMENT
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- ELEC. M.H.
- ELEC./TELE. POLE
- GUY WIRE
- LIGHT FIXTURE
- TRAFFIC SIGNAL
- PEDESTRIAN SIGNAL
- UTILITY (PULL)BOX
- UTILITY RISER
- UTILITY SERVICE

LINETYPE LEGEND

PROPOSED / EXISTING

- RIGHT-OF-WAY
- LOT BOUNDARY
- EASEMENT
- FENCE: BARBED
- FENCE: WOOD (PICKET)
- FENCE: WOOD (PRIVACY)
- FENCE: CHAIN LINK
- FENCE: IRON
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- OVERHEAD UTILITY
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- STRIPING
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- H.C. ACCESSIBLE ROUTE
- LIMITS OF CONSTRUCTION
- RAIL ROAD
- FLOODWAY
- CWQZ
- STORM SEWER

- MATCHLINE
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION LINE

BYP-1
AC X.XX
X.X CFS
DRAINAGE AREA LABEL

NORTH
SCALE IN FEET
0 100 200

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Time of Concentration (TR-55 method) - Proposed Site Conditions

Subbasin		BYP-1	PR-1	BYP-2	PR-2	BYP-3	PR-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION1	UNDERGROUND DETENTION2
Area	sf	502660	21528	465720	9583.2	1510755	64811	284447	300918	603517	397267	546242	3607	29014
	ac	11.54	0.49	10.69	0.22	34.68	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.01803041	0.00077221	0.01670541	0.00034375	0.05419099	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0.0%	52%	0%	47%	0.0%	46%	0%	0%	0%	0%	0%	43%	49%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	89	80	88	80	88	80	80	80	80	80	88	89
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0050	0.0050
Length	ft.	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.03	0.03
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft.	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	p
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.10	0.09
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.14	0.13
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	8.14	7.51
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	4.88	4.51
Proposed Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.60	43.00	4.50	8.50	9.00	18.00	11.80	16.30	1.90	1
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	3.40	2.5
25 Year	cfs	38.30	3.70	35.50	1.60	109.90	11.10	21.70	22.90	46.00	30.30	41.60	4.80	3.4
100 Year	cfs	63.30	5.70	58.60	2.40	181.60	17.00	35.80	37.90	76.00	50.00	68.80	7.90	5.3

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-58
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
PH: 512.439.0400 · FAX: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

PROPOSED DMAP 1 OF 2

DATE:	07/24/2025
DRAWN BY:	MBM
CHECKED BY:	CB
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
APPROVED BY:	MAT

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.: 11
SHEET 11 OF 48

SD-2022-0025

P:\324-001\324-199\-DMAP\DWG\DWG\324199-DET-DMAP-PROPOSED DMAP.dwg PROPOSED DMAP 1 OF 2| LS|7/24/2025 - mmorrow| - LT: 7/24/2025 12:34 PM

MATCHLINE SHEET 09

MATCHLINE SHEET 10

BYP-1
AC 11.54
63.3 CFS

BYP-2
AC 10.69
58.6 CFS

BYP-3
AC 34.68
181.6 CFS

PR-1
AC 0.49
5.7 CFS

PR-2
AC 0.22
2.5 CFS

PR-3
AC 1.49
17.0 CFS

POINT OF ANALYSIS
Q_{100} EXISTING=69.0
Q_{100} PROPOSED=69.0
Q_{25} EXISTING=41.9
Q_{25} PROPOSED=41.9

POINT OF ANALYSIS
Q_{100} EXISTING=61.1
Q_{100} PROPOSED=61.0
Q_{25} EXISTING=37.1
Q_{25} PROPOSED=37.1

POINT OF ANALYSIS
Q_{100} EXISTING=198.3
Q_{100} PROPOSED=197.8
Q_{25} EXISTING=120.6
Q_{25} PROPOSED=120.2

CONCRETE VAULT

N88°43'55"E 1100.12'

N88°45'39"E 442.13'

N90°00'00"E

N01°51'30"W 1245.42'

N00°10'57"W 463.05'

(L2)

(L3)

BLOCK LEGEND

PROPOSED	EXISTING	
		BENCHMARK
		CUT IN CONCRETE
		CONTROL POINT
		IRON PIPE
		IRON ROD
		IRON ROD W/ CAP
		MONUMENT TYPE 1
		MONUMENT TYPE 2
		NAIL
		PIPE BREAK
		PIPE CAP
		PIPE FLOW
		REDUCER
		AIR RELEASE VALVE
		BLOW-OFF VALVE
		POST INDICATOR VALVE
		MISCELLANEOUS VALVE
		UTILITY VALVE
		UTILITY METER
		BACKFLOW PREVENTER
		FLUSH CONNECTION
		FIRE HYDRANT
		(MONITORING) WELL
		UTILITY RISER
		HOSE BIB
		SANITARY M.H.
		CLEANOUT
		DRAINAGE M.H.
		DOWN SPOUT
		AREA INLET
		CURB INLET
		HEADWALL
		SAFETY END TREATMENT
		DRAINAGE FLOW
		ELEC. M.H.
		ELEC./TELE. POLE
		GUY WIRE
		LIGHT FIXTURE
		TRAFFIC SIGNAL
		PEDESTRIAN SIGNAL
		UTILITY (PULL)BOX
		UTILITY RISER
		UTILITY SERVICE

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	*385*	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER

MATCHLINE

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION LINE

BYP-1
AC X.XX
X.X CFS

DRAINAGE AREA LABEL

NORTH

SCALE IN FEET

0 100 200

Time of Concentration (TR-55 method) - Proposed Site Conditions

Subbasin		BYP-1	PR-1	BYP-2	PR-2	BYP-3	PR-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION	UNDERGROUND DETENTION
Area	sf	502660	21528	465720	9583.2	1510755	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	34.68	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.000772211	0.01670541	0.00034375	0.05419099	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0.0%	52%	0%	47%	0.0%	40%	0%	0%	0%	0%	0%	43%	49%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	80	80	88	80	88	80	80	80	80	80	88	89
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0050	0.0050
Length	ft.	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.03	0.03
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft.	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	y/n	n	p	n	p	n	p	n	n	n	n	n	p	p
Time	hr.	0.15	0.03	0.16	0.01	0.15	0.03	0.13	0.14	0.14	0.19	0.24	0.10	0.09
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.14	0.13
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	8.14	7.51
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Proposed Run-off Values														
2 Year	cfs	15.00	1.50	13.90	0.60	43.00	4.50	8.50	9.00	18.00	11.80	16.30	1.90	1
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.30	15.20	16.00	32.20	21.20	29.10	3.40	2.5
25 Year	cfs	38.30	3.70	35.50	1.60	109.90	11.10	21.70	22.90	46.00	30.30	41.60	4.80	3.4
100 Year	cfs	63.30	5.70	58.60	2.40	181.60	17.00	35.80	37.90	76.00	50.00	68.80	7.90	5.3

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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

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Texas Registered Engineering Firm F-88
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

PROPOSED DMAP 2 OF 2

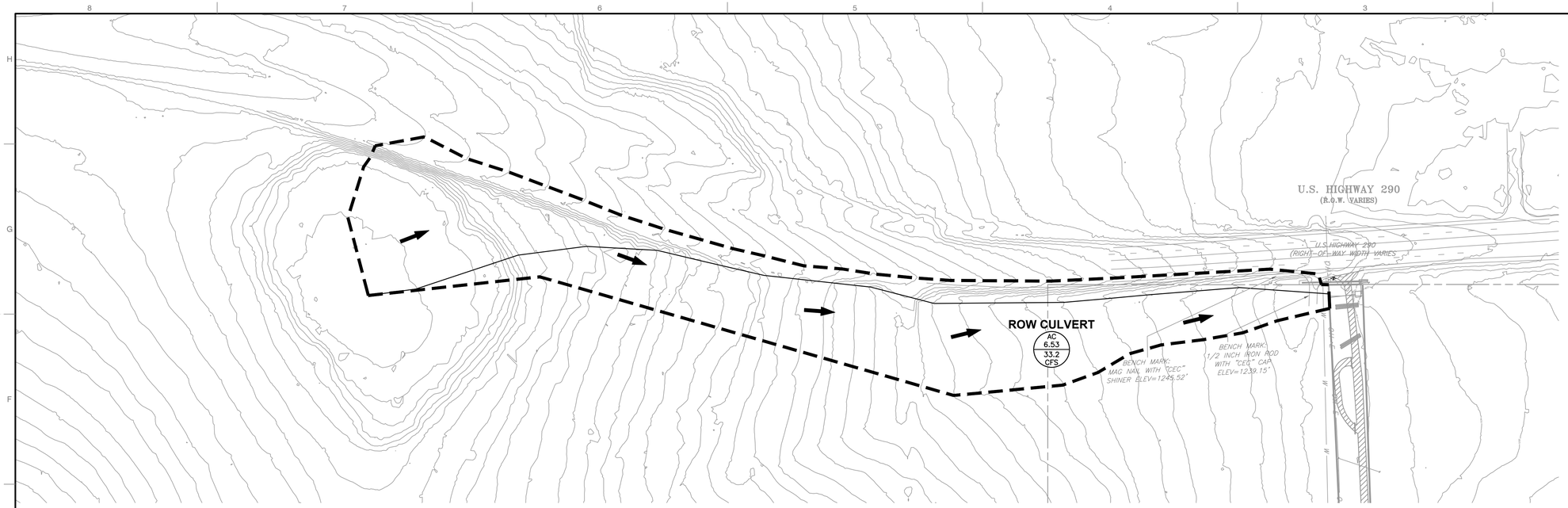
DRAWN BY:	MBM
CHECKED BY:	CB
DATE:	07/24/2025
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 12

SHEET 12 OF 48

SD-2022-0025

P:\320-200\324-199\-DWG\Dwg\CIVIL\324199-CIV1-EXSD-PROPOSED DMAP 2 OF 2\ LS(7/24/2025 - mmortine) - LP: 7/24/2025 12:34 PM



ROW CULVERT

Runoff Calculations (Eq 2-1)						
Event	**2-yr**	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**
A (ac)	6.53	6.53	6.53	6.53	6.53	6.53
C	0.21	0.23	0.25	0.29	0.32	0.36
Tc (min)	5.0	5.0	5.0	5.0	5.0	5.0
i (in/hr)	6.14	7.80	9.18	11.11	12.61	14.12
Q (cfs)	**8.4**	**11.7**	**15.0**	**21.0**	**26.3**	**33.2**

"C" Value Calculations (Table 2-1)								
Area (ac)	% of Area		2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
0.00	0%	**Pasture**	0.33	0.36	0.38	0.42	0.45	0.49
6.53	100%	**Grass**	0.21	0.23	0.25	0.29	0.32	0.36
0.00	0%	**Forest/Wood**	0.31	0.34	0.36	0.40	0.43	0.47
0.00	0%	**Concrete**	0.75	0.80	0.83	0.88	0.92	0.97
6.53	100%							

NOTES:
1. ALL DRAINAGE CALCULATIONS HAVE BEEN DETERMINED VIA THE RATIONAL METHOD
2. DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.
3. TXDOT ATLAS 14 RAINFALL DATA FOR ZONE–1 OF HAYS COUNTY HAS BEEN UTILIZED FOR ANALYSIS.

Rational Method Runoff Equation (Eq. 2-1)

$Q_p = CiA$

Q_p peak runoff (cfs)
C runoff coefficient
i intensity of rainfall (in/hr) - Eq 2-8
A area (acres)

Rainfall Intensity Equation (Eq. 2-8)

$i=a/(t+b)^c$

i intensity of rainfall (in/hr)
t storm duration (min)
a, b, c storm frequency coefficients

I-D-F Curve Coefficients			
Freq.	a	b	c
2	64.5986	12.9935	0.8144
5	78.5582	12.7853	0.8024
10	92.0534	13.166	0.7949
25	112.6923	13.9657	0.7872
50	130.8565	14.8519	0.7829
100	152.128	16.1074	0.7795

BLOCK LEGEND

PROPOSED	EXISTING	
		BENCHMARK
		CUT IN CONCRETE
		CONTROL POINT
		IRON PIPE
		IRON ROD
		IRON ROD W/ CAP
		MONUMENT TYPE 1
		MONUMENT TYPE 2
		NAIL
		PIPE BREAK
		PIPE CAP
		PIPE FLOW
		REDUCER
		AIR RELEASE VALVE
		BLOW-OFF VALVE
		POST INDICATOR VALVE
		MISCELLANEOUS VALVE
		UTILITY VALVE
		UTILITY METER
		BACKFLOW PREVENTER
		FLUSH CONNECTION
		FIRE HYDRANT
		(MONITORING) WELL
		UTILITY RISER
		HOSE BIB
		SANITARY M.H.
		CLEANOUT
		DRAINAGE M.H.
		DOWN SPOUT
		AREA INLET
		CURB INLET
		HEADWALL
		SAFETY END TREATMENT
		DRAINAGE FLOW
		ELEC. M.H.
		ELEC./TELE. POLE
		GUY WIRE
		LIGHT FIXTURE
		TRAFFIC SIGNAL
		PEDESTRIAN SIGNAL
		UTILITY (PULL)BOX
		UTILITY RISER
		UTILITY SERVICE

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	*385*	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	*G*	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	*SAN*	SANITARY SEWER LINE
W	*W*	WATER LINE
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		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	*ST*	STORM SEWER
		DRAINAGE AREA BOUNDARY
		TIME OF CONCENTRATION LINE

A-1
AC
X.XX
X.X
CFS
DRAINAGE AREA LABEL

NORTH
SCALE IN FEET
0 100 200

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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

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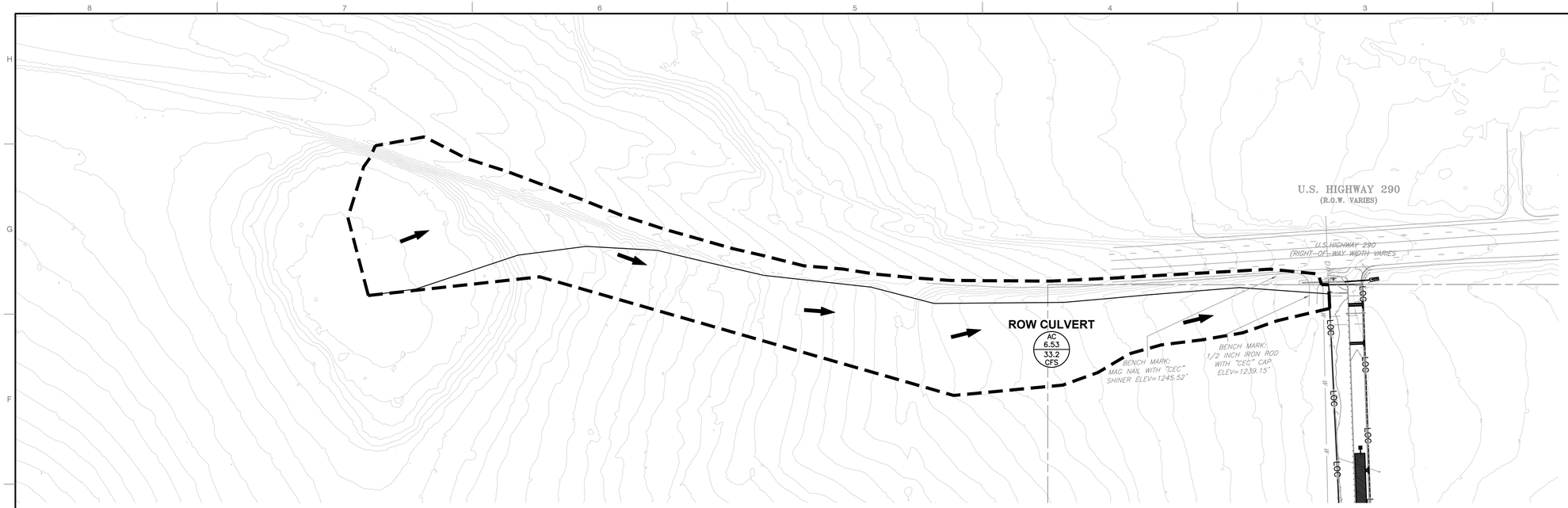
TXDOT CULVERT - EXISTING DMAP

DATE:	07/24/2025
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 13
SHEET 13 OF 48

SD-2022-0025

P:\320-000\324-199\-DATA\Dwg\DWG\324199-DWG-CIVIL\324199-CIVIL-EXISTING DWG.dwg [TXDOT CULVERT - EXISTING DWG] 7/24/2025 - mmortimer - LP: 7/24/2025 12:34 PM



ROW CULVERT

Runoff Calculations (Eq 2-1)						
Event	**2-yr**	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**
A (ac)	6.53	6.53	6.53	6.53	6.53	6.53
C	0.21	0.23	0.25	0.29	0.32	0.36
Tc (min)	5.0	5.0	5.0	5.0	5.0	5.0
i (in/hr)	6.14	7.80	9.18	11.11	12.61	14.12
Q (cfs)	**8.4**	**11.7**	**15.0**	**21.0**	**26.3**	**33.2**

"C" Value Calculations (Table 2-1)								
Area (ac)	% of Area		2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
0.00	0%	**Pasture**	0.33	0.36	0.38	0.42	0.45	0.49
6.53	100%	**Grass**	0.21	0.23	0.25	0.29	0.32	0.36
0.00	0%	**Forest/Wood**	0.31	0.34	0.36	0.40	0.43	0.47
0.00	0%	**Concrete**	0.75	0.80	0.83	0.88	0.92	0.97
6.53	100%							

NOTES:
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Rational Method Runoff Equation (Eq. 2-1)

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BLOCK LEGEND

PROPOSED	EXISTING	
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		CUT IN CONCRETE
		CONTROL POINT
		IRON PIPE
		IRON ROD
		IRON ROD W/ CAP
		MONUMENT TYPE 1
		MONUMENT TYPE 2
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		PIPE FLOW
		REDUCER
		AIR RELEASE VALVE
		BLOW-OFF VALVE
		POST INDICATOR VALVE
		MISCELLANEOUS VALVE
		UTILITY VALVE
		UTILITY METER
		BACKFLOW PREVENTER
		FLUSH CONNECTION
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		TRAFFIC SIGNAL
		PEDESTRIAN SIGNAL
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		UTILITY SERVICE

LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
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SAN	*SAN*	SANITARY SEWER LINE
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		ROAD CENTERLINE
		CURB & GUTTER
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	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	*ST*	STORM SEWER
		DRAINAGE AREA BOUNDARY
		TIME OF CONCENTRATION LINE

A-1
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X.X
CFS
DRAINAGE AREA LABEL

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SCALE IN FEET
0 100 200

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HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

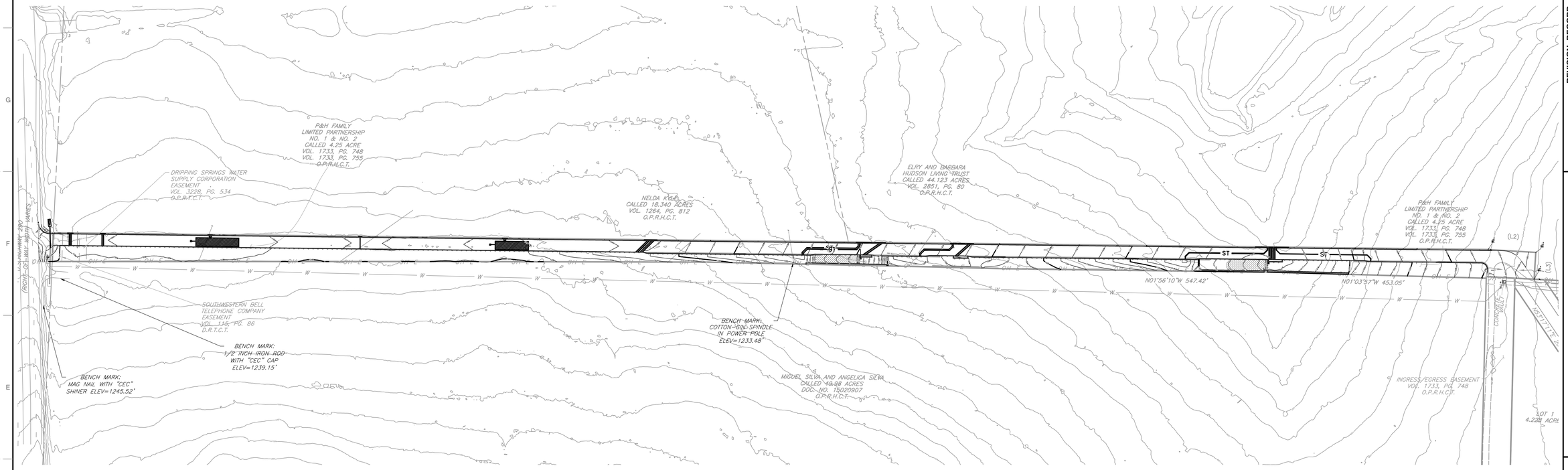
TXDOT CULVERT - PROPOSED DMAP

DATE:	07/24/2025
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 14
SHEET 14 OF 48

SD-2022-0025

P:\320-000\324-199\-CAD\Dwg\CIVIL\324199-CIV01-CADD-CULVERT DMAP.dwg[TXDOT CULVERT - PROPOSED DMAP] LS(7/24/2025 - mmontiel) - LP: 7/24/2025 12:54 PM



NOTES
1. DRAINAGE FOR THIS DEVELOPMENT DOES NOT DRAIN TO TXDOT ROW, DOES NOT CAUSE TXDOT DRAINAGE TO BE BLOCKED, AND HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.

LINETYPE LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
		RIGHT-OF-WAY	G	G	GAS LINE
		LOT BOUNDARY	OU	OU	OVERHEAD UTILITY
		EASEMENT	UG	UG	UNDERGROUND UTILITY
X	X	FENCE: BARBED	SAN	SAN	SANITARY SEWER LINE
//	//	FENCE: WOOD (PICKET)	W	W	WATER LINE
□	□	FENCE: WOOD (PRIVACY)	F	F	FIRE LINE
○	○	FENCE: CHAIN LINK			ROAD CENTERLINE
I	I	FENCE: IRON			CURB & GUTTER
385	385	MAJOR CONTOUR			STRIPING
		MINOR CONTOUR	FIRE		FIRE LANE STRIPING
E	E	ELECTRIC LINE			H.C. ACCESSIBLE ROUTE
OE	OE	OVERHEAD ELECTRIC WIRE	LOC		LIMITS OF CONSTRUCTION
UE	UE	UNDERGROUND ELECTRIC LINE			RAIL ROAD
T	T	TELEPHONE			FLOODWAY
C	C	COMMUNICATIONS LINE			CWQZ
TV	TV	CABLE TELEVISION	ST	ST	STORM SEWER
FO	FO	FIBER OPTIC LINE			DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	•	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
]	]	PIPE CAP			SAFETY END TREATMENT
›	›	PIPE FLOW			DRAINAGE FLOW
◄	◁	REDUCER	E	E	ELEC. M.H.
Ⓐ	Ⓐ	AIR RELEASE VALVE			ELEC./TELE. POLE
Ⓑ	Ⓑ	BLOW-OFF VALVE			GUY WIRE
Ⓘ	Ⓘ	POST INDICATOR VALVE			LIGHT FIXTURE
⊗	Ⓥ	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
◕	⊘	UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH
SCALE IN FEET
0 100 200

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811
!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

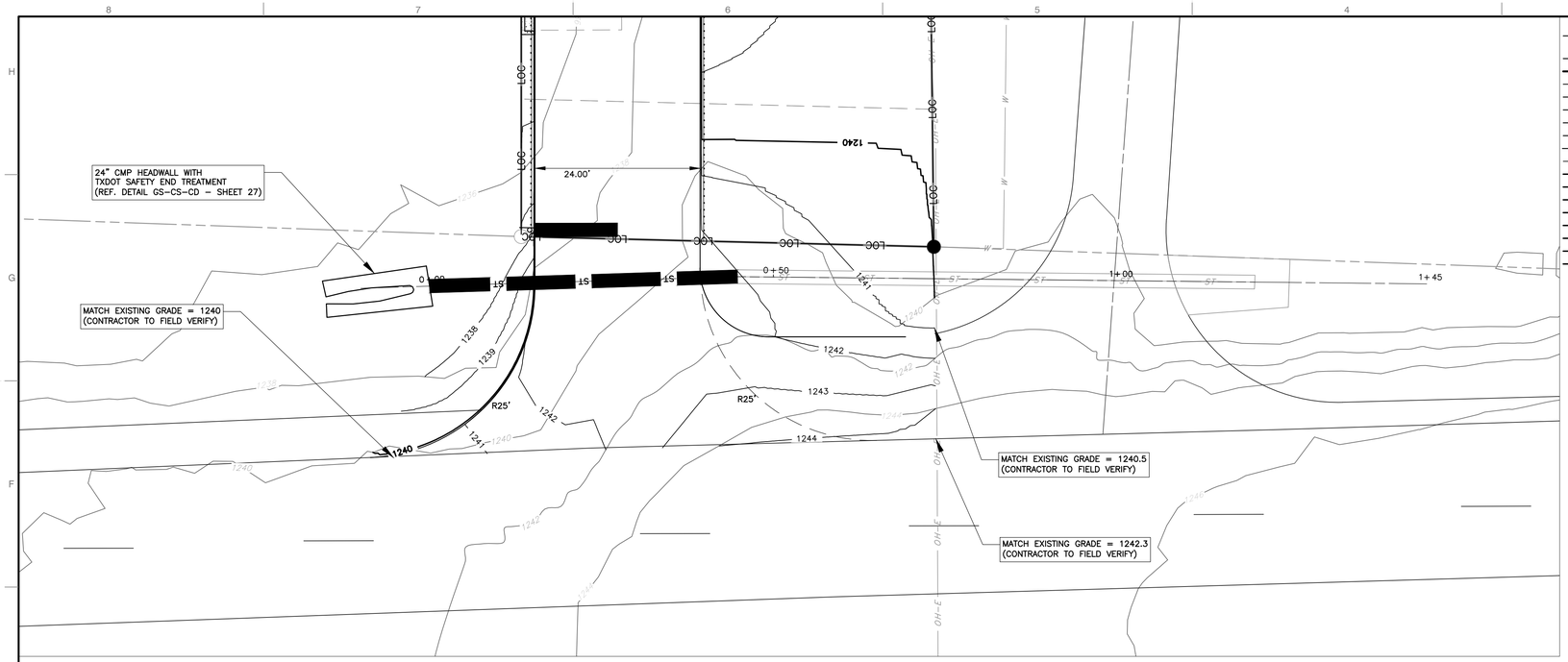
OVERALL GRADING AND DRAINAGE PLAN

DATE:	07/24/2025
DRAWN BY:	MBM
CHECKED BY:	CB
DWG SCALE:	1" = 100'
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 15
SHEET 15 OF 48

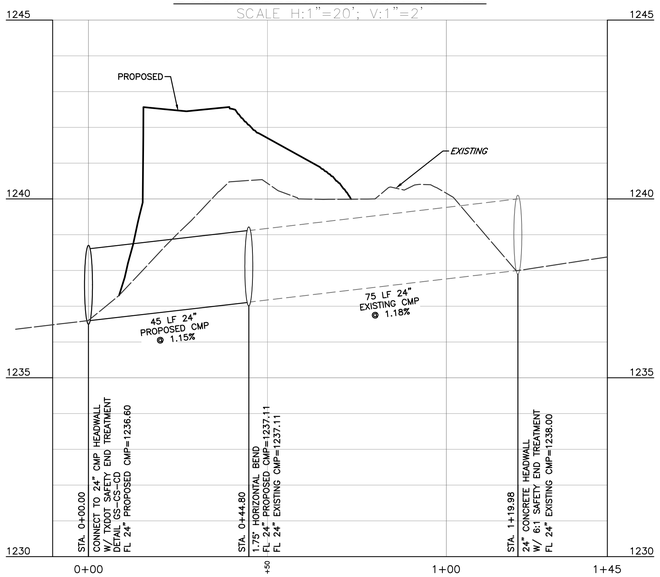
SD-2022-0025

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STORM LINE IN R.O.W. PROFILE

SCALE H:1"=20'; V:1"=2'



LINETYPE LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
		RIGHT-OF-WAY	G	G	GAS LINE
		LOT BOUNDARY	OU	OU	OVERHEAD UTILITY
		EASEMENT	UG	UG	UNDERGROUND UTILITY
		FENCE: BARBED	SAN	SAN	SANITARY SEWER LINE
		FENCE: WOOD (PICKET)	W	W	WATER LINE
		FENCE: WOOD (PRIVACY)	F	F	FIRE LINE
		FENCE: CHAIN LINK			ROAD CENTERLINE
		FENCE: IRON			CURB & GUTTER
385	385	MAJOR CONTOUR			STRIPING
		MINOR CONTOUR		FIRE	FIRE LANE STRIPING
E	E	ELECTRIC LINE			H.C. ACCESSIBLE ROUTE
OE	OE	OVERHEAD ELECTRIC WIRE	LOC		LIMITS OF CONSTRUCTION
UE	UE	UNDERGROUND ELECTRIC LINE			RAIL ROAD
T	T	TELEPHONE			FLOODWAY
C	C	COMMUNICATIONS LINE			CWQZ
TV	TV	CABLE TELEVISION	ST	ST	STORM SEWER
FO	FO	FIBER OPTIC LINE			DRAINAGE CHANNEL

BLOCK LEGEND

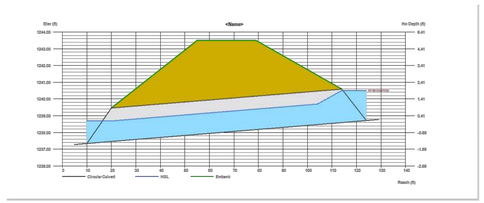
PROPOSED	EXISTING		PROPOSED	EXISTING	
		BENCHMARK			(MONITORING) WELL
		CUT IN CONCRETE			UTILITY RISER
		CONTROL POINT	HB	HB	HOSE BIB
		IRON PIPE	S	S	SANITARY M.H.
		IRON ROD	CO	CO	CLEANOUT
		IRON ROD W/ CAP	D	D	DRAINAGE M.H.
		MONUMENT TYPE 1			DOWN SPOUT
		MONUMENT TYPE 2			AREA INLET
		NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
		PIPE CAP			SAFETY END TREATMENT
		PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Tuesday, Jul 15 2025

Circular Culvert

Invert Elev Dn (ft)	= 1237.46	**Calculations**	
Pipe Length (ft)	= 94.00	Qmin (cfs)	= 11.70
Slope (%)	= 1.20	Qmax (cfs)	= 33.20
Invert Elev Up (ft)	= 1238.59	Tailwater Elev (ft)	= 0.00
Rise (in)	= 24.0		
Shape	= Circular	**Highlighted**	
Span (in)	= 24.0	Qtotal (cfs)	= 11.70
No. Barrels	= 1	Qpipe (cfs)	= 11.70
n-Value	= 0.024	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Corrugate Metal Pipe	Veloc Dn (ft/s)	= 5.79
Culvert Entrance	= Mitered to slope (C)	Veloc Up (ft/s)	= 5.79
Coeff. K,M,c,Y,k	= 0.021, 1.33, 0.0463, 0.75, 0.7	HGL Dn (ft)	= 1238.69
		HGL Up (ft)	= 1239.82
Embankment		Hw Elev (ft)	= 1240.51
Top Elevation (ft)	= 1243.50	Hw/D (ft)	= 0.96
Top Width (ft)	= 24.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 24.00		



Hardy Driveway Hydraflow Results

Storm Event	Q Total (cfs)	Q Pipe (cfs)	Q Over (cfs)	Velocity Dn (ft/s)	Velocity Up (ft/s)	Depth Dn (in)	Depth Up (in)	HGL Dn (ft)	HGL Up (ft)	HGL Hw (ft)	HGL Hw/D
2-yr	8.4	8.4	0.0	5.1	5.1	12.4	12.4	1237.78	1239.03	1239.56	0.78
5-yr	11.7	11.7	0.0	5.8	5.8	14.7	14.7	1237.98	1239.23	1239.92	0.96
10-yr	15.0	15.0	0.0	6.4	4.8	16.7	24.0	1238.15	1240.35	1240.95	1.48
25-yr	21.0	21.0	0.0	7.6	6.7	19.7	24.0	1238.39	1241.68	1242.86	2.43
50-yr	26.4	20.5	5.9	7.5	6.5	19.5	24.0	1238.37	1241.55	1242.67	2.33
100-yr	33.2	20.8	12.5	7.6	6.6	19.6	24.0	1238.38	1241.62	1242.77	2.39

NORTH
SCALE IN FEET
0 10 20

STATE OF TEXAS
MICHAEL A. THEONE
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LICENSED
PROFESSIONAL ENGINEER

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PH: 512.439.0400 · FAX: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

TXDOT DRIVEWAY

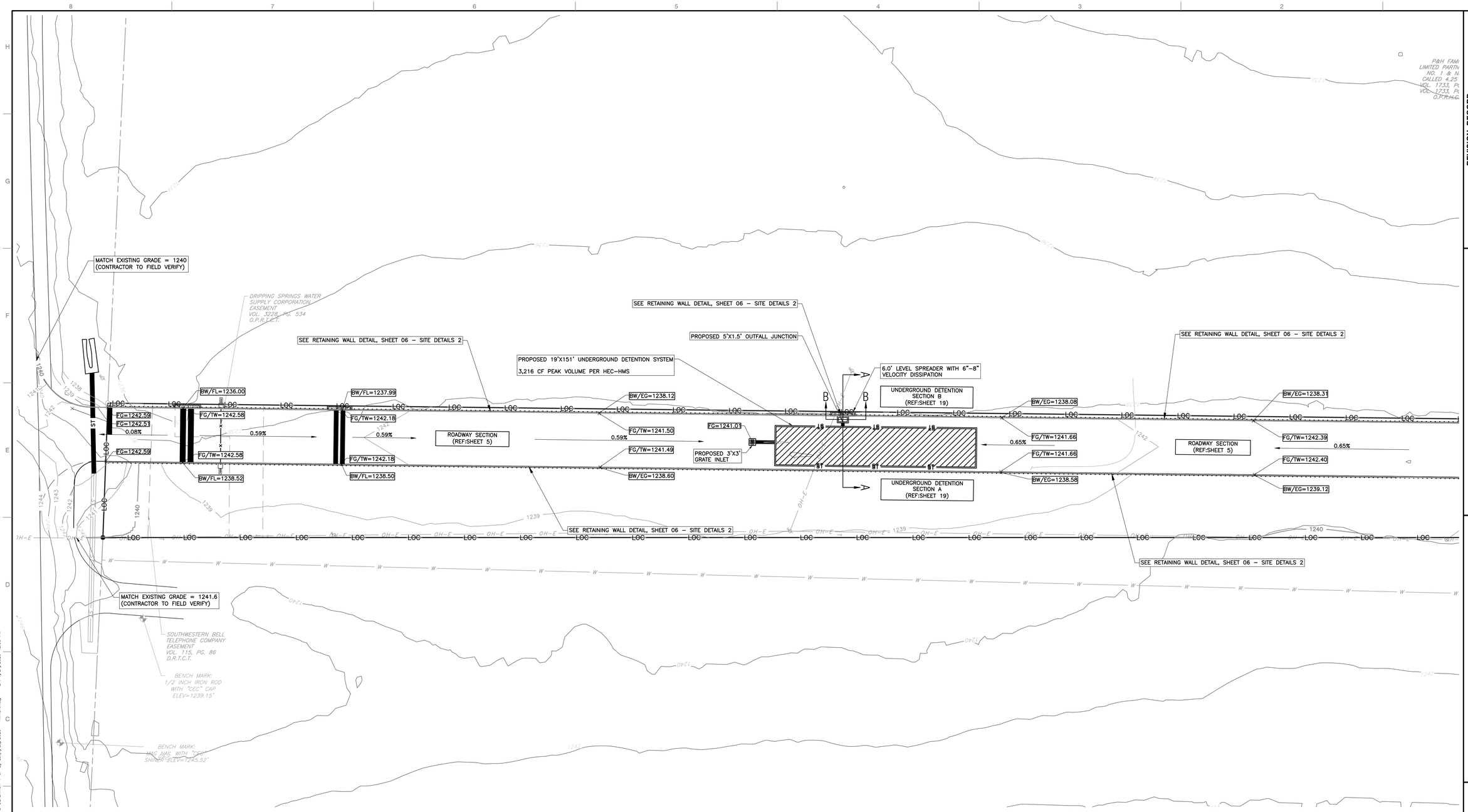
DATE:	07/24/2025
DWG SCALE:	1" = 10'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 16

SHEET 16 OF 48

SD-2022-0025

P:\320-005\324-199\-CAD\Dwg\CIVIL\324199-CIVIL-C200-TXDOT DRIVEWAY.dwg[TXDOT DRIVEWAY] LS(7/24/2025 - mmontes) - LP: 7/24/2025 12:58 PM



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
//	//	FENCE: WOOD (PICKET)
□	□	FENCE: WOOD (PRIVACY)
○	○	FENCE: CHAIN LINK
I	I	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
FIRE		FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
		IRON PIPE	S	S	SANITARY M.H.
		IRON ROD	CO	CO	CLEANOUT
		IRON ROD W/ CAP	D	D	DRAINAGE M.H.
		MONUMENT TYPE 1			DOWN SPOUT
		MONUMENT TYPE 2			AREA INLET
		NAIL			CURB INLET
	S	PIPE BREAK			HEADWALL
	J	PIPE CAP			SAFETY END TREATMENT
		PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 20 40

811 !!! CAUTION !!! !!! CAUTION !!!
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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

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Texas Registered Engineering Firm F-58
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www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

UNDERGROUND DETENTION 1 OF 2

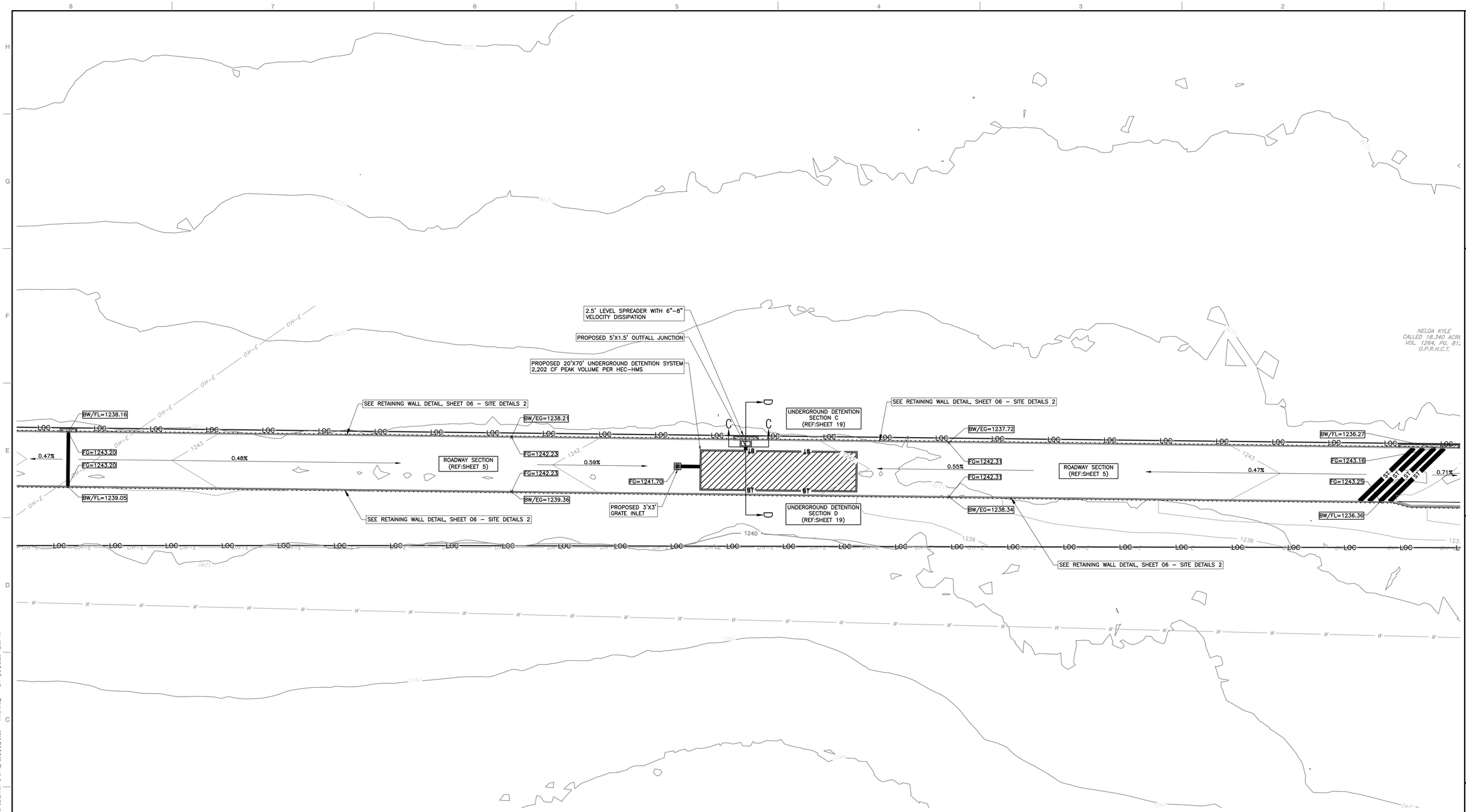
DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: **17**

SHEET 17 OF 48

SD-2022-0025

P:\324-199\324-199-CAD\Dwg\CIVIL\324199-C01-C200-UNDERGROUND DET.dwg||UNDERGROUND DETENTION 1 OF 2|| LS(7/23/2025 - mmartinez) - LP: 7/24/2025 12:35 PM



LINETYPE LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
		RIGHT-OF-WAY	G	G	GAS LINE
		LOT BOUNDARY	OU	OU	OVERHEAD UTILITY
		EASEMENT	UG	UG	UNDERGROUND UTILITY
X	X	FENCE: BARBED	SAN	SAN	SANITARY SEWER LINE
//	//	FENCE: WOOD (PICKET)	W	W	WATER LINE
□	□	FENCE: WOOD (PRIVACY)	F	F	FIRE LINE
○	○	FENCE: CHAIN LINK			ROAD CENTERLINE
I	I	FENCE: IRON			CURB & GUTTER
385	385	MAJOR CONTOUR			STRIPING
		MINOR CONTOUR	FIRE	FIRE	FIRE LANE STRIPING
E	E	ELECTRIC LINE			H.C. ACCESSIBLE ROUTE
OE	OE	OVERHEAD ELECTRIC WIRE	LOC	LOC	LIMITS OF CONSTRUCTION
UE	UE	UNDERGROUND ELECTRIC LINE			RAIL ROAD
T	T	TELEPHONE			FLOODWAY
C	C	COMMUNICATIONS LINE			CWQZ
TV	TV	CABLE TELEVISION	ST	ST	STORM SEWER
FO	FO	FIBER OPTIC LINE			DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	•	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
]	]	PIPE CAP			SAFETY END TREATMENT
›	›	PIPE FLOW			DRAINAGE FLOW
◄	◁	REDUCER	E	E	ELEC. M.H.
Ⓐ	Ⓐ	AIR RELEASE VALVE			ELEC./TELE. POLE
Ⓑ	Ⓑ	BLOW-OFF VALVE			GUY WIRE
Ⓘ	Ⓘ	POST INDICATOR VALVE			LIGHT FIXTURE
Ⓥ	Ⓥ	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
Ⓥ	Ⓥ	UTILITY VALVE			PEDESTRIAN SIGNAL
Ⓜ	Ⓜ	UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 20 40

STATE OF TEXAS
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811

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CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

UNDERGROUND DETENTION 2 OF 2

DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO.	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 18

SHEET 18 OF 48

SD-2022-0025

P:\320-000\324-199\--CAD\Dwg\CIVIL\324199-CIV01-C205-UNDERGROUND DET.dwg|UNDERGROUND DETENTION 2 OF 2| LS(7/23/2025 - mmartinez) - LP: 7/24/2025 12:35 PM

UNDERGROUND DETENTION 1 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software				
Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	2.1	2.4	1.9	1238.5
10-yr	4.0	4.4	3.4	1238.9
25-yr	5.4	5.9	4.8	1239.2
100-yr	8.4	9.0	7.9	1239.6

HARDY DRIVEWAY Detention Pond Stage Values - UNDERGROUND DETENTION 1					
Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1238.00	2000	0.045914	0 cf	0 cf	0.0000
1238.50	2000	0.045914	1,000	1,000	0.0230
1239.00	2000	0.045914	1,000	2,000	0.0459
1239.50	2000	0.045914	1,000	3,000	0.0689

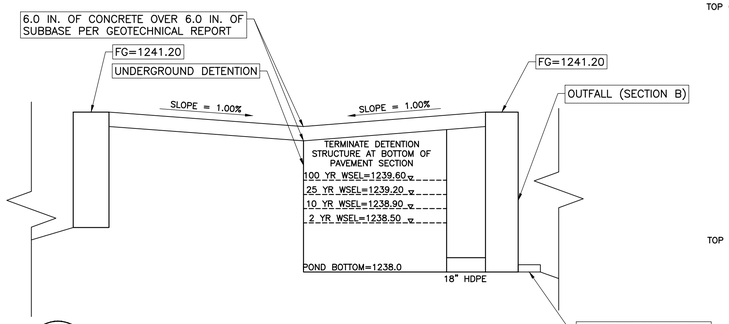
UNDERGROUND DETENTION 1 Outflow Velocity (Weir) [v=Q/A]			
Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	1.9	0.15	12.67
10-yr	3.4	0.2	22.67
25-yr	4.8	0.3	16.00
100-yr	7.9	0.9	8.78

UNDERGROUND DETENTION 1 Outflow Velocity (Orifice) [v=C_d(2gH)^(1/2)]			
Storm Event	Discharge	Head (ft) [H]	Orifice Velocity (fps)
2-yr	0.6	0.1	1.7
10-yr	0.6	0.5	3.5
25-yr	0.6	0.8	4.4
100-yr	0.6	1.2	5.3

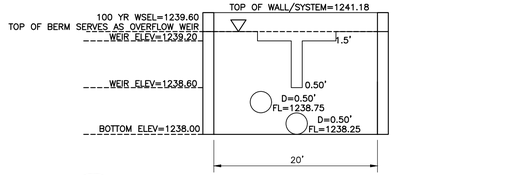
UNDERGROUND DETENTION 2 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software				
Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	1.7	2.0	1.7	1239.3
10-yr	3.3	3.7	3.3	1239.7
25-yr	4.5	4.9	4.4	1240.0
100-yr	6.9	7.4	6.8	1240.5

HARDY DRIVEWAY Detention Pond Stage Values - UNDERGROUND DETENTION 2					
Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1238.50	1000	0.022957	0 cf	0 cf	0.0000
1239.00	1000	0.022957	500	500	0.0115
1239.50	1000	0.022957	500	1,000	0.0230
1240.00	1000	0.022957	500	1,500	0.0344

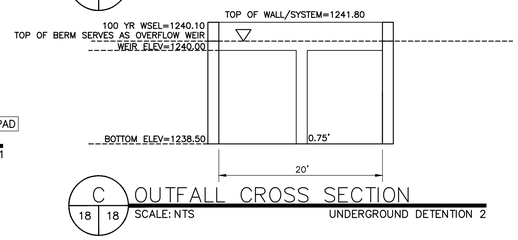
UNDERGROUND DETENTION 2 Outflow Velocity (Weir) [v=Q/A]			
Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	1.7	0.6	2.83
10-yr	3.3	0.9	3.67
25-yr	4.4	1.1	3.91
100-yr	6.8	1.5	4.53



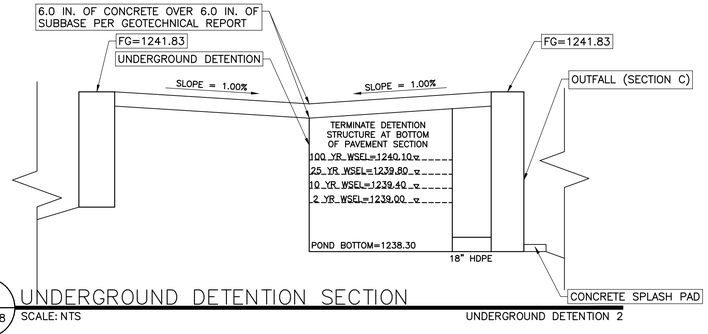
A UNDERGROUND DETENTION SECTION
17 | 17 SCALE: NTS
UNDERGROUND DETENTION 1



B OUTFALL CROSS SECTION
17 | 17 SCALE: NTS
UNDERGROUND DETENTION 1



C OUTFALL CROSS SECTION
18 | 18 SCALE: NTS
UNDERGROUND DETENTION 2



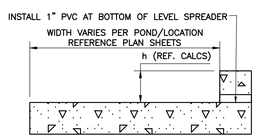
D UNDERGROUND DETENTION SECTION
18 | 18 SCALE: NTS
UNDERGROUND DETENTION 2

Time of Concentration (TR-55 method) - Proposed Site Conditions													
Subbasin		BYP-1	PR-1	BYP-2	PR-2	BYP-3	PR-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION	UNDERGROUND DETENTION 2
Area	sf	502660	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.00077221	0.01670541	0.00034375	0.0517223	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0.0%	57%	0%	50%	0.0%	48%	0%	0%	0%	0%	0%	46%	53%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	90	80	89	80	89	80	80	80	80	80	88	90
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0050	0.0050
Length	ft	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.03	0.05
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0050	0.0050
Length	ft	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.10	0.09
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.14	0.13
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	8.14	7.51
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	4.88	4.51
Proposed Run-off Values														
2 Year	cfs	15.00	1.60	13.90	0.60	43.00	4.60	8.50	26.90	18.00	11.80	16.30	1.90	1.1
10 Year	cfs	26.80	2.80	24.80	1.20	76.90	8.40	15.20	48.20	32.20	21.20	29.10	3.40	2.6
25 Year	cfs	38.30	3.80	35.50	1.60	109.90	11.20	21.70	68.90	46.00	30.30	41.60	4.80	3.4
100 Year	cfs	63.30	5.70	58.60	2.40	181.60	17.10	35.80	113.90	76.00	50.00	68.80	7.90	5.3

Underground Detention 1 Outflow Velocity (Level Spreader) [v=Q/A]					
Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	1.9	6.0	0.25	1.5	1.3
10-yr	3.4	6.0	0.25	1.5	2.3
25-yr	4.8	6.0	0.25	1.5	3.2
100-yr	7.9	6.0	0.25	1.5	5.3

SPLITTER BOX WEIR LENGTH CALC.

weir equation: $q = 3.33\ (b - 0.2\ h)\ h^{3/2}$	
Q (100-yr storm) =	58.20 cfs
max Q over weir	58.75 cfs
b = length of weir	50.00 ft.
h = head abv. Weir	0.50 ft.



TYPICAL LEVEL SPREADER DETAIL

Time of Concentration (TR-55 method) - Existing Site Conditions													
Subbasin		BYP-1	EX-1	BYP-2	EX-2	BYP-3	EX-3	ROW CULVERT	BYP-4	BYP-5	BYP-6	BYP-7	UNDERGROUND DETENTION	UNDERGROUND DETENTION 2
Area	sf	502660	21528	465720	9583.2	1441935	64811	284447	300918	603517	397267	546242	36070	29014
	ac	11.54	0.49	10.69	0.22	33.10	1.49	6.53	6.91	13.85	9.12	12.54	0.83	0.67
	sq mi	0.0180304	0.00077221	0.0167054	0.00034375	0.0517223	0.00232477	0.01020313	0.01079395	0.02164819	0.01424999	0.01959374	0.00129383	0.00104073
Impervious	%	0%	35%	0%	31%	0%	30%	0%	0%	0%	0%	0%	28%	32%
Pervious	Cn	80	80	80	80	80	80	80	80	80	80	80	80	80
Composite	Cn	80	86	80	86	80	85	80	80	80	80	80	85	86
Sheet Flow														
Slope	in/in	0.0460	0.0200	0.0300	0.0220	0.0460	0.0200	0.0380	0.0420	0.0420	0.0260	0.0220	0.0030	0.0030
Length	ft	100	100	100	100	100	100	100	100	100	100	100	100	100
Roughness	n	0.24	0.011	0.24	0.011	0.24	0.011	0.24	0.24	0.24	0.24	0.24	0.011	0.011
Time	hr.	0.15	0.02	0.18	0.02	0.15	0.02	0.16	0.16	0.16	0.19	0.20	0.04	0.04
Shallow Concentrated														
Slope	in/in	0.0430	0.0200	0.0430	0.0220	0.0430	0.0200	0.0430	0.0430	0.0430	0.0300	0.0220	0.0030	0.0030
Length	ft	1783	475	1914	90	1783	475	1617	1637	1722	1906	2050	541	487
Paved?	p/u	u	p	u	p	u	p	u	u	u	u	u	p	
Time	hr.	0.15	0.05	0.16	0.01	0.15	0.05	0.13	0.14	0.14	0.19	0.24	0.13	0.12
Summary														
Travel Time	hr.	0.30	0.06	0.34	0.03	0.30	0.06	0.30	0.29	0.30	0.38	0.44	0.17	0.16
Tc	min.	17.92	3.82	20.25	1.53	17.92	3.82	17.81	17.52	17.95	22.72	26.41	10.38	9.58
Lag Time	min.	10.75	3.00	12.15	3.00	10.75	3.00	10.68	10.51	10.77	13.63	15.85	6.23	5.75
Existing Run-off Values														
2 Year	cfs	15.00	1.40	13.90	0.60	43.00	4.10	8.50	9.00	18.00	11.80	16.30	1.70	1.70
10 Year	cfs	26.80	2.70	24.80	1.20	76.90	7.90	15.20	16.00	32.20	21.20	29.10	3.30	3.30
25 Year	cfs	38.30	3.60	35.50	1.60	109.90	10.70	21.70	22.90	46.00	30.30	41.60	4.80	4.40
100 Year	cfs	63.30	5.60	58.60	2.50	181.60	16.70	35.80	37.90	76.00	50.00	68.80	6.80	6.80

Underground Detention 2 Outflow Velocity (Level Spreader) [v=Q/A]					
Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	1.7	2.5	0.50	1.25	1.4
10-yr	3.3	2.5	0.50	1.25	2.6
25-yr	4.4	2.5	0.50	1.25	3.5
100-yr	6.8	2.5	0.50	1.25	5.4

SPLITTER BOX WEIR LENGTH CALC.

weir equation: $q = 3.33\ (b - 0.2\ h)\ h^{3/2}$	
Q (100-yr storm) =	82.90 cfs
max Q over weir	86.06 cfs
b = length of weir	12.00 ft.
h = head abv. Weir	1.70 ft.

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

!!! CAUTION !!! !!! CAUTION !!!
IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-58
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

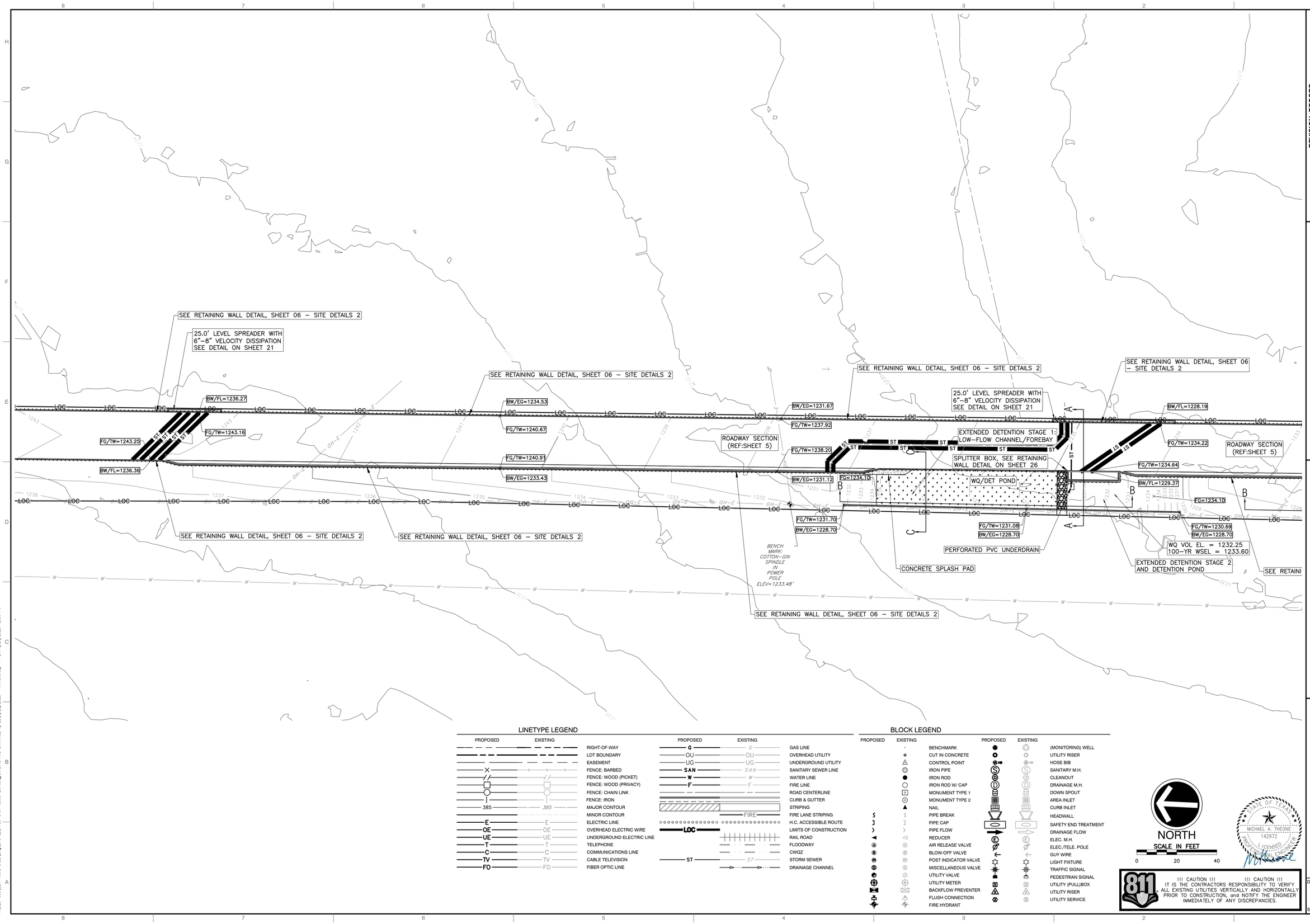
UNDERGROUND DETENTION CALCS

DRAWN BY:	MBM	DATE:	07/24/2025
CHECKED BY:	CB	DWG SCALE:	NTS
PROJECT NO:	324-199	APPROVED BY:	MAT

DRAWING NO.: 19
SHEET 19 OF 48

SD-2022-0025

P:\320-0001\324-1991-0400\Dwg\CIVIL\324199-CIV01-C200-UNDERGROUND DET.dwg[UNDERGROUND DETENTION CALCS] LS(7/23/2025 - mmorrow) - LP: 7/24/2025 12:55 PM



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	*385*	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	*G*	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	*SAN*	SANITARY SEWER LINE
W	*W*	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	*ST*	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	C	C	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
J	J	PIPE CAP			SAFETY END TREATMENT
>	>	PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 20 40

!!! CAUTION !!! !!! CAUTION !!!
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STATE OF TEXAS
MICHAEL A. THEUNE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

GRADING AND DRAINAGE 1

DRAWN BY:	MBM
CHECKED BY:	CB
DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 20

SHEET 20 OF 48

P:\320-003\324-199\-04(01)\dwg\(101)\324199-C101-BMP.dwg[DRAINAGE 1] LS(7/23/2025 - mmortimer) - LP: 7/24/2025 12:36 PM

SD-2022-0025

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Hardy Driveway
Date Prepared: 5/20/2025

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 =	Hays	
Total project area included in plan * =	3.71	acres
Predevelopment impervious area within the limits of the plan * =	1.14	acres
Total post-development impervious area within the limits of the plan* =	1.735	acres
Total post-development impervious cover fraction * =	0.47	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	534	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **2**

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	0.38	acres
Predevelopment impervious area within drainage basin/outfall area =	0.099	acres
Post-development impervious area within drainage basin/outfall area =	0.310	acres
Post-development impervious fraction within drainage basin/outfall area =	0.82	
$L_{M\ THIS\ BASIN}$ =	189	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention**
Removal efficiency = **75** percent

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

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

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

A_C =	0.38	acres
A_I =	0.310	acres
A_P =	0.07	acres
L_R =	266	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **266** lbs.

F = **1.00**

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 =	4.00	inches
Post Development Runoff Coefficient =	0.65	
On-site Water Quality Volume =	3565	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 =	713	
Total Capture Volume (required water quality volume(s) x 1.20) =	4278	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.

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = **4278** cubic feet

EXTENDED DETENTION CALCULATIONS FOR DEVELOPMENT PERMIT

DRAINAGE AREA DATA:

Drainage Area to Control (DA)	0.18 ac.
Drainage Area Impervious Cover	63.00% %

WATER QUALITY CONTROL CALCULAIIONS (PER TCEQ RG-348):	REQUIRED	PROVIDED
Water Quality Volume (REQ WQV = 1.2*WQV PER TCEQ)	4,278 cf	4,972.5 cf
100-year Peak Flow Rate to Control (QIOO)	2.4 cfs	
Forbay Area (Af)		2,000.0 sf
Depth of forebay (D)	Min 2 ft Max 5 ft	2.0 ft
Forebay Water Quality Volume (WQVponded=Af*D)		4,000.0 cf
Stage 2 Water Quality Volume		972.5 cf
Water Quality Elevation (WQE)		1232.25 ft msl.
Extended Detention Drawdown Time	Min 48 hr	48 hr
Underdrain Oriface Size (Diameter)		0.7 in
Underdrain Oriface Size (Area)		0.3939 sq-in

Oriface Calculation:

Q = V / T

WQV 4,278.0 cf

Time = 48 Hr x 60 Min x 60 Sec = 172800 Sec

Q 0.024757 cfs

Assumption: Average Head Will Occour .5 Feet Below WQE

WQE 1227.75 ft msl.

Oriface E 1223.717 ft msl.

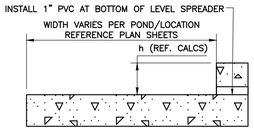
H average 3.533 ft

Q = 0.6 * A * (2 * 32.2 * (H))^0.5

A 0.002735 sqft

D 0.059016 ft

D 0.708193 in



TYPICAL LEVEL SPREADER DETAIL

Pond 1 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software

Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	1.4	1.5	1.4	1233.2
10-yr	2.7	2.8	2.7	1233.3
25-yr	3.6	3.7	3.6	1233.4
100-yr	5.6	5.7	5.6	1233.6

Pond 1 Outflow Velocity (Weir) [v=Q/A]

Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	1.4	0.6	2.33
10-yr	2.7	0.9	3.00
25-yr	3.6	1.2	3.00
100-yr	5.6	1.8	3.11

Pond 1 Outflow Velocity (Orifice) [v=C_d(2gH)^(1/2)]

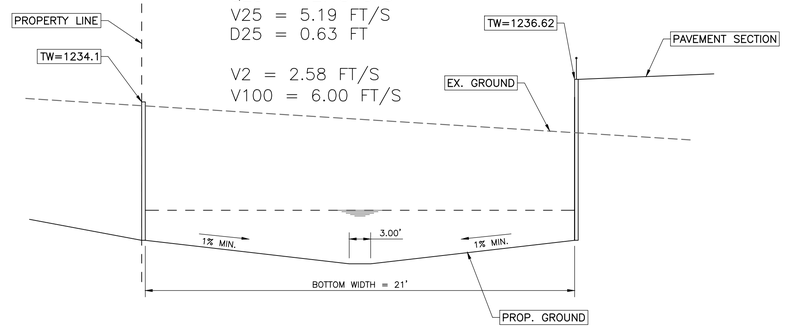
Storm Event	Discharge	Head (ft) [H]	Orifice Velocity (fps)
2-yr	0.6	1.0	4.7
10-yr	0.6	1.0	4.9
25-yr	0.6	1.2	5.2
100-yr	0.6	1.3	5.6

HARDY DRIVEWAY Detention Pond Stage Values - BMP 1

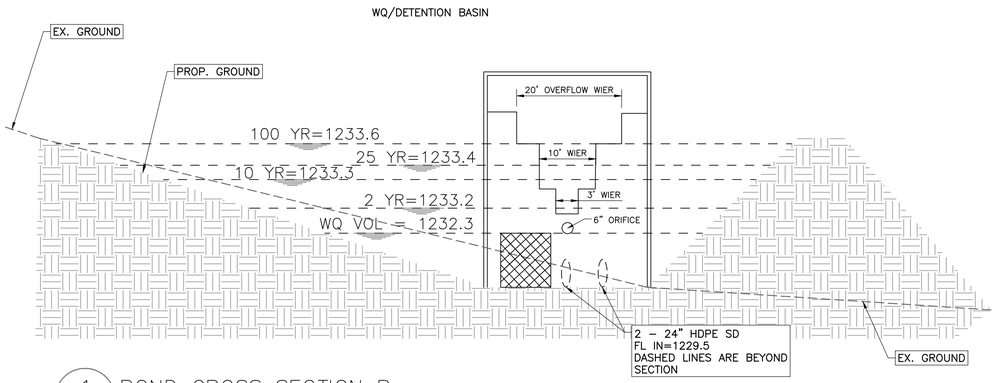
Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1232.25	0	0.000000	0 cf	0 cf	0.0000
1233.00	500	0.011478	188	188	0.0043
1234.00	1,500	0.034435	1,000	1,188	0.0273
1235.00	2,500	0.057392	2,000	3,188	0.0732
1236.00	3,500	0.080349	3,000	6,188	0.1420
1237.00	4,500	0.103306	4,000	10,188	0.2339

Pond 1 Outflow Velocity (Level Spreader) [v=Q/A]

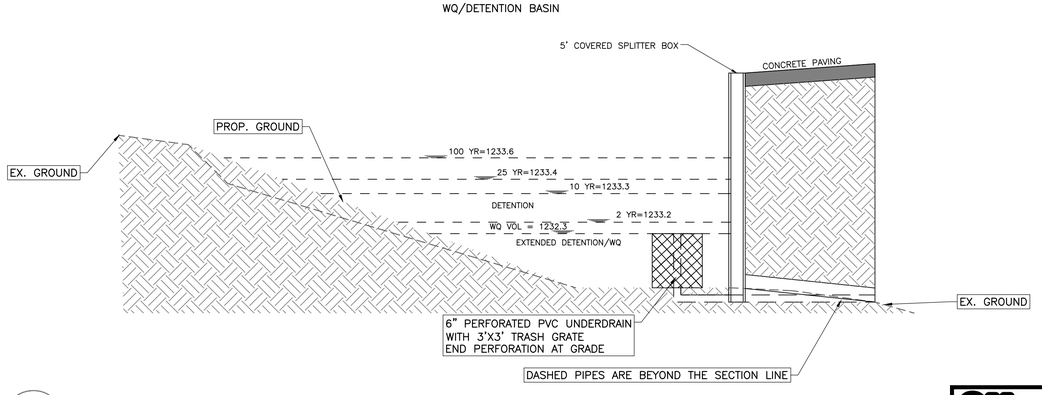
Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	16.4	25.0	0.50	12.5	1.3
10-yr	29.5	25.0	0.50	12.5	2.4
25-yr	41.9	25.0	0.50	12.5	3.4
100-yr	68.9	25.0	0.50	12.5	5.5



1 / 19 19 POND CROSS SECTION C
SCALE: NTS BMP 1



1 / 19 19 POND CROSS SECTION B
SCALE: NTS BMP 1



1 / 19 19 POND CROSS SECTION A
SCALE: NTS BMP 1

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

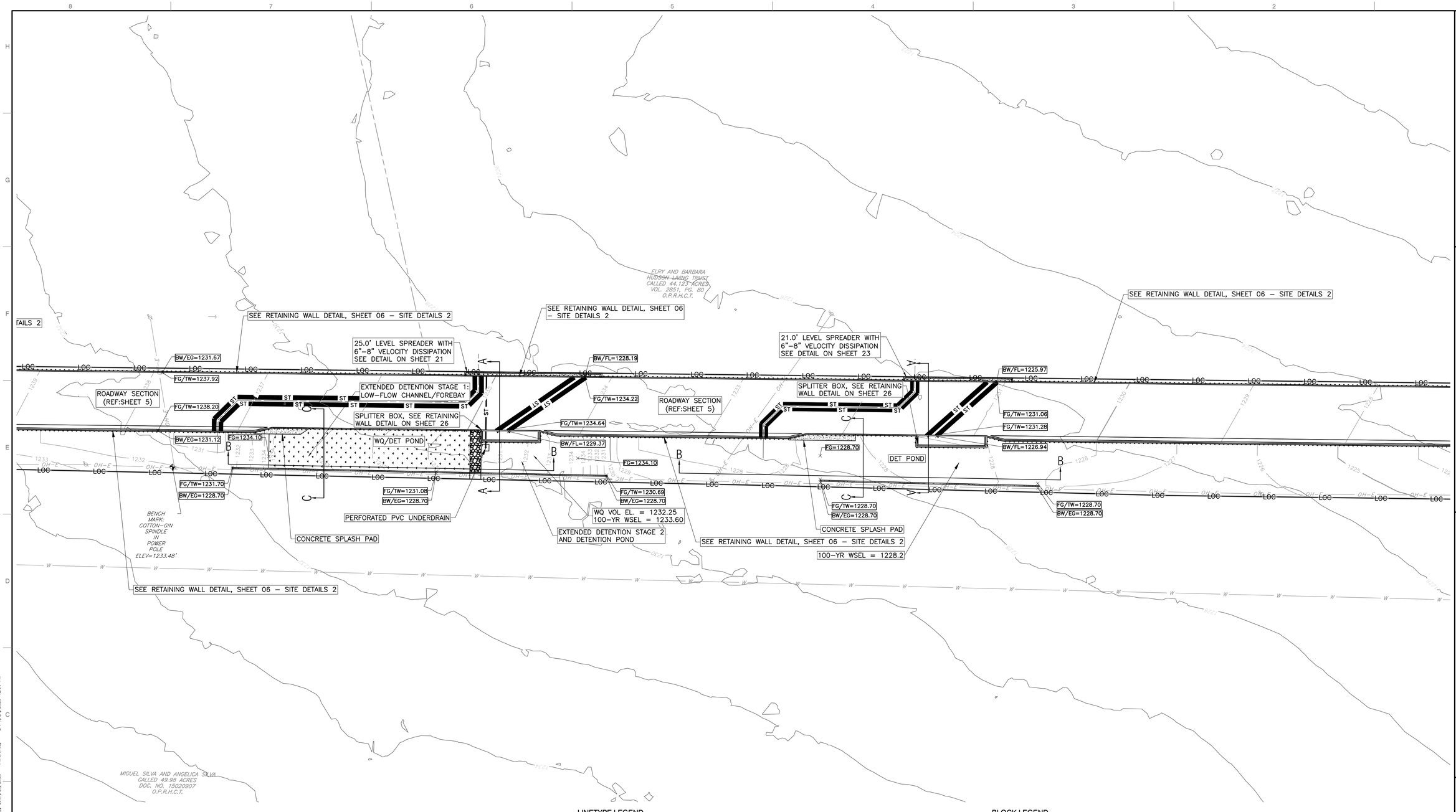
GRADING AND DRAINAGE 1 CALCS

DATE:	07/24/2025
DRAWN BY:	MBM
CHECKED BY:	CB
DWG SCALE:	NTS
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 21
SHEET 21 OF 48

SD-2022-0025

P:\320-0001\324-1991-0401\dwg\civil\324199-civil-c300-BMP.dwg[DRAINAGE 1 CALCS] LS(7/23/2025 - mmorimo) - LP: 7/24/2025 12:38 PM



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	·	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	▣	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
J	J	PIPE CAP			SAFETY END TREATMENT
		PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH
SCALE IN FEET
0 20 40

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STATE OF TEXAS
MICHAEL A. THEONE
142972
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www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

GRADING AND DRAINAGE 2

DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

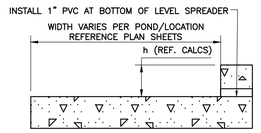
DRAWING NO.: 22
SHEET 22 OF 48

SD-2022-0025

P:\320-0001_324-199_CADD\Dwg\CIVIL\324199-CVD1-C300-BMP.dwg[DRAINAGE 2] LS(7/23/2025 - mmortine) - LP: 7/24/2025 12:36 PM

Pond 2 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software

Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	0.6	0.7	0.6	1228.0
10-yr	1.2	1.2	1.2	1228.1
25-yr	1.6	1.6	1.6	1228.1
100-yr	2.5	2.5	2.5	1228.2



TYPICAL LEVEL SPREADER DETAIL

Pond 2 Outflow Velocity (Weir) [v=Q/A]			
Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	0.6	0	0
10-yr	1.2	0.5	2.40
25-yr	1.6	0.5	3.20
100-yr	2.5	1.0	2.50

Pond 2 Outflow Velocity (Orifice) [$v=C_d(2gH)^{(1/2)}$]			
Storm Event	Discharge	Head (ft) [H]	Orifice Velocity (fps)
2-yr	0.6	0.7	3.9
10-yr	0.6	0.8	4.2
25-yr	0.6	0.8	4.2
100-yr	0.6	0.9	4.4

HARDY DRIVEWAY Detention Pond Stage Values - BMP 2

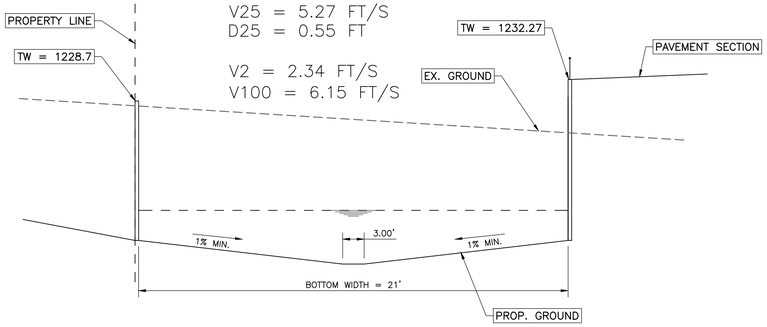
Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1227.35	0	0.000000	0 cf	0 cf	0.0000
1228.00	34	0.000781	11	11	0.0003
1229.00	1,381	0.031703	708	719	0.0165
1230.00	1,609	0.036938	1,495	2,214	0.0508
1231.00	2,155	0.049472	1,882	4,096	0.0940

Pond 2 Outflow Velocity (Level Spreader) [v=Q/A]					
Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	14.5	21.0	0.50	10.5	1.4
10-yr	26.0	21.0	0.50	10.5	2.5
25-yr	37.1	21.0	0.50	10.5	3.5
100-yr	61.1	21.0	0.50	10.5	5.8

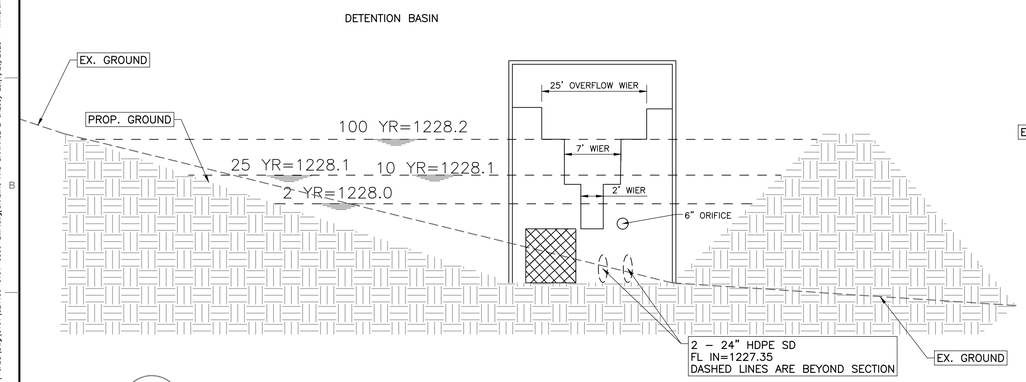
DITCH SECTION 2

Q25 = 13.64 CFS
V25 = 5.27 FT/S
D25 = 0.55 FT

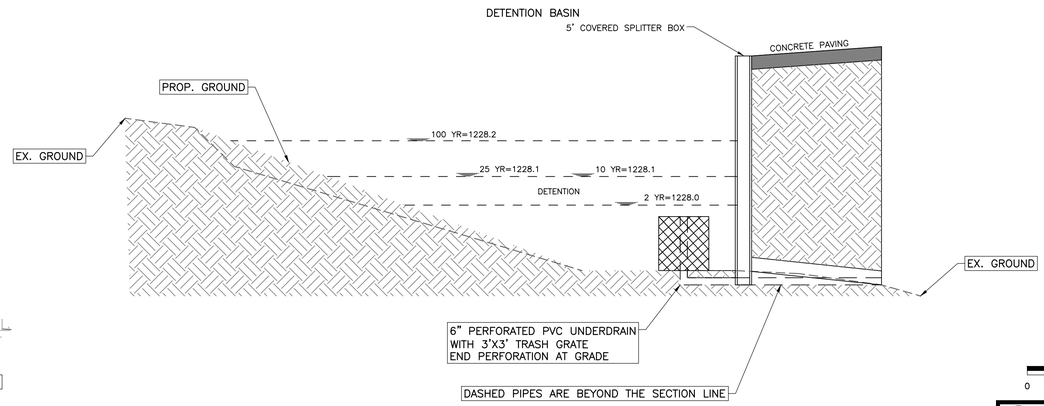
V2 = 2.34 FT/S
V100 = 6.15 FT/S



2 / 21 | 21 POND CROSS SECTION C
SCALE: NTS
BMP 2



2 / 21 | 21 POND CROSS SECTION B
SCALE: NTS
BMP 2



2 / 21 | 21 POND CROSS SECTION A
SCALE: NTS
BMP 2

NORTH
SCALE IN FEET
0 10 20

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

811 !!! CAUTION !!! !!! CAUTION !!!
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HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

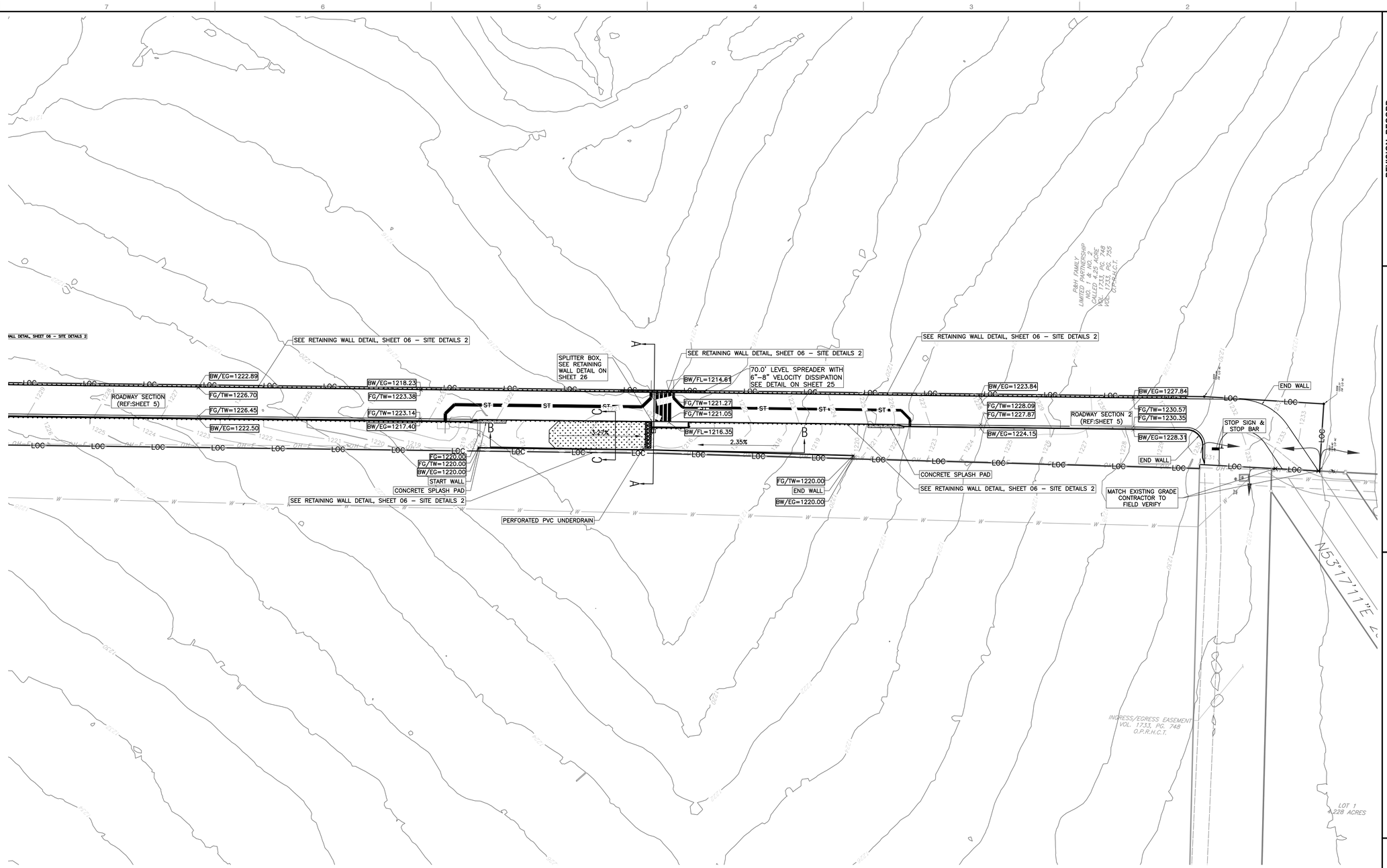
GRADING AND DRAINAGE 2 CALCS

DATE:	07/24/2025
DWG SCALE:	NTS
DRAWN BY:	MBM
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 23
SHEET 23 OF 48

SD-2022-0025

P:\320-0001.324-199\~CADD\Dwg\0011.324199-C101-C300-BMP.dwg[DRAINAGE 2 CALCS] LS(7/23/2025 - mmartinez) - LP: 7/24/2025 12:36 PM



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
//	//	FENCE: WOOD (PICKET)
□	□	FENCE: WOOD (PRIVACY)
○	○	FENCE: CHAIN LINK
I	I	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
		CUT IN CONCRETE			UTILITY RISER
		CONTROL POINT	HB	HB	HOSE BIB
		IRON PIPE	S	S	SANITARY M.H.
		IRON ROD	CO	CO	CLEANOUT
		IRON ROD W/ CAP	D	D	DRAINAGE M.H.
		MONUMENT TYPE 1			DOWN SPOUT
		MONUMENT TYPE 2			AREA INLET
		NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
]	]	PIPE CAP			SAFETY END TREATMENT
›	›	PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 40 80

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STATE OF TEXAS · MICHAEL A. THEONE · 142972 · LICENSED PROFESSIONAL ENGINEER

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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

GRADING AND DRAINAGE 3

DRAWN BY:	MBM
CHECKED BY:	CB
DATE:	07/24/2025
DWG SCALE:	1" = 40'
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: 24

SHEET 24 OF 48

SD-2022-0025

A:\320-000\324-199\CAD\Dwg\CVD\324199-CV01-C300-BMP-Dwg[GRADING AND DRAINAGE 3] 15:17:23/2025 - mmortimer - LP: 7/24/2025 12:36 PM

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Hardy Driveway
Date Prepared: 5/20/2025

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 =	**Hays**	
Total project area included in plan * =	**3.71**	acres
Predevelopment impervious area within the limits of the plan * =	**1.14**	acres
Total post-development impervious area within the limits of the plan* =	**1.735**	acres
Total post-development impervious cover fraction * =	**0.47**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**534**	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = **2**

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

Drainage Basin/Outfall Area No. = 2

Total drainage basin/outfall area =	**0.501**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.193**	acres
Post-development impervious area within drainage basin/outfall area =	**0.366**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.73**	
$L_{M\ THIS\ BASIN}$ =	**155**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention**
Removal efficiency = **75** percent

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

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

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

A_C =	**0.501**	acres
A_I =	**0.366**	acres
A_P =	**0.14**	acres
L_R =	**315**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **315** lbs.

F = **1.00**

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 =	**4.00**	inches
Post Development Runoff Coefficient =	**0.54**	
On-site Water Quality Volume =	**3912**	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 =	**782**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**4695**	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.

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = **4695** cubic feet

EXTENDED DETENTION CALCULATIONS FOR DEVELOPMENT PERMIT

DRAINAGE AREA DATA:

Drainage Area to Control (DA)	0.98 ac.
Drainage Area Impervious Cover	68.00% %

WATER QUALITY CONTROL CALCULAIIONS (PER TCEQ RG-348):	REQUIRED	PROVIDED
Water Quality Volume (REQ WQV = 1.2*WQV PER TCEQ)	4,695 cf	5,131.8 cf
100-year Peak Flow Rate to Control (QIOO)	17 cfs	
Forbay Area (Af)		2,000.0 sf
Depth of forebay (D)	Min 2 ft Max 5 ft	2.0 ft
Forebay Water Quality Volume (WQVponded=Af*D)		4,000.0 cf
Stage 2 Water Quality Volume		1,131.8 cf
Water Quality Elevation (WQE)		1217.25 ft msl.
Extended Detention Drawdown Time	Min 48 hr	48 hr
Underdrain Orifice Size (Diameter)		0.9 in
Underdrain Orifice Size (Area)		0.6635 sq-in

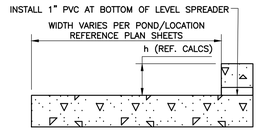
Oriface Calculation:
Q = V / T
WQV 4,695.0 cf
Time = 48 Hr x 60 Min x 60 Sec = 172800 Sec
Q 0.02717 cfs
Assumption: Average Head Will Occour .5 Feet Below WQE
WQE 1217.25 ft msl.
Oriface E 1215.25 ft msl.
H average 1.5 ft
Q = 0.6 * A * (2 * 32.2 * (H))^0.5
A 0.004607 sqft
D 0.076592 ft
D 0.919099 in

Pond 3 - Detention Pond Values from HEC-HMS Hydrologic Modeling Software

Storm Event	Q-Ex (cfs)	Q-Pr (cfs)	PR-Routed (cfs)	WS Elevation (ft)
2-yr	4.1	4.0	4.0	1218.4
10-yr	7.9	7.7	7.7	1219.0
25-yr	10.7	10.6	10.6	1219.2
100-yr	16.7	16.6	16.6	1219.5

Pond 3 Outflow Velocity (Weir) [v=Q/A]

Storm Event	*Q-Routed (cfs) [Q]	Area of Weir (ft^2) [A]	Weir Velocity (fps) [v]
2-yr	4.0	1.15	3.48
10-yr	7.7	1.8	4.40
25-yr	10.6	3.2	3.37
100-yr	16.6	5.3	3.16



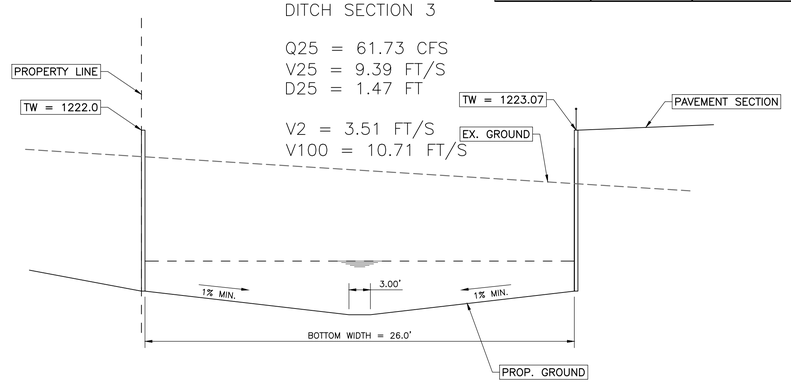
TYPICAL LEVEL SPREADER DETAIL

HARDY DRIVEWAY Detention Pond Stage Values - BMP 3

Stage	Area (sf)	Area (ac)	Volume (cf)	Cum. Volume (cf)	Ac-ft
1217.25	0	0.000000	0 cf	0 cf	0.0000
1218.00	750	0.017218	281	281	0.0065
1219.00	1,750	0.040174	1,250	1,531	0.0352
1220.00	2,750	0.063131	2,250	3,781	0.0868
1221.00	3,750	0.086088	3,250	7,031	0.1614
1222.00	4,750	0.109045	4,250	11,281	0.2590

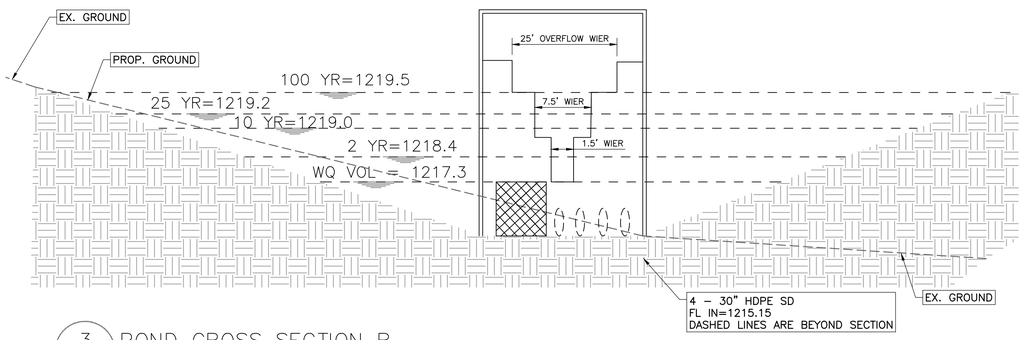
Pond 3 Outflow Velocity (Level Spreader) [v=Q/A]

Storm Event	*Q-Routed (cfs) [Q]	Length of Level Spreader (ft) [L]	Height of Level Spreader (ft) [h]	Area of Level Spreader (ft^2) [A=L*h]	Level Spreader Velocity (fps) [v]
2-yr	47.0	70.0	0.50	35	1.3
10-yr	84.6	70.0	0.50	35	2.4
25-yr	120.5	70.0	0.50	35	3.4
100-yr	198.2	70.0	0.50	35	5.7



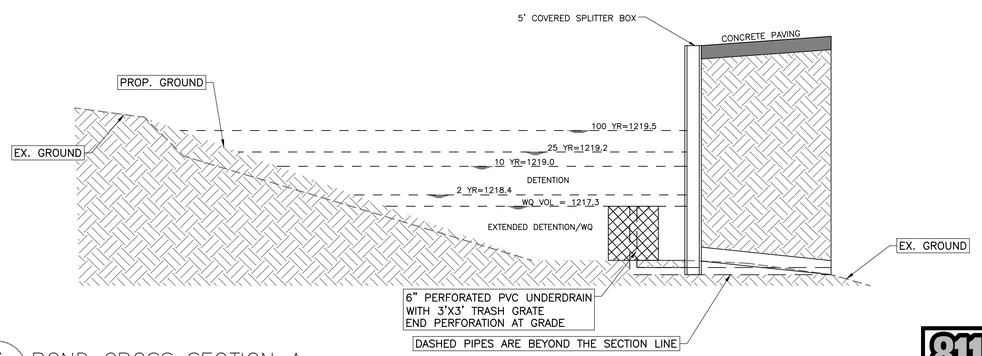
3 / 23 23 POND CROSS SECTION C
SCALE: NTS BMP 3

WQ/DETENTION BASIN



3 / 23 23 POND CROSS SECTION B
SCALE: NTS BMP 3

WQ/DETENTION BASIN



3 / 23 23 POND CROSS SECTION A
SCALE: NTS BMP 3

STATE OF TEXAS — MICHAEL A. THEUNE — 142972 — LICENSED PROFESSIONAL ENGINEER

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REVISION RECORD

NO	DESCRIPTION	DATE

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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

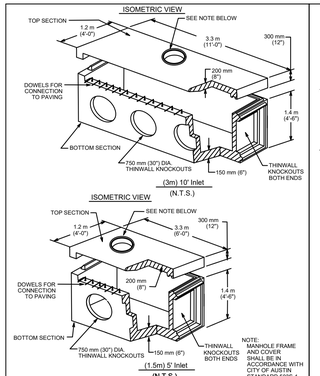
GRADING AND DRAINAGE 3 CALCS

DRAWN BY:	MBM
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT
DATE:	07/24/2025
DWG SCALE:	NTS

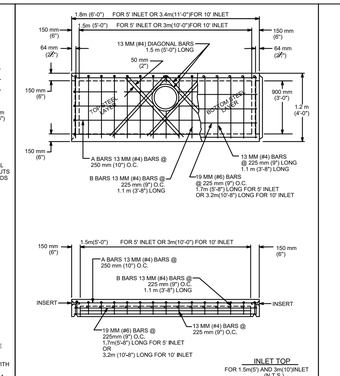
DRAWING NO.: **25**
SHEET **25** OF **48**

SD-2022-0025

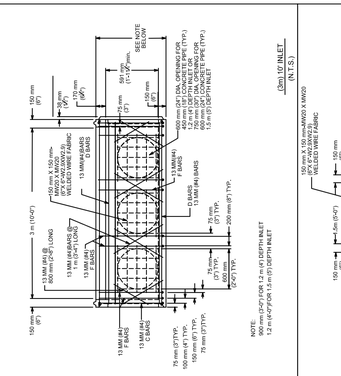
A:\320-000\324-199\--CAD\Dwg\DWG\324199-CV01-C3D-BMPdwg[GRADING AND DRAINAGE 3 CALCS] LS(7/23/2025 - mmartinez) - LP: 7/24/2025 12:37 PM



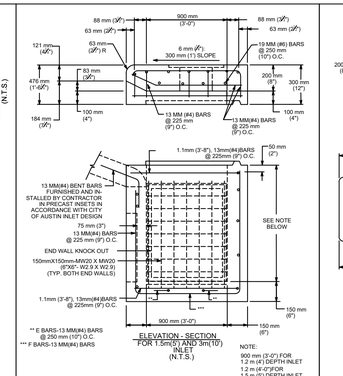
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 1 OF 7



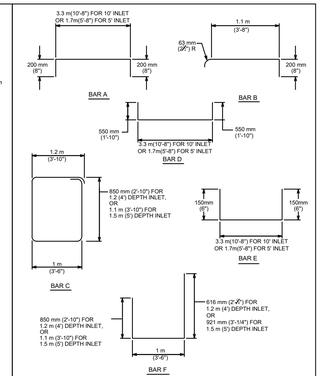
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 2 OF 7



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 3 OF 7



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 4 OF 7



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 5 OF 7

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
RECORD COPY SIGNED BY BILL GARDNER 08/20/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 1 OF 2

NOTES:
1. ALL CONCRETE SHALL BE TYPE "C" AS PER SPEC. 4035. CONCRETE FOR STURCTURES.
2. CHAMFER ALL EXTERNAL VISIBLE CORNERS.
3. DISSIPATOR BLOCKS REQUIRED ON DISCHARGE HEADWALLS ONLY.

D	457 mm (18")	533 mm (21")	610 mm (24")	685 mm (27")	765 mm (30")	838 mm (33")	914 mm (36")	1.067 m (42")	1.219 m (48")	1.372 m (54")	1.524 m (60")
A	225 mm (9")	250 mm (10")	300 mm (12")	350 mm (14")	375 mm (15")	400 mm (16")	450 mm (18")	525 mm (21")	600 mm (24")	675 mm (27")	750 mm (30")
B	150 mm (6")	175 mm (7")	200 mm (8")	225 mm (9")	250 mm (10")	275 mm (11")	300 mm (12")	350 mm (14")	400 mm (16")	450 mm (18")	500 mm (20")
C	2.29 m (90")	2.67 m (105")	3.05 m (120")	343 m (135")	3.81 m (150")	4.19 m (165")	4.57 m (180")	5.33 m (210")	6.10 m (240")	6.86 m (270")	7.62 m (300")
L	1.37 m (54")	1.60 m (63")	1.83 m (72")	2.06 m (81")	2.29 m (90")	2.51 m (99")	2.74 m (108")	3.20 m (126")	3.66 m (144")	4.11 m (162")	4.57 m (180")
E	300 mm (12")	350 mm (14")	400 mm (16")	450 mm (18")	500 mm (20")	550 mm (22")	600 mm (24")	700 mm (28")	800m (32")	900 mm (36")	1000 mm (40")

DIMENSIONS IN MILLIMETERS, METERS AND (INCHES).
DISCHARGE VELOCITIES GREATER THAN 3 METERS/SECOND (10 fps) REQUIRE ROCK OUTLET PROTECTION.

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
RECORD COPY SIGNED BY BILL GARDNER 08/20/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 2 OF 2

1. ROCK RIPRAP SHALL BE SOUND MATERIAL AND GRADATION SHALL BE AS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 511S.
2. ROCK SIZE (D_{50}) AND GRADATION SHALL BE STABLE FOR THE DESIGN HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH THE ECM 1.4.6.D PERMANENT STRUCTURAL PRACTICES. STONE RIPRAP OR OTHER ROCK MATERIAL MAY BE USED. MINIMUM SIZE OF ROCK RIPRAP, ROCK RIPRAP D$_{50}$, AND FILTER TYPE SHALL BE NOTED ON PLANS.
3. GEOTEXTILE FILTER FABRIC SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 620S.
4. AGGREGATE FOR GRANULAR FILTER SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 403. AGGREGATE SIZE CLASSIFICATION/GRADE, NUMBER OF LAYERS AND LAYER THICKNESS SHOULD BE NOTED ON THE PLANS.

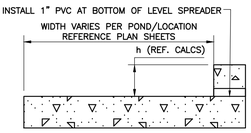
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STORMDRAIN OUTFALL PROTECTION CULVERT UNDER ROADWAY/INLINE	
RECORD COPY SIGNED BY MORGAN BYARS 09/01/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO 508S-20

Pond Wall

Looking from "C" to "A"

NOTES:
1. ALL CONCRETE SHALL BE CLASS "A" AS PER ITEM 403S.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
5. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB, IN ACCORDANCE WITH CITY OF AUSTIN STANDARD INLET DESIGN.
6. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE BY CONTRACTOR, SHAPED AS "V" SECTION
7. THIS STANDARD COMPLIES WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO. 508S.
8. WHEN PLACING PRECAST INLETS IN SERIES TO CREATE A 15'-0" OR 20'-0" CURB INLET, THE CONNECTION BETWEEN INLET BOXES SHALL BE SOIL TIGHT AND FULLY CONVEY THE PEAK DESIGN FLOW FROM THE UPSTREAM INLET(S). THE 1:20 INVERT SLOPE DESCRIBED IN NOTE 6 OF THIS DETAIL SHALL EXTEND FROM THE MOST DOWNSTREAM POINT TO THE MOST UPSTREAM OF THE CONNECTED INLET BOXES. AT NO TIME CAN MORE THAN 20-LF OF CURB OPENING BE CONNECTED TO A MAIN STORM DRAIN LINE WITH ONE LATERAL STORM DRAIN CONNECTION.

INSTALL 1" PVC AT BOTTOM OF LEVEL SPREADER
WIDTH VARIES PER POND/LOCATION REFERENCE PLAN SHEETS
h (REF. CALCS)



TYPICAL LEVEL SPREADER DETAIL

EXTENDED DETENTION DETAIL

Figure 3-17 Schematic of a two stage Extended Detention Basin (LCRA, 1998)

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NO	DATE	DESCRIPTION

REVISION RECORD

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

DRAINAGE DETAILS 1 OF 2

DATE:	07/24/2025
DWG SCALE:	NTS
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

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DRAWING NO.: 26
SHEET 26 OF 48

SD-2022-0025

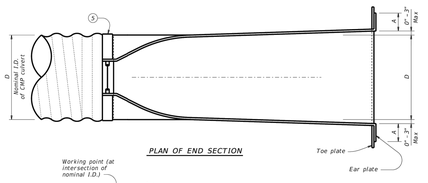
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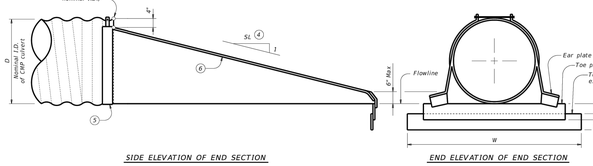
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DATE:
FILE:

PREFABRICATED GALVANIZED STEEL END SECTION DETAILS

(Safety end treatment and riprap not shown for clarity.)





SIDE ELEVATION OF END SECTION

END ELEVATION OF END SECTION

CROSS PIPE LENGTHS, PIPE RUNNER LENGTHS, AND REQUIRED PIPE SIZES (1)

D (Nominal) (Culvert I.D.)	Cross Pipe Length	3:1 Side Slope		4:1 Side Slope		6:1 Side Slope	
		Pipe Runner Length	Pipe Runner Size	Pipe Runner Length	Pipe Runner Size	Pipe Runner Length	Pipe Runner Size
≤ 24"	N/A	N/A		N/A		N/A	
30"	3' – 11"	5' – 0"	3.500 x 0.216	7' – 1"	3.500 x 0.216	11' – 3"	4.500 x 0.237
36"	4' – 5"	6' – 7"	3.500 x 0.216	9' – 2"	3.500 x 0.216	14' – 4"	4.500 x 0.237
42"	4' – 11"	8' – 2"	3.500 x 0.216	11' – 2"	4.500 x 0.237	17' – 4"	4.500 x 0.237
48"	5' – 5"	9' – 9"	3.500 x 0.216	13' – 3"	4.500 x 0.237	20' – 4"	5.563 x 0.258
54"	5' – 11"	11' – 3"	4.500 x 0.237	15' – 4"	4.500 x 0.237	23' – 5"	5.563 x 0.258
60"	6' – 5"	12' – 10"	4.500 x 0.237	17' – 4"	4.500 x 0.237	26' – 5"	5.563 x 0.258

PREFABRICATED END SECTION INFORMATION

D (Nominal) (Culvert I.D.)	Pipe Runner Required	H (2)	A (2)	W (2)	Gage (2)
≤ 24"	No	6"	9"	D + 24"	16
30"	Skew > 15°	9"	12"	D + 32"	14
36"	All skews	9"	12"	D + 32"	14
≥ 42	All skews	12"	16"	D + 40"	12/10 (3)

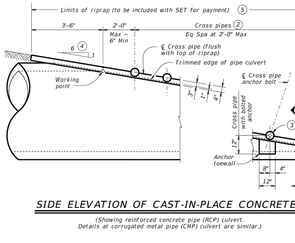
STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTH (7)

HSS Size	STD Size	Max Pipe Runner Length
2.375 x 0.154	2"	N/A
3.500 x 0.216	3"	10' – 0"
4.500 x 0.237	4"	19' – 8"
5.563 x 0.258	5"	34' – 2"

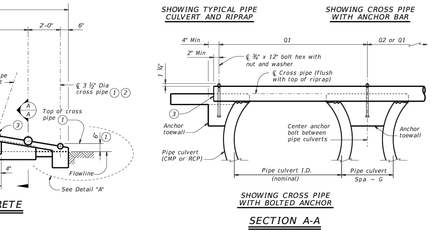
1. Provide size of pipe runner as shown in the tables. Cross pipe is the same size as the pipe runner. Cross pipe stub out and bottom anchor pipe are the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Length table.
2. Values shown are minimum requirements.
3. Provide all 3-piece apron sections with 12 gage sides and 10 gage center panels.
4. Recommended values of slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.
5. Connection between corrugated metal pipe (CMP) culvert and galvanized prefabricated end section may be with strap and bolt as shown or other combinations of threaded rods and/or coupling bands.
6. Reinforce upper edge of prefabricated end section with minimum ⅝" dia smooth or deformed bar (pre-galvanized).
7. Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap."

MATERIAL NOTES:
Provide pipe runners, cross pipes, and anchor pipes conforming to ASTM A1085, A500 Gr B, A53 (Type E or S, Gr B), or API 5L X52.
Provide ASTM A307 bolts and nuts.
Galvanize all steel components, except reinforcement, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specification.
Toe plate extensions are required only when shown elsewhere in the plans.
Concrete riprap is required only when pipe runners are required, unless otherwise shown in the plans. Provide concrete riprap in accordance with Item 432, "Riprap." Use Bottom Anchor Toewall Option B1 when an alternate end section with pre-attached pipe runners is supplied.
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of welded wire reinforcement in concrete riprap unless noted otherwise.

GENERAL NOTES:
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
Alternate styles of end sections, including those with pre-attached pipe runners, may be supplied. Alternate styles must meet all of the following: design values shown in tables for pipe runner size; H, A, W, and gage for end section; and material requirements noted.
For pipe runners, calculations, and dimensions are based on the End Section shown on this standard. Other styles of end sections will require that appropriate adjustments be made to the values presented on this standard.
Payment for riprap and toewall is included in price bid for each safety end treatment.



ISOMETRIC VIEW OF TYPICAL INSTALLATION



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Pipe runners are not shown for clarity.)

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

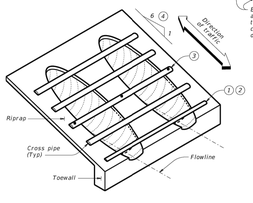
PREFABRICATED GALVANIZED STEEL END SECTION SAFETY END TREATMENT
FOR 12" TO 60" DIA CMP CULVERTS
TYPE II ~ CROSS DRAINAGE
GS-ES-CD

FILE: CD-GSES-CD-20.dgn	DN: TxDOT	CK: TxDOT	DW: JRP	CK: SAF
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

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DATE:
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CROSS PIPE DETAILS

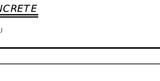


ISOMETRIC VIEW OF TYPICAL INSTALLATION

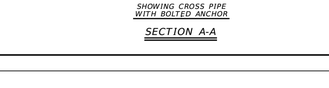
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)

PIPE WITH ANCHOR BARS



SECTION C-C



DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)

SECTION B-B

(Cross pipes not shown for clarity.)

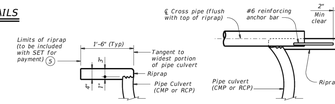
CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES (2)

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa – G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' – 9"	N/A	2' – 1"	1' – 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' – 11"	N/A	2' – 5"	2' – 2"		
18"	0.8	1' – 2"	N/A	2' – 10"	2' – 8"		
21"	0.9	1' – 4"	N/A	3' – 2"	3' – 1"		
24"	0.9	1' – 7"	N/A	3' – 6"	3' – 7"		
27"	1.0	1' – 8"	N/A	3' – 10"	3' – 11"	3 or more pipe culverts	
30"	1.1	1' – 10"	N/A	4' – 2"	4' – 4"	2 or more pipe culverts	3 ½" Std (4.000" O.D.)
33"	1.2	1' – 11"	4' – 2"	4' – 5"	4' – 8"	All pipe culverts	
36"	1.3	2' – 1"	4' – 5"	4' – 9"	5' – 1"		4" Std (4.500" O.D.)
42"	1.5	2' – 4"	4' – 11"	5' – 5"	5' – 10"	All pipe culverts	
48"	1.7	2' – 7"	5' – 5"	6' – 0"	6' – 7"		5" Std (5.563" O.D.)
54"	2.0	3' – 0"	5' – 11"	6' – 8"	7' – 6"		
60"	2.2	3' – 3"	6' – 5"	7' – 4"	8' – 3"	All pipe culverts	
66"	2.4	3' – 3"	6' – 11"	7' – 10"	8' – 9"		
72"	2.7	3' – 4"	7' – 5"	8' – 5"	9' – 4"		

1. The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.
2. Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.
3. Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.
4. Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.
5. Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".
6. Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5L X52.
Provide ASTM A307 bolts and nuts.
Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:
Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.
Provide concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".
Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.



SHOWING TYPICAL PIPE CULVERT AND RIPRAP



SHOWING CROSS PIPE WITH ANCHOR BAR

SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)

SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

SHEET 2 OF 2

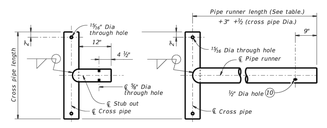
Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT
FOR 12" DIA TO 72" DIA PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE
SETP-PD

FILE: setpdsn-20.dgn	DN: SAF	CK: CAT	DW: JRP	CK: SAF
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

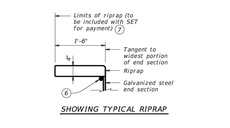
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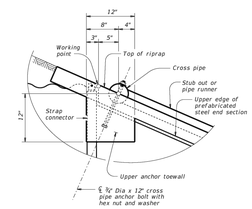
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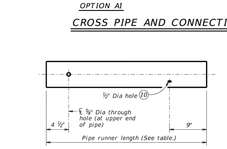
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS

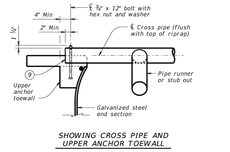




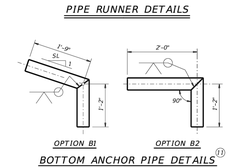
UPPER ANCHOR TOEWALL DETAILS



PIPE RUNNER DETAILS

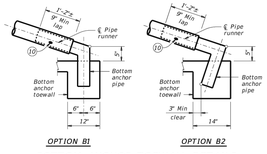


SHOWING CROSS PIPE AND UPPER ANCHOR TOEWALL



OPTION B1 OPTION B2

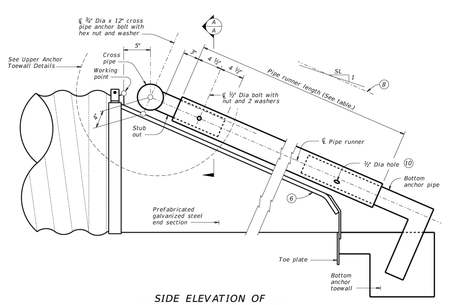
BOTTOM ANCHOR PIPE DETAILS (11)



OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(End section and riprap are not shown for clarity.)



SIDE ELEVATION OF PIPE RUNNER INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Bottom Anchor Pipe Option B2. Riprap not shown for clarity.)

ESTIMATED CONCRETE (12) RIPRAP QUANTITIES (CY)

Nominal Culvert I.D.	3:1 Side Slope	4:1 Side Slope	6:1 Side Slope
12"	0.5	0.6	0.9
15"	0.6	0.7	1.0
18"	0.6	0.8	1.1
21"	0.7	0.8	1.2
24"	0.7	0.9	1.3
27"	0.8	1.0	1.4
30"	0.9	1.1	1.5
33"	0.9	1.1	1.6
36"	1.0	1.2	1.7
42"	1.1	1.4	1.9
48"	1.2	1.5	2.1
54"	1.3	1.7	2.3
60"	1.5	1.8	2.6

6. Reinforce upper edge of prefabricated end section with minimum ⅝" dia smooth or deformed bar (pre-galvanized).
7. Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap."
8. Note that actual slope of pipe runner may vary slightly from side slope of riprap and upper edge of prefabricated end section.
9. Take care of ensure that riprap concrete does not flow into the crosspipe so as to permit disassembly of the bolted connection to allow cleanout access.
10. After installation, inspect the ⅝" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.
11. At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.
12. Quantities shown are for one end of one corrugated metal pipe (CMP) culvert . For multiple pipe culverts quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

PREFABRICATED GALVANIZED STEEL END SECTION SAFETY END TREATMENT
FOR 12" TO 60" DIA CMP CULVERTS
TYPE II ~ CROSS DRAINAGE
GS-ES-CD

FILE: CD-GSES-CD-20.dgn	DN: TxDOT	CK: TxDOT	DW: JRP	CK: SAF
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

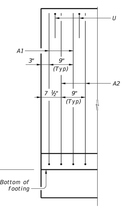
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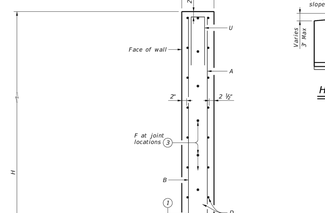
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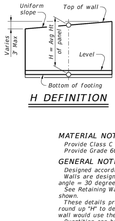
PARTIAL WALL ELEVATIONS

(Showing vertical reinforcing pattern in back face.)









H DEFINITION

1. Place vertical bars inside of horizontal bars (Typical both faces.)
2. Place footing toe against undisturbed soil.
3. See Retaining Wall Miscellaneous Details (RW(SF))

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi.)
Provide Grade 60 reinforcing steel.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Walls are designed assuming unit weight of soil = 120 pcf and a friction angle = 30 degrees for foundation and retained soil.
See Retaining Wall Miscellaneous Details (RW(SF)) standard for details and notes not shown.
These details provide designs for wall heights of 2 to 20 feet. For heights not shown, round up "H" to determine wall dimensions and reinforcing. (For example, a 9-foot high wall would use the 10-foot high dimensions and reinforcing.)
Quantities are based on "H" being average height of panel.
Retaining walls are designed to be coded as follows on Retaining Wall Layout Sheets:

B – 15 – 32
Panel length – 32 ft. is standard; 28 ft. requires special quantities.
Average height (H) of panel.
Design A = No surcharge or slope above wall.
Design B = No surcharge; slopes to 3:1.
Design C = Traffic surcharge; no slope above wall.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

PROPERTIES

Wall Height "H" (Ft)	WALL DIMENSIONS Fw	Tw	Sw	Hw	Ft	Kw	Kd	MAX SOIL PRESS T/SF
2	1'-4"	0'-4"	1'-0"	0'-0"	0'-9"	0'-9"	0'-9"	0.175
4	2'-5"	0'-8"	1'-0"	0'-9"	1'-0"	0'-9"	0'-9"	0.317
6	4'-2"	1'-3"	1'-0"	1'-11"	1'-0"	0'-9"	0'-9"	0.390
8	6'-3"	1'-8"	1'-0"	3'-7"	1'-0"	0'-9"	0'-9"	0.492
10	8'-4"	2'-4"	1'-1"	4'-11"	1'-2"	1'-0"	1'-0"	0.593
12	10'-6"	3'-0"	1'-2"	6'-4"	1'-4"	1'-3"	1'-3"	0.720
14	12'-1"	3'-7"	1'-3"	7'-3"	1'-7"	1'-6"	1'-6"	0.833
16	13'-11"	4'-2"	1'-5"	8'-4"	1'-9"	1'-9"	1'-9"	0.951
18	15'-9"	4'-11"	1'-8"	9'-2"	2'-0"	2'-0"	2'-0"	1.085
20	17'-6"	5'-5"	1'-9"	10'-4"	2'-3"	2'-0"	2'-0"	1.182

REINFORCING STEEL FOR ONE 32' PANEL (DESIGN B)

Wall Height "H" (Ft)	Bars A1 No.	Size	Spa	Length	Weight	Bars A2 No.	Size	Spa	Length	Weight	Bars B No.	Size	Spa	Length	Weight	Bars C No.	Size	Spa	Length	Weight	Bars E No.	Size	Spa	Length	Weight	Bars K No.	Size	Spa	Length	Weight	D (#5) at 12" Max. No.	Weight	Dowel F at 12" Max. No.	Weight	H (#5) at 12" Max No.	Weight	T (#5) at 12" Max. No.	Weight	U – 2? #5 at 15" Max. Length	Weight	REINF (LB)	Wall Height "H" (Ft)
2	39	#4	10"	2'-6"	66						39	#4	10"	2'-2"	57						39	#4	10"	3'-1"	81	6	#5	3'-1"	81	6	198	5	41	2	66	2	66	2'-6"	71	3.4	646	2
4	39	#4	10"	4'-10"	126						39	#4	10"	3'-11"	103	39	#4	10"	1'-11"	50	39	#4	10"	3'-11"	50	39	#4	10"	3'-11"	81	8	263	7	57	3	99	3	99	3'-6"	99	7.1	1027	4
6	39	#4	10"	7'-5"	194						39	#4	10"	5'-11"	155	39	#4	10"	3'-8"	96	39	#4	10"	5'-11"	155	39	#4	10"	5'-11"	81	12	395	11	89	5	165	5	165	3'-6"	99	11.6	1535	6
8	39	#4	10"	9'-10"	257						39	#4	10"	7'-11"	207	39	#4	10"	5'-9"	150	39	#4	10"	5'-9"	150	39	#4	10"	5'-9"	81	16	526	15	121	7	230	7	230	3'-6"	99	16.4	2052	8
10	39	#5	10"	12'-7"	512						39	#5	10"	9'-9"	255	39	#5	10"	7'-10"	205	39	#4	10"	7'-10"	205	39	#4	10"	7'-10"	100	20	658	19	153	9	297	10	328	3'-6"	103	24.1	2895	10
12	39	#6	9"	15'-4"	441	43	#4	9"	15'-4"	441	43	#4	9"	11'-7"	333	43	#6	9"	10'-0"	646	43	#4	9"	10'-0"	288	43	#4	9"	4'-7"	132	24	789	23	185	11	362	11	362	3'-8"	104	33.2	4083	12
14	39	#7	9"	18'-0"	808	43	#5	9"	18'-0"	808	43	#5	9"	13'-4"	383	43	#7	9"	11'-7"	1019	43	#4	9"	11'-7"	333	43	#4	9"	5'-4"	154	28	920	27	217	13	428	13	428	3'-9"	106	43.8	5604	14
16	39	#8	9"	20'-9"	1341	43	#5	9"	20'-9"	931	43	#4	9"	15'-2"	436	43	#8	9"	13'-5"	1542	43	#4	9"	13'-5"	386	43	#4	9"	6'-1"	175	32	1052	31	249	15	493	15	493	3'-11"	111	56.5	7209	16
18	39	#9	9"	23'-9"	1534	43	#6	9"	23'-9"	1534	43	#6	9"	17'-1"	486	43	#9	9"	15'-3"	1751	43	#4	9"	15'-3"	439	43	#4	9"	6'-10"	197	34	1118	34	273	17	559	17	559	4'-2"	118	73.7	8568	18
20	39	#10	9"	26'-4"	2315	43	#7	9"	26'-4"	2315	43	#7	9"	20'-4"	1315	43	#9	9"	17'-0"	2486	43	#4	9"	17'-0"	489	43	#4	9"	6'-10"	197	38	1249	37	297	18	592	18	592	4'-3"	120	88.3	11189	20

QUANTITY FOR ONE 32' PANEL

BARS D, H, and T

BARS F (3)

BARS A1 & A2

BARS B

BARS K

BARS U

SECTION

Texas Department of Transportation | Bridge Division Standard

SPREAD FOOTING RETAINING WALL
RW(SF)

FILE: RW-SFB-22.dgn	DN: TxDOT	CK: TxDOT	DW: JRP	CK: SAF
©TxDOT June 2022 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

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Ph: 512.439.0400 · Fax: 512.329.0096
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
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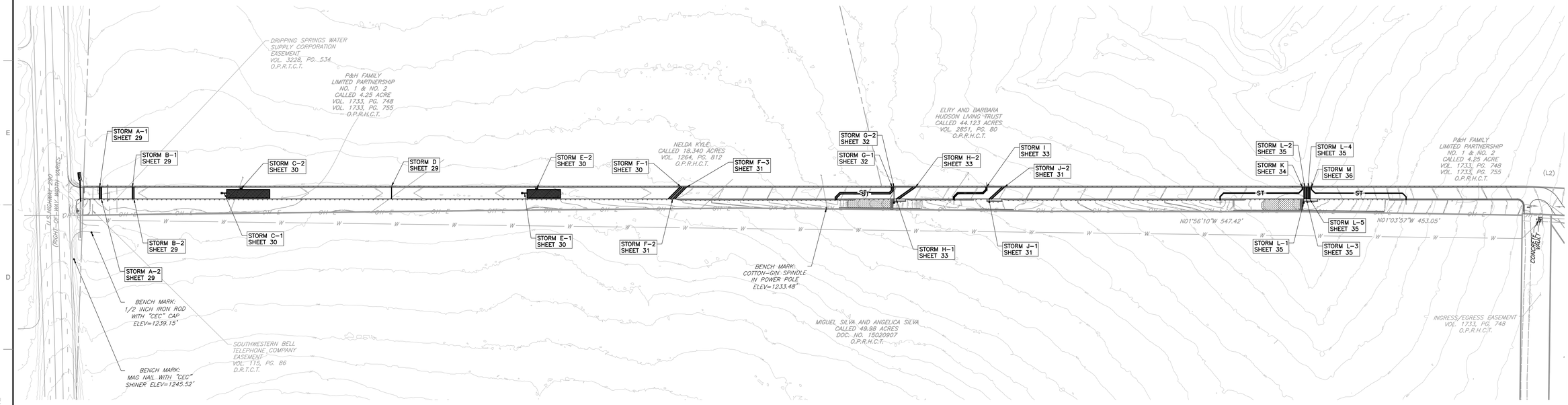
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DWG SCALE:	NTS	CHECKED BY:	CB
PROJECT NO:			324-199
APPROVED BY:			MAT

DRAWING NO.: 27
SHEET 27 OF 48

SD-2022-0025

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NOTES:
1. SHEET 05 FOR WALL DETAILS.

NORTH
SCALE IN FEET
0 20 40

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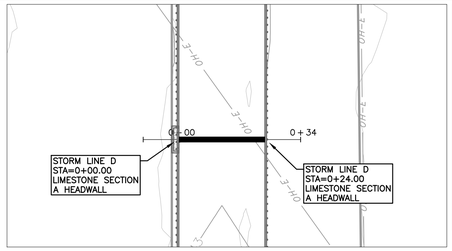
OVERALL STORM

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CHECKED BY:	CB
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PROJECT NO.:	324-199
APPROVED BY:	MAT

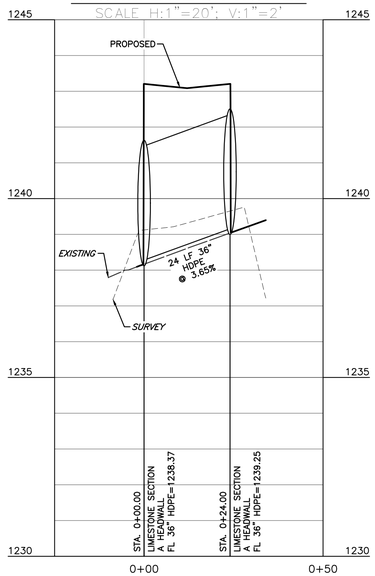
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SHEET 28 OF 48

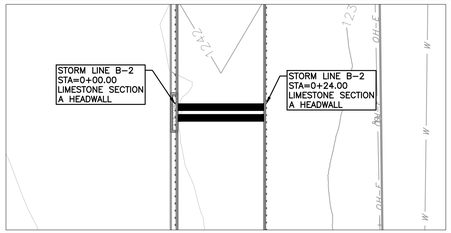
SD-2022-0025

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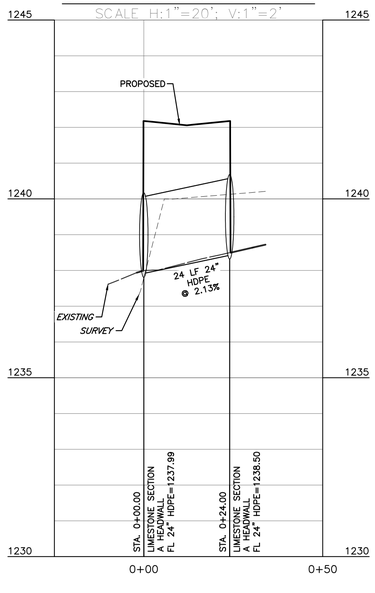


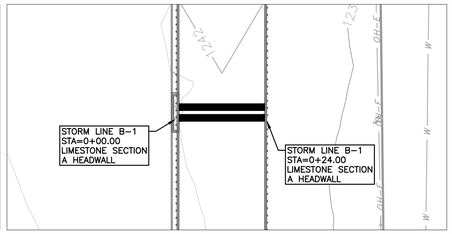
STORM LINE D PROFILE



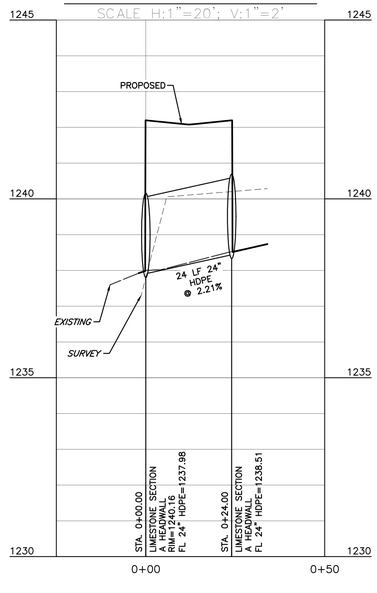


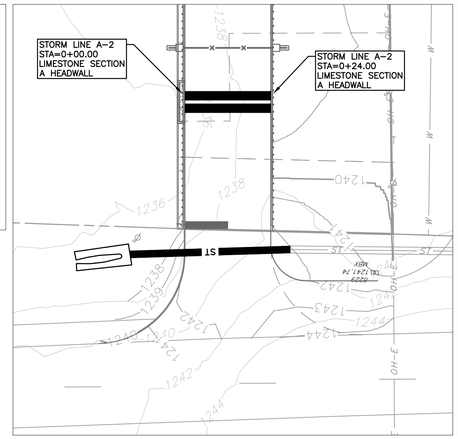
STORM LINE B-2 PROFILE



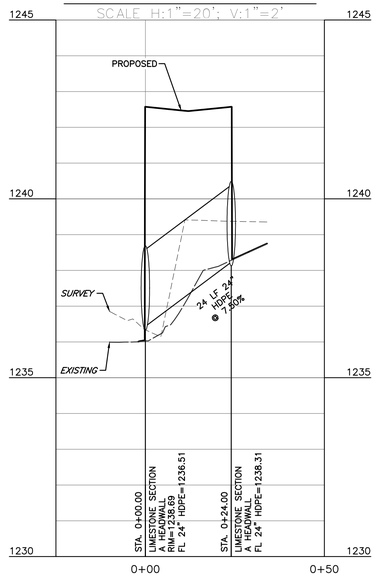


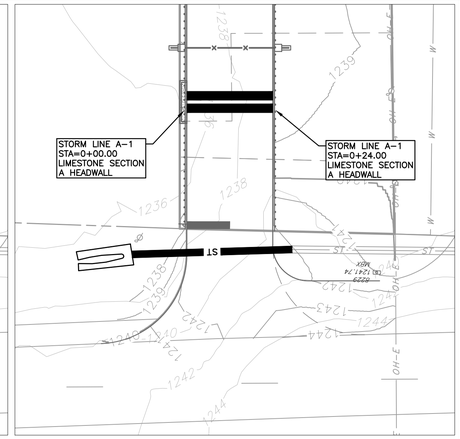
STORM LINE B-1 PROFILE



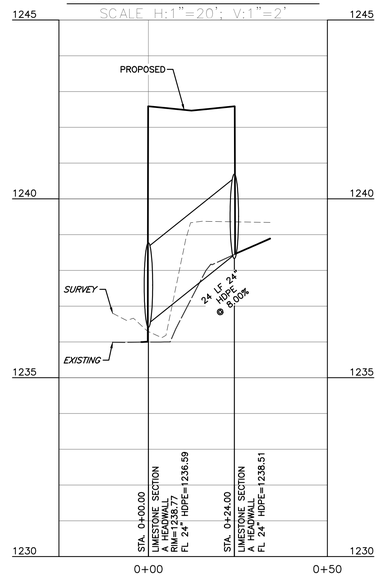


STORM LINE A-2 PROFILE





STORM LINE A-1 PROFILE



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

NORTH
SCALE IN FEET
0 20 40

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HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

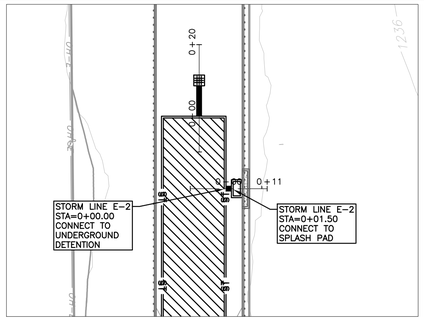
STORM A-1, A-2, B-1, B-2, D

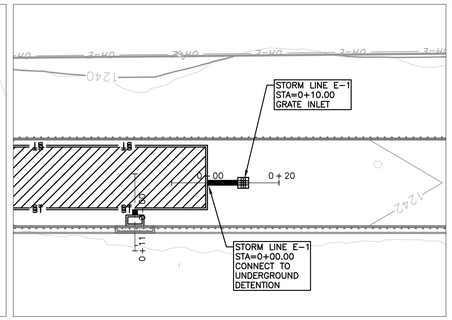
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CHECKED BY:	CB
DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
APPROVED BY:	MAT

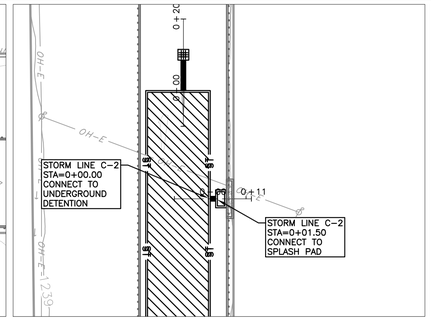
DRAWING NO.: 29
SHEET 29 OF 48

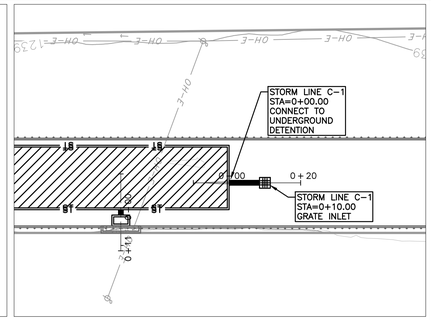
SD-2022-0025

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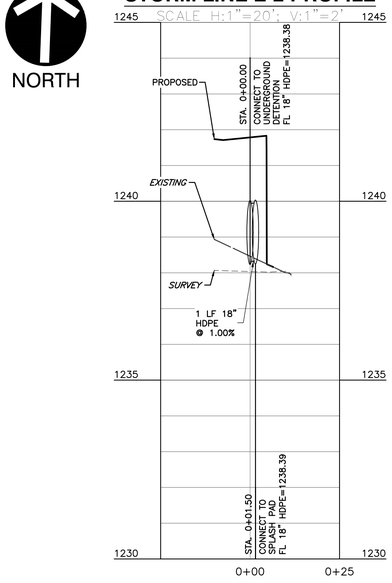




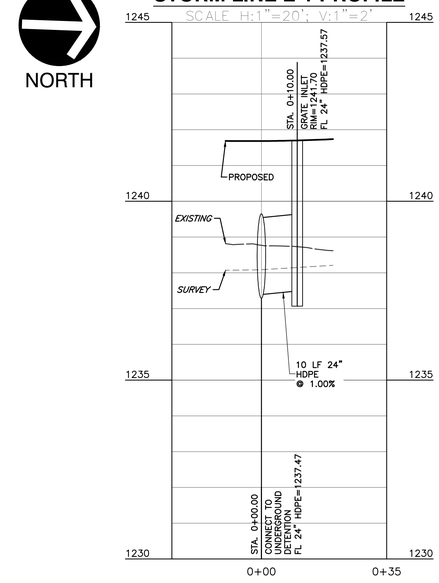




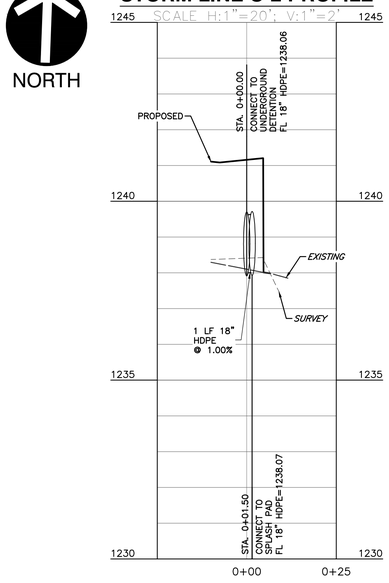
STORM LINE E-2 PROFILE



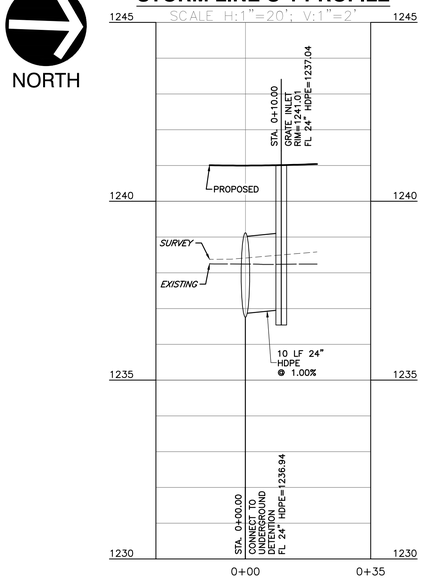
STORM LINE E-1 PROFILE



STORM LINE C-2 PROFILE



STORM LINE C-1 PROFILE



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

SCALE IN FEET
0 20 40

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

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REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Texas Registered Engineering Firm F-88
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

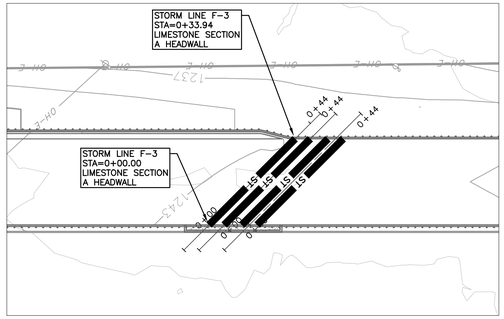
STORM C-1, C-2, E-1, E-2

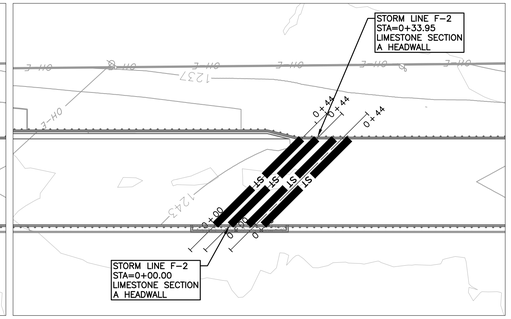
DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

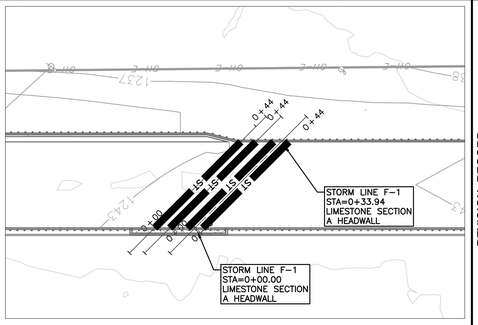
DRAWING NO.: 30
SHEET 30 OF 48

SD-2022-0025

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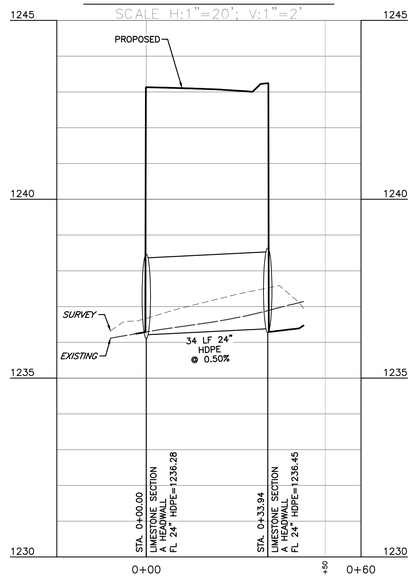






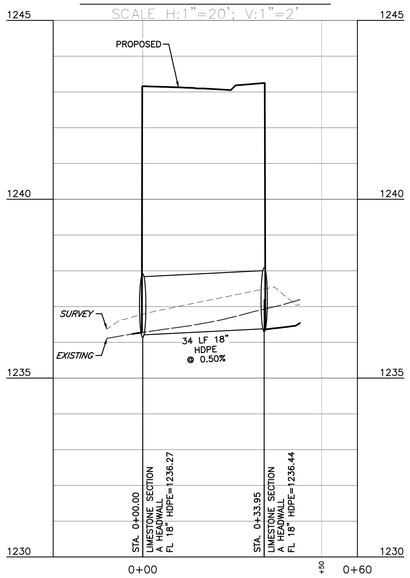
STORM LINE F-3 PROFILE

SCALE H:1"=20'; V:1"=2'



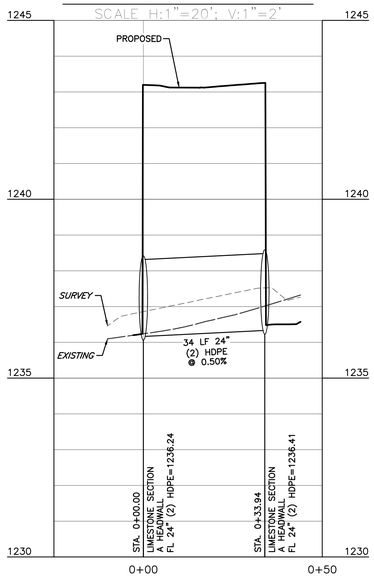
STORM LINE F-2 PROFILE

SCALE H:1"=20'; V:1"=2'



STORM LINE F-1 PROFILE

SCALE H:1"=20'; V:1"=2'



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

NORTH

SCALE IN FEET

0 20 40

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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

REVISION RECORD		
NO	DATE	DESCRIPTION

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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

STORM F-1, F-2, F-3

DATE:	07/24/2025
DRAWN BY:	MBM
DWG SCALE:	########
CHECKED BY:	CB
PROJECT NO:	324-199
APPROVED BY:	MAT

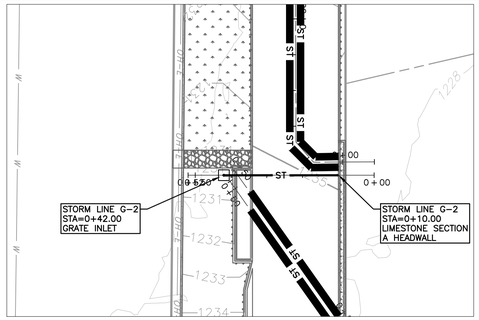
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SHEET 31 OF 48

SD-2022-0025

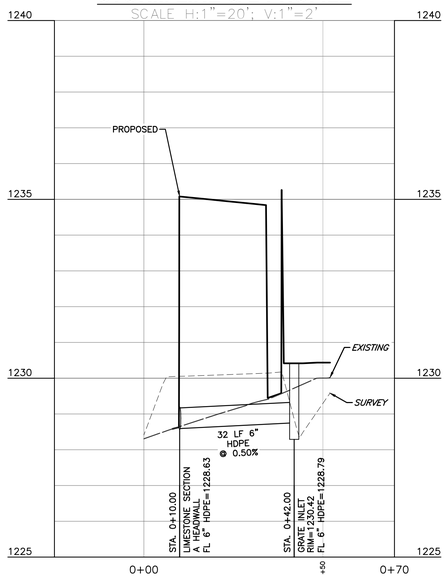
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NORTH

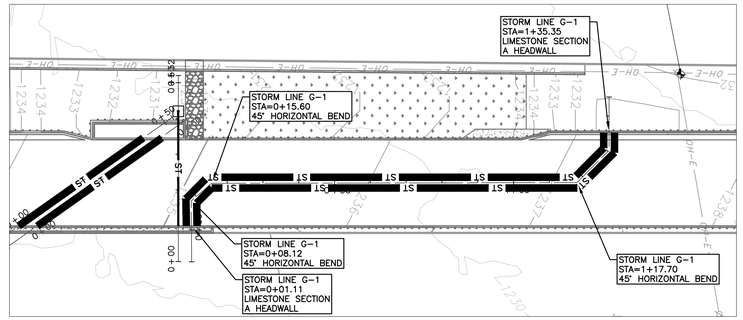


STORM LINE G-2 PROFILE

SCALE: H:1"=20'; V:1"=2'

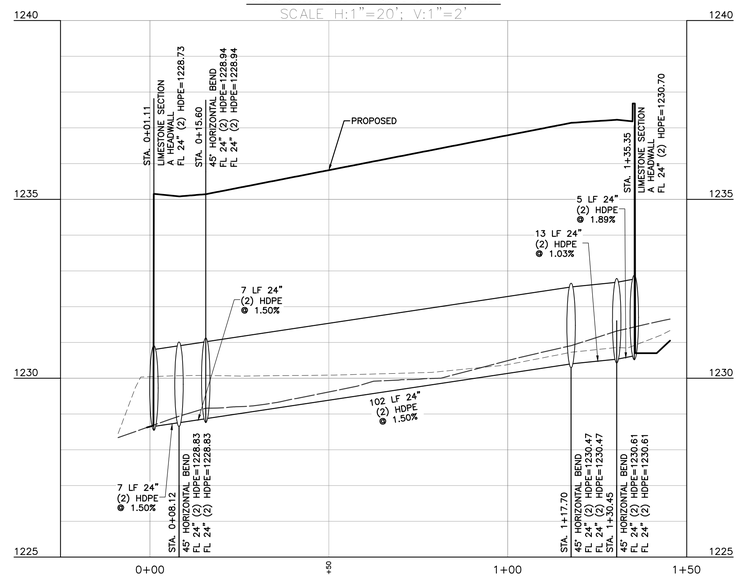


NORTH



STORM LINE G-1 PROFILE

SCALE: H:1"=20'; V:1"=2'



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

SCALE IN FEET

0 20 40

STATE OF TEXAS
MICHAEL A. THEOHE
142972
LICENSED
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

STORM G-1, G-2

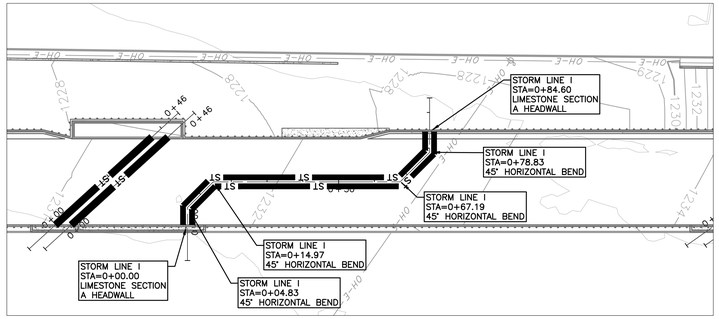
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DWG SCALE:	1" = 20'
PROJECT NO.	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

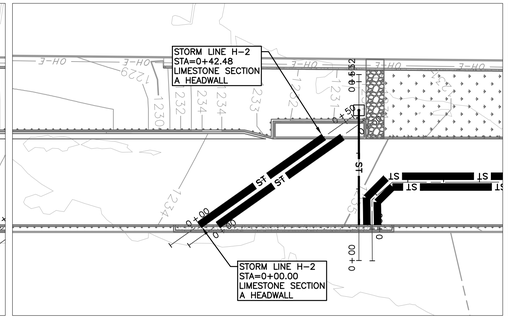
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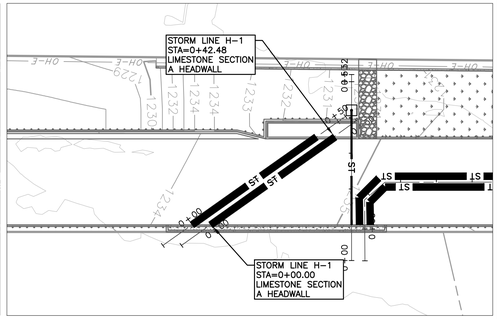
SHEET 32 OF 48

SD-2022-0025

P:\320-000\324-199\-CAD\Dwg\CVD\324199-CVD1-C400-STORM.dwg[STORM G-1 G-2] LS:7/24/2025 - (mmathew) - LP: 7/24/2025 12:38 PM

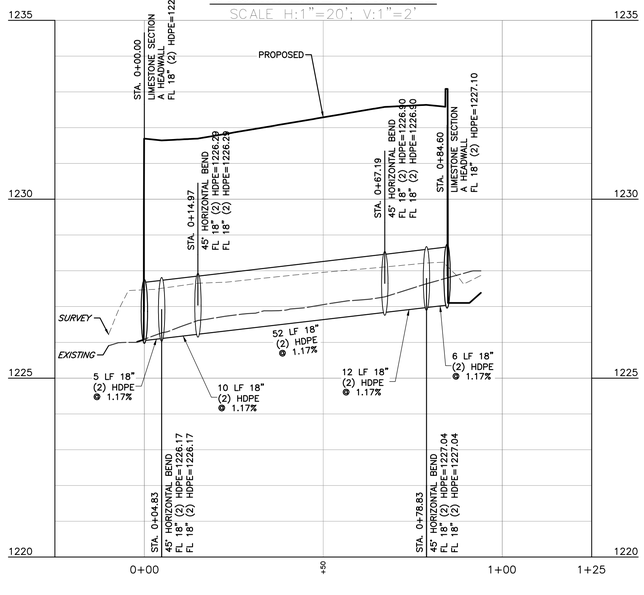






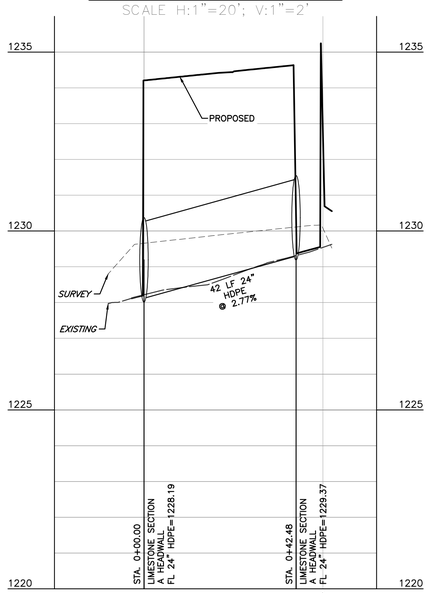
STORM LINE I PROFILE

SCALE H:1"=20'; V:1"=2'



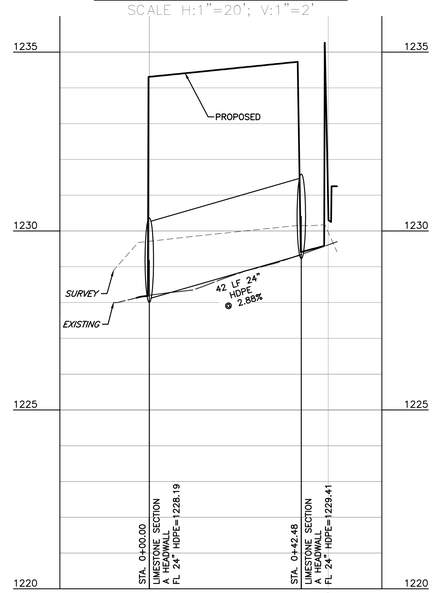
STORM LINE H-2 PROFILE

SCALE H:1"=20'; V:1"=2'



STORM LINE H-1 PROFILE

SCALE H:1"=20'; V:1"=2'



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

NORTH

SCALE IN FEET

0 20 40

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STATE OF TEXAS
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

STORM H1, H2, I

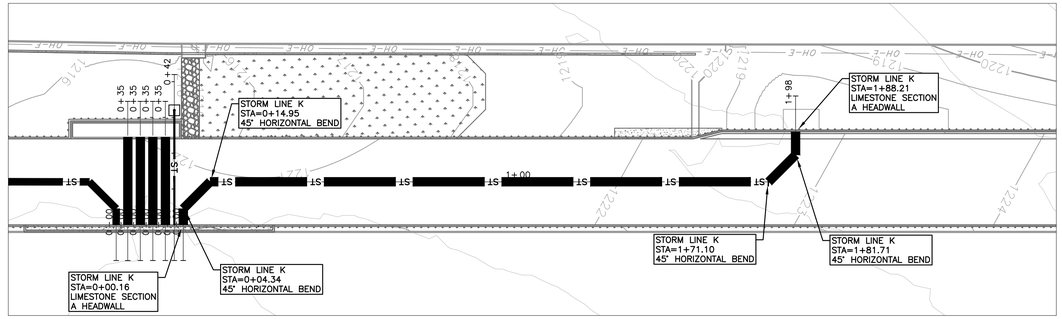
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PROJECT NO:	
DRAWN BY:	MBM
CHECKED BY:	CB
	324-199
APPROVED BY:	MAT

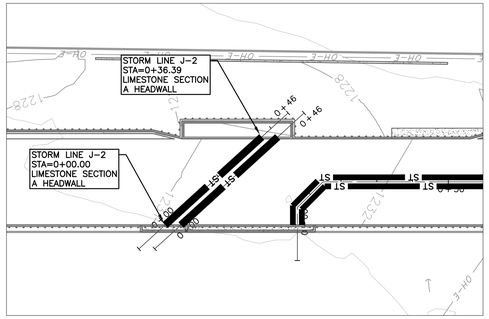
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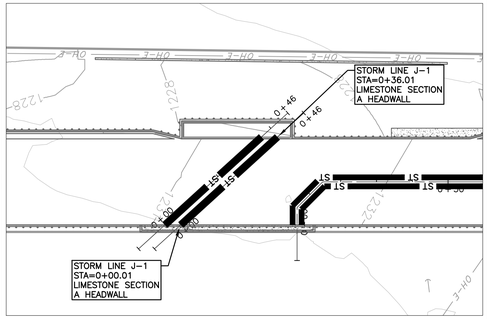
SHEET 33 OF 48

SD-2022-0025

P:\320-000\324-191\CAD\Dwg\CIVIL\324191-CIVIL-STORM.dwg[STORM H1 H2 I] LS:7/24/2025 - mmathieu - LP: 7/24/2025 12:38 PM

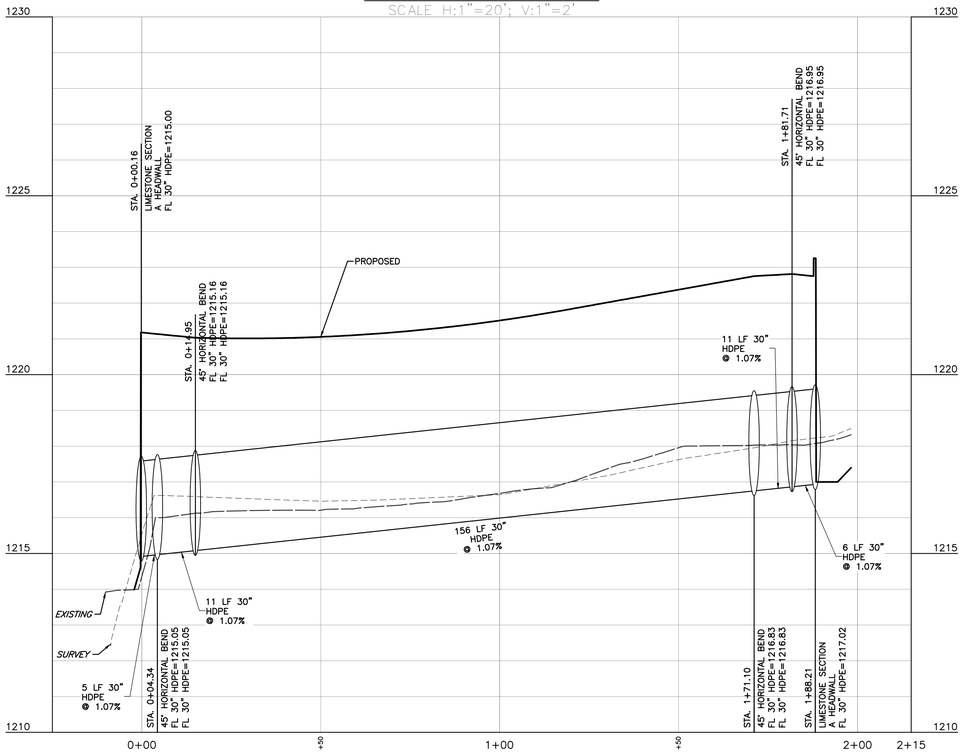






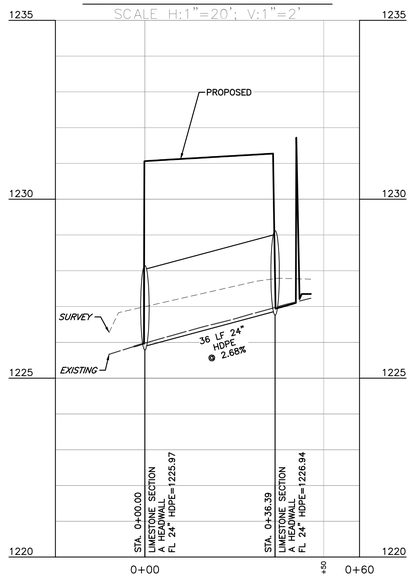
STORM LINE K PROFILE

SCALE H:1"=20'; V:1"=2'



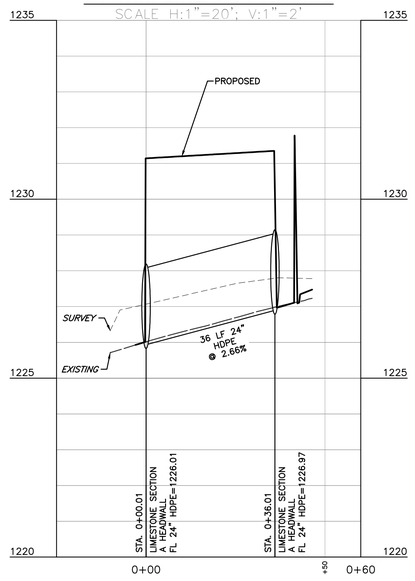
STORM LINE J-2 PROFILE

SCALE H:1"=20'; V:1"=2'



STORM LINE J-1 PROFILE

SCALE H:1"=20'; V:1"=2'



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

NORTH
SCALE IN FEET
0 20 40

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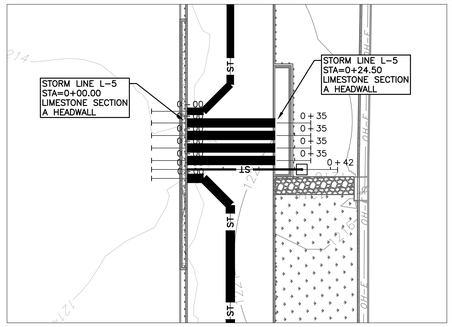
STORM J-1, J-2, K

DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

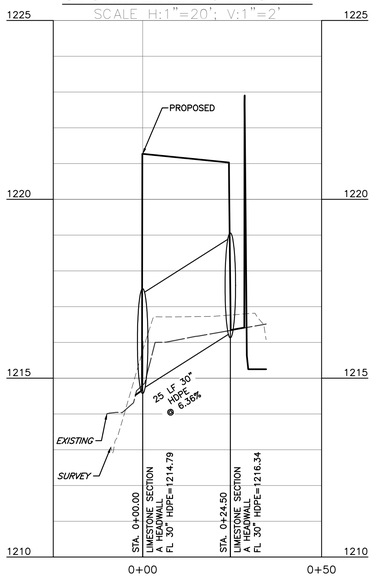
DRAWING NO.: 34
SHEET 34 OF 48

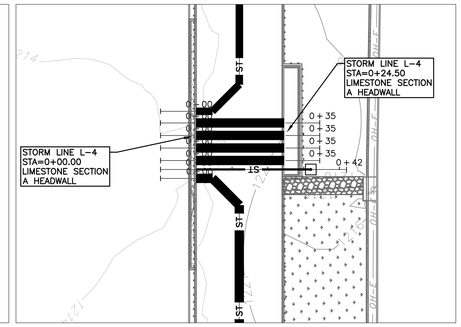
SD-2022-0025

P:\320-000\324-191\CAD\Dwg\CIVIL\324191-CIVIL-STORM.dwg[STORM J-1 J-2 K] LS(7/24/2025 - mmartinez) - LP: 7/24/2025 12:38 PM

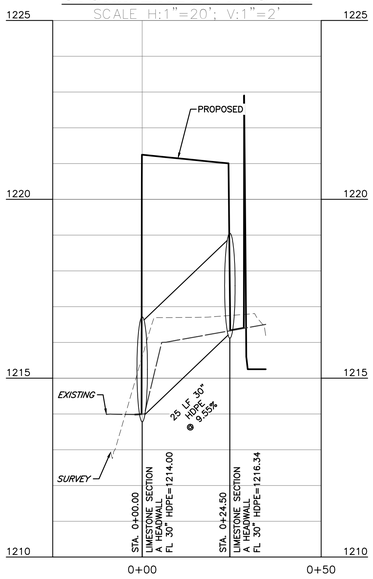


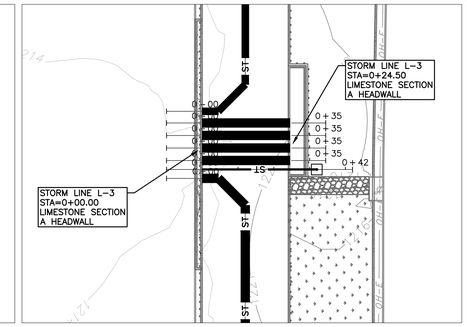
STORM LINE L-5 PROFILE



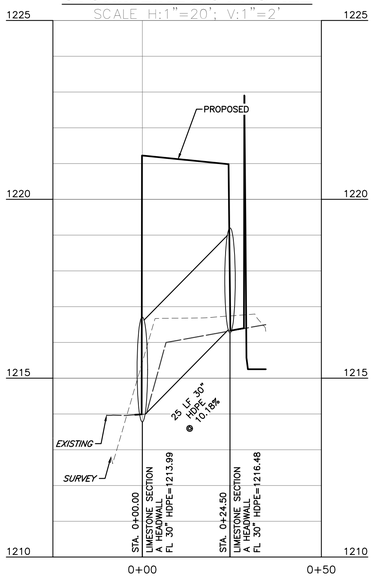


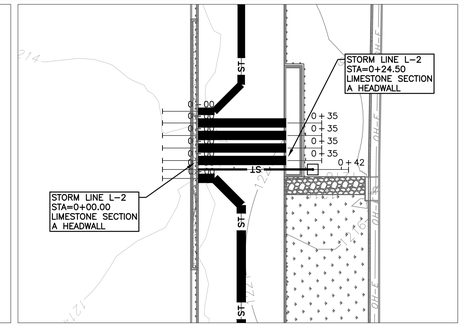
STORM LINE L-4 PROFILE



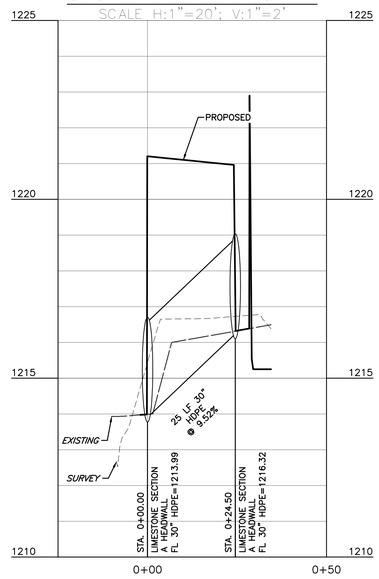


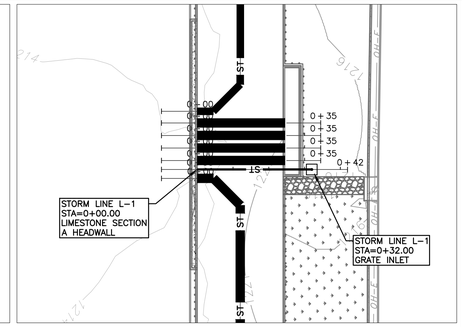
STORM LINE L-3 PROFILE



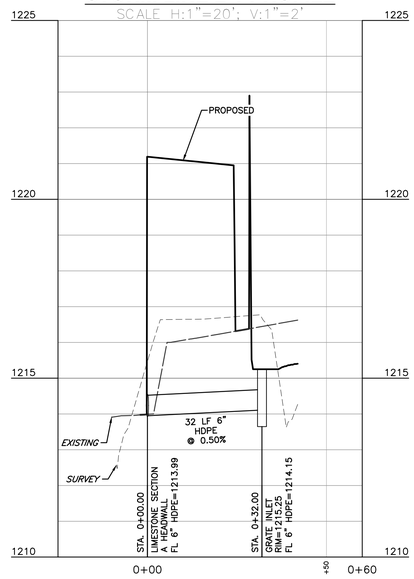


STORM LINE L-2 PROFILE



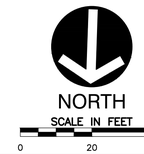


STORM LINE L-1 PROFILE



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.





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REVISION RECORD

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Texas Registered Engineering Firm F-58
Civil & Environmental Consultants, Inc.
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

STORM L-1, L-2, L-3, L-4, L-5

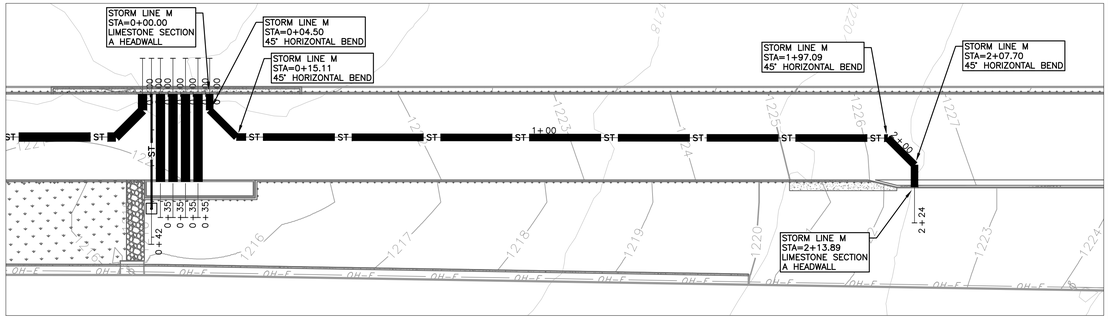
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DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: **35**

SHEET 35 OF 48

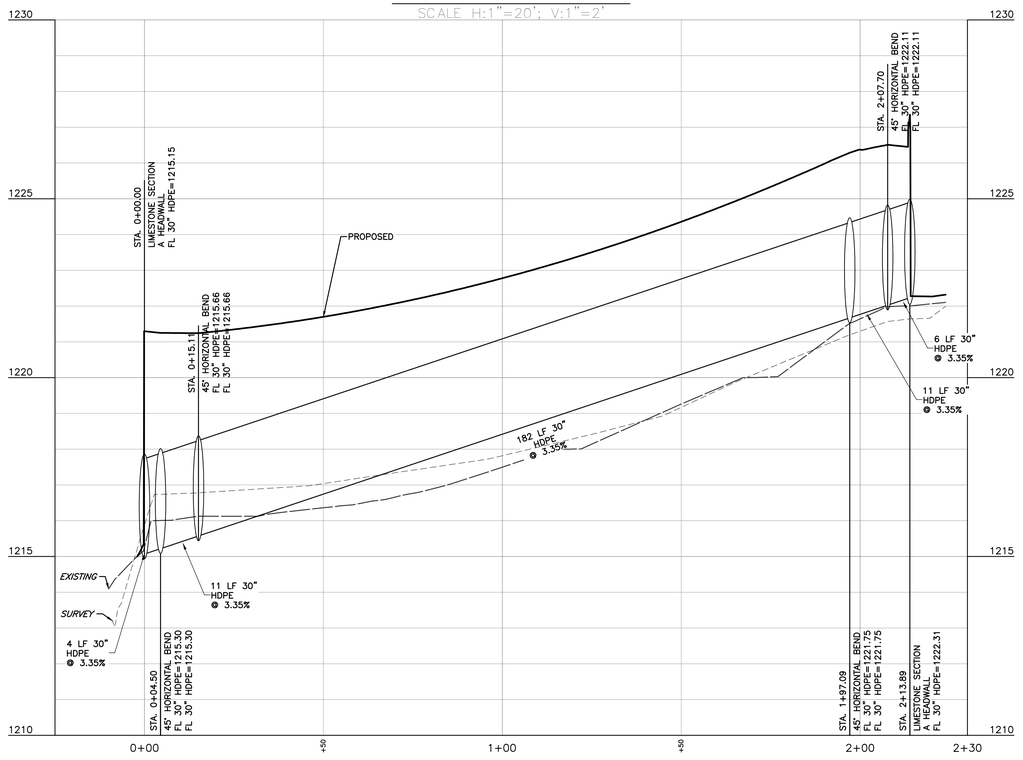
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STORM LINE M PROFILE

SCALE H:1"=20'; V:1"=2'



NOTES

1. SEE SHEET 05 FOR WALL DETAILS.

NORTH

SCALE IN FEET

0 20 40

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STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

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SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

STORM M

DATE:	07/24/2025
DWG SCALE:	1" = 20'
PROJECT NO:	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 36

SHEET 36 OF 48

SD-2022-0025

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Rigid Pavements

Based on the Hays County criteria stated above, a design ADT of 750 and 500, and a design ESAL value of 34,000 and 25,000 was selected for design. We performed our analyses using current AASHTO pavement thickness design procedures and ACI 325.12R-02 guidance. Based on these procedures, and Hays County, City of Dripping Springs and City of Austin criteria, together with known subgrade conditions, the following Jointed Reinforced Concrete Pavement thickness is recommended:

Local Roadway	**34,000 ESALs**	**6.0 in. concrete over 6.0 in. subbase**
Local Roadway	**25,000 ESALs**	**6.0 in. concrete over 6.0 in. subbase**

The 6.0-inch thickness for the Local Roadway Category is set based on reinforcing steel cover requirements and recommended depth of control joints. In addition, the following recommendations to guide pavement detailing and material selection are provided.

1. Over-excavate and remove any surficial CH clay soils and then scarify and moisture-condition the existing subgrade (limestone derivative material) to a depth of 6 inches and compact to 95% of the maximum dry density as determined using Test Method TEX-113-E at a moisture content within 2% of optimum.
2. Provide at least 6 inches of compacted subbase material beneath the concrete pavement. A site-generated subbase material mined on-site is acceptable provided it conforms with the criteria for select fill presented on page 7 of this report.
3. The subbase material should be compacted to 95% of the maximum dry density determined by TxDOT Test Method TEX-113-E at a moisture content within 2% of optimum. The compacted subbase should extend 2 ft beyond the edges of the pavement structure (including curbs).
4. The concrete pavement should be reinforced with #4 longitudinal bars spaced at 16-inch centers, and transverse bars spaced at 24-inch centers. As an alternate, #10 welded wire fabric (WWF) may be used with 6-inch spacing between longitudinal wires and 12-inch spacing between transverse wires. All reinforcements should be chaired to be secure at slab mid-height. Please refer to TxDOT JCRP Detail Sheet 1 of 2 attached in Appendix 1, for other details (Note: TxDOT longitudinal bar spacing is different.)
5. The concrete mix should be designed to satisfy a 28-day design strength of 4,500 psi with a flexural strength of 650 psi (third point loading). To promote aggregate interlock and efficient load transfer, we recommend crushed limestone aggregate. Contractor should submit concrete mix designs at least 2 weeks before paving commencement.
6. For slipform paving operations, we recommend a maximum concrete slump of 1 to 1.5 inches. For concrete placed by hand or with a vibratory or roller screed, we recommend a maximum slump of 4 inches.
7. We recommend a concrete air content of 3 to 5%.
8. Transverse control joints should be placed on minimum 15 ft centers. Joints should penetrate at least ¼ of the pavement thickness and should be cut within the time allocations prescribed by ACI criteria (ACI 302.1.R, Reference 19). For early-entry saw cutting, the time of cutting is usually in the range of 2 to 6 hrs. We recommend that the successful bidding contractor address this issue in his Quality Control Plan submitted for approval by the engineer. It is important to make the saw cuts early to avoid premature crack formation but not too early to avoid possible spalling and raveling damage to the concrete.
9. Full depth expansion joints should be constructed at 180 ft spacing.
10. Longitudinal joints will also be required along the centerline of the pavement. The longitudinal joints should be cut at the same time as the transverse joints using the same procedure.
11. All saw cut joints should be approximately ¼ inch wide and will need to be routed. See details on the attached TxDOT JCRP Detail Sheets – Appendix A. All joints will need to be sealed with appropriate joint sealer satisfying requirements of ACI 325.12R-4.7. Proposed joint sealer product information shall be submitted to the engineer for approval. The use of backer material and silicone sealer is recommended. Routine maintenance of joints and joint filler over the life of the pavement will be required and could include re-sealing on a 5 to 10-year frequency.
12. It is recommended that the successful bidding contractor provide a detailed Quality Control Plan document outlining specific joint locations (including cul de sacs), method of construction of joints, proposed backer material and joint filler material and periodic maintenance recommendations.
13. Appropriate curing compounds should be used to properly cure the concrete pavement. Proposed curing compounds and application procedures should be submitted for review to the engineer.
14. In lieu of ribbon curbs, it may be possible to thicken the edges of the pavement to support wheel loads and mitigate possible edge cracking if vehicles run off the pavement edge. Guidance is given by the National Ready Mix Concrete Association (NRMCA). NRMCA suggests thickening the edges by 50% of the pavement thickness over a transition extending 4 ft from the pavement edge.
15. Pavement construction should follow the concrete paving specifications provided in Appendix B. In addition, pavement construction should be in general conformance with City of Austin Standard Specifications Item 360.

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RIGID PAVEMENT DESIGN

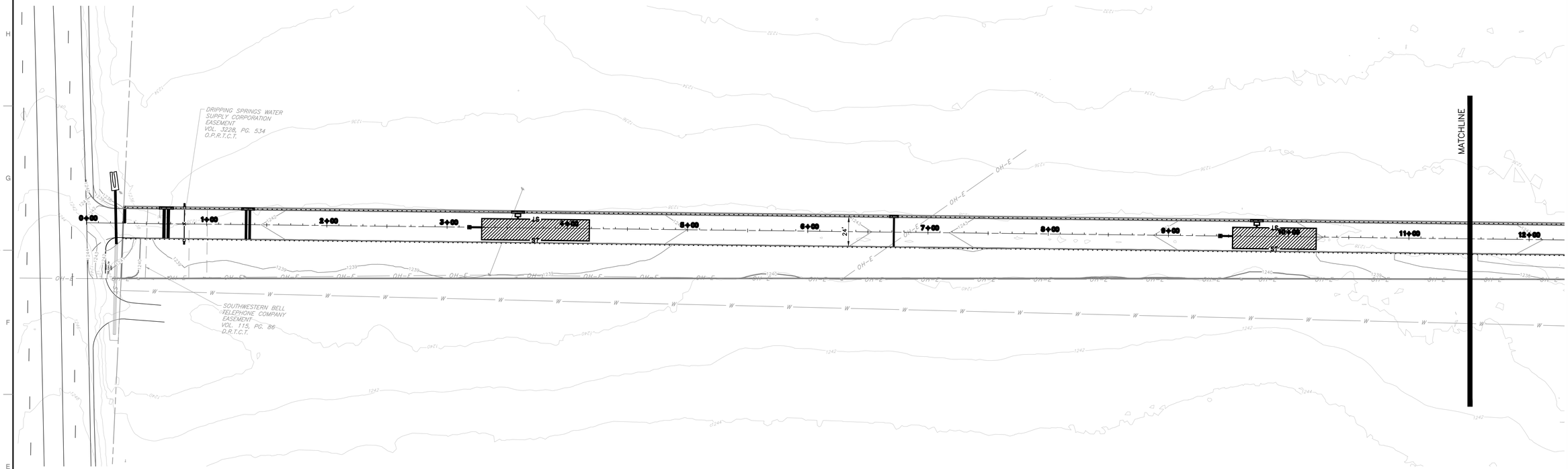
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PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: **37**

SHEET 37 OF 48

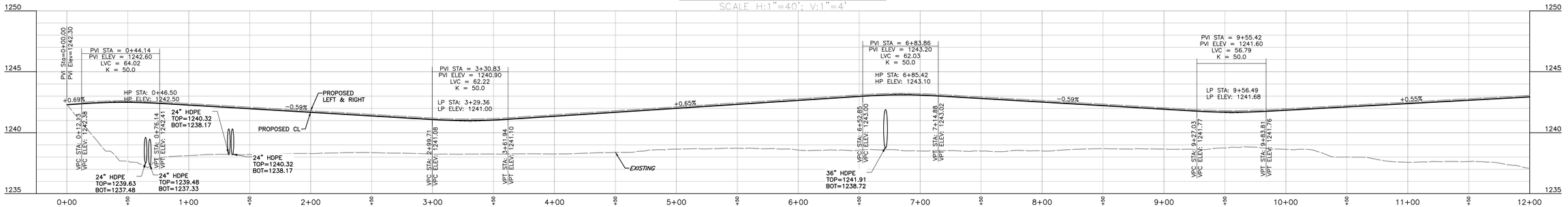
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HARDY DRIVEWAY CL PROFILE

SCALE H:1"=40'; V:1"=4'



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
//	//	FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
		BENCHMARK			(MONITORING) WELL
		CUT IN CONCRETE			UTILITY RISER
		CONTROL POINT			HOSE BIB
		IRON PIPE	S	S	SANITARY M.H.
		IRON ROD			CLEANOUT
		IRON ROD W/ CAP	D	D	DRAINAGE M.H.
		MONUMENT TYPE 1			DOWN SPOUT
		MONUMENT TYPE 2			AREA INLET
		NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
]	]	PIPE CAP			SAFETY END TREATMENT
>	>	PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 40 80

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STATE OF TEXAS · MICHAEL A. THEONE · 142972 · LICENSED PROFESSIONAL ENGINEER

REVISION RECORD

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HARDY T LAND, LLC
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HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

ROAD PLAN & PROFILE STA 0+00-11+00

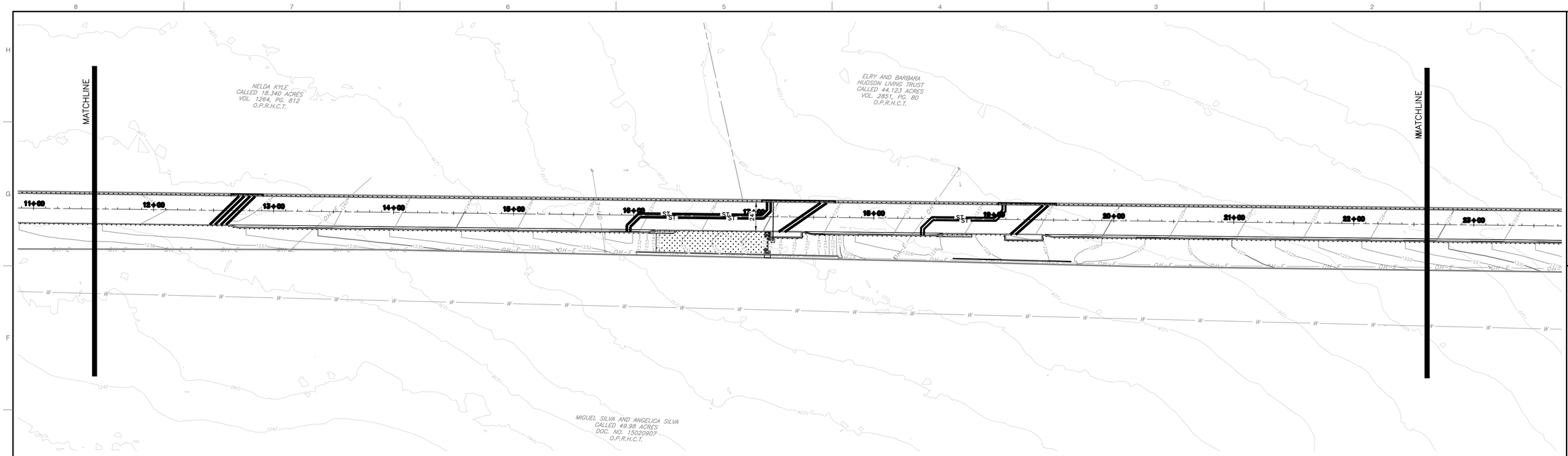
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PROJECT NO:	324-199
APPROVED BY:	MAT

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SHEET 38 OF 48

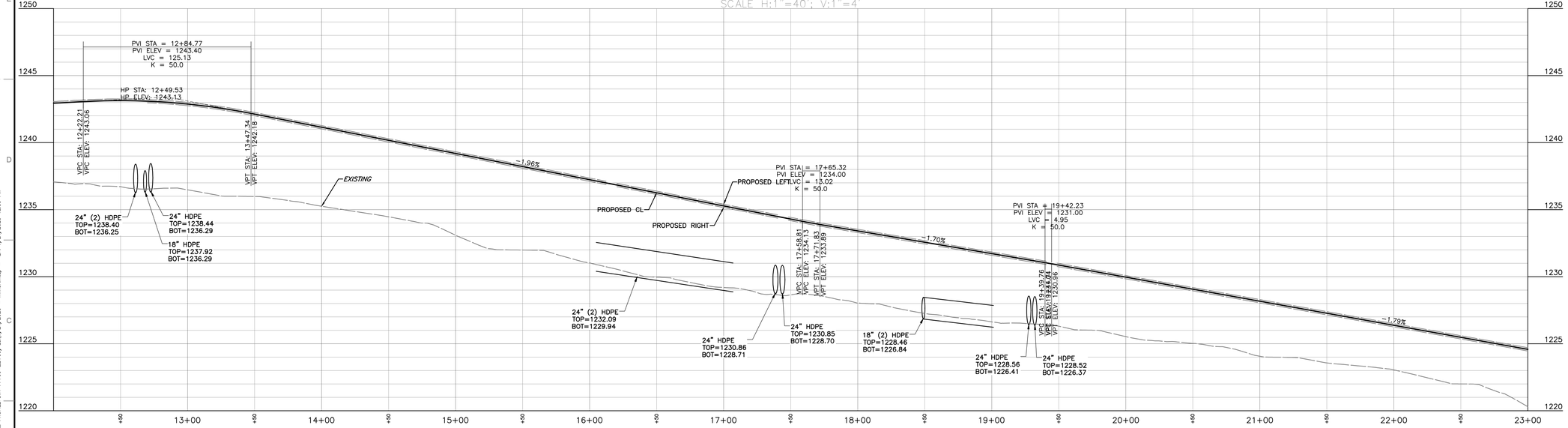
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HARDY DRIVEWAY CL PROFILE

SCALE H:1"=40'; V:1"=4'



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING
	-	BENCHMARK		
	⊗	CUT IN CONCRETE		
	△	CONTROL POINT	HB	HB
	◎	IRON PIPE	S	S
	●	IRON ROD		
	○	IRON ROD W/ CAP	D	D
	⊡	MONUMENT TYPE 1		
	⊙	MONUMENT TYPE 2		
	▲	NAIL		
S	S	PIPE BREAK		
J	J	PIPE CAP		
>	>	PIPE FLOW		
	◁	REDUCER	E	E
		AIR RELEASE VALVE		
		BLOW-OFF VALVE		
		POST INDICATOR VALVE		
		MISCELLANEOUS VALVE		
		UTILITY VALVE		
		UTILITY METER		
		BACKFLOW PREVENTER		
		FLUSH CONNECTION		
		FIRE HYDRANT		
		(MONITORING) WELL		
		UTILITY RISER		
		HOSE BIB		
		SANITARY M.H.		
		CLEANOUT		
		DRAINAGE M.H.		
		DOWN SPOUT		
		AREA INLET		
		CURB INLET		
		HEADWALL		
		SAFETY END TREATMENT		
		DRAINAGE FLOW		
	E	ELEC. M.H.		
		ELEC./TELE. POLE		
		GUY WIRE		
		LIGHT FIXTURE		
		TRAFFIC SIGNAL		
		PEDESTRIAN SIGNAL		
		UTILITY (PULL)BOX		
		UTILITY RISER		
		UTILITY SERVICE		

NORTH

SCALE IN FEET

0 40 80

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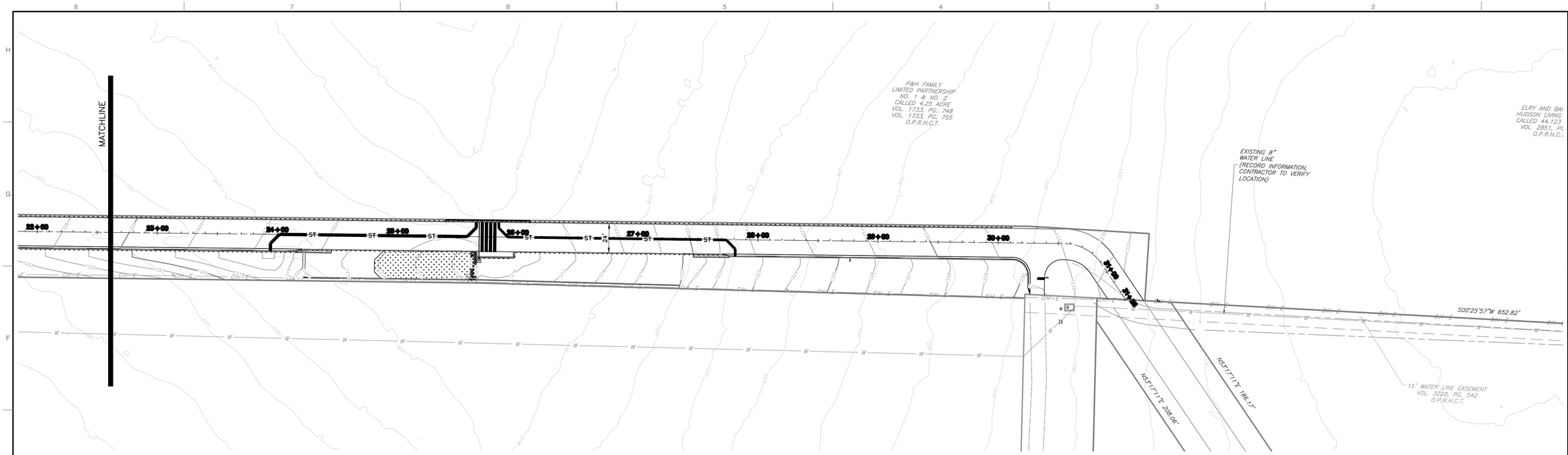
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APPROVED BY:	MAT

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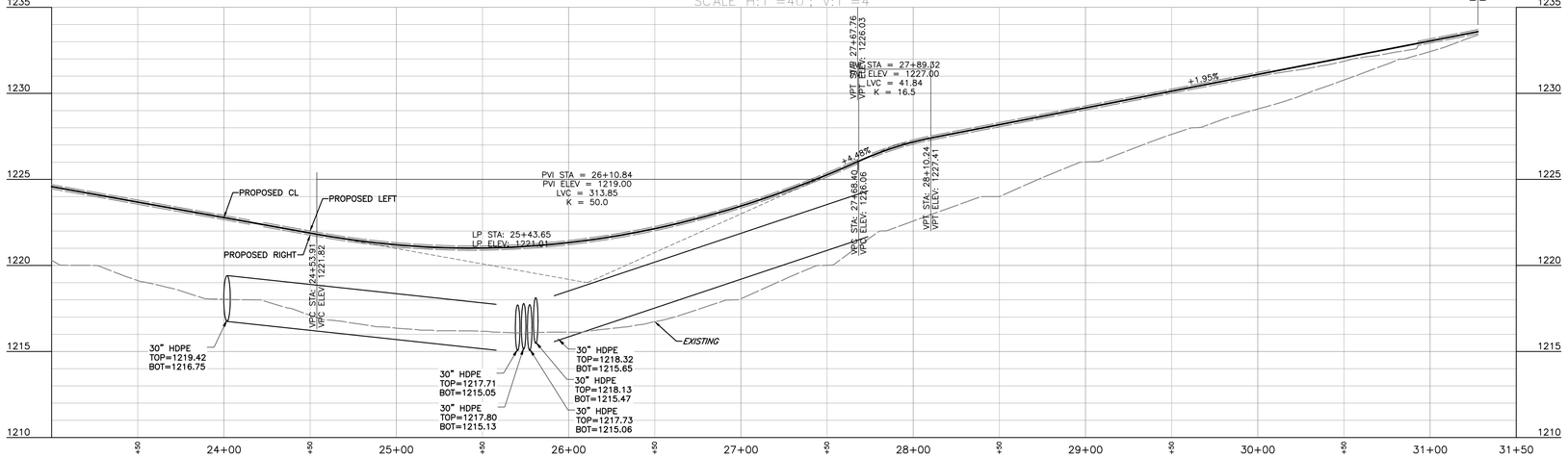
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HARDY DRIVEWAY CL PROFILE

SCALE H:1"=40'; V:1"=4'



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
X	X	FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
I	I	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
FIRE		FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
		CUT IN CONCRETE			UTILITY RISER
		CONTROL POINT	HB	HB	HOSE BIB
		IRON PIPE	S	S	SANITARY M.H.
		IRON ROD			CLEANOUT
		IRON ROD W/ CAP	D	D	DRAINAGE M.H.
		MONUMENT TYPE 1			DOWN SPOUT
		MONUMENT TYPE 2			AREA INLET
		NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
		PIPE CAP			SAFETY END TREATMENT
		PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 40 80

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ROAD PLAN & PROFILE STA 22+00-END

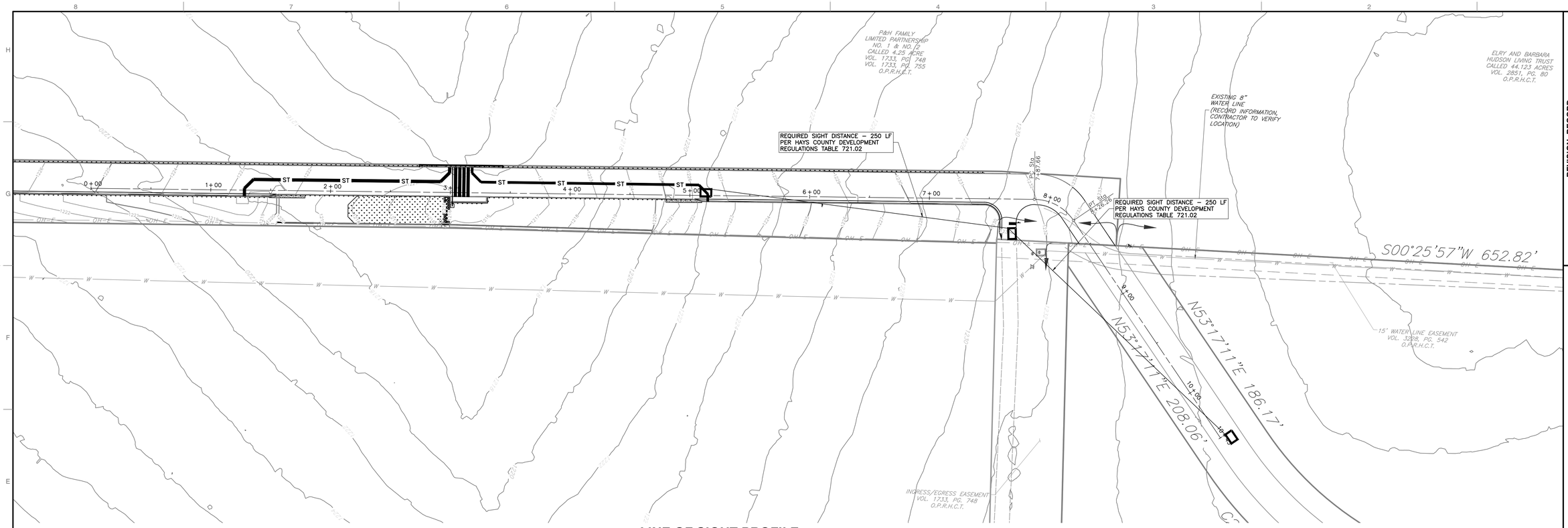
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APPROVED BY:	MAT

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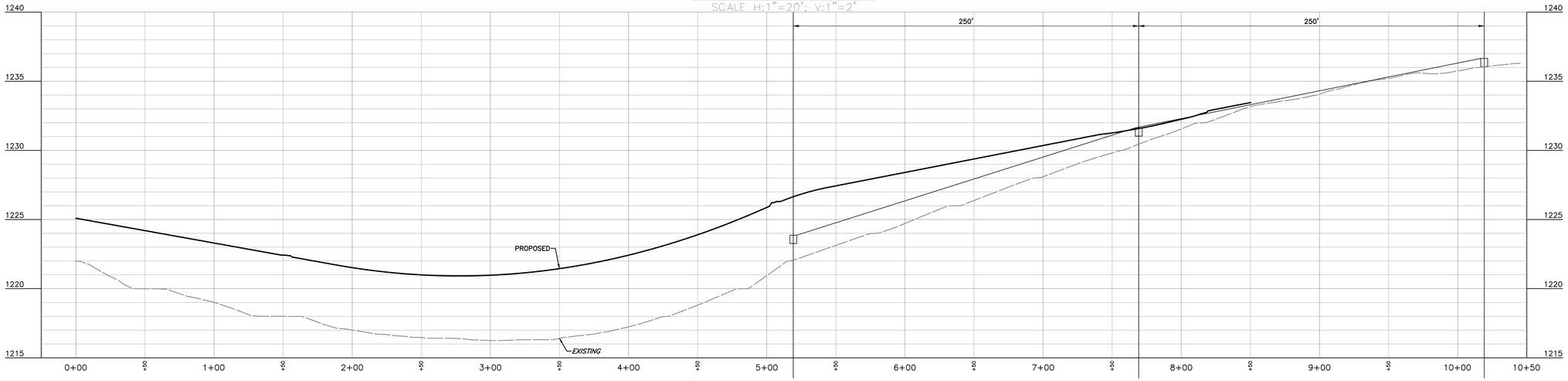
SD-2022-0025

A:\320-000\324-199\~CAD\Dwg\CIVIL\324199-CIV01-C600-ROAD PLAN PROFILE.dwg[ROAD PLAN & PROFILE STA 22+00-END] LS[7/24/2025 - mmorineau] - LP: 7/24/2025 12:39 PM



LINE OF SIGHT PROFILE

SCALE H:1"=20'; V:1"=2'



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
-x-x-x-	-x-x-x-	FENCE: BARBED
-//-//-	-//-//-	FENCE: WOOD (PICKET)
-□-□-□-	-□-□-□-	FENCE: WOOD (PRIVACY)
-○-○-○-	-○-○-○-	FENCE: CHAIN LINK
-|-|-|-	-|-|-|-	FENCE: IRON
385	385	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	G	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	SAN	SANITARY SEWER LINE
W	W	WATER LINE
F	F	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
	FIRE	FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	ST	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	•	BENCHMARK			(MONITORING) WELL
	⊛	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊠	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
]	]	PIPE CAP			SAFETY END TREATMENT
		PIPE FLOW			DRAINAGE FLOW
	◁	REDUCER	E	E	ELEC. M.H.
	Ⓐ	AIR RELEASE VALVE			ELEC./TELE. POLE
	Ⓑ	BLOW-OFF VALVE			GUY WIRE
	Ⓟ	POST INDICATOR VALVE			LIGHT FIXTURE
	Ⓧ	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
	Ⓤ	UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 40 80

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED PROFESSIONAL ENGINEER

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NO	DATE	DESCRIPTION

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Texas Registered Engineering Firm F-88
1221 South MoPac Expressway · Suite 350 · Austin, TX 78746
Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

ROAD PLAN STA 30.25 - LINE OF SIGHT

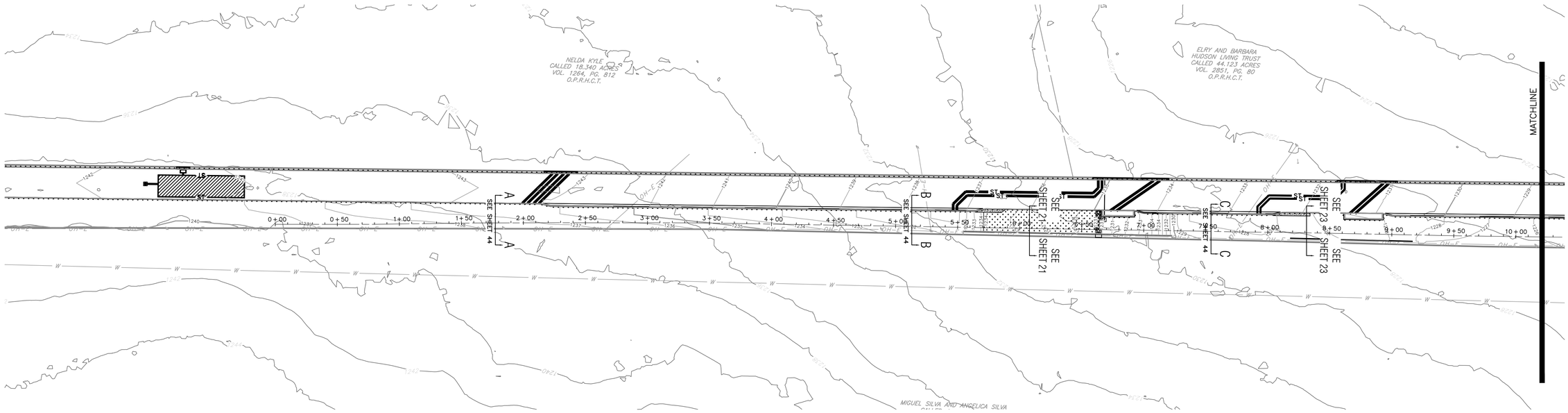
DATE:	07/24/2025
DWG SCALE:	1" = 40'
PROJECT NO.	324-199
DRAWN BY:	MBM
CHECKED BY:	CB
APPROVED BY:	MAT

DRAWING NO.: 41

SHEET 41 OF 48

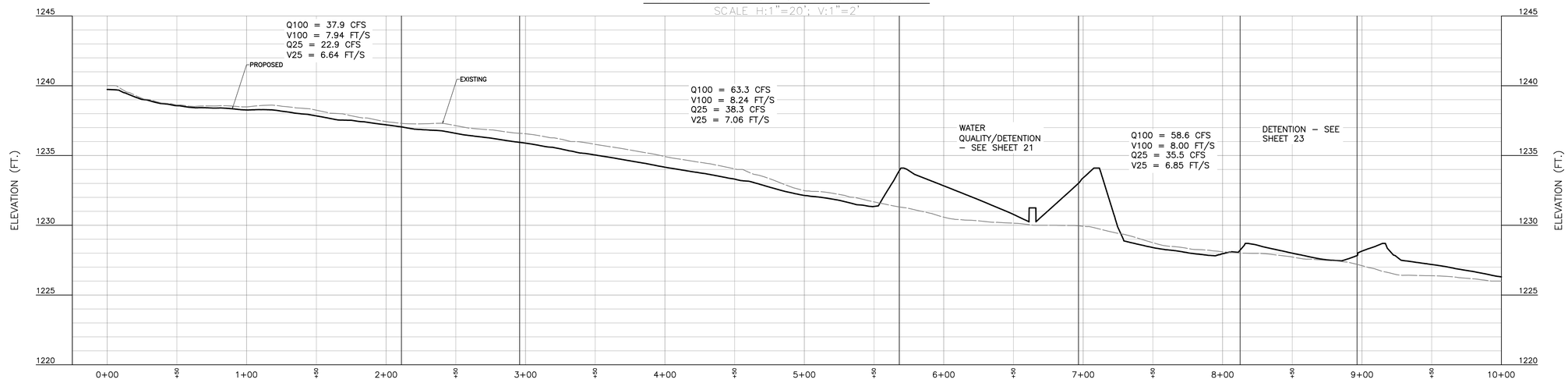
SD-2022-0025

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ROADSIDE DITCH CHANNEL PROFILE

SCALE H:1"=20'; V:1"=2'



LINETYPE LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
		RIGHT-OF-WAY	G	G	GAS LINE
		LOT BOUNDARY	OU	OU	OVERHEAD UTILITY
		EASEMENT	UG	UG	UNDERGROUND UTILITY
X	X	FENCE: BARBED	SAN	SAN	SANITARY SEWER LINE
		FENCE: WOOD (PICKET)	W	W	WATER LINE
		FENCE: WOOD (PRIVACY)	F	F	FIRE LINE
		FENCE: CHAIN LINK			ROAD CENTERLINE
		FENCE: IRON			CURB & GUTTER
385	385	MAJOR CONTOUR			STRIPING
		MINOR CONTOUR		FIRE	FIRE LANE STRIPING
E	E	ELECTRIC LINE			H.C. ACCESSIBLE ROUTE
OE	OE	OVERHEAD ELECTRIC WIRE	LOC		LIMITS OF CONSTRUCTION
UE	UE	UNDERGROUND ELECTRIC LINE			RAIL ROAD
T	T	TELEPHONE			FLOODWAY
C	C	COMMUNICATIONS LINE			CWQZ
TV	TV	CABLE TELEVISION	ST	ST	STORM SEWER
FO	FO	FIBER OPTIC LINE			DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	·	BENCHMARK			(MONITORING) WELL
	⊛	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	CO	CO	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊠	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
J	J	PIPE CAP			SAFETY END TREATMENT
>	>	PIPE FLOW			DRAINAGE FLOW
	◁	REDUCER	E	E	ELEC. M.H.
	⊛	AIR RELEASE VALVE			ELEC./TELE. POLE
	⊛	BLOW-OFF VALVE			GUY WIRE
	⊛	POST INDICATOR VALVE			LIGHT FIXTURE
	⊗	MISCELLANEOUS VALVE			TRAFFIC SIGNAL
	⊘	UTILITY VALVE			PEDESTRIAN SIGNAL
	⊞	UTILITY METER			UTILITY (PULL)BOX
	⊠	BACKFLOW PREVENTER			UTILITY RISER
	⊞	FLUSH CONNECTION		⊗	UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 40 80

STATE OF TEXAS
MICHAEL A. THEONE
142972
LICENSED
PROFESSIONAL ENGINEER

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www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

ROADSIDE DITCH P&P 0+00-10+00

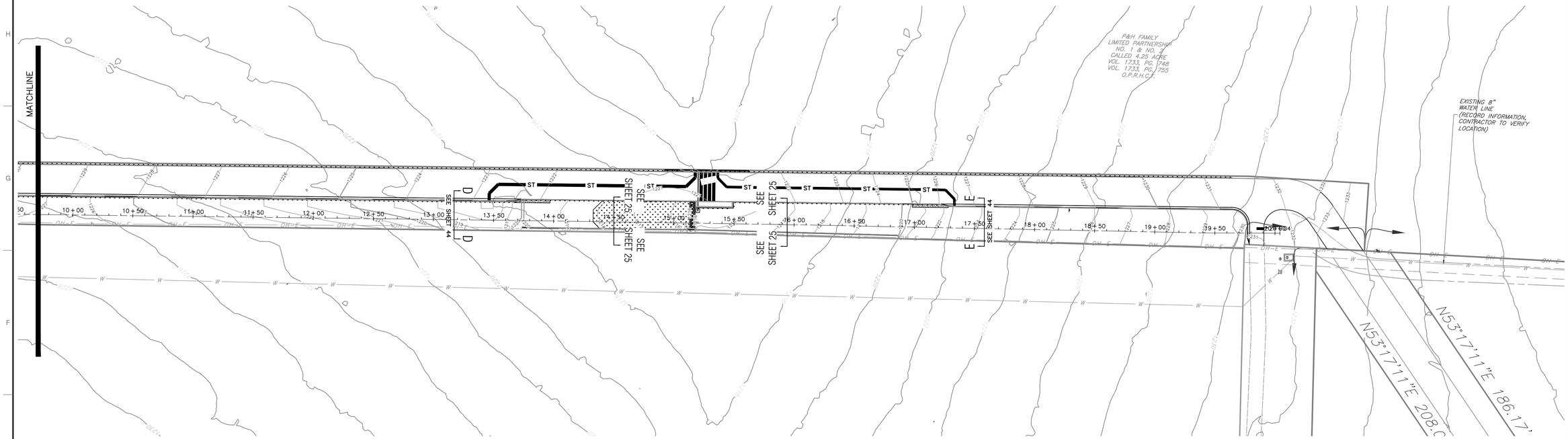
DRAWN BY:	MBM
CHECKED BY:	CB
DATE:	07/24/2025
DWG SCALE:	1" = 40'
PROJECT NO:	324-199
APPROVED BY:	MAT

DRAWING NO.: **42**

SHEET 42 OF 48

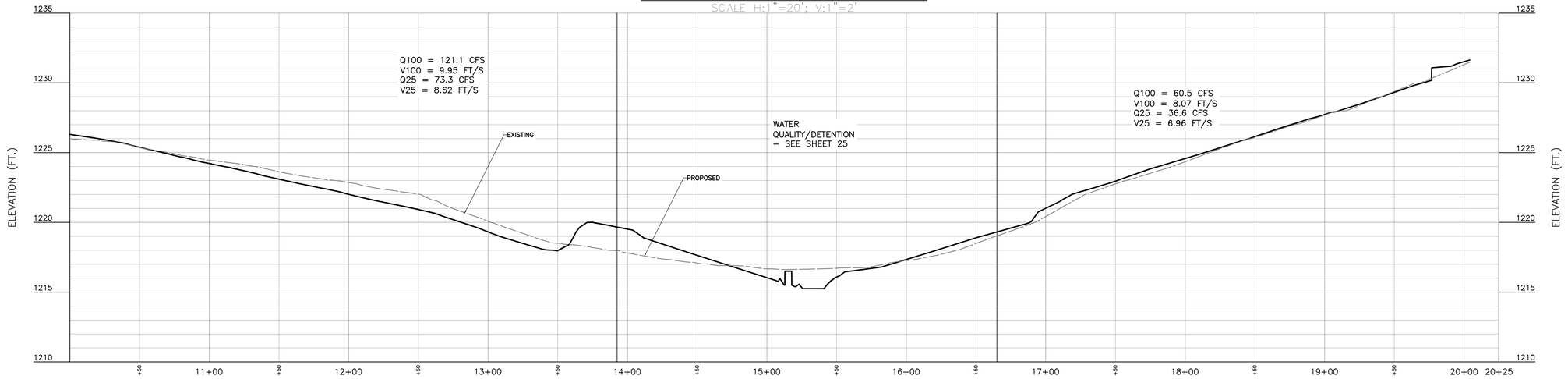
SD-2022-0025

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ROADSIDE DITCH CHANNEL PROFILE

SCALE H:1"=20'; V:1"=2'



LINETYPE LEGEND

PROPOSED	EXISTING	
		RIGHT-OF-WAY
		LOT BOUNDARY
		EASEMENT
		FENCE: BARBED
		FENCE: WOOD (PICKET)
		FENCE: WOOD (PRIVACY)
		FENCE: CHAIN LINK
		FENCE: IRON
385	*385*	MAJOR CONTOUR
		MINOR CONTOUR
E	E	ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC WIRE
UE	UE	UNDERGROUND ELECTRIC LINE
T	T	TELEPHONE
C	C	COMMUNICATIONS LINE
TV	TV	CABLE TELEVISION
FO	FO	FIBER OPTIC LINE

PROPOSED	EXISTING	
G	*G*	GAS LINE
OU	OU	OVERHEAD UTILITY
UG	UG	UNDERGROUND UTILITY
SAN	*SAN*	SANITARY SEWER LINE
W	*W*	WATER LINE
F	*F*	FIRE LINE
		ROAD CENTERLINE
		CURB & GUTTER
		STRIPING
FIRE		FIRE LANE STRIPING
		H.C. ACCESSIBLE ROUTE
LOC		LIMITS OF CONSTRUCTION
		RAIL ROAD
		FLOODWAY
		CWQZ
ST	*ST*	STORM SEWER
		DRAINAGE CHANNEL

BLOCK LEGEND

PROPOSED	EXISTING		PROPOSED	EXISTING	
	-	BENCHMARK			(MONITORING) WELL
	⊗	CUT IN CONCRETE			UTILITY RISER
	△	CONTROL POINT	HB	HB	HOSE BIB
	◎	IRON PIPE	S	S	SANITARY M.H.
	●	IRON ROD	C	C	CLEANOUT
	○	IRON ROD W/ CAP	D	D	DRAINAGE M.H.
	⊡	MONUMENT TYPE 1			DOWN SPOUT
	⊙	MONUMENT TYPE 2			AREA INLET
	▲	NAIL			CURB INLET
S	S	PIPE BREAK			HEADWALL
J	J	PIPE CAP			SAFETY END TREATMENT
>	>	PIPE FLOW			DRAINAGE FLOW
		REDUCER	E	E	ELEC. M.H.
		AIR RELEASE VALVE			ELEC./TELE. POLE
		BLOW-OFF VALVE			GUY WIRE
		POST INDICATOR VALVE			LIGHT FIXTURE
		MISCELLANEOUS VALVE			TRAFFIC SIGNAL
		UTILITY VALVE			PEDESTRIAN SIGNAL
		UTILITY METER			UTILITY (PULL)BOX
		BACKFLOW PREVENTER			UTILITY RISER
		FLUSH CONNECTION			UTILITY SERVICE
		FIRE HYDRANT			

NORTH

SCALE IN FEET

0 40 80

STATE OF TEXAS · MICHAEL A. THEONE · 142972 · LICENSED PROFESSIONAL ENGINEER

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Ph: 512.439.0400 · Fax: 512.329.0096
www.cecinc.com

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

ROADSIDE DITCH P&P 10+00-END

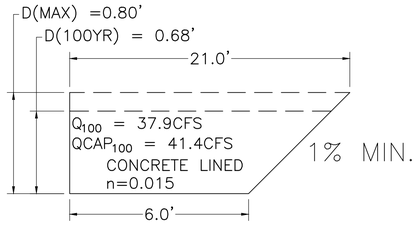
DATE:	07/24/2025
DWG SCALE:	1" = 40'
PROJECT NO:	324-199
APPROVED BY:	MAT
DRAWN BY:	MBM
CHECKED BY:	CB

DRAWING NO.: 43

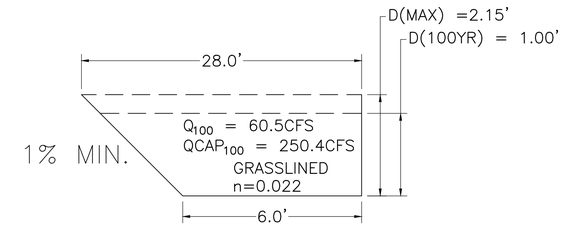
SHEET 43 OF 48

SD-2022-0025

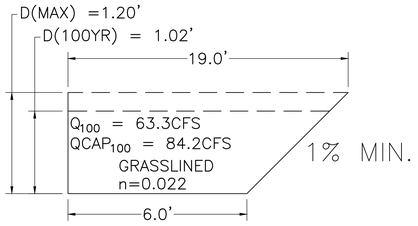
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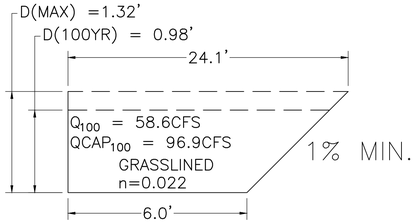
A ROADSIDE DITCH SECTION
16 16 SCALE: NTS
ROADSIDE DITCH A



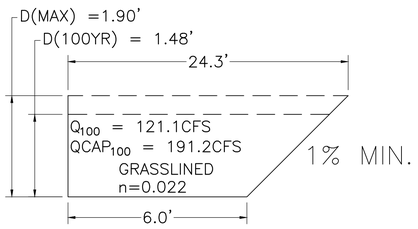
E ROADSIDE DITCH SECTION
16 16 SCALE: NTS
ROADSIDE DITCH E



B ROADSIDE DITCH SECTION
16 16 SCALE: NTS
ROADSIDE DITCH B



C ROADSIDE DITCH SECTION
16 16 SCALE: NTS
ROADSIDE DITCH C



D ROADSIDE DITCH SECTION
16 16 SCALE: NTS
ROADSIDE DITCH D

REVISION RECORD

NO	DATE	DESCRIPTION

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HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
HARDY DRIVEWAY
CITY OF DRIPPING SPRINGS, HAYS COUNTY, TX

ROADSIDE DITCH SECTIONS

DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	NTS	CHECKED BY:	CB
PROJECT NO:			324-199
APPROVED BY:			MAT



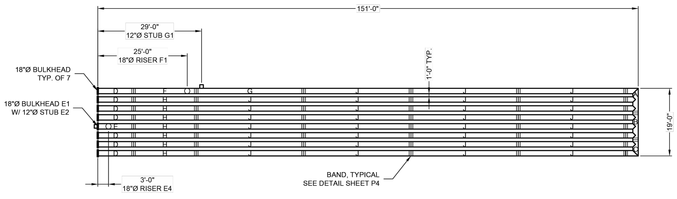
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DRAWING NO.: 44
SHEET 44 OF 48

SD-2022-0025

P:\320-0001.324-199\-CADD\Dwg\CIVIL\324199-CVD1-CDSD-ROADSIDE DITCH PLAN PROFILE.dwg[ROADSIDE DITCH SECTIONS] LS(7/24/2025 - mmartinez) - LP: 7/24/2025 12:40 PM

NORTH ARROW PROVIDED FOR REFERENCE ONLY. REFER TO ENGINEERED SITE PLANS FOR EXACT LOCATION AND ORIENTATION



STUB INFORMATION		
PIECE	STUB INVERT	SYSTEM INVERT
12"Ø STUB E2	1,238.00	1,238.00
12"Ø STUB G1	1,238.00	1,238.00

RISER INFORMATION		
PIECE	RIM ELEV.	SYSTEM INVERT
18"Ø RISER E3	1,241.12	1,238.00
18"Ø RISER F1	1,241.06	1,238.00

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (5) PAGES INCLUDING THE FOLLOWING:

- **PIPE STORAGE = 2,147 CF**
- **MAINLINE PIPE GAGE = 16**
- **WALL TYPE = SOLID W/ XFILTRATION JOINTS**
- **DIAMETER = 18"**
- **FINISH = ALT2**
- **CORRUGATION = 2 2/3x1/2**

CUSTOMER _____ DATE _____

ASSEMBLY

SCALE: 1" = 30'
STRUCTURAL BACKFILL STORAGE: 1,069 CF
TOTAL STORAGE PROVIDED: 3,216 CF
LOADING: H20
PIPE INV. = 1238'±

ASSUMES 12" OF PERIMETER STONE WITH 40% VOIDS. ASSUMES NO STONE ABOVE OR BELOW PIPE.

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD (EOR) PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE AS REQUIRED, BY CONTRACTOR.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ACCESS CASTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE NOT SUPPLIED BY CONTECH.

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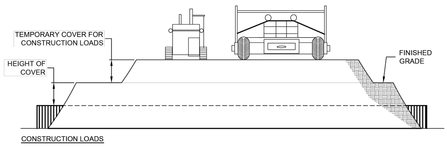
MARK	DATE	REVISION DESCRIPTION	BY

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

18"Ø XFILTRATION RETENTION SYSTEM - 723797-010
BUNKER RANCH LLC - HARDY DRIVEWAY
DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 1

PROJECT No.	SEQ. No.	DATE
723797	010	10/26/23
DESIGNED: JGB	DRAWN: JGB	
CHECKED: LJK	APPROVED: LJK	
SHEET NO: P1	OF 5	



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

NOT TO SCALE

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

ANTI-FLOTATION PROVISIONS DUE TO HIGH GROUNDWATER OR OTHER FLOTATION CONCERNS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.

MATERIAL SPECIFICATION

NOT TO SCALE

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CONTECH CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

18"Ø XFILTRATION RETENTION SYSTEM - 723797-010
BUNKER RANCH LLC - HARDY DRIVEWAY
DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 1

PROJECT No.	SEQ. No.	DATE
723797	010	10/26/23
DESIGNED: JGB	DRAWN: JGB	
CHECKED: LJK	APPROVED: LJK	
SHEET NO: P2	OF 5	

811 !!! CAUTION !!! IT IS THE CONTRACTORS RESPONSIBILITY TO "KERBY" ALL UTILITIES PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. !!! CAUTION !!!



SD-2022-0025

SHEET 45 OF 48 — DRAWING NO. 45

UNDERGROUND DETENTION 1 1 OF 2

DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	NTS	CHECKED BY:	CB
PROJECT NO:	324-199		
APPROVED BY:	MAT		

HARDY T LAND, LLC
SITE DEVELOPMENT PLANS
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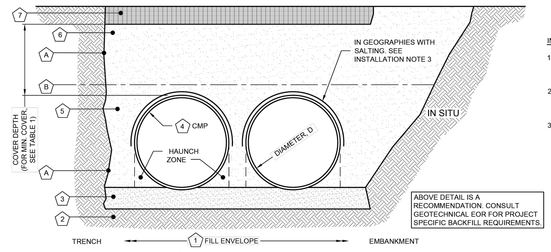
REVISION RECORD

NO	DATE	DESCRIPTION

TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
>48"-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.



MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED OVER THE UPPER HALF OF THE PIPE. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

TABLE 2:

XFILTRATION™ JOINT STANDARD BACKFILL SPECIFICATIONS

	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION	
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16". PIPE > 12": 1.5D + 12"	MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	**AASHTO 26.5.2** - PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.	
3	BEDDING	**AASHTO M 43: 3, 357, 4, 467, 5, 56, 57**	ENGINEER OF RECORD TO DETERMINE IF BEDDING IS REQUIRED. PIPE MAY BE PLACED ON THE TRENCH BOTTOM OF A RELATIVELY LOOSE, NATIVE SUITABLE WELL GRADED GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH. THE BEDDING MATERIAL MAY BE SUITABLE OPEN GRADED GRANULAR BEDDING CONFORMING TO AASHTO SOIL CLASSIFICATIONS A1, A2, OR A3 WITH MAXIMUM PARTICLE SIZE OF 3" PER AASHTO 26.3.8.1	
4	CORRUGATED METAL PIPE			
5	BACKFILL	FREE-DRAINING, ANGULAR, WASHED-STONE PER **AASHTO M 43: 3, 357, 4, 467, 5, 56, 57** OR APPROVED EQUAL *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING. WHERE CONVENTIONAL COMPACTION TESTING IS NOT PRACTICAL, THE MATERIAL SHALL BE MECHANICALLY COMPACTED UNTIL NO FURTHER YIELDING OF MATERIAL IS OBSERVED UNDER THE COMPACTOR. **IN AREAS WITH HIGH WATER TABLE FLUCTUATIONS THAT INTERACT WITH THE PIPE ZONE, CONSIDER INSTALLING A GEOTEXTILE SEPARATION LAYER TO PREVENT SOIL MIGRATION.	
6	COVER MATERIAL	UP TO MIN. COVER - **AASHTO M 145: A-1, A-2, A-3** ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROADBASE MATERIAL WITHIN MIN COVER LIMITS	
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.	
A	SIDE GEOTEXTILE	NONE	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION WHEN STONE BEDDING IS USED. IF NO STONE BEDDING IS USED, THEN SIDE GEOTEXTILE IS REQUIRED.	
B	GEOTEXTILE BETWEEN LAYERS	NONE	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.	

NOTES:

- FOR MULTIPLE BARREL INSTALLATIONS, THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE THE PIPE DIAMETER /2 BUT NO LESS THAN 12" FOR DIAMETERS <72". FOR 72" AND LARGER DIAMETERS, THE MINIMUM SPACING IS 36". CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- APPROVED REGIONAL EQUIVALENTS FOR SECTION 5 INCLUDE CA-7, MIDOT 6AA, 6A, OR 5G, PROVIDED THEY MEET THE PARTICLE SIZES INDICATED.

MANUFACTURER RECOMMENDED BACKFILL

NOT TO SCALE

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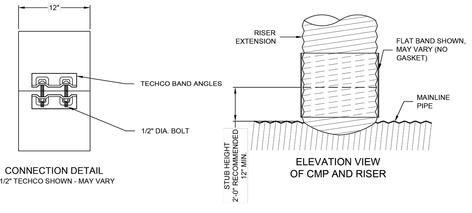
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CONTECH CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

18"Ø XFILTRATION RETENTION SYSTEM - 723797-010
BUNKER RANCH LLC - HARDY DRIVEWAY
DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 1

PROJECT No.	SEQ. No.	DATE
723797	010	10/26/23
DESIGNED: JGB	DRAWN: JGB	
CHECKED: LJK	APPROVED: LJK	
SHEET No.: P3 OF 5		



CONNECTION DETAIL
7 1/2" TECHCO SHOWN - MAY VARY

ELEVATION VIEW
OF CMP AND RISER

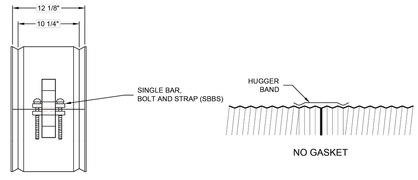
PLAIN END CMP RISER PIPE

GENERAL NOTES:

1. **DELIVERED BAND STYLE AND FASTENER TYPE MAY VARY BY FABRICATION PLANT.**
2. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
3. BAND MATERIAL AND GAGE TO BE SAME AS RISER MATERIAL.
4. IF RISER HAS A HEIGHT OF COVER OF 10' OR MORE, USE A SLIP JOINT.
5. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" 2-PIECES
6. ALL RISER JOINT COMPONENTS WILL BE FIELD ASSEMBLED.
7. MANHOLE RISERS IN APPLICATIONS WHERE TRAFFIC LOADS ARE IMPOSED REQUIRE SPECIAL DESIGN CONSIDERATIONS.
8. DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.

12" RISER BAND DETAIL

NOT TO SCALE



CONNECTION DETAIL
(SBBS)

2 2/3"x1/2" RE-ROLLED END HEL-COR PIPE

GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. ALL CMP IS REROLLED TO HAVE ANNULAR END CORRUGATIONS OF 2 2/3"x1/2"
7. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
8. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

H-12 HUGGER BAND DETAIL

NOT TO SCALE

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18"Ø XFILTRATION RETENTION SYSTEM - 723797-010
BUNKER RANCH LLC - HARDY DRIVEWAY
DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 1

PROJECT No.	SEQ. No.	DATE
723797	010	10/26/23
DESIGNED: JGB	DRAWN: JGB	
CHECKED: LJK	APPROVED: LJK	
SHEET No.: P4 OF 5		

811 !!! CAUTION !!! IT IS THE CONTRACTORS RESPONSIBILITY TO "VERIFY" ALL UTILITY LOCATIONS HORIZONTALLY & VERTICALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. !!! CAUTION !!!



SD-2022-0025

SHEET 46 OF 48

DRAWING NO. 46

UNDERGROUND DETENTION 1 2 OF 2

DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	NTS	CHECKED BY:	CB
PROJECT NO:	324-199		
APPROVED BY:	MAT		

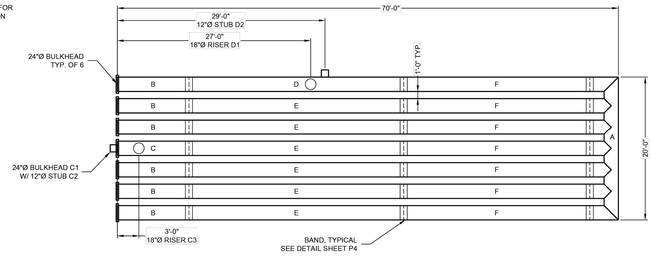
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Texas Registered Engineering Firm F-38
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REVISION RECORD

NO	DATE	DESCRIPTION

NORTH ARROW PROVIDED FOR REFERENCE ONLY
REFER TO ENGINEERED SITE PLANS FOR EXACT LOCATION AND ORIENTATION



STUB INFORMATION		
PIECE	STUB INVERT	SYSTEM INVERT
12"Ø STUB C2	1,238.50	1,238.50
12"Ø STUB D2	1,238.50	1,238.50

RISER INFORMATION		
PIECE	RIM ELEV.	SYSTEM INVERT
18"Ø RISER C3	1,242.15	1,238.50
18"Ø RISER D1	1,242.08	1,238.50

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (5) PAGES INCLUDING THE FOLLOWING:

- **PIPE STORAGE = 1,559 CF**
- **MAINLINE PIPE GAGE = 16**
- **WALL TYPE = SOLID W/ XFILTRATION JOINTS**
- **DIAMETER = 24"**
- **FINISH = ALT2**
- **CORRUGATION = 2 2/3x1/2**

CUSTOMER _____ DATE _____

ASSEMBLY
SCALE: 1" = 10'
STRUCTURAL BACKFILL STORAGE: 644 CF
TOTAL STORAGE PROVIDED: 2,202 CF
LOADING: H20
PIPE INV. = 1238.50'±

ASSUMES 12" OF STONE PERIMETER WITH 40% VOIDS.
ASSUMES NO STONE ABOVE OR BELOW PIPE.

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD (EOR) PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE AS REQUIRED, BY CONTRACTOR.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ACCESS CASTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE NOT SUPPLIED BY CONTECH.

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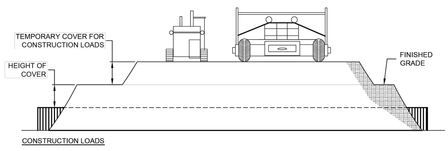
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CONTECH PROPOSAL DRAWING

24"Ø XFILTRATION RETENTION SYSTEM - 723797-020
BUNKER RANCH LLC - HARDY DRIVEWAY
DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 2

PROJECT No.	SEQ. No.	DATE
723797	020	10/26/2023
DESIGNED: CJG	DRAWN: CJG	
CHECKED: LJK	APPROVED: LJK	
SHEET No.: P1 OF 5		



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM
NOT TO SCALE

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

ANTI-FLOTATION PROVISIONS DUE TO HIGH GROUNDWATER OR OTHER FLOTATION CONCERNS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.

MATERIAL SPECIFICATION
NOT TO SCALE

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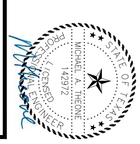
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DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 2

PROJECT No.	SEQ. No.	DATE
723797	020	10/26/2023
DESIGNED: CJG	DRAWN: CJG	
CHECKED: LJK	APPROVED: LJK	
SHEET No.: P2 OF 5		

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SHEET 47 OF 48
DRAWING NO. 47
SD-2022-0025

UNDERGROUND DETENTION 2 1 OF 2

DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	NTS	CHECKED BY:	CB
PROJECT NO:	324-199		
APPROVED BY:	MAT		

HARDY T LAND, LLC
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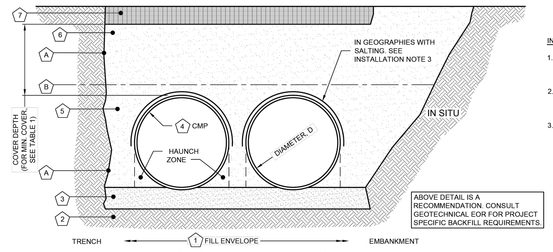
REVISION RECORD

NO	DATE	DESCRIPTION

TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
>48"-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.



MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED OVER THE UPPER HALF OF THE PIPE. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

TABLE 2:

XFILTRATION™ JOINT STANDARD BACKFILL SPECIFICATIONS

	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION	
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16". PIPE > 12": 1.5D + 12"	MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	**AASHTO 26.5.2** - PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.	
3	BEDDING	**AASHTO M 43: 3, 357, 4, 467, 5, 56, 57**	ENGINEER OF RECORD TO DETERMINE IF BEDDING IS REQUIRED. PIPE MAY BE PLACED ON THE TRENCH BOTTOM OF A RELATIVELY LOOSE, NATIVE SUITABLE WELL GRADED GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH. THE BEDDING MATERIAL MAY BE SUITABLE OPEN GRADED GRANULAR BEDDING CONFORMING TO AASHTO SOIL CLASSIFICATIONS A1, A2, OR A3 WITH MAXIMUM PARTICLE SIZE OF 3" PER AASHTO 26.3.8.1	
4	CORRUGATED METAL PIPE			
5	BACKFILL	FREE-DRAINING, ANGULAR, WASHED-STONE PER **AASHTO M 43: 3, 357, 4, 467, 5, 56, 57** OR APPROVED EQUAL *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING. WHERE CONVENTIONAL COMPACTION TESTING IS NOT PRACTICAL, THE MATERIAL SHALL BE MECHANICALLY COMPACTED UNTIL NO FURTHER YIELDING OF MATERIAL IS OBSERVED UNDER THE COMPACTOR. **IN AREAS WITH HIGH WATER TABLE FLUCTUATIONS THAT INTERACT WITH THE PIPE ZONE, CONSIDER INSTALLING A GEOTEXTILE SEPARATION LAYER TO PREVENT SOIL MIGRATION.	
6	COVER MATERIAL	UP TO MIN. COVER - **AASHTO M 145: A-1, A-2, A-3** ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROADBASE MATERIAL WITHIN MIN COVER LIMITS	
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.	
A	SIDE GEOTEXTILE	NONE	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION WHEN STONE BEDDING IS USED. IF NO STONE BEDDING IS USED, THEN SIDE GEOTEXTILE IS REQUIRED.	
B	GEOTEXTILE BETWEEN LAYERS	NONE	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.	

NOTES:

- FOR MULTIPLE BARREL INSTALLATIONS, THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE THE PIPE DIAMETER /2 BUT NO LESS THAN 12" FOR DIAMETERS <72". FOR 72" AND LARGER DIAMETERS, THE MINIMUM SPACING IS 36". CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- APPROVED REGIONAL EQUIVALENTS FOR SECTION 5 INCLUDE CA-7, MIDOT 6AA, 6A, OR 5G, PROVIDED THEY MEET THE PARTICLE SIZES INDICATED.

MANUFACTURER RECOMMENDED BACKFILL

NOT TO SCALE

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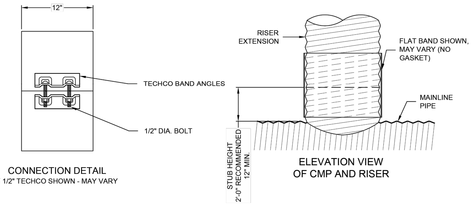
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CONTECH ENGINEERED SOLUTIONS LLC
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CONTECH CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

24"Ø XFILTRATION RETENTION SYSTEM - 723797-020
BUNKER RANCH LLC - HARDY DRIVEWAY
DRIPPING SPRINGS, TX
SITE DESIGNATION: UDS 2

PROJECT No.	SEQ. No.	DATE
723797	020	10/26/2023
DESIGNED: CJG	DRAWN: CJG	
CHECKED: LJK	APPROVED: LJK	
SHEET No.: P3	OF 5	



CONNECTION DETAIL
7 1/2" TECHCO SHOWN - MAY VARY

ELEVATION VIEW OF CMP AND RISER

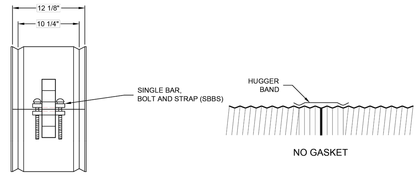
PLAIN END CMP RISER PIPE

GENERAL NOTES:

1. **DELIVERED BAND STYLE AND FASTENER TYPE MAY VARY BY FABRICATION PLANT.**
2. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
3. BAND MATERIAL AND GAGE TO BE SAME AS RISER MATERIAL.
4. IF RISER HAS A HEIGHT OF COVER OF 10' OR MORE, USE A SLIP JOINT.
5. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" 2-PIECES
6. ALL RISER JOINT COMPONENTS WILL BE FIELD ASSEMBLED.
7. MANHOLE RISERS IN APPLICATIONS WHERE TRAFFIC LOADS ARE IMPOSED REQUIRE SPECIAL DESIGN CONSIDERATIONS.
8. DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.

12" RISER BAND DETAIL

NOT TO SCALE



CONNECTION DETAIL
(SBBS)

2 2/3"x1/2" RE-ROLLED END HEL-COR PIPE

GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. ALL CMP IS REROLLED TO HAVE ANNULAR END CORRUGATIONS OF 2 2/3"x1/2"
7. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
8. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

H-12 HUGGER BAND DETAIL

NOT TO SCALE

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811 !!! CAUTION !!! IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION, and NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. !!! CAUTION !!!



SD-2022-0025

SHEET 48 OF 48 — DRAWING NO. 48

UNDERGROUND DETENTION 2 2 OF 2

DATE:	07/24/2025	DRAWN BY:	MBM
DWG SCALE:	NTS	CHECKED BY:	CB
PROJECT NO:	324-199		
APPROVED BY:	MAT		

HARDY T LAND, LLC
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HARDY DRIVEWAY
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REVISION RECORD

NO	DATE	DESCRIPTION