CONTRIBUTING ZONE PLAN

for

SANTA RITA RANCH PHASE 2B SECTION 1
WILLIAMSON COUNTY, TEXAS

Prepared For:

Mr. James Edward Horne
SRFV Development, LLC
1700 Cross Creek Lane, Suite 100
Liberty Hill, TX 78642
(512) 502-2050

Prepared By:

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Carlson, Brigance & Doering, Inc.
Civil Engineering ❖ Surveying

CBD No. 5557
September 2023

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-28-2023

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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

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

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

Technical Review

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

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

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

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: **Santa Rita Ranch Phase 2B Section 1**						**2. Regulated Entity No.:**			
3. Customer Name: SRFV Development, LLC						**4. Customer No.: 605894914**			
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):**		40.92	
9. Application Fee:	$6,500.00		**10. Permanent BMP(s):**			Batch Detention Pond			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Williamson		**14. Watershed:**			North Fork San Gabriel River			

Application Distribution

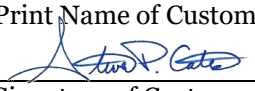
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which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

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

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

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	_x_
Region (1 req.)	___	___	_x_
County(ies)	___	___	_x_
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence _x_Georgetown ___Jerrell ___Leander _x_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. SRFV Development, LLC / Carlson, Brigance, & Doering, Inc.
Print Name of Customer/Authorized Agent  **9-28-2023** Signature of Customer/Authorized Agent Date

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

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: Steven P. Cates, P.E.

Date: 9/28/2023

Signature of Customer/Agent:

Regulated Entity Name: Santa Rita Ranch Phase 2B Section 1

Project Information

1. County: Williamson
2. Stream Basin: North Fork San Gabriel River
3. Groundwater Conservation District (if applicable): N/A
4. Customer (Applicant):

   Contact Person: James Edward Horne
   Entity: SRFV Development, LLC
   Mailing Address: 1700 Cross Creek Lane, Suite 100
   City, State: Liberty Hill, TX Zip: 78642
   Telephone: (512) 502-2050 Fax: _____
   Email Address: ed@srraustin.com

5. Agent/Representative (If any):

Contact Person: Steven P. Cates, P.E.
Entity: Carlson, Brigance & Doering, Inc.
Mailing Address: 5501 West William Cannon
City, State: Austin, TX Zip: 78749
Telephone: (512) 280-5160 Fax: (512) 280-5165
Email Address: steve@cbdeng.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 the City of Liberty Hill.
☐ 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.

South of Ex. Tower Rd, East of Flower Valley Pkwy

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: 83
☐ Residential: # of Living Unit Equivalents: _____
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 40.92 Acres

Total disturbed area: 25.00 Acres

14. Estimated projected population: 249

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	309,500	÷ 43,560 =	7.11
Parking	0	÷ 43,560 =	0
Other paved surfaces	238,098	÷ 43,560 =	5.47
Total Impervious Cover	547,598	÷ 43,560 =	12.57

Total Impervious Cover 12.57 **÷ Total Acreage** 40.92 **X 100 =** 30.72**% 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.: _____ feet.
Width of R.O.W.: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

21. Pavement Area:

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

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 Liberty Hill (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" = 40'.

35. 100-year floodplain boundaries:

    ☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

    ☒ No part of the project site is located within the 100-year floodplain.

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA- FIRM Panel #48491C0275E; Effective Date: September 26, 2008.

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

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

37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.

38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

39. ☒ Areas of soil disturbance and areas which will not be disturbed.

40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

41. ☒ Locations where soil stabilization practices are expected to occur.

42. ☐ Surface waters (including wetlands).

    ☒ N/A

43. ☐ Locations where stormwater discharges to surface water.

    ☒ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

    ☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

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

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

☐ N/A

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

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

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

☐ N/A

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

☐ N/A

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

☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.

☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.

☒ The site will not be used for low density single-family residential development.

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

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

52. ☒ **Attachment J - BMPs for Upgradient Stormwater**.

    ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
    ☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
    ☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

53. ☒ **Attachment K - BMPs for On-site Stormwater**.

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

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

    ☐ N/A

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

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

☐ N/A

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

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

☐ N/A

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

☒ N/A

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

☐ N/A

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

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

60. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development,

or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

Administrative Information

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

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

63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

Contributing Zone Plan Application

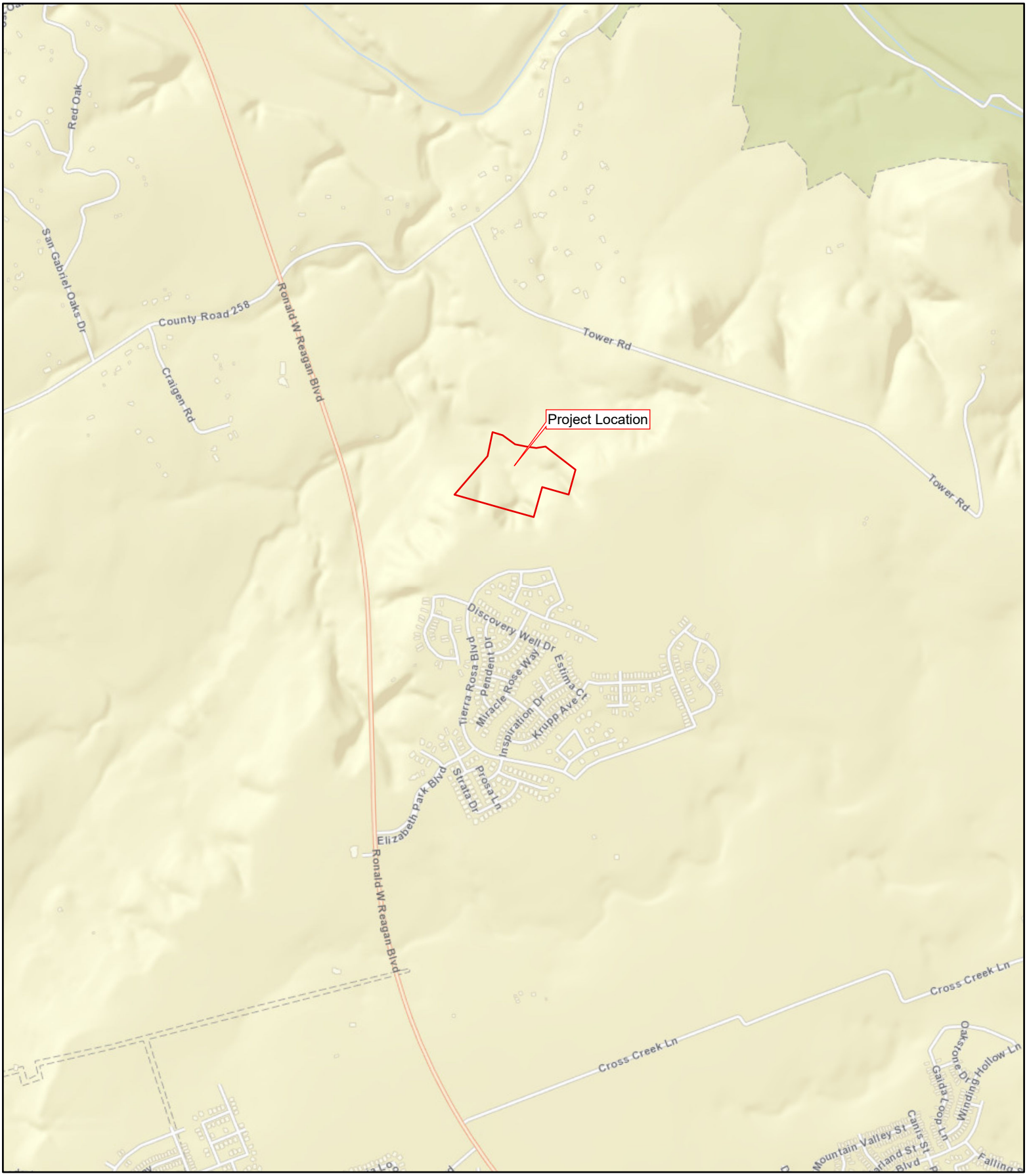
ATTACHMENT A

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

ROAD MAP



Santa Rita Ranch

Water Pollution Abatement Plan Map

Leander NE Quadrant

N

0 1,000 2,000 4,000 Feet

Carlson, Brigance & Doering, Inc.

Civil Engineering ❖ Surveying

Contributing Zone Plan Application

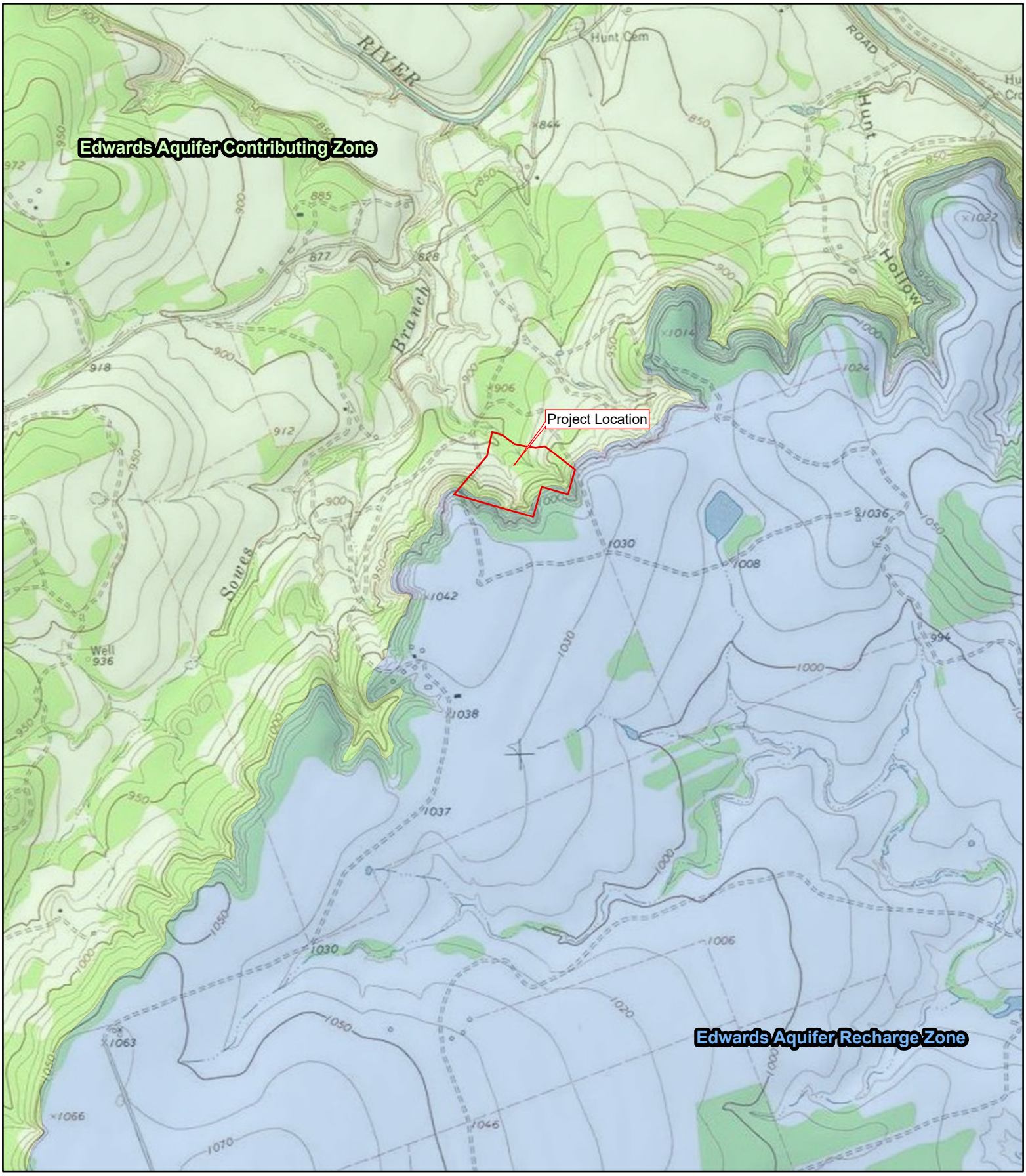
ATTACHMENT B

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

USGS QUADRANGLE MAP



Santa Rita Ranch

Water Pollution Abatement Plan Map

Leander NE Quadrant

N

0 1,000 2,000 4,000 Feet

Carlson, Brigance & Doering, Inc.
Civil Engineering ❖ Surveying

Contributing Zone Plan Application

ATTACHMENT C

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Project Narrative:

Santa Rita Ranch Phase 2B Section 1 is a 40.92-acre residential development that is composed of 83 single-family lots. The project is located on the east side of Ronald Reagan Boulevard, approximately 3 miles north of State Highway 29, south of Co Rd 258, and just south of existing Tower Rd. The project is located within the City of Liberty Hill ETJ, in Williamson County, Texas.

This project includes 4647 linear feet of roadway, 4595 linear feet of water main line, 4,142 linear feet of 8" SDR 26 PVC ASTM D3034 wastewater main line, 120 linear feet of 8" C900 (150 psi) PVC AWWA C900 wastewater main line at water line crossings, and 1134 linear feet of 6" SDR 26 PVC ASTM D3034 of wastewater service line.

The proposed wastewater line will flow into an existing SCS gravity system to the approved Lift Station 2A and then the Liberty Hill Wastewater Treatment Plant.

The site may have soil imported. The fill material shall consist of crushed limestone, select fill, and topsoil. The fill material will be used to facilitate drainage, roadway construction, revegetation of the property, and to elevate the building foundations.

This project is located within the Edwards Aquifer Contributing Zone. Flows were calculated using the National Resource Conservation hydrologic method. Water quality will be provided by one proposed and one existing batch detention ponds.

Within the 40.92-acre improvement area, approximately 12.57 acres of impervious cover will be installed (30.72% of total project site). Batch detention ponds have been designed in accordance with the January 20, 2017 Addendum Sheet to RG-348 which establishes Batch Detention Basins in Section 3.2.17. They have been sized to treat and detain for this and future sections.

Contributing Zone Plan Application

ATTACHMENT D

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Factors Affecting Surface Water Quality:

During Construction
The following non-stormwater discharges may occur from the site during the construction period:

- Utility water line flushing during the initial line testing must use uncontaminated water that is not hyper-chlorinated.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from dewatering of excavation) must be uncontaminated.
- Water used to wash vehicles or control dust must be accomplished using potable water without detergents.

All non-stormwater discharge will be directed to the temporary Erosion and Sedimentation Controls (Best Management Practices) to remove any suspended solids contained therein. Stormwater during construction will remove loose material and transport it downstream.

Post Construction
The following non-stormwater discharges may occur from the site after construction has been completed:

- Fertilizers and pesticides
- Household chemicals
- Pet Waste
- Used oil
- Car washing
- Mulching
- Sediment

Post-construction stormwater discharges typically transport sediment in the form of dirt and dust accumulated on the streets and other impervious flatwork, rooftops, and sediment from erosion of grassy areas. That material will be transported through the storm sewer system to the wet basins, where most of the pollutants will be removed.

Contributing Zone Plan Application

ATTACHMENT E

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Volume and Character of Stormwater:

Existing and developed hydrology models were created in HEC-HMS, v.4.8. A 24-hour frequency storm was applied to the meteorological models for the 2, 10, 25, and 100-year storm events. The model was run over a 24-hour period with a computational time interval of 1 minute. Subbasins utilized an SCS Curve Number Loss Method and SCS Unit Hydrograph Transform Method. Reaches utilized either a Muskingum-Cunge or Lag Routing Method. See below for specific model input data.

Meteorological Model

Frequency storms with the following parameters were used to model storm events:

HEC-HMS Meteorological Model Parameters

Probability	2-yr = 50%, 10-yr = 10%, 25-100-yr = Other
Input Type	Partial Duration
Output Type	Annual Duration (only applicable for 2-10-yr)
Intensity Duration	5 Minutes
Storm Duration	1 Day
Intensity Position	50%
Storm Area	(Blank if less than 10 mi²)
Curve	Uniform for all subbasins

Partial-duration precipitation depths are per the Depth-Duration-Frequency Estimates for the San Gabriel River Zone in Williamson County, Texas, according to NOAA Atlas 14, Volume 11, Version 2. See the table below:

Precipitation Depths (in) per Recurrence Interval

Duration	2-YR	10-YR	25-YR	100-YR
5-min	0.51	0.757	0.921	1.19
15-min	1.02	1.51	1.84	2.37
60-min	1.88	2.79	3.4	4.39
2-hr	2.3	3.55	4.43	5.98
3-hr	2.55	4.02	5.09	7.06
6-hr	2.98	4.81	6.18	8.75
12-hr	3.44	5.54	7.12	10.1
24-hr	3.94	6.3	8.04	11.2

Land Use & Curve Numbers

In existing conditions, the soils are primarily hydrologic soil group D, as per the USDA Web Soil Survey. The soils map and data have been included in Appendix B. The curve numbers were selected from Urban

Hydrology for Small Watersheds[1] based on hydrologic soil groups and aerial maps. See table below. Curve numbers were assessed independently from impervious cover.

Runoff Curve Numbers

Cover Type	Hydrologic Condition	Hydrologic Soil Group	Curve Number
Pasture	Good	D	80
Woods-grass combination	Good	D	79
Meadow	Good	D	78

Existing impervious cover was determined from aerial imagery. Proposed impervious cover was estimated from the proposed and anticipated future layout using TCEQ assumptions for residential tracts. Impervious cover was calculated as a percent of the total drainage basin. Curve number and impervious cover percents were loss inputs for subbasins in the model.

Time of Concentration

All time of concentration calculations were generated using SCS methodology provided in Urban Hydrology for Small Watersheds[2] for sheet, shallow concentrated, and channel flow. A maximum of 100 feet was used for sheet flow calculations. Lag times were calculated as 60 percent of the time of concentration. Lag times were transform inputs for subbasins and reaches in the model. Times of concentration for future developed drainage areas were approximated based on assumed basin size.

Reaches

Reaches representing the Middle Fork San Gabriel River were modeled using the Muskingum-Cunge routing method with 8-point cross-sections. In developed conditions, reaches contributing to the Middle Fork were modeled with the Lag method.

Reservoirs

All reservoirs were modeled using outflow structures with an elevation-storage method. Initial conditions were elevations set to the bottom of pond elevation for batch detention facilities. The model assumed no tailwater condition. Future batch detention ponds were modeled with a generic stage-storage and outflow spillways assigned to the assumed water quality volume elevation.

[1] Natural Resources Conservation Service, Conservation Engineering Division. 1986. Urban Hydrology for Small Watersheds. Technical Release 55. U.S. Department of Agriculture. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf
[2] Ibid.

Contributing Zone Plan Application

ATTACHMENT J

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Best Management Practices for Upgradient Stormwater:

Upgradient stormwater will travel overland to the curb and gutter and captured by the curb inlets to be conveyed to existing Batch Detention Pond 14, and proposed Batch Detention Pond 3

Contributing Zone Plan Application

ATTACHMENT K

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Best Management Practices for On-site Stormwater:

Stormwater runoff from this section will sheet flow across lawns, be captured in gutters and curb inlets, and piped into existing Batch Detention Pond 2A-4**,** existing Batch Detention Pond 14, and proposed Batch Detention Pond 3. The water quality volume provided in Ponds 2A-4, 3, and 14 is sufficient to accommodate TSS removal for this and future sections.

TCEQ project and drainage area maps are provided in the included construction plans. TCEQ TSS removal calculations are provided in Appendix A of this application.

Contributing Zone Plan Application

ATTACHMENT L

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Best Management Practices for Surface Streams Contamination:

Stormwater runoff in this section will sheet flow across lawns, be captured in gutters and curb inlets, and piped into existing Batch Detention Pond 2A-4, existing Batch Detention Pond 14, and proposed Batch Detention Pond 3 as shown on the Overall Drainage Area Plan.

The batch detention pond will discharge through rock rip-rap and rock berms which deters heavy floods from entering streams and aids in sediment collection. The ponds will discharge into Sowes Branch which feeds the North Fork of the San Gabriel River.

No stormwater from the improved area will drain to sensitive geological features.

Contributing Zone Plan Application

ATTACHMENT M

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Construction Plans:

Construction Plans for the erosion and sedimentation control measures proposed with this development are included at the end of this report.

Contributing Zone Plan Application

ATTACHMENT N

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Inspection, Maintenance, Repair and Retrofit Plan:

Maintenance Guidelines for Batch Detention Basins

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

- ***Inspections***. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

- ***Mowing*****.** The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

- ***Litter and Debris Removal***. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

- ***Erosion control.*** The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

- ***Nuisance Control.*** Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

- ***Structural Repairs and Replacement.*** With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

- ***Sediment Removal.*** A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

- ***Logic Controller.*** The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

Ultimately, these facilities will be owned, operated and maintained by the proposed Williamson County MUD No. 19C. Until the ownership of facilities is transferred to the MUD, SRFV Development, LLC. will be responsible for maintenance of these facilities in accordance with the above stated requirements.

Acknowledged by: _____

James Edward Horne
SRFV Development, LLC.

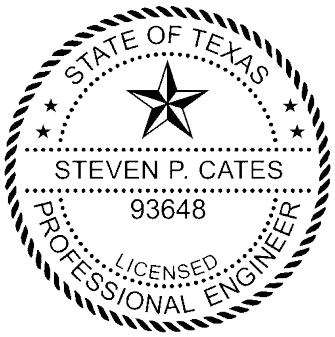
BMP DESIGN FIRM INFORMATION

Carlson, Brigance & Doering, Inc.
Mr. Steven P. Cates, P.E.
Phone: (512) 280-5160
5501 West William Cannon
Austin, TX 78749

The above Inspection, Maintenance, Repair, and Retrofit Plan has been prepared by the undersigned Engineer, and I hereby certify that the above Plan conforms with the minimum requirements of the TCEQ Technical Guidance on Best Management Practices, RG-348.

Steven P. Cates, P.E.

9-28-2023
Date



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

Contributing Zone Plan Application

ATTACHMENT P

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section !

Williamson County, Texas

Measures for Minimizing Surface Stream Contamination:

The development minimizes surface stream contamination by maintaining the naturally occurring sheet flow across the lots. Drainage from this development will be directed towards batch ponds which will treat the stormwater and reduce the developed flow rate to pre-developed conditions. Sowes Branch abuts the northwestern project boundary.

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: Steven P. Cates, P.E.

Date: 9/28/2023

Signature of Customer/Agent:

Regulated Entity Name: Santa Rita Ranch Phase 2B Section 1

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: North Fork of the San Gabriel River

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Temporary Stormwater Section

ATTACHMENT A

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Spill Response Actions:

1. Contain the spill.
2. Immediately stake off area.
3. Notify Hazardous Material team (if necessary); notify TCEQ:
   (512) 339-2929 or Emergency # 1-800-832-8224
4. Take necessary steps to clean up, i.e. notify remediation contractor if large spill, or small spills will be cleaned by the construction contractor.

All site personnel will be made aware of the manufactures' recommended methods for spill cleanup, and the location of the information and cleanup supplies.

Spills will be reported according to the Reportable Quantity, attached on the following page.

Materials and equipment necessary for spill cleanup will be kept onsite in an accessible location known to site personnel.

All Spills will be cleaned up immediately upon discovery. Any spill of hydrocarbons or hazardous substances greater than 25 gallons will require notification to the fire Department Hazardous Materials Team and TCEQ. As with all spills, an effort shall be made to prevent material from entering surface streams and storm drains by using rock or earth berms to contain the material.

Kind of spill	Where discharged	Reportable quantity	Rule, statute, or responsible agency
Hazardous substance	onto land	"Final RQ" in Table 302.4 in 40 CFR 302.4 (PDF)	30 TAC 327
	into water	"Final RQ" or 100 lbs, whichever is **less**	
Any oil	coastal waters	as required by the Texas General Land Office	Texas General Land Office
Crude oil, oil that is neither a petroleum product nor used oil	onto land	210 gallons (five barrels)	30 TAC 327
	directly into water	enough to create a sheen	
Petroleum product, used oil	onto land, from an exempt PST facility	210 gallons (five barrels)	30 TAC 327
	onto land, or onto land from a non-exempt PST facility	25 gallons	
	directly into water	enough to create a sheen	
Associated with the exploration, development and production of oil, gas, or geothermal resources	under the jurisdiction of the Railroad Commission of Texas	as required by the Railroad Commission of Texas	Railroad Commission of Texas
Industrial solid waste or other substances	into water	100 lbs	30 TAC 327
From petroleum storage tanks, underground or aboveground	into water	enough to create a sheen on water	30 TAC 334.75-81
From petroleum storage tanks, underground or aboveground	onto land	25 gallons or equal to the RQ under 40 CFR 302	30 TAC 327
Other substances that may be useful or valuable and are not ordinarily considered to be waste, but will cause pollution if discharged into water in the state	into water	100 lbs	30 TAC 327

1.4.16 Spill Prevention and Control

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

Education

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

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
(2) Store hazardous materials and wastes in covered containers and protect from vandalism.
(3) Place a stockpile of spill cleanup materials where it will be readily accessible.
(4) Train employees in spill prevention and cleanup.
(5) Designate responsible individuals to oversee and enforce control measures.
(6) Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
(7) Do not bury or wash spills with water.
(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
(12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

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

Minor Spills

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

Semi-Significant Spills

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

Spills should be cleaned up immediately:

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512- 339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
(3) Notification should first be made by telephone and followed up with a written report.
(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
(5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

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

Vehicle and Equipment Maintenance

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

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
(2) Discourage "topping off" of fuel tanks.
(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

Temporary Stormwater Section

ATTACHMENT B

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Potential Sources of Contamination:

Gasoline, Diesel, and Hydraulic Fluid from construction equipment,
Asphalt products,
Construction Materials,
Trash and Debris,
Paint,
Concrete,
Gypsum from sheet rock,
Sediment.

All materials shall be hauled in a manner consistent with the manufacturer's recommendations. Disposal of waste material shall be in conformance with all state and local laws

Temporary Stormwater Section

ATTACHMENT C

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Sequence of Major Activities:

1. Install and maintain Erosion Control and Tree Protection per the Approved Plans and specifications prior to any clearing and grubbing, grading, excavating, etc... Notify Construction Inspection Division when installed.

2. Prior to beginning construction, the owner or his representative shall hold a Pre-Construction Conference between TCEQ, Williamson County, Contractor, and any other affected parties. Notify TCEQ at least 48 hours prior to the time of the conference and 48 hours prior to beginning construction. Prior to Pre-Construction Conference.

3. Hold Pre-Construction Conference with contractor, TCEQ, EV Inspector, Engineer, and owner or his representative.

4. Rough grade roadway.
   (Estimate of disturbed area = 5.47 ac)

5. Begin installation of storm sewer. Upon completion, restore as much disturbed areas as possible, particularly channels and large open areas. (Estimate of disturbed area = 0.20 ac)

6. Regrade streets to subgrade (Estimate of disturbed area = 3.90 ac)

7. Ensure that all underground utility crossings are completed. Lay first course base material on all streets. (3.90 ac)

8. Install curb and gutter. (Estimate of disturbed area = 0.52 ac)

9. Place concrete for common area 4’ sidewalk. (Estimate of disturbed area = 1.04 ac)

10. Lay final base course on all streets. (3.90 ac)

11. Lot grading. (Estimate of disturbed area = 19.53 ac)

12. Lay asphalt. (3.90 ac)

13. Clean site and revegetate all disturbed area according to the plans and specifications. Stabilization measures should include seeding and/or mulching.

14. Complete permanent erosion control and restoration of site vegetation.

15. Project Engineer to provide a written concurrence letter, and scheduling final inspection with EV Inspector, prior to the removal of erosion controls.

16. Remove and dispose of temporary erosion/sedimentation control measures.

17. Complete any necessary final dress up of areas disturbed by Item 16.

18. Conduct a final inspection and complete all punch list items.

Clearing and grubbing under a development permit, solely for the purpose of surveying and soil exploration, shall be a hand-cutting or blade-up operation.

Temporary Stormwater Section

ATTACHMENT D

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Temporary Best Management Practices and Measures:

Install temporary erosion control measures, stabilized construction entrance, concrete washout area, inlet protection, and tree protection according to the plans and specifications prior to any clearing and grubbing, grading, excavating, etc. Upgradient stormwaters during construction crossing disturbed areas will be filtered utilizing standard Best Management Practices, such as erosion logs and silt fences, prior to leaving the site. The silt fences will be placed along down gradient areas of the site to prevent any sediment from entering storm sewers or surface streams.

Geological features on this site are located outside of the Limits of Construction and no stormwater from the disturbed areas will drain to the geological features.

Temporary Stormwater Section

ATTACHMENT F

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Structural Practices:

There are areas 10 acres or greater being disturbed at one time; therefore, a temporary sediment basin will be provided. Additional temporary erosion and sedimentation control will be done by silt fence.

Temporary Stormwater Section

ATTACHMENT G

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2A Section 5

Williamson County, Texas

Drainage Area Map:

An overall drainage area map is included within the plan set submitted with this application.

Temporary Stormwater Section

ATTACHMENT H

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Temporary Sediment Pond(s) Plans and Calculations:

Batch Detention Pond 3 will act as a temporary sediment pond during construction of the site. The construction plans for the batch detention ponds have been submitted with this application.

Per 30 TAC 213.5(b)(4)(D)(i), temporary sediment ponds shall provide: 1) storage for a calculated volume of runoff from a two-year, 24-hour storm from each disturbed acre drained; 2) storage equivalent to 3,600 cubic feet of storage per acre drained; or 3) equivalent control measures until final stabilization of the site.

The table below provides the required storage equivalent to 3,600 cubic feet per disturbed acre from the proposed site draining to each pond. The proposed batch detention ponds have sufficient storage within the provided water quality storage to collect sediment runoff during construction activities until final stabilization of the site.

Proposed Ponds	On-site Disturbed Area (ac)	Required Storage (cf)	Provided WQV (cf)
Pond 3	11.74	42,264	43,541
Pond 14	6.95	25,020	252,080
Pond 2A-4	6.31	22,716	142,457

Temporary Stormwater Section

ATTACHMENT I

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Inspection and Maintenance for Best Management Practices:

The Best Management Practices installed during construction will be maintained in accordance with the requirements of the EPA's NPDES/TPDES storm water pollution prevention program (SWPPP). The following maintenance procedures shall be followed until permanent stabilization is complete.

Silt Fence

a. Inspect weekly or after each rainfall event and repair or replacement shall be made promptly as needed.
b. Silt Fence shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.
c. Accumulated silt shall be removed when it reaches a depth of 6 inches. The Silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

Fiber Rolls

a. Inspect prior to forecast rain, daily during extended rain events, after rain events, and weekly.
b. Repair of replace split, torn, unraveling, or slumping fiber rolls.
c. If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates behind the role shall be periodically removed tin order to maintain its effectiveness. Sediment shall be removed when the accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed of at an appropriate location.

Stabilized Construction Entrance

a. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto a public roadway. This may require periodic top dressing with additional stone as conditions demand, as well as repair and clean out of any devices used to trap sediment.
b. Entrance must be properly graded to incorporate a drain swale or similar measure to prevent runoff from leaving the construction site.

Inlet Protection

a. Inspection shall be made weekly or after each rainfall event and replacement or repair shall be made promptly as needed.
b. Accumulated silt shall be removed when it reaches a depth of 6 inches. The Silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation
c. The dyke shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.

Temporary Sediment Basins

a. Inspection shall be made weekly or after each rainfall event. Check the embankment spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Repair should be made promptly as needed.
b. Trash and other debris should be removed after each rainfall event to prevent clogging of the outlet structure.
c. Accumulated silt should be removed and the basin should be regraded to its original dimensions at such point that the capacity of the impoundment has been reduced to 75% of its storage capacity.
d. The removed sediment should be stockpiled or redistributed in areas that are protected from erosion.

Concrete Washout

a. Inspection shall be made daily or after each rainfall event to check for leaks, identify any plastic linings and sidewalls which have been damaged by construction activities.
b. When the washout container is filled over 75 % of its capacity, the washwater should be vacuumed off or allowed to evaporate to avoid overflows. When the remaining cementitious solids have hardened, they should be removed and recycled.
c. Damages to the container should be repaired promptly and as needed.
d. Before heavy rains, the washout containers liquid level should be lowered or the container should be covered to avoid an overflow during the rain event.

The owner shall hire an E&S compliance company to inspect E&S measures and keep reports of onsite inspections with deficiencies and solutions.

Temporary Stormwater Section

ATTACHMENT J

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Schedule of Interim and Permanent Soil Stabilization Practices:

Soil Stabilization for all disturbed areas shall be accomplished by hydraulic planting. Following is an outline to accomplish the required stabilization.

1. Preparing Seed Bed. After the designated areas have been rough graded to the lines, grades and typical sections indicated in the Drawings or as provided for in other items of this contract and for any other soil area disturbed by the construction, a suitable seedbed shall be prepared. The seedbed shall consist of a minimum of either 4 inches (100 millimeters) of approved topsoil or 4 inches (100 millimeters) of approved salvaged topsoil, cultivated and rolled sufficiently to enhance the soil to a state of good health, when the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deeply for optimum germination. The optimum depth for seeding shall be 114 inch (6 millimeters). Water shall be gently applied as required to prepare the seedbed prior to the planting operation either by broadcast seeding or hydraulic planting. 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. Seeding shall be performed in accordance with the requirements hereinafter described.

2. Watering. All watering shall comply with Chisholm Trail Subdivision Rules and Regulations. Broadcast seeded areas shall immediately be watered with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed and in the marmer and quantity as directed by the Engineer or designated representative. Hydraulic seeded areas and native grass seeded areas shall be watered commencing after the tackifier has dried with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed to keep the seedbed in a wet condition favorable for the growth of grass. Watering applications shall constantly maintain the seedbed in a wet condition favorable for the growth of grass. Watering shall continue until the grass is uniformly 1 1/2 inches (40 mm) in height and accepted by the Engineer or designated representative. Watering can be postponed immediately after a 1/2 inch (12.5 mm) or greater rainfall on the site but shall be resumed before the soil dries out.

3. Hydraulic Planting. The seedbed shall be prepared as specified above and hydraulic planting equipment, which is capable of placing all materials in a single operation, shall be used.

March 1 to September 15

Hydraulic planting mixture and minimum rate of application pounds per 1000 square feet (kilograms per 100 square meters):

Planting Mixture			
Hulled Bermuda Seed (PLS=0.83)	Fiber Mulch		Soil Tackifier
	Cellulose	Wood	
1 lbs/1000 ft2 (0.5 kgs/100 m2)	45.9 Lbs/1000 ft2 (22.5 kgs/100m2)		1.4 lbs/1000 ft2 (0.7 kgs/100 m2)
		57.4 lbs/1000 ft2 (28.01 kgs/100 m2)	1.5 lbs/1000 ft2 (0.75 kgs/100 m2)

September 15 to March 1

Add 1.5 pounds per 1000 square feet (0.75 kgs/ 100 m@) of cool season cover crop (see table 1) to above mixture. The fertilizer shall conform to City of Austin Standard Specification Item No. 606S, “Fertilizer”.

Table 1 : Cool Season Cover Crop			
Common Name	Botanical Name	Application rates	
		Lbs/1000 feet^2	Kg/ 100 meter^2
Wheat	Triticum aestivum	0.5	0.25
Oats	Avena sativa	0.5	0.25
Cereal Rye Grain	Secale cereal	0.5	0.25
Total Cool Season Cover Crop Seeding Rate		1.5	0.75
Total Cool Season Seeding Rate (Grass Wildflowers, & Cover Crop)		4.5	2.25

Appendix A

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Phase 2B Section 1

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: PHASE 2B, SECTION 1 (5557)
Date Prepared: 9/27/2023

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

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

where:

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

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

County = **Williamson**

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

PHASE 2B, SECTION 1

Total project area included in plan * =	40.92	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	14.17	acres
Total post-development impervious cover fraction * =	0.35	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	12334	lbs.

Pond 3

EXIST. PHASE 2A, SECTION 8

Total project area included in plan * =	0.81	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	0.33	acres
Total post-development impervious cover fraction * =	0.41	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	287	lbs.

EXIST. PHASE 2A, SECTION 9

Total project area included in plan * =	3.49	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	0.86	acres
Total post-development impervious cover fraction * =	0.25	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	749	lbs.

PHASE 2B, SECTION 1

Total project area included in plan * =	17.08	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	5.75	acres
Total post-development impervious cover fraction * =	0.34	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	5005	lbs.

EXIST. PHASE 1, SECTION 14

Total project area included in plan * =	3.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	0.46	acres
Total post-development impervious cover fraction * =	0.12	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	400	lbs.

$L_{M\ TOTAL}$ = 6441 lbs.

EXIST POND 14

EXIST. PHASE 1, SECTION 14 (OFFSITE)

Total project area included in plan * =	7.22	acres
Predevelopment impervious area within the limits of the plan * =	2.33	acres
Total post-development impervious area within the limits of the plan* =	2.33	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	0	lbs.

PHASE 2B SECTION 1

Total project area included in plan * =	16.52	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	6.11	acres
Total post-development impervious cover fraction * =	0.37	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	5318	lbs.

FUTURE PHASE 2B

Total project area included in plan * =	52.37	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	13.24	acres
Total post-development impervious cover fraction * =	0.25	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	11524	lbs.

FUTURE PHASE 2C

Total project area included in plan * =	30.55	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	11.17	acres
Total post-development impervious cover fraction * =	0.37	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	9722	lbs.

$L_{M\ TOTAL}$ = 26565 lbs.

EXIST. POND 2A-4

EXIST PHASE 2A, SECTION 4

Total project area included in plan * =	33.68	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	9.10	acres
Total post-development impervious cover fraction * =	0.35	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	7921	lbs.

EXIST PHASE 2A, SECTION 5

Total project area included in plan * =	23.26	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	9.43	acres
Total post-development impervious cover fraction * =	0.35	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	8208	lbs.

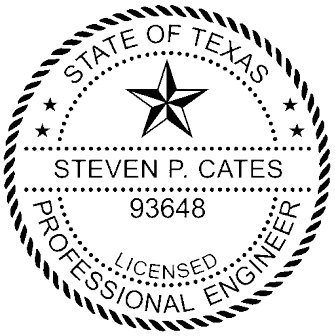
PHASE 2B, SECTION 1

Total project area included in plan * =	7.32	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	2.31	acres
Total post-development impervious cover fraction * =	0.32	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	2011	lbs.

FUTURE TOWER ROAD

Total project area included in plan * =	2.19	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	1.02	acres
Total post-development impervious cover fraction * =	0.47	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	888	lbs.

$L_{M\ TOTAL}$ = 19027 lbs.



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-28-2023

Appendix A

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Drainage Basin 3

(OVERALL)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: POND 3
Date Prepared: 9/27/2023

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

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

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

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

County =	Williamson	
Total project area included in plan * =	25.08	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.40	acres
Total post-development impervious cover fraction * =	0.30	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	6441	lbs.

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	24.29	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.13	acres
Post-development impervious fraction within drainage basin/outfall area =	0.29	
$L_{M\ THIS\ BASIN}$ =	6206	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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

4

A_C =	24.29	acres
A_I =	7.13	acres
A_P =	17.16	acres
L_R =	7454	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 6441 lbs.

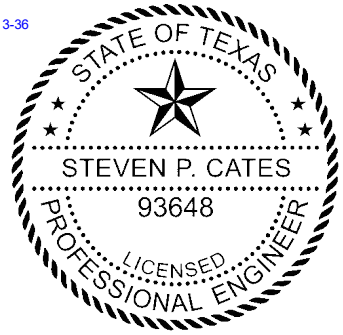
F = 0.86

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

Rainfall Depth =	1.38	inches
Post Development Runoff Coefficient =	0.25	
On-site Water Quality Volume =	31005	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 =	6201	
Total Capture Volume (required water quality volume(s) x 1.20) =	37206	cubic feet



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ID# F3791

9-28-2023

Appendix A

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Drainage Basin 14

(OVERALL)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: EXIST POND 14
Date Prepared: 9/27/2023

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

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

County =	Williamson	
Total project area included in plan * =	99.44	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	28.92	acres
Total post-development impervious cover fraction * =	0.29	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	25172	lbs.

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	96.46	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	29.84	acres
Post-development impervious fraction within drainage basin/outfall area =	0.31	
$L_{M\ THIS\ BASIN}$ =	25973	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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

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

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

4

A_C =	89.24	acres
A_I =	27.51	acres
A_P =	61.73	acres
L_R =	28688	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 25172 lbs.

F = 0.88

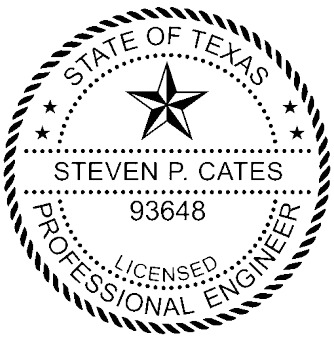
6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.26	
On-site Water Quality Volume =	127479	cubic feet

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

Off-site area draining to BMP =	7.22	acres
Off-site Impervious cover draining to BMP =	2.33	acres
Impervious fraction of off-site area =	0.32	
Off-site Runoff Coefficient =	0.27	
Off-site Water Quality Volume =	10598	cubic feet
Storage for Sediment =	27615	
Total Capture Volume (required water quality volume(s) x 1.20) =	165692	cubic feet

>>>>>>>>>> Unhide Rows to show additional BMPs methods <<<<<<<<



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-28-2023

Appendix A

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

BMP TSS Removal Worksheet

Drainage Basin 2A-4

(OVERALL)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: EXIST. POND 2A-4
Date Prepared: 9/27/2023

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

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

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

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

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

County =	Williamson	
Total project area included in plan * =	66.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.86	acres
Total post-development impervious cover fraction * =	0.33	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	19027	lbs.

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	54.28	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	20.49	acres
Post-development impervious fraction within drainage basin/outfall area =	0.38	
$L_{M\ THIS\ BASIN}$ =	17834	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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

4

A_C =	54.28	acres
A_I =	20.49	acres
A_P =	33.79	acres
L_R =	21176	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 19027 lbs.

F = 0.90

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

Rainfall Depth =	1.70	inches
Post Development Runoff Coefficient =	0.30	
On-site Water Quality Volume =	99186	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 =	19837	
Total Capture Volume (required water quality volume(s) x 1.20) =	119023	cubic feet

CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-28-2023

Appendix B

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

CZP Approval Letter 2A-4

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 5, 2021

Mr. James Edward Horne
SRFV Development, LLC
1700 Cross Creek Ln., Ste. 100
Liberty Hill, Texas 78642

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Santa Rita Ranch Phase 2A Section 4; Located E. of Ronald Reagan Blvd. and Tower Rd.; Liberty Hill, Texas

TYPE OF PLAN: Request for Approval of a Contributing Zone Plan (CZP); 30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11002666; Regulated Entity No. RN110918299

Dear Mr. Horne:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP application for the above-referenced project submitted to the Austin Regional Office by Carlson, Brigance & Doering, Inc. on behalf of SRFV Development, LLC on September 3, 2021. Final review of the CZP was completed after additional material was received on October 26, 2021. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected, and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The Santa Rita Ranch Phase 2A Section 1 CZP approved by letter dated March 6, 2020 (EAPP ID No. 11001858) included the construction of roadways, utilities, and a water quality basin. The water quality basin was designed to treat 25.85 acres of impervious cover from a drainage area of 72.38 acres.

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 35.33 acres. It will include 60 single-family lots, water and wastewater utilities, roadways, and a water quality basin (Pond 2A-4). The impervious cover will be 11.35 acres (32.13 percent). Project wastewater will be disposed of by conveyance to the existing Liberty Hill Wastewater Treatment Plant.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, an existing batch detention basin (Pond 1, EAPP ID 11001858) and a proposed batch detention basin (Pond 2A-4), designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be utilized to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 9,879 pounds of TSS generated from the 11.35 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

SPECIAL CONDITIONS

I. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.

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

STANDARD CONDITIONS

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

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved Contributing Zone Plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Any modification to the activities described in the referenced CZP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
6. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the name of the approved plan and file number

for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.

7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved Storm Water Pollution Prevention Plan (SWPPP) must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established, and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

<u>During Construction:</u>

8. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
9. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been significantly reduced. 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).
10. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
11. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
13. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 5, above.

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

14. Owners of permanent BMPs and measures must insure that the 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 Austin Regional Office within 30 days of site completion.
15. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's

association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through the Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

16. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Contributing Zone Plan. If the new owner intends to commence any new regulated activity on the site, a new Contributing Zone Plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
17. A Contributing Zone Plan approval or extension will expire, and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Contributing Zone Plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
18. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

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

Sincerely,

Lillian Butler

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

Enclosure: Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

Cc: Mr. Steven P. Cates, P.E., Carlson, Brigance and Doering, Inc.

Appendix B

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

WPAP Approval Letter 1-14

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 2, 2021

Mr. James Edward Horne
Santa Rita KC, LLC
1700 Cross Creek Lane, Suite 100
Liberty Hill, Texas 78642

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Santa Rita Ranch Phase 1 Section 14; Located North of Rosetta Loop and Tierra Rosa Blvd.; Liberty Hill (ETJ), Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP) and an Organized Sewage Collection System (SCS); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program (EAPP) ID Nos. 11002420 (WPAP) and 11002421 (SCS); Regulated Entity No. RN107097248

Dear Mr. Horne:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP and SCS applications for the above-referenced project submitted to the Austin Regional Office by Carlson, Brigance & Doering, Inc. on behalf of Santa Rita KC, LLC on March 10, 2021. Final review was completed after additional material was received on May 10, 2021 and May 26, 2021. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213 and Chapter 217. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The Santa Rita Ranch Phase 1 Sections 20A, 20B, and 20C WPAP approved by letter dated July 16, 2018 (EAPP ID No. 11001069) included the construction of 112 single-family residential lots,

roads and drives, utilities, a water quality basin (Pond 20), and associated appurtenances. Pond 20 was designed to treat 75.32 acres of impervious cover from a drainage area of 160.98 acres, and constructed to have a permanent pool volume of 532,431 cf, and a water quality volume of 804,065 cf, as certified by Mr. Steve Cates, P.E. with Carlson, Brigance & Doering, Inc. on March 24, 2020.

PROJECT DESCRIPTION

The proposed single-family residential project will have an area of approximately 34.23 acres. It will include the development of 42 single-family residential lots, roads and drives, utilities, a proposed batch detention (Pond 1-14), and vegetative filter strips. The impervious cover will be 7.10 acres (20.74 percent). Batch detention 1-14 is constructed to treat stormwater runoff from future developments and is designed to have a water quality volume of 252,080 cf. It will not treat any stormwater runoff from Phase 1 Section 14, but it will be used only for detention purposes in this phase of the development.

Additionally, the proposed SCS will consist of approximately 485 linear feet of 6-inch diameter SDR 26 PVC ASTM D3034, 2,399 linear feet of 8-inch diameter SDR 26 PVC ASTM D3034, and 40 linear feet of 8-inch diameter PVC AWWA C900, with associated manholes and stub-outs.

Project wastewater will be disposed of by conveyance to the existing Liberty Hill Wastewater Treatment Plant and will comply with the City of Liberty Hill specifications.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, an existing water quality basin (modified wet basin Pond 20) and engineered vegetative filtered strips, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 6,180 pounds of TSS generated from the 7.10 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, two sensitive geologic features, sinkholes SF-20 and SR-13, are located within the boundary of the site. The site is underlain by the Edwards Group Limestone (Ked) in the Edwards Aquifer Recharge Zone. The natural buffer zone proposed for sinkholes SF-20 and SR-13 are illustrated on the Drainage Area Plan (Sheet 11 of 43) of the construction plans. No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffers.

The buffer areas described above will encompass and protect sinkholes SF-20 and SR-13. Physical barriers and sediment controls such as fencing, rock berms and/or silt fences are required at the edges of these buffers prior to the commencement of construction.

The TCEQ site assessment conducted on May 7, 2021 revealed the site to be generally as described by the GA.

STANDARD CONDITIONS

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

Prior to Commencement of Construction:

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

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
18. No part of the system shall be used as a holding tank for a pump-and-haul operation.

After Completion of Construction:

19. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the Austin Regional Office within 30 days of site completion.

20. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
21. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
22. Certification by a Texas Licensed Professional Engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Should any test result fail to meet passing test criteria and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.

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

25. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

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

Sincerely,

Lori Wilson for

David Van Soest
Regional Director
Austin and Waco Regions
Texas Commission on Environmental Quality

DVS/mec

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

Appendix C

TCEQ CZP APPLICATION

Santa Rita Ranch Phase 2B Section 1

Williamson County, Texas

Water Quality Calculation

Spreadsheet

SANTA RITA RANCH PHASE 2B SECTION 1

Table 1 - Impervious Cover per Section

Contributing Sections	TCEQ Project Area Per Section						Onsite Drainage Basin to BMP Per Section						TSS Removal Required (lbs)
	Project Area (ac)	# Lots	Impervious Areas (ac)				Drainage Basin (ac)	# Lots	Impervious Areas (ac)				
			Lots	ROW	Misc.	Total			Lots	ROW	Misc.	Total	
POND 3													
2A-8	0.81	4	0.33	0.00	0.00	0.33	0.81	4	0.33	0.00	0.00	0.33	287
2A-9	3.49	8	0.68	0.18	0.00	0.86	2.69	5	0.41	0.18	0.00	0.59	749
2B-1	17.08	37	3.19	2.56	0.00	5.75	17.08	37	3.19	2.56	0.00	5.75	5,005
1-14	3.70	5	0.46	0.00	0.00	0.46	3.71	5	0.46	0.00	0.00	0.46	400
EXISTING POND 14													
1-14	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0
2B-1	16.52	24	2.07	2.44	0.00	4.51	13.77	24	2.07	1.19	0.00	3.26	3,926
FUTURE 2B	52.37	92	7.77	5.47	0.00	13.24	44.92	90	7.61	5.47	0.00	13.08	11,524
FUTURE 2C	30.55	82	7.21	3.96	0.00	11.17	30.55	82	7.21	3.96	0.00	11.17	9,722
EXISTING POND 2A-4													
2A-4	33.68	60	5.18	3.92	0.00	9.10	23.74	51	4.43	3.92	0.00	8.35	7,921
2A-5	23.26	70	5.89	3.54	0.00	9.43	21.03	63	5.27	3.54	0.00	8.81	8,208
2B-1	7.32	22	1.85	0.46	0.00	2.31	7.32	22	1.85	0.46	0.00	2.31	2,011
FUTURE TOWER RD	2.19	0	0.00	1.02	0.00	1.02	2.19	0	0.00	1.02	0.00	1.02	888
Phase 2B Section 1													
2B-1	40.92	83	7.11	5.46	0.00	12.57	23.74	51	4.43	3.92	0.00	8.35	10,941

Table 2 - BMP Treatment Requirements

Project Area			Drainage Basin						BMP Treatment Provided	
			Onsite		Offsite		Total		Capacity at Water Quality Volume (cf)	
Total (ac)	Impv Area (ac)	Required TSS Removal (lbs)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Required	Provided
POND 3										
25.08	7.40	6,441	24.29	7.13	0.00	0.00	24.29	7.13	37,206	43,541
EXISTING POND 14										
99.44	28.92	25,172	89.24	27.51	7.22	2.33	96.46	29.84	243,015	252,080
EXISTING POND 2A-4										
66.45	21.86	19,027	54.28	20.49	0.00	0.00	54.28	20.49	119,023	142,457

Pond 3 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
888.00	25	0.00	0	0	0.00	Pond Bottom
889.00	17,860	0.41	8,943	8,943	0.21	
890.00	20,001	0.46	18,931	27,873	0.64	
890.75				43,541		WQV Provided
891.00	21,780	0.50	20,891	48,764	1.12	
892.00	23,612	0.54	22,696	71,460	1.64	
893.00	25,497	0.59	24,555	96,014	2.20	
894.00	27,432	0.63	26,465	122,479	2.81	
895.00	29,424	0.68	28,428	150,907	3.46	
896.00	31,473	0.72	30,449	181,355	4.16	
897.00	33,578	0.77	32,526	213,881	4.91	Top of Berm

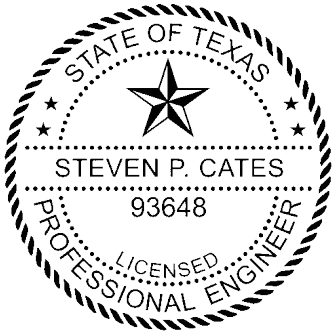
*Pond 3 Stage-Storage per Santa Rita Ranch Phase 2B, Section 1 Construction Plans

Existing Pond 14 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
908.00	15	0.00	0	0	0.00	Pond Bottom
909.00	19,760	0.45	9,888	9,888	0.23	
910.00	56,080	1.29	37,920	47,808	1.10	
911.00	106,887	2.45	81,484	129,291	2.97	
912.00	138,690	3.18	122,789	252,080	5.79	WQV Provided
913.00	152,718	3.51	145,704	397,784	9.13	
914.00	159,076	3.65	155,897	553,681	12.71	
915.00	164,387	3.77	161,732	715,412	16.42	
916.00	169,681	3.90	167,034	882,446	20.26	
917.00	175,069	4.02	172,375	1,054,821	24.22	
918.00	182,603	4.19	178,836	1,233,657	28.32	Top of Berm

Existing Pond 14 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
850.00	25	0.00	0	0	0.00	Pond Bottom
851.00	11,950	0.27	5,988	5,988	0.14	
852.00	26,695	0.61	19,323	25,310	0.58	
853.00	39,841	0.91	33,268	58,578	1.34	
854.00	47,836	1.10	43,839	102,417	2.35	
854.80				142,457		WQV Provided
855.00	52,264	1.20	50,050	152,467	3.50	
856.00	56,759	1.30	54,512	206,978	4.75	
857.00	61,326	1.41	59,043	266,021	6.11	Top of Berm



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-28-2023

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

I James Edward Horne,
Print Name

Vice President,
Title - Owner/President/Other

of SRFV Development, LLC.,
Corporation/Partnership/Entity Name

have authorized Steven P. Cates, P.E.
Print Name of Agent/Engineer

of Carlson, Brigance & Doering, 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

9-25-2023
Date

THE STATE OF TEXAS §

County of TRAVIS §

BEFORE ME, the undersigned authority, on this day personally appeared JAMES EDWARD HORNE 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 25th day of SEPTEMBER, 2023

SUSAN O MARTIN
Notary Public, State of Texas
My Commission Expires
November 07, 2023
NOTARY ID 1042593-4

Susan O. Martin
NOTARY PUBLIC

SUSAN O. MARTIN
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/07/2023

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Santa Rita Ranch Phase 2B Section 1
Regulated Entity Location: East of Ronald Reagan Blvd., west of Tower Rd., south of Co Rd 258
Name of Customer: SRFV Development, LLC
Contact Person: James Edward Horne Phone: (512) 502-2050
Customer Reference Number (if issued):CN 605894914
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	40.92 Acres	$ 6,500.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____

Date: 09/28/2021

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

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

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

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

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

2. Customer Reference Number (if issued): CN 605894914

Follow this link to search for CN or RN numbers in Central Registry**

3. Regulated Entity Reference Number (if issued): RN

SECTION II: Customer Information

4. General Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 09/28/2023

☐ 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: e.g.: Doe, John): SRFV Development, LLC

If new Customer, enter previous Customer below:

7. TX SOS/CPA Filing Number: 803742973

8. TX State Tax ID (11 digits): 32075714009

9. Federal Tax ID (9 digits):

10. DUNS Number (if applicable):

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

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☒ Other: Limited Liability Company

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: 1700 Cross Creek Lane

Suite 100

City: Liberty Hill State: TX ZIP: 78642 ZIP + 4:

16. Country Mailing Information (if outside USA):

17. E-Mail Address (if applicable): ed@srraustin.com

18. Telephone Number: (512) 502 - 2050

19. Extension or Code:

20. Fax Number (if applicable): ( ) -

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.)

Santa Rita Ranch Phase 2B Section 1

23. Street Address of the Regulated Entity: (No PO Boxes)							
	City		State		ZIP		ZIP + 4	
24. County							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	South of County Road 258 on the east side of Ronald Reagan Blvd. South of existing Tower Rd				
26. Nearest City			State	Nearest ZIP Code	
Liberty Hill			TX	78642	
27. Latitude (N) In Decimal:	30.681133		28. Longitude (W) In Decimal:	-97.834028	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	40	52.08N	97	50	02.50W

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

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

Single Family Residential Development

34. Mailing Address:	SRFV Development, LLC						
	1700 Cross Creek Lane, Suite 100						
	City	Liberty Hill	State	TX	ZIP	78642	ZIP + 4	
35. E-Mail Address:	ed@srraustin.com						

36. Telephone Number	37. Extension or Code	38. Fax Number (if applicable)
(512) 502 - 2050		( ) -

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.

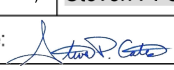
☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
		EAPP # 11001858		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☒ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Steven P. Cates, P.E.		41. Title: Senior Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 280 - 5160		(512) 280 - 5165	steve@cbdeng.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:	Carlson, Brigance and Doering, Inc.	Job Title:	Senior Project Manager
Name(*In Print*):	Steven P. Cates	Phone:	(512)280-5160
Signature:		Date:	**9-28-2023**

SANTA RITA RANCH
PHASE 2B SECTION 1

WILLIAMSON COUNTY, TEXAS
CONSTRUCTION PLANS

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED IN ACCEPTING THESE PLANS, WILLIAMSON COUNTY MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

THESE WATER SYSTEM PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.

SUBMITTED BY:

9-27-2023

STEVEN P. CATES, P.E. *DATE*
REGISTERED PROFESSIONAL ENGINEER No. 93648

ACCEPTED FOR CONSTRUCTION:

CITY OF GEORGETOWN (WATER SYSTEM) *DATE*

PAUL BRANDENBURG, CITY MANAGER *DATE*
CITY OF LIBERTY HILL

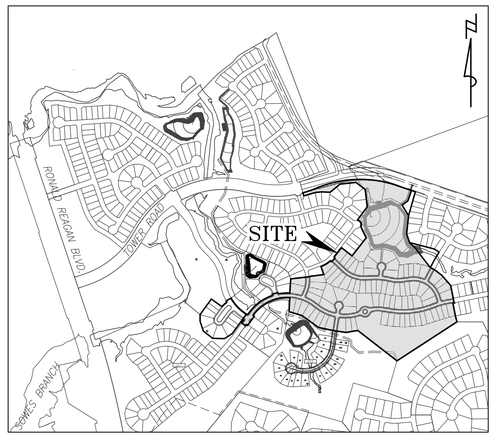
(WASTEWATER SYSTEM PLAN)

Based on the design engineer's certification of compliance with all applicable City, State and Federal regulations the plans and specifications contained herein have been reviewed and are found to be in compliance with the requirements of the City of Liberty Hill.

REVIEWED FOR COMPLIANCE WITH COUNTY REQUIREMENTS:

FOR WILLIAMSON COUNTY *DATE*

WILLIAMSON COUNTY M.U.D. #19C *DATE*



LOCATION MAP
SCALE: 1" = 500'

THE PROJECT IS LOCATED WITHIN THE EDWARDS AQUIFER CONTRIBUTING ZONE
A CONTRIBUTING ZONE PLAN WAS APPROVED BY THE TCEQ ON SEPTEMBER XX, 2023
30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 213
EDWARDS AQUIFER PROTECTION PROGRAM ID NO. XXXXXXXX
THE WASTEWATER SYSTEM WAS APPROVED BY THE TCEQ ON SEPTEMBER XX, 2023
30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 217
PERMIT NO. XXXXXXXXX-XXX WWPR LOG NO. XXXX/XXX

OWNER:

SRFV DEVELOPMENT, LLC.,
1700 CROSS CREEK DRIVE, STE. 100
LIBERTY HILL, TX 78642

ENGINEER & SURVEYOR:
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE
AUSTIN, TEXAS 78749
(512) 280-5160 phone
(512) 280-5165 fax

TOTAL ACREAGE: 42.200 ACRES
SURVEY: B. MANLOVE SURVEY,
ABSTRACT NO. 417

F.E.M.A. MAP NO. 48491C 0275E
WILLIAMSON COUNTY, TEXAS AND
INCORPORATED AREAS.
DATED: SEPTEMBER 26, 2008

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

SHEET INDEX

REV. NO.	SHT. NO.	DESCRIPTION OF REVISION	ACCEPTED	DATE	ACCEPTED	DATE	ACCEPTED	DATE	ACCEPTED	DATE
			WILLIAMSON COUNTY		CITY OF GEORGETOWN		CITY OF LIBERTY HILL		W.C. M.U.D. #19	

DESIGNED BY: | DRAFTED BY:

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 12129 RR 620 N, Suite 600 Austin, Texas 78750 Fax No. (512) 280-5165

SHEET NAME: COVER SHEET
JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-27-2023

DATE: SEP 2023
JOB NUMBER: 5557
SHEET: 1 OF 68
SHEET NO.: 1

FILE PATH: J:\ACD\5557\dwg\5557-COVER.dwg - Sep 28, 2023 - 7:42am

CONSTRUCTION SEQUENCING

1. GENERAL CONTRACTOR TO INSTALL AND MAINTAIN EROSION CONTROLS AND TREE PROTECTION PER APPROVED PLANS.
2. HOLD PRE-CONSTRUCTION CONFERENCE. PROVIDE 72 HOUR NOTIFICATION TO THE OWNER, THE DESIGN ENGINEER, THE CONTRACTOR AND SUBCONTRACTORS, THE M.U.D. ENGINEER (512) 836-4817, THE CITY OF LIBERTY HILL (512) 778-5449, (WAYNE BONNET, DIRECTOR OF PUBLIC WORKS), WILLIAMSON COUNTY INSPECTIONS SUPERVISOR, GEORGE MAYFIELD (512) 943-3324, AND THE CITY OF GEORGETOWN UTILITY SYSTEM (512)930-3640. SEE WILLIAMSON COUNTY SUBDIVISION REGULATIONS CONSTRUCTION-GENERAL NOTE #1 ON THIS SHEET.
3. ROUGH CUT ALL REQUIRED OR NECESSARY PONDS. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF ANY EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A LOW-LEVEL OUTLET AND AN EMERGENCY OVERFLOW. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL FINAL RESTORATION IS ACHIEVED.
4. ROUGH GRADE STREETS. NO DEVELOPMENT OF EMBANKMENT WILL BE PERMITTED AT THIS TIME. ONCE STREETS ARE ROUGH CUT, THE GEOTECHNICAL ENGINEER IS TO FIELD VERIFY PAVEMENT DESIGN IS APPROPRIATE, AND MODIFY RECOMMENDATIONS ACCORDINGLY.
5. INSTALL ALL UTILITIES TO BE LOCATED UNDER THE PROPOSED PAVEMENT.
6. BEGIN INSTALLATION OF STORM SEWER LINES. UPON COMPLETION, RESTORE AS MUCH DISTURBED AREA AS MUCH AS POSSIBLE, PARTICULARLY CHANNELS AND LARGE OPEN AREAS.
7. REGRADE STREETS TO SUBGRADE.
8. INSURE THAT ALL UNDERGROUND UTILITY CROSSINGS ARE COMPLETED. LAY FIRST COURSE BASE MATERIAL ON ALL STREETS.
9. INSTALL CURB AND GUTTER.
10. LAY FINAL BASE COURSE ON ALL STREETS.
11. LAY ASPHALT.
12. COMPLETE ALL UNDERGROUND INSTALLATIONS WITHIN THE R.O.W.
13. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION.
14. THE PROJECT ENGINEER INSPECTS JOB AND WRITES CONCURRENCE LETTER TO THE CITY. FINAL INSPECTION IS SCHEDULED UPON RECEIPT OF LETTER. FINAL INSPECTION WITH THE M.U.D. ENGINEER, EV INSPECTOR, THE CITY OF LIBERTY HILL, WILLIAMSON COUNTY, AND THE CITY OF GEORGETOWN PRIOR TO THE REMOVAL OF EROSION CONTROLS.
15. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS. TREE PROTECTION SHALL BE REQUIRED TO BE MAINTAINED AND REMAIN IN PLACE FOR EACH RESIDENTIAL LOT THROUGH RECEIPT OF THE CONCURRENCE LETTER TO THE RESIDENTIAL CERTIFICATE OF OCCUPANCY.
16. COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED BY ITEM 15.

GEORGETOWN UTILITY SYSTEMS GENERAL NOTES:

1. THESE CONSTRUCTION PLANS WERE PREPARED, SEALED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT OF THE CITY.
3. THE SITE CONSTRUCTION PLANS SHALL MEET ALL REQUIREMENTS OF THE APPROVED SITE PLAN.
4. PRIVATE WATER SYSTEM FIRE LINES SHALL BE TESTED BY THE CONTRACTOR TO 200 PSI FOR 2 HOURS.
5. PRIVATE WATER SYSTEM FIRE LINES SHALL BE DUCTILE IRON PIPING FROM THE WATER MAIN TO THE BUILDING SPRINKLER SYSTEM, AND 200 PSI C900 PVC FOR ALL OTHERS.
6. PUBLIC WATER SYSTEM MAINS SHALL BE 150 PSI C900 PVC AND TESTED BY THE CONTRACTOR AT 150 PSI FOR 4 HOURS.
7. ALL BENDS AND CHANGES IN DIRECTION ON WATER MAINS SHALL BE RESTRINED AND THRUST BLOCKED.
8. LONG FIRE HYDRANT LEADS SHALL BE RESTRAINED.
9. ALL WATER LINES ARE TO BE BACTERIA TESTED BY THE CONTRACTOR ACCORDING TO THE CITY STANDARDS AND SPECIFICATIONS.
10. WATER AND SEWER MAIN CROSSINGS SHALL MEET ALL REQUIREMENTS OF THE TCEQ AND THE CITY.
11. A MAINTENANCE BOND IS REQUIRED TO BE SUBMITTED TO TEH CITY PRIOR TO ACCEPTANCE OF THE PUBLIC IMPROVMENTS. THIS BOND SHALL BE ESTABLISHED FOR 2 YEARS IN THE AMOUNT OF 10% OF THE COST OF THE PUBLIC IMPROVEMENTS AND SHALL FOLLOW THE CITY FORMAT.
12. RECORD DRAWINGS OF THE PUBLIC IMPROVMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO ACCEPTACNE OF THE PROJECT. THESE DRAWINGS SHALL BE SUBMITTED AS A PDF (300P DPI) ON A FLASH DRIVE, OR BY A CLOUD SOURCE.

STREET AND DRAINAGE NOTES:

1. ROADWAY CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT "WILLIAMSON COUNTY SUBDIVISION REGULATIONS," AS APPLICABLE.
2. ALL MATERIALS SHALL BE SAMPLED AND TESTED BY AN INDEPENDENT TESTING LABORATORY IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE COUNTY ENGINEER. THE OWNER SHALL PAY FOR ALL TESTING SERVICES AND SHALL FURNISH THE COUNTY ENGINEER WITH CERTIFIED COPIES OF THESE TEST RESULTS. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. THE COUNTY ENGINEER MUST APPROVE THE TEST RESULTS PRIOR TO CONSTRUCTING THE NEXT COURSE OF THE ROADWAY STRUCTURE. ANY MATERIAL WHICH DOES NOT MEET THE MINIMUM REQUIRED TEST SPECIFICATIONS SHALL BE REMOVED AND RECOMPACTED OR REPLACED UNLESS ALTERNATIVE REMEDIAL ACTION IS APPROVED IN WRITING FROM THE COUNTY ENGINEER.
3. 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.
4. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
5. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE COUNTY ENGINEER. BARRICADES BUILT TO WILLIAMSON COUNTY STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
6. ALL R.C.P. SHALL BE MINIMUM CLASS III, UNLESS OTHERWISE NOTED.
7. THE PREPARATION OF SUBGRADE SHALL FOLLOW GOOD ENGINEERING PRACTICES AS DIRECTED BY THE COUNTY ENGINEER AND IN CONJUNCTION WITH THE OUTLINED IN THE GEOTECHNICAL REPORT BY MLA LABS, INC., DATED 10-18-2021. THE PAVING SECTIONS ARE TO BE CONSTRUCTED AS FOLLOWS:

RECOMMENDATIONS PAVEMENT THICKNESS SECTIONS

Street Classification	Subgrade Material	Hot Mix Asphaltic Concrete, in	Crushed Limestone Base, in	Lime Stabilized Subgrade, in
Local Streets	Subgrade PI > 20	2.0	8	8*

Notes:
1. *Where the subgrade is comprised of limestone or low PI clay (PI < 20), lime stabilization may be omitted.
2. The surface clay must first be tested for sulfate reaction and a mix design should be completed to determine the proper lime content, lime bype, mixing procedure and curing conditions required.
3. The subgrade improvement should be extended 3 feet beyond the back of the curb line.
4. These pavement thickness designs are intended to transfer the load from the anticipated traffic conditions.
5. The responsibility of assigning street classification to the streets in this project is left to the civil engineer.
6. If pavement designs other than those listed above are desired, please contact MLA Geotechnical.

THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISION OF THE CONSTRUCTION PLANS.

8. WHERE PI'S ARE OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE COUNTY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT. SEE THE GEOTECHNICAL REPORT FOR DESIGN GUIDES FOR DIFFERENT PI VALUES.
9. CONTRACTOR IS TO AVOID INSTALLATION OF IRRIGATION, PLANTINGS, SILT FENCE, ETC. IN THE SUBGRADE IMPROVEMENT EXTENDED BEHIND THE CURB.

PER THE WILLIAMSON COUNTY ENGINEER, THERE MUST BE A TxDOT HMAC WEARTING SURFACE 340 TYPE D, WITHOUT RAP OR RAZ. WILLIAMSON COUNTY REQUIRES THE 2 INCH WEARING SURFACE TO BE "VIRGIN MIX"

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GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH WILLIAMSON COUNTY, CITY OF ROUND ROCK (WASTEWATER), AND GEORGETOWN UTILITY SYSTEMS (WATER) SPECIFICATIONS.
2. DESIGN PROCEDURES ARE IN COMPLETE COMPLIANCE WITH THE CITY OF AUSTIN DRAINAGE CRITERIA MANUAL AND ALL VARIANCES TO THE MANUAL ARE NOTED. VARIANCES REQUESTED: (NONE)
3. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., NOT PLANNED FOR DESTRUCTION OR REMOVAL THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED AT HIS EXPENSE.
4. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS ARE APPROPRIATE.
5. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
6. THE CONTRACTOR SHALL GIVE THE CITY OF LIBERTY HILL 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. TELEPHONE 512-778-5449 (PLANNING & DEVELOPMENT DEPARTMENT)
7. ALL AREAS DISTURBED O EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
8. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEERR SHALL FURNISH THE CITY OF LIBERTY HILL ACCURATE "AS-BUILT" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS-BUILT" DRAWINGS SHALL MEET WITH THE SATISFACTION OF THE PLANNING & DEVELOPMENT DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
9. THE LIBERTY HILL CITY COUNCIL SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE COUNTY ENGINEER.
11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
12. AVAILABLE BENCHMARKS THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

BENCHMARKS:

DESCRIPTION	ELEVATION	NORTHING	EASTING
MAG NAIL @ TOP OF CURB ON THE NORTH WEST SIDE OF THE INTERSECTION OF INSPIRATION DRIVE AND KRUPP AVENUE	1,034.95	10,215,305.2832	3,082,177.5880
MAG NAIL W/ SHINER ON HEADWALL ON NORTH SIDE OF MAGDALENE WAY/KRUPP AVENUE KNUCKLE	1,025.14	10,216,145.1382	3,083,291.4400
MAG NAIL W/ SHINER IN THE EASTERN ROW OF RONALD REAGAN BLVD APPROXIMATELY 600' SOUTH OF THE BRIDGE OVER SOWES BRANCH	908.25	10,218,449.9552	3,080,132.8670

TRENCH SAFETY NOTES:

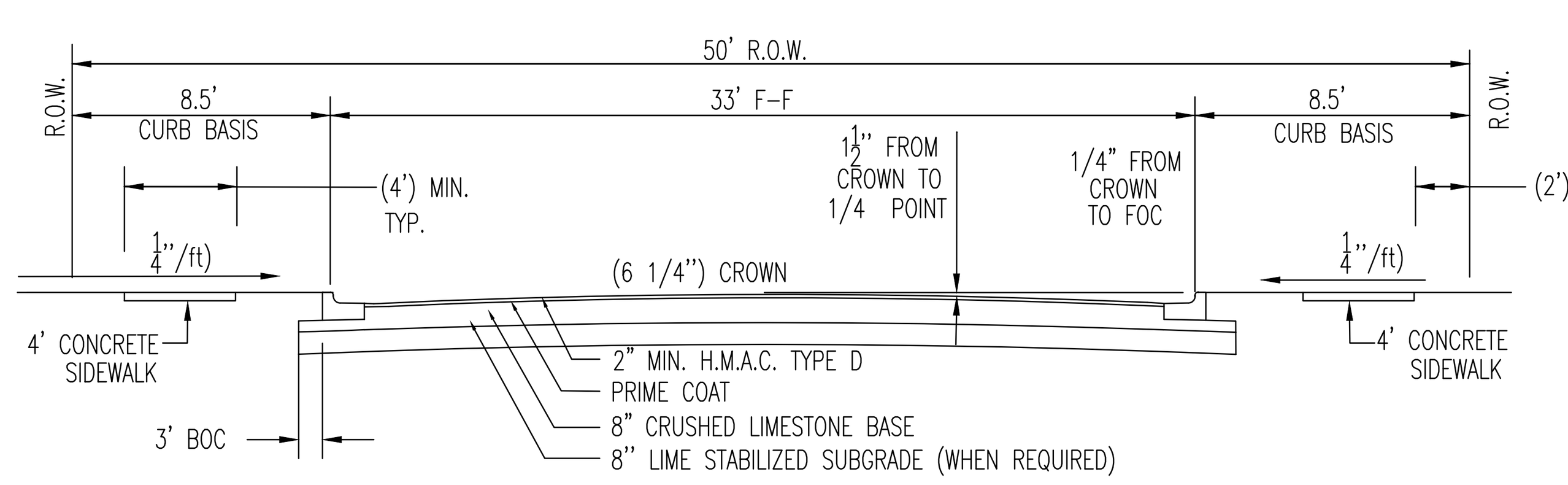
1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED BY THE CONTRACTOR.
2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF LIBERTY HILL.

TRAFFIC MARKING NOTES:

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

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF LIBERTY HILL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF LIBERTY HILL FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.



ALL OTHER LOCAL STREETS
(0+00 TO END)
N.T.S.

WILLIAMSON COUNTY SUBDIVISION REGULATIONS
APPENDIX B
ADOPTED AND EFFECTIVE AS OF DECEMBER 17, 2019

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

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

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

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

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

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

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

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

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

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

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

CONCRETE PAVEMENT:
IN LIEU OF BITUMINOUS PAVEMENT, PORTLAND CEMENT CONCRETE PAVEMENT MAY BE USED. IN SUCH CASES, THE PAVEMENT THICKNESS SHALL BE A MINIMUM OF 9 INCHES OF CONCRETE, AND SHALL BE JOINTED AND REINFORCED IN ACCORDANCE WITH THE DETAIL INCLUDED IN APPENDIX J. THE MIX SHALL BE FROM A TXDOT CERTIFIED PLANT. THE MIX DESIGN SHALL BE SUBMITTED TO THE COUNTY ENGINEER FOR APPROVAL PRIOR TO PLACEMENT OF THE MATERIAL.

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

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

ROAD NAMES, SIGNS AND MARKERS:
1. ALL ROADS SHALL BE NAMED, WITH PRIOR APPROVAL FOR SAID NAME FROM THE WILLIAMSON COUNTY 911 ADDRESSING COORDINATOR. ROADS MUST BE NAMED IN A MANNER TO AVOID CONFUSION IN IDENTIFICATION. ROADS THAT ARE EXTENSIONS OF EXISTING ROADS MUST CARRY THE NAMES OF THOSE IN EXISTENCE. ROADS THAT ARE NOT CONTINUOUS, OR WHICH HAVE 90 DEGREE TURNS, SHALL HAVE DIFFERENT NAMES. THE OWNER SHALL PROVIDE THE COORDINATOR WITH TWO DIGITAL FILES OF THE PLAT. ONE FILE SHALL BE IN AN ADOBE .PDF FORMAT, AND THE OTHER FILE SHALL BE IN AN AUTOCAD .DWG FORMAT GEOREFERENCED TO NAD 1983 STATE PLANE GRID COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), WITH DRAWING UNITS OF US FEET. THE ROAD NAMES SHALL BE DISPLAYED ON STANDARD INTERSECTION ROAD MARKER SIGNS ERECTED BY THE OWNER IN COMPLIANCE WITH THE TXMUTCD "STREET NAME SIGNS" AND AT THE LOCATIONS AS INDICATED ON THE CONSTRUCTION PLANS.

2. TRAFFIC CONTROL SIGNS (SUCH AS STOP, YIELD, AND SPEED LIMIT SIGNS) SHALL BE INSTALLED BY THE OWNER OF SAID SUBDIVISION IN COMPLIANCE WITH THE TXMUTCD AND AT THE LOCATIONS AS INDICATED ON THE APPROVED CONSTRUCTION PLANS. OTHER TRAFFIC CONTROL SIGNS, AS SHOWN ON THE CONSTRUCTION PLANS, SHALL BE INSTALLED TO INDICATE ANY UNUSUAL TRAFFIC OR ROAD HAZARD OR CONDITIONS THAT MAY EXIST. ALL TRAFFIC CONTROL DEVICES SHALL BE PLACED IN COMPLIANCE WITH THE TXMUTCD AND THE CONSTRUCTION COST SHALL BE BORNE BY THE OWNER.

3. A SPEED LIMIT OF 25 MPH FOR LOCAL ROADS, 30 MPH FOR COLLECTOR ROADS AND 40 MPH FOR ARTERIAL ROADS WITHIN ALL PLATTED SUBDIVISIONS IS HEREBY ADOPTED. THIS LIMIT MAY BE CHANGED ONLY BY COMMISSIONER'S COURT UPON THE BASIS OF AN ENGINEERING AND TRAFFIC INVESTIGATION SHOWING THAT THE PRIMA FACIE MAXIMUM REASONABLE AND PRUDENT SPEED FOR A PARTICULAR ROAD (OR PART OF A ROAD) SHOULD BE DIFFERENT. THE PLACEMENT OF A STOP SIGN OR A YIELD SIGN ON THE MINOR ROAD AT INTERSECTIONS SHALL BE EVALUATED ON A CASE-BY-CASE BASIS IN ACCORDANCE WITH THE TXMUTCD.

4. FOR ANY ROAD THAT IS PROPOSED TO BE EXTENDED AT SOME TIME IN THE FUTURE, A MINIMUM OF FIVE METAL CHANNEL POSTS, EQUALLY SPACED, SHALL BE PLACED AT THE END OF THE ROAD. EACH POST SHALL HAVE AN 18"X18" RED DIAMOND OBJECT MARKER SIGN (TYPE OM-4 PER TXMUTCD) PLACED FOUR FEET ABOVE THE EXISTING GROUND.

5. A FUTURE ROAD EXTENSION SIGN SHALL BE PLACED AT THE END OF ALL ROADS AND TEMPORARY CUL-DE-SACS THAT ARE PROPOSED TO BE EXTENDED AT SOME TIME IN THE FUTURE. THE SIGN SHALL STATE THE FOLLOWING: FUTURE EXTENSION OF <NAME OF ROAD>.

6. SIGNAGE THAT DIFFERS FROM THE STANDARD SIGNAGE THAT IS MAINTAINED BY THE COUNTY SHALL BE MAINTAINED BY THE OWNER. THE SIGNAGE SHALL BE MAINTAINED IN SUCH A FASHION TO COMPLY WITH THE TXMUTCD REQUIREMENTS.

DRAINAGE AND FLOOD CONTROL:
1. STORM WATER MANAGEMENT CONTROLS, WHEN NEEDED, SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED TO RESTRICT THE RATE OF DRAINAGE FROM THE PLATTED AREA TO THE RATE OF DRAINAGE OF THE LAND IN ITS NATURAL STATE. WHEN A DEVELOPMENT SHALL HAVE SEVERAL SECTIONS, STORM WATER MANAGEMENT CONTROLS FOR THE ULTIMATE DEVELOPED AREA SHALL BE CONSTRUCTED IF NOT LOCATED IN THE FIRST PLATTED SECTION. STORM WATER MANAGEMENT CONTROLS ARE TO BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER USING A BASIS OF A 2, 10, AND 100-YEAR STORM. EXCEPTIONS MAY BE ALLOWED WHEN THE OWNER CAN DEMONSTRATE THAT DOWNSTREAM PROPERTY SHALL NOT BE ADVERSELY AFFECTED.

2. DRAINAGE CALCULATIONS SHALL BE MADE USING THE EDITION OF THE CITY OF AUSTIN'S DRAINAGE CRITERIA MANUAL IN EFFECT AS OF THE DATE OF THESE REGULATIONS OR OTHER METHODS SATISFACTORY TO THE COUNTY ENGINEER. ALL DATA AND CALCULATIONS MUST BE PRESENTED TO THE COUNTY ENGINEER AS PART OF THE CONSTRUCTION PLANS. THE FOLLOWING REQUIREMENTS SHALL BE INCORPORATED INTO THE DESIGN:
(a) BRIDGES AND CROSS DRAINAGE STRUCTURES FOR ARTERIAL AND COLLECTOR ROADS SHALL BE DESIGNED TO CONVEY THE 25-YEAR STORM WITHOUT OVERTOPPING THE FACILITY.
(b) BRIDGES AND CROSS DRAINAGE STRUCTURES FOR LOCAL ROADS SHALL BE DESIGNED TO CONVEY THE 10-YEAR STORM WITHOUT OVERTOPPING THE FACILITY.
(c) ALL LONGITUDINAL DRAINAGE STRUCTURES SHALL BE DESIGNED TO CONVEY THE 10-YEAR STORM.
(d) ON CURB AND GUTTER ROADWAYS, THE ROADWAY SHALL BE DESIGNED SO THAT NO MORE THAN ONE HALF OF ONE TRAVEL LANE SHALL BE INUNDATED BY THE 10 YEAR STORM.

3. ALL DRAINAGE STRUCTURES AND APPURTENANCES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. A PROFILE SHALL BE SHOWN IN THE CONSTRUCTION PLANS FOR ALL DRAINAGE STRUCTURES. EACH PROFILE SHALL SHOW THE DESIGN FLOW, VELOCITY, INVERT ELEVATIONS, AND THE HYDRAULIC GRADE LINE.

4. DRIVEWAY CULVERTS SHALL HAVE A MINIMUM INTERIOR DIAMETER OF 18" OR EQUAL AND A MINIMUM LENGTH OF 22 FEET, AND SHALL INCLUDE A CONCRETE APRON SAFETY TREATMENT IN ACCORDANCE WITH CITY OF AUSTIN STANDARD DETAIL 508S-20, "STORMDRAIN OUTFALL PROTECTION CULVERT UNDER ROADWAY/INLINE". LARGER OR LONGER CULVERTS SHALL BE INSTALLED IF NECESSARY TO ACCOMMODATE DRAINAGE BASED UPON A 10-YEAR FLOW FREQUENCY. ALL DRIVEWAY CULVERTS SHALL HAVE SAFETY END TREATMENTS WITH CONCRETE APRONS.

5. AT SOME POINT WITHIN THE FIRST TEN FEET FROM THE EDGE OF THE ROADWAY GUTTER, THE ENTIRE WIDTH OF A DRIVEWAY SHALL HAVE THE SAME OR GREATER ELEVATION AS THE TOP OF THE CURB AT THE EDGE OF THE ROADWAY.

6. MAINTENANCE RESPONSIBILITY FOR DRAINAGE WILL NOT TO BE ACCEPTED BY THE COUNTY OTHER THAN THAT ACCEPTED IN CONNECTION WITH DRAINING OR PROTECTING THE ROAD SYSTEM. MAINTENANCE RESPONSIBILITY FOR STORM WATER MANAGEMENT CONTROLS WILL REMAIN WITH THE OWNER.

7. EASEMENTS SHALL BE PROVIDED, WHERE NECESSARY, FOR ALL DRAINAGE COURSES IN AND ACROSS PROPERTY TO BE PLATTED. THE LOCATION AND WIDTH SHALL BE SHOWN ON THE PLAT AND MARKED "DRAINAGE EASEMENT" OR "DRAINAGE AND UNDERGROUND UTILITIES EASEMENT". IN GENERAL, A "DRAINAGE EASEMENT" SHALL BE A MINIMUM OF 20 FEET IN WIDTH AND A "DRAINAGE AND UNDERGROUND UTILITIES EASEMENT" SHALL BE A MINIMUM OF 30 FEET IN WIDTH.

8. ALL ROADSIDE DITCHES SHALL HAVE A MINIMUM DEPTH, AS MEASURED FROM THE EDGE OF THE ROAD PAVEMENT, EQUAL TO THE DIAMETER OF THE DRIVEWAY CULVERT PIPE(S) PLUS NINE INCHES, AND A BOTTOM WIDTH EQUAL TO THE DIAMETER OF THE DRIVEWAY CULVERT PIPE(S). THE SIDE SLOPES OF THE DITCHES ARE TO BE 3:1 OR FLATTER.

9. ROADSIDE DITCHES MAY BE ELIMINATED WITHIN A RURAL SUBDIVISION PROVIDED THAT THE ROAD HAS 18-INCH RIBBON CURBS, THE ROADWAY SURFACE HAS AN ADEQUATE CROSS SLOPE, AND THE OVERALL DRAINAGE PATTERNS THROUGHOUT THE SUBDIVISION REMAIN AS IN AN UNDEVELOPED STATE.

DESIGNED BY: | DRAFTED BY:
DATE | REVISION

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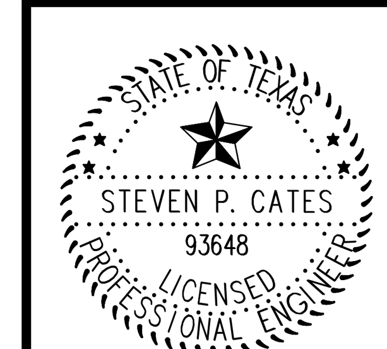
SHEET NAME: GENERAL NOTES (1 OF 3)
JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS



CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
9-27-2023

DATE: SEP 2023
JOB NUMBER: 5557
SHEET: 2 OF 68
SHEET NO.: 2

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

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES - LEGAL DISCLAIMER

THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED), NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TAC, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE ED'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TAC § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE ED TO ANY PART OF TITLE 30 TAC, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;

   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

TCEQ-0592 (REV. JULY 15, 2015)

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

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES - LEGAL DISCLAIMER

THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR, NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE EXECUTIVE DIRECTOR, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE EXECUTIVE DIRECTOR'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TEXAS ADMINISTRATIVE CODE § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE EXECUTIVE DIRECTOR TO ANY PART OF TITLE 30 TEXAS ADMINISTRATIVE CODE, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION.

1. THIS ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) MUST BE CONSTRUCTED IN ACCORDANCE WITH 30 TEXAS ADMINISTRATIVE CODE (TAC) §213.5(C), THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES AND ANY LOCAL GOVERNMENT STANDARD SPECIFICATIONS.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SCS PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS MUST BE REQUIRED TO KEEP ON-SITE COPIES OF THE PLAN AND THE APPROVAL LETTER.
3. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE PRESIDING TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
4. ANY MODIFICATION TO THE ACTIVITIES DESCRIBED IN THE REFERENCED SCS APPLICATION FOLLOWING THE DATE OF APPROVAL MAY REQUIRE THE SUBMITTAL OF AN SCS APPLICATION TO MODIFY THIS APPROVAL, INCLUDING THE PAYMENT OF APPROPRIATE FEES AND ALL INFORMATION NECESSARY FOR ITS REVIEW AND APPROVAL.
5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

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

7. SEWER LINES LOCATED WITHIN OR CROSSING THE 5-YEAR FLOODPLAIN OF A DRAINAGE WAY WILL BE PROTECTED FROM INUNDATION AND STREAM VELOCITIES WHICH COULD CAUSE EROSION AND SCOURING OF BACKFILL. THE TRENCH MUST BE CAPPED WITH CONCRETE TO PREVENT SCOURING OF BACKFILL, OR THE SEWER LINES MUST BE ENCASED IN CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES.
8. BLASTING PROCEDURES FOR PROTECTION OF EXISTING SEWER LINES AND OTHER UTILITIES WILL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION CRITERIA. SAND IS NOT ALLOWED AS BEDDING OR BACKFILL IN TRENCHES THAT HAVE BEEN BLASTED. IF ANY EXISTING SEWER LINES ARE DAMAGED, THE LINES MUST BE REPAIRED AND RETESTED.
9. ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. WHERE GASKETED MANHOLE COVERS ARE REQUIRED FOR MORE THAN THREE MANHOLES IN SEQUENCE OR FOR MORE THAN 1500 FEET, ALTERNATE MEANS OF VENTING WILL BE PROVIDED. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE MANHOLE.

   THE DIAMETER OF THE MANHOLES MUST BE A MINIMUM OF FOUR FEET AND THE MANHOLE FOR ENTRY MUST HAVE A MINIMUM CLEAR OPENING DIAMETER OF 30 INCHES. THESE DIMENSIONS AND OTHER DETAILS SHOWING COMPLIANCE WITH THE COMMISSION'S RULES CONCERNING MANHOLES AND SEWER LINE/MANHOLE INVERTS DESCRIBED IN 30 TAC §217.55 ARE INCLUDED ON PLAN SHEET 73 OF 77.

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

10. WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
11. WHERE SEWERS LINES DEVIATE FROM STRAIGHT ALIGNMENT AND UNIFORM GRADE ALL CURVATURE OF SEWER PIPE MUST BE ACHIEVED BY THE FOLLOWING PROCEDURE WHICH IS RECOMMENDED BY THE PIPE MANUFACTURER: THERE SHALL BE NO CURVATURE OF SANITARY SEWER LINE PIPES.

    IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: THERE SHALL BE NO FLEXURE OF SANITARY SEER LINE PIPES.

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

    NEW SEWAGE COLLECTION SYSTEM LINES MUST BE CONSTRUCTED WITH STUB OUTS FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH STUB OUTS MUST BE MARKED ON THE GROUND SUCH THAT THEIR LOCATION CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH STUB OUTS MUST BE MANUFACTURED WYES OR TEES THAT ARE COMPATIBLE IN SIZE AND MATERIAL WITH BOTH THE SEWER LINE AND THE EXTENSION. AT THE TIME OF ORIGINAL CONSTRUCTION, NEW STUB-OUTS MUST BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE END OF THE STREET PAVEMENT. ALL STUB-OUTS MUST BE SEALED WITH A MANUFACTURED CAP TO PREVENT LEAKAGE. EXTENSIONS THAT WERE NOT ANTICIPATED AT THE TIME OF ORIGINAL CONSTRUCTION OR THAT ARE TO BE CONNECTED TO AN EXISTING SEWER LINE NOT FURNISHED WITH STUB OUTS MUST BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH ACCEPTED PLUMBING TECHNIQUES. ~~IF NO STUB-OUT IS PRESENT AN ALTERNATE METHOD OF JOINING LATERALS IS SHOWN IN THE DETAIL ON PLAN SHEET __ OF __. (FOR POTENTIAL FUTURE LATERALS).~~ (NOT APPLICABLE)

    THE PRIVATE SERVICE LATERAL STUB-OUTS MUST BE INSTALLED AS SHOWN ON THE PLAN AND PROFILE SHEETS ON PLAN SHEET 61-68 OF 78 AND MARKED AFTER BACKFILLING AS SHOWN IN THE DETAIL ON PLAN SHEET 73 OF 78.
13. TRENCHING, BEDDING AND BACKFILL MUST CONFORM WITH 30 TAC §217.54. THE BEDDING AND BACKFILL FOR FLEXIBLE PIPE MUST COMPLY WITH THE STANDARDS OF ASTM D-2321, CLASSES IA, IB, II OR III. RIGID PIPE BEDDING MUST COMPLY WITH THE REQUIREMENTS OF ASTM C 12 (ANSI A 106.2) CLASSES A, B OR C.
14. SEWER LINES MUST BE TESTED FROM MANHOLE TO MANHOLE. WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT MUST BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE. IF A STUB OR CLEAN-OUT IS USED AT THE END OF THE PROPOSED SEWER LINE, NO PRIVATE SERVICE ATTACHMENTS MAY BE CONNECTED BETWEEN THE LAST MANHOLE AND THE CLEANOUT UNLESS IT CAN BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC §213.5(C)(3)(E).
15. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH 30 TAC §217.57. THE ENGINEER MUST RETAIN COPIES OF ALL TEST RESULTS WHICH MUST BE MADE AVAILABLE TO THE EXECUTIVE DIRECTOR UPON REQUEST. THE ENGINEER MUST CERTIFY IN WRITING THAT ALL WASTEWATER LINES HAVE PASSED ALL REQUIRED TESTING TO THE APPROPRIATE REGIONAL OFFICE WITHIN 30 DAYS OF TEST COMPLETION AND PRIOR TO USE OF THE NEW COLLECTION SYSTEM. TESTING METHOD WILL BE:

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

(1) LOW PRESSURE AIR TEST.

(A) A LOW PRESSURE AIR TEST MUST FOLLOW THE PROCEDURES DESCRIBED IN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-828, ASTM C-924, OR ASTM F-1417 OR OTHER PROCEDURE APPROVED BY THE EXECUTIVE DIRECTOR, EXCEPT AS TO TESTING TIMES AS REQUIRED IN TABLE C.3 IN SUBPARAGRAPH (C) OF THIS PARAGRAPH OR EQUATION C.3 IN SUBPARAGRAPH (B)(II) OF THIS PARAGRAPH.

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

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

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

EQUATION C.3

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

WHERE:

T = TIME FOR PRESSURE TO DROP 1.0 POUND PER SQUARE INCH GAUGE IN SECONDS
K = 0.000419 X D X L, BUT NOT LESS THAN 1.0
D = AVERAGE INSIDE PIPE DIAMETER IN INCHES
L = LENGTH OF LINE OF SAME SIZE BEING TESTED, IN FEET
Q = RATE OF LOSS, 0.0015 CUBIC FEET PER MINUTE PER SQUARE FOOT INTERNAL SURFACE

(C) SINCE A K VALUE OF LESS THAN 1.0 MAY NOT BE USED, THE MINIMUM TESTING TIME FOR EACH PIPE DIAMETER IS SHOWN IN THE FOLLOWING TABLE C.3:

PIPE DIAMETER *(INCHES)*	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
6	340	398	0.8550
8	454	298	1.5200
10	567	239	2.3740
12	680	199	3.4190
15	850	159	5.3420
18	1020	133	7.6930
21	1190	114	10.4710
24	1360	100	13.6760
27	1530	88	17.3090
30	1700	80	21.3690
33	1870	72	25.8560

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

(2) INFILTRATION/EXFILTRATION TEST.

(A) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF 2.0 FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE.
(B) AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
(C) THE TOTAL EXFILTRATION, AS DETERMINED BY A HYDROSTATIC HEAD TEST, MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER.
(D) FOR CONSTRUCTION WITHIN A 25-YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION MUST NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD AS IN SUBPARAGRAPH (C) OF THIS PARAGRAPH.
(E) IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, AN OWNER SHALL UNDERTAKE REMEDIAL ACTION IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED. AN OWNER SHALL RETEST A PIPE FOLLOWING A REMEDIATION ACTION.

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

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

(A) MANDREL SIZING.

(i) A RIGID MANDREL MUST HAVE AN OUTSIDE DIAMETER (OD) NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER (ID) OR AVERAGE ID OF A PIPE, AS SPECIFIED IN THE APPROPRIATE STANDARD BY THE ASTMS, AMERICAN WATER WORKS ASSOCIATION, UNI-BELL, OR AMERICAN NATIONAL STANDARDS INSTITUTE, OR ANY RELATED APPENDIX.
(ii) IF A MANDREL SIZING DIAMETER IS NOT SPECIFIED IN THE APPROPRIATE STANDARD, THE MANDREL MUST HAVE AN OD EQUAL TO 95% OF THE ID OF A PIPE. IN THIS CASE, THE ID OF THE PIPE, FOR THE PURPOSE OF DETERMINING THE OD OF THE MANDREL, MUST EQUAL BE THE AVERAGE OUTSIDE DIAMETER MINUS TWO MINIMUM WALL THICKNESSES FOR OD CONTROLLED PIPE AND THE AVERAGE INSIDE DIAMETER FOR ID CONTROLLED PIPE.
(iii) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.

(B) *MANDREL DESIGN.*

(I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
(ii) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.
(iii) A BARREL SECTION LENGTH MUST EQUAL AT LEAST 75% OF THE INSIDE DIAMETER OF A PIPE.
(iv) EACH SIZE MANDREL MUST USE A SEPARATE PROVING RING.

(C) *METHOD OPTIONS.*

(i) AN ADJUSTABLE OR FLEXIBLE MANDREL IS PROHIBITED.
(ii) A TEST MAY NOT USE TELEVISION INSPECTION AS A SUBSTITUTE FOR A DEFLECTION TEST.
(iii) IF REQUESTED, THE EXECUTIVE DIRECTOR MAY APPROVE THE USE OF A DEFLECTOMETER OR A MANDREL WITH REMOVABLE LEGS OR RUNNERS ON A CASE-BY-CASE BASIS.

(2) FOR A GRAVITY COLLECTION SYSTEM PIPE WITH AN INSIDE DIAMETER 27 INCHES AND GREATER, OTHER TEST METHODS MAY BE USED TO DETERMINE VERTICAL DEFLECTION.
(3) A DEFLECTION TEST METHOD MUST BE ACCURATE TO WITHIN PLUS OR MINUS 0.2% DEFLECTION.
(4) AN OWNER SHALL NOT CONDUCT A DEFLECTION TEST UNTIL AT LEAST 30 DAYS AFTER THE FINAL BACKFILL.
(5) GRAVITY COLLECTION SYSTEM PIPE DEFLECTION MUST NOT EXCEED FIVE PERCENT (5%).
(6) IF A PIPE SECTION FAILS A DEFLECTION TEST, AN OWNER SHALL CORRECT THE PROBLEM AND CONDUCT A SECOND TEST AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.

1. ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.

(a) ALL MANHOLES MUST PASS A LEAKAGE TEST.
(b) AN OWNER SHALL TEST EACH MANHOLE (AFTER ASSEMBLY AND BACKFILLING) FOR LEAKAGE, SEPARATE AND INDEPENDENT OF THE COLLECTION SYSTEM PIPES, BY HYDROSTATIC EXFILTRATION TESTING, VACUUM TESTING, OR OTHER METHOD APPROVED BY THE EXECUTIVE DIRECTOR.

(1) HYDROSTATIC TESTING.

(A) THE MAXIMUM LEAKAGE FOR HYDROSTATIC TESTING OR ANY ALTERNATIVE TEST METHODS IS 0.025 GALLONS PER FOOT DIAMETER PER FOOT OF MANHOLE DEPTH PER HOUR.
(B) TO PERFORM A HYDROSTATIC EXFILTRATION TEST, AN OWNER SHALL SEAL ALL WASTEWATER PIPES COMING INTO A MANHOLE WITH AN INTERNAL PIPE PLUG, FILL THE MANHOLE WITH WATER, AND MAINTAIN THE TEST FOR AT LEAST ONE HOUR.
(C) A TEST FOR CONCRETE MANHOLES MAY USE A 24-HOUR WETTING PERIOD BEFORE TESTING TO ALLOW SATURATION OF THE CONCRETE.

(2) VACUUM TESTING.

(A) TO PERFORM A VACUUM TEST, AN OWNER SHALL PLUG ALL LIFT HOLES AND EXTERIOR JOINTS WITH A NON-SHRINK GROUT AND PLUG ALL PIPES ENTERING A MANHOLE.
(B) NO GROUT MUST BE PLACED IN HORIZONTAL JOINTS BEFORE TESTING.
(C) STUB-OUTS, MANHOLE BOOTS, AND PIPE PLUGS MUST BE SECURED TO PREVENT MOVEMENT WHILE A VACUUM IS DRAWN.
(D) AN OWNER SHALL USE A MINIMUM 60 INCH/LB TORQUE WRENCH TO TIGHTEN THE EXTERNAL CLAMPS THAT SECURE A TEST COVER TO THE TOP OF A MANHOLE.
(E) A TEST HEAD MUST BE PLACED AT THE INSIDE OF THE TOP OF A CONE SECTION, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
(F) THERE MUST BE A VACUUM OF 10 INCHES OF MERCURY INSIDE A MANHOLE TO PERFORM A VALID TEST.
(G) A TEST DOES NOT BEGIN UNTIL AFTER THE VACUUM PUMP IS OFF.
(H) A MANHOLE PASSES THE TEST IF AFTER 2.0 MINUTES AND WITH ALL VALVES CLOSED, THE VACUUM IS AT LEAST 9.0 INCHES OF MERCURY.

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

AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO, TEXAS 78233-4480
PHONE (210) 490-3096
FAX (210) 545-4329

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

TCEQ-0596 (REV. JULY 15, 2015)

TCEQ WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. This water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D. When conflicts are noted with local standards, the more stringent requirement shall be applied. At a minimum, construction for public water systems must always meet TCEQ's "Rules and Regulations for Public Water Systems."
2. All newly installed pipes and related products must conform to American National Standards Institute (ANSI)/NSF International Standard 61 and must be certified by an organization accredited by ANSI [§290.44(a)(1)].
3. Plastic pipe for use in public water systems must bear the NSF International Seal of Approval (NSF-pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less [§290.44(a)(2)].
4. No pipe which has been used for any purpose other than the conveyance of drinking water shall be accepted or relocated for use in any public drinking water supply [§290.44(a)(3)].
5. All water line crossings of wastewater mains shall be perpendicular [§290.44(e)(4)(B)].
6. Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be located below the frost line and in no case shall the top of the water line be less than 24 inches below ground surface [§290.44(a)(4)].
7. The maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and fixtures is 0.25 percent [§290.44(b)].
8. The contractor shall install appropriate air release devices with vent openings to the atmosphere covered with 16-mesh or finer, corrosion resistant screening material or an acceptable equivalent [§290.44(d)(1)].
9. The contractor shall not place the pipe in water or where it can be flooded with water or sewage during its storage or installation [§290.44(f)(1)].
10. When waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the waterline shall be installed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested [§290.44(f)(2)].
11. Pursuant to 30 TAC §290.44(a)(5), the hydrostatic leakage rate shall not exceed the amount allowed or recommended by the most current AWWA formulas for PVC pipe, cast iron and ductile iron pipe. Include the formulas in the notes on the plans.
    - The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

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

      Where:
      - Q = the quantity of makeup water in gallons per hour,
      - L = the length of the pipe section being tested, in feet,
      - D = the nominal diameter of the pipe in inches, and
      - P = the average test pressure during the hydrostatic test in pounds per square inch (psi).
    - The hydrostatic leakage rate for ductile iron (DI) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-600 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

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

      Where:
      - L = the quantity of makeup water in gallons per hour,
      - S = the length of the pipe section being tested, in feet,
      - D = the nominal diameter of the pipe in inches, and
      - P = the average test pressure during the hydrostatic test in pounds per square inch (psi).
12. The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes. If this distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet §290.44(e)(1)-(4).
13. The separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant [§290.44(e)(5)].
14. Fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater line, wastewater lateral, or wastewater service line regardless of construction [§290.44(e)(6)].
15. Suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line [§290.44(e)(7)].
16. Waterlines shall not be installed closer than ten feet to septic tank drainfields [§290.44(e)(8)].
17. The contractor shall disinfect the new waterlines in accordance with AWWA Standard C-651-14 or most recent, then flush and sample the lines before being placed into service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed waterline will be required or at the next available sampling point beyond 1,000 feet as designated by the design engineer [§290.44(f)(3)].
18. Dechlorination of disinfecting water shall be in strict accordance with current AWWA Standard C655-09 or most recent.

Revised October 2017

DESIGNED BY: | DRAFTED BY:

DATE | REVISION

Carlson, Brigance & Doering, Inc.
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Austin, Texas 78749
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North Office
12129 RR 620 N., Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: GENERAL NOTES (2 OF 3)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 3 OF 68

SHEET NO. 3

FILE PATH:J:\AC3D\5557\dwg\5557-GENERAL NOTES.dwg - Sep 27, 2023 - 1:39pm

Texas Commission on Environmental Quality
Contributing Zone Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

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

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any ground disturbance or construction activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

2. All contractors conducting regulated activities associated with this project should be provided with complete copies of the approved Contributing Zone Plan (CZP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractor(s) should keep copies of the approved plan and approval letter on-site.

3. No hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.

4. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

5. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.

6. Sediment must be removed from the sediment traps or sedimentation basins when it occupies 50% of the basin's design capacity.

7. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

8. All excavated material that will be stored on-site must have proper E&S controls.

9. If portions of the site will have a cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

10. The following records should be maintained and made available to the TCEQ upon request:
    - the dates when major grading activities occur;
    - the dates when construction activities temporarily or permanently cease on a portion of the site; and
    - the dates when stabilization measures are initiated.

11. The holder of any approved CZP must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any best management practices (BMPs) or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;

    B. any change in the nature or character of the regulated activity from that which was originally approved;

    C. any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer; or

    D. any development of land previously identified as undeveloped in the approved contributing zone plan.

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

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

DESIGNED BY:

DRAFTED BY:

REVISION	DATE

Carlson, Brigance & Doering, Inc.
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Fax No. (512) 280-5165

SHEET NAME: GENERAL NOTES (3 OF 3)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.
ID# F-3791

9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 4 OF 68

SHEET NO.: 4

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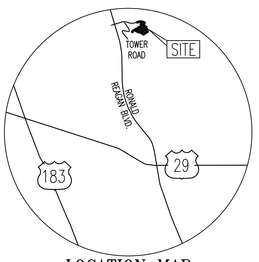
SANTA RITA RANCH PHASE 2B, SECTION 1
FINAL PLAT



LOCATION MAP

GRAPHIC SCALE
300 0 150 300 600
(IN FEET)
1 inch = 300 ft.

SHEET INDEX
1. LOCATION MAP, LEGEND, PROJECT INFO, LOT TABLE, STREET TABLE, & SHEET KEY MAP
2. PLAT MAP, PLAT NOTES & EASEMENT LINE TABLE
3. PLAT MAP
4. LINE & CURVE TABLES
5. METES & BOUNDS DESCRIPTION
6. DEDICATION STATEMENT, CERTIFICATIONS & SIGNATURES

LEGEND
- CAPPED 1/2" IRON ROD FOUND STAMPED "CBD SETSTONE"
- CAPPED 1/2" CAPPED IRON ROD SET STAMPED "CBD SETSTONE"
- DEVELOPED 100 YEAR FLOODPLAIN PER ATLAS-14
- B.L. BUILDING SETBACK LINE
- D.E. DRAINAGE EASEMENT
- L.S.E. LANDSCAPE EASEMENT
- P.U.E. PUBLIC UTILITY EASEMENT
- O.S. OPEN SPACE
- W.Q.E. WATER QUALITY EASEMENT
- D.R.W.C.TX. DEED RECORDS OF TRAVIS COUNTY, TEXAS
- O.P.R.W.C.TX. OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS

DATE: SEPTEMBER 18, 2023

OWNER:
SRFV DEVELOPMENT, LLC.
1700 CROSS CREEK DRIVE, STE. 100
LIBERTY HILL, TX 78642

DEVELOPER:
SRFV DEVELOPMENT, LLC.
1700 CROSS CREEK LANE, STE. 100
LIBERTY HILL, TX 78642

SURVEYOR:
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE
AUSTIN, TEXAS 78749
(512) 280-5160 phone

ENGINEER:
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE
AUSTIN, TEXAS 78749
(512) 280-5160 phone

TOTAL ACREAGE: 40.917 ACRES
SURVEY: B. MANLOVE SURVEY, ABSTRACT NO. 417 AND WILLIAM W. SMITH SURVEY, ABSTRACT NO. 521

F.E.M.A. MAP NO. 48491C0275E
WILLIAMSON COUNTY, TEXAS AND INCORPORATED AREAS.
DATED: SEPTEMBER 26, 2008

TBM 1:
CAPPED 1/2 INCH IRON ROD SET STAMPED "CONTROL"
N = 10221342.40
E = 3082144.18
ELEVATION = 894.63' (NAVD '88)

TBM 2:
CAPPED 1/2 INCH IRON ROD SET STAMPED "CONTROL"
N = 10221815.61
E = 3081978.68
ELEVATION = 883.28' (NAVD '88)

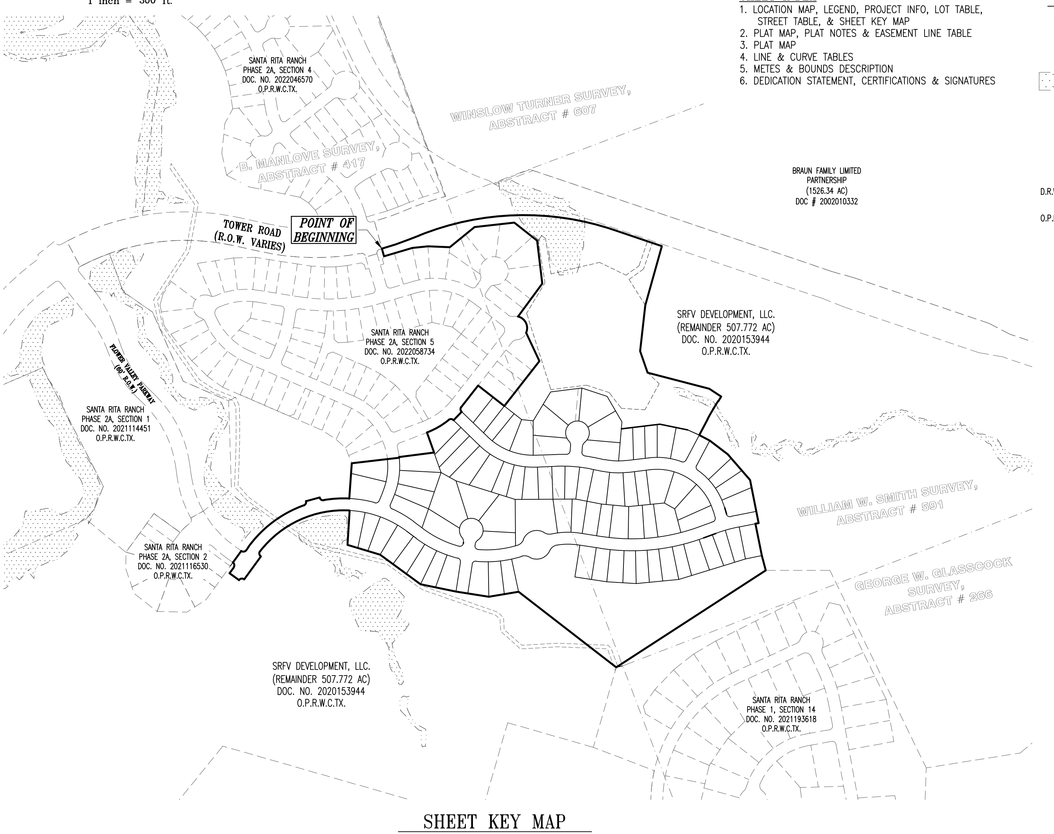
BASIS OF BEARINGS – TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203)

ELEVATION DATUM – NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)

TOTAL OF BLOCKS	5
TOTAL OF LOTS	86
SINGLE FAMILY LOTS:	83
O.S., L.S.E. & P.U.E. LOTS:	1
D.E., O.S., L.S.E. & P.U.E. LOTS:	1
W.Q.E., D.E., O.S., L.S.E. & P.U.E. LOTS:	1

ROAD TABLE

STREET NAMES	LINEAR FOOTAGE	R.O.W. WIDTH	PAVEMENT WIDTH	DESIGN SPEED	DESIGNATION	CLASSIFICATION
COW CAMP LANE	2,397'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
BENT TWIG STREET	1,323'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
CASTILLO BEND	231'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
CEDRO BLANCO COVE	163'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
TROZA PASS	156'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
ELISE COURT	118'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
MARANA COURT	102'	50' R.O.W.	33' FOC-FOC	25 M.P.H.	PUBLIC	LOCAL
TOTAL	4,490'					



SHEET KEY MAP

PROJ.# _____
SHEET NO. 1 OF 6

Carlson, Brigance & Doering, Inc.
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5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5557\Survey\PLAT – SRR 2B-1

SANTA RITA RANCH PHASE 2B, SECTION 1
FINAL PLAT

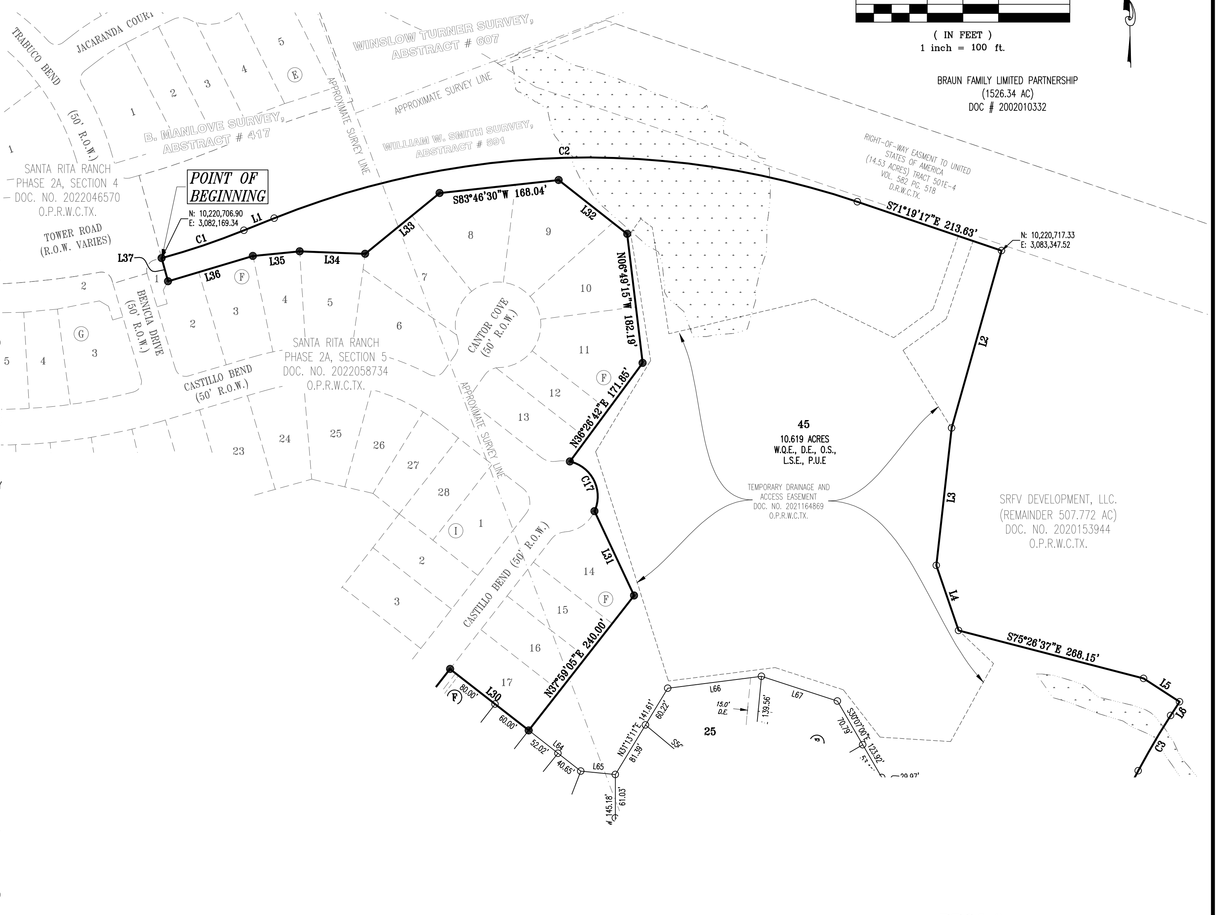
GENERAL:
1. BEARINGS ARE BASED ON THE TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NAD83.
2. THIS SUBDIVISION LIES WITHIN THE CITY OF LIBERTY HILL EXTRA-TERRITORIAL JURISDICTION.
3. IT IS THE RESPONSIBILITY OF THE OWNER, NOT THE COUNTY, TO ASSURE COMPLIANCE WITH PROVISIONS OF ALL APPLICABLE STATE, FEDERAL AND LOCAL LAWS, AND REGULATIONS RELATING TO PLATTING AND DEVELOPMENT OF THIS PROPERTY. THE COUNTY ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF REPRESENTATIONS BY OTHER PARTIES IN THIS PLAT. FLOODPLAIN DATA, IN PARTICULAR, MAY CHANGE. IT IS FURTHER UNDERSTOOD THAT THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT MUST INSTALL AT THEIR OWN EXPENSE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE THAT MAY BE REQUIRED BEFORE THE ROADS IN THE SUBDIVISION HAVE FINALLY BEEN ACCEPTED FOR MAINTENANCE BY THE COUNTY.
4. ALL PROPOSED ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS.
5. THIS PROPERTY IS SUBJECT TO A BLANKET-TYPE UTILITY EASEMENT GRANTED TO CHISHOLM TRAIL WATER SUPPLY CORPORATION IN VOLUME 939, PAGE 271, DEED RECORDS OF WILLIAMSON COUNTY, TEXAS.
6. THIS PROPERTY MAY BE SUBJECT TO A FLOWAGE EASEMENT GRANTED TO THE UNITED STATES OF AMERICA IN VOLUME 582, PAGE 514, DEED RECORDS OF WILLIAMSON COUNTY, TEXAS. EXHIBIT "A" FOR TRACT NO. 501E-1, NORTH FORK LAKE DESCRIPTION MISSING FROM THE DEED.
7. THE HOMEOWNERS ASSOCIATION WILL OWN AND MAINTAIN THE FOLLOWING LOTS: LOT 45, BLOCK F; LOT 18, BLOCK K; LOT 107, BLOCK L
8. THIS PROPERTY IS SUBJECT TO A 20-FOOT IN WIDTH RIGHT-OF-WAY AND EASEMENT BEING TEN (10') FEET ON EACH SIDE OF THE CENTERLINE OF THE FACILITIES AS BUILT WITH GLYING EASEMENTS IN ADDITION TO A BLANKET-TYPE UTILITY EASEMENT GRANTED TO PEDERNALES ELECTRIC COOPERATIVE, INC. IN DOCUMENT NO. 2022007856, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS.

DRAINAGE AND FLOODPLAIN:
1. EXCEPT IN CERTAIN ISOLATED AREAS REQUIRED TO MEET ACCESSIBILITY REQUIREMENTS, THE MINIMUM LOWEST FINISHED FLOOR ELEVATION SHALL BE ONE FOOT HIGHER THAN THE HIGHEST SPOT ELEVATION THAT IS LOCATED WITHIN FIVE FEET OUTSIDE THE PERIMETER OF THE BUILDING, OR ONE FOOT ABOVE THE BFE, WHICHEVER IS HIGHER.
2. A DE FACTO CERTIFICATE OF COMPLIANCE IS HEREBY ISSUED FOR ALL LOTS WITHIN THIS SUBDIVISION. THIS CERTIFICATE IS VALID UNITL SUCH TIME AS FEMA REVISES OR NEWLY ADOPTS FLOODPLAIN BOUNDARIES IN THIS AREA.
3. THIS SUBDIVISION IS SUBJECT TO STORM-WATER MANAGEMENT CONTROLS AS REQUIRED BY WILLIAMSON COUNTY SUBDIVISION REGULATIONS, SECTION 811.1, ON NEW DEVELOPMENT THAT WOULD EVOKE SUCH CONTROLS BEYOND EXISTING CONDITIONS.
4. MAINTENANCE RESPONSIBILITY OF DRAINAGE WILL NOT BE ACCEPTED BY THE COUNTY OTHER THAN THAT ACCEPTED IN CONNECTION WITH DRAINING OR PROTECTING THE ROAD SYSTEM. MAINTENANCE RESPONSIBILITY FOR STORM WATER MANAGEMENT CONTROLS WILL REMAIN WITH THE OWNER.

WATER AND WASTEWATER:
1. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTION IS MADE TO AN APPROVED PUBLIC SEWER SYSTEM.
2. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL WATER SATISFACTORY FOR HUMAN CONSUMPTION IS AVAILABLE FROM A SOURCE IN ADEQUATE AND SUFFICIENT SUPPLY.
3. WATER SERVICE IS PROVIDED BY: WILLIAMSON COUNTY MUD 19C/ GEORGETOWN UTILITY SYSTEMS
4. WASTEWATER SERVICE IS PROVIDED BY: WILLIAMSON COUNTY MUD 19C/CITY OF LIBERTY HILL
5. ELECTRIC SERVICE IS PROVIDED BY: PEC

ROADWAY AND RIGHT-OF-WAY:
1. IN APPROVING THIS PLAT BY THE COMMISSIONERS COURT OF WILLIAMSON COUNTY, TEXAS, IT IS UNDERSTOOD THAT THE BUILDING OF ALL ROADS, AND OTHER PUBLIC THOROUGHFARES AND ANY BRIDGES OR CULVERTS NECESSARY TO BE CONSTRUCTED OR PLACED IS THE RESPONSIBILITY OF THE OWNER(S) OF THE TRACT OF LAND COVERED BY THIS PLAT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE COMMISSIONERS COURT OF WILLIAMSON COUNTY, TEXAS. SAID COMMISSIONERS COURT ASSUMES NO OBLIGATION TO BUILD ANY OF THE ROADS, OR PUBLIC THOROUGHFARES SHOWN ON THIS PLAT, OR OF CONSTRUCTING ANY OF THE BRIDGES OR DRAINAGE IMPROVEMENTS IN CONNECTION THEREWITH. THE COUNTY WILL ASSUME NO RESPONSIBILITY FOR DRAINAGE WAYS OR EASEMENTS IN THE SUBDIVISION, OTHER THAN THOSE DRAINING OR PROTECTING THE ROAD SYSTEM.
2. SIDEWALKS SHALL BE MAINTAINED BY THE HOMEOWNERS' ASSOCIATION.
3. DRIVEWAY ACCESS TO LOTS WITHIN THIS SUBDIVISION FROM SIDE STREETS IS PROHIBITED.
4. IMPROVEMENTS WITHIN THE COUNTY ROAD RIGHT-OF-WAY INCLUDING, BUT NOT LIMITED TO LANDSCAPING, IRRIGATION, LIGHTING, CUSTOM SIGNS, ARE PROHIBITED WITHOUT FIRST OBTAINING AN EXECUTED LICENSE AGREEMENT WITH WILLIAMSON COUNTY.
5. NO CONSTRUCTION, PLANTING OR GRADING SHALL BE PERMITTED TO INTERFERE WITH SIGHT EASEMENTS BETWEEN THE HEIGHTS OF THREE AND EIGHT FEET AS MEASURED FROM THE CROWNS OF THE ADJACENT STREETS.
6. THE OWNER SHALL CREATE A MANDATORY HOMEOWNERS' ASSOCIATION THAT SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND LIABILITY OF ANY LANDSCAPING, IRRIGATION, SIDEWALKS, ILLUMINATION, SUBDIVISION IDENTIFICATION SIGNS, WATER QUALITY FEATURES, ETC. PLACED WITHIN THE WILLIAMSON COUNTY RIGHT-OF-WAY. THIS ASSOCIATION SHALL HAVE ASSESSMENT AUTHORITY TO ENSURE THE PROPER FUNDING FOR MAINTENANCE.
7. A PUBLIC UTILITY EASEMENT 10 FEET WIDE IS HEREBY DEDICATED ADJACENT TO ALL STREET RIGHT-OF-WAY.

GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
1 inch = 100 ft.



PROJ.# _____
SHEET NO. 2 OF 6

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
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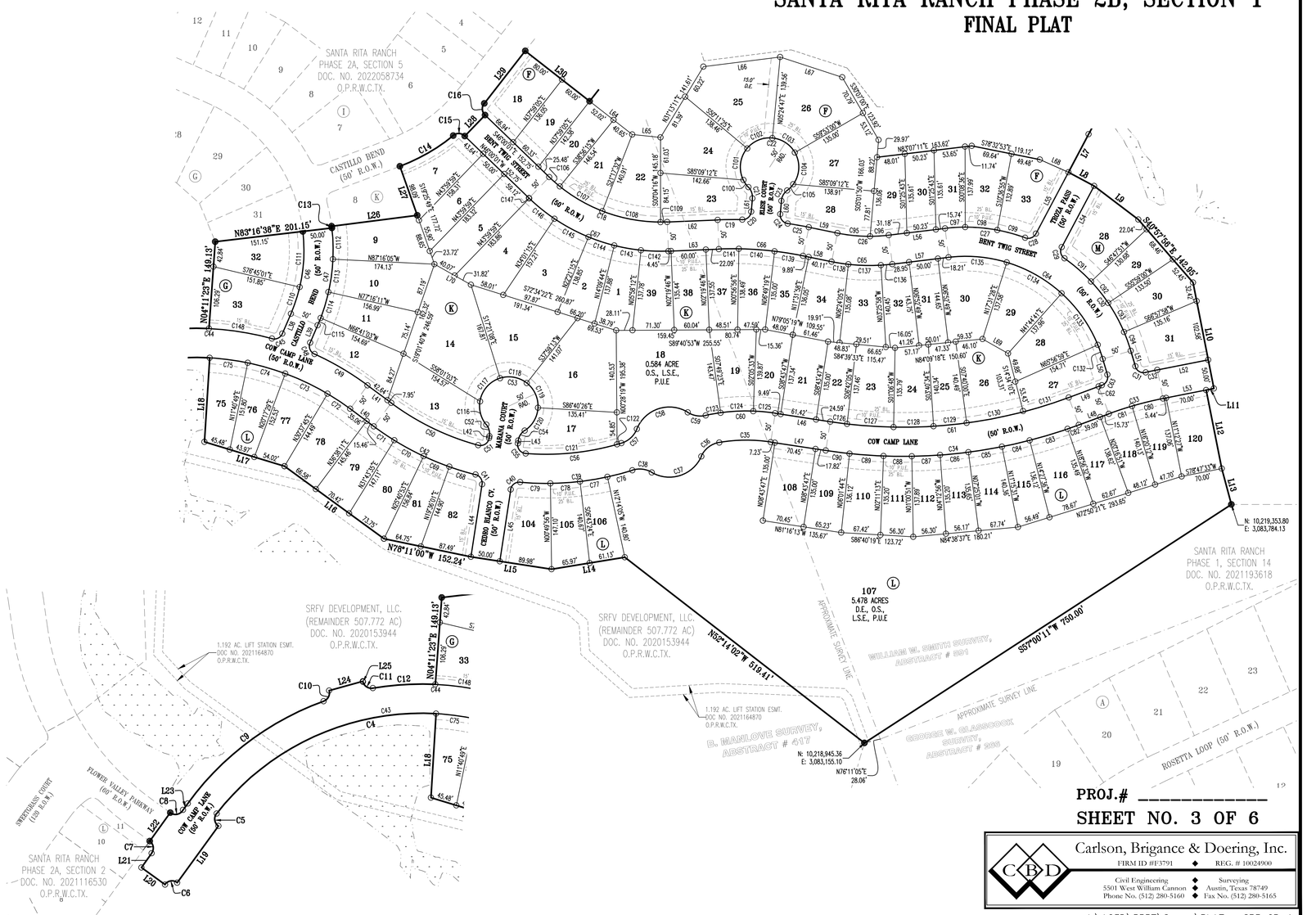
SANTA RITA RANCH PHASE 2B, SECTION 1
FINAL PLAT



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SANTA RITA RANCH PHASE 2B, SECTION 1
FINAL PLAT

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C1	121.81	1060.00	N71°24'25"E	121.74	60.97	6°35'03"
C2	835.41	1180.00	N88°23'48"E	818.07	436.07	40°33'50"
C3	89.55	1025.00	S30°22'59"W	89.53	44.81	5°00'21"
C4	429.72	445.00	S65°31'15"W	413.22	233.28	55°19'44"
C5	24.07	15.00	S08°06'30"E	21.57	15.51	91°55'46"
C6	23.56	15.00	S80°55'36"W	21.21	15.00	90°00'00"
C7	23.56	15.00	N09°04'24"W	21.21	15.00	90°00'00"
C8	23.56	15.00	N80°55'36"E	21.21	15.00	90°00'00"
C9	295.84	495.00	N53°02'55"E	291.46	152.49	34°14'36"
C10	22.44	15.00	N27°18'54"E	20.40	13.92	85°42'39"
C11	22.03	15.00	S57°37'21"E	20.11	13.55	84°09'51"
C12	107.39	495.00	N86°30'37"E	107.17	53.90	12°25'47"
C13	3.09	325.00	N08°59'41"W	3.09	1.54	0°32'38"
C14	105.79	325.00	N60°04'52"E	105.32	53.37	18°38'58"
C15	21.82	15.00	S81°34'03"E	19.95	13.35	83°21'10"
C16	21.99	15.00	N04°00'28"W	20.07	13.50	83°59'06"
C17	89.01	50.00	N26°28'46"W	77.71	61.74	101°59'39"
C18	222.37	275.00	S69°09'54"E	216.36	117.66	46°19'46"
C19	42.29	650.00	N89°32'03"E	42.28	21.15	3°43'40"
C20	22.66	15.00	N48°07'20"E	20.57	14.12	86°33'06"
C21	21.03	25.00	N19°14'34"W	20.41	11.18	48°11'23"
C22	241.19	50.00	S85°09'12"E	66.67	44.72	276°22'46"
C23	21.03	25.00	S28°56'29"W	20.41	11.18	48°11'23"
C24	22.66	15.00	S38°25'45"E	20.57	14.12	86°33'06"
C25	36.73	650.00	S80°05'10"E	36.73	18.37	3°14'16"

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C26	88.38	275.00	S87°40'26"E	88.00	44.57	18°24'47"
C27	139.60	295.00	S83°19'26"E	138.30	71.13	27°06'46"
C28	21.56	15.00	N69°03'23"E	19.75	13.12	82°21'09"
C29	21.68	15.00	S13°31'48"E	19.84	13.23	82°49'12"
C30	198.56	295.00	S35°39'25"E	194.84	103.21	38°33'51"
C31	22.67	15.00	S59°40'32"E	20.58	14.14	86°36'10"
C32	20.38	660.00	N77°54'28"E	20.38	10.19	1°46'10"
C33	96.60	610.00	S74°15'21"W	96.50	48.40	9°04'24"
C34	440.51	870.00	S84°13'28"W	435.82	225.08	29°00'38"
C35	88.60	275.00	S89°30'01"W	88.21	44.68	18°27'31"
C36	40.63	41.50	S52°13'26"W	39.03	22.11	56°05'38"
C37	100.45	60.00	S72°08'25"W	89.13	66.55	95°55'37"
C38	34.39	41.50	N83°38'07"W	33.41	18.25	47°28'45"
C39	194.71	495.00	S85°53'39"W	193.46	98.63	22°32'14"
C40	22.62	15.00	S51°57'22"W	20.54	14.09	86°24'47"
C41	22.15	15.00	N33°32'41"W	20.19	13.65	84°35'20"
C42	194.18	495.00	N64°36'05"W	192.93	98.35	22°28'32"
C43	689.59	445.00	S82°15'01"W	622.63	435.69	88°47'17"
C44	216.96	495.00	N87°08'54"W	215.22	110.25	25°06'45"
C45	21.49	15.00	S64°21'42"W	19.70	13.06	82°05'31"
C46	144.17	275.00	S08°17'47"W	142.53	73.78	30°02'18"
C47	170.39	325.00	S08°17'47"W	168.44	87.20	30°02'18"
C48	23.27	15.00	S21°07'55"E	21.01	14.71	88°53'43"
C49	105.54	495.00	S59°28'18"E	105.34	52.97	12°12'57"
C50	166.71	445.00	S64°05'46"E	165.74	84.35	21°27'54"

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C51	25.24	15.00	N56°57'38"E	22.37	16.78	96°25'18"
C52	21.03	25.00	N15°20'43"W	20.41	11.18	48°11'23"
C53	241.19	50.00	S81°15'01"E	66.67	44.72	276°22'46"
C54	21.03	25.00	S32°50'40"W	20.41	11.18	48°11'23"
C55	24.68	15.00	S38°27'41"E	21.99	16.16	94°15'19"
C56	165.84	445.00	N83°49'04"E	164.88	83.89	21°21'11"
C57	37.03	41.50	N47°34'48"E	35.81	19.85	51°07'23"
C58	104.49	60.00	N71°54'28"E	91.78	71.23	99°46'43"
C59	32.00	41.50	S80°17'29"E	31.21	16.84	44°10'39"
C60	119.74	325.00	N88°10'30"E	119.06	60.56	21°06'34"
C61	415.19	820.00	N84°13'28"E	410.77	212.15	29°00'38"
C62	5.87	660.00	N69°58'26"E	5.87	2.93	0°30'34"
C63	22.67	15.00	N26°55'38"E	20.58	14.14	86°36'10"
C64	344.25	245.00	N56°37'38"W	316.62	207.43	80°30'22"
C65	104.44	325.00	N87°40'26"W	104.00	52.68	18°24'47"
C66	145.17	600.00	N85°23'54"W	144.81	72.94	13°51'44"
C67	262.80	325.00	N69°09'54"W	255.69	139.06	46°19'46"
C68	46.99	495.00	N73°07'10"W	46.98	23.51	5°26'22"
C69	47.61	495.00	N67°38'39"W	47.60	23.83	5°30'41"
C70	57.15	495.00	N61°34'52"W	57.12	28.61	6°36'53"
C71	42.42	495.00	N55°49'07"W	42.41	21.22	4°54'36"
C72	46.72	445.00	N56°21'48"W	46.70	23.38	6°00'55"
C73	80.29	445.00	N64°32'23"W	80.18	40.25	10°20'15"
C74	66.88	445.00	N74°00'51"W	66.82	33.50	8°36'40"
C75	65.98	445.00	N82°34'02"W	65.92	33.05	8°29'42"

Line Table		
Line #	Length	Direction
L1	45.98	N68°06'53"E
L2	258.45	S15°45'11"W
L3	193.87	S06°20'25"W
L4	96.32	S18°53'02"E
L5	60.00	S57°07'06"E
L6	23.14	S32°53'10"W
L7	73.77	S27°52'48"W
L8	50.00	S62°07'12"E
L9	95.00	S52°39'56"E
L10	185.00	S11°12'27"E
L11	13.51	S78°47'33"W
L12	137.06	S11°12'27"E
L13	63.85	S14°59'50"E
L14	127.10	S80°38'29"W
L15	139.98	N81°15'01"W
L16	210.75	N53°56'45"W
L17	143.48	N37°03'59"W
L18	144.21	N03°31'49"E
L19	120.00	S36°02'36"W
L20	50.00	N54°04'24"W
L21	30.00	N35°55'36"E
L22	60.00	N35°55'36"E
L23	15.52	N35°55'36"E
L24	60.00	N74°27'34"E
L25	1.21	S15°32'26"E

Line Table		
Line #	Length	Direction
L26	147.87	N82°44'00"E
L27	89.07	N19°25'49"W
L28	50.00	N43°59'59"E
L29	114.12	N37°59'05"E
L30	140.00	S52°00'55"E
L31	130.50	N25°06'25"W
L32	122.31	N51°49'15"W
L33	134.66	S50°46'00"W
L34	92.00	N87°49'07"W
L35	65.90	S84°09'47"W
L36	124.27	S73°30'05"W
L37	33.69	N15°18'03"W
L38	37.12	S23°18'57"W
L39	32.37	S23°18'57"W
L40	50.53	N53°21'49"W
L41	50.59	S53°21'49"E
L42	3.42	N08°44'59"E
L43	4.94	S08°44'59"W
L44	125.41	N08°44'59"E
L45	124.14	S08°44'59"W
L46	95.49	S81°16'13"E
L47	95.49	N81°16'13"W
L48	54.82	S69°43'09"W
L49	54.82	N69°43'09"E
L50	27.77	N16°22'27"W

Line Table		
Line #	Length	Direction
L51	27.77	S16°22'27"E
L52	88.94	N78°47'33"E
L53	88.94	S78°47'33"W
L54	118.68	S27°52'48"W
L55	119.00	N27°52'48"E
L56	97.15	N83°07'11"E
L57	97.15	S83°07'11"W
L58	50.00	N78°28'02"W
L59	50.00	S78°28'02"E
L60	22.80	S04°50'48"W
L61	22.80	N04°50'48"E
L62	86.54	N87°40'14"E
L63	86.54	S87°40'14"W
L64	92.67	N52°00'55"W
L65	48.78	N84°15'30"W
L66	132.48	S82°49'21"W
L67	112.11	N71°59'48"W
L68	53.40	S66°01'47"E
L69	50.35	S60°21'55"E
L70	71.89	N60°32'57"W

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C76	44.40	495.00	S75°11'43"W	44.39	22.22	5°08'23"
C77	47.61	495.00	S80°31'15"W	47.60	23.83	5°30'41"
C78	50.90	495.00	S86°13'20"W	50.87	25.47	5°53'28"
C79	51.79	495.00	N87°50'05"W	51.77	25.92	5°59'42"
C80	54.61	610.00	S76°13'41"W	54.59	27.32	5°07'45"
C81	41.99	610.00	S71°41'28"W	41.98	21.00	3°56'39"
C82	20.33	870.00	S70°23'18"W	20.33	10.16	1°20'19"
C83	68.06	870.00	S73°17'56"W	68.04	34.05	4°28'57"
C84	48.61	870.00	S77°08'27"W	48.60	24.31	3°12'05"
C85	58.33	870.00	S80°39'44"W	58.32	29.18	3°50'30"
C86	48.61	870.00	S84°11'02"W	48.60	24.31	3°12'05"
C87	48.61	870.00	S87°23'06"W	48.60	24.31	3°12'05"
C88	48.61	870.00	N89°24'49"W	48.60	24.31	3°12'05"
C89	58.33	870.00	N85°53'31"W	58.32	29.18	3°50'30"
C90	41.01	870.00	N82°37'15"W	41.01	20.51	2°42'03"
C91	60.43	295.00	S49°04'16"E	60.33	30.32	11°44'15"
C92	47.29	295.00	S35°36'35"E	47.24	23.70	9°11'09"
C93	56.55	295.00	S25°31'31"E	56.46	28.36	10°58'58"
C94	34.29	295.00	S19°42'14"E	34.27	17.16	6°39'35"
C95	56.28	275.00	S84°19'51"E	56.19	28.24	11°43'37"
C96	32.09	275.00	N88°27'46"E	32.07	16.06	6°41'10"
C97	34.69	295.00	N88°29'18"E	34.67	17.36	6°44'15"
C98	55.39	295.00	S84°45'50"E	55.31	27.78	10°45'32"
C99	49.52	295.00	S74°34'34"E	49.46	24.82	9°37'02"
C100	15.01	50.00	N34°44'30"W	14.96	7.56	17°12'10"

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C101	57.55	50.00	N06°50'05"E	54.43	32.44	65°57'00"
C102	48.52	50.00	N67°36'41"E	46.64	26.36	55°36'12"
C103	47.53	50.00	S57°21'07"E	45.76	25.74	54°28'14"
C104	57.55	50.00	S02°51'31"W	54.43	32.44	65°57'00"
C105	15.01	50.00	S44°26'06"W	14.96	7.56	17°12'10"
C106	24.30	275.00	S48°31'53"E	24.29	12.16	5°03'45"
C107	84.69	275.00	S59°53'06"E	84.36	42.68	17°38'42"
C108	101.85	275.00	S79°19'06"E	101.27	51.52	21°13'17"
C109	11.52	275.00	N88°52'15"E	11.52	5.76	2°24'02"
C110	48.31	275.00	N18°16'58"E	48.25	24.22	10°03'58"
C111	95.86	275.00	N03°15'48"E	95.38	48.42	19°58'20"
C112	56.71	325.00	S02°16'03"E	56.64	28.43	9°59'55"
C113	56.71	325.00	S07°43'52"W	56.64	28.43	9°59'55"
C114	46.43	325.00	S16°49'22"W	46.39	23.25	8°11'05"
C115	13.62	325.00	S22°06'55"W	13.62	6.81	2°24'03"
C116	42.36	50.00	N15°10'03"W	41.11	22.55	48°32'42"
C117	55.45	50.00	N47°52'35"E	52.65	30.97	63°32'34"
C118	48.29	50.00	S76°40'57"E	46.44	26.22	55°20'21"
C119	48.29	50.00	S24°20'36"E	46.44	26.22	55°20'21"
C120	46.79	50.00	S37°07'58"W	45.10	25.26	53°36'47"
C121	158.04	445.00	N84°19'11"E	157.21	79.86	20°20'56"
C122	7.80	445.00	N77°38'36"E	7.80	3.90	1°00'15"
C123	25.85	325.00	N79°53'55"E	25.84	12.93	4°33'24"
C124	56.24	325.00	N87°08'05"E	56.17	28.19	9°54'56"
C125	37.65	325.00	S84°35'20"E	37.63	18.85	6°38'14"

Curve Table						
Curve #	Length	Radius	Chord Direction	Chord Length	Tangent	DELTA
C126	29.03	820.00	S82°17'04"E	29.03	14.51	2°01'41"
C127	79.98	820.00	S86°05'33"E	79.94	40.02	5°35'17"
C128	68.54	820.00	N88°43'07"E	68.52	34.29	4°47'22"
C129	57.11	820.00	N84°19'43"E	57.10	28.57	3°59'27"
C130	98.79	820.00	N78°52'55"E	98.73	49.45	6°54'09"
C131	81.74	820.00	N72°34'29"E	81.71	40.91	5°42'42"
C132	25.77	245.00	N19°23'14"W	25.76	12.90	6°01'33"
C133	108.65	245.00	N35°06'17"W	107.76	55.23	25°24'33"
C134	109.05	245.00	N65°33'39"W	108.15	55.44	25°30'11"
C135	100.78	245.00	N85°05'47"W	100.07	51.11	23°34'05"
C136	19.56	325.00	S84°50'37"W	19.55	9.78	3°26'51"
C137	55.78	325.00	N88°30'56"W	55.71	27.96	9°50'03"
C138	29.11	325.00	N81°01'59"W	29.10	14.56	5°07'52"
C139	49.33	600.00	N80°49'22"W	49.32	24.68	4°42'39"
C140	61.50	600.00	N86°06'53"W	61.48	30.78	5°52'23"
C141	34.33	600.00	S89°18'35"W	34.33	17.17	3°16'42"
C142	47.08	325.00	N88°10'47"W	47.04	23.58	8°17'59"
C143	46.47	325.00	N79°56'02"W	46.43	23.27	8°11'32"
C144	46.47	325.00	N71°44'31"W	46.43	23.27	8°11'32"
C145	66.18	325.00	N61°45'45"W	66.06	33.20	11°40'00"
C146	55.72	325.00	N51°04'03"W	55.65	27.93	9°49'23"
C147	0.88	325.00	N40°04'41"W	0.88	0.44	0°09'21"
C148	109.57	495.00	N80°56'01"W	109.35	55.01	12°40'58"

PROJ.# _____
SHEET NO. 4 OF 6

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5557\Survey\PLAT – SRR 2B–1

SANTA RITA RANCH PHASE 2B, SECTION 1
FINAL PLAT

FIELD NOTES

BEING ALL OF THAT CERTAIN 40.917 ACRE TRACT OF LAND OUT OF THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417 AND THE WILLIAM W. SMITH SURVEY, ABSTRACT NUMBER 591, IN WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF A CALLED 507.772 ACRE TRACT CONVEYED TO SRFV DEVELOPMENT, LLC. BY DEED RECORDED IN DOCUMENT NUMBER 2020153944, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, (O.P.R.W.C.TX.), SAID 41.088 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, AT A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", AT THE SOUTHEAST TERMINUS OF TOWER ROAD (R.O.W. VARIES), ACCORDING TO THE PLAT OF SANTA RITA RANCH PHASE 2A, SECTION 4, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 2022046570, O.P.R.W.C.TX., SAME BEING THE NORTHEAST CORNER OF LOT 1, BLOCK F, SANTA RITA RANCH PHASE 2A, SECTION 5, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 2002058734, O.P.R.W.C.TX., SAME BEING AT THE BEGINNING OF A CURVE TO THE LEFT, FOR THE NORTHWEST CORNER AND THE POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT,

THENCE, OVER AND ACROSS SAID 507.772 ACRE TRACT, THE FOLLOWING NINETEEN (19) COURSES AND DISTANCES, NUMBERED 1 THROUGH 19:

1) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 1060.00 FEET, AN ARC LENGTH OF 121.81 FEET, AND A CHORD THAT BEARS N71°24'25"E, A DISTANCE OF 121.74 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
2) N68°06'53"E, A DISTANCE OF 45.98 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER, AT THE BEGINNING OF A CURVE TO THE RIGHT;
3) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 1180.00 FEET, AN ARC LENGTH OF 835.41 FEET, AND A CHORD THAT BEARS N88°23'48"E, A DISTANCE OF 818.07 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR THE NORTHEAST CORNER OF THE HEREIN DESCRIBED TRACT;
4) S71°19'17"E, A DISTANCE OF 213.63 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
5) S15°45'11"W, A DISTANCE OF 258.45 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
6) S06°20'25"W, A DISTANCE OF 193.87 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
7) S18°57'02"E, A DISTANCE OF 96.32 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
8) S75°26'37"E, A DISTANCE OF 268.15 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
9) S57°07'06"E, A DISTANCE OF 60.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
10) S32°53'10"W, A DISTANCE OF 23.14 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER, AT THE BEGINNING OF A CURVE TO THE LEFT;
11) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 1025.00 FEET, AN ARC LENGTH OF 89.55, AND WHOSE CHORD BEARS S30°22'59"W A DISTANCE OF 89.53 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SEITSTONE" FOR CORNER;
12) S27°52'48"W, A DISTANCE OF 73.77 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
13) S62°07'12"E, A DISTANCE OF 50.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
14) S52°39'56"E, A DISTANCE OF 95.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
15) S40°57'56"E, A DISTANCE OF 142.95 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
16) S11°12'27"E, A DISTANCE OF 185.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
17) S78°47'33"W, A DISTANCE OF 13.51 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
18) S11°12'27"E, A DISTANCE OF 137.06 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
19) S14°59'50"E, A DISTANCE OF 63.85 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE NORTH LINE OF LOT 35, BLOCK A, SANTA RITA RANCH PHASE 1, SECTION 14, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 2021193618, O.P.R.W.C.TX., FOR THE SOUTHEAST CORNER OF THE HEREIN DESCRIBED TRACT;

THENCE, S57°00'11"W, OVER AND ACROSS SAID 507.772 ACRE TRACT, WITH THE NORTH LINE OF SAID LOT 35, BLOCK A, A DISTANCE OF 750.00 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", FOR THE NORTHWEST CORNER OF SAID LOT 35, BLOCK A;

THENCE, OVER AND ACROSS SAID 507.772 ACRE TRACT, THE FOLLOWING FOURTEEN (14) COURSES AND DISTANCES, NUMBERED 1 THROUGH 14:

1) N52°14'02"W, A DISTANCE OF 519.41 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
2) S80°38'29"W, A DISTANCE OF 127.10 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
3) N81°15'01"W, A DISTANCE OF 139.98 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
4) N78°11'00"W, A DISTANCE OF 152.24 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
5) N53°56'45"W, A DISTANCE OF 210.75 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
6) N73°03'59"W, A DISTANCE OF 143.48 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
7) N03°31'49"E, A DISTANCE OF 144.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER, AT THE BEGINNING OF A CURVE TO THE LEFT;
8) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 445.00 FEET, AN ARC LENGTH OF 429.72 FEET, AND A CHORD THAT BEARS S65°31'15"W, A DISTANCE OF 413.22 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER, AT THE BEGINNING OF A CURVE TO THE LEFT;
9) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 24.07 FEET, AND A CHORD THAT BEARS S08°06'30"E, A DISTANCE OF 21.57 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
10) S36°02'36"W, A DISTANCE OF 120.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
11) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 23.56 FEET, AND A CHORD THAT BEARS S80°55'36"W A DISTANCE OF 21.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", FOR THE SOUTHWEST CORNER OF THE HEREIN DESCRIBED TRACT;
12) N54°04'24"W, A DISTANCE OF 50.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
13) N35°55'36"E, A DISTANCE OF 30.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
14) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 23.56 FEET, AND A CHORD THAT BEARS N09°04'24"W A DISTANCE OF 21.21 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AT THE SOUTHEAST TERMINUS OF FLOWER VALLEY PARKWAY (60' R.O.W.), SAME BEING THE NORTHEAST CORNER OF LOT 11, BLOCK L, SANTA RITA RANCH PHASE 2A, SECTION 2, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 2021116530, O.P.R.W.C.TX., FOR CORNER;

THENCE, N35°55'36"E, WITH THE TERMINUS LINE OF SAID FLOWER VALLEY PARKWAY, SAME BEING THE EAST LINE OF SAID SANTA RITA RANCH PHASE 2A, SECTION 2, OVER AND ACROSS SAID 507.772 ACRE TRACT OF LAND, A DISTANCE OF 60.00 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AT THE NORTHEAST TERMINUS OF SAID FLOWER VALLEY PARKWAY, AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;

FIELD NOTES (CONT'D)

THENCE, OVER AND ACROSS SAID 507.772 ACRE TRACT, THE FOLLOWING NINE (9) COURSES AND DISTANCES, NUMBERED 1 THROUGH 9:

1) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 23.56 FEET, AND A CHORD THAT BEARS N80°55'36"E, A DISTANCE OF 21.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE" FOR CORNER;
2) N35°55'36"E, A DISTANCE OF 15.52 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE RIGHT, FOR CORNER;
3) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 495.00 FEET, AN ARC LENGTH OF 295.84 FEET, AND A CHORD THAT BEARS N53°02'55"E, A DISTANCE OF 291.46 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
4) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 22.44 FEET, AND A CHORD THAT BEARS N27°18'54"E, A DISTANCE OF 20.40 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", FOR CORNER;
5) N74°27'34"E, A DISTANCE OF 60.00 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", FOR CORNER;
6) S15°32'26"E, A DISTANCE OF 1.21 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
7) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 22.03 FEET, AND A CHORD THAT BEARS S57°37'21"E, A DISTANCE OF 20.11 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE RIGHT, FOR CORNER;
8) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 495.00 FEET, AN ARC LENGTH OF 107.39 FEET, AND A CHORD THAT BEARS N86°30'37"E, A DISTANCE OF 107.17 FEET TO A CAPPED 1/2 INCH IRON ROD SET STAMPED "CBD SETSTONE", FOR CORNER;
9) N04°11'23"E, A DISTANCE OF 149.13 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AT THE SOUTHWEST CORNER OF LOT 31, BLOCK G, SANTA RITA RANCH PHASE 2A, SECTION 5, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 2022058734, O.P.R.W.C.TX., SAME BEING THE SOUTHEAST CORNER OF SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;

THENCE, OVER AND ACROSS SAID 507.772 ACRE TRACT, WITH THE EAST AND NORTH LINES OF SAID SANTA RITA RANCH PHASE 2A, SECTION 5, THE FOLLOWING TWENTY-TWO (22) COURSES AND DISTANCES, NUMBERED 1 THROUGH 22:

1) N83°16'38"E, A DISTANCE OF 201.15 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING ON THE SOUTH TERMINUS LINE OF CASTILLO BEND (50' R.O.W.), AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
2) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 325.00 FEET, AN ARC LENGTH OF 3.09 FEET, AND A CHORD THAT BEARS N06°59'41"W, A DISTANCE OF 3.09 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING THE SOUTHWEST CORNER OF LOT 8, BLOCK K, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
3) N82°44'00"E, A DISTANCE OF 147.87 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", FOR CORNER;
4) N19°25'49"W, A DISTANCE OF 89.07 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
5) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 325.00 FEET, AN ARC LENGTH OF 105.79 FEET, AND A CHORD THAT BEARS N60°04'52"E, A DISTANCE OF 105.32 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE RIGHT, FOR CORNER;
6) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 21.82 FEET, AND A CHORD THAT BEARS S87°34'03"E, A DISTANCE OF 19.95 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", FOR CORNER;
7) N43°59'59"E, A DISTANCE OF 50.00 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", AT THE BEGINNING OF A CURVE TO THE RIGHT, FOR CORNER;
8) ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 15.00 FEET, AN ARC LENGTH OF 21.99 FEET, AND A CHORD THAT BEARS N04°00'28"W, A DISTANCE OF 20.07 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", FOR CORNER;
9) N37°59'05"E, A DISTANCE OF 114.12 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", FOR CORNER;
10) S52°00'55"E, A DISTANCE OF 140.00 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AT THE SOUTHEAST CORNER OF LOT 17, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
11) N37°59'05"E, A DISTANCE OF 240.00 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", SAME BEING AT THE EAST CORNER OF LOT 14, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
12) N25°06'25"W, A DISTANCE OF 130.50 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING THE NORTH CORNER OF SAID LOT 14, BLOCK F, SAME BEING ON THE EAST RIGHT-OF-WAY LINE OF CASTILLO BEND (50' R.O.W.), AT THE BEGINNING OF A CURVE TO THE LEFT, FOR CORNER;
13) ALONG SAID CURVE TO THE LEFT, HAVING A RADIUS OF 50.00 FEET, AN ARC LENGTH OF 89.01 FEET, AND A CHORD THAT BEARS N26°28'46"W A DISTANCE OF 77.71 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AT THE SOUTH CORNER OF LOT 13, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
14) N36°26'42"E, A DISTANCE OF 171.85 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE EAST LINE OF LOT 11, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
15) N06°49'15"W, A DISTANCE OF 182.19 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE EAST LINE OF LOT 10, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
16) N51°49'15"W, A DISTANCE OF 122.31 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE NORTH LINE OF LOT 9, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
17) S83°46'30"W, A DISTANCE OF 168.04 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE NORTH LINE OF LOT 8, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
18) S50°46'00"W, A DISTANCE OF 134.66 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE NORTH LINE OF LOT 7, BLOCK F, SAME BEING THE NORTHEAST CORNER OF LOT 5, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
19) N87°49'07"W, A DISTANCE OF 92.00 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING THE NORTHWEST CORNER OF SAID LOT 5, BLOCK F, SAME BEING THE NORTHEAST CORNER OF LOT 4, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
20) S84°09'47"W, A DISTANCE OF 65.90 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING THE NORTHWEST CORNER OF SAID LOT 4, BLOCK F, SAME BEING THE NORTHEAST CORNER OF LOT 3, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
21) S73°30'05"W, A DISTANCE OF 124.27 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND STAMPED "CBD SETSTONE", BEING AN ANGLE POINT ON THE NORTH LINE OF LOT 2, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, SAME BEING AN ANGLE POINT ON THE EAST LINE OF LOT 1, BLOCK F, SAID SANTA RITA RANCH PHASE 2A, SECTION 5, FOR CORNER;
22) N15°18'03"W, WITH THE EAST LINE OF SAID LOT 1, BLOCK F, A DISTANCE OF 33.69 FEET TO THE POINT OF BEGINNING AND CONTAINING 41.088 ACRES OF LAND.

BEARING BASIS: TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE (4203)

PROJ.# _____
SHEET NO. 5 OF 6

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
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J:\AC3D\5557\Survey\PLAT – SRR 2B–1

SANTA RITA RANCH PHASE 2B, SECTION 1
FINAL PLAT

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS;
COUNTY OF WILLIAMSON §

I, JAMES EDWARD HORNE, VICE PRESIDENT, SRFV DEVELOPMENT, LLC, OWNER THAT CERTAIN CALLED 507.772 ACRE TRACT OF LAND CONVEYED IN DOCUMENT NUMBER 2020153944, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, SITUATED IN THE B. MANLOVE SURVEY, ABSTRACT NUMBER 417, AND ALSO IN THE WILLIAM W. SMITH SURVEY, ABSTRACT NUMBER 591, WILLIAMSON COUNTY, TEXAS, AND DO HEREBY SUBDIVIDE SAID TRACTS AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY FOREVER DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE. THIS SUBDIVISION IS TO BE KNOWN AS,

"SANTA RITA RANCH PHASE 2B, SECTION 1"

TO CERTIFY WHICH, WITNESS BY MY HAND THIS _____ DAY OF _____, 20___.

SRFV DEVELOPMENT, LLC.
A TEXAS LIMITED LIABILITY COMPANY

BY: _____
JAMES EDWARD HORNE, VICE PRESIDENT
1700 CROSS CREEK LANE, STE. 100
LIBERTY HILL, TX 78642

STATE OF TEXAS §
COUNTY OF WILLIAMSON §

BEFORE ME THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED JAMES EDWARD HORNE, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT OF WRITING, AND HE ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED AND IN THE CAPACITY THEREIN STATED.

WITNESS MY HAND AND SEAL OF OFFICE, THIS THE _____ DAY OF _____, 20___ A.D.

_____
NOTARY PUBLIC IN AND FOR WILLIAMSON COUNTY, TEXAS

CONSENT OF MORTGAGEE

THE UNDERSIGNED, BEING THE HOLDER OF TWO DEEDS OF TRUST LIENS SECURED BY THE PROPERTY, THE FIRST DATED OCTOBER 31, 2013 RECORDED AS DOCUMENT NO. 2013103003 IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, SECURING A NOTE OF EVEN DATE THEREWITH, AND THE SECOND DATED JANUARY 31, 2018 RECORDED AS DOCUMENT NO. 2018009177, SECURING A NOTE OF EVEN DATE THEREWITH, EXECUTES THIS DECLARATION SOLELY FOR THE PURPOSES OF EVIDENCING ITS CONSENT TO THE TERMS AND PROVISIONS HEREOF.

INTERNATIONAL BANK OF COMMERCE,
A TEXAS BANKING ASSOCIATION

BY: _____

PRINTED NAME: _____

TITLE: _____

STATE OF TEXAS
COUNTY OF _____

BEFORE ME ON THIS DAY PERSONALLY APPEARED _____, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS THE _____ DAY OF _____, 20___ A.D.
BY: _____
NOTARY PUBLIC, STATE OF TEXAS

PRINTED NAME: _____

MY COMMISSION EXPIRES: _____

CITY OF LIBERTY HILL APPROVAL

THE CITY OF LIBERTY HILL, TEXAS ACKNOWLEDGES RECEIPT OF THIS PLAT FOR REVIEW AND/OR APPROVAL IN CONJUNCTION WIH PLANNING PURPOSES AND PAYMENT OF APPLICABLE FEES FOR THE PROVISION OF WATER AND/OR WASTEWATER SERVICES.

_____ _____
JERRY MILLARD, JR., INTERIM DIRECTOR OF PLANNING DATE
CITY OF LIBERTY HILL, TEXAS

ROAD NAME & 911 ADDRESSING APPROVAL

ROAD NAME AND ADDRESS ASSIGNMENTS VERIFIED THIS THE _____ DAY OF _____, 20___ A.D.

_____
WILLIAMSON COUNTY ADDRESSING COORDINATOR
WILLIAMSON COUNTY, TEXAS

PRINTED NAME:_____

STATE OF TEXAS §
COUNTY OF TRAVIS §

NO PORTION OF THIS TRACT IS WITHIN THE 100 YEAR FLOOD PLAIN AS SHOWN ON FLOOD INSURANCE RATE COMMUNITY PANEL #48491C0275E, EFFECTIVE SEPTEMBER 26, 2008 FOR WILLIAMSON COUNTY, TEXAS.

I, STEVEN P. CATES, P.E., AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS, TO PRACTICE THE PROFESSION OF ENGINEERING, AND HEREBY CERTIFY THAT THIS SUBDIVISION PLAT COMPLIES WITH THE REQUIREMENTS OF WILLIAMSON COUNTY.

ENGINEERING BY:_____
STEVEN P. CATES, P.E. NO. 93648 DATE
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE,
AUSTIN, TEXAS 78749

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED
PROFESSIONAL ENGINEER

CARLSON, BRIGANCE, & DOERING, INC.
ID # F3791

THIS FLOOD STATEMENT, AS DETERMINED BY A H.U.D.–F.I.A. FLOOD INSURANCE RATE MAP, DOES NOT IMPLY THAT THE PROPERTY OR THE IMPROVEMENTS THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS, GREATER FLOODS CAN AND WILL OCCUR, AND FLOOD HEIGHTS MAY INCREASE BY MAN–MADE OR NATURAL CAUSES.

THIS STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF ENGINEER OR SURVEYOR.

STATE OF TEXAS §
COUNTY OF TRAVIS §

I, JOHN DAVID KIPP, R.P.L.S., AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS, TO PRACTICE THE PROFESSION OF SURVEYING, AND HEREBY CERTIFY THAT THIS SUBDIVISION PLAT COMPLIES WITH THE WILLIAMSON COUNTY SUBDIVISION ORDINANCE. ALL EASEMENTS OF RECORD ARE SHOWN OR NOTED ON THE PLAT AS FOUND ON THE TITLE POLICY ISSUED BY TITLE RESOURCES GUARANTY COMPANY, GF NO. 2010289–COM, EFFECTIVE DATE JUNE 10, 2020, ISSUED DATE JUNE 19, 2020.

SURVEYED BY:_____
JOHN DAVID KIPP, R.P.L.S. NO. 5844 DATE
CARLSON, BRIGANCE & DOERING, INC.
5501 WEST WILLIAM CANNON DRIVE,
AUSTIN, TEXAS 78749
jkipp@cbdeng.com

STATE OF TEXAS
JOHN DAVID KIPP
5844
REGISTERED
PROFESSIONAL
LAND SURVEYOR

STATE OF TEXAS §
COUNTY OF WILLIAMSON §

KNOW ALL MEN BY THESE PRESENTS;

I, BILL GRAVELL JR., COUNTY JUDGE OF WILLIAMSON COUNTY, TEXAS, DO HEREBY CERTIFY THAT THIS MAP OR PLAT, WITH FIELD NOTES HEREON, FOR A SUBDIVISION HAVING BEEN FULLY PRESENTED TO THE COMMISSIONERS COURT OF WILLIAMSON COUNTY, TEXAS, AND BY THE SAID COURT DULY CONSIDERED, WERE ON THIS DAY APPROVED AND THAT THIS PLAT IS AUTHORIZED TO BE REGISTERED AND RECORDED IN THE PROPER RECORDS OF THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS.

_____ _____
BILL GRAVELL JR., COUNTY JUDGE DATE
WILLIAMSON COUNTY, TEXAS

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS;
COUNTY OF WILLIAMSON §

I, NANCY RISTER, CLERK OF THE COUNTY COURT OF SAID COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT IN WRITING, WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE _____ DAY OF _____, 20___ A.D., AT _____ O'CLOCK, _____M., AND DULY RECORDED THIS THE____ DAY OF _____, 20___ A.D., AT _____ O'CLOCK, ____M. IN THE OFFICIAL PUBLIC RECORDS OF SAID COUNTY IN INSTRUMENT NO. _____.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT THE COUNTY COURT OF SAID COUNTY, AT MY OFFICE IN GEORGETOWN, TEXAS, THE DATE LAST SHOWN ABOVE WRITTEN.

NANCY RISTER, CLERK COUNTY COURT
OF WILLIAMSON COUNTY, TEXAS

BY: _____, DEPUTY

PRINTED NAME:_____

PROJ.# _____
SHEET NO. 6 OF 6

Carlson, Brigance & Doering, Inc.
FIRM ID #F3791 ◆ REG. # 10024900
Civil Engineering ◆ Surveying
5501 West William Cannon ◆ Austin, Texas 78749
Phone No. (512) 280-5160 ◆ Fax No. (512) 280-5165

J:\AC3D\5557\Survey\PLAT – SRR 2B–1

CASTILLO BEND

EXISTING SANTA RITA RANCH PHASE 2B SECTION 1

29 O.S., L.S.E., & P.U.E.

EXISTING POND

STABILIZED CONSTRUCTION ENTRANCE (50'L x 20'W)

CONCRETE WASHOUT SEE DETAIL SHEET X

CONTRACTOR STAGING AND TEMPORARY SPOILS AREA

STABILIZED CONSTRUCTION ENTRANCE (50'L x 20'W)

CONCRETE WASHOUT SEE DETAIL SHEET X

CONTRACTOR STAGING AND TEMPORARY SPOILS AREA

25 O.S., L.S.E. & P.U.E.

FUTURE SANTA RITA RANCH SECTION 2A-9

ELISE COURT

BENT TWIG STREET

COW CAMP LANE

MARANA COURT

CEDRO BLANCO DRIVE

FLOWER VALLEY WAY

ABETO COVE

FUTURE SANTA RITA RANCH SECTION 2A-8

FUTURE POND

FUTURE SANTA RITA RANCH SECTION 2A-6

IP

SF

SCE

LOC

LEGEND

- SF — SILT FENCE
- JH — SILT FENCE J-HOOK
- LOC — LIMITS OF CONSTRUCTION
- IP — INLET PROTECTION
- RB — ROCK BERM
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- DIVERSION BERM
- SEEDING & TOPSOIL (PERMANENT) WITHIN THE ROW ONLY
- ROLLED EROSION CONTROL MATTING, SEEDING & TOPSOIL (PERMANENT) FOR SLOPES 5:1 & STEEPER
- SEEDING & TOPSOIL (PERMANENT) FOR EASEMENTS, OPEN SPACE LOTS, AND VEGETATIVE FILTER STRIPS ON ALL SLOPES FLATTER THAN 5:1

*ALL AREAS DISTURBED OUTSIDE OF THE SINGLE FAMILY LOTS ARE REQUIRED TO BE REVEGETATED BY THE CONTRACTOR

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY:

DRAFTED BY:

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N. #600 Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SHEET NAME: EROSION CONTROL PLAN (1 OF 2)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 8 OF 68

SHEET NO.: 8

FILE PATH:J:\AC3D\5557\dwg\5557-EROSION.dwg - Sep 27, 2023 - 1:42pm

EXISTING POND

FUTURE SANTA RITA RANCH SECTION 2B-2

FUTURE SANTA RITA RANCH SECTION 2A-6

CORBINA COVE

TROZA PASS

BARCELLUS BEND

ELISE COURT

BENT TWIG STREET

COW CAMP LANE

LEGEND

- SF — SILT FENCE
- JH — SILT FENCE J-HOOK
- LOC — LIMITS OF CONSTRUCTION
- IP — INLET PROTECTION
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*ALL AREAS DISTURBED OUTSIDE OF THE SINGLE FAMILY LOTS ARE REQUIRED TO BE REVEGETATED BY THE CONTRACTOR

0 60' 120'

SCALE: 1" = 60'

DESIGNED BY:	DRAFTED BY:
DATE	
REVISION	

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
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Main Office: 5501 West William Cannon Dr. Austin, Texas 78749
North Office: 12129 RR 620 N. #600 Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SHEET NAME: EROSION CONTROL PLAN (2 OF 2)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 9 OF 68

SHEET NO.: 9

FILE PATH:J:\AC3D\5557\dwg\5557-EROSION.dwg - Sep 27, 2023 - 1:42pm

Specifications

Western Excelsior manufactures a full line of Rolled Erosion Control Products (RECPs). Excel SS-2 temporary Erosion Control Blanket is composed of a 100% certified weed free agricultural straw matrix mechanically (stitch) bound on two inch centers between two photodegradable, synthetic nets. Excel SS-2 is intended for use in channels or on slopes requiring erosion protection for a period up to twelve months. Actual field longevity is dependent on soil and climatic conditions.

Each roll of EXCEL SS-2 is made in the USA and manufactured under Western Excelsior's Quality Assurance Program to ensure a continuous distribution of fibers and consistent thickness. Typical manufactured properites are provided in Table 1 and product characteristics are provided in Table 2.

Table 1 - Specified Expected Values

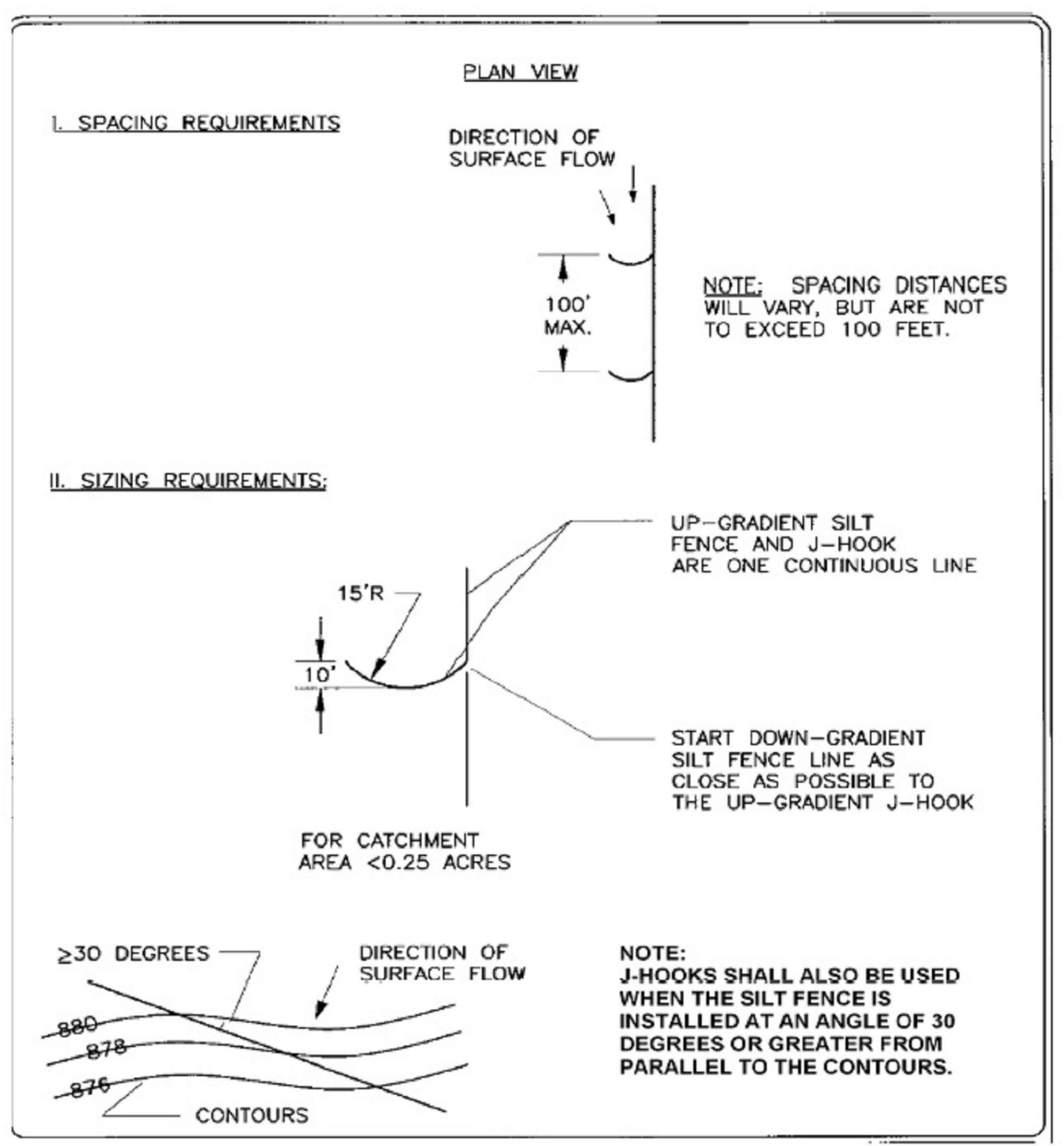
Tested Property	Test Method	Value
Tensile Strength (MD) x (TD)	ASTM D6818	10.0 lb/in (1.8 kN/m) x 6.2 lb/in (1.1 kN/m)
Elongation (MD) x (TD)	ASTM D6818	20 % x 26 %
Mass Per Unit Area	ASTM D6475	8.0 oz/yd^2 (271 g/m^2)
Thickness	ASTM D6525	0.28 in (7 mm)
Light Penetration	ASTM D6567	22 % open
Water Absorption	ASTM D1117	450 %

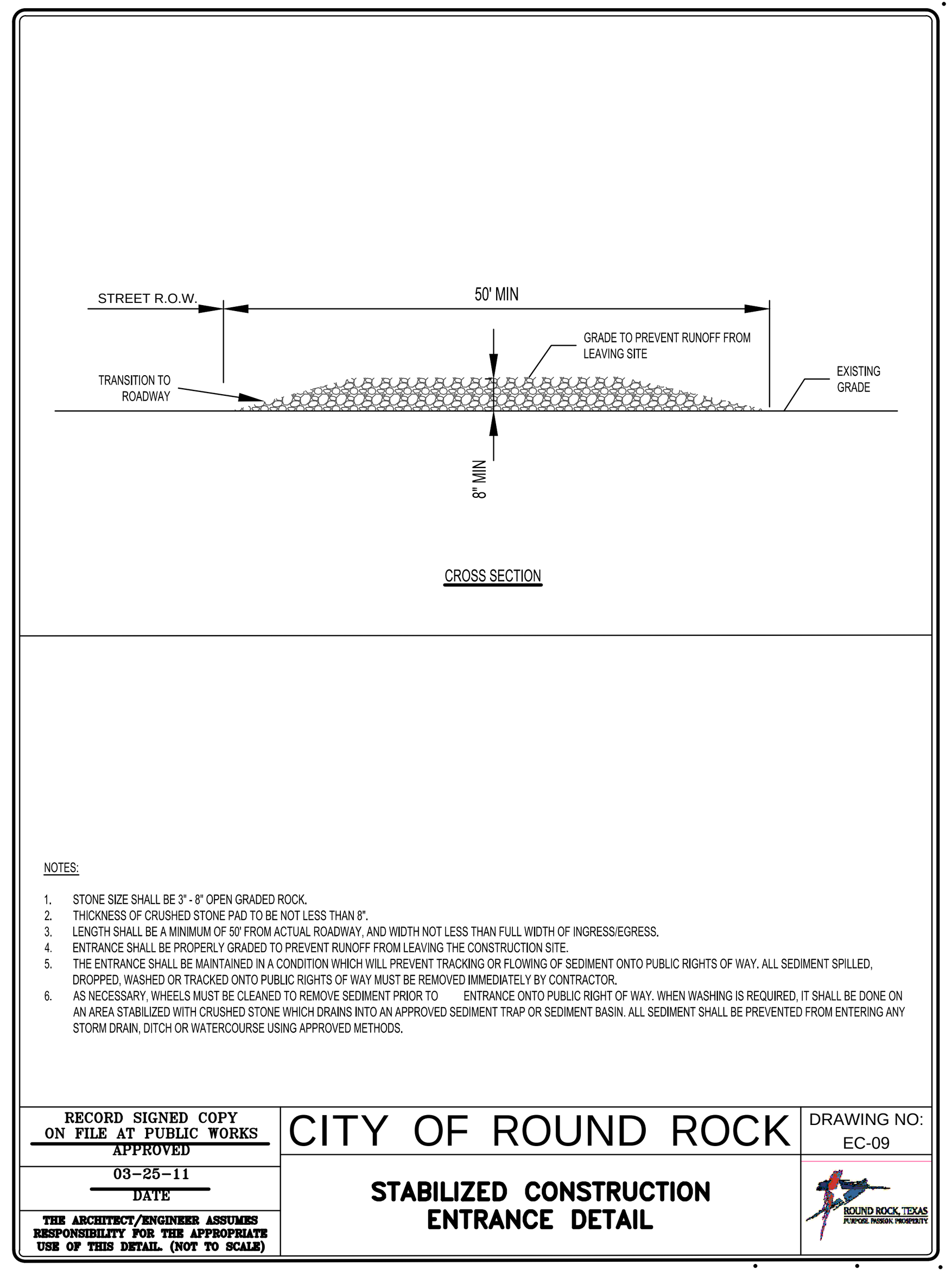
Table 2 - Netting

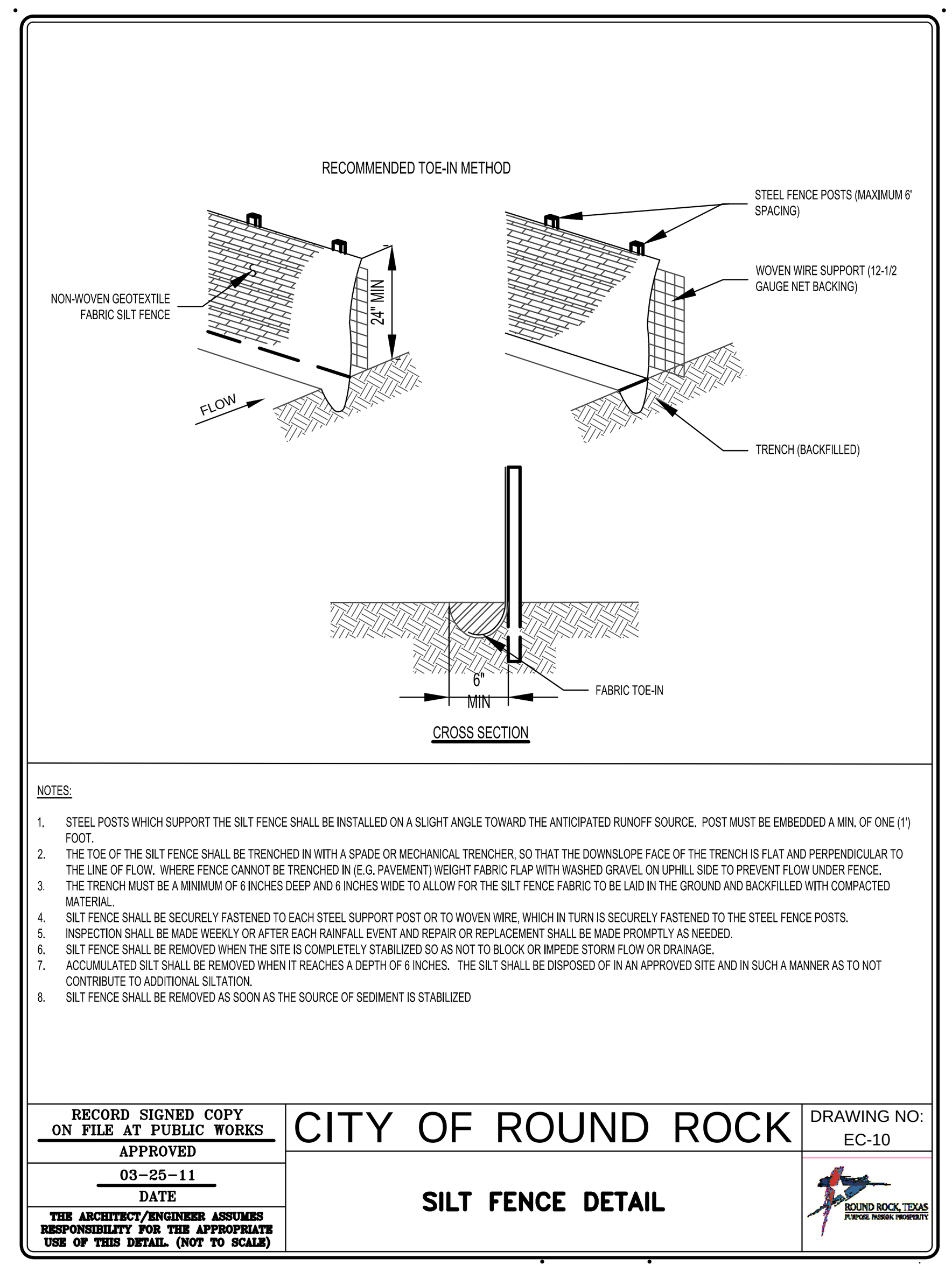
Top Net Type	Synthetic, Photodegradable
Bottom Net Type	Synthetic, Photodegradable
Top Net Opening Dimensions	0.5 in (13 mm) x 0.5 in (13 mm)
Bottom Net Opening Dimensions	0.5 in (13 mm) x 0.5 in (13 mm)

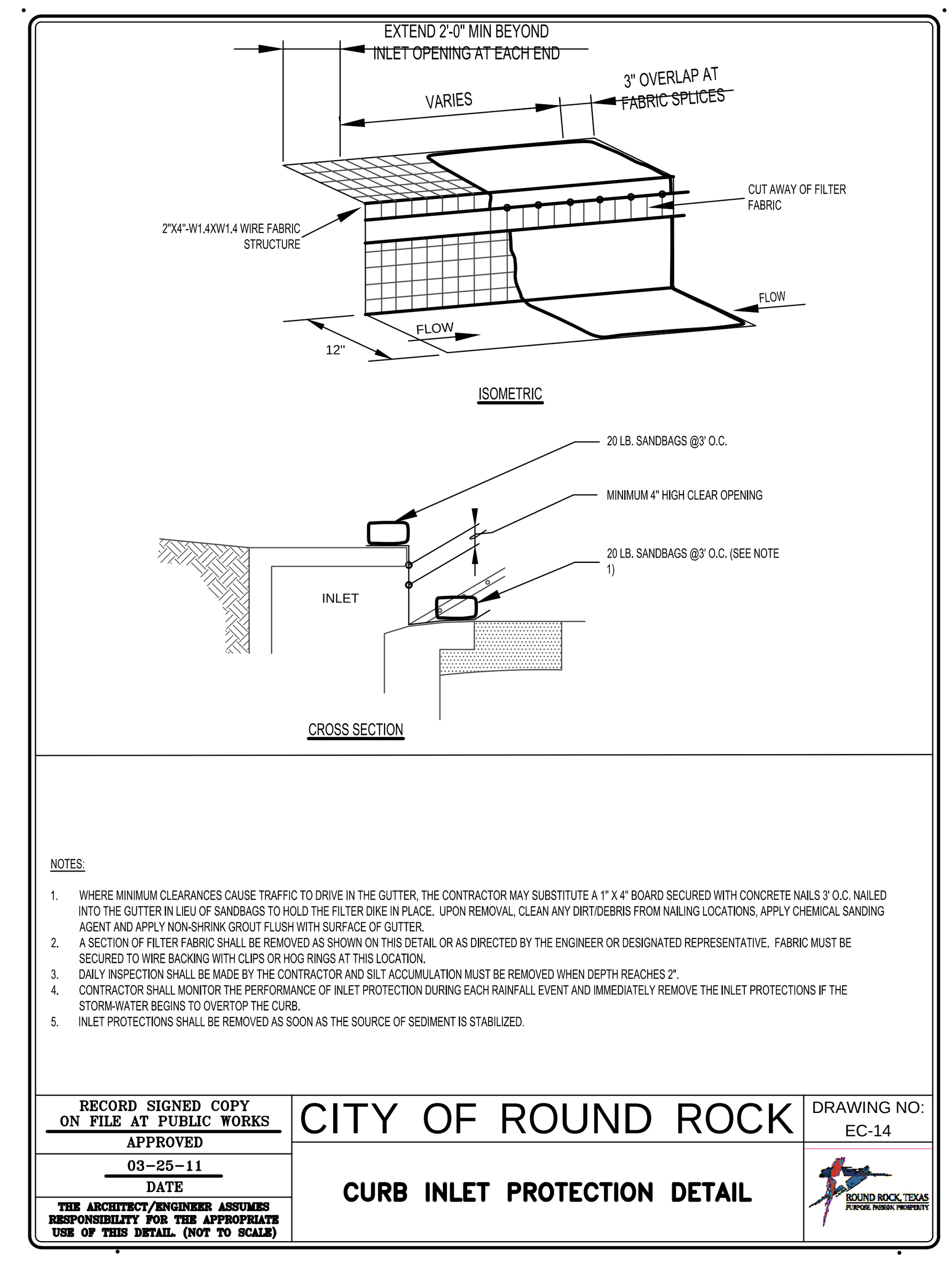
Excel SS-2 is available in multiple roll sizes ranging in width from 8.0 ft to 16.0 ft. and 112.5 ft to 600 ft in length. Standard roll sizes are 100 square yards, measuring 8.0 ft wide by 112.5 ft long. Custom roll sizes are available upon request.

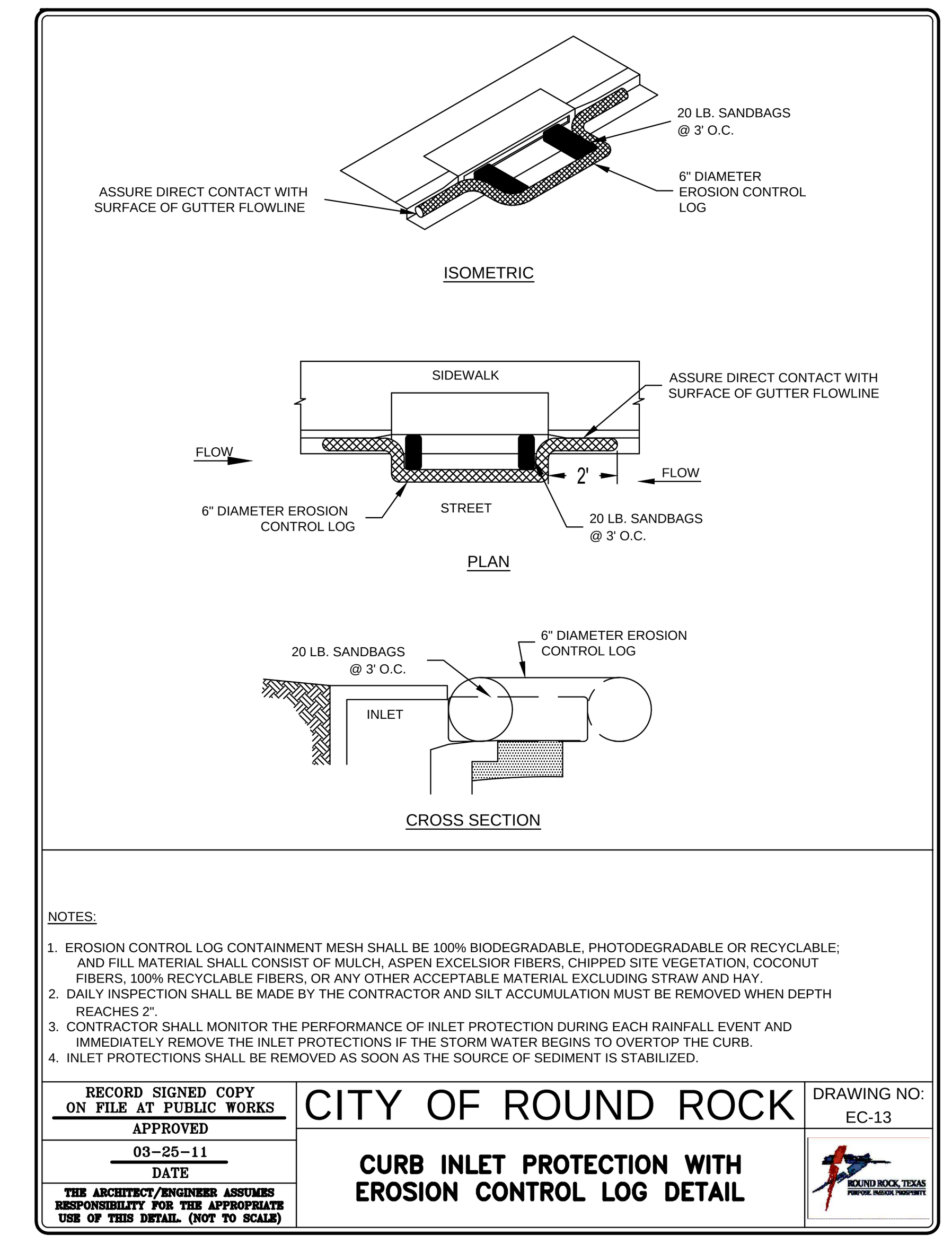
Document # WE_EXCEL_SS2_SPEC. This document has been developed to provide the characteristic properties of the product described. For questions, to request performance data or installation recommendations, contact Western Excelsior at 866-540-9810 or wexcotech@westernexcelsior.com. Updated 4/14/2014.

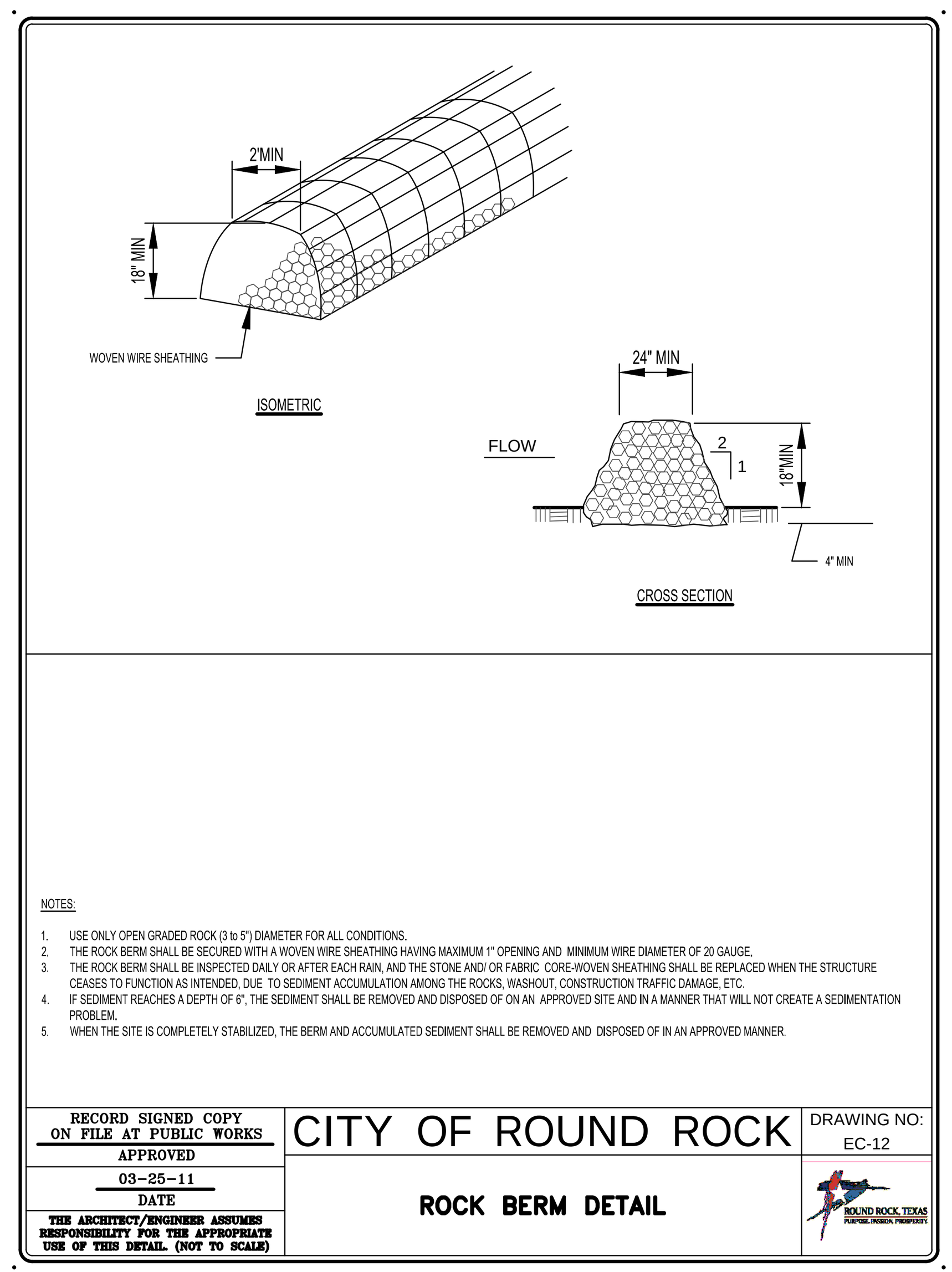


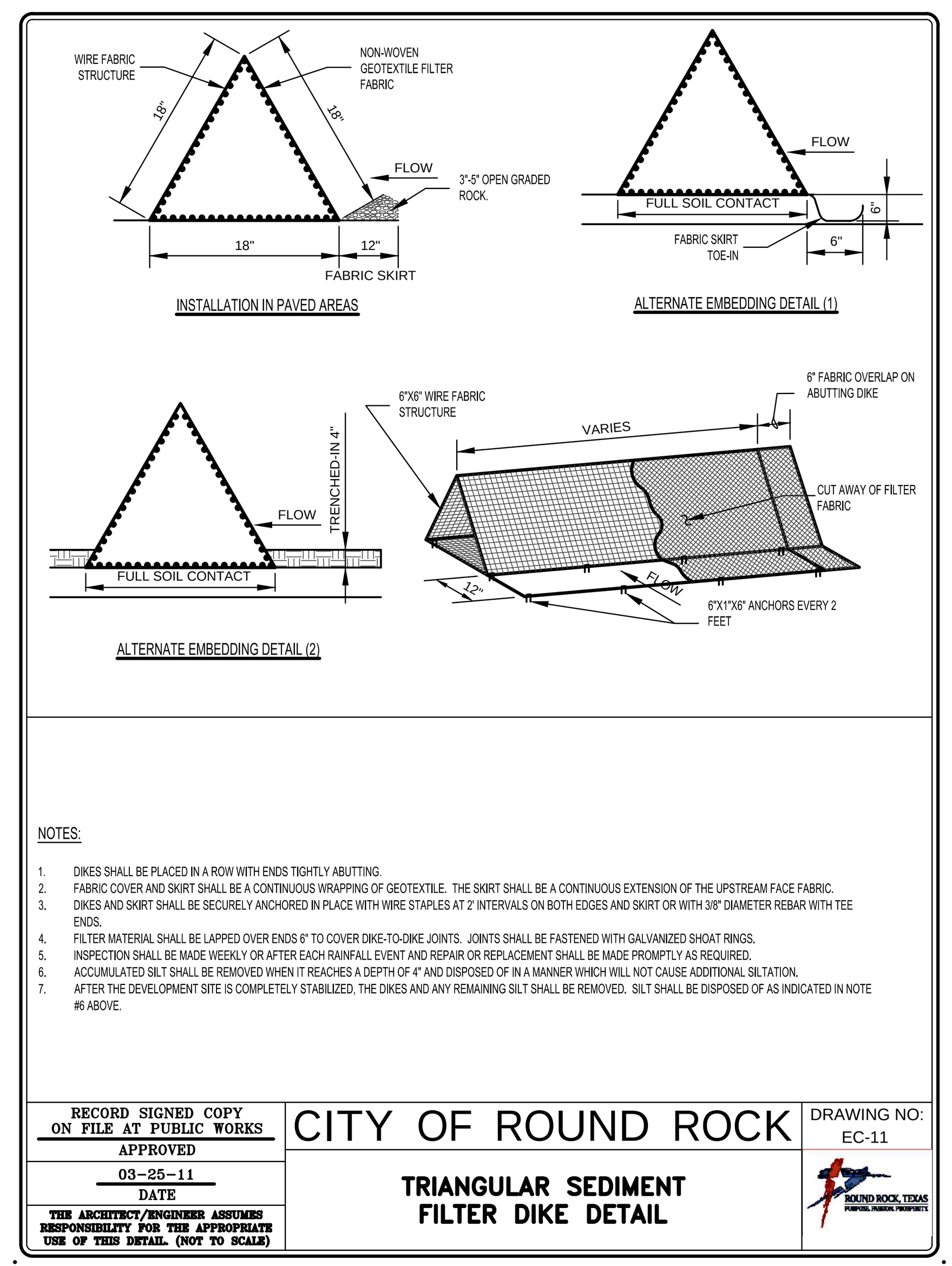


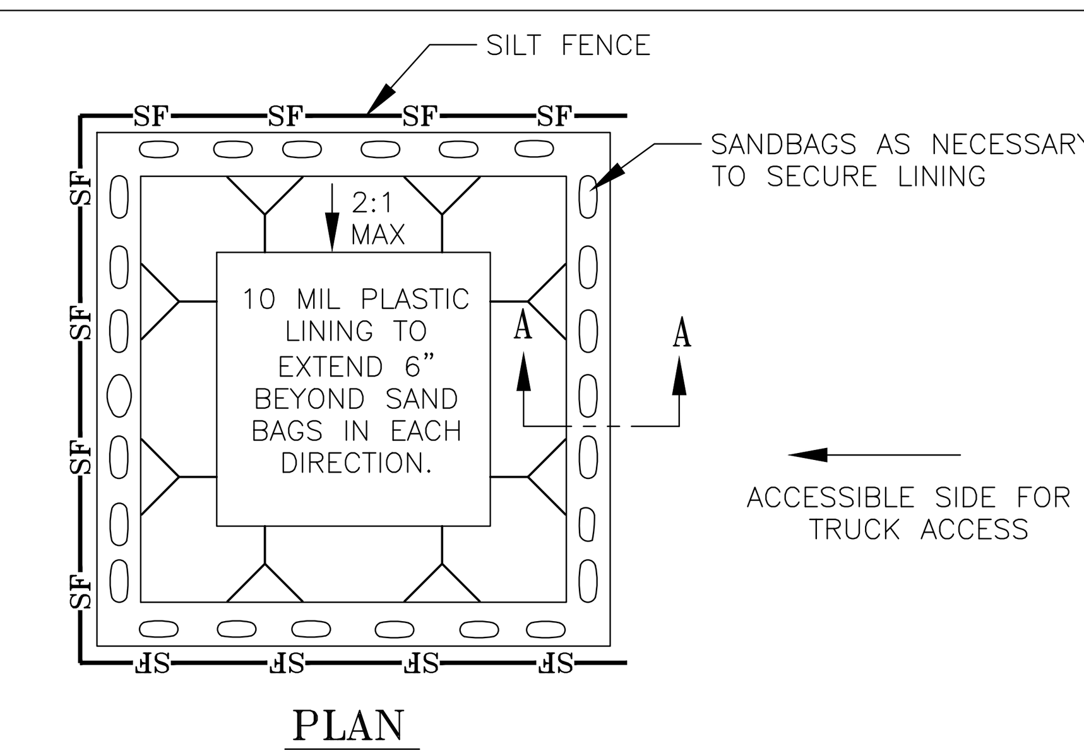








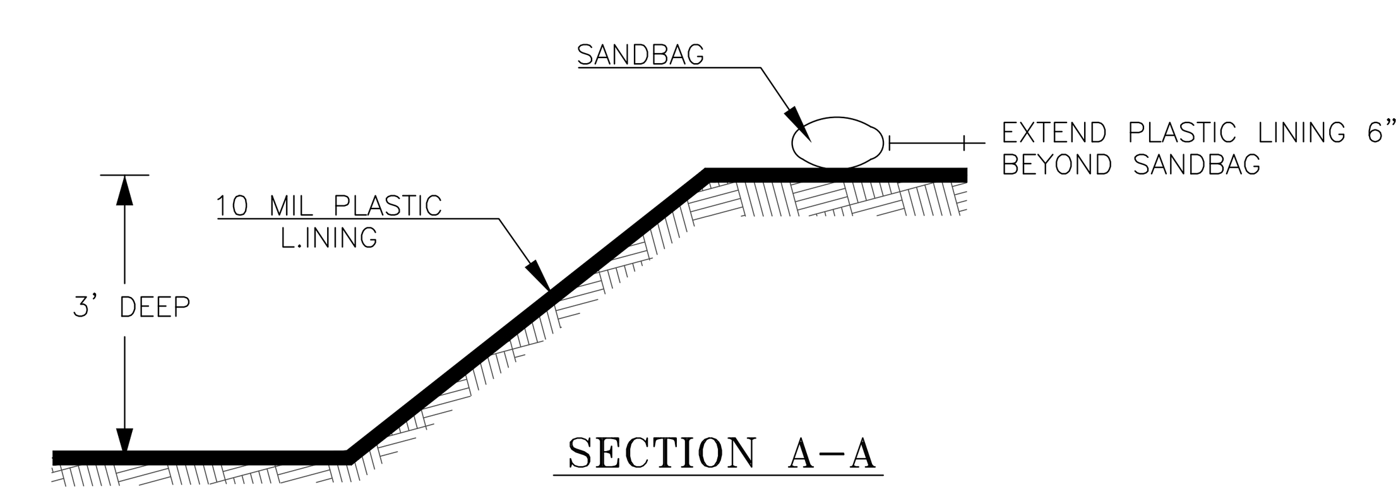




NOTE: SIZE VARIES BASED ON ANTICIPATED VOLUME OF CONCRETE TO BE PLACED. MINIMUM SIZE 8'X8' BOTTOM.

CONCRETE WASHOUT AREA NOTES:

1. WASHOUT SHALL BE INSTALLED PRIOR TO PLACING ANY CONCRETE ON-SITE.
2. INSTALL DIRECTIONAL SIGNS AS NECESSARY TO INDICATE WASHOUT LOCATION TO CONCRETE SUPPLY VEHICLES.
3. WASHOUT SHALL BE INSPECTED WEEKLY AND AFTER RAIN EVENTS IN ACCORDANCE WITH SWPPP.
4. CONTRACTOR TO MAINTAIN, REPAIR, ENLARGE OR RELOCATE WASHOUT AS NECESSARY TO MEET PROJECT REQUIREMENTS.
5. WHEN NECESSARY DURING CONSTRUCTION, OR AT THE COMPLETION OF ALL CONSTRUCTION, CONCRETE SHALL BE REMOVED AND LAWFULLY DISPOSED OF AND THE WASHOUT AREA FILLED WITH COMPACTED SELECT FILL.
6. CONCRETE WASHOUT SHALL NOT BE LOCATED WITHIN 50' OF STORM INLET, DITCH, OR SUBSURFACE DRAINAGE SYSTEM.



CONCRETE WASHOUT DETAIL
N.T.S

DESIGNED BY: | DRAFTED BY: | DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr., Austin, Texas 78749, Phone No. (512) 280-5160
North Office: 12129 RR 620 N., Ste. 600, Austin, Texas 78750, Fax No. (512) 280-5165

SHEET NAME: EROSION CONTROL NOTES & DETAILS
JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC. ID# F3791
9-27-2023

DATE: SEP 2023
JOB NUMBER: 5557
SHEET: 10 OF 68
SHEET NO. 10

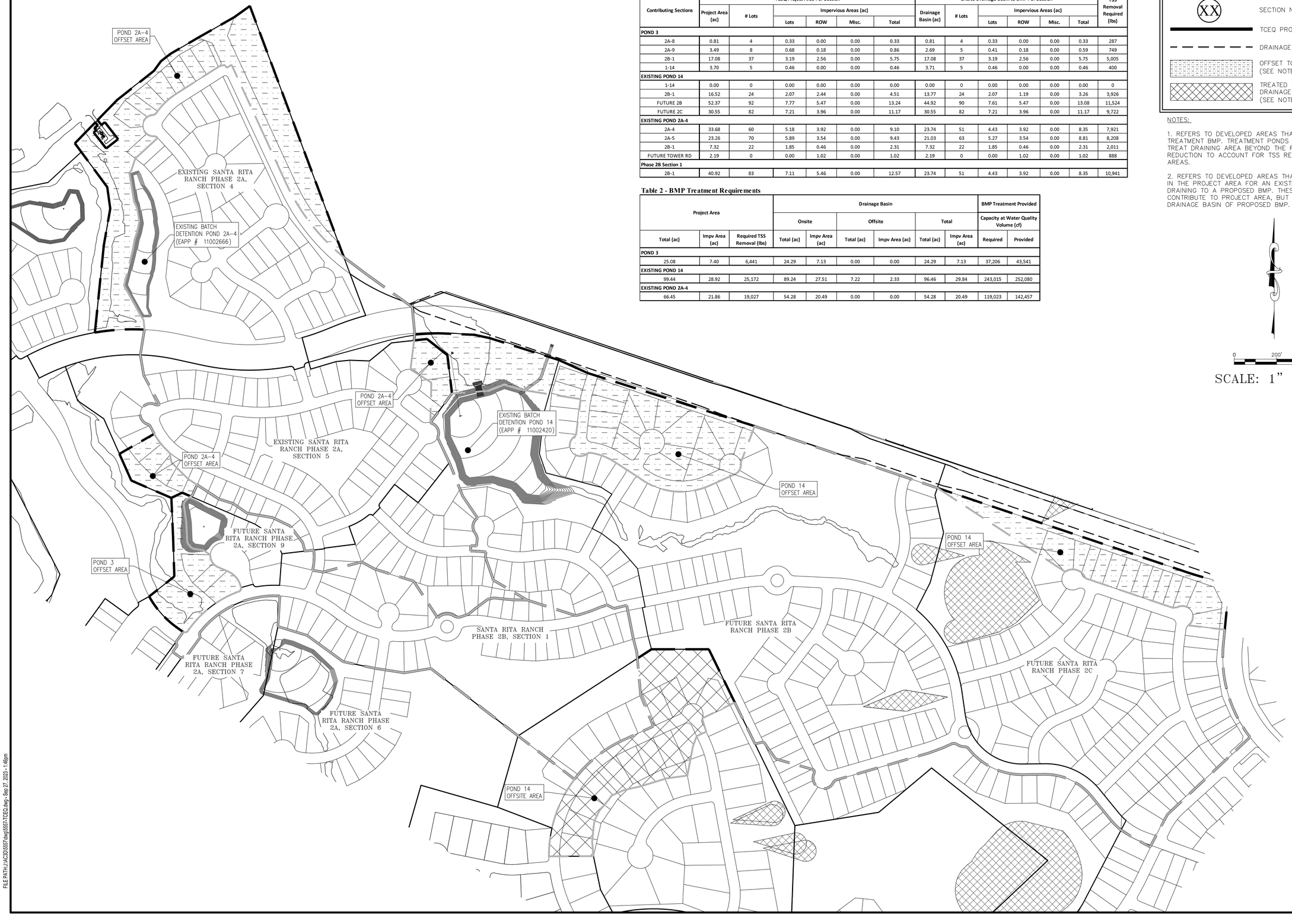
SANTA RITA RANCH PHASE 2B SECTION 1

Table 1 - Impervious Cover per Section

Contributing Sections	TCEQ Project Area Per Section						Onsite Drainage Basin to BMP Per Section						TSS Removal Required (lbs)
	Project Area (ac)	# Lots	Impervious Areas (ac)				Drainage Basin (ac)	# Lots	Impervious Areas (ac)				
			Lots	ROW	Misc.	Total			Lots	ROW	Misc.	Total	
POND 3													
2A-8	0.81	4	0.33	0.00	0.00	0.33	0.81	4	0.33	0.00	0.00	0.33	287
2A-9	3.49	8	0.68	0.18	0.00	0.86	2.69	5	0.41	0.18	0.00	0.59	749
2B-1	17.08	37	3.19	2.56	0.00	5.75	17.08	37	3.19	2.56	0.00	5.75	5,005
1-14	3.70	5	0.46	0.00	0.00	0.46	3.71	5	0.46	0.00	0.00	0.46	400
EXISTING POND 14													
1-14	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0
2B-1	16.52	24	2.07	2.44	0.00	4.51	13.77	24	2.07	1.19	0.00	3.26	3,926
FUTURE 2B	52.37	92	7.77	5.47	0.00	13.24	44.92	90	7.61	5.47	0.00	13.08	11,524
FUTURE 2C	30.55	82	7.21	3.96	0.00	11.17	30.55	82	7.21	3.96	0.00	11.17	9,722
EXISTING POND 2A-4													
2A-4	33.68	60	5.18	3.92	0.00	9.10	23.74	51	4.43	3.92	0.00	8.35	7,921
2A-5	23.26	70	5.89	3.54	0.00	9.43	21.03	63	5.27	3.54	0.00	8.81	8,208
2B-1	7.32	22	1.85	0.46	0.00	2.31	7.32	22	1.85	0.46	0.00	2.31	2,011
FUTURE TOWER RD	2.19	0	0.00	1.02	0.00	1.02	2.19	0	0.00	1.02	0.00	1.02	888
Phase 2B Section 1													
2B-1	40.92	83	7.11	5.46	0.00	12.57	23.74	51	4.43	3.92	0.00	8.35	10,941

Table 2 - BMP Treatment Requirements

Project Area			Drainage Basin						BMP Treatment Provided	
			Onsite		Offsite		Total		Capacity at Water Quality Volume (cf)	
Total (ac)	Impv Area (ac)	Required TSS Removal (lbs)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Total (ac)	Impv Area (ac)	Required	Provided
POND 3										
25.08	7.40	6,441	24.29	7.13	0.00	0.00	24.29	7.13	37,206	43,541
EXISTING POND 14										
99.44	28.92	25,172	89.24	27.51	7.22	2.33	96.46	29.84	243,015	252,080
EXISTING POND 2A-4										
66.45	21.86	19,027	54.28	20.49	0.00	0.00	54.28	20.49	119,023	142,457



LEGEND

- SECTION BOUNDARIES
- XX — SECTION NUMBER
- TCEQ PROJECT AREA BOUNDARY
- DRAINAGE BOUNDARY LINE
- OFFSET TCEQ PROJECT AREAS (SEE NOTE 1, THIS SHEET)
- TREATED AREAS WITHIN DRAINAGE BASIN (SEE NOTE 2, THIS SHEET)

NOTES:

1. REFERS TO DEVELOPED AREAS THAT DO NOT DRAIN TO A TREATMENT BMP. TREATMENT PONDS HAVE BEEN SIZED TO TREAT DRAINING AREA BEYOND THE REQUIRED 80% TSS REDUCTION TO ACCOUNT FOR TSS REMOVAL FROM OFFSET AREAS.

2. REFERS TO DEVELOPED AREAS THAT ARE ACCOUNTED FOR IN THE PROJECT AREA FOR AN EXISTING BMP, BUT ARE DRAINING TO A PROPOSED BMP. THESE AREAS DO NOT CONTRIBUTE TO PROJECT AREA, BUT ARE INCLUDED IN ONSITE DRAINAGE BASIN OF PROPOSED BMP.

0 200' 400'

SCALE: 1" = 200'

DESIGNED BY: | DRAFTED BY:

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (512) 280-5160
North Office: 12129 RR 620 N. Suite 600 Austin, Texas 78750 Fax No. (512) 280-5165

SHEET NAME: TCEQ PROJECT AND DRAINAGE MAP
JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
@ F3791
9-27-2023

DATE: SEP 2023
JOB NUMBER: 5557
SHEET: 13 OF 68
SHEET NO.: 13

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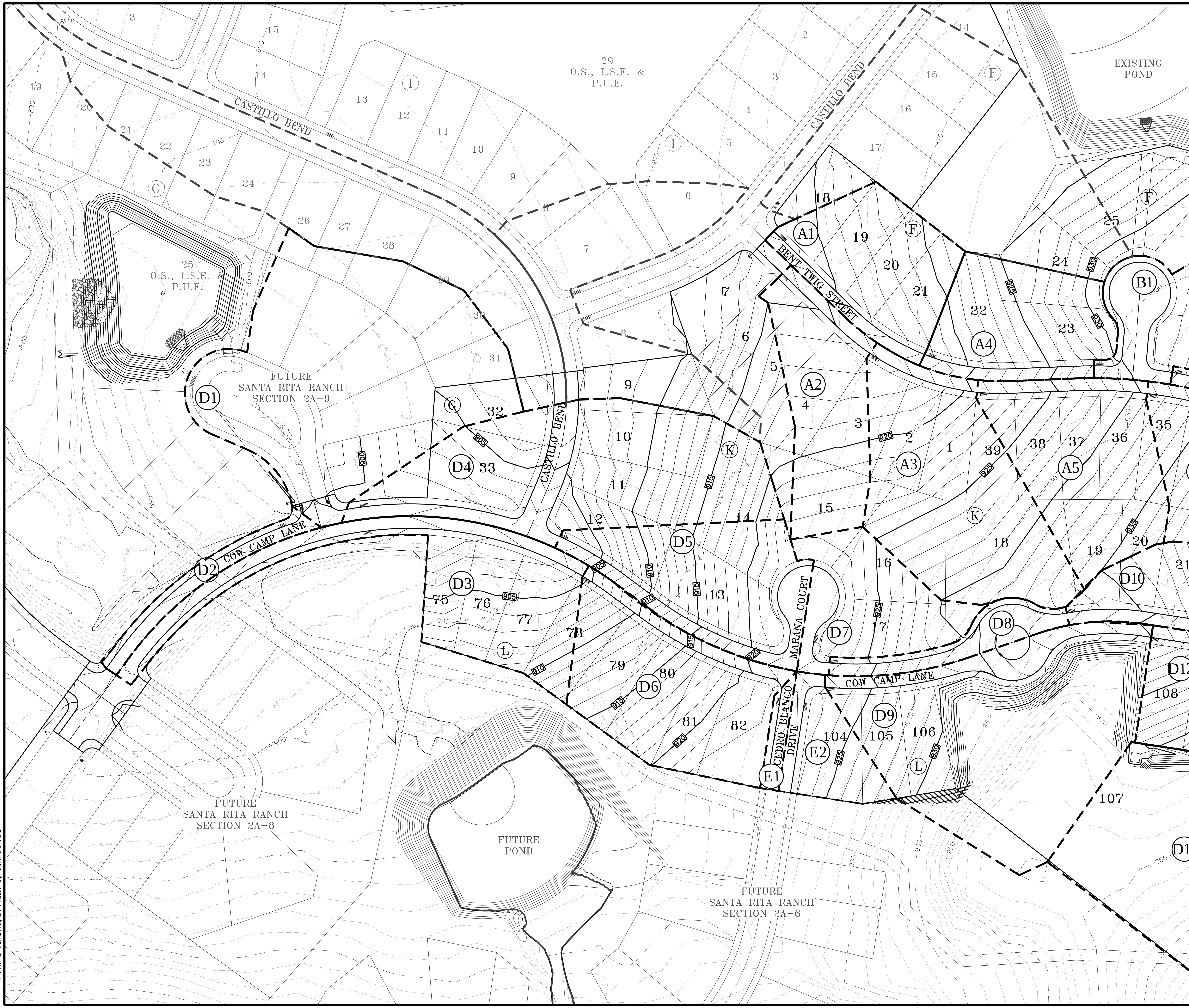

LEGEND

— - —	PROPERTY BOUNDARY
▬ ▬ ▬	DRAINAGE BOUNDARY LINE
▬ ▬ ▬ (grey)	FUTURE DRAINAGE BOUNDARY
(A1)	DRAINAGE AREA LABEL
— —940— —	EXISTING CONTOUR MAJOR
- - - -	EXISTING CONTOUR MINOR
➔	FLOW ARROW
HP/LP	HIGH POINT/LOW POINT

0 100' 200'

SCALE: 1" = 100'

DESIGNED BY: | DRAFTED BY:

DATE

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Austin, Texas 78749
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North Office
12129 RR 620 N., Ste. 600
Austin, Texas 78750
Fax No. (512) 280-5165

SHEET NAME: DRAINAGE AREA PLAN (1 OF 2)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 14 OF 68

SHEET NO. 14

FILE PATH: J:\AC3D\5557\dwg\5557-DRAINAGE.dwg - Sep 27, 2023 - 1:56pm

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE BOUNDARY LINE
- FUTURE DRAINAGE BOUNDARY
- A1 — DRAINAGE AREA LABEL
- 940 — EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- FLOW ARROW
- HP/LP — HIGH POINT/LOW POINT

0 100' 200'

SCALE: 1" = 100'

DESIGNED BY:

DRAFTED BY:

DATE

REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 Phone No. (312) 280-5160
North Office: 12129 RR 620 N. Ste. 600 Austin, Texas 78750 Fax No. (312) 280-5165

SHEET NAME: DRAINAGE AREA PLAN (2 OF 2)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 15 OF 68

SHEET NO.: 15

FILE PATH: J:\AC3D\5557\dwg\5557-DRAINAGE.dwg - Sep 27, 2023 - 1:57pm

No.	(Acre)	(Min.)	(%)	(%)	10	25	100	In/Hr	In/Hr	In/Hr	CFS	CFS	CFS			
A1	**0.82**	**10**	48	52	0.59	0.63	0.71	7.26	8.78	11.23	3.5	4.6	6.6	**0.48**	**0.52**	**0.59**
A2	**0.81**	**11**	50	50	0.58	0.63	0.71	7.10	8.60	11.02	3.3	4.4	6.3	**0.47**	**0.51**	**0.57**
A3	**1.47**	**11**	53	47	0.57	0.61	0.69	6.98	8.46	10.85	5.8	7.6	11.0	**0.83**	**0.90**	**1.01**
A4	**0.79**	**10**	48	52	0.59	0.63	0.71	7.26	8.78	11.23	3.4	4.4	6.3	**0.47**	**0.50**	**0.56**
A5	**1.08**	**10**	50	50	0.58	0.62	0.70	7.26	8.78	11.23	4.5	5.9	8.5	**0.63**	**0.67**	**0.76**
B1	**1.03**	**10**	50	50	0.58	0.63	0.71	7.26	8.78	11.23	4.3	5.7	8.2	**0.60**	**0.64**	**0.73**
B2	**0.77**	**10**	44	56	0.61	0.65	0.74	7.26	8.78	11.23	3.4	4.4	6.4	**0.47**	**0.50**	**0.57**
B3	**0.24**	**10**	37	63	0.64	0.69	0.77	7.26	8.78	11.23	1.1	1.4	2.1	**0.15**	**0.17**	**0.18**
B4	**1.02**	**11**	46	54	0.60	0.64	0.72	7.12	8.62	11.04	4.3	5.7	8.2	**0.61**	**0.66**	**0.74**
B5	**1.00**	**10**	46	54	0.60	0.64	0.73	7.26	8.78	11.23	4.3	5.7	8.1	**0.60**	**0.64**	**0.73**
C1	**0.50**	**10**	44	56	0.61	0.65	0.73	7.26	8.78	11.23	2.2	2.9	4.1	**0.30**	**0.33**	**0.37**
C2	**0.30**	**10**	18	82	0.71	0.76	0.84	7.26	8.78	11.23	1.5	2.0	2.8	**0.21**	**0.23**	**0.25**
C3	**0.92**	**10**	49	51	0.58	0.63	0.71	7.26	8.78	11.23	3.9	5.1	7.3	**0.54**	**0.58**	**0.65**
C4	**0.80**	**10**	48	52	0.59	0.63	0.71	7.26	8.78	11.23	3.4	4.4	6.4	**0.47**	**0.51**	**0.57**
D1	**2.37**	**14**	53	47	0.57	0.61	0.69	6.30	7.67	9.91	8.5	11.1	16.2	**1.34**	**1.45**	**1.64**
D2	**0.20**	**10**	19	81	0.70	0.75	0.84	7.26	8.78	11.23	1.0	1.3	1.9	**0.14**	**0.15**	**0.17**
D3	**1.15**	**10**	42	58	0.62	0.66	0.74	7.26	8.78	11.23	5.1	6.7	9.6	**0.71**	**0.76**	**0.86**
D4	**1.73**	**12**	47	53	0.59	0.64	0.72	6.81	8.26	10.62	7.0	9.1	13.2	**1.02**	**1.10**	**1.24**
D5	**0.98**	**10**	53	47	0.57	0.61	0.69	7.26	8.78	11.23	4.0	5.3	7.6	**0.56**	**0.60**	**0.68**
D6	**1.17**	**12**	49	51	0.53	0.58	0.66	6.72	8.16	10.50	4.2	5.5	8.1	**0.63**	**0.68**	**0.77**
D7	**0.68**	**10**	43	57	0.61	0.66	0.74	7.26	8.78	11.23	3.0	3.9	5.6	**0.42**	**0.45**	**0.50**
D8	**0.26**	**10**	47	53	0.59	0.64	0.72	7.26	8.78	11.23	1.1	1.5	2.1	**0.15**	**0.17**	**0.19**
D9	**2.06**	**11**	52	48	0.57	0.62	0.70	7.08	8.57	10.99	8.3	10.9	15.8	**1.18**	**1.27**	**1.43**
D10	**7.64**	**10**	53	47	0.59	0.64	0.72	7.26	8.78	11.23	32.8	42.6	61.4	**4.52**	**4.86**	**5.46**
D11	**0.58**	**10**	55	45	0.58	0.63	0.71	7.26	8.78	11.23	2.5	3.2	4.6	**0.34**	**0.36**	**0.41**
D12	**1.77**	**10**	52	48	0.57	0.61	0.69	7.26	8.78	11.23	7.3	9.6	13.8	**1.01**	**1.09**	**1.23**
D13	**0.72**	**10**	47	53	0.59	0.64	0.72	7.26	8.78	11.23	3.1	4.0	5.8	**0.43**	**0.46**	**0.52**
D14	**0.87**	**10**	43	57	0.61	0.66	0.74	7.26	8.78	11.23	3.9	5.0	7.2	**0.53**	**0.57**	**0.64**
E1	**0.08**	**10**	12	88	0.74	0.79	0.88	7.26	8.78	11.23	0.4	0.6	0.8	**0.06**	**0.06**	**0.07**
E2	**0.37**	**10**	46	54	0.60	0.64	0.73	7.26	8.78	11.23	1.6	2.1	3.0	**0.22**	**0.24**	**0.27**

10 - YEAR INLET FLOW CALCULATION TABLE

INLET NUMBER	DRAINAGE AREA NO.	Q (CFS)	Q PASS (CFS)	Q SPILL (CFS)	Q ADD (CFS)	Q TOTAL Qa (CFS)	SLOPE (%)	a (FT)	Yo (FT)	PAVEMENT WIDTH (FT)	PONDED WIDTH (FT)	Qa/La	La (FT)	LENGTH (FT)	L/La	a/Yo	Q/Qa	REMARK
A1	A1	3.5	0.0	0.0	0.0	3.5	2.00	0.42	0.32	33	6.46	0.79	4.47	10	2.24	1.29	1.00	
A2	A2	3.3	0.0	0.0	0.0	3.3	2.00	0.42	0.32	33	6.33	0.78	4.29	10	2.33	1.31	1.00	
A3	A3	5.8	0.0	0.0	0.0	5.8	2.90	0.42	0.36	33	7.45	0.82	7.05	10	1.42	1.16	1.00	
A4	A4	3.4	0.0	0.0	0.0	3.4	3.10	0.42	0.30	33	5.79	0.76	4.46	10	2.24	1.41	1.00	
A5	A5	4.5	0.0	0.0	0.0	4.5	4.50	0.42	0.31	33	6.06	0.77	5.90	10	1.69	1.36	1.00	
B1	B1	4.3	0.0	0.0	0.0	4.3	4.40	0.42	0.31	33	5.98	0.77	5.66	10	1.77	1.37	1.00	
B2	B2	3.4	0.0	0.0	0.0	3.4	4.40	0.42	0.28	33	5.41	0.74	4.59	10	2.18	1.49	1.00	
B3	B3	1.1	0.0	0.0	0.0	1.1	4.40	0.42	0.19	33	3.53	0.65	1.71	10	5.85	2.17	1.00	
B4	B4	4.3	0.0	0.0	0.0	4.3	3.40	0.42	0.32	33	6.31	0.78	5.57	10	1.80	1.32	1.00	
B5	B5	4.3	0.0	0.0	0.0	4.3	5.65	0.42	0.29	33	5.68	0.75	5.77	10	1.73	1.43	1.00	
C1	C1	2.2	0.0	0.0	0.0	2.2	2.90	0.42	0.26	33	4.94	0.72	3.06	10	3.27	1.61	1.00	
C2	C2	1.5	0.0	0.0	0.0	1.5	0.70	0.42	0.29	33	5.70	0.75	2.05	10	4.89	1.43	1.00	
C3	C3	3.9	0.0	0.0	0.0	3.9	0.80	0.42	0.39	33	8.37	0.86	4.54	10	2.20	1.07	1.00	
C4	C4	3.4	0.0	0.0	0.0	3.4	LP	0.42	0.18	33	3.24	-	-	15	-	2.35	1.00	
D1	D1	8.5	0.0	0.0	0.0	8.5	0.50	0.42	**0.55**	33	**> 16.5**	1.04	8.19	10	1.22	0.76	1.00	
D2	D2	1.0	0.0	0.0	0.0	1.0	LP	0.42	0.08	33	1.45	-	-	15	-	5.23	1.00	
D3	D3	5.1	0.0	0.0	0.0	5.1	LP	0.42	0.24	33	4.39	-	-	15	-	1.78	1.00	
D4	D4	7.0	0.0	0.0	0.0	7.0	2.00	0.42	0.41	33	8.92	0.88	7.97	10	1.26	1.03	1.00	
D5	D5	4.0	0.0	0.0	0.0	4.0	4.30	0.42	0.30	33	5.83	0.76	5.32	10	1.88	1.40	1.00	
D6	D6	4.2	0.0	0.0	0.0	4.2	6.20	0.42	0.29	33	5.50	0.74	5.65	10	1.77	1.47	1.00	
D7	D7	3.0	0.0	0.0	0.0	3.0	3.60	0.42	0.28	33	5.36	0.74	4.08	10	2.45	1.50	1.00	
D8	D8	1.1	0.0	0.0	0.0	1.1	0.70	0.42	0.26	33	5.01	0.72	1.55	10	6.45	1.59	1.00	
D9	D9	8.3	0.0	0.0	0.0	8.3	3.30	0.42	0.40	33	8.60	0.86	9.65	10	1.04	1.05	1.00	
D10	D10	32.8	0.0	0.0	0.0	32.8	2.80	0.42	**0.65**	33	**> 16.5**	1.15	28.45	10	**0.35**	0.65	1.00	
D11	D11	2.5	0.0	0.0	0.0	2.5	6.30	0.42	0.24	33	4.44	0.70	3.53	10	2.83	1.77	1.00	
D12	D12	7.3	0.0	0.0	0.0	7.3	2.80	0.42	0.39	33	8.39	0.86	8.53	10	1.17	1.07	1.00	
D13	D13	3.1	0.0	0.0	0.0	3.1	5.70	0.42	0.26	33	4.95	0.72	4.31	10	2.32	1.61	1.00	
D14	D14	3.9	0.0	0.0	0.0	3.9	6.10	0.42	0.28	33	5.33	0.74	5.24	10	1.91	1.51	1.00	
E1	E1	0.4	0.0	0.0	0.0	0.4	0.50	0.42	0.20	33	3.71	0.66	0.65	10	15.41	2.07	1.00	
E2	E2	1.6	0.0	0.0	0.0	1.6	0.50	0.42	0.32	33	6.22	0.78	2.07	10	4.82	1.33	1.00	

25 - YEAR INLET FLOW CALCULATION TABLE

INLET NUMBER	DRAINAGE AREA NO.	Q (CFS)	Q PASS (CFS)	Q SPILL (CFS)	Q ADD (CFS)	Q TOTAL (QA) (CFS)	SLOPE (%)	a (FT)	Yo (FT)	PAVEMENT WIDTH	PONDED WIDTH (FT)	Qa/La	La (FT)	LENGTH (FT)	L/La	a/Yo	Q/Qa	REMARK
A1	A1	4.6	0.0	0.0	0.0	4.6	2.00	0.42	0.16	33	2.95	0.62	7.32	10	1.37	2.56	1.00	
A2	A2	4.4	0.0	0.0	0.0	4.4	2.00	0.42	0.16	33	2.90	0.62	7.02	10	1.42	2.60	1.00	
A3	A3	7.6	0.0	0.0	0.0	7.6	2.90	0.42	0.18	33	3.31	0.64	11.82	10	**0.85**	2.30	1.00	
A4	A4	4.4	0.0	0.0	0.0	4.4	3.10	0.42	0.15	33	2.70	0.61	7.20	10	1.39	2.79	1.00	
A5	A5	5.9	0.0	0.0	0.0	5.9	4.50	0.42	0.16	33	2.80	0.62	9.59	10	1.04	2.69	1.00	
B1	B1	5.7	0.0	0.0	0.0	5.7	4.40	0.42	0.15	33	2.77	0.62	9.19	10	1.09	2.72	1.00	
B2	B2	4.4	0.0	0.0	0.0	4.4	4.40	0.42	0.14	33	2.54	0.60	7.32	10	1.37	2.96	1.00	
B3	B3	1.4	0.0	0.0	0.0	1.4	4.40	0.42	0.10	33	1.75	0.56	2.58	10	3.88	4.30	1.00	
B4	B4	5.7	0.0	0.0	0.0	5.7	3.40	0.42	0.16	33	2.90	0.62	9.09	10	1.10	2.61	1.00	
B5	B5	5.7	0.0	0.0	0.0	5.7	5.65	0.42	0.15	33	2.65	0.61	9.28	10	1.08	2.84	1.00	
C1	C1	2.9	0.0	0.0	0.0	2.9	2.90	0.42	0.13	33	2.35	0.59	4.83	10	2.07	3.19	1.00	
C2	C2	2.0	0.0	0.0	0.0	2.0	0.70	0.42	0.15	33	2.65	0.61	3.27	10	3.06	2.84	1.00	
C3	C3	5.1	0.0	0.0	0.0	5.1	0.80	0.42	0.20	33	3.61	0.66	7.72	10	1.29	2.12	1.00	
C4	C4	4.4	0.0	0.0	0.0	4.4	LP	0.42	0.21	33	3.93	-	-	15	-	1.97	1.00	
D1	D1	11.1	0.0	0.0	0.0	11.1	0.50	0.42	0.28	33	5.34	0.74	15.08	10	**0.66**	1.51	1.00	
D2	D2	1.3	0.0	0.0	0.0	1.3	LP	0.42	0.10	33	1.71	-	-	15	-	4.41	1.00	
D3	D3	6.7	0.0	0.0	0.0	6.7	LP	0.42	0.28	33	5.38	-	-	15	-	1.50	1.00	
D4	D4	9.1	0.0	0.0	0.0	9.1	2.00	0.42	0.21	33	3.79	0.67	13.68	10	**0.73**	2.03	1.00	
D5	D5	5.3	0.0	0.0	0.0	5.3	4.30	0.42	0.15	33	2.71	0.61	8.60	10	1.16	2.78	1.00	
D6	D6	5.5	0.0	0.0	0.0	5.5	6.20	0.42	0.14	33	2.59	0.61	9.14	10	1.09	2.90	1.00	
D7	D7	3.9	0.0	0.0	0.4	4.3	3.60	0.42	0.15	33	2.61	0.61	7.11	10	1.41	2.88	1.00	
D8	D8	1.5	0.0	0.0	0.0	1.5	0.70	0.42	0.13	33	2.38	0.60	2.45	10	4.08	3.15	1.00	
D9	D9	10.9	0.0	0.0	0.0	10.9	3.30	0.42	0.20	33	3.69	0.66	16.48	10	**0.61**	2.08	1.00	
D10	D10	42.6	0.4	0.0	0.0	42.2	2.80	0.42	0.33	33	6.51	0.79	53.64	10	**0.19**	1.29	1.00	
D11	D11	3.2	0.0	0.0	0.0	3.2	6.30	0.42	0.12	33	2.14	0.58	5.49	10	1.82	3.50	1.00	
D12	D12	9.6	0.0	0.0	0.0	9.6	2.80	0.42	0.20	33	3.62	0.66	14.53	10	**0.69**	2.12	1.00	
D13	D13	4.0	0.0	0.0	0.0	4.0	5.70	0.42	0.13	33	2.36	0.59	6.81	10	1.47	3.18	1.00	
D14	D14	5.0	0.0	0.0	0.0	5.0	6.10	0.42	0.14	33	2.51	0.60	8.34	10	1.20	2.99	1.00	
E1	E1	0.6	0.0	0.0	0.0	0.6	0.50	0.42	0.10	33	1.82	0.57	0.98	10	10.23	4.12	1.00	
E2	E2	2.1	0.0	0.0	0.0	2.1	0.50	0.42	0.16	33	2.86	0.62	3.38	10	2.96	2.64	1.00	

100 - YEAR INLET FLOW CALCULATION TABLE

INLET NUMBER	DRAINAGE AREA NO.	Q (CFS)	Q PASS (CFS)	Q SPILL (CFS)	Q ADD (CFS)	Q TOTAL (QA) (CFS)	SLOPE (%)	a (FT)	Yo (FT)	PAVEMENT WIDTH	PONDED WIDTH (FT)	Qa/La	La (FT)	LENGTH (FT)	L/La	a/Yo	Q/Qa	REMARK
A1	A1	6.6	0.0	0.0	0.0	6.6	2.00	0.42	0.19	33	3.36	0.64	10.22	10	**0.98**	2.27	1.00	
A2	A2	6.3	0.0	0.0	0.0	6.3	2.00	0.42	0.18	33	3.31	0.64	9.83	10	1.02	2.30	1.00	
A3	A3	11.0	0.0	0.0	0.0	11.0	2.90	0.42	0.21	33	3.79	0.67	16.54	10	**0.60**	2.03	1.00	
A4	A4	6.3	0.0	0.0	0.0	6.3	3.10	0.42	0.17	33	3.07	0.63	10.06	10	**0.99**	2.47	1.00	
A5	A5	8.5	0.0	0.0	0.0	8.5	4.50	0.42	0.18	33	3.19	0.64	13.41	10	**0.75**	2.38	1.00	
B1	B1	8.2	0.0	0.0	0.0	8.2	4.40	0.42	0.17	33	3.15	0.63	12.86	10	**0.78**	2.41	1.00	
B2	B2	6.4	0.0	0.0	0.0	6.4	4.40	0.42	0.16	33	2.89	0.62	10.24	10	**0.98**	2.62	1.00	
B3	B3	2.1	0.0	0.0	0.0	2.1	4.40	0.42	0.11	33	1.97	0.57	3.62	10	2.76	3.81	1.00	
B4	B4	8.2	0.0	0.0	0.0	8.2	3.40	0.42	0.18	33	3.30	0.64	12.70	10	**0.79**	2.31	1.00	
B5	B5	8.1	0.0	0.0	0.0	8.1	5.65	0.42	0.17	33	3.01	0.63	12.98	10	**0.77**	2.51	1.00	
C1	C1	4.1	0.0	0.0	0.0	4.1	2.90	0.42	0.15	33	2.67	0.61	6.76	10	1.48	2.82	1.00	
C2	C2	2.8	0.0	0.0	0.0	2.8	0.70	0.42	0.17	33	3.00	0.63	4.53	10	2.21	2.52	1.00	
C3	C3	7.3	0.0	0.0	0.0	7.3	0.80	0.42	0.22	33	4.14	0.68	10.73	10	**0.93**	1.88	1.00	
C4	C4	6.4	0.0	0.0	0.0	6.4	LP	0.42	0.27	33	5.20	-	-	15	-	1.54	1.00	
D1	D1	16.2	0.0	0.0	0.0	16.2	0.50	0.42	0.32	33	6.25	0.78	20.91	10	**0.48**	1.33	1.00	
D2	D2	1.9	0.0	0.0	0.0	1.9	LP	0.42	0.12	33	2.15	-	-	15	-	3.48	1.00	
D3	D3	9.6	0.0	0.0	0.0	9.6	LP	0.42	0.36	33	7.32	-	-	15	-	1.18	1.00	
D4	D4	13.2	0.0	0.0	0.0	13.2	2.00	0.42	0.23	33	4.35	0.69	19.03	10	**0.53**	1.80	1.00	
D5	D5	7.6	0.0	0.0	0.0	7.6	4.30	0.42	0.17	33	3.09	0.63	12.06	10	**0.83**	2.45	1.00	
D6	D6	8.1	0.0	0.0	0.0	8.1	6.20	0.42	0.16	33	2.96	0.62	12.98	10	**0.77**	2.56	1.00	
D7	D7	5.6	0.0	0.0	0.0	5.6	3.60	0.42	0.16	33	2.86	0.62	9.08	10	1.10	2.64	1.00	
D8	D8	2.1	0.0	0.0	0.0	2.1	0.70	0.42	0.15	33	2.70	0.61	3.44	10	2.91	2.79	1.00	
D9	D9	15.8	0.0	0.0	0.0	15.8	3.30	0.42	0.23	33	4.23	0.69	22.95	10	**0.44**	1.84	1.00	
D10	D10	61.4	0.0	0.0	0.0	61.4	2.80	0.42	0.37	33	7.70	0.83	73.61	10	**0.14**	1.13	1.00	
D11	D11	4.6	0.0	0.0	0.0	4.6	6.30	0.42	0.14	33	2.42	0.60	7.72	10	1.30	3.10	1.00	
D12	D12	13.8	0.0	0.0	0.0	13.8	2.80	0.42	0.22	33	4.15	0.68	20.20	10	**0.49**	1.87	1.00	
D13	D13	5.8	0.0	0.0	0.0	5.8	5.70	0.42	0.15	33	2.67	0.61	9.54	10	1.05	2.82	1.00	
D14	D14	7.2	0.0	0.0	0.0	7.2	6.10	0.42	0.16	33	2.85	0.62	11.66	10	**0.86**	2.65	1.00	
E1	E1	0.8	0.0	0.0	0.0	0.8	0.50	0.42	0.11	33	2.05	0.58	1.36	10	7.34	3.66	1.00	
E2	E2	3.0	0.0	0.0	0.0	3.0	0.50	0.42	0.18	33	3.26	0.64	4.71	10	2.12	2.34	1.00	

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE BOUNDARY LINE
- FUTURE DRAINAGE BOUNDARY
- (A1) DRAINAGE AREA LABEL
- —940— EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- FLOW ARROW
- HP/LP HIGH POINT/LOW POINT

DESIGNED BY: | DRAFTED BY:

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr. Austin, Texas 78749 — Phone No. (512) 280-5160
North Office: 121 29 RR 620 N, Ste. 600 Austin, Texas 78726 — Fax No. (512) 280-5165

SHEET NAME: DRAINAGE AREA CALCULATIONS

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS — STEVEN P. CATES — 93648 — LICENSED PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC.

9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

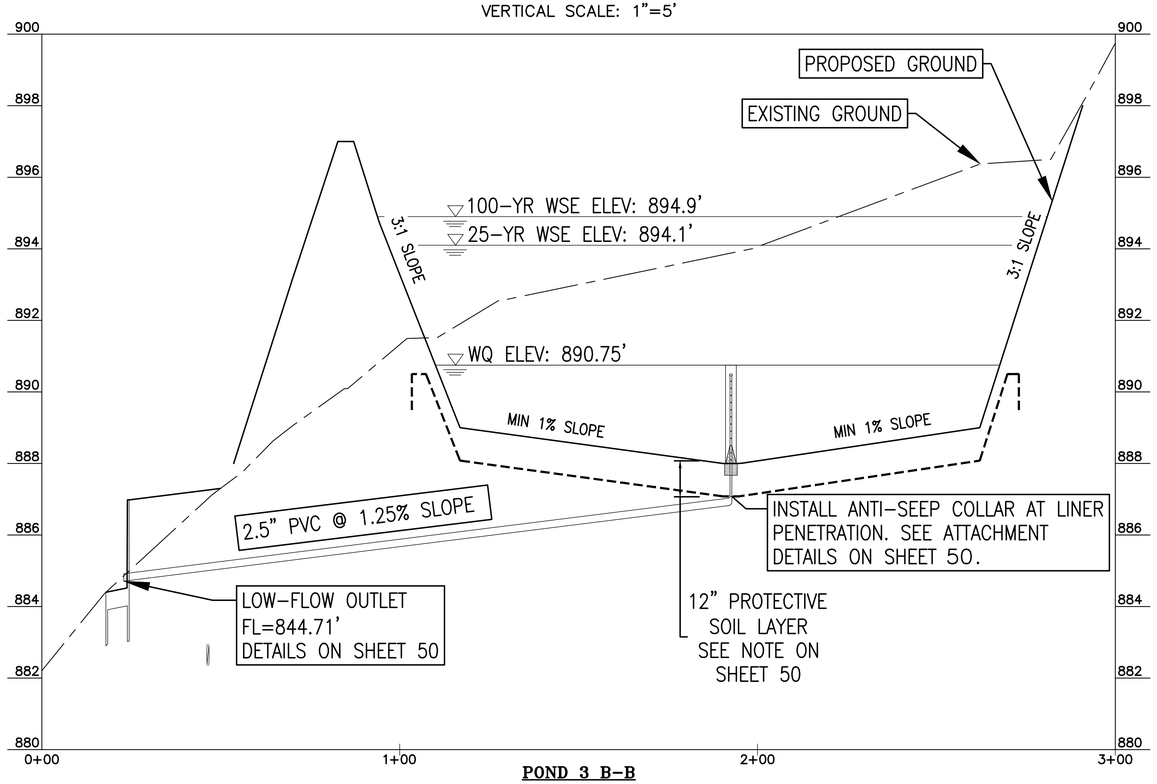
SHEET: 16 OF 68

SHEET NO.: 16

FILE PATH: J:\ACD\5557\dwg\5557-DRAINAGE.dwg - Sep 27, 2023 - 1:48pm

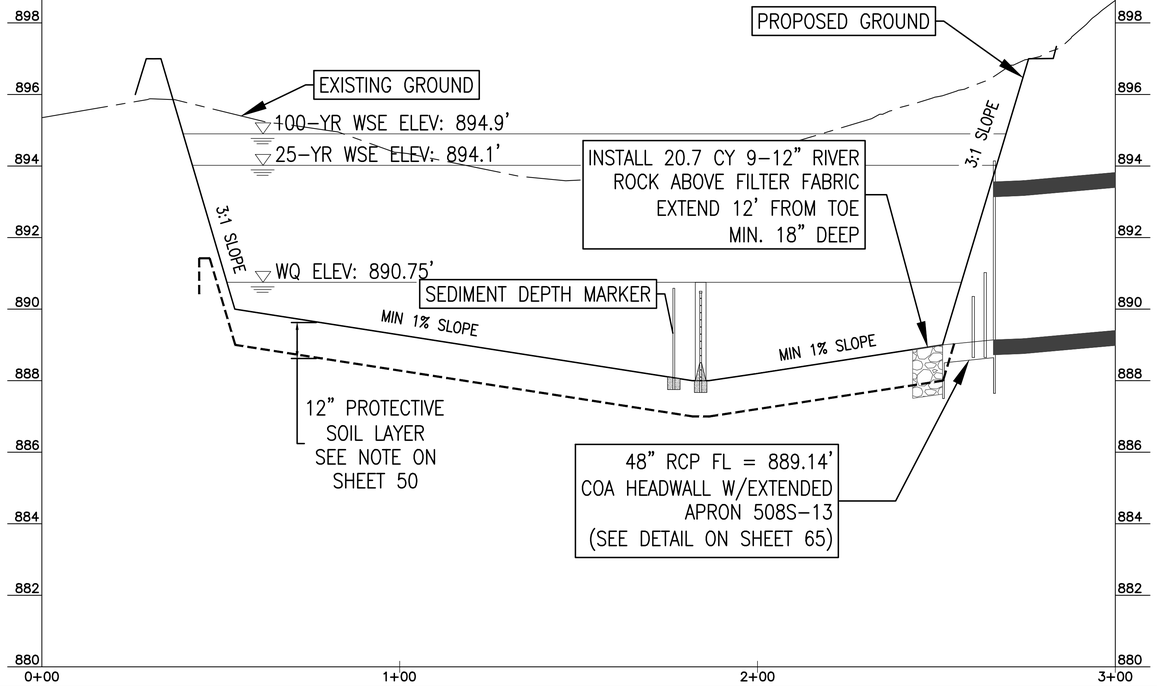
POND 3 A–A

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'



POND 3 B–B

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'



Pond 3 Stage-Storage

Stage	Area (sf)	Area (ac)	Incremental Storage (cf)	Cumulative Storage (cf)	Cumulative Storage (ac-ft)	
888.00	25	0.00	0	0	0.00	Pond Bottom
889.00	17,860	0.41	8,943	8,943	0.21	
890.00	20,001	0.46	18,931	27,873	0.64	
890.75				43,541		WQV Provided
891.00	21,780	0.50	20,891	48,764	1.12	
892.00	23,612	0.54	22,696	71,460	1.64	
893.00	25,497	0.59	24,555	96,014	2.20	
894.00	27,432	0.63	26,465	122,479	2.81	
895.00	29,424	0.68	28,428	150,907	3.46	
896.00	31,473	0.72	30,449	181,355	4.16	
897.00	33,578	0.77	32,526	213,881	4.91	Top of Berm

*Pond 3 Stage-Storage per Santa Rita Ranch Phase 2B, Section 1 Construction Plans

24-HR STORM EVENT	BATCH DETENTION POND 3			
	PEAK Qin (cfs)	PEAK Qout (cfs)	PEAK STORAGE (ac-ft)	PEAK ELEVATION (ft)
2-YR	51.9	30.6	1.7	892.2
10-YR	106.7	80.8	2.5	893.5
25-YR	139.4	108.4	2.9	894.1
100-YR	190.0	151.1	3.4	894.9

BATCH POND 3 WEIR CALCULATION

Weir Equation: $Q = C_d \cdot L \cdot h^{3/2}$

100-YR PEAK Qout (cfs) =	151.10
Top of Berm (ft) =	897.00
Weir Elevation (ft) =	890.75
Max Height (ft) =	6.25
Top of Berm Length (ft) =	651
Weir Length at Bottom (ft) =	6
Weir Side Slopes (H:1) =	4
Δh (ft) =	0.250
Weir Coefficient =	3.00
D50 (in) =	**0.3**

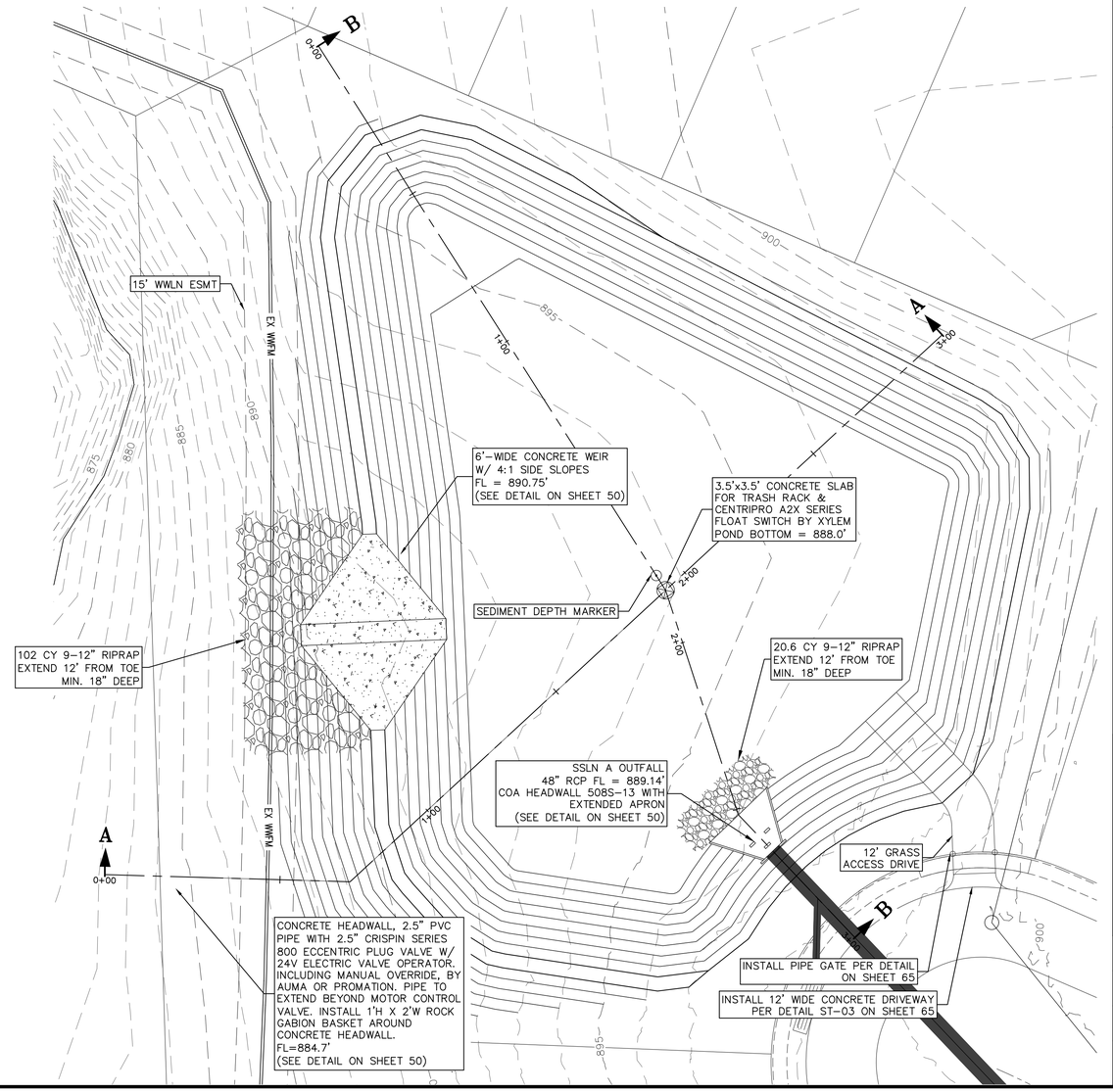
SCALE: 1" = 20'

LEGEND

- 936 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 930 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW

NOTES:

1. THIS BATCH DETENTION POND WILL REQUIRE AN IMPERMEABLE LINER ACCORDING TO SECTION 3.4.2. OF TCEQ PUBLICATION RG 348. SEE SHEET 93 FOR IMPERMEABLE LINER & PROTECTIVE SOIL LAYER NOTES AND SPECIFICATIONS.



DESIGNED BY:	DRAFTED BY:

DATE

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Fax No. (512) 280-5165

SHEET NAME: POND PLAN

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791

9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 49 OF 68

SHEET NO.: 49

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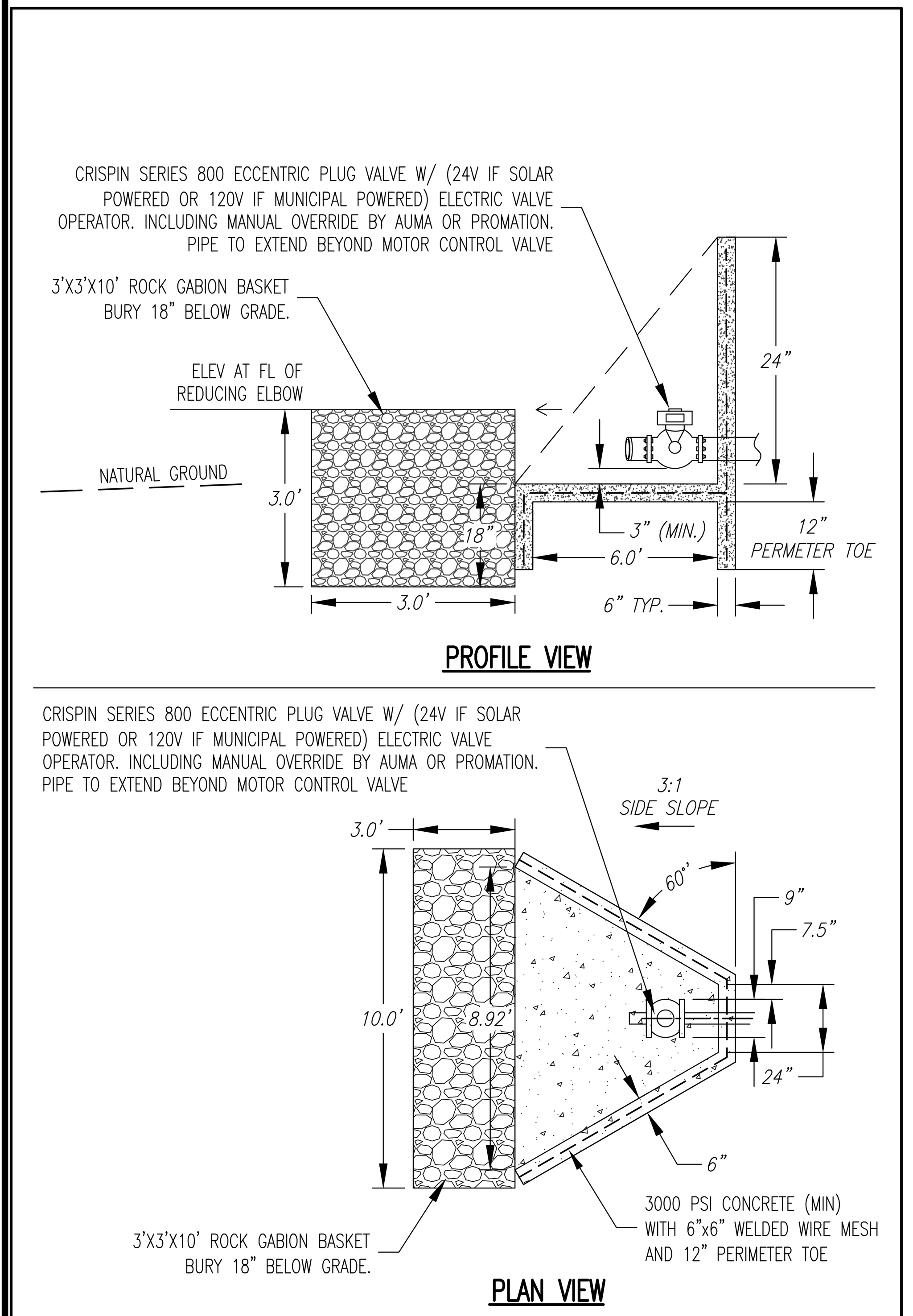
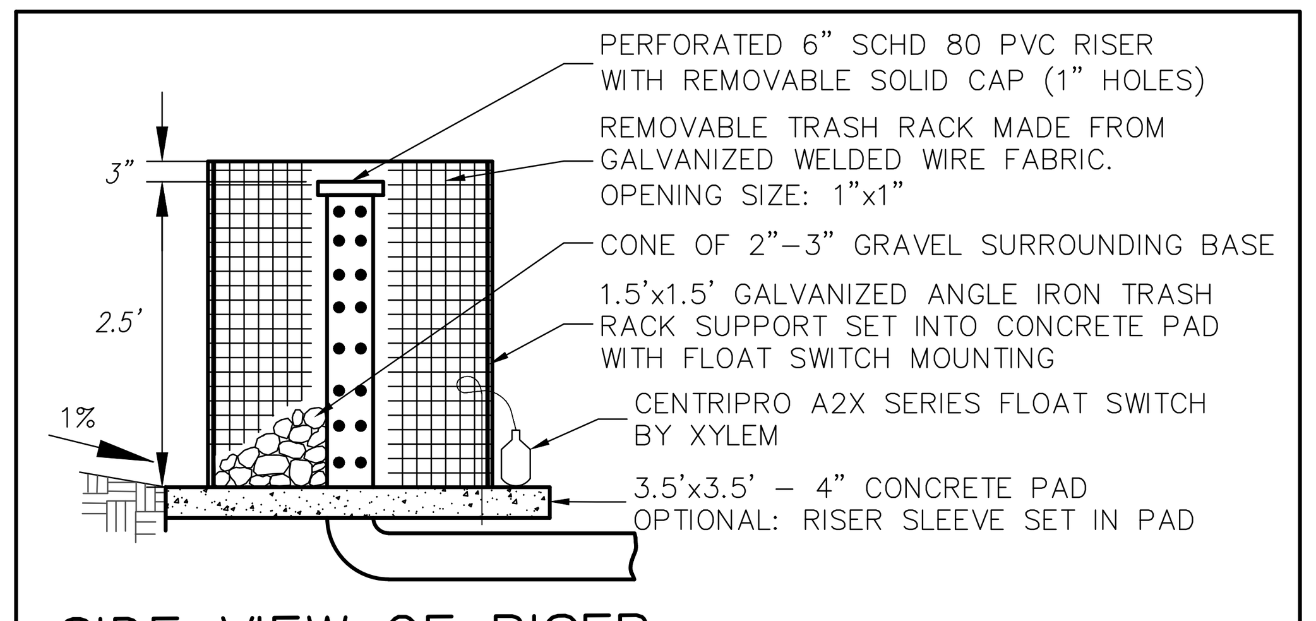
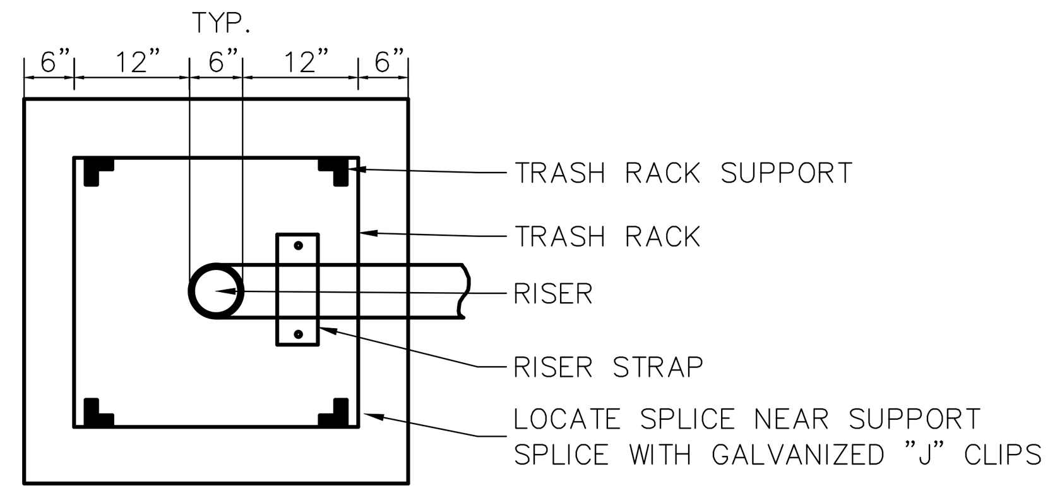


HEADWALL WITH PLUG VALVE DETAIL

N.T.S.



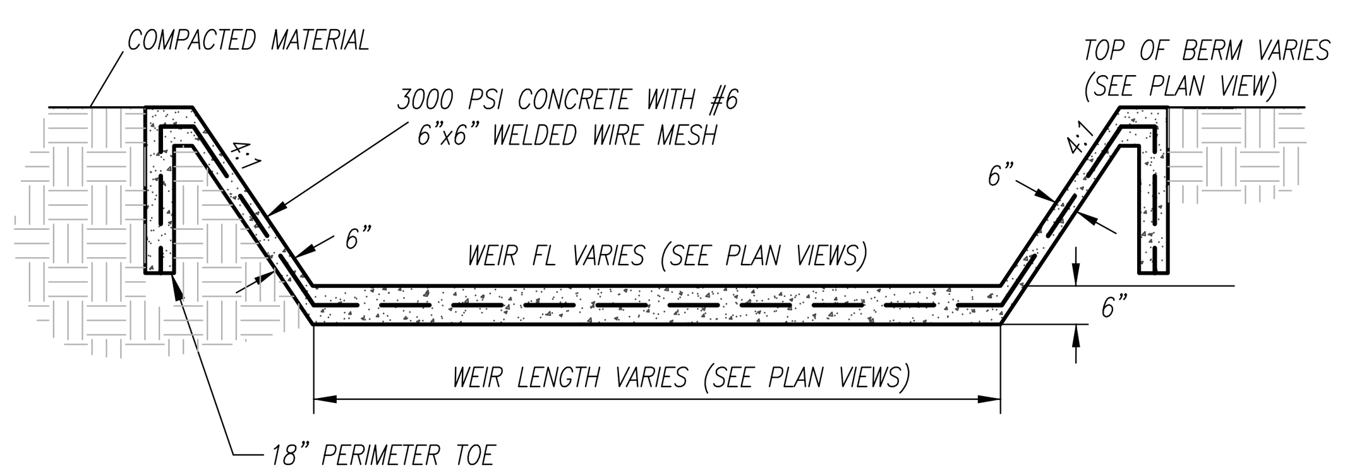
SIDE VIEW OF RISER



TOP VIEW OF RISER (SQUARE DESIGN)
TYPICAL RISER DESIGN FOR PONDS WITH EARTHEN BERMS

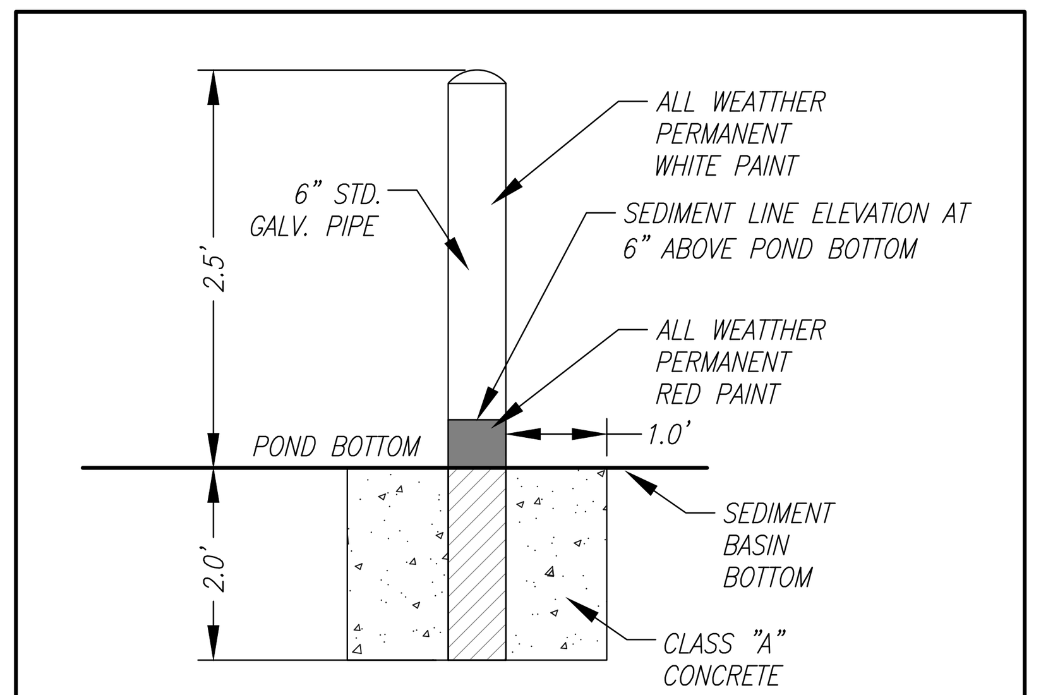
OUTFLOW RISER DETAIL

N.T.S.



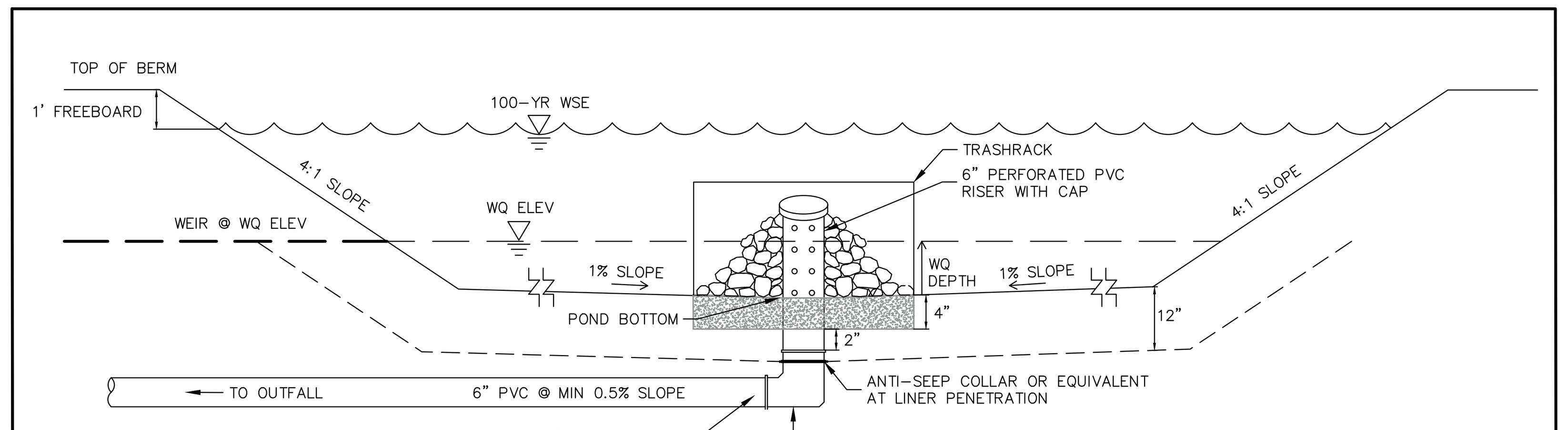
WEIR DETAIL

N.T.S.



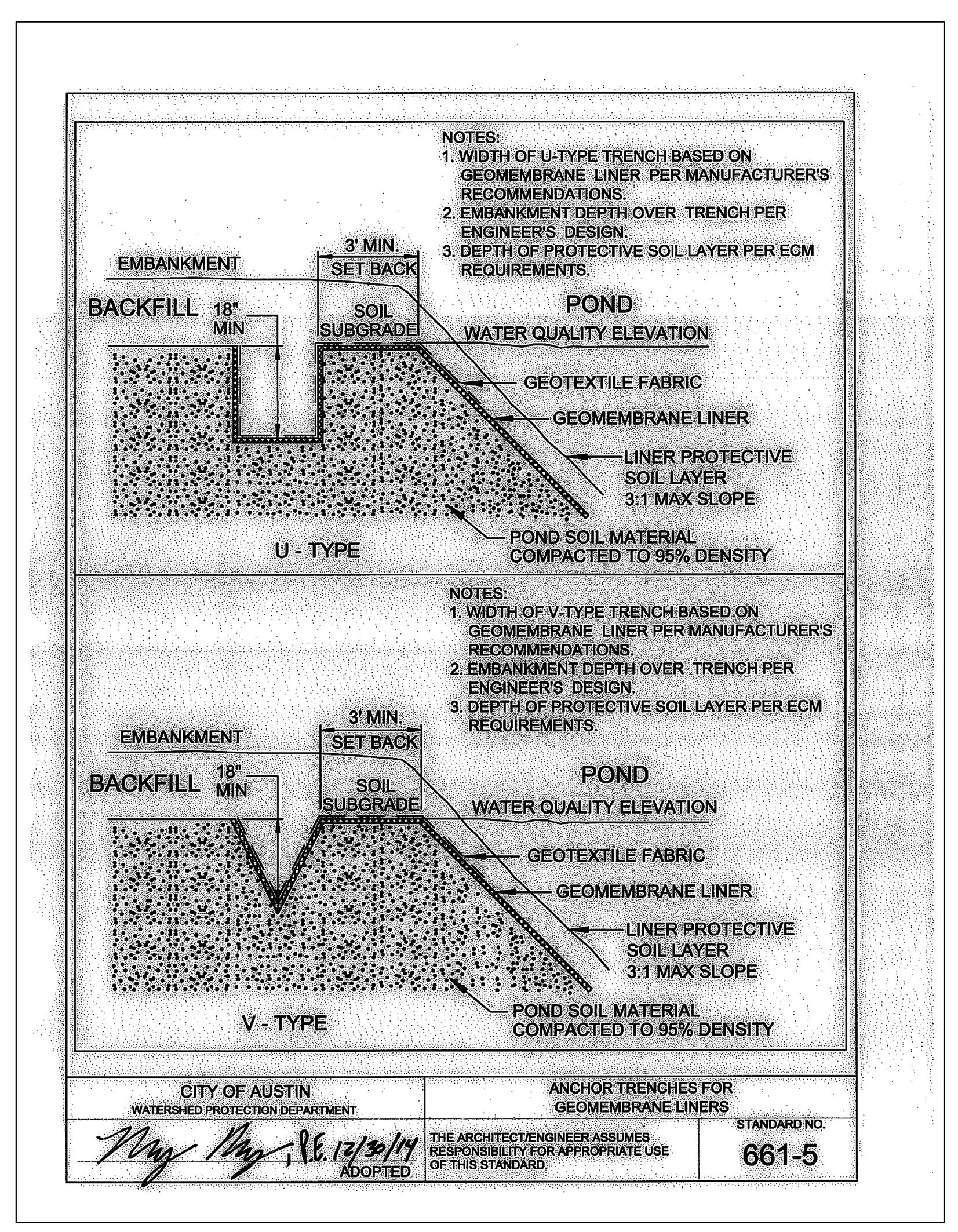
CONCRETE FILLED FIXED SEDIMENT MARKER

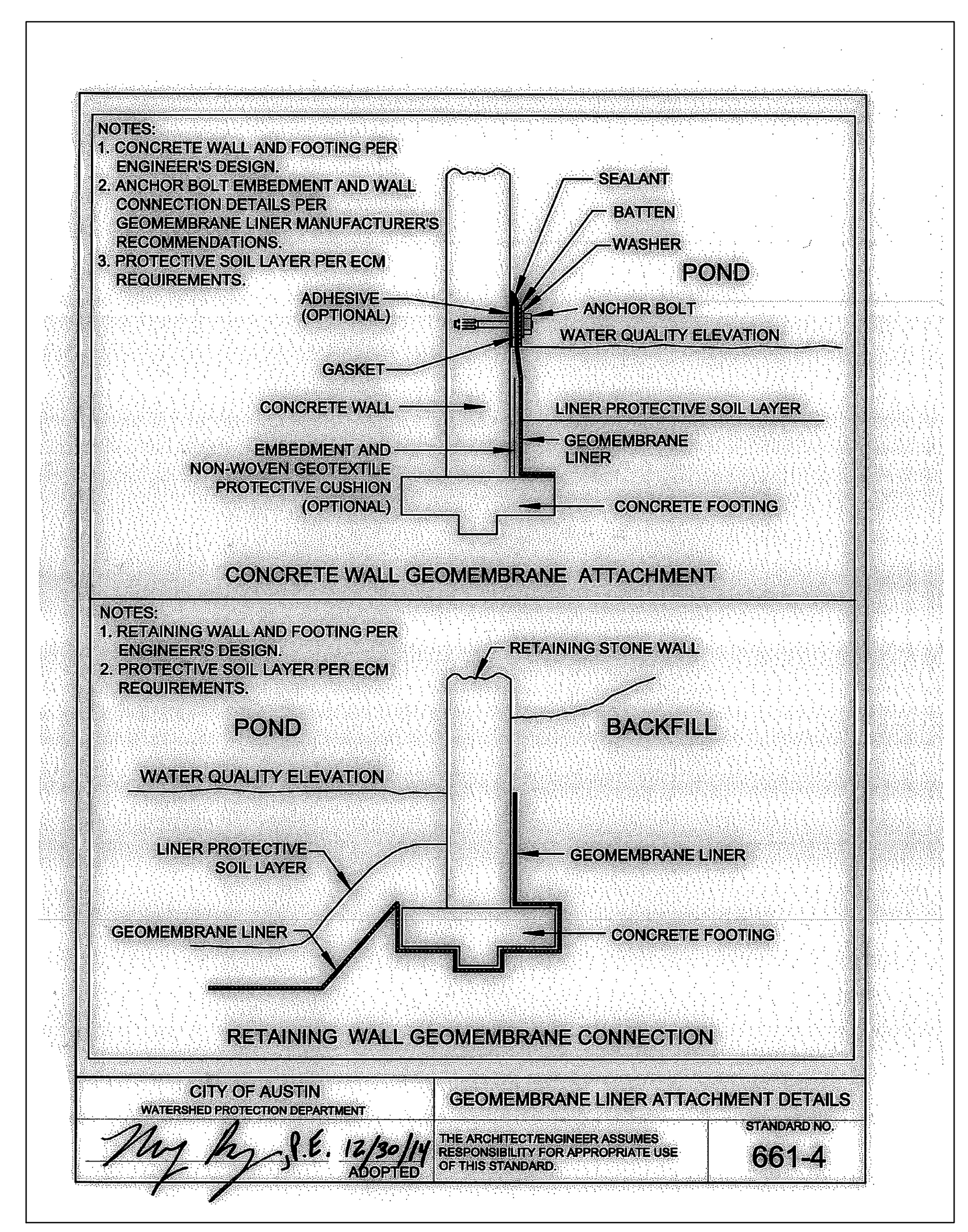
N.T.S.



BATCH DETENTION POND TYPICAL CROSS SECTION

N.T.S.





INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN:

TEMPORARY BMP'S:

BEST MANAGEMENT PRACTICES (BMP' S) INSTALLED DURING CONSTRUCTION WILL BE MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EPA'S NPDES STORMWATER POLLUTION PREVENTION PROGRAM. THE CONSTRUCTION SUPERINTENDENT WILL INSPECT TEMPORARY EROSION CONTROLS ON A REGULAR BASIS AND ADJUST THE CONTROLS AND/OR REMOVE ANY SEDIMENT BUILDUP IN ACCORDANCE WITH THE EROSION/SEDIMENTATION CONTROL NOTES AND AS OTHERWISE DIRECTED BY THE OWNER OR HIS DESIGNATED REPRESENTATIVE. TEMPORARY EROSION CONTROLS SHOULD BE INSPECTED, MAINTAINED, AND REPAIRED, AT A MINIMUM, EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS OF A STORM OF 0.5 INCHES OR MORE RAINFALL DEPTH. SEDIMENT SHALL BE REMOVED FROM CONTROLS WHEN 50% OF THE DESIGN HEIGHT IS EXCEEDED. FOLLOWING INSPECTION OF THE BMP'S, DEFICIENCIES SHALL BE NOTED AND CORRECTED BY THE CONTRACTOR.

PERMANENT BMP:

BATCH DETENTION BASINS

- 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 TIME OF 12 HOURS AND A DRAWDOWN OF NO MORE THAN 48 HOURS. IN PARTICULAR, THE DETENTION CONTROL DEVICE SHOULD BE REGULARLY INSPECTED FOR EVIDENCE OF CLOGGING, OR CONVERSELY, FOR TOO RAPID A RELEASE. IF THE DETENTION TIME IS LESS THAN 12 HOURS OR THE DRAWDOWN TIME IS EXCEEDED BY MORE THAN 24 HOURS, THEN REPAIRS SHOULD BE SCHEDULED IMMEDIATELY. DURING EACH INSPECTION, EROSION AREAS INSIDE AND DOWNSTREAM OF THE BMP SHOULD BE IDENTIFIED AND REPAIRED OR REVEGETATED IMMEDIATELY.

- MOWING. THE BASIN, SIDE SLOPES, EMBANKMENT, AND EMERGENCY SPILLWAY OF A BATCH 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 DETENTION CONTROL DEVICE AND SHOULD BE REMOVED DURING REGULAR MOWING OPERATIONS AND INSPECTIONS. PARTICULAR ATTENTION SHOULD BE PAID TO FLOATING DEBRIS THAT CAN EVENTUALLY CLOG THE CONTROL DEVICE OR RISER.

- EROSION CONTROL. THE BASIN 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.

- 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 MAY OCCUR AFTER A STORM EVENT SINCE THE VALVE MAY CLOSE WITH 2 TO 3 INCHES OF WATER IN THE BASIN. FLOW SUCH AS SPRING FLOW AND RESIDENTIAL WATER USE MAY DISCHARGE INTO THE BASIN BETWEEN STORM EVENTS THAT DO NOT ENGAGE THE LEVEL SENSOR. STANDING WATER 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). TWICE A YEAR, THE FACILITY SHOULD BE EVALUATED FOR NUISANCE CONTROL.

- SEDIMENT REMOVAL. WHEN PROPERLY DESIGNED, BATCH DETENTION BASINS WILL ACCUMULATE QUANTITIES OF SEDIMENT OVER TIME. SEDIMENT ACCUMULATION IS A SERIOUS MAINTENANCE CONCERN IN BATCH DETENTION PONDS FOR SEVERAL REASONS. FIRST, SEDIMENT ACCUMULATION CAN MAKE BATCH DETENTION BASINS VERY UNSIGHTLY. SECOND, THE SEDIMENT DEPOSITION GRADUALLY REDUCES AVAILABLE STORAGE CAPACITY RESERVED FOR POLLUTANT REMOVAL AND DETENTION WITHIN THE BASIN. THIRD, SEDIMENT TENDS TO ACCUMULATE AROUND THE OUTLET CONTROL DEVICE. THIS INCREASES THE RISK OF CLOGGING THE ORIFICE OR INTERFERING WITH THE LEVEL SENSOR, WHICH CAN IN TURN REDUCE THE TREATMENT EFFICACY OF THE FACILITY. SEDIMENT CAN 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 BASIN WHEN SEDIMENT DEPTH EXCEEDS 6 INCHES, WHEN SEDIMENT INTERFERES WITH THE LEVEL SENSOR, WHEN THE BASIN DOES NOT DRAIN WITHIN 48 HOURS, OR AT LEAST EVERY 5 YEARS.

- LOGIC CONTROLLER. THE LOGIC CONTROLLER SHOULD BE INSPECTED AS PART OF THE TWICE YEARLY INSPECTIONS. VERIFY THAT THE EXTERNAL INDICATORS (ACTIVE, CYCLE IN PROGRESS) ARE OPERATING PROPERLY BY TURNING THE CONTROLLER OFF AND ON, AND BY INITIATING A CYCLE BY TRIGGERING THE LEVEL SENSOR IN THE BASIN. THE VALVE SHOULD BE MANUALLY OPENED AND CLOSED USING THE OPEN/CLOSE SWITCH TO VERIFY VALVE OPERATION AND TO ASSIST IN INSPECTING THE VALVE FOR DEBRIS. THE SOLAR PANEL SHOULD BE INSPECTED AND ANY DUST OR DEBRIS ON THE PANEL SHOULD BE CAREFULLY REMOVED. THE CONTROLLER AND ALL OTHER CIRCUITRY AND WIRING SHOULD BE INSPECTED FOR SIGNS OF CORROSION, DAMAGE FROM INSECTS, WATER LEAKS, OR OTHER DAMAGE. AT THE END OF THE INSPECTION, THE CONTROLLER SHOULD BE RESET.

ULTIMATELY, THESE FACILITIES WILL BE OWNED, OPERATED AND MAINTAINED BY THE PROPOSED WILLIAMSON COUNTY MUD NO. 19C UNTIL THE OWNERSHIP OF FACILITIES IS TRANSFERRED TO THE MUD, SANTA RITA C7 INVESTMENTS LLC WILL BE RESPONSIBLE FOR MAINTENANCE OF THESE FACILITIES IN ACCORDANCE WITH THE ABOVE STATED REQUIREMENTS.

IMPERMEABLE LINER NOTES

IMPERMEABLE LINERS SHOULD BE USED FOR WATER QUALITY BASINS (RETENTION, EXTENDED DETENTION, SAND FILTERS, WET PONDS, CONSTRUCTED WETLANDS, AND BATCH DETENTION PONDS) LOCATED OVER THE RECHARGE ZONE AND IN AREAS WITH THE POTENTIAL FOR GROUNDWATER CONTAMINATION. IMPERMEABLE LINERS MAY BE CLAY, CONCRETE OR GEOMEMBRANE. IF GEOMEMBRANE IS USED, SUITABLE GEOTEXTILE FABRIC SHOULD BE PLACED ON THE TOP AND BOTTOM OF THE MEMBRANE FOR PUNCTURE PROTECTION AND THE LINERS COVERED WITH A MINIMUM OF 6 INCHES OF COMPACTED TOPSOIL. THE TOPSOIL SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION. CLAY LINERS SHOULD MEET THE SPECIFICATIONS IN TABLE 3–6 AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

TABLE 3–6 CLAY LINER SPECIFICATIONS (COA, 2004)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MIN.)
PERMEABILITY	ASTM D–2434	%	1×10^{-6}
PLASTICITY INDEX OF CLAY	ASTM D–423 & D–424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D–2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D–422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D–2216	%	95% OF STANDARD PROCTOR DENSITY

IF A GEOMEMBRANE LINER IS USED IT SHOULD HAVE A MINIMUM THICKNESS OF 30 MILS AND BE ULTRAVIOLET RESISTANT. THE GEOTEXTILE FABRIC (FOR PROTECTION OF GEOMEMBRANE) SHOULD BE NONWOVEN GEOTEXTILE FABRIC AND MEET THE SPECIFICATIONS IN TABLE 3–7.

TABLE 3–7 GEOTEXTILE FABRIC SPECIFICATIONS (COA, 2004)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MIN.)
UNIT WEIGHT		OZ/YD^2	8
FILTRATION RATE		IN/SEC	0.0800
PUNCTURE STRENGTH	ASTM D–751*	lb	125
MULLEN BURST STRENGTH	ASTM–D751	psi	400
TENSILE STRENGTH	ASTM D–1682	lb	200
EQUIV. OPENING SIZE	US STANDARD SIEVE	No.	80
	*MODIFIED		

PROTECTIVE SOIL LAYER NOTES

THE WET AND BATCH DETENTION PONDS WILL BE CONSTRUCTED WITH A MINIMUM OF 12" OF A PROTECTION SOIL LAYER ABOVE THE SELECTED IMPERMEABLE LINER SO THAT PLANTINGS CAN BE PROPERLY INSTALLED ABOVE THE LINER AND LINER INTEGRITY CAN BE MAINTAINED.

MATERIAL PLACED OVER LINER TO CONSIST OF SOIL THAT CLASSIFIES PER USDA STANDARDS AS A SANDY CLAY LOAM, SANDY CLAY, OR CLAY LOAM. THE SOIL SHALL BE FREE OF ORGANICS AND ANGULAR/SHARP MATERIALS, AND SHALL CONTAIN NO MATERIALS GREATER THAN 1" IN DIAMETER. MATERIAL TO BE PLACED AND COMPACTED IN TWO UNIFORM LIFTS.

DESIGNED BY: | DRAFTED BY:

DATE | REVISION

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SHEET NAME: POND DETAILS

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS
STEVEN P. CATES
93648
LICENSED PROFESSIONAL ENGINEER
CARLSON, BRIGANCE & DOERING, INC.
ID# F3791
[illegible]
9-27-2023

DATE
SEP 2023

JOB NUMBER
5557

SHEET
50 OF 68

SHEET NO.
50

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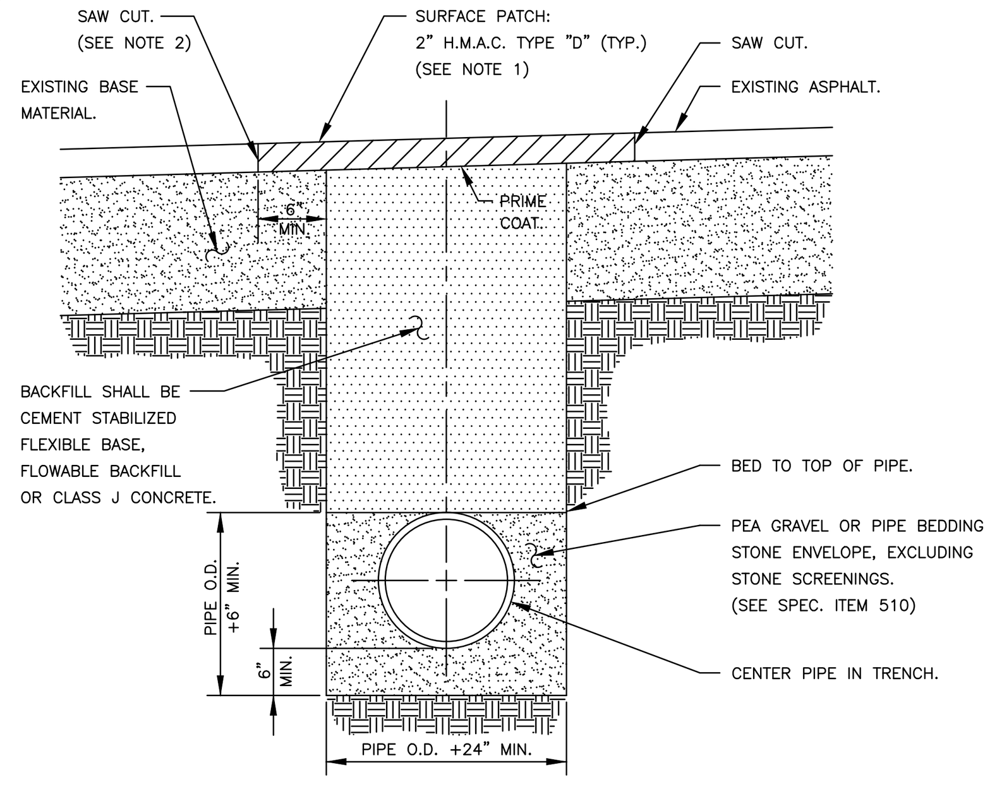


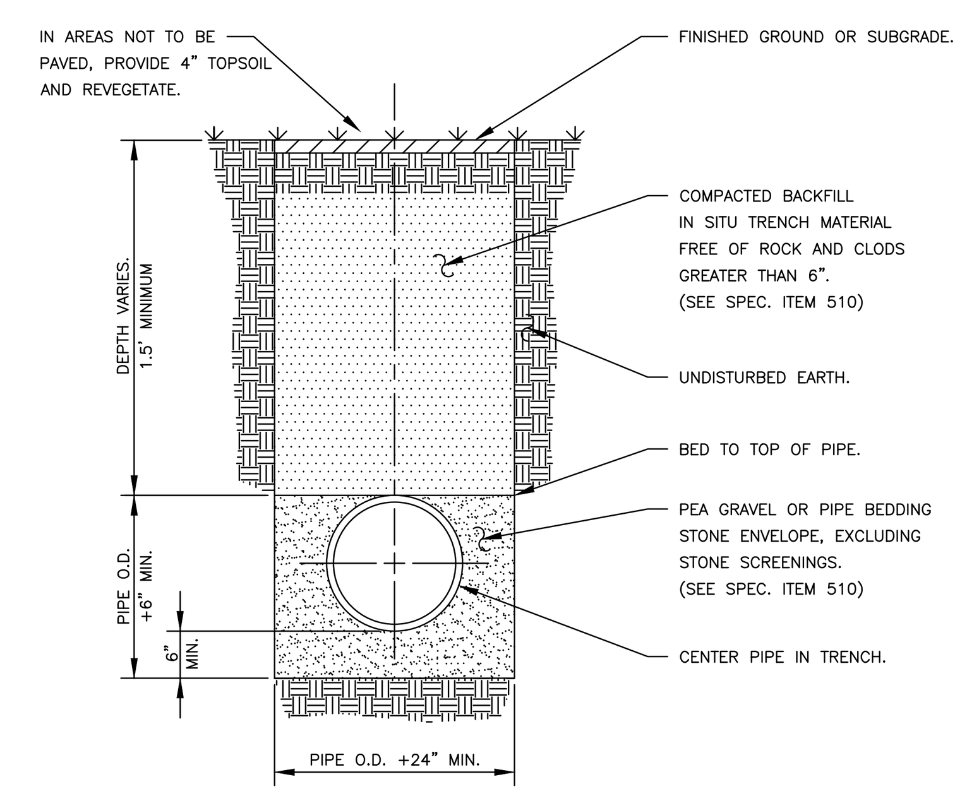
NOTES:

1. H.M.A.C. SHOWN IN THIS DETAIL IS SEPARATE FROM ANY ADDITIONAL THICKNESS CREATED BY ANY OVERLAY ITEM IN CONTRACT.
2. THE CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING PAVEMENT A MINIMUM OF 6" BEYOND EITHER THE EDGE OF THE STORM SEWER TRENCH OR THE POINT WHERE EXISTING PAVEMENT IS DAMAGED DUE TO TRENCHING OPERATIONS, WHICHEVER IS GREATER.
3. INSTALLATION OF BACKFILL, SAW CUTTING AND REMOVAL OF EXISTING PAVEMENT AND SURFACE PATCH, SHALL NOT BE PAID FOR SEPARATELY. COSTS FOR THESE ITEMS SHALL BE INCLUDED IN UNIT PRICE BIDS FOR STORM SEWER PIPE.
4. THE CONTRACTOR SHALL PROVIDE STEEL PLATES TO SPAN THE TRENCH AS NECESSARY OR TO ALLOW BACKFILL TO CURE. SUCH PLATES SHALL BE SUITABLE FOR VEHICLE PASSAGE OVER THE TRENCH AND SHALL BE SATISFACTORILY ANCHORED IN PLACE. COSTS FOR THIS ITEM SHALL BE INCLUDED IN UNIT PRICE BIDS FOR STORM SEWER PIPE.
5. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED 08-21-03 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: DR-01

STORM SEWER LINE BEDDING DETAIL (EXISTING PAVED SURFACE)



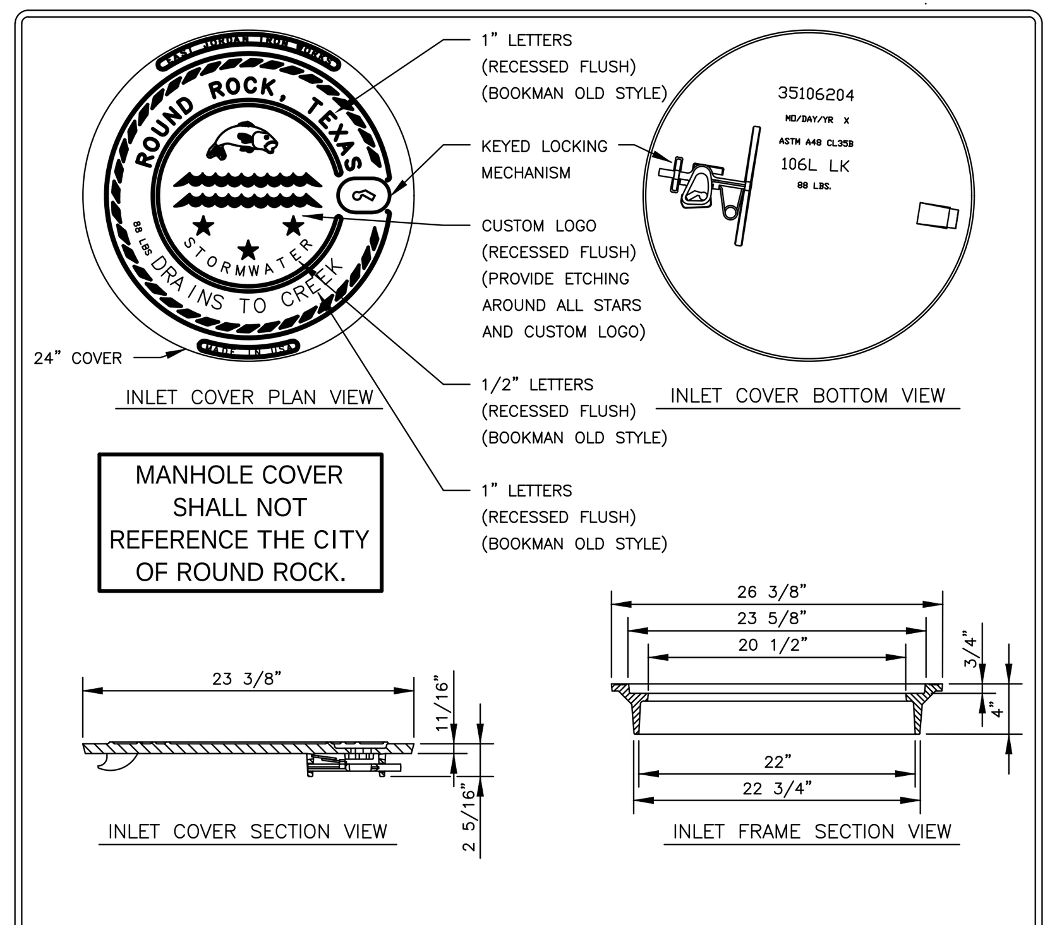
NOTE:

ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED 08-21-03 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: DR-02

STORM SEWER LINE BEDDING DETAIL (NON-PAVED SURFACE)



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. INLET COVER SHALL BE MODEL NUMBER: 106L LK (PRODUCT NUMBER: 35106204), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. INLET FRAME SHALL BE MODEL NUMBER: 106L LK (PRODUCT NUMBER: 35206004), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. INLET COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: 106L-4L LK (PRODUCT NUMBER: 35506204), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. INLET COVER WEIGHT SHALL BE 88 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
7. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
8. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
9. INLET COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.

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APPROVED 09-13-05 DATE
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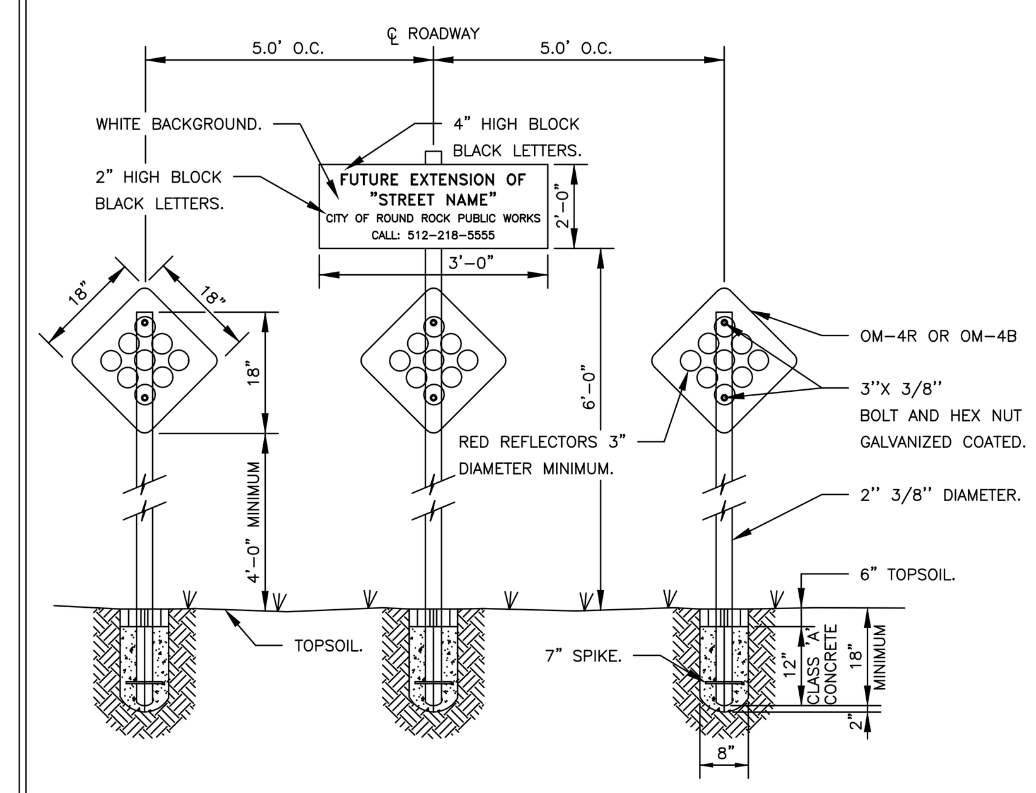
CITY OF ROUND ROCK — DRAWING NO: DR-07

STORM SEWER INLET COVER AND FRAME DETAIL



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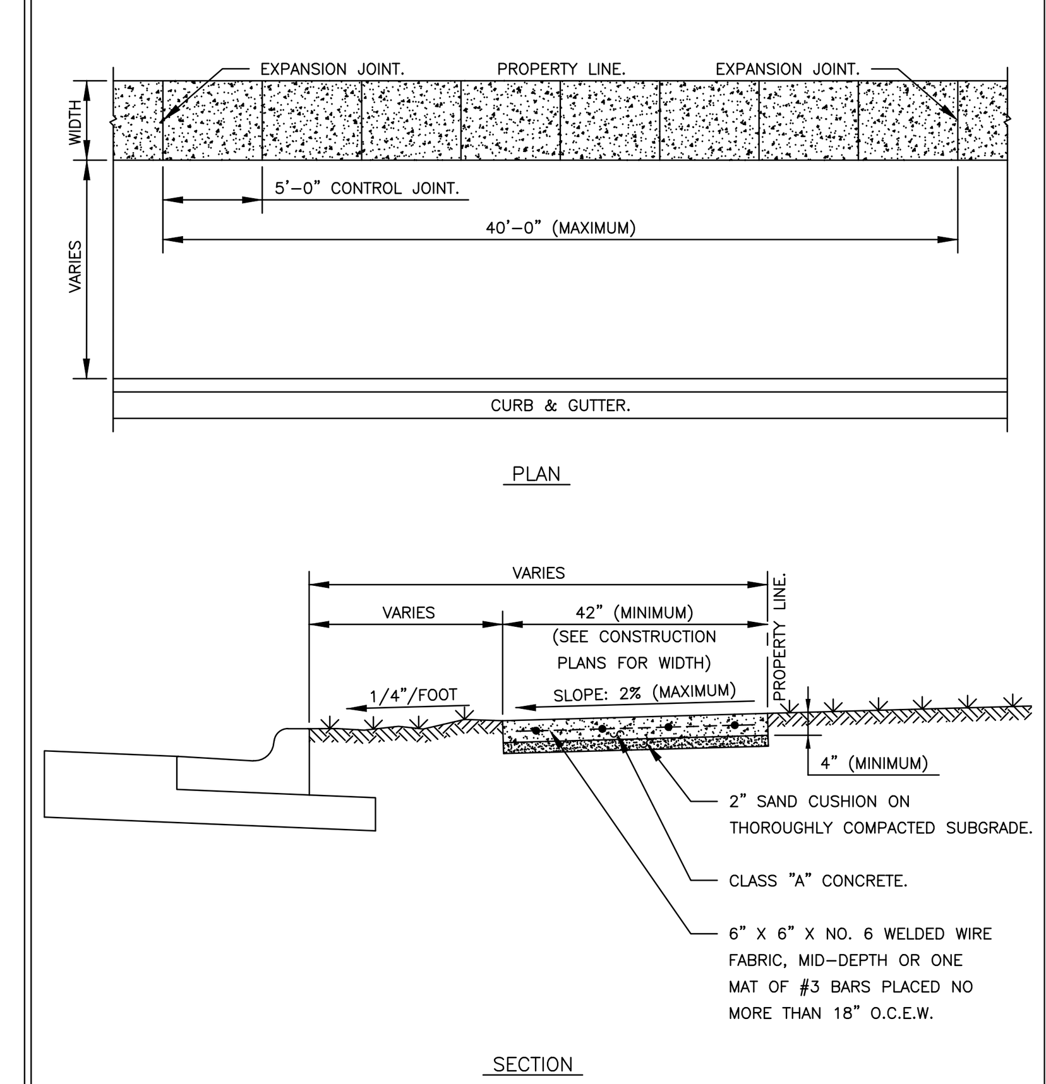
APPROVED 08-21-03 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: ST-09

STREET END MARKER DETAIL



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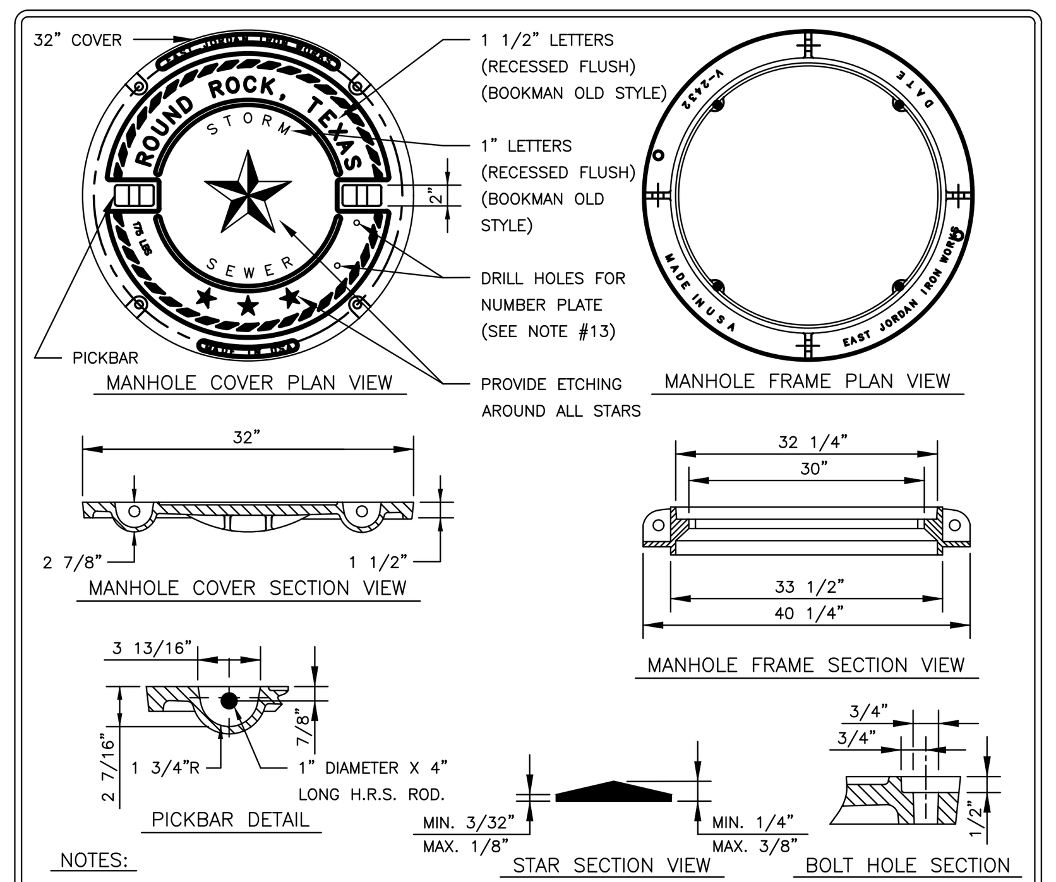
APPROVED 07-11-06 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: ST-01

SIDEWALK DETAIL

MANHOLE COVER SHALL NOT REFERENCE THE CITY OF ROUND ROCK.



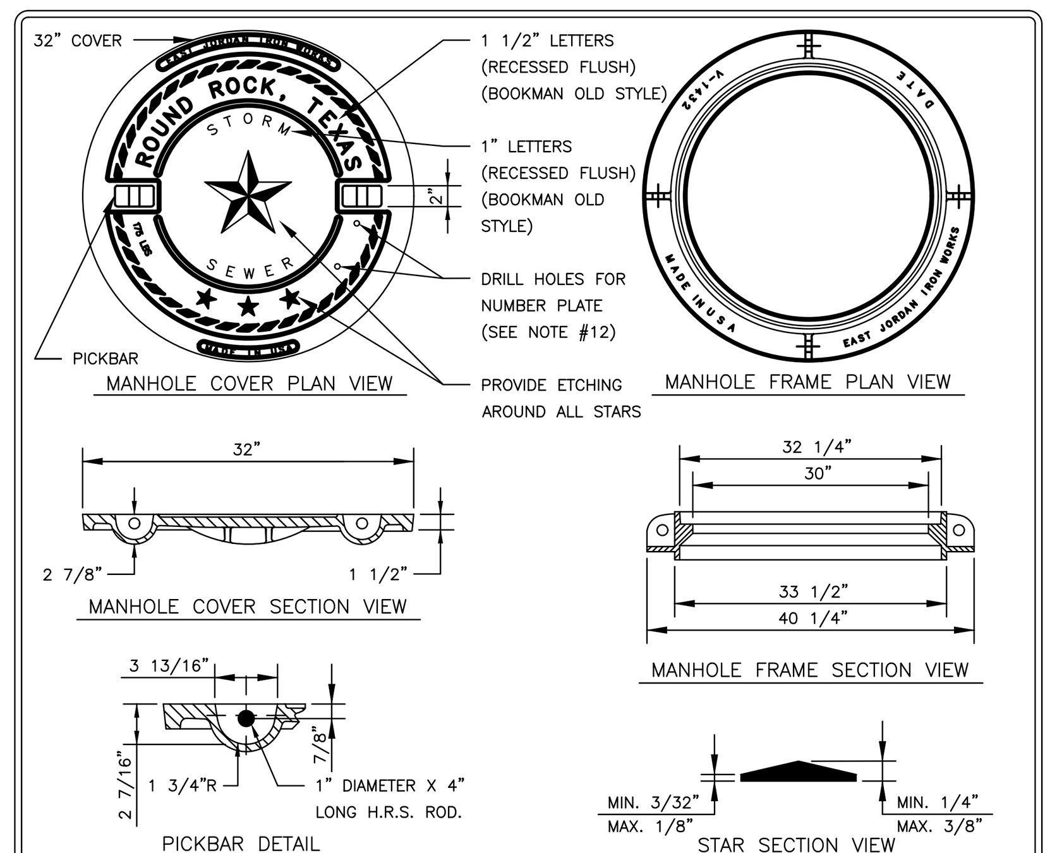
NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-2432-3 (PRODUCT NUMBER: 42432032), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432072), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2-3/16"X1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED 08-09-05 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: DR-05

BOLTED STORMSEWER MANHOLE COVER AND FRAME DETAIL



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-1432-3 (PRODUCT NUMBER: 41432058), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-1432 (PRODUCT NUMBER: 41432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-1432 (PRODUCT NUMBER: 41432080), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. MANUFACTURER SHALL DRILL 2-3/16"X1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

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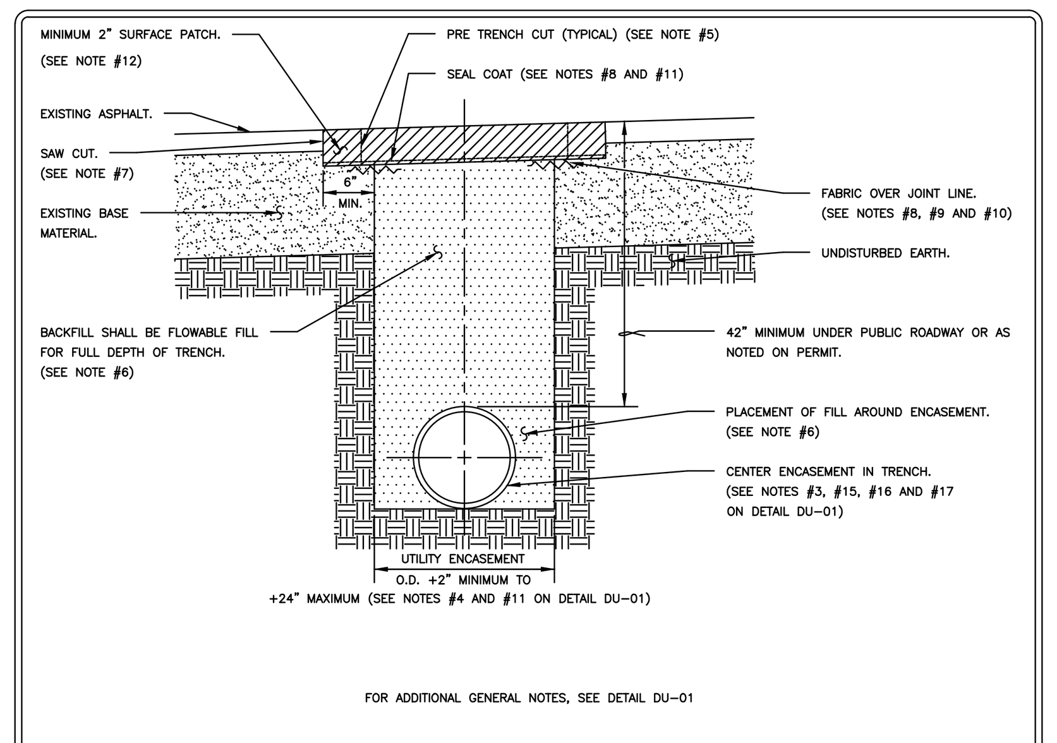
CITY OF ROUND ROCK — DRAWING NO: DR-06

NON-BOLTED STORMSEWER MANHOLE COVER AND FRAME DETAIL



FOR ADDITIONAL GENERAL NOTES, SEE DETAIL DU-01

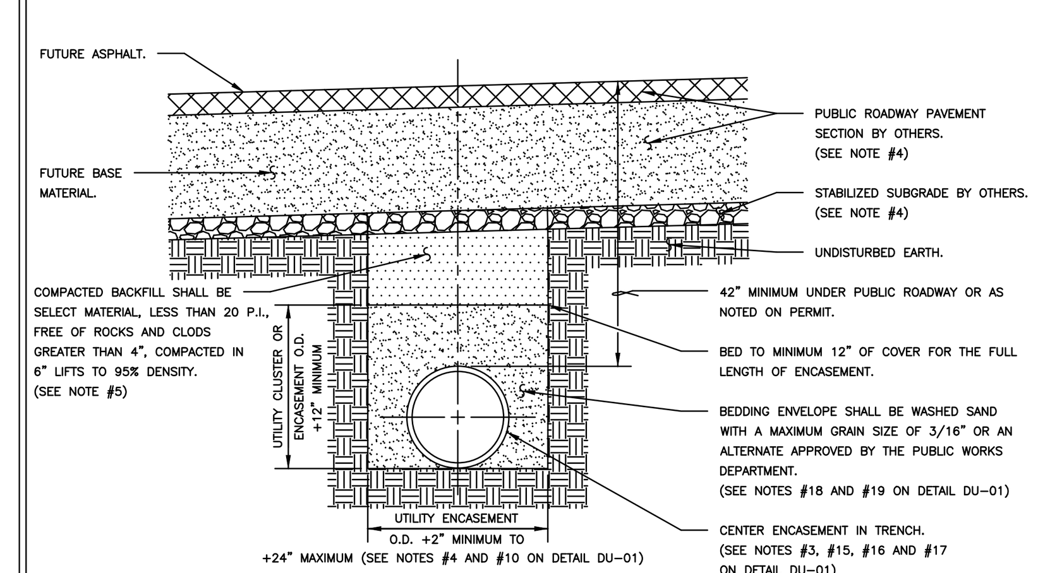
NOTES:

1. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
2. STEEL PLATES OF SUITABLE WEIGHT TO SPAN THE TRENCH FOR VEHICLE TRAFFIC, MUST BE AVAILABLE ON SITE BEFORE ANY PAVEMENT IS CUT.
3. STEEL PLATES SHALL BE CONTRACTOR PROVED AND PLACED AS NECESSARY FOR TRENCH SAFETY AND TO ALLOW FOR FLOWABLE FILL CURING TIME.
4. STEEL PLATES SHALL BE ANCHORED IN PLACE WHEN INSTALLED TO ASSURE NO DISPLACEMENT UNDER TRAFFIC.
5. SURFACE SHALL BE CUT PRIOR TO EXCAVATION.
6. FLOWABLE FILL SHALL BE PLACED AROUND THE ENCASEMENT IN A PROCESS TO ASSURE NO DISPLACEMENT FROM BEING CENTERED IN THE TRENCH BOTTOM. FLOWABLE FILL SHALL BE STRUCK OFF AT THE TOP OF THE EXISTING BASE OR 2" BELOW EXISTING FINISHED SURFACE, WHICHEVER IS GREATER.
7. UPON COMPLETION OF THE BACKFILL, MAKE ADDITIONAL SAW CUTS, AS NECESSARY TO REMOVE EXISTING PAVEMENT AT A MINIMUM DEPTH OF 2" TO CREATE A 6" MINIMUM SHOULDER OR TO THE POINT WHERE EXISTING PAVEMENT IS NOT DAMAGED, WHICHEVER IS GREATER. SAW CUTS SHOULD HAVE A MINIMUM NUMBER OF ANGLE POINTS.
8. TACKING MATERIAL SHALL BE AC15PW OR A CORR APPROVED EQUAL.
9. TACK COAT A MINIMUM 12" WIDTH OF NON-WOVEN GEO-TEXTILE FABRIC OVER THE EXISTING BASE AND FLOWABLE FILL JOINT LINE WITH 0.3 GALS/SY, PLACING FABRIC BEFORE TACK SETS.
10. GEO-TEXTILE FABRIC SHALL WITHSTAND 300' FAHRENHEIT (TREVIRA SPUDBOND 011/120, CONTECH C-38NW, OR C.O.R.R. APPROVED EQUAL).
11. SINGLE COURSE SEAL COAT THE AREA TO BE HMAC PATCHED, WITH 0.33 GALS/SY TACK AND 3/8" CRUSHED LIMESTONE COVER AT 21 LBS/SY.
12. VACUUM UP LOOSE GRAVEL BEFORE PLACING SURFACE PATCH WITH HMAC HOT LAID; AT A MINIMUM THICKNESS OF 2".
13. TRENCH PAST THE BACK OF CURB TO MATCH THE AREA (SIDEWALK, TOP SOIL, SOD, ETC.), WITH JOINTS NOT TO ALIGN WITH TRENCH WALL.
14. IF SIDEWALK, CURB, CURB AND GUTTER, OR DRIVEWAY REQUIRES REMOVAL, THIS MUST BE REPLACED IN UNITS THAT ARE FROM SCORE JOINT TO SCORE JOINT. FULL DEPTH SAW CUT ALL JOINTS. DRILL AND EPOXY SET #4 DOWELS INTO THE STRUCTURE TO REMAIN AT MAXIMUM OF 18" ON CENTER.
15. ENCASEMENT MUST EXTEND 10' PAST THE BACK OF CURB, UNLESS OTHERWISE STATED IN THE PERMIT. BEDDING AND BACKFILL FROM THE POINT WHERE THE BASE ENDS TO THE END OF THE ENCASEMENT, SHALL ADHERE TO: PROPOSED PAVEMENT AREA TRENCH (PPAT) (DU-04) DETAIL.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED 02-10-06 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: DU-03

ASPHALT PAVED AREA TRENCH (APAT) DETAIL



FOR ADDITIONAL GENERAL NOTES, SEE DETAIL DU-01

NOTES:

1. THIS DETAIL IS APPLICABLE WHERE FUTURE PAVEMENT IS SCHEDULED TO BE INSTALLED WITHIN TWO YEARS.
2. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
3. ENCASEMENT MUST EXTEND 10' PAST THE PROPOSED BACK OF CURB.
4. WORK ON INSTALLATION MUST BE COMPLETE THROUGH CLEAN UP BEFORE WORK RELATED TO PAVEMENT INSTALLATION IS SCHEDULED TO START, EXCEPT IN THE CASES THAT THE ROAD CONTRACTOR HAS AGREED TO ROUGH CUT BEFORE UTILITY TRENCHING OR THE SAME CONTRACTOR IS PERFORMING BOTH UTILITY AND ROAD WORK.
5. SPOILS MAY BE USED IF THEY MEET SELECT MATERIAL STANDARDS. THE INSPECTOR MAY STOP BACKFILL OPERATIONS UNTIL THE CONTRACTOR OBTAINS LAB TEST RESULTS IF THERE IS ANY QUESTION OF ACCEPTABILITY.

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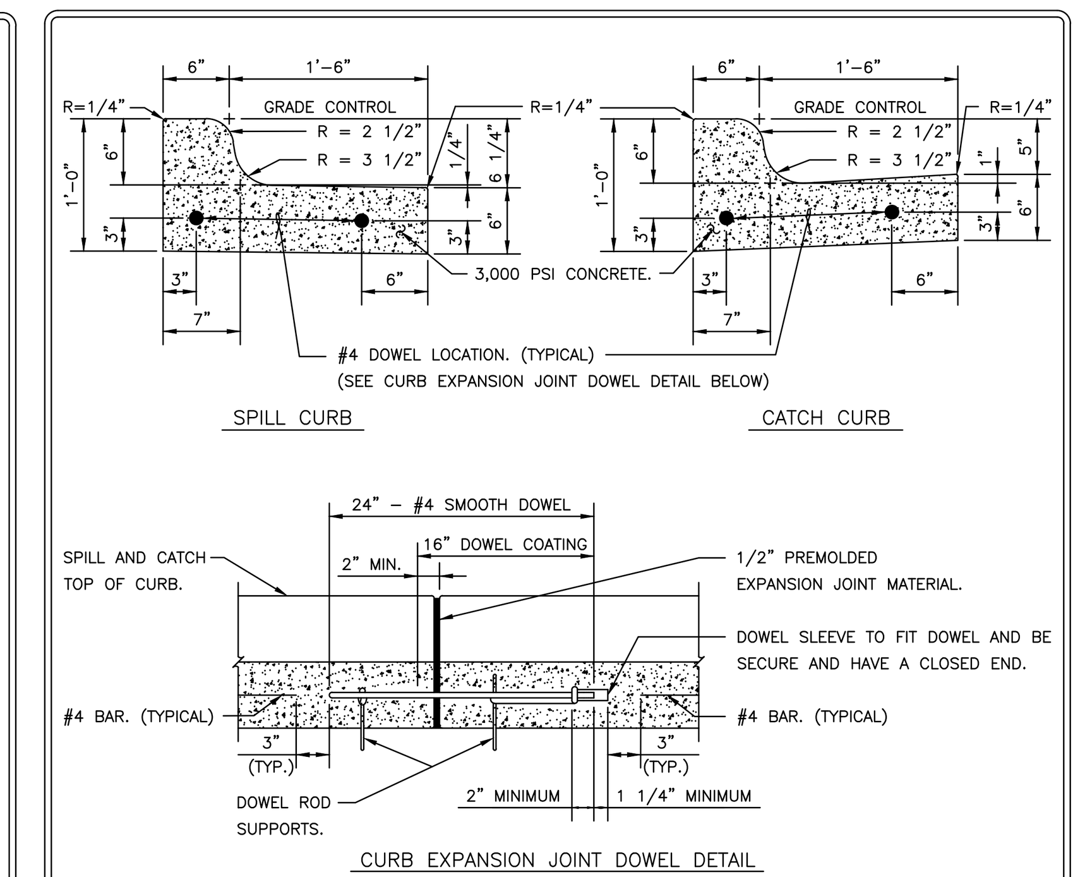
CITY OF ROUND ROCK — DRAWING NO: DU-04

PROPOSED PAVEMENT AREA TRENCH (PPAT) DETAIL



NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0'.
3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDANT OF THE CONSTRUCTION METHODS USED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED 08-21-03 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: ST-05

SPILL AND CATCH CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)

UTILITY PLACEMENT WITHIN CORR CONTROLLED AREA

GENERAL NOTES SHEET

1. UTILITY LINE IS A PUBLIC OR PRIVATE POWER, COMMUNICATION, TELEVISION, GAS, FIBER OPTIC AND IRRIGATION (DRY OR PRESSURE) LINE, CABLE, CONDUIT, PIPE OR TUBING.
2. UTILITY CLUSTER IS ANY NUMBER AND MIX OF DIRECT BURIED "DRY" UTILITY LINES IN A VERTICAL, HORIZONTAL OR BUNDLE CONFIGURATION.
3. ENCASEMENT IS ANY NUMBER OF CONDUITS, CASING PIPES (CONCRETE, PVC, CONDUIT BANK, WELDED STEEL, ETC.), AND/OR PROTECTIVE ARMOR BEDDING (CONCRETE, FLOWABLE FILL, ETC.)
4. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
5. UTILITY WORK SITE IS THE LOCATION WHERE A UTILITY IS MAINTAINED, REPAIRED AND/OR INSTALLED.
6. A COPY OF THE PERMIT IS REQUIRED ON THE UTILITY WORK SITE IN/ON CORR OWNED/LEASED PROPERTY, ROW, CORR EASEMENT OR PUE IMPACTING VEHICLE/PEDESTRIAN TRAFFIC, SAFETY OR CAUSES LIABILITY (TEMPORARY/LONG TERM). THIS EXCLUDES UNACCEPTED SUBDIVISIONS, CIP, STATE OR FEDERAL CONTROLLED PROPERTY, PRIVATELY CONTROLLED EASEMENTS & PRIVATELY OWNED PROPERTY.
7. VARIANCE FROM THESE STANDARDS IS ONLY ALLOWED, IF DETAILED PLANS HAVE WRITTEN APPROVAL BY THE CORR BEFORE CONSTRUCTION STARTS.
8. PUBLIC AREA EXCAVATION MUST BE BARRICADED WITH APPROVED VEHICLE AND PEDESTRIAN TRAFFIC CONTROL DEVICES BEFORE CONSTRUCTION STARTS.
9. INACTIVE (NO PERSONNEL PRESENT) EXCAVATION OUTSIDE OF AN EXISTING PAVEMENT, LEFT OPEN OVERNIGHT, MUST HAVE PEDESTRIAN FENCING & PLATING.
10. INACTIVE EXCAVATION MAY NOT REMAIN OPEN OVER A WEEKEND OR HOLIDAY WITHOUT PRIOR WRITTEN APPROVAL FROM THE CORR AND SAFE GUARDS.
11. TOTAL TRENCH WIDTH SHALL BE THE SUM OF THE OUTSIDE DIMENSION (OD) OF THE UTILITY CLUSTER OR ENCASEMENT PLUS A MINIMUM OF 2" IF THE OD IS LESS THAN 6 1/2", PLUS 6" IF THE OD IS BETWEEN 6 1/2" & 18", PLUS 12" IF THE OD IS MORE THAN 18" WITH A MAXIMUM OF 24".
12. FOR A UTILITY WORK SITE IN AN AREA THAT IS SCHEDULED FOR FUTURE PAVEMENT, SEE: ASPHALT PAVED AREA TRENCH (APAT) (DU-03) DETAIL.
13. FOR A UTILITY WORK SITE IN AN AREA THAT HAS EXISTING PAVEMENT, SEE: PROPOSED PAVEMENT AREA TRENCH (PPAT) (DU-04) DETAIL.
14. FOR A CROSSING OF A CORR OWNED UTILITY, SEE: UTILITY CROSSING INSTALLATION (UC) (DU-05) DETAIL.
15. REQUIRED ENCASEMENT MAY BE SCHEDULE 40 PVC, EXCEPT GAS, WHICH MUST BE SCHEDULE 40 WELDED JOINT STEEL OR SCHEDULE 80 PVC. OTHER TYPES OF ENCASEMENT REQUIRE CORR WRITTEN APPROVAL.
16. ALL ELECTRICAL CONDUCTIVE LINES (OVER 60 VOLTS) MUST BE ENCASED.
17. ALL UTILITY LINES MUST BE ENCASED UNDER EXISTING AND PROPOSED PAVEMENT, CROSSING ABOVE CORR LINES AND UNDER PROTECTED TREES.
18. WASHED SAND BEDDING MUST BE USED IN THE INSTALLATION WHEN WITHIN 10' OF A CORR OWNED UTILITY LINE, EXCEPT IN EXISTING PAVEMENT.
19. REQUIRED WASHED SAND BEDDING IN A TRENCH WITH SIDE WALL CLEARANCE LESS THAN 3" IS SMALL GRAIN (MAXIMUM 1/16") AND IN A TRENCH WITH SIDE WALL CLEARANCE MORE THAN 3" IS LARGE GRAIN (MAXIMUM 3/16"). BEDDING MUST BE CONSOLIDATED TO MINIMIZE AIR VOIDS.
20. ALL OF THE AREA(S) DISTURBED DIRECTLY BY, INDIRECTLY BY OR BECAUSE OF THE UTILITY WORK, WILL BE INCLUDED IN THE CLEAN UP.
21. CLEAN UP INCLUDES DRESS-OUT, EROSION CONTROL MAINTENANCE/REMOVAL, RESTORATION, DEBRIS REMOVAL/DISPOSAL & PAVEMENT SWEEPING/WASHING.
22. RESTORATION AS A MINIMUM, SHALL INCLUDE, FERTILIZER:
    A) ANY LAWN LIKE AREAS – SOLID SODDING WITH GRASS LIKE EXISTING OR APPROVED BETTER.
    B) GRADES 5% OR LESS – HYDRO-MULCHED.
    C) GRADES ABOVE 5% UP TO 10% – MATTED AND HYDRO-MULCHED.
    D) GRADES ABOVE 10% UP TO 25% – SOLID SODDING WITH GRASS LIKE EXISTING OR APPROVED BETTER.
    E) GRADES ABOVE 25% – DETAIL PLANS AND CORR WRITTEN APPROVAL REQUIRED.

LEGEND FOR DU SHEETS

PVC	POLYVINYL CHLORIDE PIPE OR CONDUIT
OD	OUTSIDE DIAMETER
GALS	UNITED STATES GALLONS – UNIT OF VOLUME
LBS	UNITED STATES POUNDS – UNIT OF WEIGHT
CORR	CITY OF ROUND ROCK
PUE	PUBLIC UTILITY EASEMENT
SY	UNITED STATES SQUARE YARDS – UNIT OF AREA
"	UNITED STATES INCH OR INCHES – UNIT OF LENGTH
'	UNITED STATES FOOT OR FEET – UNIT OF LENGTH
ETC	ABBREVIATION FOR ET CETERA, IN HENCE TO BE "AND SO FORTH"
ROW	RIGHT OF WAY OR RIGHTS OF WAY
LAB	ABBREVIATION FOR LABORATORY
°	UNITED STATES DEGREE – UNIT OF ANGLE
TV	TELEVISION

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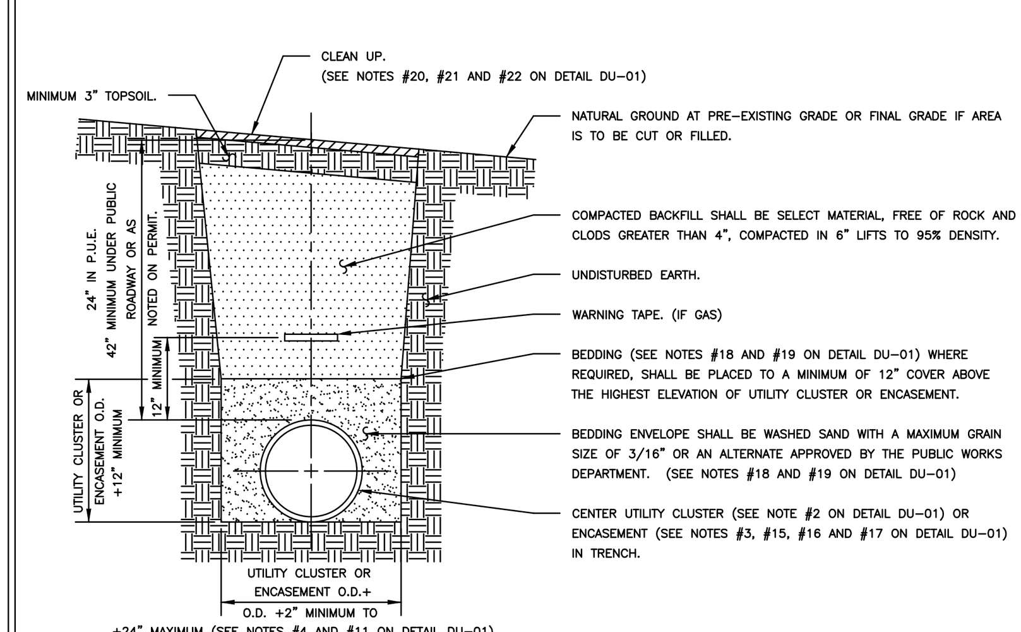
CITY OF ROUND ROCK — DRAWING NO: DU-01

DRY UTILITY DETAILS GENERAL NOTES SHEET



FOR ADDITIONAL GENERAL NOTES, SEE DETAIL DU-01

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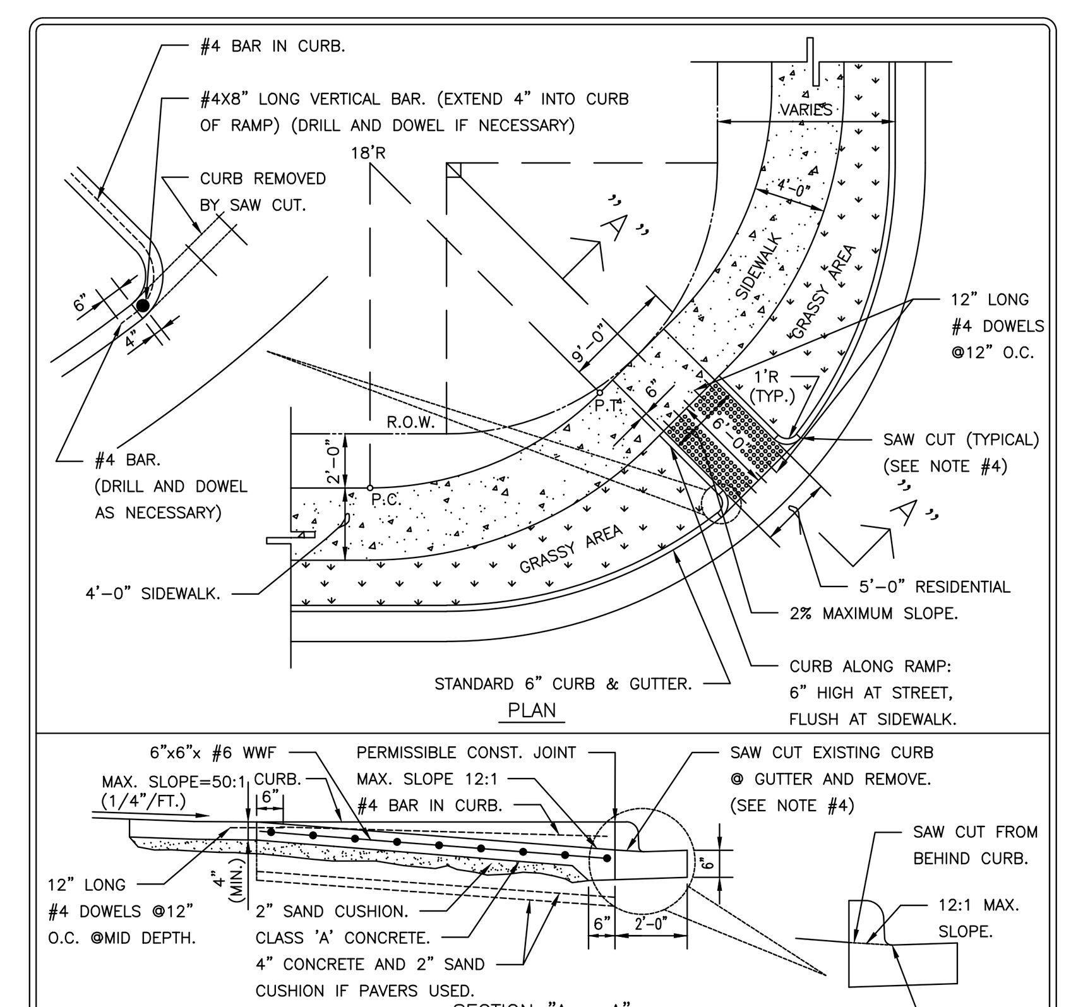
APPROVED 02-10-06 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: DU-02

UNPAVED AREA TRENCH (UAT) DETAIL



NOTES:

1. SIDEWALKS SHALL BE A MINIMUM OF 4'-0" WIDE.
2. THE RAMP SHALL HAVE A DETECTABLE WARNING AND CONTRASTING COLORED SURFACE. THE RAMP SHALL BE STAMPED AND DYED CONCRETE OR APPROVED EQUAL.
3. THE POSITION OF THE RAMP MAY BE ALTERED IN THE FIELD BY THE ENGINEER, BUT ONLY WITH THE PUBLIC WORKS DEPARTMENT APPROVAL.
4. SAW CUTTING IS APPLICABLE FOR INSTALLATION WHERE THE CURB LAYDOWN FOR THE RAMP IS NOT PROVIDED.
5. THE SIDEWALK PEDESTRIAN RAMP SHALL MEET ALL APPLICABLE A.D.A. REQUIREMENTS.

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APPROVED 08-21-03 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — DRAWING NO: ST-07

SIDEWALK PEDESTRIAN RAMP DETAIL (TYPE 1)

DESIGNED BY:	DRAFTED BY:

DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ❖ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr., Austin, Texas 78749
North Office: 12129 RR 620 N., Ste. 600, Austin, Texas 78750
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SHEET NAME: CONSTRUCTION DETAILS (1 OF 3)

JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1

PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

STATE OF TEXAS — STEVEN P. CATES — 93648 — LICENSED PROFESSIONAL ENGINEER

CARLSON, BRIGANCE & DOERING, INC. ID# F3791

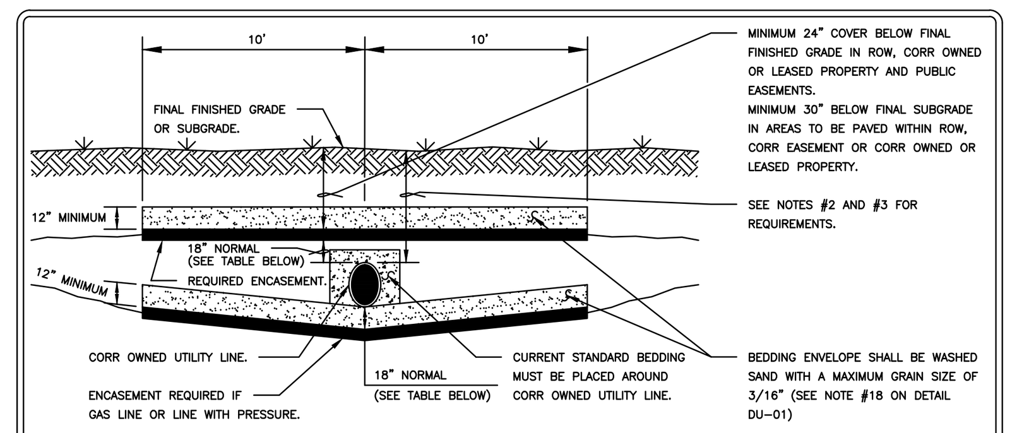
9-27-2023

DATE: SEP 2023

JOB NUMBER: 5557

SHEET: 64 OF 68

SHEET NO. 64



NOTE: NORMALLY, CROSSINGS GO UNDER CORR OWNED LINES WITH LESS THAN 60" OF COVER.

UTILITY MINIMUM CLEARANCE TABLE

	CORR OWNED LINE SIZE	CROSSING (AS NEAR 90° AS POSSIBLE)	PARALLEL ROUTES
POTABLE WATERLINES	LESS THAN ~ 6"	12"	36"
	6" ~ 36"	18"	48"
	LARGER	24"	72"
RECYCLE AND WASTEWATER LINES	LESS THAN ~ 6"	12"	36"
	6" ~ 36"	18"	48"
	LARGER	24"	60"
STORMWATER LINES	LESS THAN ~ 18"	12"	24"
	18" ~ 60"	18"	36"
	LARGER	24"	60"

FOR ADDITIONAL GENERAL NOTES, SEE DETAIL DU-01

NOTES:

1. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
2. AN ENCASED (SEE NOTE #7) UTILITY LINE/CLUSTER WITH SAND BEDDING, WILL BE ALLOWED TO CROSS OVER A CORR OWNED UTILITY LINE THAT HAS 60" OF COVER OR MORE, PROVIDED THERE IS COMPLIANCE WITH THE CLEARANCE, INSTALLATION AND COVER FROM FINAL SURFACE GRADE SHOWN ON THIS DETAIL. CLEARANCE STANDARDS CAN BE FOUND IN THE UTILITY MINIMUM CLEARANCE TABLE SHOWN ON THIS SHEET AND MINIMUM COVER IS SHOWN ON THE DETAIL SKETCH FOR EACH TYPE OF TRENCH (IN UNPAVED AREAS, IN EXISTING PAVEMENT AND IN AREAS WHERE PAVEMENT IS PROPOSED).
3. IF THE CORR LINE IS LARGE (36"+ POTABLE WATERLINE, RECYCLE LINE OR WASTEWATER LINE, 60"+ STORMWATER LINE) AND/OR HAS LESS THAN 60" OF COVER WITH SPECIAL SITE CONDITIONS, DETAILED PLANS WITH WRITTEN JUSTIFICATION FOR CROSSING OVER A PROPOSED OR EXISTING CORR OWNED LINE, MUST BE SUBMITTED FOR APPROVAL A MINIMUM OF 10 DAYS BEFORE PROPOSED INSTALLATION.
4. NO ENCASEMENT (SAND BEDDING ONLY) IS REQUIRED WHERE THE UTILITY CROSSES UNDER THE CORR OWNED UTILITY LINE, EXCEPT FOR A GAS LINE, OR LINE WITH PRESSURE, WHICH MUST BE ENCASED. CLEARANCE STANDARDS COMPLIANCE REQUIRED.
5. WHERE THERE IS KNOWN GROUND WATER, PLANS MUST BE SUBMITTED, THAT SHOW AN ACCEPTABLE CONTROL OF THE WET CONDITION.
6. ENCASEMENT IN THESE CROSSINGS, MUST BE SCH. 40 STEEL OR SCH. 80 PVC OR GREATER IN ADDITION TO THE CONDUIT ON ELECTRICAL LINES WITH MORE THAN 120V TO GROUND, ALL GAS LINES, ALL FIBER OPTIC CABLES AND ALL TELEPHONE CABLES WITH MORE THAN 100 PRS.

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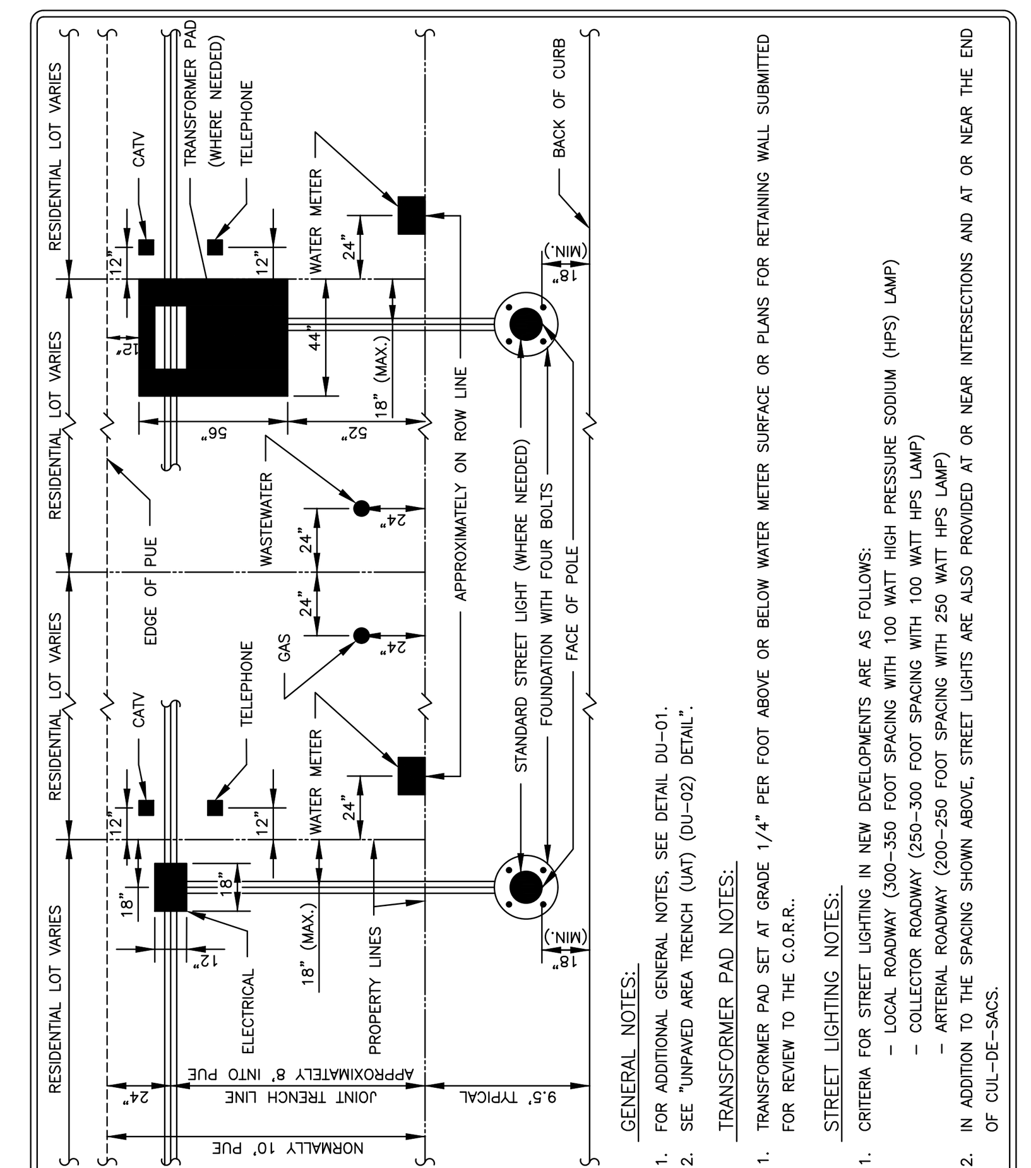
CITY OF ROUND ROCK — UTILITY CROSSING INSTALLATION (UC) DETAIL — DRAWING NO: DU-05



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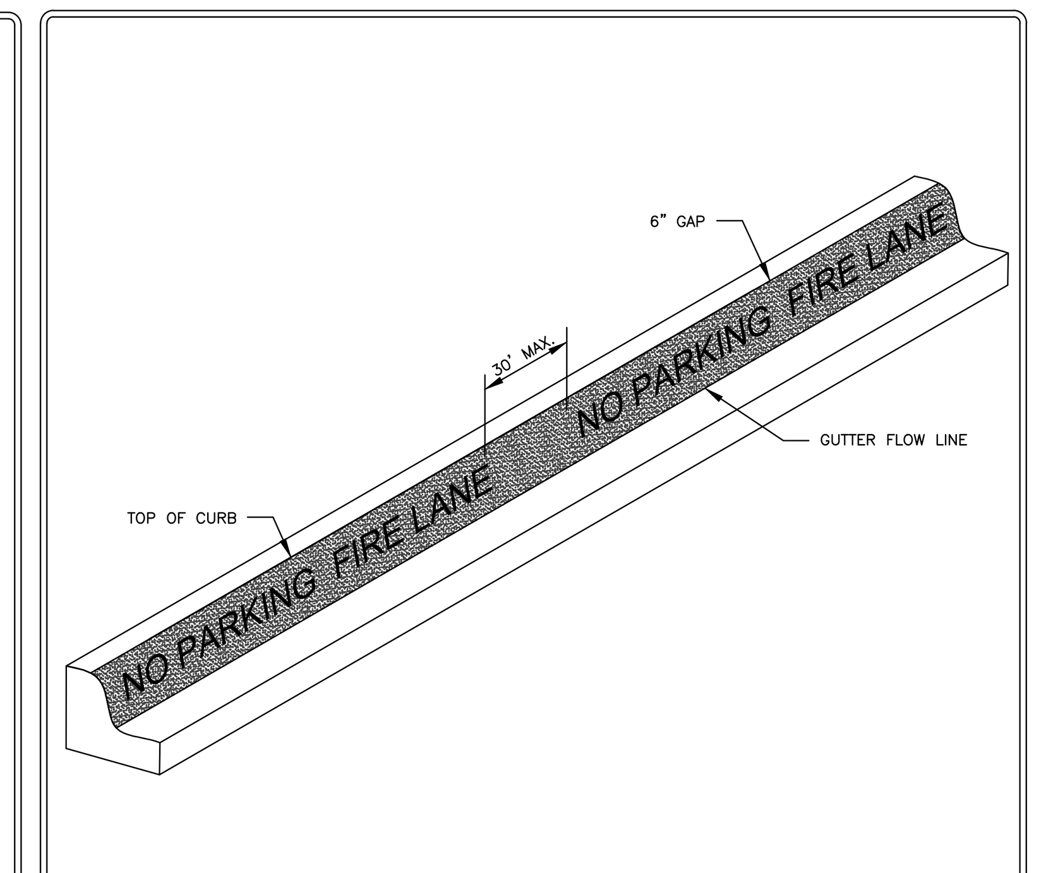
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — STANDARD UTILITY ASSIGNMENTS WITHIN RESIDENTIAL DEVELOPMENT DETAIL — DRAWING NO: DU-06



NOTES:

FIRE LANE STRIPING TO BE 6" WIDE RED PAINT WITH "NO PARKING FIRE LANE" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED GREATER THAN 30' APART. STRIPING TO BE PAINTED ON THE FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON THE PARKING SURFACE WHEN IT IS NOT.

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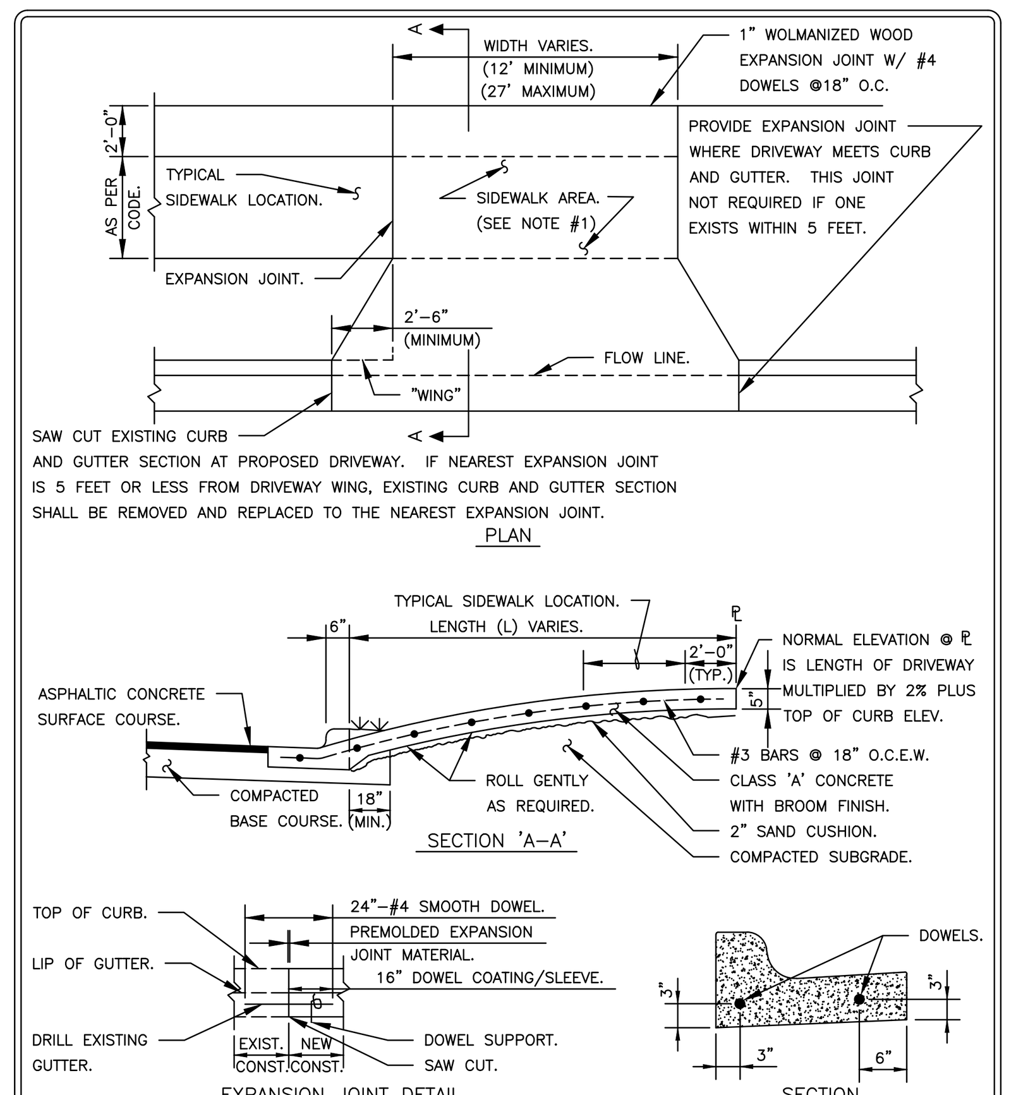
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — FIRE LANE MARKING DETAIL — DRAWING NO: ST-13



NOTE:

1. THE SIDEWALK AREA OF THE DRIVEWAY SHALL SLOPE TOWARD THE STREET PAVING AT NO MORE THAN 2%.

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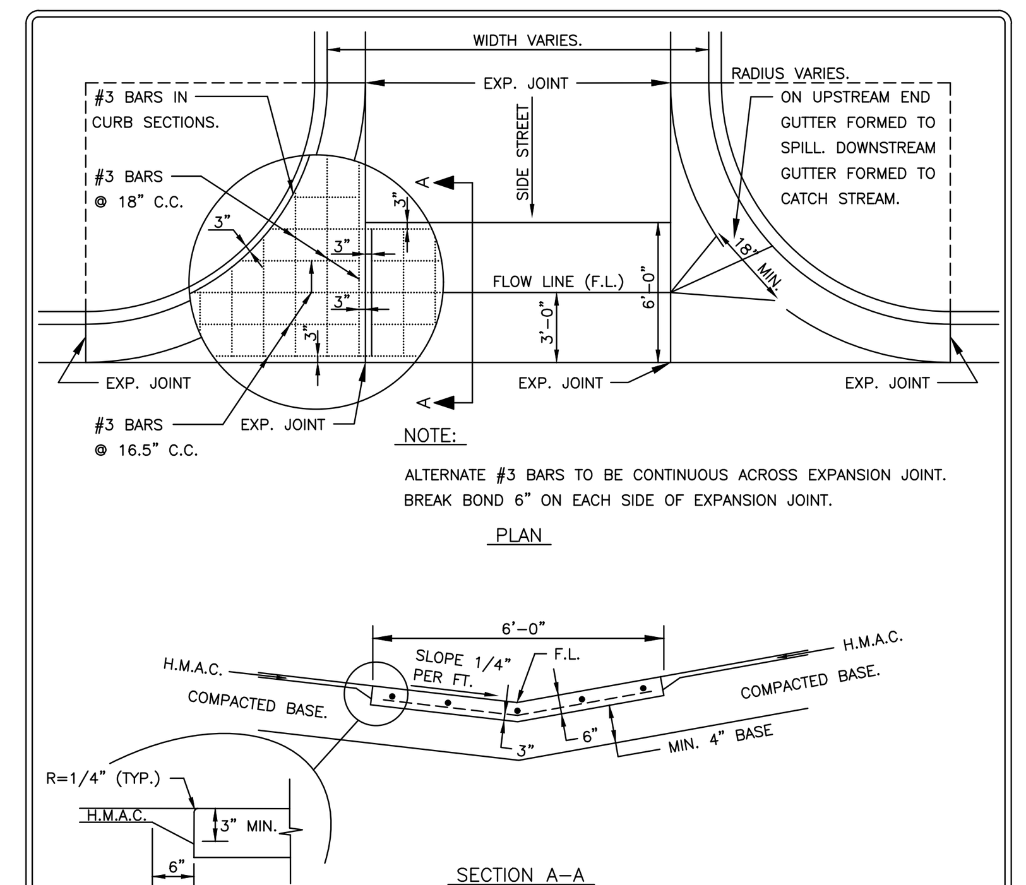
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — CONCRETE DRIVEWAY DETAIL (RESIDENTIAL) — DRAWING NO: ST-02



NOTES:

1. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
2. CONCRETE SHALL BE CLASS "A".
3. MONOLITHIC CURB & GUTTER SHALL BE MEASURED BY PLAN SQUARE FEET AND PAID AS VALLEY GUTTER.
4. THE UPSTREAM CURB MID POINT MUST BE AT OR LOWER THAN THE BEGINNING P.C. AND .5% (MIN.) HIGHER THAN THE OPPOSING MID POINT.
5. ALLOWABLE CONSTRUCTION JOINT AT ℄ WHEN TRAFFIC FLOW MUST BE MAINTAINED, CONSTRUCTED AS A CONTROL JOINT. PROVIDE EXPANSION JOINT @ ℄ FOR WIDTHS GREATER THAN 40 FEET.
6. ALL EXPANSION JOINTS SHALL BE CONSTRUCTED WITH 1/2" PREMOLDED EXPANSION JOINT MATERIAL AND DOWELS AND CAPS (SEE STANDARD CURB DOWEL DETAIL).

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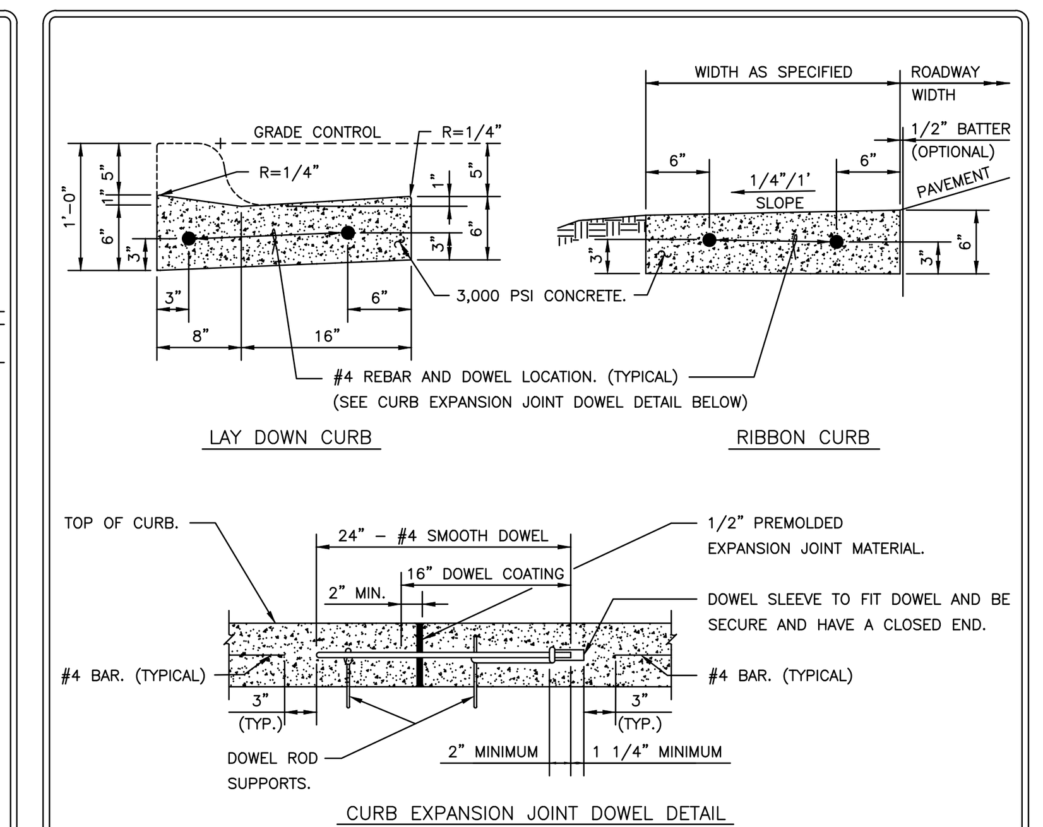
CITY OF ROUND ROCK — CONCRETE VALLEY GUTTER DETAIL — DRAWING NO: ST-06

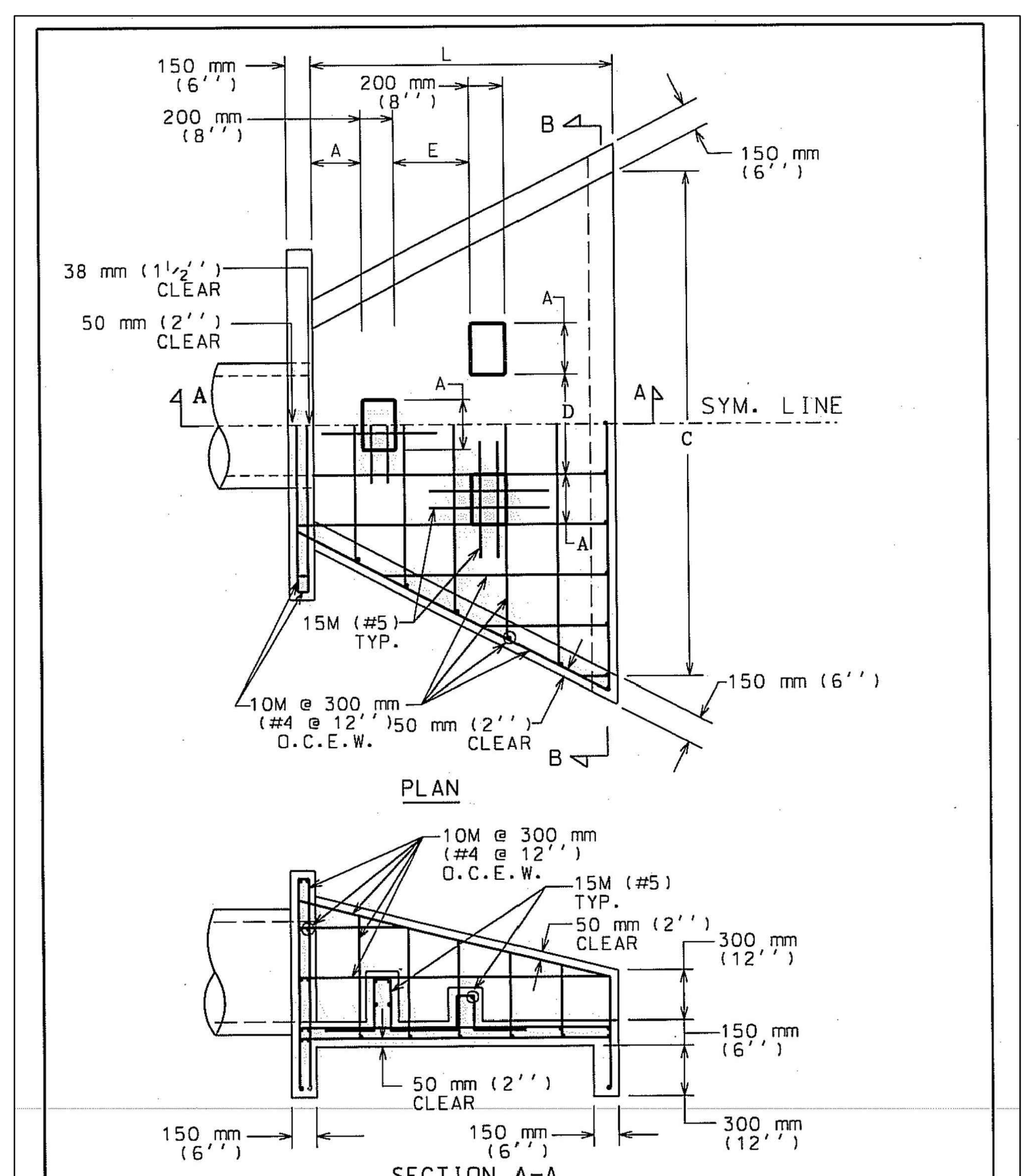


NOTES:

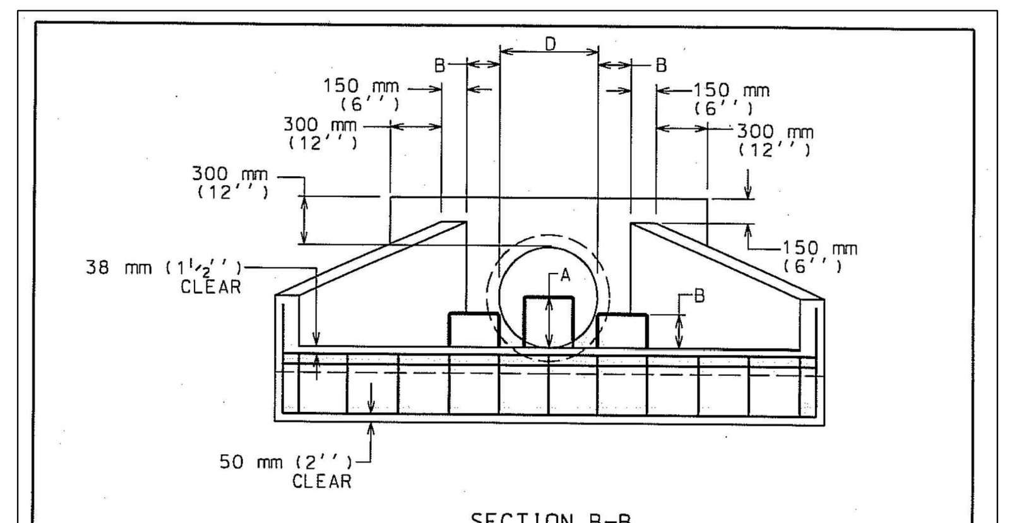
1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0'.
3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDANT OF THE CONSTRUCTION METHODS USED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS — APPROVED 08-21-03 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK — LAYDOWN AND RIBBON CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL) — DRAWING NO: ST-04



CITY OF AUSTIN — DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW — STANDARD HEADWALL AND ENERGY DISSIPATORS — STANDARD NO. 508S-13, 1 OF 2



NOTES:

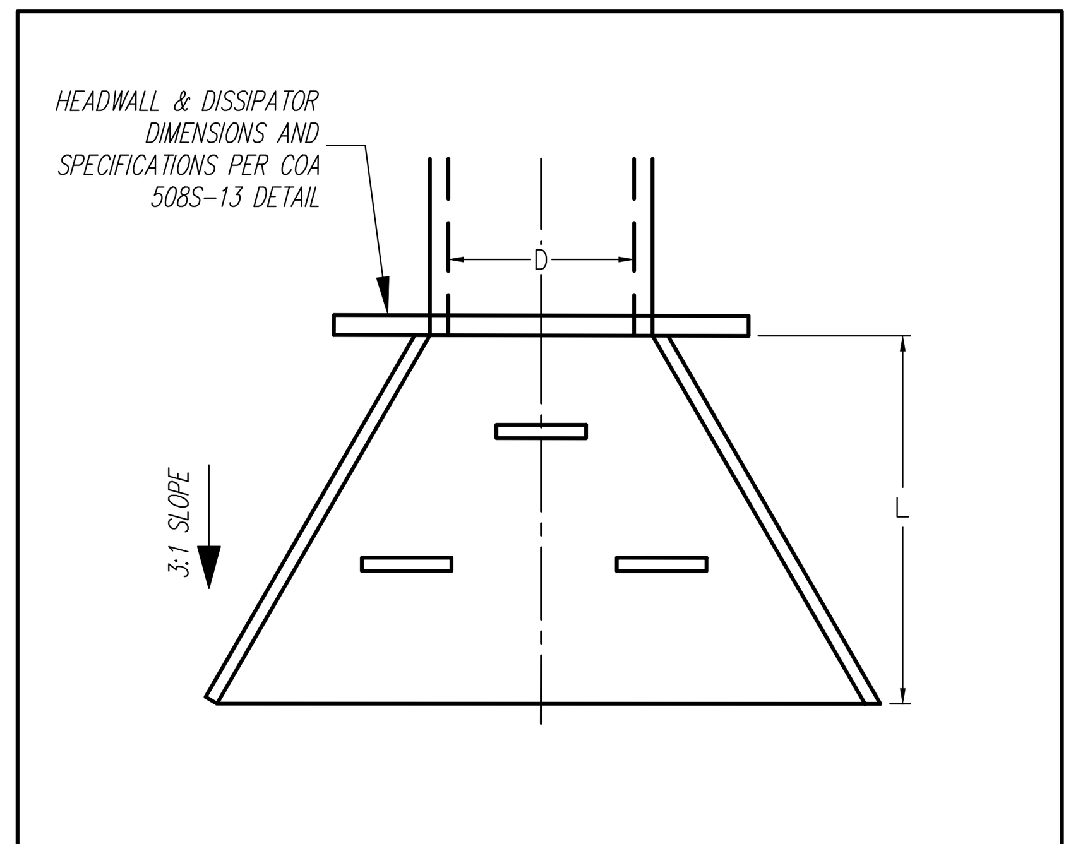
1. ALL CONCRETE SHALL BE TYPE "C" AS PER SPEC. 403S. CONCRETE FOR STURCTURES.
2. CHAMFER ALL EXTERNAL VISIBLE CORNERS.
3. DISSIPATOR BLOCKS REQUIRED ON DISCHARGE HEADWALLS ONLY.

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.

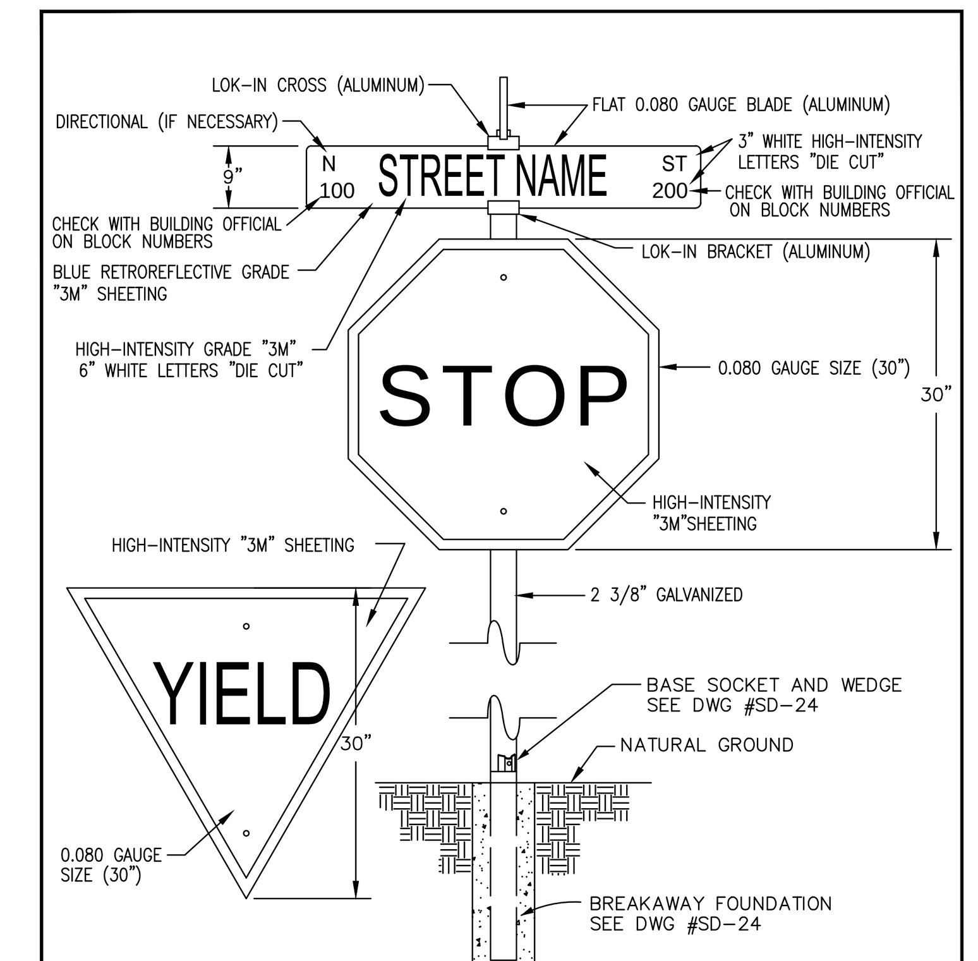
CITY OF AUSTIN — DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW — STANDARD HEADWALL AND ENERGY DISSIPATORS
Bill Gardner 8/20/07 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 508S-13, 2 OF 2



EXTENDED APRON LENGTH PER PIPE DIAMETER (MODIFIED FROM COA 508S-13 HEADWALL DETAIL)								
D	18"	24"	30"	36"	42"	48"	54"	60"
L	7.5'	9'	10.5'	12'	13.5'	15'	16.5'	19.5'

508S-13 HEADWALL WITH EXTENDED APRON

N.T.S.



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

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

REVISION NOTE: REVISED 1/14/2014 WBD
REVISION NOTE: ADOPTED 6/21/2006 TRB

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS — STANDARD STREET SIGN DETAIL
Georgetown Utility Systems — Your Community Owned Utility
DRAWING NAME: SD25 — SCALE: NTS — DATE: 1/2003 — DRAWN BY: MRS/AP — APPROVED BY: TRB

DESIGNED BY: | DRAFTED BY:
DATE | REVISION

Carlson, Brigance & Doering, Inc.
Civil Engineering ◆ Surveying
FIRM ID #F3791
Main Office: 5501 West William Cannon Dr., Austin, Texas 78749 — Phone No. (512) 280-5160
North Office: 12129 RR 620 N., Ste. 600, Austin, Texas 78750 — Fax No. (512) 280-5165

SHEET NAME: CONSTRUCTION DETAILS (2 OF 3)
JOB NAME: SANTA RITA RANCH PHASE 2B SECTION 1
PROJECT: STREET, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

CARLSON, BRIGANCE & DOERING, INC. ID# F3791
9-27-2023

DATE: SEP 2023
JOB NUMBER: 5557
SHEET: 65 OF 68
SHEET NO. 65

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