LJA ENGINEERING

7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
t 512.439.4700 LJA.com TBPE F-1386

March 23, 2023

Edwards Aquifer Protection Program
Texas Commission on Environmental Quality – Region 11
PO Box 13087
Austin, Texas 78711-3087

Re: Parten Ranch Phase 8
LJA Project No. A311-413

Dear Colin:

Please find enclosed the response to the comments dated March 21, 2023, regarding the Parten Ranch Phase 8 CZP-OEM:

1. Line 8 – Site (acres). Please review and revise acres of the site. According to the Hays Central Appraisal District, the project site parcel (R16615) has an acreage of 114.42.
   Response: The site parcel on the Hays Central Appraisal District includes a portion of Parten Ranch Phases 6&7 which is currently in development. Parten Ranch Phase 8 will be platted with the 81.03 acres shown on the application. Please see the included final plat for the total project acreage.

2. Please notarize Agent Authorization Form.
   Response: The Agent Authorization Form has been notarized.

3. Please review and revise based on the site property acreage (114.42 acres).
   Response: Please reference response to comment #1.

4. Please include a P.E. Seal on applicable site plans and specifications.
   Response: A P.E. Seal has been included on applicable sheets.

If you have any questions, please do not hesitate to call.

Sincerely,

Lauren Crone

Lauren Crone, P.E.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CONTRIBUTING ZONE PLAN

FOR

PARTEN RANCH, PHASE 8

DECEMBER 2022

PREPARED FOR

HM PARTEN RANCH DEVELOPMENT, INC.
1011 NORTH LAMAR BLVD.
AUSTIN, TEXAS 78703
512-477-2400

PREPARED BY

LJA ENGINEERING, INC.
7500 RIALTO BLVD, BUILDING II, SUITE 100
AUSTIN, TEXAS 78735
(512) 439-4700
FIRM NO. F-1386

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: Parten Ranch, Phase 8					**2. Regulated Entity No.:**				
3. Customer Name: Parten Ranch Development, Inc.					**4. Customer No.: CN605256239**				
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):**		81.03 acres	
9. Application Fee:	$6,500		**10. Permanent BMP(s):**			Batch Detention Pond			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Hays		**14. Watershed:**			Bear Creek Watershed			

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 X Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda X Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Lauren Crone Print Name of Customer/Authorized Agent
Lauren Crone 3/6/2023 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: Lauren Crone, P.E.

Date: 3/6/2023

Signature of Customer/Agent:

Lauren Crone

Regulated Entity Name: Parten Ranch, Phase 8

Project Information

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

   Contact Person: Jay Hanna
   Entity: HM Parten Ranch Development, Inc.
   Mailing Address: 1011 North Lamar Blvd.
   City, State: Austin, Texas Zip: 78703
   Telephone: 512-477-2400 Fax: _____
   Email Address: jay@jayhanna.com

5. Agent/Representative (If any):

Contact Person: Lauren Crone, P.E.
Entity: LJA Engineering, Inc.
Mailing Address: 7500 Rialto Blvd., Building II, Suite 100
City, State: Austin, Texas Zip: 78735
Telephone: 512-439-4700 Fax: _____
Email Address: lcrone@lja.com

6. Project Location:

☐ The project site is located inside the city limits of _____.
☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Dripping Springs.
☐ The project site is not located within any city's limits or ETJ.

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

The project is located 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road in Hays County, Texas.

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: 87
☐ Residential: # of Living Unit Equivalents: _____
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 81.03 Acres

    Total disturbed area: 10.67 Acres

14. Estimated projected population: 305

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	253,500	÷ 43,560 =	5.82
Parking		÷ 43,560 =	
Other paved surfaces	120,875	÷ 43,560 =	2.77
Total Impervious Cover	374,375	÷ 43,560 =	8.59

Total Impervious Cover 8.59 **÷ Total Acreage** 81.03 **X 100 =** 10.60**% 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 Hays MUD 5 (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" = 120'.

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 Flood Insurance Rate Map No. 48209C0140F Sep. 2, 2005.

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

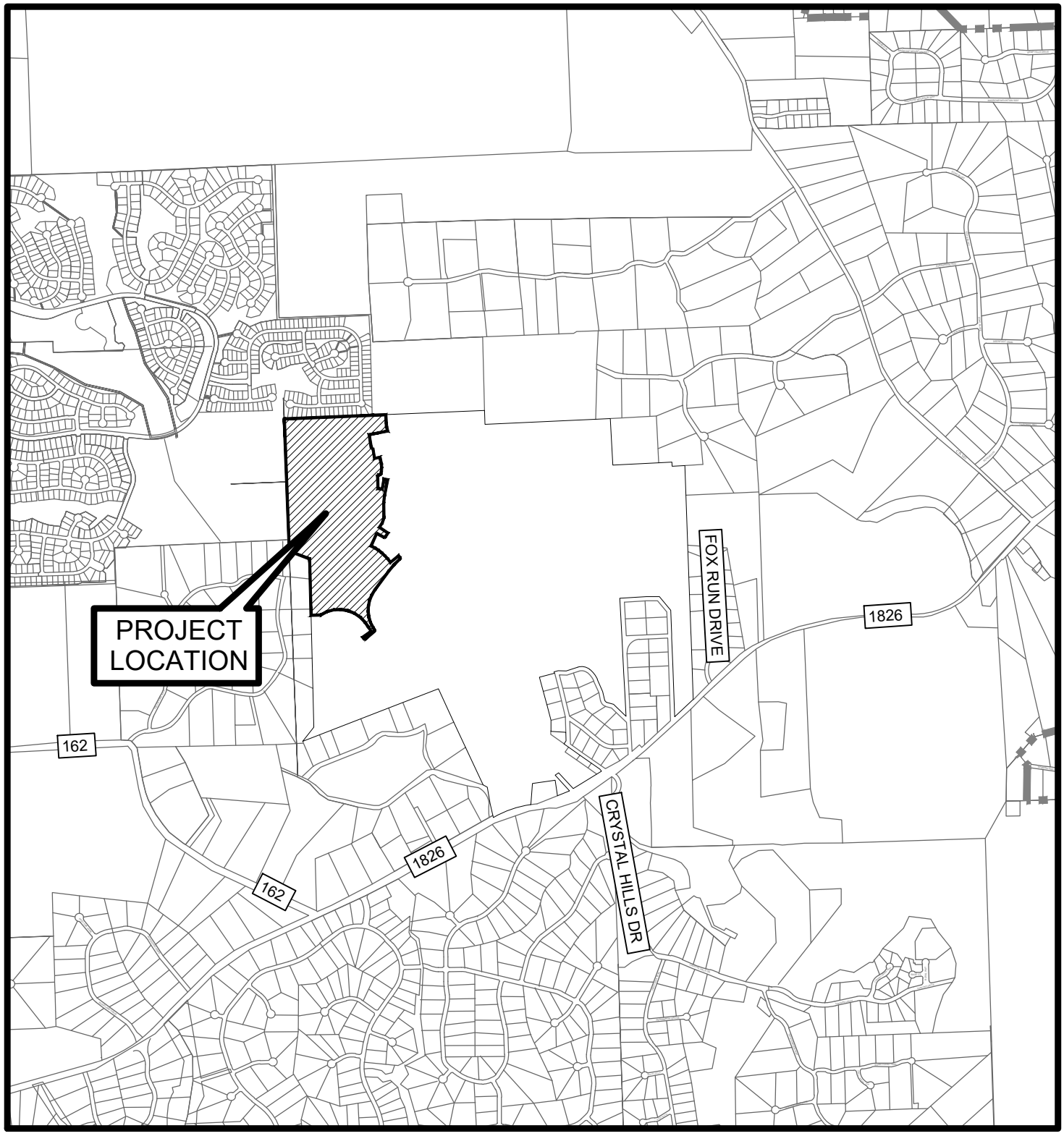
61. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions.

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.

ATTACHMENT A – Road Map



2000 1000 0 2000 4000

SCALE IN FEET

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716

PARTEN RANCH, PHASE 8

ATTACHMENT A - ROAD MAP

CONTRIBUTING ZONE PLAN APPLICATION

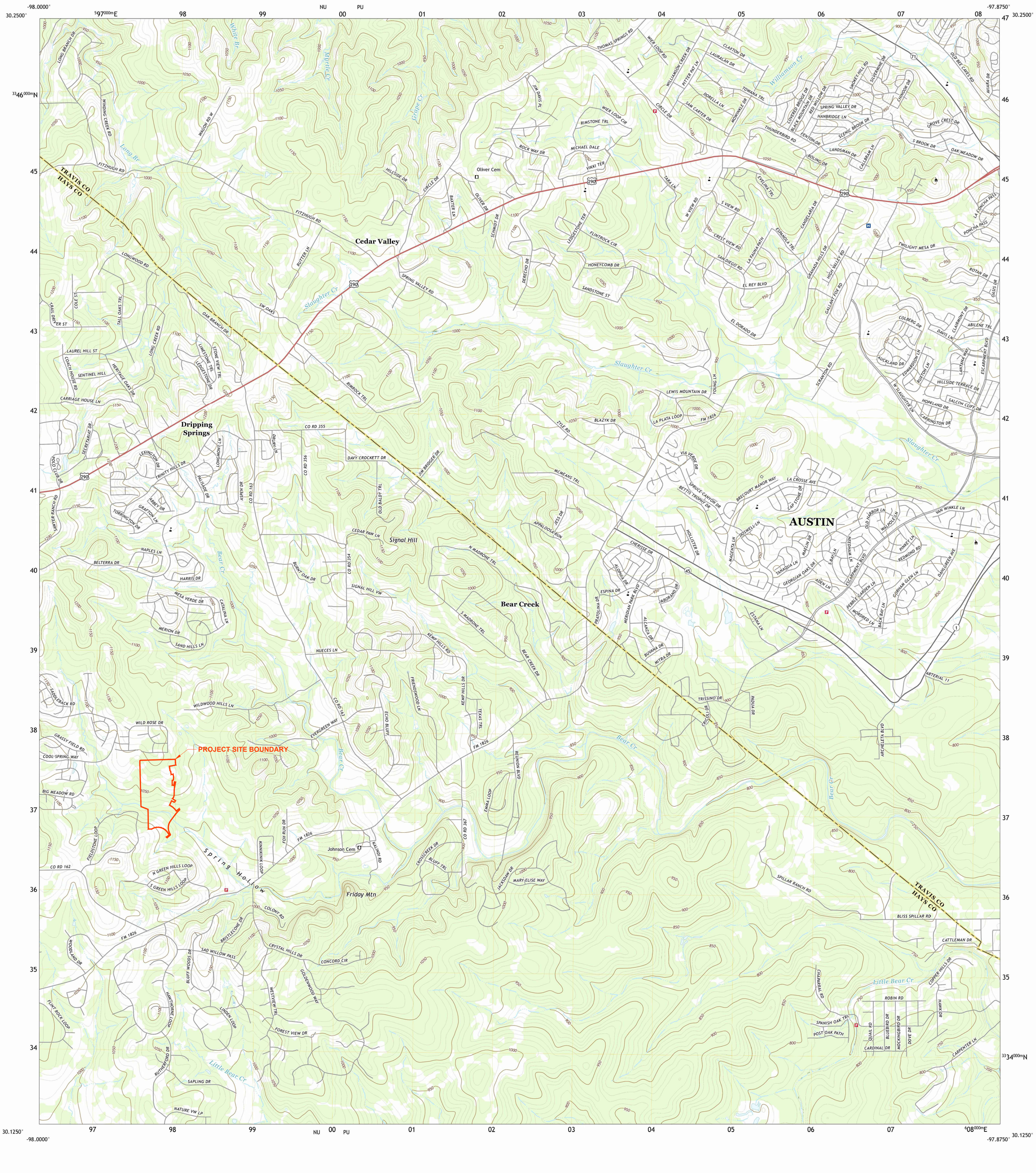
ATTACHMENT B – USGS Quadrangle Map

USGS
science for a changing world

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

The National Map
US Topo

SIGNAL HILL QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, October 2016 - November 2016
Roads.....U.S. Census Bureau, 2015
Names.....GNIS, 1979 - 2018
Hydrography.....National Hydrography Dataset, 2002 - 2018
Contours.....National Elevation Dataset, 2002
Boundaries.....Multiple sources; see metadata file 2016 - 2017

Wetlands.....FWS National Wetlands Inventory 1982

MN
GN
3°48'
68 MILS
0°32'
9 MILS
UTM GRID AND 2019 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

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

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Shingle Hills
2 Bee Cave
3 Austin West
4 Dripping Springs
5 Oak Hill
6 Driftwood
7 Mountain City
8 Buda

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

SIGNAL HILL, TX
2019

FOR PLANNING PURPOSES ONLY

SHEET NO. 1 OF 1 SHEETS

JOB NUMBER: A311

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: USGS QUAD.dwg

REVISIONS			
NO.	DESCRIPTION	BY	DATE

PARTEN RANCH, PHASE 8
CONTRIBUTING ZONE PLAN
ATTACHMENT B - SIGNAL HILL QUADRANGLE

ATTACHMENT C – Project Narrative

Parten Ranch, Phase 8 is a proposed 81.03 acre single-family development that will consist of 87 single family lots and 3 drainage/open space lots. The development will include paved roads, concrete sidewalks, utilities that will include water, wastewater, and drainage, and dry utilities. The limits of construction consists of 10.67 acres. The proposed impervious cover equals 8.59 acres or 10.60 percent of the site area.

The site is located approximately 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road. The site is located in the Bear Creek Watershed. The property drains south.

Water quality will be provided by a batch detention pond. The pond will be located on the south side of Phase 8. Pond A will treat approximately 24.02 acres. Engineered Vegetative Filter Strips will be used to treat Areas B, C, and D. Areas E, F, and G will be left untreated. Area H will be treated in Phases 6 and 7.

The ponds will be located within an easement dedicated to Springhollow MUD and maintained by the District once they are accepted.

ATTACHMENT D – Factors Affecting Surface Water Quality

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping operation

Potential sources other than sediment:

- small fueling activities
- minor equipment maintenance
- sanitary facilities
- solvents, adhesives, paints, etc.
- paving materials, concrete, mortar

ATTACHMENT E – Volume and Character of Stormwater

The property drains toward the south with overland conditions. The proposed development will cause an increase in runoff due to impervious cover and reduced time of concentration; however, the increase will be offset through the use of water quality ponds. The water quality calculations demonstrate the removal of the minimum eighty percent (80%) pollutant load for the developed site are provided following these attachments.

As a result of these measures, the volume and character of the stormwater runoff from the site will be effectively unchanged from predevelopment levels.

ATTACHMENT F – Suitability Letter from Authorized Agent (if OSSF is proposed)

Not Applicable.

ATTACHMENT G – Alternative Secondary Containment Methods (if AST with an alternative method of secondary containment is proposed)

Not Applicable.

ATTACHMENT H – AST Containment Structure Drawings (if AST is proposed)

Not Applicable.

ATTACHMENT I – 20% or Less Impervious Cover Waiver

Not Applicable.

ATTACHMENT J – BMPs for Upgradient Stormwater

The proposed development is located in the Bear Creek Watershed. The property drains toward the south with overland conditions. Water quality will be provided by a batch detention pond. The ponds will be located on the south side of Phase 8. Pond A will treat approximately 24.02 acres. Engineered Vegetative Filter Strips will be used to treat Areas B, C, and D. Areas E, F, and G will be left untreated. Area H will be treated in Phases 6 and 7.

The pond will be located within an easement dedicated to Springhollow MUD and maintained by the District once they are accepted.

ATTACHMENT K – BMPs for On-Site Stormwater

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas and through use of a batch detention pond. The storm water runoff from Water Quality Area A (24.02 acres) will be collected in storm drain inlets, storm drain pipes and overland flow and conveyed to the proposed Pond A. Water Quality Areas B (1.28 acres), C (1.47 acres), and D (1.18 acres) will be treated by vegetative filter strips. Water Quality Areas E (37.52 acres), F (4.82 acres), and G (5.53 acres) will be left untreated. Area H (5.41 acres) will be treated in Phases 6 and 7.

ATTACHMENT L – BMPs for Surface Streams

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas and through use of a batch detention pond. The storm water runoff from Water Quality Area A (24.02 acres) will be collected in storm drain inlets, storm drain pipes and overland flow and conveyed to the proposed Pond A. Water Quality Areas B (1.28 acres), C (1.47 acres), and D (1.18 acres) will be treated by vegetative filter strips. Water Quality Areas E (37.52 acres), F (4.82 acres), and G (5.53 acres) will be left untreated. Area H (5.41 acres) will be treated in Phases 6 and 7.

ATTACHMENT M – Construction Plans

Copies of the construction plans are included with this submittal.

ATTACHMENT N – Inspection, Maintenance, Repair, and Retrofit Plan

See attached document labeled “Maintenance Plan for Permanent Best Management Practices for Parten Ranch, Phase 8”.

ATTACHMENT O – Pilot-Scale Field Testing Plan, if BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs

Not Applicable

ATTACHMENT P – Measures for Minimizing Surface Stream Contamination

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas and through use of batch detention pond.

The storm water runoff from Water Quality Area A (24.02 acres) will be collected in storm drain inlets, storm drain pipes and overland flow and conveyed to the proposed Pond A. Water Quality Areas B (1.28 acres), C (1.47 acres), and D (1.18 acres) will be treated by vegetative filter strips. Water Quality Areas E (37.52 acres), F (4.82 acres), and G (5.53 acres) will be left untreated. Area H (5.41 acres) will be treated in Phases 6 and 7.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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: $L_M = 27.7(A_N \times P)$

where:

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

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	7852	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 8

WATER QUALITY SUMMARY TABLE

WATER QUALITY DRAINAGE AREA	DRAINAGE AREA (acre)	I.C. (acre)	L_m REQ. (lbs.)	L_m DES. (lbs.)	WQV REQ. (c.f.)	WQV DES. (c.f.)
A - BATCH DETENTION	24.02*	5.62	5137	5728	57231	85258
B - VEGETATIVE FILTER STRIP	1.28	0.36	329	363		
C - VEGETATIVE FILTER STRIP	1.47	0.40	366	404		
D - VEGETATIVE FILTER STRIP	1.18	0.30	274	304		
E - UNTREATED	37.52	0.54	494	0		
F - UNTREATED	4.82	0.00	0	0		
G - UNTREATED	5.53	0.00	0	0		
H - BATCH DETENTION (CAPTURED BY OFF-SITE WATER QUALITY POND CONSTRUCTED IN PARTEN RANCH PHASES 6&7)	5.41	1.37				
TOTAL	**81.23**	**8.59**	**6600**	**6800**	**57231**	**85258**

*INCLUDES 0.20 AC. OF OFF-SITE CAPTURE

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction* =	0.11	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	7852	lbs.

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

Drainage Basin/Outfall Area No. = A

Total drainage basin/outfall area=	24.02	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	5.62	acres
Post-development impervious fraction within drainage basin/outfall area=	0.23	
$L_{M\ THIS\ BASIN}$ =	5137	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

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

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

where:

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

A_C =	23.82	acres
A_I =	5.62	acres
A_P =	18.20	acres
L_R =	6135	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 5728 lbs.

F = 0.93

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

Rainfall Depth =	2.20	inches
Post Development Runoff Coefficient =	0.25	
On-site Water Quality Volume =	47660	cubic feet

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

Off-site area draining to BMP =	0.20	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	32	cubic feet
Storage for Sediment =	9538	
Total Capture Volume (required water quality volume(s) x 1.20) =	57231	cubic feet

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

Required Water Quality Volume for extended detention basin = 57231 cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **7852** lbs.

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

Drainage Basin/Outfall Area No. = B

Total drainage basin/outfall area =	1.28	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	0.36	acres
Post-development impervious fraction within drainage basin/outfall area=	0.28	
$L_{M\ THIS\ BASIN}$ =	329	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**
Removal efficiency = **85** percent

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

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

where:

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

A_C =	1.28	acres
A_I =	0.36	acres
A_P =	0.92	acres
L_R =	363	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 363 lbs.

F = **1.00**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **7852** lbs.

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

Drainage Basin/Outfall Area No. = C

Total drainage basin/outfall area =	1.47	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.40	acres
Post-development impervious fraction within drainage basin/outfall area =	0.27	
$L_{M\ THIS\ BASIN}$ =	366	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**
Removal efficiency = **85** percent

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

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

where:

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

A_C =	1.47	acres
A_I =	0.40	acres
A_P =	1.07	acres
L_R =	404	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **404** lbs.

F = **1.00**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **7852** lbs.

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

Drainage Basin/Outfall Area No. = D

Total drainage basin/outfall area =	1.18	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	0.30	acres
Post-development impervious fraction within drainage basin/outfall area=	0.25	
$L_{M\ THIS\ BASIN}$ =	274	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**
Removal efficiency = **85** percent

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

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

where:

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

A_C =	1.18	acres
A_I =	0.30	acres
A_P =	0.88	acres
L_R =	304	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 304 lbs.

F = **1.00**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **7852** lbs.

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

Drainage Basin/Outfall Area No. = E

Total drainage basin/outfall area =	37.52	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.54	acres
Post-development impervious fraction within drainage basin/outfall area =	0.01	
$L_{M\ THIS\ BASIN}$ =	494	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **7852** lbs.

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

Drainage Basin/Outfall Area No. = F

Total drainage basin/outfall area =	4.82	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **7852** lbs.

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

Drainage Basin/Outfall Area No. = G

Total drainage basin/outfall area =	5.53	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	8.59	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	7852	lbs.

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

Drainage Basin/Outfall Area No. = H-6&7

Total drainage basin/outfall area =	5.41	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.37	acres
Post-development impervious fraction within drainage basin/outfall area =	0.25	
$L_{M\ THIS\ BASIN}$ =	1252	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

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

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

where:

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

A_C =	16.95	acres
A_I =	1.37	acres
A_P =	15.58	acres
L_R =	1676	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 1676 lbs.

F = 1.00

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

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.12	
On-site Water Quality Volume =	29214	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 =	5843	
Total Capture Volume (required water quality volume(s) x 1.20) =	35057	cubic feet

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

Required Water Quality Volume for extended detention basin = 35057 cubic feet

Maintenance Plan
For Permanent Best Management Practices
Parten Ranch, Phase 8

PROJECT NAME *Parten Ranch, Phase 8*

ADDRESS: *The project is located 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road in Hays County, Texas.*

CITY, STATE, ZIP *Driftwood, Texas 78737*

The Best Management Practices associated with Water Quality for this project includes the use of vegetative filter strips and batch detention ponds.

MAINTENANCE FOR VEGETATED BMPS

Routine Maintenance for All Vegetated BMPs

Once a vegetated area is well established, little additional maintenance is generally necessary. The key to establishing a viable vegetated feature is the care and maintenance it receives in the first few months after it is planted. Once established, all vegetated BMPs require some basic maintenance to ensure the health of the plants including:

All vegetated BMPs shall be inspected twice annually for erosion or damage to vegetation. Additional inspections after periods of heavy runoff is most desirable.

Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored. Construction of a level spreader device may be necessary to re-establish shallow overland flow.

Sediment built up in vegetated BMPs, especially along the upstream boundary and in the level spreader, must be removed during semi-annual inspections.

If level spreaders are needed, they shall be inspected at least semi-annually and repairs made as necessary.

Irrigation system shall be inspected at least semi-annually during operation. Maintenance and spray adjustments shall occur to maintain proper operation.

MAINTENANCE FOR SENSITIVE FEATURES AND BUFFER AREAS

Routine Maintenance for All Sensitive Features and Buffer Areas

All sensitive features and buffer areas shall be inspected twice annually for erosion or damage to vegetation or the feature itself. Additional inspections after periods of heavy runoff is most desirable.

Bare spots and areas of erosion or damage to the feature identified during semi-annual inspections must be replanted and restored to natural conditions. Excessive sediment build up must also be removed during semi-annual inspections. Debris and litter accumulated must also be removed.

Protective fences around buffer areas shall be inspected during semi-annual inspections to ensure damage has not occurred.

MAINTENANCE FOR STRUCTURAL (STORMWATER CAPTURE) SYSTEMS

Routine Maintenance for All Structural Systems

Water quality ponds of all types have similar routine maintenance requirements, although most ponds have some unique maintenance needs, as detailed in this section. The following general maintenance requirements apply to all pond BMPs.

BMP facilities must be inspected at least six times per year (twice during or immediately following wet weather) to evaluate facility operation.

During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately.

Grass areas in and around earthen ponds must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. When mowing of grass is performed, a mulching mower must be used, or grass clippings must be caught and removed, as with all water quality BMPs.

Debris and litter accumulated in the facility must be removed during each inspection.

Excessive sediment must be removed and properly disposed of in an approved off-site disposal area. Remove excessive sediment at least two times per year or when accumulations reach 3 inches in depth.

Design drawdown times must not be exceeded by more than 24 hours. The design drawdown time is 72 hours from the first accumulation of stormwater or when the pond reaches full capacity. If drawdown times are excessive, repairs should occur immediately.

With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, gabions, retaining walls, etc.) must be identified and repaired immediately.

A maintenance access route shall extend to the pond from a public or private road. The maintenance access shall have a slope of no greater than 15 percent.

Inlet and outlet structures should be inspected and cleaned out of any debris or sediment. If there are major damage to either the inlet or outlet controls, the damaged areas should be repaired.

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.

RECORD KEEPING OF INSPECTIONS, MAINTENANCE AND REPAIRS SHALL BE MAINTAINED BY THE RESPONSIBLE PARTY.

An amended copy of this document will be provided to the Texas Commission on Environmental Quality within thirty (30) days of any changes in the following information.

Responsible Party for Maintenance: HM Parten Ranch Development, Inc.

Address: 1011 North Lamar

City, State Zip: Austin, Texas 78703

Telephone Number: (512) 477-2400

Signature of Responsible Party

3-1-23
Date

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.

PARTEN RANCH, PHASE 8

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

STORMWATER POLLUTION PREVENTION PLAN

DECEMBER 2022

Prepared for:

HM Parten Ranch Development, Inc.
1011 North Lamar Blvd.
Austin, TX, 78703
(512) 477-2400

Prepared by:

LJA ENGINEERING, INC.
7500 RIALTO BLVD
BUILDING II, SUITE 150
AUSTIN, TEXAS 78735
(512) 439-4700
FRN-F-1386

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PARTEN RANCH PHASE 8

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

STORMWATER POLLUTION PREVENTION PLAN

A. SITE DESCRIPTION

1. Project Name: Parten Ranch, Phase 8

2. Location: The project is located 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road in Driftwood, Hays County, Texas (see *Exhibit 1*)

3. Facility Operators: HM Parten Ranch Development, Inc. *(Plans and Specifications)*
   1011 North Lamar Blvd.
   Austin, Texas 78703
   512-477-2400
   Date N.O.I. submitted:
   General Permit Authorization No.:

   _____ *(Contractor)*

   Date N.O.I. submitted:
   General Permit Authorization No.:

4. Property Owner: HM Parten Ranch Development, Inc. *(Plans and Specifications)*
   1011 North Lamar Blvd.
   Austin, Texas 78703
   512-477-2400

Project Description: The Parten Ranch, Phase 8 project is a 81.03 acre single family subdivision located within the ETJ of the City of Dripping Springs and within Hays County. More specifically, it is located 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road. The proposed project consists of the construction of infrastructure for 87 single family houses, including streets, drainage, water, wastewater and dry utilities. Water quality will be provided by a batch detention pond.

5. Site Area: The construction limits and disturbance caused by construction will include approximately 10.67 acres.

6. Runoff Coefficient: Currently, the site area for the Parten Ranch, Phase 8 property is represented by a composite 25-year and 100-year runoff coefficient of 0.40 and 0.47, respectively. After construction is completed, the composite 25-year and 100-year runoff coefficient will be 0.56 and 0.64, respectively.

7. Existing Soils: According to the USDA Soil Survey of Travis County, the soil classifications within the proposed subdivision are Bracket-Rock outcrop-Comfort (BtD) and Comfort-Rock outcrop (CrD).

   Brackett-Rock outcrop-Comfort (BtD): This gently sloping soil is mostly on the on uplands in the Edwards Plateau. Typically this soil has a greyish brown gravelly clay loam about 6 inches thick. The subsoil, which extends down to a depth of about 17 inches, is pale brown and pale yellow gravelly clay loam. The underlying material is weakly cemented limestone interbedded with thin layers of indurated limestone. The soil is moderately alkaline. The soil is well drained. Permeability is moderately slow and surface runoff is medium to rapid. The available water capacity is very low.

   Comfort-Rock outcrop (CrD): These nearly level to moderately sloping soils occur on ridges on dissected plateaus. Slopes are 0 to 8 percent. Typically, this soil has a dark grayish brown very stony clay about 5 inches thick. The subsoil, which extends down to a depth of about 17 inches, is dark reddish gray very stony clay. The underlying material is indurated crystalline dolomitic limestone bedrock with irregular seams filled with soil. The Comfort series consists of soils that are shallow to indurated limestone bedrock. The soil is well drained. Permeability is slow and surface runoff is high. The available water capacity is moderately low to high.

9. Factors Affecting Surface Water Quality:

   Potential sources of sediment to stormwater runoff:
   - Clearing and grubbing operations
   - Grading and site excavation operations
   - Vehicle tracking
   - Topsoil stripping and stockpiling
   - Landscaping operations

   Potential sources other than sediment:
   - Small fueling activities
   - Minor equipment maintenance
   - Sanitary facilities
   - Solvents, adhesives, paints, etc.
   - Paving materials, concrete, mortar

10. Location of Receiving Waters: The Parten Ranch, Phase 8 project is located within the Bear Creek Watershed. Based on boundary maps prepared by the Texas Commission on Environmental Quality, the property is not located in the Edward's Aquifer Recharge Zone, but it is located in the Edwards Aquifer Contributing Zone. There are no wetlands associated with this project.

11. Off-Site Operations: Disposal of spoil material will be the responsibility of the Contractors. Spoil shall be temporarily disposed of at the designated onsite temporary disposal area and permanently removed to a permitted off-site spoil disposal area. The Contractors shall be independently responsible as Operators for obtaining necessary permits in conjunction with the off-site disposal of spoil material or acquisition of borrow material.

12. Endangered Species: There are no known endangered species within the boundaries of the project.

B. POLLUTION PREVENTION CONTROLS

1. Sequence of Construction:

   a. Install tree protection. (1 week) (0.9 acres)

   b. Install temporary erosion and sedimentation controls. (1 week) (10.7 acres)

   c. Clear and grub for roadways, underground utilities, and pond. (1 week) (5.7 acres)

   d. Excavate and place embankment to roadway subgrade. (4 weeks) (4.7 acres)

   e. Construct all underground utilities. (2 months) (4.7 acres)

   f. Test utilities. (2 weeks)

   g. Assure all utilities have been placed within roadway. (1 week) (4.7 acres)

   h. Once all utilities below subgrade have been tested, finish subgrade and test. (1 Month) (4.7 acres)

   i. Lay first coarse of base (2 weeks) (3.7 acres)

   j. Lay curb and gutter and sidewalk ramp turn downs. (4 weeks) (3.7 acres)

   k. Dress up behind back of curb. (2 weeks) (1.0 acres)

   l. Lay second coarse base. (2 weeks) (3.7 acres)

   m. After base has been tested and passed, lay asphalt. (2 weeks) (3.7 acres)

   n. Complete sidewalk ramps. (2 weeks) (0.5 acres)

   o. Finish grading behind curb and revegetate. (2 weeks) (1.0 acres)

   p. After vegetation is established, remove temporary erosion controls. (1 week)

2. Erosion and Sedimentation Controls:

Temporary vegetative stabilization:

1. From September 15 to March 1, seeding shall be with cool season cover crops (Wheat at 0.5 pounds per 1000 SF, Oats at 0.5 pounds per 1000 SF, Cereal Rye Grain at 0.5 pounds per 1000 SF) with a total rate of 1.5 pounds per 1000 SF. Cool season cover crops are not permanent erosion control.

2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF.
   a. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of ½ pound per 1000 SF.
   b. Hydromulch shall comply with Table 1, below.

c. Temporary erosion control shall be acceptable when the grass has grown at least 1 ½ inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
d. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Table 1 Hydromulching for Temporary Vegetative Stabilization

Material	Description	Longevity	Typical Applications	Applications Rates
100% or any blend of wood, cellulose, straw, and/or cotton plant material (except no mulch shall exceed 30% paper)	70% or greater wood/straw 30% or less paper or natural fibers	0-3 Months	Moderate slopes From flat to 3:1	1500 to 2000 lbs per acre

Permanent vegetative stabilization:

1. From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetation stabilization is desired, the grasses shall be mowed to a height of less than one half (1/2) inch and the area shall be re-seeded in accordance with 2. below.

2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF with a purity of 95% with 85% germination. Bermuda grass is a warm season grass and is considered permanent erosion control.
   a. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of ½ pound per 1000 SF.
   b. Hydromulch shall comply with table 2, below.
   c. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil but will sufficiently soak the soil to a depth of six inches. The irrigation shall occur at daily intervals (minimum) during the first two months. Rainfall occurrences of ½ inch or more shall postpone the watering schedule for one week.
   d. Permanent erosion control shall be acceptable when the grass has grown at least 1 ½ inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
   e. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Table 2 Hydromulching for Permanent Vegetation Stabilization

Material	Description	Longevity	Typical Applications	Applications Rates
Bonded Fiber Matrix (BFM)	80% Organic Defibrated Fibers 10% Tackifier	6 Months	On slopes up to 2:1 and erosive soil conditions	2500 to 4000 lbs per acre (see manufacturers recommendations)

Fiber Reinforced Matrix (FRM)	65% Organic Defibrated Fibers 25% Reinforcing Fibers or less 10% Tackifier	Up to 12 Months	On slopes up to 1:1 and erosive soil conditions	3000 to 4500 lbs per acre (see manufacturers recommendations)

b. Structural Controls:

(i) Erosion and sediment structural controls have been designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.

(ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.

(iii) HM Parten Ranch Development, Inc. will be the facility operator with control over the construction plans and specifications, including the ability to make modifications in the plans and specifications. Prior to site clearing, grading and excavation, stabilized construction entrances will be installed, tree protection/limit of construction fencing will be installed, and silt fences will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed downstream of the areas where concentrated runoff occurs. To insure that no additional areas are disturbed other than those included in the limits of construction, orange mesh fences will be placed on the upstream side of the limits of construction to keep construction activity out of areas not designated for construction. The Contractor will install the stabilized construction entrance and silt fence prior to the start of any construction and be responsible for maintenance of those facilities throughout construction. The Contractor will be responsible for stabilization (revegetation). The Contractor will also be responsible for removing the temporary controls once the revegetation is established.

3. Stormwater Management Controls:

a. Temporary Sediment Controls: A stabilized construction entrance will be place as shown on the *Erosion/Sedimentation Control & Tree Protection Plan* and silt fences will be constructed at the downstream edge of the disturbed areas. Silt fence will also be used at selected locations of significant fill, around material stockpile sites, and around any other area that would be a pollutant source during storm events. The rock berms will be placed immediately downstream of areas where concentrated runoff occurs, and within defined channels downstream from development, as appropriate. Additionally, silt fence will typically be utilized on the downstream side of rock berms to supplement sediment removal. The batch detention pond will be rough graded at the beginning of construction so it can be used as a sediment trap during construction. The utility trenches will also be utilized as temporary sediment traps to the extent feasible during construction.

The contractor will install the erosion/sedimentation controls prior to the start of any construction. The contractor will be responsible for maintaining the erosion control measures and removing the controls once the revegetation is established. The locations of such controls are shown in *the Erosion/Sedimentation Control & Tree Protection Plan*.

b. Permanent Stormwater Controls: Once construction associated with this project is completed, the site will be revegetated in accordance with the stabilization practices identified in this plan. A batch detention pond and vegetative filter strips will provide water quality control and treatment for stormwater runoff from the developed areas being conveyed to the creeks.

4. Other Controls:

   a. Waste Disposal: All construction-related waste materials will be collected and stored at a temporary onsite spoil disposal site. The Contractors will be independently responsible as Operators for controlling and preventing offsite migration of litter, construction debris, and construction materials.

   b. Sanitary Waste: The Contractors will be responsible for placing portable units onsite during construction, and waste will be collected and disposed of in accordance with state and local regulations.

   c. Off-site Vehicle Tracking: Stabilized construction entrances will be provided at the entry location to the construction project. The Contractors will be responsible for maintaining the entrances, and removing any sediment deposited onto adjacent streets. Vehicles leaving the site will be washed, as required.

   d. Dust Control: Contractors will spray water on disturbed areas and spoils areas, and apply mulch, as required, to control dust.

   e. Dewatering: When it becomes necessary to pump standing water from the site, the Contractors shall utilize the methods depicted in the Dewatering Detail included with this plan. Standing water removed via open channel will be routed through silt fence and/or rock berm before leaving the site.

5. Timing of Controls and Measures: Erosion and sediment structural control measures will be in place prior to clearing, grading or construction of any portion of the site. Construction phasing may occur, but in all instances erosion and sedimentation control measures will be in place in those areas prior to start of construction. Disturbed areas will be restored as described under Stabilization Practices. Temporary erosion and sediment controls will be removed only after all disturbed areas have been restored.

C. STATE AND LOCAL REQUIREMENTS

The stormwater pollution prevention plan complies with the requirements of the City of Austin, Travis County, and the Texas Commission on Environmental Quality (TCEQ) in effect at the time of permitting.

D. INSPECTION AND MAINTENANCE PROCEDURES

HM Parten Ranch Development, Inc. (and/or their qualified agents) and Contractors, as Operators, shall be independently responsible for inspection of the controls, and for required record keeping (reference Appendix A). All Operators will be responsible for revisions to the controls, as necessary, based on inspections. The Contractors will be responsible for maintenance of the controls.

1. Inspection of Controls:

    a. Personnel provided by the Operators shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, discharge locations, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Personnel conducting these inspections must be knowledgeable of TPDES General Permit No. TXR150000, familiar with the construction site, and knowledgeable of this plan. Sediment and erosion control measures identified in this plan shall be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

    b. Where sites have been finally or temporarily stabilized, inspections shall be conducted at least once every month.

    c. In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

    d. This plan must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the plan must be completed within seven (7) calendar days following the inspection. If existing controls are modified or if additional controls are necessary, an implementation schedule must be described in this plan and/or Inspection and Maintenance Report, and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

    e. An Inspection and Maintenance Report summarizing the scope of the inspection, the dates of the inspection, and major observations relating to the implementation and/or revision of this plan must be made and retained as part of the plan. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of controls that need to be maintained; locations of controls that failed to operate as designed or proved inadequate for a particular location; and locations where additional controls are needed. Reports must identify any incidents of non-compliance.

2. Maintenance of Controls:

    a. All protective measures and controls identified in this plan shall be maintained in effective operating condition. If, through inspections or other means, it is determined that controls are not operating effectively, then the Contractors, as Operators, shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the plan and maintenance must be scheduled and accomplished as soon as

practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

b. If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the Operators shall replace or modify the control as soon as practicable after making the discovery.

c. Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%.

d. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

e. If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event if feasible. If the Operators do not own or operate the off-site conveyance, then the Operators must work with the owner or operator of the property to remove the sediment.

E. POLLUTION PREVENTION MEASURES

1. Non-Storm Water Discharges: The following non-stormwater discharges may occur from the site during the construction period:

   a. discharges from fire fighting activities;

   b. uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);

   c. water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local, state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;

   d. uncontaminated water used to control dust;

   e. potable water sources including waterline flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life);

   f. uncontaminated air conditioning condensate;

   g. uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and

h. lawn watering and similar irrigation drainage.

2. Material Inventory: The materials or substances listed below are expected to be present onsite during construction:

   - Concrete and concrete products
   - Asphalt and asphalt products
   - Metal reinforcing materials - rebar, welded wire fabric
   - Fertilizers
   - Petroleum based products
   - Wood
   - Plastic (PVC) and metal pipe and fittings
   - Rock, gravel, sand, and soil
   - Paint

3. Material Management Practices: The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff:

   a. Good Housekeeping: The following good housekeeping practices will be followed onsite during the construction project:

      - An effort will be made to store only enough product required to do the job.
      - All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers.
      - Materials will be stored in the temporary spoils disposal area as shown on erosion/sedimentation control plan, or an area as may otherwise be approved by HM Parten Ranch Development, Inc. and Engineer.
      - Products will be kept in their original containers with the original manufacturers' labels.
      - Whenever possible, all of a product will be used before disposing of the container.
      - Manufacturers' recommendations for proper use and disposal will be followed.
      - The Contractor will inspect daily to ensure proper use and disposal of materials onsite.

   b. Hazardous Products: These practices are used to reduce the risks associated with

hazardous materials (if applicable):

- Products will be kept in original containers unless they are not resealable.

- Original labels and material safety data will be retained, as they contain important product information.

- If surplus product must be disposed of, manufacturers' and/or local and state recommended methods for proper disposal will be followed.

c. The following product specific practices will be followed onsite:

- Petroleum Products: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphaltic substances used onsite will be applied according to the manufacturers' recommendations.

- Fertilizers: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer or as otherwise indicated on the plans. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. The contents of any partially used bags of fertilizer will be stored in a manner so as to avoid spills.

- Concrete: Onsite concrete truck wash out is allowed but is restricted as noted below. Excess dried concrete will be removed from the site and transported to a permitted off-site spoil disposal area.

  - Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited.

  - Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measure to prevent runoff from the construction site.

  - Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete truck washout water is prohibited at all times, and the Operators shall insure that controls are sufficient to prevent the discharge of concrete truck wash out as the result of rain.
  - The discharge of wash out water shall not cause or contribute to groundwater contamination.

4. <u>Spill Control Practices:</u> In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Site personnel will be made aware of the manufacturers' recommended methods

for spill cleanup and the location of the information and cleanup supplies.

- 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.

5. Releases of Reportable Quantities (RQ): The EPA has issued regulations that define what reportable quantity levels are for oil and hazardous substances. These regulations can be found at 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302. The TCEQ has issued similar regulations under 30 TAC Chapter 327. If there is an RQ release during the construction period, then the following steps must be taken:

    - For quantities less than the reportable quantity* – The contractor will contain and isolate the spilled substance. The remaining spilled substance and contaminated soil will be removed and disposed of properly.

    - For quantities more than the reportable quantity* – The contractor will contain and isolate the spilled substance in accordance with 30 TAC Chapter 327. The contractor will then contact the appropriate spill response team and the TCEQ Austin Regional Office (512)339-2929 or the State Emergency Response Center at 1 (800)832-8224 and the National Response Center immediately at (800) 424-8802. The remaining spilled substance and contaminated soil will be removed and disposed of in an using approved emergency response methods. The proper authorities shall be kept informed during the cleanup process. Within 14 days, modify the SWPPP with a written description of the release providing the date and circumstances of the release and the steps to be taken to prevent another release.

    * Reportable quantity (RQ) is defined in 30 TAC Chapter 327. The RQ for petroleum products, oil, and industrial solid waste are shown below. For hazardous substances see 30 TAC Chapter 327.4 and 40 CFR Chapter 302.4.

    The RQ for *oil, petroleum product and used oil* is as follows:

    (1) The RQ for crude oil and oil other than that defined as petroleum product or used oil shall be:
        (A) for spills or discharges onto land – 210 gallons (five barrels); or
        (B) for spills or discharges directly into water in the state – quantity sufficient to create a sheen.

    (2) The RQ for petroleum product or used oil shall be:
        (A) except as noted under (B) below, for spills or discharges onto land – 25 gallons;
        (B) for spills or discharges to land from PST exempted facilities – 210 gallons (five barrels); or
        (C) for spills or discharges directly into water in the state – quantity sufficient to create a sheen.

    The RQ for spills or discharges into water in the state for *industrial solid waste or other substances* shall be 100 pounds.

6. Spill Response Handbook: The TCEQ Small-Business Handbook for Spill Response (RG-285) is provided as a supplementary resource and can be found in *Appendix D*.

F. POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility Operator *(Plans and Specifications)*:

By:_____ _____
Name Title Date

Printed Name: _____
Company: HM Parten Ranch Development, Inc.
Address: 1011 North Lamar Blvd
Austin, TX 78703

F. POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

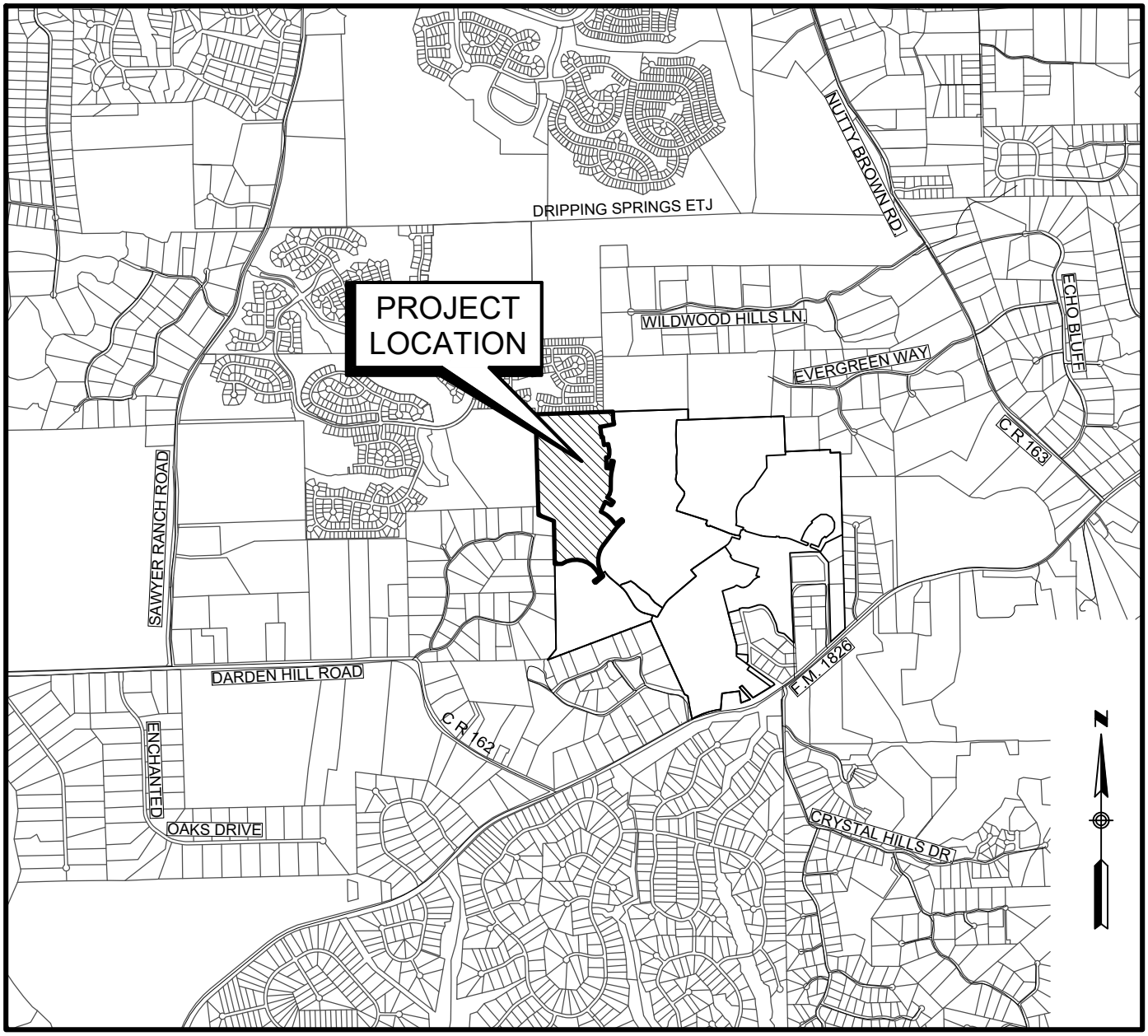
Facility Operator *(Contractor)*:

By:_____ _____
Name Title Date

Printed Name: _____
Company: _____
Address: _____
_____

EXHIBIT 1

PROJECT LOCATION MAP

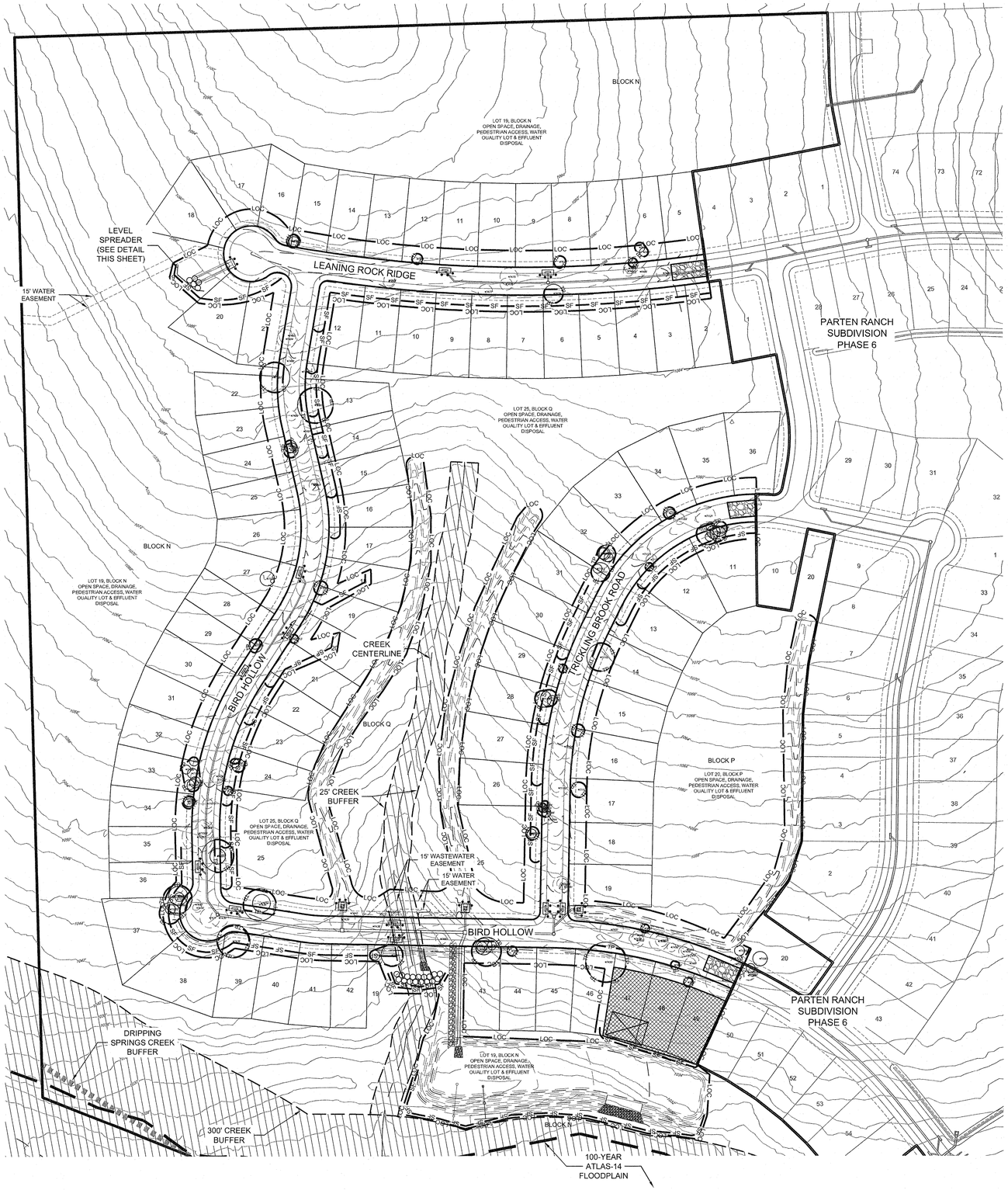


LOCATION MAP

SCALE: N.T.S.

EXHIBIT 2

SITE MAP / TEMPORARY EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN



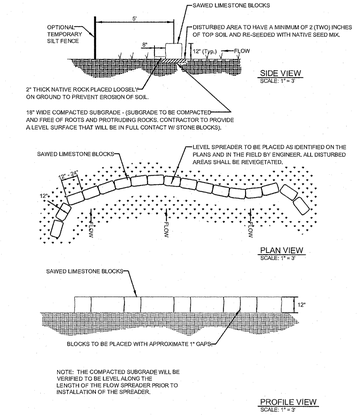
LEGEND:

- PROPOSED SILT FENCE
- PROPOSED LIMITS OF CONSTRUCTION
- PROPOSED TREE PROTECTION FENCING
- PROPOSED ROCK BERM
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED TEMPORARY SPOILS SITE/ CONTRACTORS STAGING AREA
- PROPOSED CONCRETE WASHOUT
- PROPOSED SEVERE SERVICE ROCK BERM
- TREE TO REMAIN
- TREE TO BE REMOVED
- J-HOOK SILT FENCE
- INLET PROTECTION

N

100 50 0 100 200

SCALE IN FEET



LEVEL SPREADER
N.T.S.

PARTEN RANCH PHASE 8
EROSION/SEDEMENTATION CONTROL PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Eros.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 7

OF 50 SHEETS

L:\A311 Parten Ranch\413 Parten Ranch Phase 8\Submittal Drawings\PH8-Eros.dwg
User: Connor
Last Modified: Oct. 31, 22 - 13:43
Plot Date/Time: Nov. 01, 22 - 09:55:27

CITY OF AUSTIN
EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR EXCAVATION).

2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE ENVIRONMENTAL CRITERIA MANUAL AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.

3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.

4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF DRIPPING SPRINGS AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.

5. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST OR CITY ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY THE CITY OF DRIPPING SPRINGS. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.

6. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.

7. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY, AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.

8. ALL WORK MUST STOP IF A VOID IN THE ROCK SUBSTRATE IS DISCOVERED WHICH IS; ONE SQUARE FOOT IN TOTAL AREA; BLOWS AIR, FROM WITHIN THE SUBSTRATE AND/OR CONSISTENTLY RECEIVES WATER DURING ANY RAIN EVENT. AT THIS TIME IT IS THE RESPONSIBILITY OF THE PROJECT MANAGER TO IMMEDIATELY CONTACT THE CITY OF BEE CAVE FOR FURTHER INVESTIGATION.

9. TEMPORARY AND PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW.

A. ALL DISTURBED AREAS TO BE RE-VEGETATED ARE REQUIRED TO PLACE A MINIMUM OF SIX (6) INCHES OF TOPSOIL [SEE STANDARD SPECIFICATION ITEM NO. 601S.3(A)]. DO NOT ADD TOPSOIL WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES. THE TOPSOIL SHALL BE COMPOSED OF SOIL MIXED WITH 1 PART COMPOST, BY VOLUME. THE COMPOST APPROVED BY THE DILLO DIRT OR EQUAL APPROVED BY THE ENGINEER, OR DESIGNATED REPRESENTATIVE. THE APPROVED EQUAL, IF USED, SHALL MEET THE DEFINITION OF COMPOST (AS DEFINED BY THE U.S. COMPOST COUNCIL). THE SOIL SHALL BE LOCALLY AVAILABLE NATIVE SOIL THAT MEETS THE FOLLOWING SPECIFICATIONS:

- SHALL BE FREE OF TRASH, WEEDS, DELETERIOUS MATERIALS, ROCKS, AND DEBRIS.

- 100% SHALL PASS THROUGH A .375-INCH (⅜") SCREEN.

- SOIL TEXTURE CLASS TO BE LOAM, SANDY CLAY LOAM, OR SANDY LOAM IN ACCORDANCE WITH THE USDA TEXTURE TRIANGLE. SOIL KNOWN LOCALLY AS "RED DEATH" OR AUSTIN SANDY LOAM IS NOT AN ALLOWABLE SOIL. TEXTURAL COMPOSITION SHALL MEET THE FOLLOWING CRITERIA:

TEXTURE CLASS	MINIMUM	MAXIMUM
CLAY	5%	25%
SILT	10%	50%
SAND	30%	80%

TOPSOIL SALVAGED FROM THE EXISTING SITE MAY OFTEN BE USED, BUT IT SHOULD MEET THE SAME STANDARDS AS SET FORTH IN THESE STANDARDS.

THE VEGETATIVE STABILIZATION OF AREAS DISTURBED BY CONSTRUCTION SHALL BE AS FOLLOWS:

TEMPORARY VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH COOL SEASON COVER CROPS (WHEAT AT 0.5 POUNDS PER 1000 SF, OATS AT 0.5 POUNDS PER 1000 SF, CEREAL RYE GRAIN AT 0.5 POUNDS PER 1000 SF) WITH A TOTAL RATE OF 1.5 POUNDS PER 1000 SF. COOL SEASON COVER CROPS ARE NOT PERMANENT EROSION CONTROL.

2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SF.

A. FERTILIZER SHALL BE WATER SOLUBLE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF ½ POUND PER 1000 SF.

B. HYDROMULCH SHALL COMPLY WITH TABLE 1, BELOW.

C. TEMPORARY EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 ½ INCHES HIGH WITH 95% COVERAGE AND PROVED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.

D. WHEN REQUIRED, NATIVE GRASS SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL.

TABLE 1: HYDROMULCHING FOR TEMPORARY VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATE
70/30 WOOD/ CELLULOSE BLEND MULCH	70% WOOD 30% PAPER 3% TACKIFIER	0-3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	45.9 LBS/1000 SF
WOOD FIBER MULCH	96% WOOD 3% TACKIFIER	0-3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	45.9 LBS/1000 SF

PERMANENT VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING IS CONSIDERED TO BE TEMPORARY STABILIZATION ONLY. IF COOL SEASON COVER CROPS EXIST WHERE PERMANENT VEGETATIVE STABILIZATION IS DESIRED, THE GRASSES SHALL BE MOWED TO A HEIGHT OF LESS THAN ONE-HALF (1/2) INCH AND THE AREA SHALL BE RE-SEEDED IN ACCORDANCE WITH 2. BELOW.

2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION. BERMUDA GRASS IS A WARM SEASON GRASS AND IS CONSIDERED PERMANENT EROSION CONTROL.

A. FERTILIZER SHALL BE A WATER SOLUBLE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF ½ POUND PER 1000 SF.

B. HYDROMULCH SHALL COMPLY WITH TABLE 2, BELOW.

C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX INCHES. THE IRRIGATION SHALL OCCUR AT DAILY INTERVALS (MINIMUM) DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF ½ INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.

D. PERMANENT EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 ½ INCHES HIGH WITH 95% COVERAGE AND PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST

E. WHEN REQUIRED, NATIVE GRASS SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL.

TABLE 2: HYDROMULCHING FOR PERMANENT VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATE
BONDED FIBER MATRIX (BFM)	80% THERMALLY REFINED WOOD 10% TACKIFIER	6 MONTHS	ON SLOPES UP TO 2:1 AND EROSIVE SOIL CONDITIONS	68.9 LBS/SF TO 80.3/1000 SF
FIBER REINFORCED MATRIX (FRM)	75% THERMALLY REFINED WOOD 5% REINFORCING FIBERS 10% TACKIFIER	12 MONTHS	ON SLOPES UP TO 1:1 AND EROSIVE SOIL CONDITIONS	68.9 LBS/SFTO 80.3/1000 SF

10. DEVELOPER INFORMATION:

OWNER:
HM PARTEN RANCH DEVELOPMENT, INC. PHONE #: (512) 477-2436
ADDRESS: 101 NORTH LAMAR
AUSTIN, TEXAS 78703

OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:
LJA ENGINEERING, INC. PHONE #: 512-439-4700

PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE:
CONTRACTOR PHONE #: UNKNOWN

PERSON OR FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:
CONTRACTOR PHONE #: UNKNOWN

11. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF DRIPPING SPRINGS AND HAYSS COUNTY AT AT LEAST 48 HOURS PRIOR WITH THE LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.

CIY OF AUSTIN STANDARD NOTES
FOR TREE AND NATURAL AREA PROTECTION

1. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.

2. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO CITY OF AUSTIN STANDARDS FOR TREE PROTECTION.

3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.

4. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIP LINES.

5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE) , FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, IN ORDER TO PREVENT THE FOLLOWING:

A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS;

B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL), OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY ARBORIST;

C. WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT;

D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING, AND FIRES.

6. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING CASES:

A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;

B. WHERE PERMEABLE PAVING IS TO BE INSTALLED WITHIN A TREE'S DRIP LINE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZE ROOT DAMAGE);

C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW 6 TO 10 FEET OF WORK SPACE BETWEEN THE FENCE AND THE BUILDING;

D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE CITY ARBORIST AT 974-1876 TO DISCUSS ALTERNATIVES.

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

7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FT (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.

8. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.

9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.

10. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.

11. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.

12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).

13. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES AVAILABLE ON REQUEST FROM THE CITY ARBORIST).

14. DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS SUBSTANTIAL NON-COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

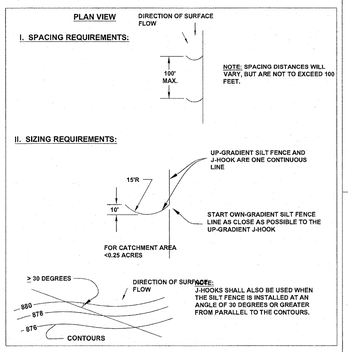
SPOILS MANAGEMENT AND DISPOSAL NOTES

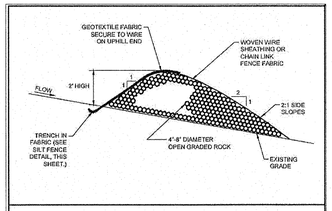
1. TEMPORARY HOLDING SITES AS NECESSARY TO STOCKPILE EXCAVATED SOILS, EMBEDMENT MATERIAL, AND/OR PIPING AND APPURTENANCES MAY BE LOCATED WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE PLANS.

2. NO PERMANENT SPOILS DISPOSAL SHALL BE ALLOWED ON-SITE, UNLESS APPROVED BY THE OWNER AND GOVERNING AUTHORITY.

3. ALL SPOILS MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED SPOIL DISPOSAL SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SECURING A PERMIT FOR THE SITE; AND SHALL NOTIFY THE OWNER AND/OR ENGINEER AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO DISPOSAL OF ANY SPOILS MATERIAL.

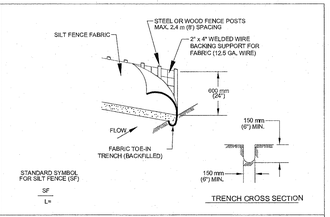
SILT FENCE 'J' HOOK DETAIL
N.T.S.





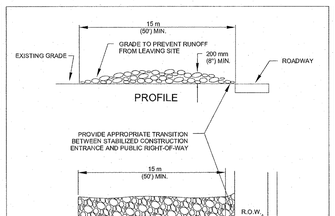
NOTES:
1. USE ONLY OPEN GRADED ROCK, 4-8 INCH DIAMETER, FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK, 3-5 INCH DIAMETER, FOR OTHER CONDITIONS.
2. ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN	FABRIC COVERED (SEVERE SERVICE) ROCK BERM	
GENERAL PERMIT PROGRAM — N/A — APPROVED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. N/A 1 OF 1



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

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS — 09/01/2011 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



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

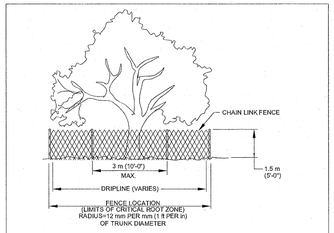
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 5/23/00 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1

NOTES:
1. MATERIAL - THE FABRIC MUST CORRESPOND TO THE FOLLWING REQUIREMENTS:

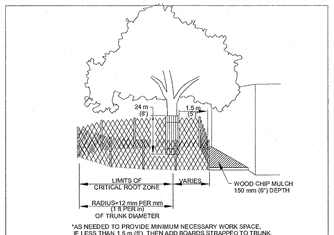
PROPERTY	ASTM TEST METHOD	REQUIREMENTS
FABRIC WEIGHT	D 3776	≥3.0 OUNCES/SQUARE YYAD
ULTRAVIOLET (UV) RADIATION STABILITY	D 4355	70% STRENGTH RETAINED MIN., AFTER 500 HOURS IN XENON ARC DEVICE
MULLEN BURST STRENGTH	D 3786	≥120 POUND PER SQUARE INCH
WATER FLOW RATE	D 4491	≥.275 GALLONS/MINUTE/SQUARE FEET

2. THIS MATERIAL SHOULD HAVE A MAXIMUM EXPECTED USEFUL LIFE OF APPROXIMATELY EIGHTEEN (18) MONTHS. THE INLET PROTECTION DEVICES SHOULD BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN OUT AND DISPOSAL OF TRAPPED SEDIMENT WHILE MINIMIZING INTERFERENCE WITH CONSTRUCTION ACTIVITIES. THEY SHOULD ALSO BE CONSTRUCTED SUCH THAT ANY PONDING OF STORM WATER WILL NOT CAUSE EXCESSIVE R.O.W. FLOODING (I.E. ≤ 4 INCHES OF STANDING WATER) OR DAMAGE TO THE STRUCTURE OR ADJACENT AREAS.
3. COVERAGE - THE FABRIC/WIRE SHOULD COMPLETELY COVER THE OPENING OF THE INLET AND DEVICES SHOULD BE INSTALLED WITHOUT PROTRUDING PARTS THAT COULD BE A TRAFFIC WORKER, OR PEDESTRIAN HAZARD. WHERE SECTIONS OF THE FABRIC OVERLAP, THEY SHALL OVERLAP AT LEAST THREEED INCHES.
4. THE INLET FILTER SHALL BE ATTACHED IN A WAY THAT THEY CAN EASILY BE REMOVED AND ARE NOT SECURED OR ATTACHED BY THE USE OF SAND BAGS. THE INLET FILTER MUST BE REMOVED UPON COMPLETION OF WORK. IF REMOVAL DAMAGES THE CONCRETE CURB, THE CURB MUST BE REPAIRED IMMEDIATELY.
5. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN THE DEPTH REACHES 50 MM (2 INCHES) INCHES OR ONE - THIRD THE HEIGHT OF THE INLET THROAT AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
6. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORMWATER BEGINS TO OVERTOP THE CURB.
7. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT HAS ACHIEVED FINAL STABILIZATION CONDITIONS.

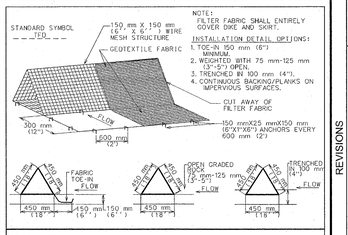
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	FILTER DIKE CURB INLET PROTECTION	
RECORD COPY SIGNED BY MARK VIDAL — 10/30/09 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S-2



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



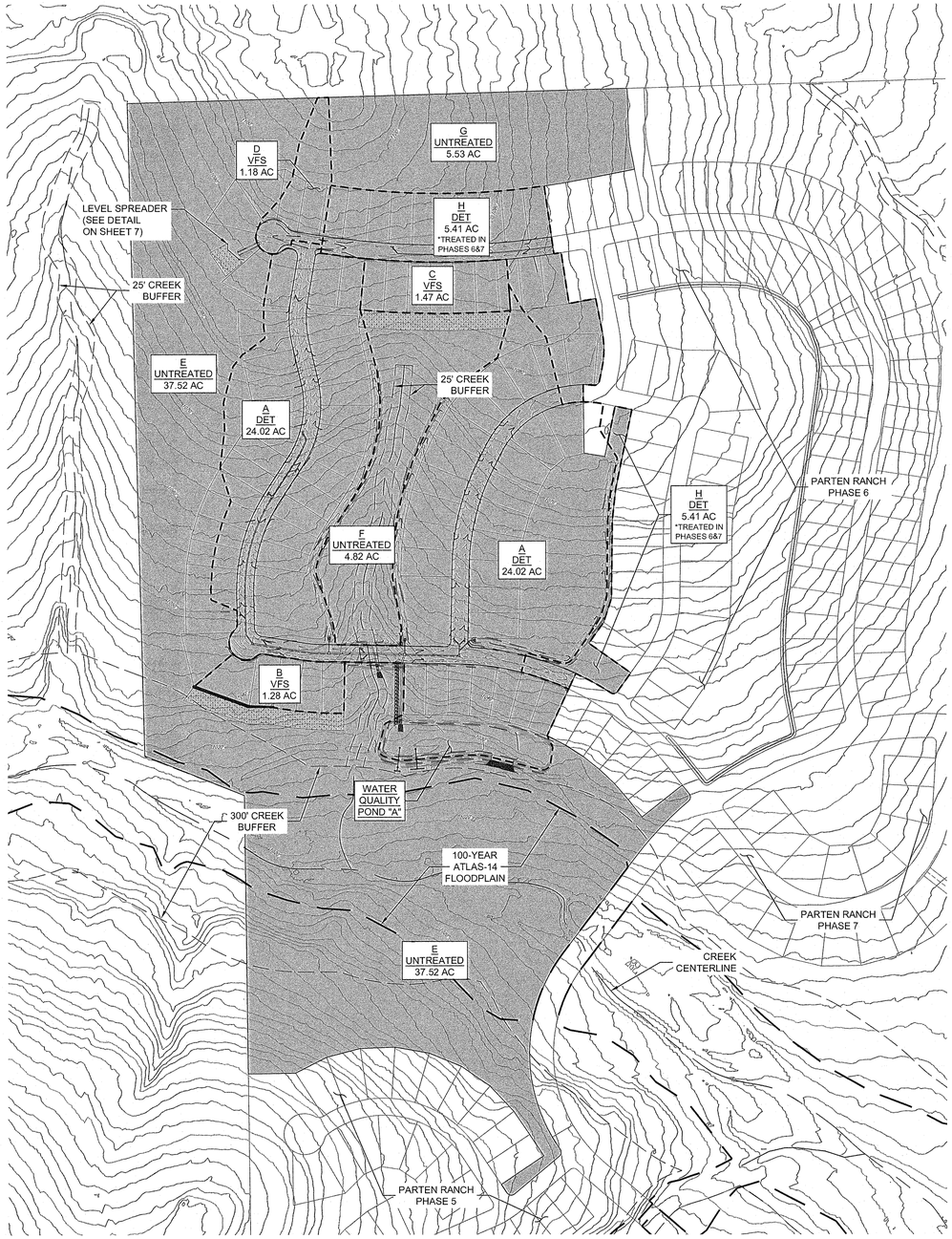
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE MODIFIED TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 11/15/99 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-4

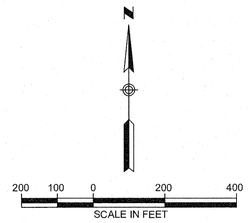


GENERAL NOTES
1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75-125 mm (3-5") OPEN GRADED ROCK OR TOPPED IN 150 mm (6") WITH MECHANICALLY COMPACTED MATERIAL OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100 mm (4").
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150 mm (6") WIRE STAPLES OR EQUIVALENT SPACED ALONG BOTH EDGES AND SKIRT, OR STAKE USING 50 MM (2") DIAMETER BY 600 MM (24") WITH TEE END.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150 mm (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE MW40-150 mmX50 mm 16 GA. 6"X2" WIRE MESH, 450 mm (18") ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6") AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOS

EXHIBIT 3

WATER QUALITY PLAN / PERMANENT CONTROLS





LEGEND

- PROPERTY LIMITS
- VEGETATIVE FILTER STRIP (VFS)
- WATER QUALITY DRAINAGE AREA

PARTEN RANCH PHASE 8

WATER QUALITY PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Water Quality.dwg

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 25 OF 50 SHEETS

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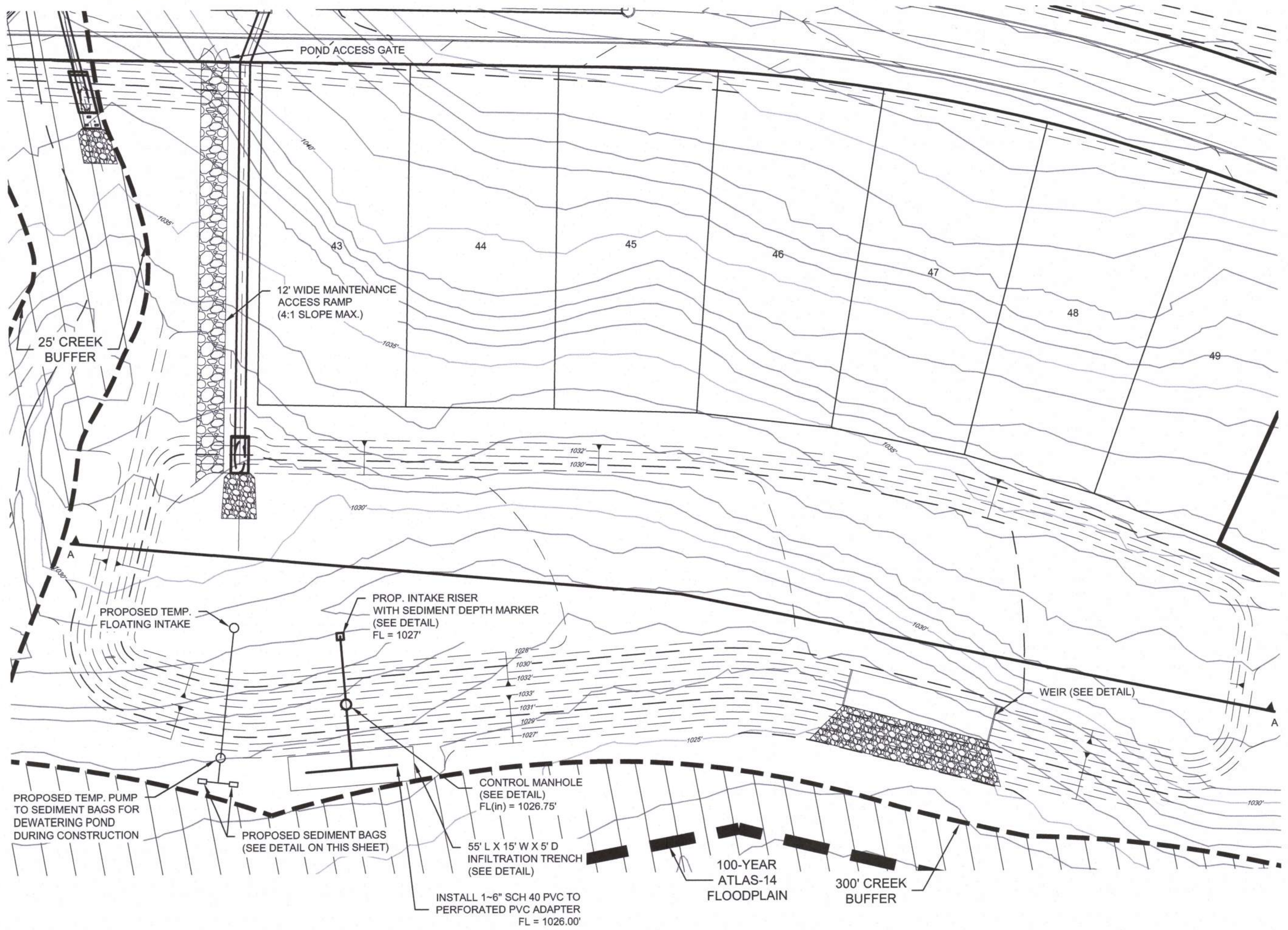
User: Cameron
Last Modified: Oct. 31, 22 - 15:38
Plot Date/Time: Nov. 01, 22 - 10:27:12



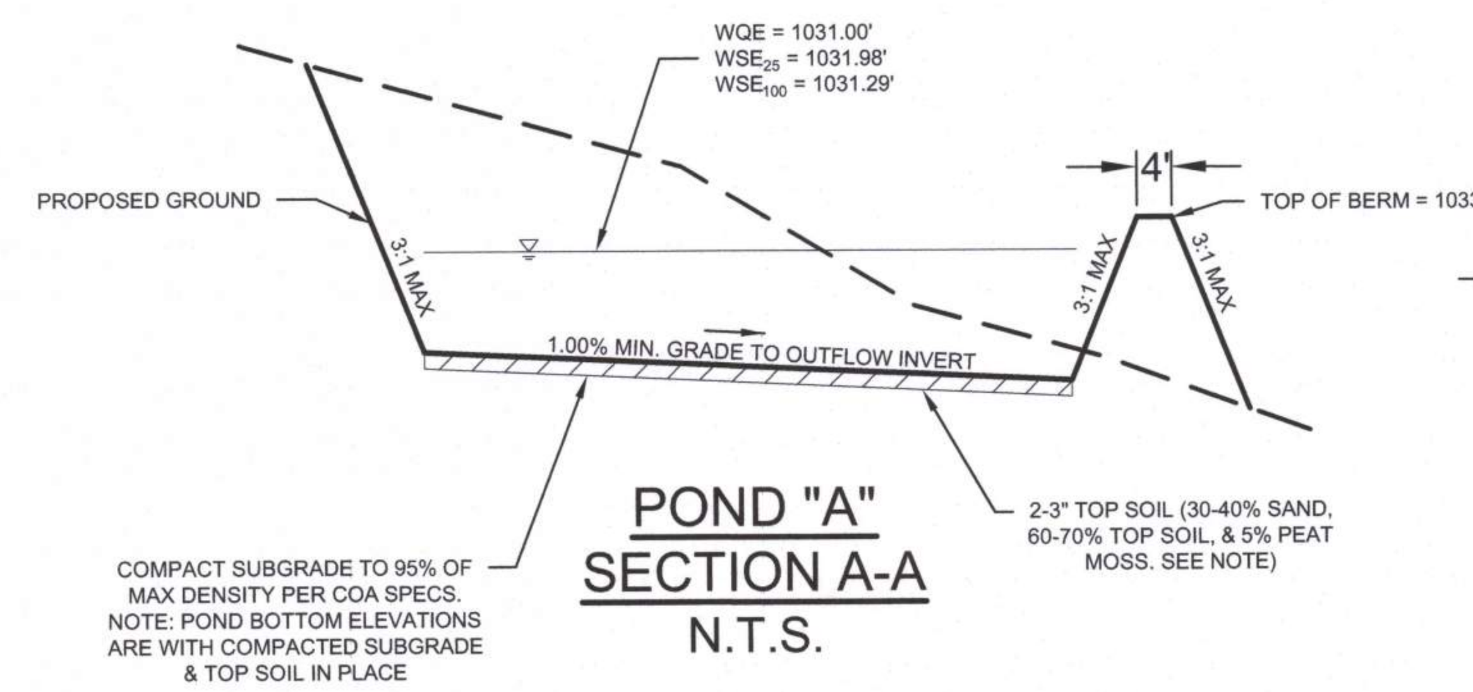
POND A								
Stage - Storage - Discharge								
	Stage Elevation (ft)	Contour Area (sf)	Incremental Volume (cf)	Cumulative Volume (cf)	Cumulative Volume (ac-ft)	Pipe Discharge (cfs)	Weir Discharge (cfs)	Total Discharge (cfs)
	1028.00	13827	0	0	0.00	0.0	0.0	0.0
	1029.00	23339	18583	18583	0.43	1.4	0.0	1.4
	1030.00	33394	28367	46950	1.08	1.9	0.0	1.9
WQ elev >>	1031.00	43223	38309	85258	1.96	2.3	0.0	2.3
25 YR 24-HR STORM >>	1031.98	-	-	-	-	2.7	189.2	191.9
	1032.00	46678	44951	130209	2.99	2.7	195.0	197.7
100 YR 24-HR STORM >>	1032.29	-	-	-	-	2.8	285.7	288.5
	1033.00	51466	49072	179281	4.12	3.0	551.5	554.6

NOTES:

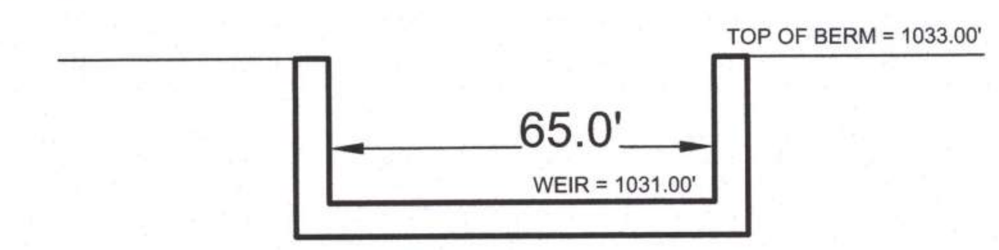
1. TOPSOIL MUST BE PLACED ON THE BASIN FLOOR AFTER EXCAVATED BOTTOM IS SCARIFIED TO A DEPTH OF 2 TO 3 INCHES. THE TOPSOIL MST BE 6 TO 8 INCHES DEEP AND A SOIL MIXTURE OF 30-40% SAND OR GRANITE SAND, 60-70% TOPSOIL, AND SUGGEST 5-10% COMPOST OR PEAT. SOIL ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN 1 INCH.
2. NON WOVEN FILTER FABRIC WITH A MINIMUM OPENING OF 0.15 MM (U.S. SIEVE SIZE 100) OPENING SHALL BE PLACED ON THE GABION.
3. NON WOVEN FILTER FABRIC WITH A 0.15 MM (U.S. SIEVE SIZE 100) OPENING SHALL BE PLACED ON THE GABION.
4. DISCHARGE COEFFICEINTS FOR OUTLETS TO CONTROL DISCHARGE TIME ARE 0.6.
5. ALL ROCK RIP-RAP SHALL BE MORTARED.

CONTROLS NARRATIVE:

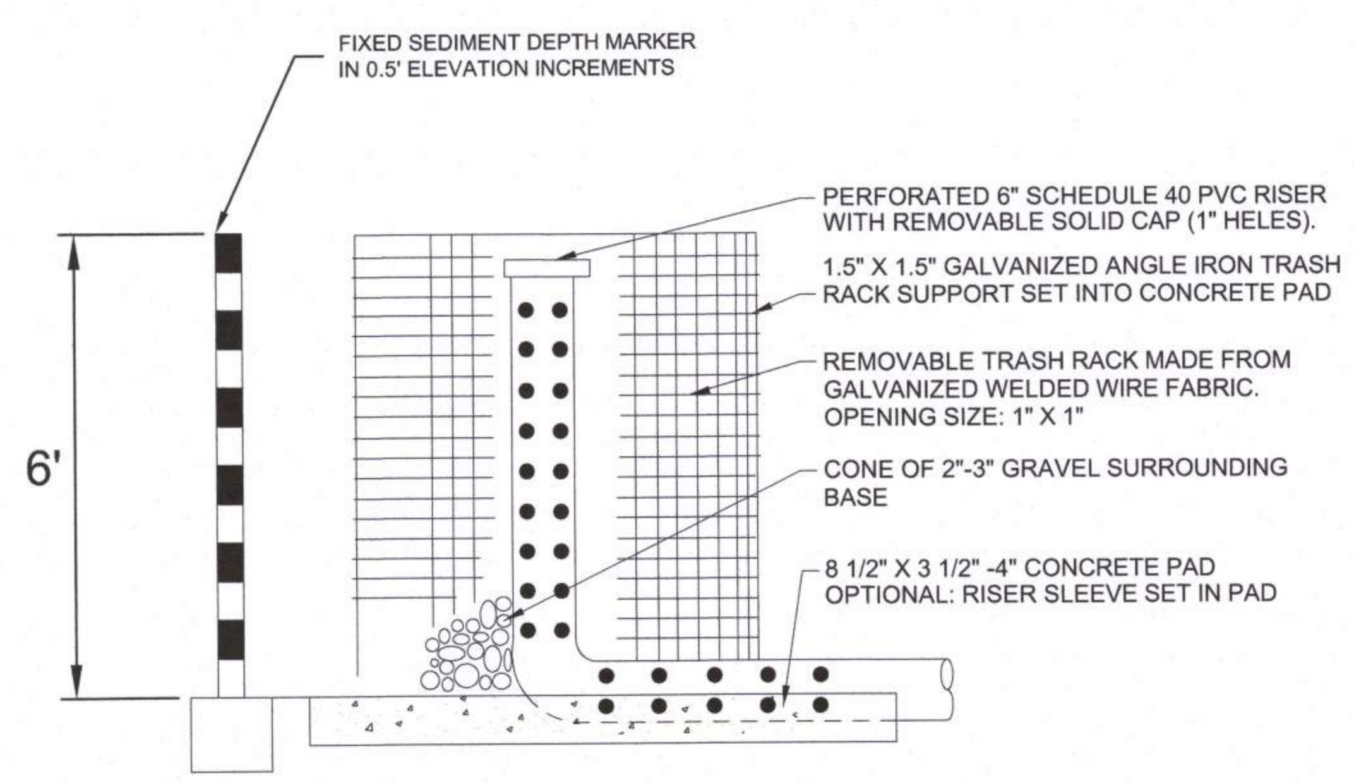
BATCH DETENTION POND IS EQUIPPED WITH A RAIN SENSOR MOUNTED AT THE CONTROL PANEL. VALVE IS TO REMAIN NORMALLY CLOSED. WHEN CONTACT IS MADE BY LEVEL SWITCH, 12 HOUR DELAY TIMER SHALL BEGIN AS SOON AS NO MOISTURE IS DETECTED BY THE RAIN SENSOR. IF THE RAIN SENSOR DETECTS PRECIPITATION, DELAY TIMER WILL RESET TO 12 HOURS. ONCE VALVE OPENS, IT WILL REMAIN OPEN UNTIL THE POND IS DRAINED OR RAIN SENSOR RESETS.



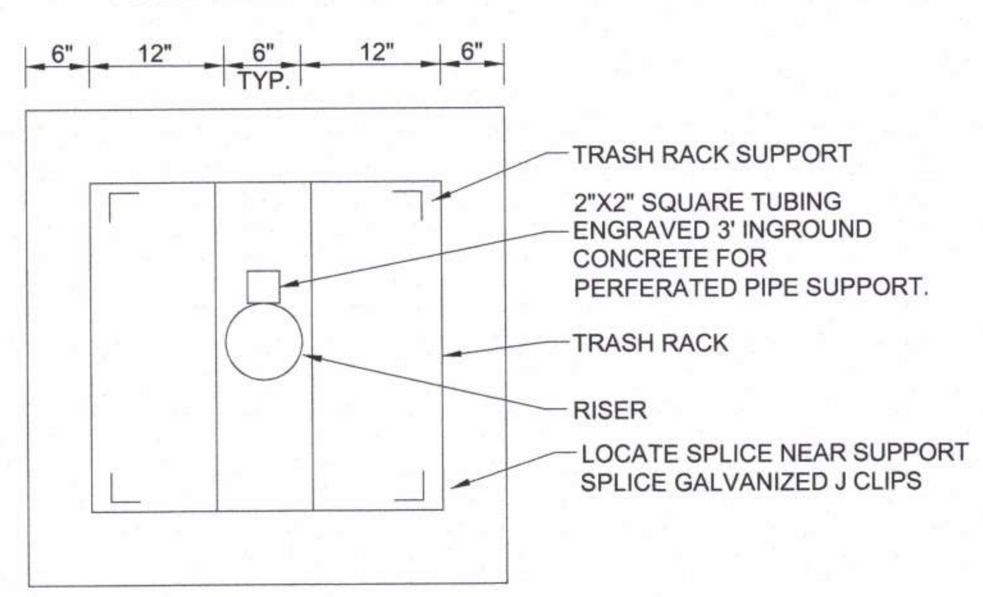
POND "A"
SECTION A-A
N.T.S.



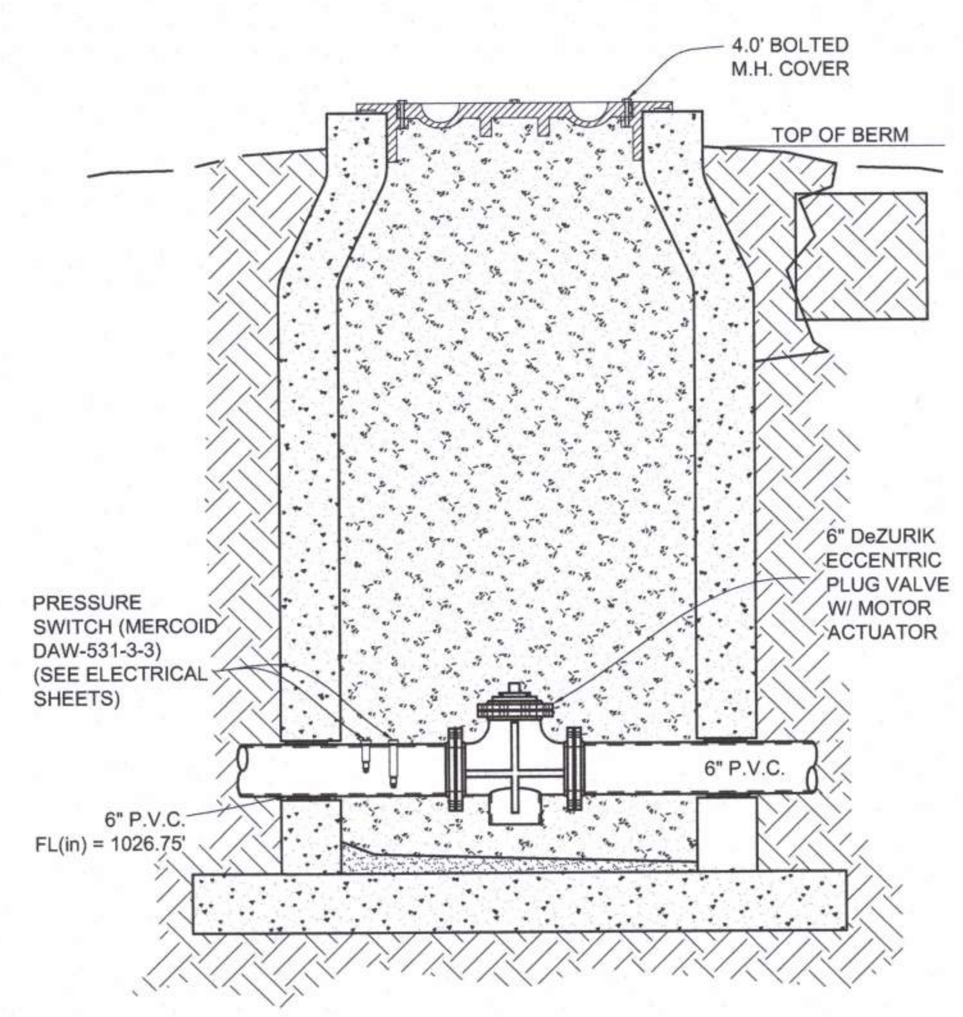
POND "A"
WEIR
N.T.S.



SIDE VIEW OF RISER



TOP VIEW OF RISER (SQUARE DESIGN)



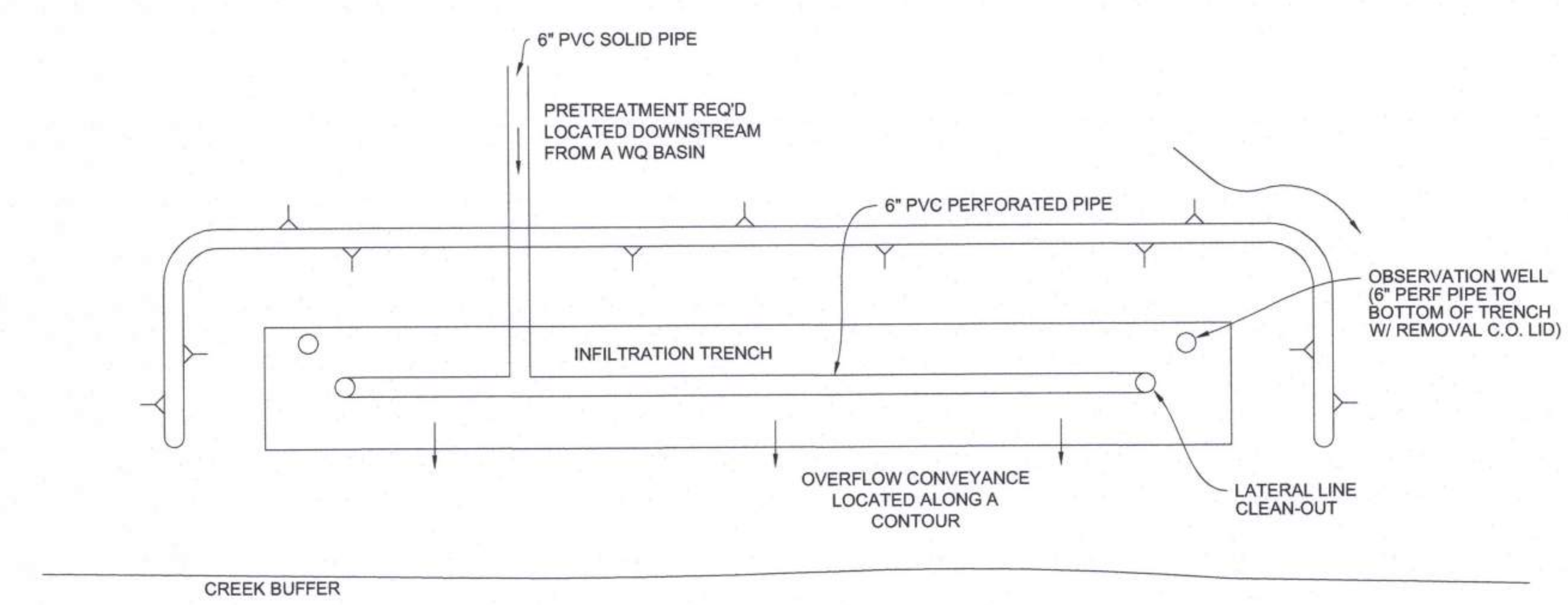
CONTROL MANHOLE DETAIL
N.T.S.

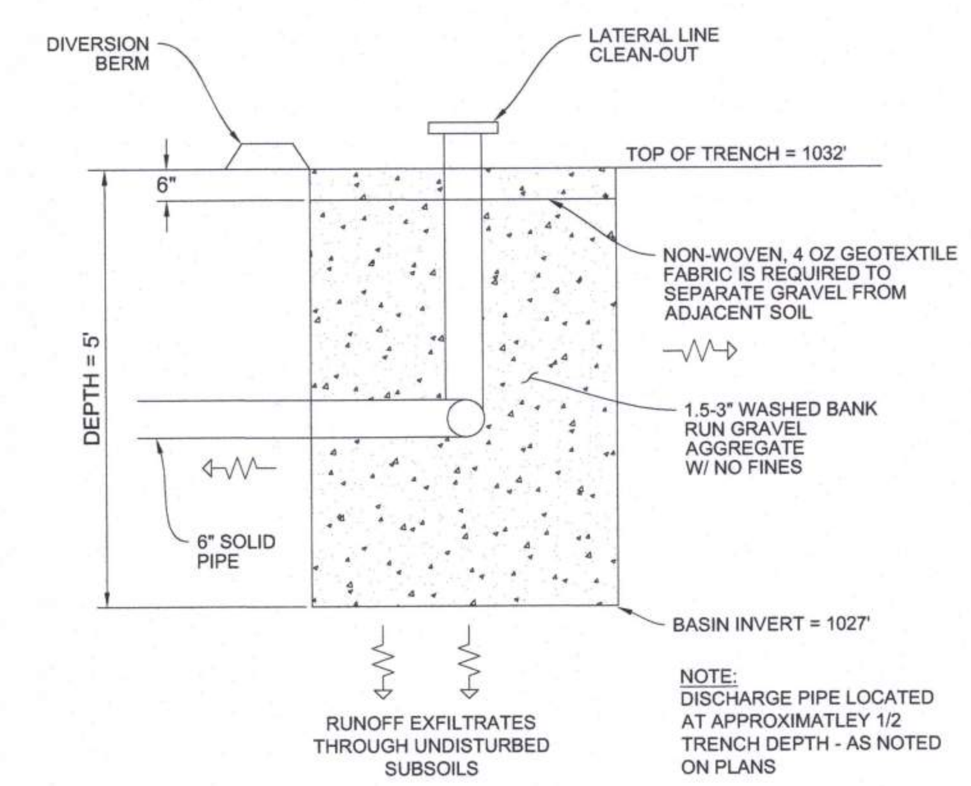
Infiltration Trench (Secondary BMP)		
Soil Type	Brackett (BiD)	
Permeability	0.31	in/hr
Porosity (n)	0.35	
VR%	0.3	
WQV_{req}	57231	cf
IT Volume Req. ($V_{IT,req}$)	921	cf
Trench Vol. Req. ($V_{T,req}$)	2,631	cf
Trench Depth	5	ft
Trench Width	15	ft
Trench Length	55	ft
$V_{T,provided}$	4125 cf	OK
$V_{IT,provided}$	1443.75 cf	OK
Infiltration Area (Ai)	1525 sf	
$V_{provided}$ / Ai < 1	0.95	OK

$$V_{IT,req} = 0.023\ WQV_{req}\,(1 - VR\%)$$

$$V_{T,req} = \frac{V_{IT,req}}{n}$$

$$V_{IT,provided} = V_{T,provided} * n$$





NOTE:
- NO PORTION OF THE TRENCH CAN BE USED TO COLLECT OR TREAT CONSTRUCTION-PHASE RUNOFF. NO RUNOFF SHALL BE RECEIVED UNTIL SITE IS COMPLETELY STABILIZED.
- SOIL INFILTRATION RATE BETWEEN 0.3 - 0.5 IN/HR REQUIRED.
- >3' SEPARATION BETWEEN BASIN INVERT AND HIGH WATER MARK.
- >1' SEPARATION BETWEEN BASIN INVERT AND BEDROCK.

NOTE:
DISCHARGE PIPE LOCATED AT APPROXIMATLEY 1/2 TRENCH DEPTH - AS NOTED ON PLANS

INFILTRATION TRENCH SCHEMATIC

DESCRIPTION:
A GRAVITY BAG FILTER, ALSO REFERRED TO AS A DEWATERING BAG, IS A SQUARE OR RECTANGULAR BAG MADE OF NON-WOVEN GEOTEXTILE FABRIC THAT COLLECTS SAND, SILT, AND FINES.

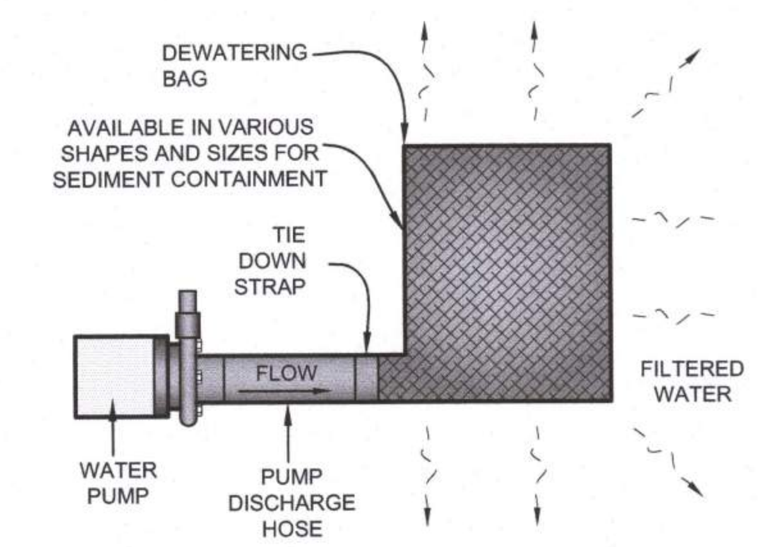
APPROPRIATE APPLICATIONS:
EFFECTIVE FOR THE REMOVAL OF SEDIMENTS (GRAVEL, SAND, AND SILT). SOME METALS ARE REMOVED WITH THE SEDIMENT.

IMPLEMENTATION:
WATER IS PUMPED INTO ONE SIDE OF THE BAG AND SEEPS THROUGH THE BOTTOM AND SIDES OF THE BAG.

A SECONDARY BARRIER, SUCH AS A ROCK FILTER BED OR STRAW/HAY BALE BARRIER IS PLACED BENEATH AND BEYOND THE EDGES OF THE BAG TO CAPTURE SEDIMENTS THAT ESCAPE THE BAG.

MAINTENANCE:
INSPECTION OF THE FLOW CONDITIONS, BAG CONDITION, BAG CAPACITY, AND THE SECONDARY BARRIER IS REQUIRED.

REPLACE THE BAG WHEN IT NO LONGER FILTERS SEDIMENT OR PASSES WATER AT A REASONABLE RATE. THE BAG IS DISPOSED OF OFFSITE.



SEDIMENT BAG (DEWATERING) DETAIL
N.T.S.

WATER QUALITY POND MAINTENANCE

FACILITY OPERATOR:
HM PARTEN RANCH DEVELOPMENT, INC.
(512) 477-2400
EDWARDS AQUIFER ID:
11000442

WQ POND SIGN (RG-348A)
(N.T.S.)

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

PARTEN RANCH PHASE 8
WATER QUALITY POND 'A'

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Pond.dwg

STATE OF TEXAS
LAUREN CROWE
128018
LICENSED PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER:
A311-0413

SHEET NO.
26
OF 50 SHEETS

I:\A311 Parten Ranch\413 Parten Ranch Phase 8\Submittal Drawings\PH8-Pond.dwg
User: ccarnes
Last Modified: Mar. 06, 23 - 09:19
Plot Date/Time: Mar. 06, 23 - 10:11:12

BATCH DETENTION

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

A

Drainage Basin/Outfall Area No. =	A	
Total drainage basin/outfall area =	24.02	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	5.62	acres
Post-development impervious fraction within drainage basin/outfall area =	0.23	
$L_{M\ THIS\ BASIN}$ =	5137	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

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

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

A_C =	23.82	acres
A_I =	5.62	acres
A_P =	18.20	acres
L_R =	6136	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	5728	lbs.
F =	0.93	

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

Rainfall Depth =	2.20	inches
Post Development Runoff Coefficient =	0.25	
On-site Water Quality Volume =	47660	cubic feet

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

Off-site area draining to BMP =	0.20	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	32	cubic feet
Storage for Sediment =	9538	
Total Capture Volume (required water quality volume(s) x 1.20) =	57231	cubic feet

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

Required Water Quality Volume for extended detention basin =	57231	cubic feet

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

H

Drainage Basin/Outfall Area No. =	H-6&7	
Total drainage basin/outfall area =	5.41	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.37	acres
Post-development impervious fraction within drainage basin/outfall area =	0.25	
$L_{M\ THIS\ BASIN}$ =	1252	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

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

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

A_C =	16.95	acres
A_I =	1.37	acres
A_P =	15.58	acres
L_R =	1676	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	1676	lbs.
F =	1.00	

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

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.12	
On-site Water Quality Volume =	29214	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 =	5843	
Total Capture Volume (required water quality volume(s) x 1.20) =	35057	cubic feet

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

Required Water Quality Volume for extended detention basin =	35057	cubic feet

SUMMARY

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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: $L_M = 27.7(A_N \times P)$

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

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	6.89	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	7852	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 8

WATER QUALITY SUMMARY TABLE

WATER QUALITY DRAINAGE AREA	DRAINAGE AREA (acre)	I.C. (acre)	L_M REQ. (lbs.)	L_M DES. (lbs.)	WQV REQ. (c.f.)	WQV DES. (c.f.)
A - BATCH DETENTION	24.02*	5.62	5137	5728	57231	85256
B - VEGETATIVE FILTER STRIP	1.28	0.36	329	363		
C - VEGETATIVE FILTER STRIP	1.47	0.40	366	404		
D - VEGETATIVE FILTER STRIP	1.18	0.30	274	304		
E - UNTREATED	37.52	0.54	494	0		
F - UNTREATED	4.82	0.00	0	0		
G - UNTREATED	5.53	0.00	0	0		
H - BATCH DETENTION (CAPTURED BY OFF-SITE WATER QUALITY POND CONSTRUCTED IN PARTEN RANCH PHASES 6&7)	5.41	1.37				
TOTAL	81.23	8.59	6600	6800	57231	85258

*INCLUDES 0.20 AC. OF OFF-SITE CAPTURE

UNTREATED

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

E

Drainage Basin/Outfall Area No. =	E	
Total drainage basin/outfall area =	37.52	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.54	acres
Post-development impervious fraction within drainage basin/outfall area =	0.01	
$L_{M\ THIS\ BASIN}$ =	494	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

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

F

Drainage Basin/Outfall Area No. =	F	
Total drainage basin/outfall area =	4.82	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

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

G

Drainage Basin/Outfall Area No. =	G	
Total drainage basin/outfall area =	5.53	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

VFS

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

B

Drainage Basin/Outfall Area No. =	B	
Total drainage basin/outfall area =	1.28	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.36	acres
Post-development impervious fraction within drainage basin/outfall area =	0.28	
$L_{M\ THIS\ BASIN}$ =	329	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Vegetated Filter Strips	
Removal efficiency =	85	percent

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

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

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

A_C =	1.28	acres
A_I =	0.36	acres
A_P =	0.92	acres
L_R =	363	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	363	lbs.
F =	1.00	

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

C

Drainage Basin/Outfall Area No. =	C	
Total drainage basin/outfall area =	1.47	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.40	acres
Post-development impervious fraction within drainage basin/outfall area =	0.27	
$L_{M\ THIS\ BASIN}$ =	366	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Vegetated Filter Strips	
Removal efficiency =	85	percent

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

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

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

A_C =	1.47	acres
A_I =	0.40	acres
A_P =	1.07	acres
L_R =	404	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	404	lbs.
F =	1.00	

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

D

Drainage Basin/Outfall Area No. =	D	
Total drainage basin/outfall area =	1.18	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.35	acres
Post-development impervious fraction within drainage basin/outfall area =	0.25	
$L_{M\ THIS\ BASIN}$ =	274	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Vegetated Filter Strips	
Removal efficiency =	85	percent

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

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

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

A_C =	1.18	acres
A_I =	0.30	acres
A_P =	0.88	acres
L_R =	304	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	304	lbs.
F =	1.00	

PARTEN RANCH PHASE 8

WATER QUALITY POND 'A'

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PhB-Pond.dwg

STATE OF TEXAS
LAUREN CRONE
126018
LICENSED PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 27 OF 50 SHEETS

I:\A311 Parten Ranch\A13 Parten Ranch Phase 8\Submittal Drawings\PhB-Pond.dwg
User: ccorres
Last Modified: Mar. 06, 23 - 09:19
Plot Date/Time: Mar. 06, 23 - 10:11:22

APPENDIX A

SAMPLE INSPECTION AND MAINTENANCE REPORT FORM

TPDES Construction Inspection and Maintenance Report Form

Project Name: Parten Ranch, Phase 8

Permit Number:

Facility Operators:

Inspector's Name:
(attach qualifications summary for each inspector)

Date of Last Rainfall:
Amount of Last Rainfall:
Date of Inspection:

Inspection Notes

Condition Code*	Area Inspected	Changes Required (if any)
☐	Stabilized Construction Entrance(s)	
☐	Silt fencing and rock berms downstream of improvements	
☐	Severe service rock berm and silt fencing downstream of detention pond	
☐	Severe service rock berm and silt fencing inside Vega Avenue right-of-way	
☐	Sediment Trap (Water Quality Pond)	
☐	Silt fencing downstream of Temporary Spoils/ Construction Staging Areas	
☐	Areas temporarily and/or finally stabilized (inspect at least once every month)	
☐		

*Condition Codes
01 - In compliance with the storm water pollution prevention plan and perm
02 - To be repaired or replaced within 24 hours
03 - To be repaired or replaced within 48 hours
04 - To be repaired or replaced within 7 days

Please note major construction activities taking place. Include dates when major grading activities and/or disturbances occur, dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of controls that need to be maintained; locations of controls that failed to operate as designed or proved inadequate for a particular location; and locations where additional controls are needed. (Attach additional pages as required and/or attach daily construction reports.)

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

Signature: _____ Date: _____

APPENDIX B

NAMES AND QUALIFICATIONS OF PERSONNEL MAKING INSPECTIONS

APPENDIX C

CERTIFIED NOTICES OF INTENT AND ACKNOWLEDGEMENT CERTIFICATES

TCEQ Office Use Only
Permit No:
CN:
RN:

Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly. **Incomplete applications delay approval or result in automatic denial.**

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: https://www3.tceq.texas.gov/steers/index.cfm

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is $325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is $225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: http://www.tceq.texas.gov/epay.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
  - Check/Money Order Number: Click here to enter text
  - Name printed on Check: Click here to enter text
- If payment was made via ePay, provide the following:
  - Voucher Number: Click here to enter text
  - A copy of the payment voucher is attached to this paper NOI form.

RENEWAL (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? ☐ Yes ☐ No

If Yes, provide the authorization number here: TXR15 Click here to enter text

NOTE: If an authorization number is not provided, a new number will be assigned.

SECTION 1. OPERATOR (APPLICANT)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN 605256239

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

HM Parten Ranch Development, Inc.

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

Prefix (Mr. Ms. Miss): Mr.

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

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

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

E-mail: Click here to enter text

Mailing Address: 1011 North Lamar Blvd

City, State, and Zip Code: Austin, TX 78703

Mailing Information if outside USA:

Territory: Click here to enter text

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

d) Indicate the type of customer:

☐ Individual
☐ Limited Partnership
☐ General Partnership
☐ Trust
☐ Sole Proprietorship (D.B.A.)
☒ Corporation
☐ Estate
☐ Federal Government
☐ County Government
☐ State Government
☐ City Government
☐ Other Government
☐ Other: Click here to enter text

e) Is the applicant an independent operator? ☒ Yes ☐ No

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

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

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number: 32059225675

Federal Tax ID: Click here to enter text.

Texas Secretary of State Charter (filing) Number: 0802363776

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

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3

☒ No, complete this section

Prefix (Mr. Ms. Miss): Mrs.

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

Title: Project Manager Credential: P.E.

Organization Name: LJA Engineering, Inc.

Phone Number: 512-439-4700 Fax Number: Click here to enter text.

E-mail: lcrone@lja.com

Mailing Address: 7500 Rialto Blvd, Bldg II, Suite 100

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

City, State, and Zip Code: Austin, TX 78735

Mailing information if outside USA:

Territory: Click here to enter text.

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

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN Click here to enter text.

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

b) Name of project or site (the name known by the community where it's located): Parten Ranch, Phase 8

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Construction of roads and associated utilities

d) County or Counties (if located in more than one): Hays County

e) Latitude: 30.165204 Longitude: -97.973273

f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name: Click here to enter text

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

Section B:

Location Description: Located 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road in Hays County

City (or city nearest to) where the site is located: Driftwood

Zip Code where the site is located: 78619

SECTION 4. GENERAL CHARACTERISTICS

a) Is the project or site located on Indian Country Lands?

☐ Yes, do not submit this form. You must obtain authorization through EPA Region 6.

☒ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? **1611**

d) What is the Secondary SIC Code(s), if applicable? 1623

e) What is the total number of acres to be disturbed? 10.67

f) Is the project part of a larger common plan of development or sale?

☒ Yes

☐ No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project? 2023

h) What is the estimated end date of the project? 2024

i) Will concrete truck washout be performed at the site? ☒ Yes ☐ No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? Spring Hollow Creek

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

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

☐ Yes ☒ No

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

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

☒ Yes, complete the certification below.

☐ No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. ☐ Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☒ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☒ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☒ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). ☒ Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: Click here to enter text

Operator Signatory Title: Click here to enter text

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____Date: _____

APPENDIX D

SPILL NOTIFICATION PROCEDURE

APPENDIX D – SPILL NOTIFICATION PROCEDURE

To report an environmental emergency, discharge, spill or air release, contact:

STATE

- State of Texas Spill-Reporting Hotline and the SERC: 1-800-832-8224 (24 hours)
- TCEQ Regional Office – Austin Region 512-339-2929 (M-F 8:00 am – 5:00 pm)

FEDERAL

- National Response Center: 1-800-424-8802 (notifying NRC does not constitute notice to the state.)

When making a report of a spill or pollution complain, please have the following information at hand:

- The date and time of the spill or release.
- The identity of chemical name of any material released or spilled, as well as whether the substance is extremely hazardous.
- The estimate of the quantity of material released or spilled and the time or duration of the event.
- The exact location of the spill, including the name of receiving waters. Receiving waters for this project include Barton Creek.
- The extent of actual and potential water pollution.
- The source of the release or spill.
- The name, address, and phone number of the party in charge of, or responsible for, the facility, vessel, or activity associated with the release or spill.
- The name and phone number of the party at the site who is in charge of operations.
- The steps being taken or proposed to contain and clean up the released or spilled material and any precautions taken to minimize impacts, including evacuation.
- The extent of any injuries.
- Any known or anticipated health risks associated with the incident and where appropriate, advice regarding medical attention necessary for persons exposed.
- Possible hazards to the environment (air, soil, water, wildlife, etc.) This assessment may include references to accepted chemical databases, material safety data sheets, and health advisories. The TCEQ may request estimated or measured concentrations of contaminant for the state's hazard assessment.
- The identities of any government or private sector representative responding at the scene.

IMPORTANT WEBSITES:

Emergency Response Home (https://www.tceq.texas.gov/response/index.html)
Spills, Discharges, and Releases (https://www.tceq.texas.gov/response/spills/spills.html)

APPENDIX E

GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

Texas Commission on Environmental Quality

P.O. Box 13087, Austin, Texas 78711-3087

GENERAL PERMIT TO DISCHARGE UNDER THE

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

This permit supersedes and replaces
TPDES General Permit No. TXR150000, issued March 5, 2008

Construction sites that discharge stormwater associated with construction activity

located in the state of Texas

may discharge to surface water in the state

only according to monitoring requirements and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or Commission), the laws of the State of Texas, and other orders of the Commission of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of stormwater and certain non-stormwater discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this general permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This general permit and the authorization contained herein shall expire at midnight, five years from the permit effective date.

EFFECTIVE DATE: March 5, 2013

ISSUED DATE: FEB 19 2013

Bryan W. Shaw

For the Commission

Horizon™
Environmental Services, Inc.

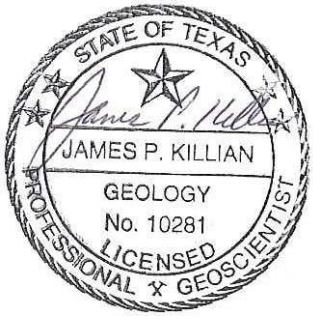
GEOLOGIC ASSESSMENT
FOR
525.9-ACRE HIGH POINTE SUBDIVISION (PARTEN RANCH)
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS
HJN 150101 GA

PREPARED FOR:

HM PARTEN RANCH, LP
AUSTIN, TEXAS

PREPARED BY:

HORIZON ENVIRONMENTAL SERVICES, INC.
TBPG FIRM REGISTRATION N0. 50488



JUNE 2015

CORPORATE HEADQUARTERS
1507 South IH 35 ★ Austin, Texas 78741 ★ 512.328.2430 ★ Fax 512.328.1804 ★ www.horizon-esi.com
Certified WBE/HUB/DBE/SBE

Horizon
Environmental Services, Inc.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

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

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

Signature

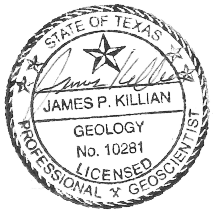
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: James Killian Telephone: 512 328-2430

Date: 8 June 2015 Fax: 512 328-1804

Representing: Horizon Environmental Services, Inc. and TBPG Firm Registration No. 50488
(Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: 525.9 acre High Pointe Subdivision (Parten Ranch); Hays County, Texas

Project Information

1. Date(s) Geologic Assessment was performed: 12, 13, 19, 20, and 21 May 2015
2. Type of Project:
   - ☒ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☐ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Anhalt clay, 1-3% slopes (AnB)	D	1 to 2
Bolar clay loam, 1-3% slopes (BrB)	C	0 to 1
Brackett-Rock outcrop-Comfort complex, undulating (BtD)	C & D	0 to 1
Brackett-Rock outcrop-Real complex, steep (BtG)	C & D	0 to 1
Comfort-Rock outcrop complex, undulating (CrD)		
Additional soils listed at end of this form	D	0 to 1

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale: 1" = 300'
Site Geologic Map Scale: 1" = 300'
Site Soils Map Scale (if more than 1 soil type): 1" = 675'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☐ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☐ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☒ There are 3 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    ☐ The wells are not in use and have been properly abandoned.
    ☐ The wells are not in use and will be properly abandoned.
    ☒ The wells are in use and comply with 16 TAC Chapter 76.
    ☐ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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

TABLE 1 – SURFACE SOILS (continued)
HIGH POINTE SUBDIVISION (PARTEN RANCH)
HAYS COUNTY, TEXAS

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
Purves clay, 1-5% slopes (PuC)	D	1 - 2
Real-Comfort-Doss complex, undulating (RcD)	D	0 - 1
Sunev clay loam, 1-3% slopes (SuB)	B	1 - 2

* Soil Group Definitions (Abbreviated)
A. Soils having a high infiltration rate when thoroughly wetted. B. Soils having a moderate infiltration rate when thoroughly wetted. C. Soils having a slow infiltration rate when thoroughly wetted. D. Soils having a very slow infiltration rate when thoroughly wetted.

TCEQ GEOLOGIC ASSESSMENT
ADDITIONAL COMMENTS

1.0 INTRODUCTION AND METHODOLOGY

This report and the planned abatement measures are intended to fulfill Texas Commission on Environmental Quality (TCEQ) reporting requirements (TCEQ, 1999). This geologic assessment includes a review of the site for potential aquifer recharge and documentation of general geologic characteristics for the subject site. Horizon conducted the necessary field and literature studies according to TCEQ Instructions to Geologists for completing Geologic Assessments within the Edwards Aquifer Recharge Zone (TCEQ, 2004).

In addition, this report complies with TCEQ Optional Enhanced Measures (OEM) for the Protection of Water Quality in the Edwards Aquifer RG-348 for new development in areas subject to the TCEQ Edwards Aquifer Rules (30 TAC Chapter 213). These measures provide a higher level of water quality protection and may be adopted by those who wish to implement additional measures for environmental protection or to satisfy requirements for agencies other than the TCEQ; as such, the implementation of these measures for the proposed development has been agreed upon between the US Fish and Wildlife Service (USFWS) and the developer of this property.

Horizon walked transects spaced 50 feet apart and mapped the location of features using a sub-foot accurate Trimble Geo HX handheld GPS and posted processed data utilizing GPS Pathfinder Office software, topographic maps, and aerial photographs. Horizon also searched the area around any potential recharge features encountered to look for any additional features.

The Geologic Assessment Table in Appendix C provides a description of any features that meet the TCEQ definition of potential recharge features (TCEQ, 2004). Features that do not meet the TCEQ definition, which include surface weathering, karren, or animal burrows, were evaluated in the field and omitted from this report. When necessary, Horizon removed loose rocks and soil (by hand) to preliminarily assess each feature's subsurface extent while walking transects. However, labor-intensive excavation was not conducted.

The results of this survey do not preclude the possibility of finding subsurface voids or abandoned test or water wells during the clearing or construction phases of the proposed project. If a subsurface void is encountered during any phase of the project, construction should be halted until the TCEQ (or appropriate agency) is contacted and a geologist can investigate the feature.

2.0 ENVIRONMENTAL SETTING

2.1 LAND USE

The current use of the subject site is for raising beef cattle on undeveloped rangeland and woodlands. Surrounding land use is predominantly undeveloped agricultural and/or single-family residential (Appendix A, Figure 1).

2.2 TOPOGRAPHY AND SURFACE WATER

The subject site is situated on gently to steeply sloping terrain within Spring Hollow of the Bear Creek watershed (Appendix A, Figures 2 and 3). Surface elevations on the subject site vary from a minimum of approximately 970 feet above mean sea level (amsl) within Spring Hollow near the southern property boundary along Farm-to-Market Road (FM) 1826 to a maximum of approximately 1122 feet amsl near the northeastern property corner. Drainage on the site occurs primarily by overland sheet flow in multiple directions into several unnamed tributaries of Spring Hollow and/or Bear Creek.

2.3 EDWARDS AQUIFER ZONE

As shown on Appendix A, Figure 2, the subject site is found within the Edwards Aquifer Contributing Zone, as mapped by the TCEQ Recharge Zone Boundary Maps (TCEQ, 2015).

2.4 SURFACE SOILS

Mapping by the Natural Resources Conservation Service (NRCS, 2015) shows 8 soil mapping units within the subject site (Appendix A, Figure 4) associated with the soil series described below. Generally, the soil series are similar in their physical, chemical, and engineering properties, with the principal exception being rock fragment content and thickness.

Anhalt clay (AnB) is a moderately deep, gently sloping soil on slightly concave foot slopes on uplands. It is generally near streams. Typically, the surface layer is dark reddish-gray, neutral clay about 23 inches thick. The subsoil extends to a depth of 32 inches and is dark reddish-brown, neutral clay. Below the subsoil there is fractured, indurated limestone. This soil is well drained. Surface runoff is medium. Permeability is very slow. Water enters rapidly when the soil is dry and cracked and very slowly when the soil is wet. The available water capacity is low and water erosion is a moderate hazard. The very slow permeability and the low available water capacity are the main limitations.

Bolar clay loam (BrB) is a moderately deep, gently sloping soil on concave valley slopes and foot slopes of hills on uplands. Typically, the surface layer is dark grayish-brown and dark brown clay loam about 14 inches thick. The subsoil extends to a depth of 28 inches and is

brown clay loam. Indurated limestone interbedded with marl is at a depth of 28 inches. This soil is moderately alkaline and calcareous throughout. It is well drained, and surface runoff is medium. The permeability is moderate, and available water capacity is low.

Brackett-Rock outcrop-Comfort complex (BtD) consists of shallow, loamy, clayey soils and Rock outcrop on uplands in the Edwards Plateau. Many areas have a benched appearance along the hill slopes because of the horizontal bands of Rock outcrop. The Brackett and Comfort soils are between the bands of Rock outcrop. The Brackett soil makes up 30 to 60% of the complex and Rock outcrop makes up 10 to 45%. The Comfort soil and similar soils make up 10 to 20%. Typically, the surface layer of the Brackett soil is grayish-brown gravelly clay loam about 6 inches thick. The subsoil extends to a depth of 17 inches. It is very pale brown and pale yellow gravelly clay loam. The underlying material is weakly cemented limestone interbedded with thin layers of indurated limestone. The soil is moderately alkaline and calcareous throughout. Typically, the areas of Rock outcrop consist of exposures of limestone bedrock. In some areas, however, the rock is flat and is covered by soil material as much as 3 inches thick. Typically, the surface layer of the Comfort soil is dark brown extremely stony clay about 4 inches thick. The subsoil extends to a depth of 11 inches. It is dark reddish-brown extremely stony clay. The underlying material is indurated, fractured limestone. The soil is moderately alkaline and noncalcareous throughout. The soils in this complex are well drained. Surface runoff is medium to rapid. Permeability is moderately slow in the Brackett soil and slow in the Comfort soil. The available water capacity is very low.

Brackett-Rock outcrop-Real complex (BtG) consists of shallow, loamy soils and Rock outcrop on uplands in the Edwards Plateau. Escarpments and high rounded hills and ridges and their side slopes are characteristic of the areas. Slopes have a benched appearance because of the horizontal layers of Rock outcrop. The Real and Brackett soils are between the areas of Rock outcrop. The Brackett soil makes up 20 to 55% of the complex. Rock outcrop makes up 10 to 46% and the Real soil makes up 10 to 30%. Typically, the surface layer of the Brackett soil is grayish-brown gravelly clay loam about 6 inches thick. The subsoil extends to a depth of 14 inches. It is light gray gravelly clay loam. The underlying material is weakly cemented limestone interbedded with thin strata of pale yellow and very pale brown shaly clay. The soil is moderately alkaline and calcareous throughout. Typically, Rock outcrop is barren of soil except in narrow fractures in the rock. In some areas the rock is flat and has as much as 3 inches of soil material on the surface. Typically, the surface layer of the Real soil is very dark grayish-brown gravelly clay loam about 12 inches thick. The upper part is about 20%, by volume, weakly cemented limestone gravel, and the lower part is about 60%. The underlying material is weakly cemented limestone. The soils in this complex are well drained. Surface runoff is rapid. Permeability is moderately slow in the Brackett soil and slow in the Real soil. The available water capacity is low.

Comfort-Rock outcrop complex (CrD) consists of shallow, clayey soils and Rock outcrop on side slopes and on hilltops and ridgetops on uplands in the Edwards Plateau. Comfort extremely stony clay makes up 49 to more than 95% of the complex. Rock outcrop and areas of

soil less than 4 inches deep make up 5 to 36%. The areas of Rock outcrop are long, narrow horizontal bands on hill slopes and along small drains. The Comfort soil is between the bands of Rock outcrop. Typically, the surface layer of the Comfort soil is dark brown extremely stony clay about 6 inches thick. Cobbles and stones as much as 4 feet across cover about 45% of the surface. The subsoil extends to a depth of 13 inches. It is dark reddish-brown extremely stony clay. The underlying material is indurated, fractured limestone. The soil is mildly alkaline and noncalcareous throughout. The Comfort soil is well drained. Surface runoff is slow to medium. Permeability is slow, and the available water capacity is very low. Typically, Rock outcrop is dolomitic limestone that is barren of soil except in narrow fractures in the rock. In some areas the rock is flat and has as much as 3 inches of soil material on the surface.

Purves clay (PuC) is a shallow, gently sloping soil on uplands. Typically, the surface layer is very dark gray clay about 10 inches thick. The layer below that to a depth of 16 inches is dark gray clay, and to a depth of 19 inches it is dark grayish-brown clay that is about 10%, by volume, coarse fragments of limestone. The underlying layer is fractured, indurated limestone bedrock. This soil is well drained. Surface runoff is medium. Permeability is moderately slow. The available water capacity is very low. The rooting zone is shallow. Water erosion is a moderate hazard. For urban and recreational uses, the clayey texture, high shrink-swell potential, shallowness, and slope are severe limitations that can be difficult to overcome and can require expensive construction measures.

Real-Comfort-Doss complex (RcD) consists of shallow, loamy and clayey soils on low hills and ridges on uplands in the Edwards Plateau. The Real soil makes up 22 to 54% of the complex and the Comfort soil makes up 18 to 40%. The Doss soil makes up 9 to 39%. Typically, the surface layer of the Real soil is very dark grayish-brown, gravelly loam about 8 inches thick. The upper part is about 25%, by volume, angular gravel of limestone and caliche, and the lower part is about 55% fragments. The underlying material is weakly cemented limestone interbedded with thin layers of indurated limestone. The soil is moderately alkaline and calcareous throughout. Typically, the surface layer of the Comfort soil is dark brown, very stony clay about 7 inches thick. The subsoil extends to a depth of 13 inches. It is dark reddish-brown, extremely stony clay. The underlying material is indurated, fractured limestone. The soil is moderately alkaline and noncalcareous throughout. Typically, the surface layer of the Doss soil is dark brown clay loam about 7 inches thick. The subsoil extends to a depth of 12 inches. It is reddish-brown clay loam that is about 15% limestone and caliche gravel. The underlying material is weakly cemented limestone and marl. The soil is moderately alkaline and calcareous throughout. The soils in this complex are well-drained. Surface runoff is medium to rapid. Permeability in the Real soil is moderate, in the Comfort soil it is slow, and in the Doss soil it is moderately slow. The available water capacity is very low in the Real and Comfort soils and low in the Doss soil. Erosion is a moderate hazard

Sunev clay loam (SuB) is a deep, gently sloping soil on valley slopes and foot slopes of hills on uplands in the Edwards Plateau. Typically, the surface layer is dark grayish-brown clay

loam about 11 inches thick. The subsoil to a depth of 35 inches is brown clay loam. To a depth of 45 inches, it is reddish-yellow clay loam that is about 15%, by volume, soft masses and concretions of calcium carbonate. The soil is moderately alkaline and calcareous throughout. It is about 45% calcium carbonate (lime). This soil is well drained. Surface runoff is medium to rapid. Permeability is moderate, and the available water capacity is medium (Batte, 1984) (NRCS, 1975).

2.5 GEOLOGY

A review of existing literature shows the subject site is predominately underlain by the Glen Rose Formation (Kgr), Bureau of Economic Geology (UT-BEG, 1981), with an estimated maximum thickness of about 400 feet. The Glen Rose Formation consists of alternating resistant and recessive beds of limestone, dolomite, and marl, which is subdivided into upper and lower members (Kgr[u] and Kgr[l]). Underlying the Glen Rose Limestone is the Hensell Sand, with an estimated thickness of about 85 feet.

The subject site is not located within the Balcones Fault Zone and available geologic reports indicate the nearest mapped fault is located about 1 mile to the east, trending from southwest to northeast. In general, the rock strata beneath the site dip to the east-southeast at about 10 to 30 feet per mile (less than 1°). Table 1 depicts the stratigraphic relationship and approximate thicknesses of the uppermost geologic units found at the subject site.

TABLE 1 – GEOLOGIC STRATIGRAPHIC COLUMN

Geologic Period	Hydrologic Unit	Geologic Unit	Approximate Thickness (feet)	Description
Lower Cretaceous	Confining Unit	Upper Glen Rose Limestone (Kgr[u])	220	Alternating resistant and recessive beds of limestone, dolomite, and marl; limestone aphanitic to fine-grained, hard to soft and marly, light gray to yellowish-gray: dolomite, fine-grained, porous, yellowish-brown; marine megafossils include molluscan steinherns, rudistids, oysters, and echinoids; upper part, relatively thinner bedded, more dolomitic, and less fossiliferous than the lower part. Some surface cave development.
Lower Cretaceous	Confining Unit	Lower Glen Rose Limestone (Kgr[l])	160	Alternating resistant and recessive beds of limestone, dolomite, and marl; limestone aphanitic to fine-grained, hard to soft and marly, light gray to yellowish-gray: dolomite, fine-grained, porous, yellowish-brown; marine megafossils include molluscan steinherns, rudistids, oysters, and echinoids. Low to moderate cave development.
Lower Cretaceous	Trinity Aquifer	Hensell Sand (Kh)	85	Mostly fine grained, friable to well cemented, argillaceous, calcareous, light brownish-gray. No cave development.

2.6 WATER WELLS

A search was made for water wells on and within 0.5 miles of the subject site. A review of the records of the TCEQ and the Texas Water Development Board (TWDB) revealed 1 water well at the subject site. Well no. 5849710 has James, A. M., listed as the owner with no reported total depth or aquifer code. According to the current landowner, Matt Parten, an old cabin (circa 1850s) with a hand-dug well was located near this reported location when his grandfather (James, A. M.) operated the ranch. Mr. Parten stated that currently there is only a pile of rocks left of the cabin with no water well in the reported location. Approximately 3 private water wells (M-1, M-2, and M-4) were found at the subject site with reported depths (by landowner) ranging from 25 to 35 feet deep. No records for these wells were found in TWDB or TCEQ's well database records. According to the landowner, all of these wells are used to water livestock (beef cattle). No other evidence of water wells was present on the subject site during the field investigation. According to the TWDB records, 4 water wells exist within 0.5 miles of the subject site, all of which are completed in the Trinity Aquifer with total depths ranging from 410 to 650 feet (TWDB, 2015). Appendix A, Figure 2, shows the TWDB water well locations.

The results of this survey do not preclude the existence of an abandoned well. Abandoned wells must be capped or properly abandoned according to the Administrative Rules of the Texas Department of Licensing and Regulation, 16 Texas Administrative Code (TAC), Chapter 76, effective 3 January 1999. A plugging report must be submitted (by a licensed water well driller) to the Texas Department of Licensing and Regulation, Water Well Driller's Program, Austin, Texas. If a well is intended for use, it must comply with 16 TAC §76.

2.7 GEOLOGIC AND MANMADE FEATURES

A field survey of the subject site was conducted by a licensed Horizon geologist on 12, 13, 19, 20, and 21 May 2015. No natural geologic (recharge) features were identified at the subject site. Approximately 4 natural discharge features (i.e., springs [S-1 to S-4]) were identified within the subject site, some of which (S-1 and S-2) had estimated flow rates of over 5 gallons per minute. A total of 4 manmade features (M-1 to M-4) were found at the subject site, 3 of which are private water wells (previously described) and one is a stock pond (M-3). A map detailing site geology is provided in Appendix B.

3.0 CONCLUSIONS AND RECOMMENDATIONS

No geologic or manmade features were identified at the subject site that would require protection or mitigation pursuant to TCEQ rules for protection of the Edwards Aquifer (30 TAC 213). The site generally appears well-suited to development prospectuses. It should be noted that soil and drainage erosion would increase with ground disturbance. Native grasses and the cobbly content of the soil aid to prevent erosion. Soil and sedimentation fencing should be placed in all appropriate areas prior to any site construction activities.

Because the subject site is located over the Edwards Aquifer Contributing Zone, it is possible that subsurface voids underlie the site. If any subsurface voids are encountered during proposed development, construction should halt immediately so that a geologist may assess potential for the void(s) to provide meaningful contribution to the Edwards Aquifer.

4.0 REFERENCES

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(USDA) US Department of Agriculture. National Agriculture Imagery Program, Farm Service Agency, Aerial Photography Field Office. Hays County, Texas. 2014.

(UT-BEG) University of Texas Bureau of Economic Geology, C.V. Proctor, Jr., T.E. Brown, J.H. McGowen, N.B. Waechter, and V.E. Barnes. *Geologic Atlas of Texas*, Austin Sheet, Francis Luther Whitney Memorial Edition. 1974; revised 1981.

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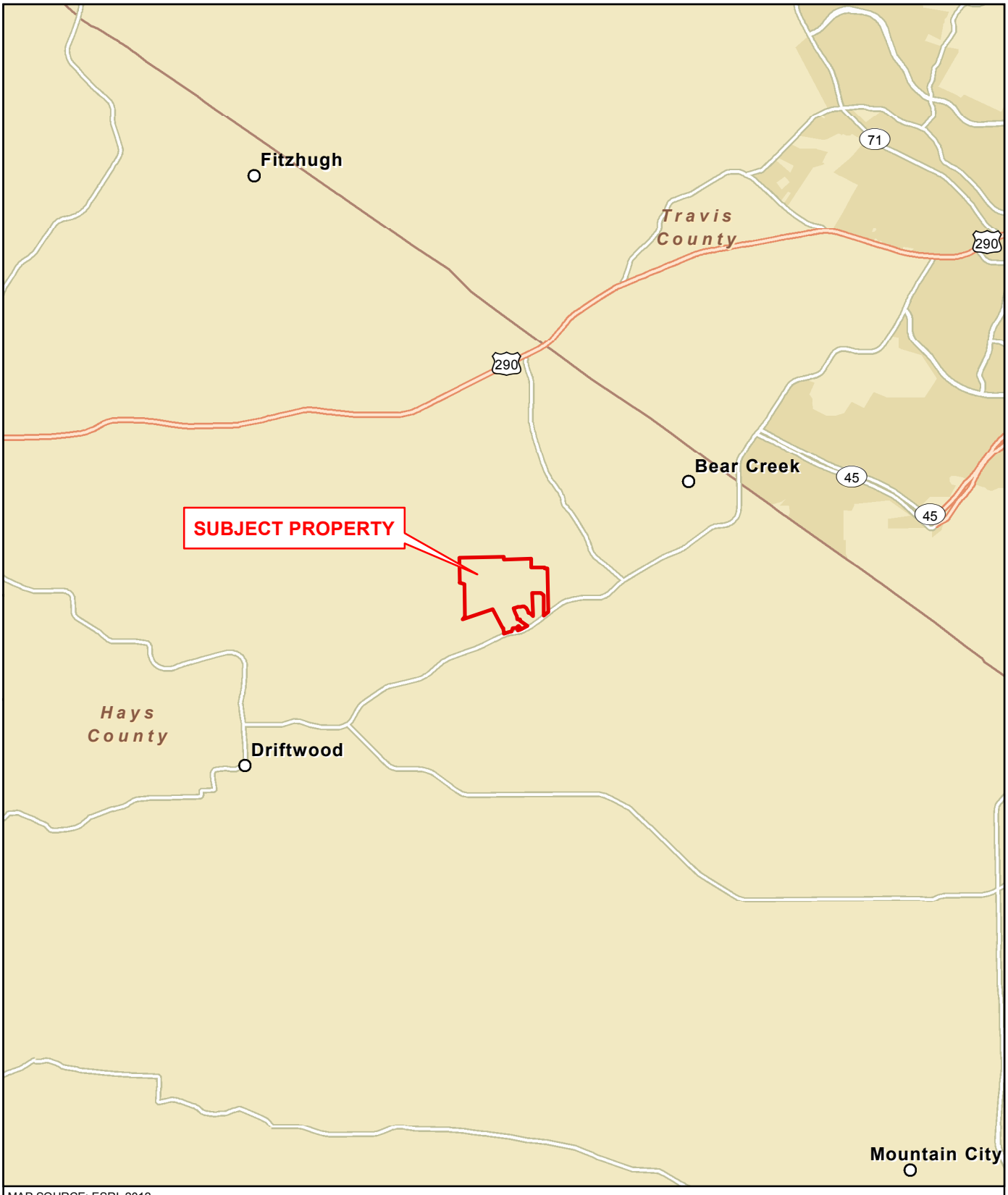
(USGS) US Geological Survey. 7.5-minute series topographic maps, Signal Hill, Texas, quadrangle, 1986.

APPENDIX A

PROJECT FIGURES



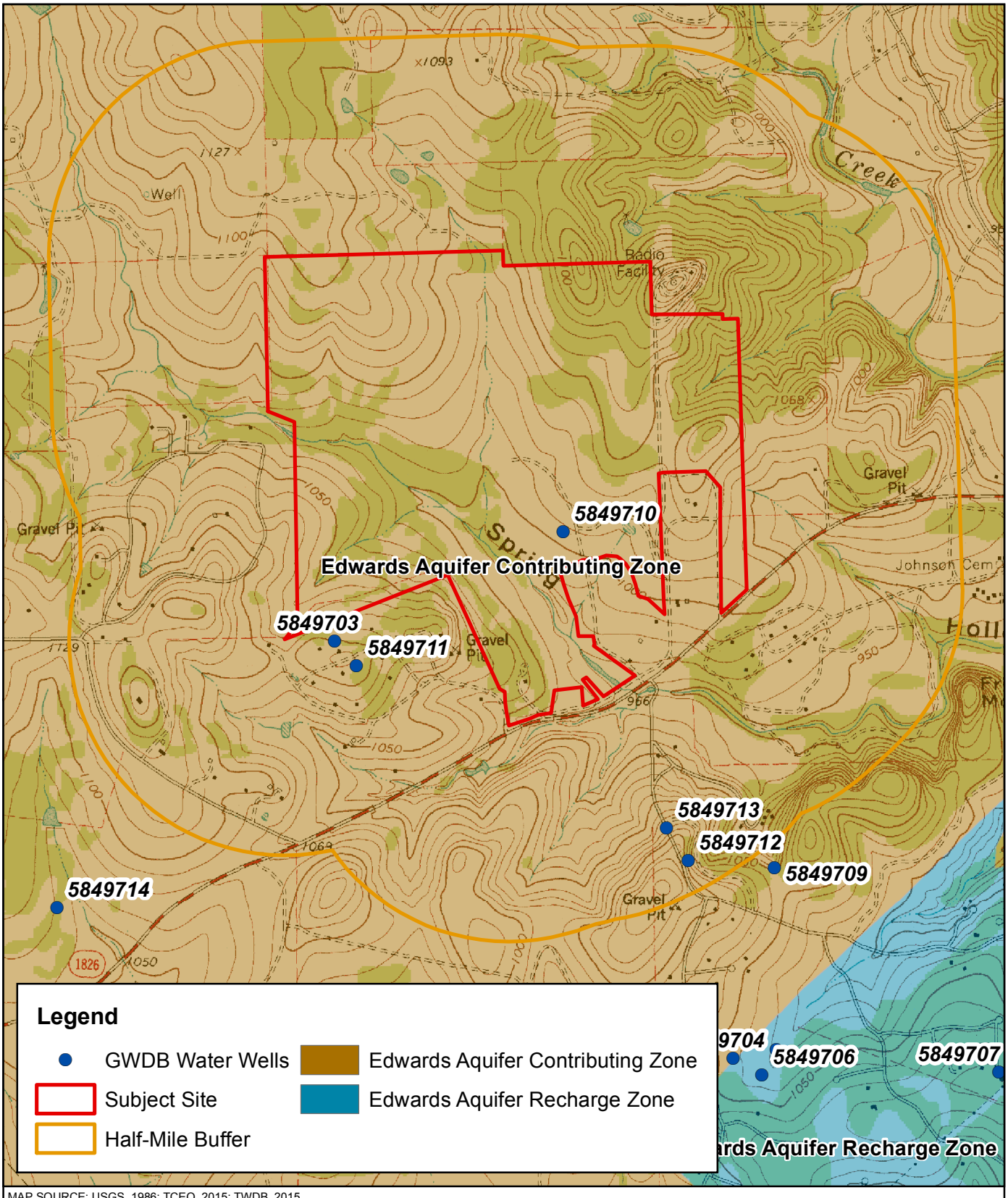
MAP SOURCE: ESRI, 2012.

0 1 2
Miles

Horizon
Environmental Services, Inc.

APPENDIX A, FIGURE 1

VICINITY MAP
APPROXIMATELY 525.9-ACRE
HIGH POINTE SUBDIVISION
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS



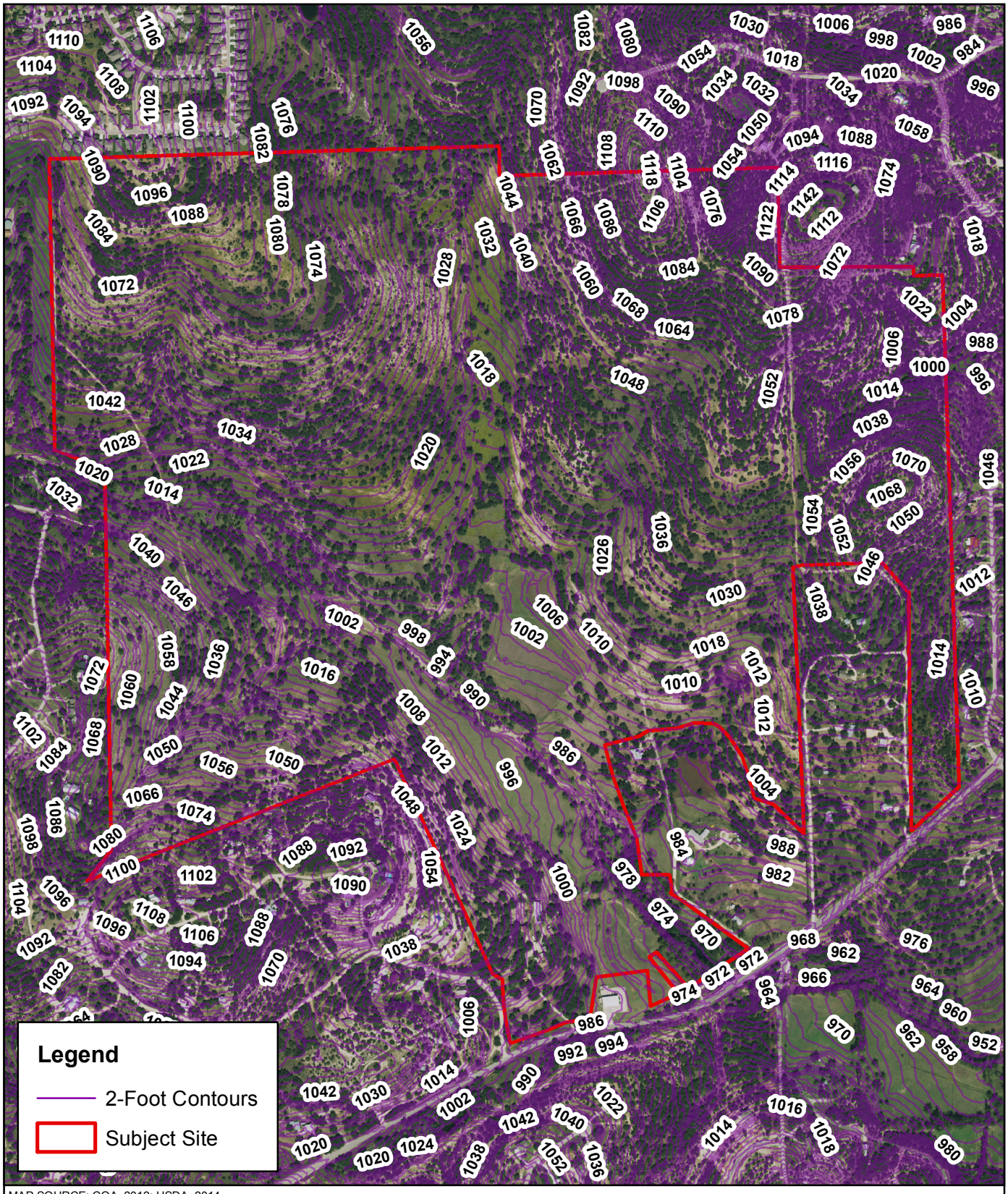
MAP SOURCE: USGS, 1986; TCEQ, 2015; TWDB, 2015.

0 850 1,700
Feet

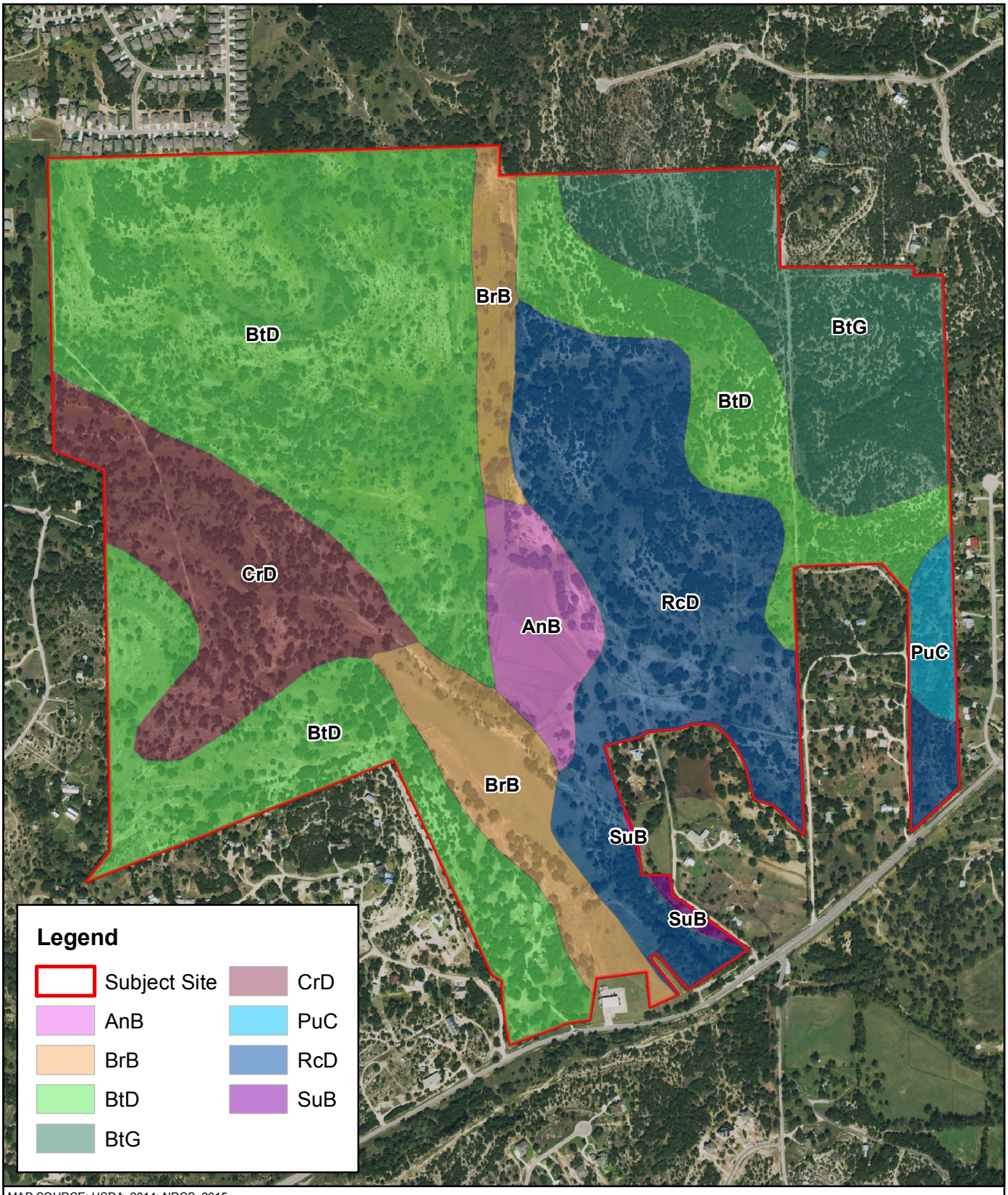
Horizon Environmental Services, Inc.

APPENDIX A, FIGURE 2

TOPOGRAPHY AND HYDROGEOLOGY MAP
APPROXIMATELY 525.9-ACRE HIGH POINTE SUBDIVISION
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS


150101 - High Point Subdivision KS\Graphics\150101A03GA_Topo.mxd | REM | 05-19-2015
Legend
2-Foot Contours
Subject Site
MAP SOURCE: COA, 2012; USDA, 2014.
0
450
900
Feet
Horizon
Environmental Services, Inc.
APPENDIX A, FIGURE 3
SITE TOPOGRAPHY MAP
APPROXIMATELY 525.9-ACRE
HIGH POINTE SUBDIVISION
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS

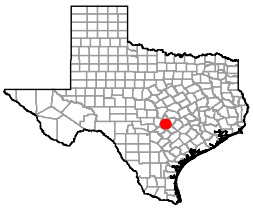
150101 - High Point Subdivision KS\Graphics\150101A04GA_Soil.mxd | REM | 05-19-2015



MAP SOURCE: USDA, 2014; NRCS, 2015.

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

0 450 900
Feet



Horizon
Environmental Services, Inc.

APPENDIX A, FIGURE 4

SURFACE SOIL MAP
APPROXIMATELY 525.9-ACRE
HIGH POINTE SUBDIVISION
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS

150101 - High Point Subdivision KS\Graphics\150101A05GA_Strat.mxd | REM | 05-22-2015

Geologic Unit	Hydrologic Unit	Approx. Thickness at Project Site (ft)	Elevation (ft msl)	Depth (ft)
			1122	0
Upper Glen Rose Limestone (Kgr(u))	Confining Unit	220		
			902	220
Lower Glen Rose Limestone (Kgr(l))		160		
			742	400
Hensell Sand (Kh)	Trinity Aquifer	85		
			657	485

Note: Unit elevation and thickness given with respect to a ground surface elevation of 1122 ft near the northeastern corner of the property.

Horizon Environmental Services, Inc.

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

APPENDIX A, FIGURE 5

STRATIGRAPHIC COLUMN
APPROXIMATELY 525.9-ACRE
HIGH POINTE SUBDIVISION
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS

APPENDIX B

SITE GEOLOGIC MAP

Kgru

S-3

S-4

M-4

M-3

M-2

Kgru

S-1

S-2

M-1

Legend

- Geologic Feature
- Manmade Feature
- Subject Site
- Upper Glen Rose Limestone (Kgru)

MAP SOURCE: UT-BEG, 1981; USDA, 2014.

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

0 150 300
Feet

Scale: 1" = 300'

Horizon
Environmental Services, Inc.

APPENDIX B, FIGURE 1

SITE GEOLOGIC MAP
APPROXIMATELY 525.9-ACRE
HIGH POINTE SUBDIVISION
FM 1826 AND KINNICNIK LOOP
HAYS COUNTY, TEXAS

Horizon
Environmental Services, Inc.

APPENDIX C

SITE GEOLOGIC ASSESSMENT TABLE

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: 525.9-ac High Pointe Subdivision (Parten Ranch) Hays Co Tx

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
M-1	30.15392	-97.97602	MB	30	Kgru	0.3	0.3	25	--	--	--	--	X	Low - 5	35	X			X	Floodplain
M-2	30.15696	-97.97307	MB	30	Kgru	0.3	0.3	35	--	--	--	--	X	Low - 5	35	X		X		Hillside
M-3	30.15729	-97.97289	MB	30	Kgru	150	80	6		--	--	--	C, F,O	Low - 5	35	X		X		Hillside
M-4	30.15999	-97.98452	MB	30	Kgru	0.3	0.3	30		--	--	--	X	Low - 5	35	X			X	Floodplain
S-1	30.15439	-97.97524	O	5	Kgru	--	--	--	--	--	--	0.2	C, F,O	Low - 5	10	X			X	Streambed
S-2	30.15404	-97.9758	O	5	Kgru	--	--	--	--	--	3	0.2	C, F,O	Low - 5	10	X			X	Streambed
S-3	30.16272	-97.97848	O	5	Kgru	--	--	--	--	--	--	--	C, F,O	Low - 5	10	X			X	Drainage
S-4	30.16042	-97.98493	O	5	Kgru	--	--	--	--	--	--	--	C, F,O	Low - 5	10	X			X	Streambed

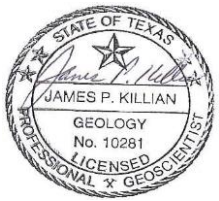
* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed



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

Date 8 June 2015

Sheet 1 of 1

_____

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

Horizon
Environmental Services, Inc.

APPENDIX D

SITE PHOTOGRAPHS

R:\Proj.2015\150101 - High Point Subdivision KS\Photos\Pic1.cdr | JPK | 06-09-15

PHOTO 1
View of manmade feature M-1 (water well), facing east

PHOTO 2
View of manmade feature M-2 (water well), facing north

R:\Proj.2015\150101 - High Point Subdivision KS\Photos\Pic2.cdr | JPK | 06-09-15

PHOTO 3
View of manmade feature M-3 (stock pond), facing southwest

PHOTO 4
View of manmade feature M-4 (water well), facing northeast

R:\Proj.2015\150101 - High Point Subdivision KS\Photos\Pic3.cdr | JPK | 06-09-15

PHOTO 5
View of discharge (spring) feature S-1, facing south

PHOTO 6
View of discharge (spring) feature S-2, facing east

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

I Jay Hanna,
Print Name

Vice President,
Title - Owner/President/Other

of HM Parten Ranch Development, Inc.,
Corporation/Partnership/Entity Name

have authorized Lauren Crone, P.E.
Print Name of Agent/Engineer

of LJA Engineering, 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:

Jay Hanna 3.1.23

Applicant's Signature Date

THE STATE OF TEXAS §

County of TRAVIS §

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

GIVEN under my hand and seal of office on this 1st day of March, 2023

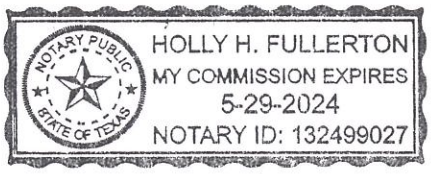
Holly H. Fullerton

NOTARY PUBLIC

Holly H. Fullerton

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5.29.2024



TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 605256239		RN

SECTION II: Customer Information

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

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

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

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

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

HM Parten Ranch Development, Inc.

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0802363776	32059225675		

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

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

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

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

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

☐ Owner ☐ Operator ☒ Owner & Operator

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

15. Mailing Address:

1011 North Lamar Blvd.

City	State	ZIP	ZIP + 4
Austin	TX	78703	

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 477-2400		( ) -

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.)*

Parten Ranch, Phase 8

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

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road in Hays County, Texas

26. Nearest City	State	Nearest ZIP Code
Driftwood	TX	78619

27. Latitude (N) In Decimal:	30.165204		28. Longitude (W) In Decimal:	-97.973273	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	09	54.7	97	58	23.8

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)
1611	1623	23411	23491

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

Construction of roads and associated utilities

34. Mailing Address:	1011 North Lamar Blvd.							
	City	Austin	State	TX	ZIP	78703	ZIP + 4	

35. E-Mail Address:	

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(512) 477-2400		( ) -

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

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

SECTION IV: Preparer Information

40. Name:	Lauren Crone, P.E.	41. Title:	Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 439-4700		( ) -	lcrone@lja.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:	HM Parten Ranch Development, Inc.	Job Title:	Vice President
Name *(In Print)* :	Jay Hanna	Phone:	(512) 477-2400
Signature:		Date:	3-1-23

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Parten Ranch Phase 8

Regulated Entity Location: 1.5 miles southwest of the intersection of FM 1826 and Nutty Brown Road in Hays County, Texas

Name of Customer: HM Parten Ranch Development, Inc.

Contact Person: Jay Hanna Phone: 512-477-2400

Customer Reference Number (if issued):CN 605256239

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	81.03 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: Lauren Crone Date: 3/6/2023

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

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

LJA ENGINEERING

7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
t 512.439.4700 LJA.com TBPE F-1386

February 24, 2023

Mr. David Van Soest
Regional Director
Texas Commission on Environmental Quality-Region 11
MC R11
P.O. Box 13087
Austin, Texas 78711-3087

RE: Parten Ranch Phase 8, Paving, Drainage and Utility Improvements
LJA Job No. A311-0413

Dear Mr. Soest:

The purpose of this letter is to provide TCEQ a summary of how the proposed Parten Ranch, Phase 8 subdivision will comply with the Optional Enhanced Measures for the Protection of Water Quality in the Edwards Aquifer as listed in RG-348, Appendix A. No variances from the OEMs are requested. This submittal is enclosed with a Contributing Zone Plan (CZP) as required for a project located within the Contributing Zone to the Edwards Aquifer.

Site Planning:

A Geologic Assessment was prepared by Horizon Environmental Services Inc., dated June 8, 2015, and is enclosed. This report indicates that there are no sensitive features, based on the assessment by Horizon Environmental Services Inc. staff within the subject site.

The guidelines set forth in RG-348A for stream buffer setbacks have been applied to the site; note that as City of Dripping Springs requires stream buffers as well, some proposed stream buffers may actually exceed the minimum buffers listed in the OEMs.

- Streams draining between 5 and 40 acres should have a minimum buffer of 25 feet from the centerline.
- Streams draining between 40 and 128 acres should have a minimum buffer of 50 feet from the centerline.
- Streams draining between 128 and 320 acres should have a minimum buffer of 100 feet from the centerline.
- Streams draining between 320 and 640 acres should have a minimum buffer of 200 feet from the centerline.
- Streams draining more than 640 acres should have a minimum buffer of 300 feet from the centerline.

LJA ENGINEERING

7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
t 512.439.4700 LJA.com TBPE F-1386

In addition to showing the stream buffers on the plans, the number of street crossings of buffers has been minimized. Only perpendicular crossings of the buffers are proposed for road and utilities, and these have been minimized as well.

Construction:

The property drains toward the south under existing conditions. The land consists of native range and has previously been used for ranching. The proposed development will cause an increase in runoff due to impervious cover and reduced time of concentration; however, that increase will be offset through a water quality pond and stormwater detention. The water quality calculations to demonstrate the removal of the required eighty percent (80%) TSS pollutant load for the developed site are provided in the plans and in the CZP application.

Runoff coefficients for the 25-year and 100-year events before construction are estimated to be 0.40 and 0.47, respectively. The post construction runoff coefficients are expected to be 0.56 and 0.64, respectively.

Erosion controls will follow the recommendations in RG-348 and include sediment traps as described in the CZP. No temporary sediment basins or traps are proposed in buffer areas with a tributary area of more than 128 acres.

Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as sediment traps for the project. There are 10.67 acres of disturbed area draining to the sediment trap while under construction. 3,600 c.f. of storage volume is required per acre of disturbed area; therefore 38,412 c.f. of volume is required in the sediment trap. 85,258 c.f. of volume is provided by the sediment trap. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent BMP Implementation:

The proposed permanent best management practices (BMPs) for this project include a batch detention pond and vegetative filter strips. The required 80% reduction of the annual TSS load is achieved using the proposed BMPs and routing of stormwater through the controls.

Calculations used to size the water quality ponds for post construction runoff management are included in the CZP.

Measures to Protect Stream Morphology:

RG-348A requires demonstration of the limitation of stormwater runoff to protect stream morphology. The peak rate of runoff for the 2-year, 24-hour storm will limited to 50% of the undeveloped rate of runoff. Also, the 10-, 25-, and 100-year, 24-hour storm peak runoff rate will be limited to the rate of runoff calculated for the undeveloped condition based on City of Dripping Springs and Hays County

LJA ENGINEERING

7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
t 512.439.4700 LJA.com TBPE F-1386

design criteria, using the proposed water quality pond and a detention pond located on the eastern property boundary.

An exhibit is attached to demonstrate how Parten Ranch, Phase 8 complies with this requirement.

Maintenance Requirements:

Springhollow MUD will own and operate all best management practices within the Parten Ranch development. The developer's contractor will construct and operate the facilities per the maintenance plan during the warranty period, after which time responsibility for the maintenance plan will be transferred to the MUD.

Please see the attached maintenance plan for the project.

All wastewater lines will be televised immediately after construction, and thereafter on a 5 year rotating schedule to confirm their integrity. Results of these tests will be held by the MUD engineer and retained for a minimum of five years.

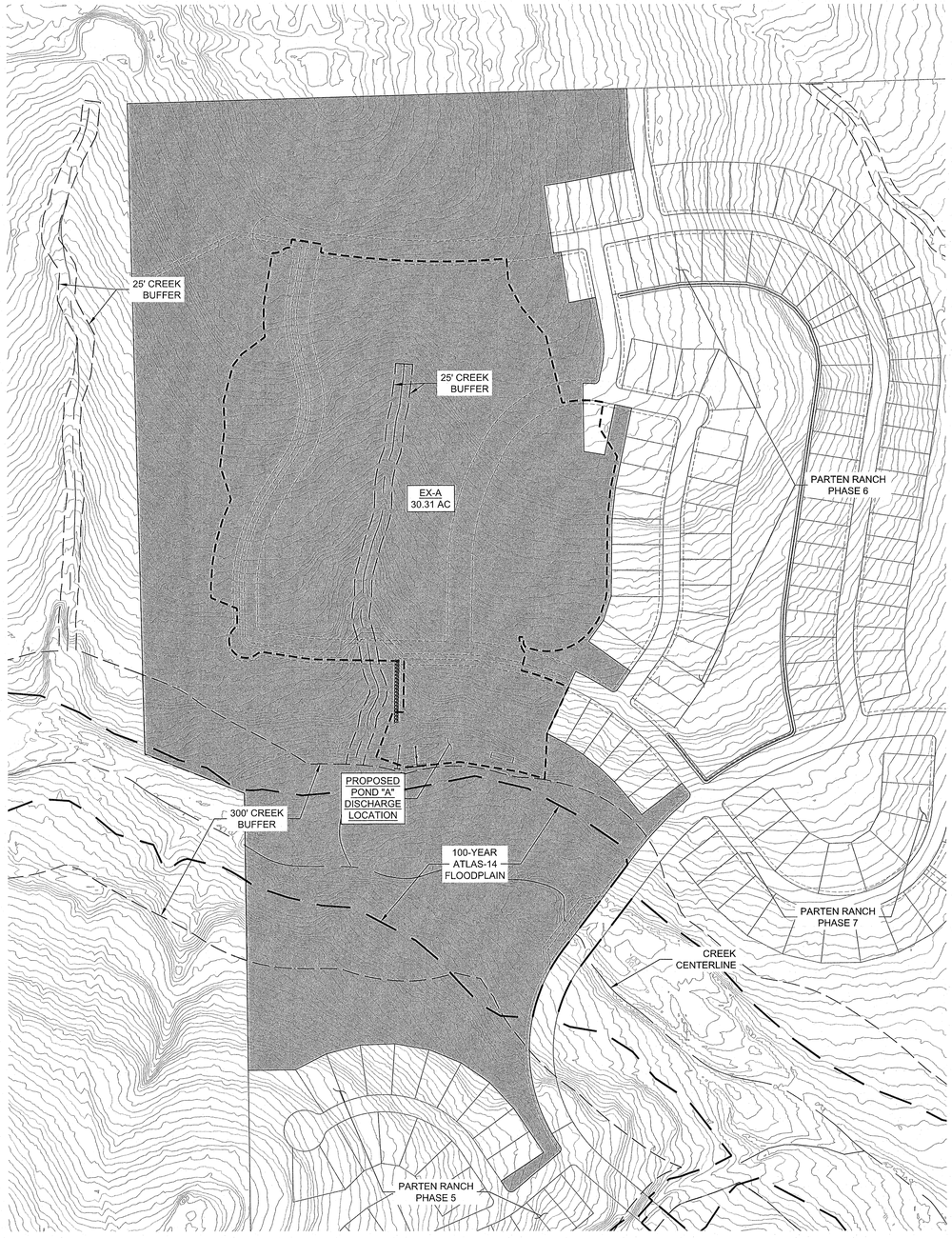
Sincerely,

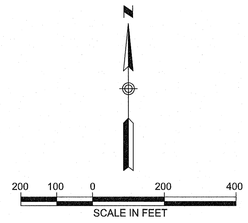
Lauren Crone

STATE OF TEXAS
LAUREN CRONE
128018
LICENSED
PROFESSIONAL ENGINEER

Lauren Crone, P.E.

Cc: Jay Hanna





LEGEND

PROPERTY LIMITS

WATER QUALITY DRAINAGE AREA

STUDY AREA	ACRES	IMP. COVER (AC)	IMP. COVER (%)	CN	$T_{c,lag}$ (min)	2-YR (CFS)	10-YR (CFS)	25-YR (CFS)	100-YR (CFS)
EX-A	30.31	0	0%	80	8	51.2	88.9	121.6	187.9

PARTEN RANCH PHASE 8

EXISTING DRAINAGE PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-CZP.dwg

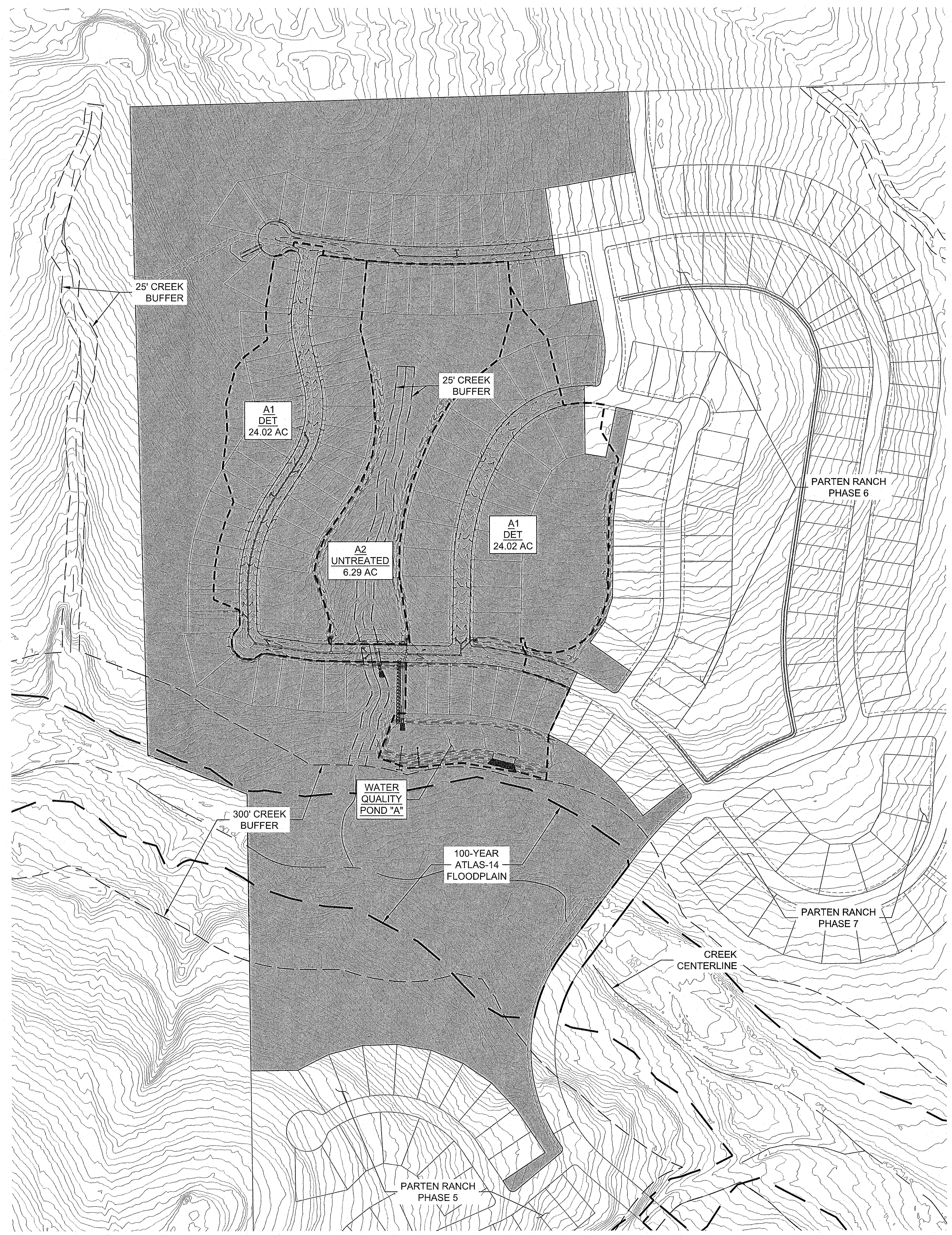
Lauren Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/27/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 1 OF 2 SHEETS

C:\VAULD--TEMP\VaultWs_11460\PH8--CZP.dwg
User: lauren.crone
Last Modified: Feb. 24, 23 - 13:04
Plot Date/Time: Feb. 24, 23 - 13:05:27



200 100 0 200 400
SCALE IN FEET

LEGEND

PROPERTY LIMITS

WATER QUALITY DRAINAGE AREA

STUDY AREA	ACRES	IMP. COVER (AC)	IMP. COVER (%)	CN	$T_{c,lag}$ (min)	2-YR (CFS)	10-YR (CFS)	25-YR (CFS)	100-YR (CFS)
A1-DET	24.02	6.39	27%	81	9	54.0	91.2	122.2	185.2
A2-UNTREATED	6.29	2.95	47%	80	8	17.8	29.7	39.8	58.9

PARTEN RANCH PHASE 8
PROPOSED DRIANGE PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-CZP.dwg

STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/22/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 2

OF 2 SHEETS

Last Modified: Feb. 24, 23 - 13:04
Plot Date/Time: Feb. 24, 23 - 13:05:29

CONSTRUCTION PLANS

PARTEN RANCH, PHASE 8

PAVING, DRAINAGE, WATER AND WASTEWATER IMPROVEMENTS

600 TWO CREEKS LANE
AUSTIN, TX 78737

A PORTION OF THIS TRACT IS WITHIN THE DESIGNATED FLOOD HAZARD AREA AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) No. 48209C0140 F, EFFECTIVE DATE SEPTEMBER 2, 2005 HAYS COUNTY.

STATE OF TEXAS
LAUREN CRONE
128018
LICENSED
PROFESSIONAL ENGINEER

Lauren Crone 3/3/2023
LICENSED PROFESSIONAL ENGINEER DATE

REVIEWED BY:

DRIPPING SPRINGS - CITY ADMINISTRATOR DATE

DRIPPING SPRINGS - CITY ENGINEER DATE

CITY OF DRIPPING SPRINGS DEVELOPMENT PERMIT #

HAYS ESD #6 DATE

HAYS COUNTY DATE

HAYS COUNTY DIRECTOR OF TRANSPORTATION DATE

WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY DATE

SPRINGHOLLOW MUD DATE

WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY NOTES:

1. WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY IS THE RETAIL WATER PROVIDER.
2. 87 - ⅝" METERS FOR DOMESTIC PURPOSES ONLY.
3. PUA WATER SYSTEM MAP GRID PANEL AS-15, AT-15 (HWY 290 SYSTEM)
4. WTCPUA DOES NOT GUARANTEE FIRE FLOW.
5. A WTCPUA REPRESENTATIVE MUST BE PRESENT AT THE TIME OF CONNECTION TO THE EXISTING SYSTEM.
6. ALL WATER & WASTEWATER INFRASTRUCTURE SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF AUSTIN WATER AND WASTEWATER CONSTRUCTION SPECIFICATIONS AND WITH MATERIALS FROM THE CURRENT APPROVED CITY OF AUSTIN STANDARD PRODUCTS LIST (SPL).
7. WTCPUA WATER SHALL NOT BE USED FOR LANDSCAPE IRRIGATION.
8. PRESSURE PLANE/HGL - 1240

   HIGHEST LOT SERVED: BLOCK N, LOT 16: 142 PSI

   LOWEST LOT SERVED: BLOCK N, LOT 45: 206 PSI
9. AT LOCATIONS WHERE PRESSURES EXCEED 65 POUNDS PER SQUARE INCH (PSI), THE CUSTOMER SHALL INSTALL AND MAINTAIN A PRESSURE REGULATING VALVE (PRV) AT THE CONNECTION TO THE PUA WATER SYSTEM.

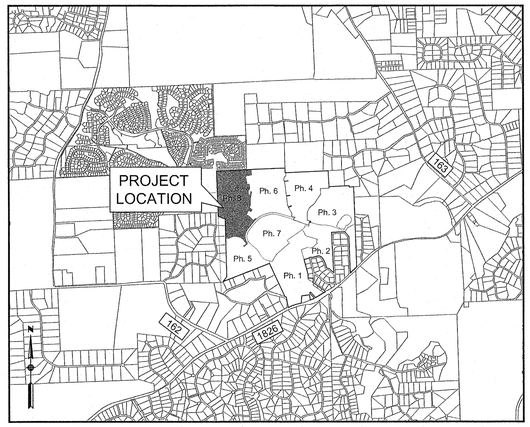
Public Water Improvements Materials List

Quantity	Units	Item
1648.65	L.F.	8" AWWA C-900 PVC DR-14 Pipe
2	Ea.	5 ¼" Fire Hydrants
87	Ea.	5/8" Water Meter Is for Domestic Purpose Only
0.5	Ton	Cast Iron Fittings

Water Meter sizes are to be determined and approved by the WTCPUA before impact fees are paid & meters are set.

REVISIONS / CORRECTIONS

Number	Description	Revise (R) Add (A) Void (V) Sheet No.'s	Total # Sheets in Plan Set	D.S. Approval-Date	Date Imaged	Hays County Approval Date



LOCATION MAP
(N.T.S.)

SUBMITTAL DATE:_____

PUA WATER SYSTEM MAP GRID PANEL AT15

LEGAL DESCRIPTION

81.03 ACRES OF LAND IN THE SEABORN J. WHATLEY SURVEY A-18 AND THE LAMAR MOORE SURVEY A-323 AND A PORTION OF THE 531.542 ACRES RECORDED IN DOC. # 2016-16004247 OF THE OFFICIAL PUBLIC RECORDS OF THE HAYS COUNTY, TEXAS.

BENCHMARKS

BM#1: A 4" ALUMINUM DISK SET IN CONCRETE

SURFACE COORDINATES: N 13971449.79
E 2291197.59

GRID COORDINATES: N 13969633.74
E 2290899.77

ELEVATION = 1003.44'
VERTICAL DATUM: NAVD 88 (GEOID 12B)

BM#2: A 5/8-INCH IRON ROD WITH RED CAP

SURFACE COORDINATES: N 13974076.55
E 2291341.88

GRID COORDINATES: N 13972260.16
E 2291044.05

ELEVATION = 1038.60'
VERTICAL DATUM: NAVD 88 (GEOID 12B)

OWNER: HM PARTEN RANCH DEVELOPMENT, INC.
1011 NORTH LAMAR BLVD
AUSTIN, TX 78703
CONTACT: JAY HANNA, VP
PHONE # (512) 477-2400

ENGINEER : LJA ENGINEERING, INC.
7500 RIALTO BLVD, BLDG II, SUITE 100
AUSTIN TEXAS 78735
CONTACT PERSON : LAUREN CRONE, P.E.
PHONE # (512) 439-4700
FAX # (512) 439-4716

SURVEYOR : GBI PARTNERS, L.P.
1812 CENTRE CREEK DR., SUITE 265
AUSTIN, TEXAS 78754
PHONE # (512) 296-2675

CONTOUR DATA : - ON THE GROUND SURVEY BY GBI PARTNERS, L.P.
(1 FOOT INTERVAL)

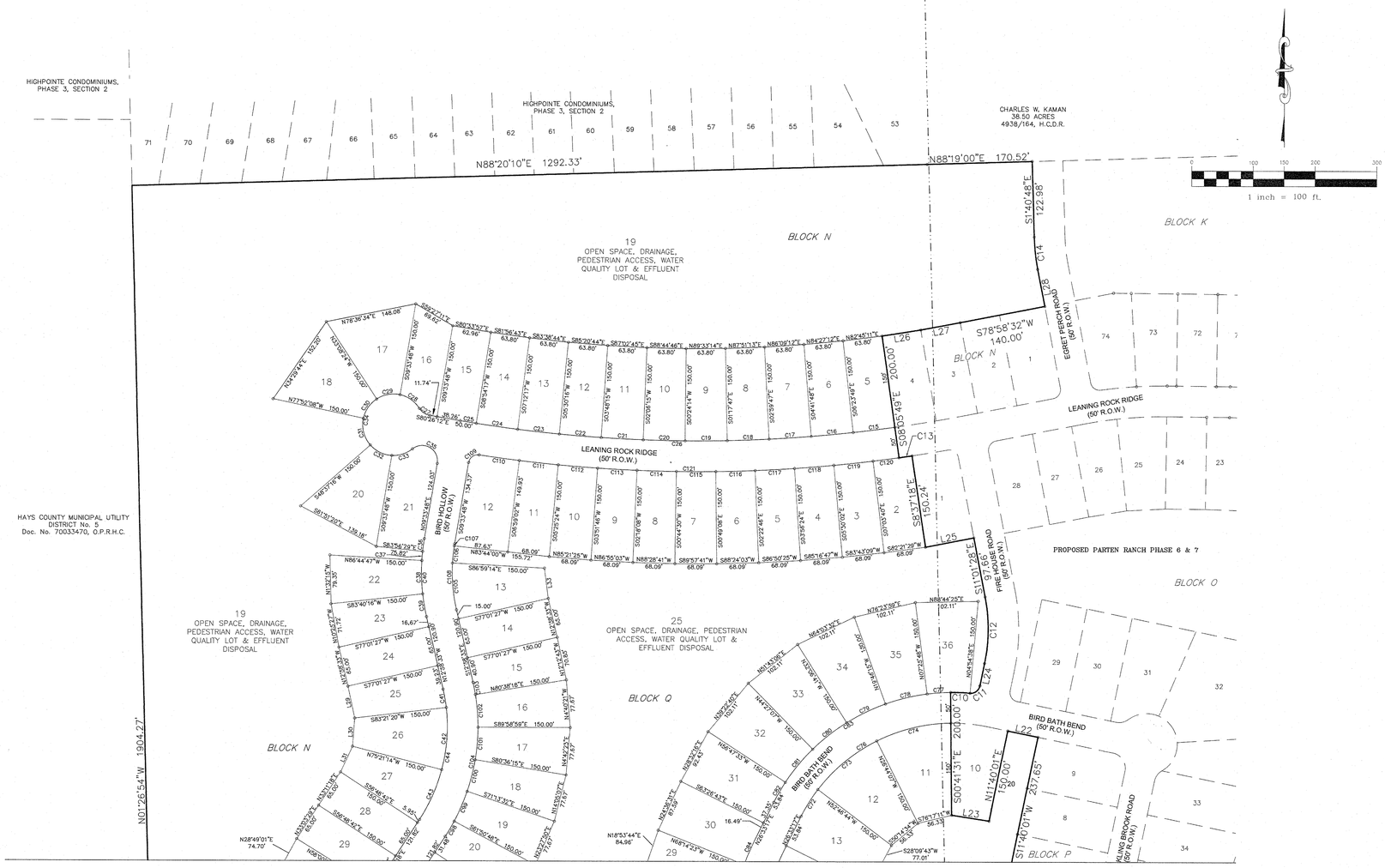
NOTES:
1. FOR REPAIR OF ROADWAY SETTLEMENT CAUSED BY UTILITY TRENCHES, FOLLOW HAYS COUNTY ROAD CUT DETAILS AND REPAIR STANDARDS. SPRINGHOLLOW MUD SHALL BE RESPONSIBLE FOR SUCH REPAIR.
2. THIS SUBDIVISION IS LOCATED ENTIRELY WITHIN THE EXTRATERRITORIAL JURISDICTION OF THE CITY OF DRIPPING SPRINGS.
3. NO PORTION OF THIS SUBDIVISION LIES WITHIN THE BOUNDARIES OF THE EDWARDS AQUIFER RECHARGE ZONE.
4. THIS SUBDIVISION LIES WITHIN THE BOUNDARIES OF THE EDWARDS AQUIFER CONTRIBUTING ZONE.
5. PRESSURE PLANE/HGL - 1240
6. TRACT TAX ID# R16615
7. MAPSCO # 669U & 669Y
8. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY MUST RELY UPON THE ADEQUACY OF WORK OF THE DESIGN ENGINEER.
9. THIS DEVELOPMENT IS SUBJECT TO THE PARTEN RANCH DEVELOPMENT AGREEMENT DATED MAY 6TH, 2015 BETWEEN THE CITY OF DRIPPING SPRINGS AND HM PARTEN RANCH, LP, RECORDED INSTRUCMENT NUMBER 2016-16010149, PUBLIC RECORDS OF HAYS COUNTY.
10. A WATER QUALITY BMP MAINTENANCE PLAN HAS BEEN PREPARED FOR THIS DEVELOPMENT AND IS RECORDED IN DOCUMENT #_____, PUBLIC RECORDS OF HAYS COUNTY, TEXAS.
11. SPRINGHOLLOW MUD WILL BE RESPONSIBLE FOR OPERATION AND MAINTENANCE OF STORM WATER UTILITY AND PONDS.
12. PROPOSED ROADWAY LENGTHS AND CLASSIFICATION:

3954 L.F. LOCAL ROADWAY

LJA Engineering, Inc.
7500 Rialto Blvd.
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

I:\2311 Parten Ranch\d13 Parten Ranch Phase 8\Submittal Drawings\PH8-Cover.dwg
User: rcabeza
Last Modified: Oct. 31, 22 - 15:30
Plot Date/Time: Nov. 01, 22 - 09:51:24

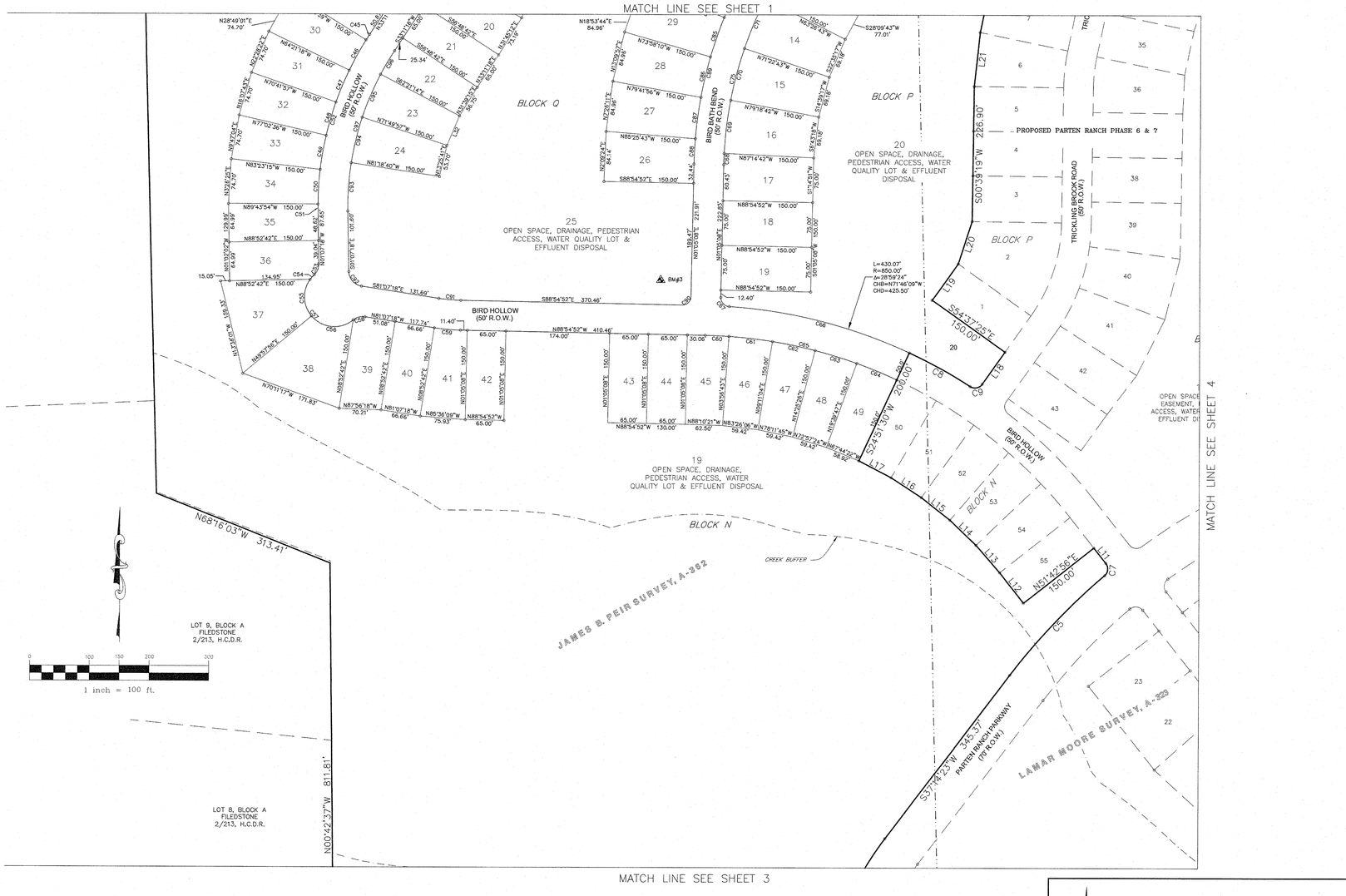
PARTEN RANCH PHASE 8



GBI PARTNERS
LAND SURVEYING CONSULTANTS
7696 183A, BILDING 2, STE. A • LEANDER, TX 78641
PHONE: 281-499-4539 • WWW.GBISURVEY.COM
TBPELS # 10194150 • TBPE # F17284

SCALE: 1"= 100'	JOB NO. A211002	DATE: 10-07-2022
CREW CHIEF:	FIELD BOOK:	DWG.: 201002-PLAT

PARTEN RANCH PHASE 8



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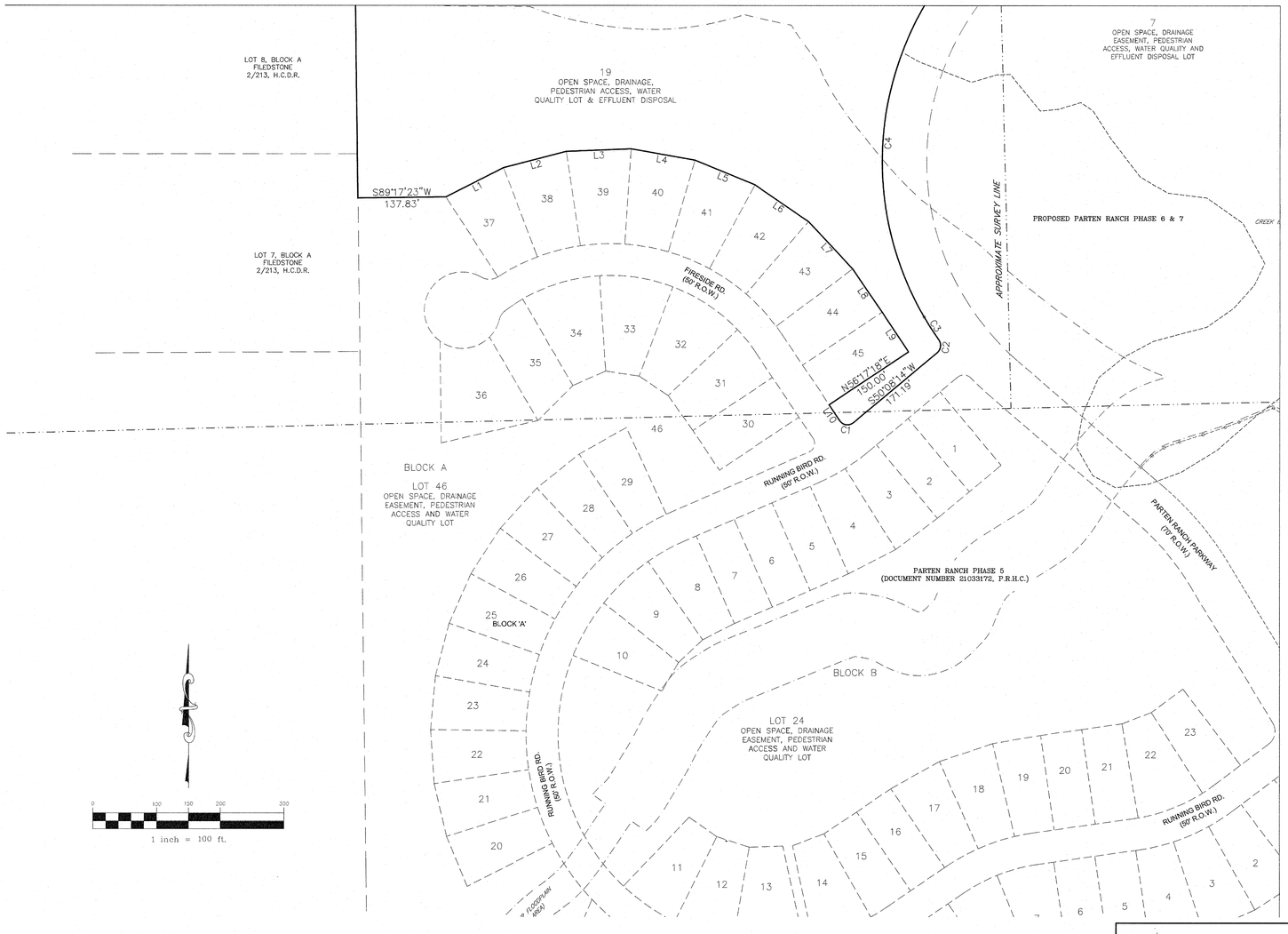

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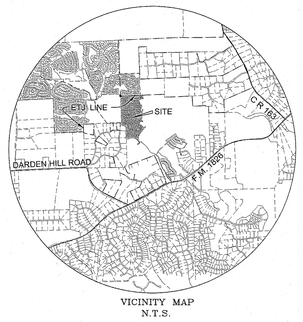
PARTEN RANCH PHASE 8

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	101.79	S63°06'58"W
L2	101.79	S75°25'03"W
L3	101.79	S87°43'07"W
L4	101.79	N79°58'48"W
L5	101.79	N67°40'43"W
L6	101.79	N55°22'39"W
L7	101.79	N43°04'34"W
L8	82.01	N34°14'01"W
L9	75.00	N33°42'42"W
L10	29.64	N33°42'42"W
L11	32.63	S38°17'04"E
L12	65.00	S38°17'04"E
L13	60.92	S40°58'12"E
L14	60.92	S46°20'30"E
L15	60.92	S51°42'47"E
L16	60.92	S57°05'04"E
L17	60.92	S62°27'22"E
L18	65.90	S35°22'35"W
L19	75.00	S35°22'35"W
L20	74.60	S18°00'57"W
L21	91.15	S6°09'40"W
L22	50.00	S78°19'59"E
L23	61.50	S81°01'57"E
L24	37.36	S11°40'01"W
L25	79.82	N78°58'32"E
L26	63.80	S81°03'10"W
L27	65.00	S79°24'37"W
L28	61.38	S11°01'28"E
L29	53.03	N12°09'07"W
L30	46.18	N4°00'03"E
L31	46.15	N25°06'23"E
L32	53.70	N22°54'25"E
L33	49.67	N7°23'20"W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHD DIRECTION	CHD LENGTH
C1	25.17	15.00	96°09'04"	N81°47'14"W	22.32
C4	571.05	485.00	67°27'43"	S3°30'32"W	538.63
C5	230.88	1070.00	12°21'47"	S43°25'17"W	230.43
C7	23.01	15.00	87°53'14"	S5°39'33"W	20.82
C8	116.72	850.00	7°52'03"	N61°12'29"W	116.63
C9	22.87	15.00	87°20'58"	S79°03'04"W	20.72
C10	31.78	325.00	5°36'08"	N87°53'26"W	31.77
C11	21.79	15.00	83°14'37"	S53°17'19"W	19.93
C12	108.91	275.00	22°41'29"	S0°19'16"W	108.20
C13	21.52	2350.00	0°31'29"	N81°38'26"E	21.52
C14	53.00	325.00	9°20'40"	S6°21'08"E	52.95
C15	68.25	2300.00	1°42'01"	N82°45'11"E	68.25
C16	68.25	2300.00	1°42'01"	N84°27'12"E	68.25
C17	68.25	2300.00	1°42'01"	N86°09'12"E	68.25
C18	68.25	2300.00	1°42'01"	N87°51'13"E	68.25
C19	68.25	2300.00	1°42'01"	N89°33'14"E	68.25
C20	68.25	2300.00	1°42'01"	S88°44'46"E	68.25
C21	68.25	2300.00	1°42'01"	S87°02'45"E	68.25
C22	68.25	2300.00	1°42'01"	S85°20'44"E	68.25
C23	68.25	2300.00	1°42'01"	S83°38'44"E	68.25
C24	68.25	2300.00	1°42'01"	S81°56'43"E	68.25
C25	26.43	2300.00	0°39'30"	S80°45'57"E	26.43
C26	708.93	2300.00	17°39'37"	S89°16'01"E	706.13
C27	21.03	25.00	48°11'23"	S56°20'31"E	20.41
C28	39.41	50.00	45°09'25"	S54°49'32"E	38.39
C29	39.91	50.00	45°44'09"	N79°43'41"E	38.86
C30	39.03	50.00	44°43'44"	N34°29'44"E	38.05
C31	46.70	50.00	53°30'35"	N14°37'26"W	45.02
C32	40.00	50.00	45°50'12"	N64°17'49"W	38.94
C33	36.14	50.00	41°24'40"	S72°04'45"W	35.36
C34	241.19	50.00	276°22'46"	N9°33'48"E	66.67
C35	60.30	25.00	138°11'23"	N59°31'54"W	46.71
C36	21.00	325.00	3°42'09"	N7°42'43"E	21.00
C37	14.79	325.00	2°36'25"	N4°33'26"E	14.79
C38	54.35	325.00	9°34'57"	N1°32'15"W	54.29
C39	37.70	325.00	6°38'49"	N9°39'08"W	37.68
C40	127.85	325.00	22°32'21"	N1°42'23"W	127.03
C41	30.39	275.00	6°19'53"	N9°48'36"W	30.37
C42	102.19	275.00	21°17'26"	N4°00'03"E	101.60
C43	89.00	275.00	18°32'32"	N23°55'02"E	88.61

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHD DIRECTION	CHD LENGTH
C42	102.19	275.00	21°17'26"	N4°00'03"E	101.60
C43	89.00	275.00	18°32'32"	N23°55'02"E	88.61
C44	221.57	275.00	46°09'51"	N10°06'23"E	215.63
C45	10.99	525.00	1°11'57"	N32°35'19"E	10.99
C46	58.13	525.00	6°20'39"	N28°49'01"E	58.10
C47	58.13	525.00	6°20'39"	N22°28'22"E	58.10
C48	58.13	525.00	6°20'39"	N16°07'43"E	58.10
C49	58.13	525.00	6°20'39"	N9°47'04"E	58.10
C50	58.13	525.00	6°20'39"	N3°26'25"E	58.10
C51	12.74	525.00	1°23'23"	N0°25'36"W	12.73
C52	314.38	525.00	34°18'36"	N16°02'00"E	309.70
C53	21.03	25.00	48°11'23"	N22°58'24"E	20.41
C54	9.96	50.00	11°24'37"	N41°21'47"E	9.94
C55	66.05	50.00	75°41'32"	N2°11'18"W	61.35
C56	77.91	50.00	89°16'36"	N84°40'22"W	70.26
C57	153.92	50.00	176°22'46"	N41°07'18"W	99.95
C58	21.03	25.00	48°11'23"	S74°47'01"W	20.41
C59	44.20	325.00	7°47'35"	N85°01'05"W	44.17
C60	39.93	800.00	2°51'35"	N87°29'05"W	39.93
C61	73.15	800.00	5°14'21"	N83°26'06"W	73.13
C62	73.15	800.00	5°14'21"	N78°11'45"W	73.13
C63	73.15	800.00	5°14'21"	N72°57'24"W	73.13
C64	72.54	800.00	5°11'43"	N67°44'22"W	72.51
C65	331.93	800.00	23°46'22"	N77°01'41"W	329.55
C66	313.36	850.00	21°07'20"	N75°42'11"W	311.58
C67	22.87	15.00	87°20'58"	N42°35'22"W	20.72
C68	18.94	650.00	1°40'10"	N1°55'13"E	18.94
C69	90.00	650.00	7°56'00"	N6°43'18"E	89.93
C70	90.00	650.00	7°56'00"	N14°39'17"E	89.93
C71	90.00	650.00	7°56'00"	N22°35'17"E	89.93
C72	51.19	275.00	10°39'59"	N31°53'17"E	51.12
C73	125.00	275.00	26°02'37"	N50°14'34"E	123.93
C74	125.00	275.00	26°02'37"	N76°17'11"E	123.93
C75	288.94	650.00	25°28'10"	N13°49'12"E	286.57
C76	301.19	275.00	62°45'12"	N57°55'53"E	286.36
C77	38.22	325.00	6°44'18"	N85°56'21"E	38.20
C78	70.00	325.00	12°20'26"	N76°23'59"E	69.86
C79	70.00	325.00	12°20'26"	N64°03'32"E	69.86
C80	70.00	325.00	12°20'26"	N51°43'06"E	69.86
C81	70.00	325.00	12°20'26"	N39°22'40"E	69.86

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHD DIRECTION	CHD LENGTH
C82	37.74	325.00	6°39'10"	N29°52'52"E	37.71
C83	355.96	325.00	62°45'12"	N57°55'53"E	338.43
C84	58.58	700.00	4°47'40"	N24°09'27"E	58.56
C85	70.00	700.00	5°43'46"	N18°53'44"E	69.97
C86	70.00	700.00	5°43'46"	N13°09'57"E	69.97
C87	70.00	700.00	5°43'46"	N7°26'11"E	69.97
C88	42.59	700.00	3°29'10"	N2°49'42"E	42.58
C89	311.17	700.00	25°28'10"	N13°49'12"E	308.61
C90	23.56	15.00	90°00'00"	N46°05'08"E	21.21
C91	37.40	275.00	7°47'35"	S85°01'05"E	37.38
C92	34.91	25.00	80°00'00"	S41°07'18"E	32.14
C93	81.33	475.00	9°48'37"	S3°47'01"W	81.23
C94	78.58	475.00	9°28'43"	S13°25'41"W	78.49
C95	78.58	475.00	9°28'43"	S22°54'25"W	78.49
C96	45.95	475.00	5°32'32"	S30°25'02"W	45.93
C97	284.44	475.00	34°18'36"	S16°02'00"W	280.21
C98	28.56	325.00	5°02'06"	S30°40'15"W	28.55
C99	53.20	325.00	9°22'44"	S23°27'50"W	53.14
C100	53.20	325.00	9°22'44"	S14°05'07"W	53.14
C101	53.20	325.00	9°22'44"	S4°42'23"W	53.14
C102	53.20	325.00	9°22'44"	S4°40'21"E	53.14
C103	20.50	325.00	3°36'51"	S11°10'08"E	20.50
C104	261.86	325.00	46°09'51"	S10°06'23"W	254.83
C105	76.74	275.00	15°59'19"	S4°58'54"E	76.49
C106	28.04	275.00	5°50'29"	S5°56'00"W	28.02
C107	3.40	275.00	0°42'33"	S9°12'31"W	3.40
C108	108.18	275.00	22°32'21"	S1°42'23"E	107.48
C109	23.31	15.00	89°01'51"	S54°04'43"W	21.03
C110	66.05	2350.00	1°36'37"	N82°12'40"W	66.05
C111	64.01	2350.00	1°33'38"	N83°47'47"W	64.00
C112	64.01	2350.00	1°33'38"	N85°21'25"W	64.00
C113	64.01	2350.00	1°33'38"	N86°55'03"W	64.00
C114	64.01	2350.00	1°33'38"	N88°28'41"W	64.00
C115	64.01	2350.00	1°33'38"	S89°57'41"W	64.00
C116	64.01	2350.00	1°33'38"	S88°24'03"W	64.00
C117	64.01	2350.00	1°33'38"	S86°50'25"W	64.00
C118	64.01	2350.00	1°33'38"	S85°16'47"W	64.00
C119	64.01	2350.00	1°33'38"	S83°43'09"W	64.00
C120	42.49	2350.00	1°02'09"	S82°25'15"W	42.49
C121	684.59	2350.00	16°41'28"	N89°45'05"W	682.18



VICINITY MAP
N.T.S.

WATER QUALITY BUFFER ZONE WIDTHS

1. Streams draining between 5 and 40 acres should have a minimum buffer of 25 feet from the centerline.
2. Streams draining between 40 and 128 acres should have a minimum buffer of 50 feet from the centerline.
3. Streams draining between 128 and 320 acres should have a minimum buffer of 100 feet from the centerline.
4. Streams draining between 320 and 640 acres should have a minimum buffer of 200 feet from the centerline.
5. Streams draining more than 640 acres should have a minimum buffer of 300 feet from the centerline.

THE BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83). DISTANCES SHOWN HEREON ARE SURFACE AND CAN BE CONVERTED TO GRID BY APPLYING A COMBINED SCALE FACTOR OF 0.999870017.

BM#1: PROJECT BENCHMARK IS A 4" ALUMINUM DISK SET IN CONCRETE:

SURFACE COORDINATES: N 13971449.79
E 2291197.59.

GRID COORDINATES: N 13969633.74
E 2290899.77

ELEVATION = 1003.44'
VERTICAL DATUM: NAVD 88 (GEOID 12B)

BM#3: IS A 5/8-INCH IRON ROD WITH RED CAP:

SURFACE COORDINATES: N 13973370.25
E 2289833.23

GRID COORDINATES: N 13971553.95
E 2289535.59

ELEVATION = 1049.21'
VERTICAL DATUM: NAVD 88 (GEOID 12B)

LEGEND

▲	=	BENCHMARK
⊙	=	FOUND IRON ROD
○	=	SET 5/8" IRON ROD W/CAP "GBI PARTNERS"
(SM)	=	SANITARY MANHOLE
O.P.R.H.C.	=	OFFICIAL PUBLIC RECORDS HAYS COUNTY
H.C.D.R.	=	HAYS COUNTY DEED RECORDS
H.C.P.R.	=	HAYS COUNTY PLAT RECORDS
W.W.E.	=	WASTE WATER EASEMENT
W.E.	=	WATER EASEMENT
F.M.E.	=	FORCE MAIN EASEMENT
P.U.E.	=	PUBLIC UTILITY EASEMENT
D.E.	=	DRAINAGE EASEMENT
B.L.	=	BUILDING SETBACK LINE

	TOTAL ACREAGE	USFWS BUFFERS	TOTAL ACREAGE MINUS USFWS BUFFERS	ALLOWABLE IMPERVIOUS COVER 20% NET SITE AREA	PROPOSED IMPERVIOUS COVER PER PHASE	REMAINING IMPERVIOUS COVER	OPEN SPACE ACREAGE
PARTEN RANCH DEVELOPMENT	531.75	102.29	429.46	85.89			**300
PARTEN RANCH, PHASE 1	82.56	30.14	52.419		13.13	72.76	47.67
PARTEN RANCH AMENITY CENTER	5.37	0.00	5.37		0.99	71.77	
PARTEN RANCH, PHASE 2	115.56	3.66	111.90		19.67	52.10	50.57
PARTEN RANCH, PHASE 5	46.57	3.03	43.54		9.42	42.68	22.83
**APPROXIMATE ACREAGE PER CONCEPT PLAN							

GBI PARTNERS
LAND SURVEYING CONSULTANTS
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CREW CHIEF:	FIELD BOOK:	DWG.: 201002-PLAT

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PARTEN RANCH PHASE 8

STATE OF TEXAS
COUNTY OF HAYS

KNOW ALL PERSONS BY THESE PRESENTS, THAT I, JAY HANNA, PRESIDENT, OF HM PARTEN RANCH DEVELOPMENT, INC., THE OWNER OF 81.035 ACRES OF LAND IN THE THE LAMAR MOORE SURVEY, A-323, AND THE JAMES B. PIER SURVEY, A-362, HAYS COUNTY, TEXAS AND BEING A PORTION OF A CALLED 531.542 ACRE TRACT OF LAND CONVEYED BY SPECIAL WARRANTY DEED WITH VENDOR'S LIEN IN DOCUMENT NUMBER 16004247 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS DO HEREBY SUBDIVIDE THE SAID 81.035 ACRE PORTION OF THE SAID 531.542 ACRE TRACT OF LAND IN ACCORDANCE WITH THE PLAT ATTACHED TO BE KNOWN AS "PARTEN RANCH PHASE 8". SUBJECT TO ANY AND ALL EASEMENTS AND/OR RESTRICTIONS HERETOFORE GRANTED AND DO HEREBY DEDICATE TO THE PUBLIC THE USE OF THE STREETS AND EASEMENTS SHOWN HEREON.

_____
JAY HANNA, PARTNER
HM PARTEN RANCH DEVELOPMENT, INC.
1011 N. LAMAR BLVD.
AUSTIN, TX 78703

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED JAY HANNA PARTNER OF HM PARTEN DEVELOPMENT, INC., KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT AS THE OWNER, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME IN SUCH CAPACITY FOR THE PURPOSES AND CONSIDERATION THEREIN STATED.
GIVEN UNDER MY HAND AND SEAL OF OFFICE THE _____ DAY OF _____ A.D., 20_____.

_____
NOTARY PUBLIC IN AND FOR _____COUNTY, TEXAS

OWNER:
HM PARTEN RANCH DEVELOPMENT, INC.
1011 N. LAMAR BLVD.
AUSTIN, TX 78703

SURVEYOR:
GBI PARTNERS L.L.P.
FIRM REGISTRATION NO.
1812 CENTRE CREEK DRIVE
AUSTIN, TX 78754

ENGINEER:
LJA ENGINEERING, INC.
FIRM REGISTRATION NO., F-1386
7500 RIALTO BOULEVARD, BUILDING II, SUITE 100
AUSTIN, TX 78735

STATE OF TEXAS COUNTY OF TRAVIS
KNOW ALL MEN BY THESE PRESENTS, THAT I, THE UNDERSIGNED, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT COMPLIES WITH THE SURVEY RELATED REQUIREMENTS OF THE HAYS COUNTY DEVELOPMENT REGULATIONS AND THE CITY OF DRIPPING SPRINGS AND FURTHER CERTIFY THAT THIS PLAT WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

_____
ALAN J. HORTON
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5768

I, LAUREN CRONE, A REGISTERED PROFESSIONAL ENGINEER, DO HEREBY CERTIFY THAT A PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED 100-YEAR FLOOD ZONE AREA, AS DELINEATED ON THE FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL 48209C 0140F, EFFECTIVE DATE OF SEPTEMBER 2, 2005, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, AND SHALL BE CONTAINED WITHIN THE RIGHTS-OF-WAY, OPEN SPACE AND DRAINAGE EASEMENT LOTS, AND DRAINAGE EASEMENTS SHOWN ON THE ATTACHED PLAT. ADDITIONALLY, STORM WATER RUNOFF FROM THE 100-YEAR STORM EVENT SHALL BE CONTAINED WITHIN THE DRAINAGE FACILITIES TO BE LOCATED WITHIN THE RIGHTS-OF-WAY, OPEN SPACE AND DRAINAGE EASEMENT LOTS AND/OR DRAINAGE EASEMENTS SHOWN ON THE ATTACHED MAP.

_____
LAUREN CRONE
REGISTERED PROFESSIONAL ENGINEER NO. 128018

STATE OF TEXAS
COUNTY OF HAYS
CITY OF DRIPPING SPRINGS
THIS PLAT, PARTEN RANCH PHASE 8 FINAL PLAT, HAS BEEN SUBMITTED TO AND CONSIDERED BY THE CITY OF DRIPPING SPRINGS AND IS HEREBY APPROVED.

APPROVED, THIS THE ____ DAY OF 2022.
BY:

_____ _____
PLANNING AND ZONING COMMISSION CHAIR OR VICE CHAIR, DATE:

ATTEST:

_____ _____
ANDREA CUNNINGHAM, CITY SECRETARY DATE

STATE OF TEXAS
COUNTY OF HAYS
CITY OF DRIPPING SPRINGS
ENVIRONMENTAL HEALTH DEPARTMENT
NO STRUCTURE WITHIN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO AN INDIVIDUAL WATER SUPPLY OR A STATE APPROVED COMMUNITY WATER SYSTEM. NO STRUCTURE IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO A PUBLIC SANITARY SEWER SYSTEM OR TO AN INDIVIDUAL ON-SITE SEWAGE FACILITY WHICH HAS BEEN APPROVED AND PERMITTED BY THE CITY OF HAYS COUNTY DEVELOPMENT SERVICES.
NO CONSTRUCTION OR OTHER DEVELOPMENT WITHIN THIS SUBDIVISION MAY BEGIN UNTIL ALL CITY OF DRIPPING SPRINGS DEVELOPMENT PERMIT REQUIREMENTS HAVE BEEN MET.
SEWAGE DISPOSAL/INDIVIDUAL WATER SUPPLY CERTIFICATION, TO WIT:
NO STRUCTURE IN THIS SUBDIVISION SHALL BE CONNECTED UNTIL CONNECTED TO AN INDIVIDUAL WATER SUPPLY OR A STATE-APPROVED COMMUNITY WATER SYSTEM. DUE TO DECLINING WATER SUPPLIES AND DIMINISHING WATER QUALITY, PROSPECTIVE PROPERTY OWNERS ARE CAUTIONED BY HAYS COUNTY TO QUESTION SELLER CONCERNING GROUND WATER AVAILABILITY. RAIN WATER COLLECTION IS ENCOURAGED AND, IN SOME AREAS, MAY OFFER THE BEST RENEWABLE WATER RESOURCE.
NO STRUCTURE IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO A PUBLIC SEWER SYSTEM.
NO CONSTRUCTION OR OTHER DEVELOPMENT WITHIN THIS SUBDIVISION MAY BEGIN UNTIL ALL HAYS COUNTY DEVELOPMENT PERMIT REQUIREMENTS HAVE BEEN MET.

_____ _____
ERIC VAN GAASBEEK, R.S., C.F.M. DATE
HAYS COUNTY FLOODPLAIN ADMINISTRATOR

_____ _____
MARCOS PACHECO, DIRECTOR DATE
HAYS COUNTY DEVELOPMENT SERVICES

I, THE UNDERSIGNED, DIRECTOR OF THE HAYS COUNTY DEVELOPMENT AND COMMUNITY SERVICES DEPARTMENT, HEREBY CERTIFY THAT THIS SUBDIVISION PLAT CONFORMS TO ALL HAYS COUNTY REQUIREMENTS AS STATED IN THE INTERLOCAL COOPERATION AGREEMENT BETWEEN HAYS COUNTY AND THE CITY OF DRIPPING SPRINGS FOR THE SUBDIVISION REGULATION WITHIN THE EXTRATERRITORIAL JURISDICTION OF THE CITY OF DRIPPING SPRINGS.

_____ _____
MARCOS PACHECO, DIRECTOR DATE
HAYS COUNTY DEVELOPMENT SERVICES

STATE OF TEXAS COUNTY OF HAYS
I, ELAINE H. CARDENAS, COUNTY CLERK OF HAYS COUNTY, TEXAS, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT OF WRITING WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE _____ DAY OF _____ 20_____ A.D., AT _____ O'CLOCK __.M IN THE PLAT RECORD OF HAYS COUNTY, TEXAS IN INSTRUMENT NUMBER _____
WITNESS MY HAND AND SEAL OF THIS THE _____ DAY OF _____ 20_____ A.D.

_____
ELAINE H. CARDENAS
COUNTY CLERK
HAYS COUNTY, TEXAS

NOTES:
1. THIS PLAT IS LOCATED ENTIRELY WITHIN THE EXTRATERRITORIAL JURISDICTION OF THE CITY OF DRIPPING SPRINGS.
2. NO PORTION OF THIS PLAT LIES WITHIN THE BOUNDARIES OF THE EDWARDS AQUIFER RECHARGE ZONE.
3. THIS SUBDIVISION LIES WITHIN THE BOUNDARIES OF THE CONTRIBUTING ZONE OF THE EDWARDS AQUIFER.
4. THIS PLAT IS LOCATED WITHIN THE BOUNDARY OF THE DRIPPING SPRINGS INDEPENDENT SCHOOL DISTRICT.
5. A PORTION OF THE PROPERTY LOCATED WITHIN THIS PLAT LIES WITHIN A DESIGNATED 100-YEAR FLOOD PLAIN AS DELINEATED ON THE FLOOD INSURANCE RATE MAP NO. 48209C 0140 F, EFFECTIVE DATE OF SEPTEMBER 2, 2005, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
6. WATER SERVICE WILL BE PROVIDED BY WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY. NO INDIVIDUAL WATER WELLS WILL BE ALLOWED.
7. ORGANIZED WASTEWATER SERVICE WILL BE PROVIDED BY THE SPRINGHOLLOW MUD TO EACH RESIDENTIAL LOT. NO INDIVIDUAL ON-SITE SEWAGE FACILITY WILL BE ALLOWED.
8. ELECTRIC SERVICES SHALL BE SUPPLIED BY PEDERNALES ELECTRIC COOPERATIVE.
9. TELEPHONE SERVICE SHALL BE SUPPLIED BY VERIZON OR AT&T.
10. ORGANIZED GAS UTILITY SERVICE WILL BE PROVIDED BY TXGAS.
11. MINIMUM FRONT SETBACK SHALL BE 25 FEET.
12. MINIMUM REAR SETBACK SHALL BE 10 FEET.
13. MINIMUM SIDE AND INTERIOR SETBACKS SHALL BE 5 FEET.
14. MINIMUM SIDE STREET SETBACK SHALL BE 15 FEET.
15. PUBLIC UTILITY EASEMENTS OF 10 FEET SHALL BE LOCATED ON BOTH SIDES OF DEDICATED RIGHT-OF-WAYS.
16. ALL STREETS SHALL BE DESIGNED IN ACCORDANCE WITH APPLICABLE CITY OF DRIPPING SPRINGS REQUIREMENTS AND APPROVED BY THE HAYS COUNTY TRANSPORTATION DEPARTMENT AND UPON ACCEPTANCE SHALL BE DEDICATED TO THE COUNTY FOR MAINTENANCE.
    LINEAR FOOTAGE OF BIRD HOLLOW (LOCAL STREET): 2,186 L.F.
    LINEAR FOOTAGE OF BIRD BATH BEND (LOCAL STREET): 944 L.F.
    LINEAR FOOTAGE OF FIRE HOUSE ROAD (LOCAL STREET): 822 L.F.
    TOTAL LINEAR FOOTAGE OF STREET IMPROVEMENTS: 3,952 L.F.
17. THIS PLAT HAS BEEN PREPARED IN ACCORDANCE WITH THE CITY OF DRIPPING SPRINGS REQUIREMENTS AS APPLICABLE TO THIS DEVELOPMENT.
18. AREA WITHIN NEW ROAD RIGHT-OF-WAY = 11.26 ACRES.
19. DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HAYS COUNTY REQUIREMENTS OR AS APPROVED BY THE HAYS COUNTY TRANSPORTATION DEPARTMENT.
20. IN ORDER TO PROMOTE SAFE USE OF ROADWAYS AND PRESERVE THE CONDITIONS OF PUBLIC ROADWAYS, NO DRIVEWAY CONSTRUCTED ON ANY LOT WITHIN THIS SUBDIVISION SHALL BE PERMITTED ACCESS ONTO A PUBLICLY DEDICATED ROADWAY UNLESS (A) A DRIVEWAY PERMIT HAS BEEN ISSUED BY THE DEPARTMENT OF HAYS COUNTY AND (B) THE DRIVEWAY SATISFIES THE MINIMUM SPACING REQUIREMENT FOR DRIVEWAYS AS SET FORTH IN TABLE 721 01 OF THE HAYS COUNTY DEVELOPMENT REQUIREMENTS.
21. IN APPROVING THIS PLAT BY THE COMMISSIONERS COURT OF HAYS COUNTY, TEXAS, IT IS UNDERSTOOD THAT THE BUILDING OF ALL STREETS, ROADS AND OTHER PUBLIC THOROUGHFARES DELINEATED AND SHOWN ON THIS PLAT, AND ALL BRIDGES AND CULVERTS NECESSARY TO BE CONSTRUCTED OF PLACED IN SUCH STREETS, ROADS AND OR OTHER PUBLIC THOROUGHFARES OR IN CONNECTION THEREWITH SHALL BE THE RESPONSIBILITY OF THE OWNER AND/OR THE DEVELOPER OF THE TRACT OF LAND CONVEYED BY THIS PLAT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE COMMISSIONERS COURT OF HAYS COUNTY, TEXAS AND THE COMMISSIONERS OF HAYS COUNTY, TEXAS, ASSUMES NO OBLIGATION TO BUILD THE STREET, ROAD, OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT OR OF CONSTRUCTING ANY BRIDGES OR CULVERTS IN CONNECTION THEREWITH.
22. THIS PLAT IS SUBJECT TO THE PARTEN RANCH DEVELOPMENT AGREEMENT DATED APRIL 1, 2016 BETWEEN THE CITY OF DRIPPING SPRINGS AND HM PARTEN RANCH, LP., RECORDED IN DOCUMENT NUMBER 2016-16010149, PUBLIC RECORDS OF HAYS COUNTY, TEXAS.
23. THE MUD SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE DRAINAGE, WASTEWATER AND WATER QUALITY STRUCTURES AND/OR SYSTEMS LOCATED WITHIN THIS SUBDIVISION. WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE WATER SYSTEM LOCATED WITHIN THIS SUBDIVISION.
24. THIS PLAT AND SUBSEQUENT SITE DEVELOPMENT PLANS SHALL COMPLY WITH THE MOST CURRENT INTERNATIONAL FIRE CODE AS ADOPTED AND AMENDED BY THE EMERGENCY SERVICE DISTRICT #6, OR ITS SUCCESSORS.
25. ALL DRAINAGE EASEMENTS NECESSARY TO CONVEY CONCENTRATED FLOWS AND FLOODPLAINS FOR FOR BASINS CONTAINING MORE THAN 64 ACRES (LOT 45, BLOCK K AND LOT 7, BLOCK L) ARE DEPICTED ON THE PLAT PER HAYS COUNTY REGULATIONS CHAPTER 725.
26. POST DEVELOPED CONDITION RUNOFF RATE SHALL BE LESS THAN OR EQUAL TO THE PRE-DEVELOPED CONDITION RUNOFF RATES PER HAYS COUNTY REGULATIONS. PRE AND POST DEVELOPMENT RUNOFF CALCULATIONS SHALL BE INCLUDED WITH THE CONSTRUCTION DRAWINGS FOR THIS SUBDIVISION.
27. PURSUANT TO CHAPTER 245, SECTION 004 (EXEMPTIONS), THE CONSTRUCTION STANDARDS ADOPTED BY HAYS COUNTY FOR THE HEALTH AND WELFARE OF THE PUBLIC ARE NOT EXEMPTED FROM CHANGE AND THUS ARE NOT CONSIDERED GRANDFATHERED. IT IS THE DECISION OF THE HAYS COUNTY TRANSPORTATION AND DEVELOPMENT SERVICES DEPARTMENTS THAT THE CONSTRUCTION AND DESIGN STANDARDS AT THE TIME OF ORIGINAL PLATTING SHALL BE HONORED FOR A PERIOD OF 5 YEARS FROM THE DATE OF FINAL PLAT ACCEPTANCE. IF CONSTRUCTION HAS STARTED PRIOR TO THE FIVE-YEAR EXPIRATION DATE THEN THE PHASES FOR WHICH THE COUNTY HAS COMPLETE CONSTRUCTION PLANS FOR WHICH SHALL BE ALLOWED TO USE THE ORIGINAL STANDARDS. SUBSEQUENT PHASES THAT HAVE NOT BEEN FULLY DESIGNED AND APPROVED AT THAT POINT SHALL BE DESIGNED TO THE MOST CURRENT STANDARDS AND SPECIFICATIONS.
29. ALL CULVERTS, WHEN REQUIRED, SHALL COMPLY WITH THE CURRENT HAYS COUNTY STANDARDS.
30. MAIL BOXES PLACED WITHIN THE R.O.W. SHALL BE AN APPROVED TXDOT OR FHWA DESIGN, PER HAYS COUNTY DEVELOPMENT REGULATION (CHAPTER 721, SUBCHAPTER 2.01).
31. SIDEWALKS SHALL BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION OR SPRING HOLLOW MUD.
32. DRIVEWAYS SHALL COMPLY WITH CHAPTER 721 OF HAYS COUNTY DEVELOPMENT REGULATIONS AND BE PERMITTED THROUGH THE TRANSPORTATION DEPARTMENT OF HAYS COUNTY UNDER CHAPTER 751.
33. NO CONSTRUCTION OR OTHER DEVELOPMENT WITHIN THIS SUBDIVISION MAY BEGIN UNTIL ALL CITY OF DRIPPING SPRINGS DEVELOPMENT PERMIT REQUIREMENTS HAVE BEEN MET.
34. THE LOTS IN THIS SUBDIVISION RECEIVE POTABLE WATER SERVICE, EITHER DIRECTLY OR VIA WHOLESALE CONTRACT, FROM THE WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY. AS SUCH, THE PROPERTY IS SUBJECT TO COMPLIANCE WITH THE TERMS SET FORTH IN THE MAY 24, 2000 UNITED STATES FISH AND WILDLIFE SERVICE MEMORANDUM OF UNDERSTANDING WITH THE LOWER COLORADO RIVER AUTHORITY.
35. LOT 45, BLOCK K AND LOT 7, BLOCK L CONTAIN USFWS STREAM BUFFER ZONES AND/OR SENSITIVE FEATURE BUFFER ZONES AS INDICATED HEREON THAT MUST REMAIN FREE OF CONSTRUCTION, DEVELOPMENT, OR OTHER ALTERATIONS, AND ARE CONTAINED WITHIN DRAINAGE EASEMENTS.
36. IMPERVIOUS COVER SHALL COMPLY WITH THE WATER QUALITY PLAN APPROVED FOR THIS SUBDIVISION AND SHALL NOT BE ALTERED.
37. DECLARANT AGREES THAT THE LOTS IN THIS PLAT DOCUMENT ARE SUBJECT TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY OPTIONAL ENHANCED MEASURES.
38. LOT 45, BLOCK K, LOT 7, BLOCK L, LOT 1, BLOCK M AND LOT 1, BLOCK O, ARE OPEN SPACE/DRAINAGE/PEDESTRIAN ACCESS/WATER QUALITY LOTS AND WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION OR ITS ASSIGNS."
39. THIS PLAT LIES WITHIN THE HAYS TRINITY GROUNDWATER CONSERVATION DISTRICT.
40. A STORMWATER CONTROL MEASURES MAINTENANCE PLAN HAS BEEN PREPARED FOR THIS DEVELOPMENT AND IS RECORDED AS DOCUMENT #_____, IN THE PUBLIC RECORDS OF HAYS COUNTY, TEXAS.

SHEET 5 OF 5

GBI PARTNERS
LAND SURVEYING CONSULTANTS
7696 183A, BILDING 2, STE. A • LEANDER, TX 78641
PHONE: 281-499-4539 • WWW.GBISURVEY.COM
TBPELS # 10194150 • TBPE # F17284

SCALE: 1"= 100'	JOB NO. A211002
DATE: 10-07-2022	
CREW CHIEF:	FIELD BOOK:
DWG.: 201002-PLAT	

SHEET 4 OF 50

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NORTH HAYS COUNTY FIRE RESCUE NO. 6

1. DESIGNS FROM SITE IMPROVEMENTS SHALL MEET THE CURRENT DESIGN CRITERIA AS REQUIRED BY NHCFR NO. 6.

2. ALL PLANS (SITE, BUILDING, FIRE ALARM, FIRE SPRINKLER) SHALL BE SUBMITTED TO NHCFR No. 6 FOR REVIEW. TWO FULL-SIZE SETS ARE REQUIRED. A REVIEW LETTER WILL BE GENERATED. REVIEWS WILL NOT BE PERFORMED UNTIL THE APPLICABLE REVIEW FEES ARE PAID.

3. UPON PLAN APPROVAL, A PERMIT WILL BE ISSUED. THE PERMIT MUST BE CONSPICUOUSLY POSTED.

4. AN ALL-WEATHER DRIVING SURFACE (FIRE APPARATUS ACCESS) MUST BE INSTALLED IN LOCATIONS SHOWN ON THE SITE PLAN, PRIOR TO ANY BUILDING CONSTRUCTION BEYOND THE FOUNDATION.

5. ALL PERVIOUS/DECORATIVE PAVING SHALL BE ENGINEERED AND INSTALLED FOR 80,000 POUNDS LIVE-VEHICLE LOADS.

6. VERTICAL CLEARANCE REQUIRED FOR FIRE APPARATUS IS THIRTEEN FEET, SIX INCHES FOR THE FULL 24 FEET WIDTH OF ACCESS DRIVES AND ROUTES FOR INTERNAL CIRCULATION. DEAD-END FIRE APPARATUS ACCESS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH APPROVED PROVISIONS FOR THE TURNING AROUND OF FIRE APPARATUS.

7. THE MAXIMUM ALLOWABLE DRIVEWAY, DRIVE AISLE OR FIRE LANE GRADE IS FIFTEEN PERCENT.

8. STRIPING - FORE APPARATUS ACCESS ROADS SHALL BE CONTINUOUSLY MARKED BY PAINTED LINES OF RED TRAFFIC PAINT SIX INCHES (6") IN WIDTH TO SHOW THE BOUNDARIES OF THE LANE. THE WORDS "FIRE LANE - NO PARKING" SHALL APPEAR IN FOUR INCHES (4") WHITE LETTERS AT 25 FEET INTERVALS ON PAINTED BORDER MARKINGS ALONG BOTH SIDES OF THE FIRE LANES. WHERE A CURB IS AVAILABLE, THE STRIPING SHALL BE ON THE VERTICAL FACE OF CURB.

9. THE FIRE DEPARTMENT CONNECTION (FDC). FIRE HYDRANT SHALL BE PROVIDED WITH APPROPRIATE FIVE (5) INCH "STORZ" TYPE ADAPTERS FOR PUMPER (STREAMER) CONNECTION. THIS ADAPTER MUST BE EQUIPPED WITH A BLIND CAP.

10. HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FOUR AND ONE-HALF INCH STREAMER OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FOUR AND ONE-HALF INCH STEAMER OPENING MUST FACE THE DRIVEWAY OR STREET WITH THREE TO SIX-FOOT SETBACKS FROM THE CURB LINE(S). NO OBSTRUCTION IS ALLOWED WITHIN THREE FEET OF ANY HYDRANT, AND THE FOUR AND ONE-HALF INCH OPENING MUST BE TOTALLY UNOBSTRUCTED FROM THE STREET/DRIVEWAY.

11. CONTRACTOR SHALL INSTALL BLUE REFLECTIVE MARKERS IN THE CENTER OF PUBLIC RIGHT OF WAY (ROADWAY) OR APPROPRIATE FIRE ACCESS DRIVE LANE PERPENDICULAR TO THE NEAREST FIRE HYDRANT. IN LOCATIONS WHERE HYDRANTS ARE SITUATED ON CORNERS, BLUE REFLECTIVE MARKER SHALL BE INSTALLED ON BOTH APPROACHES WHICH FRONT THE HYDRANT.

12. A CERTIFIED OR WITNESSED PRESSURE TEST IS REQUIRED FOR ALL WATER MODELS, REQUIRED HYDRANT FLOW TESTS OR SPRINKLER SYSTEM DESIGNS.

SPRINGHOLLOW MUD NOTES

1. CONTACT CROSSROADS UTILITIES AT (512) 246-1400 PRIOR TO CONNECTING TO EXISTING FACILITIES.
2. ALL WASTEWATER LINES TO BE TELEVISED PRIOR TO ACCEPTANCE.

TCEQ WATER DISTRIBUTION SYSTEM NOTES: (Revised February 2019)

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENT QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D, WHEN CONFLICTS ARE NOTED BETWEEN 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(e)(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 150PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [290.44(e)(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)(i)].
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(e)(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 WITH SCREENS OF 16 MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [290.44(e)(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(e)(1)].
10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT WATERWAY, 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(e)(5)].
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.

    THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICAN WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC 290.44(a)(5). PLEASE NOTE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

    $$Q = LD \cdot P / 148{,}000$$

    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 AMERIAN WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC 290.44(a)(5). PLEASE BOSERVE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MIST CURRENT FORMULA IS IN USE;

    $$Q = SD \cdot P / 148{,}000$$

    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)
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 FROUT 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 SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [290.44(f)(3)].
18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
GENERAL CONSTRUCTION NOTES

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY CONTRIBUTING ZONE PLAN GENERAL CONSTRUCTION NOTES

1. WRITTEN CONSTRUCTION NOTIFICATION SHOULD BE PROVIDED TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION SHOULD INCLUDE THE DATE ON WHICH THE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR WITH THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN AND THE TNRCC 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 TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM MAY BE INSTALLED WITHIN 150 FEET IF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL
4. PRIOR TO COMMENCING CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE SWPPP SECTION OF THE APPROVED CONTRIBUTING ZONE PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
5. 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).
6. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 % OF THE BASIN VOLUME. PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50 % OF THE BASIN VOLUME.
7. 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).
8. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE AND STORED ON-SITE MUST HAVE PROPER E&S CONTROLS INSTALLED.
9. 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.
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 CONTRIBUTING ZONE 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 BEST MANAGEMENT PRACTICES 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 AND HYDROLOGICALLY CONNECTED SURFACE WATER; OR D. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED IN A CONTRIBUTING ZONE PLAN AS UNDEVELOPED.

    AUSTIN REGIONAL OFFICE
    12100 PARK 35 CIRCLE, BLDG. A, RM 179
    AUSTIN, TEXAS 78753
    PHONE (512) 339-2929
    FAX (512) 339-3795
12. THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE INSTALLED PRIOR TO INITIATING ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION PLANS. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE REMOVED WHEN THE CONSTRUCTION AREA IS STABILIZED.
13. IF ANY CAVERNS OR SENSITIVE FEATURES ARE DISCOVERED DURING THE WASTEWATER LINE TRENCHING ACTIVITIES, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE OWNER MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE OF THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION IN WRITING WITHIN TWO WORKING DAYS OF THE FEATURE DISCOVERED. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE EXECUTIVE DIRECTOR HAS REVIEW 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.
14. ALL MANHOLES CONSTRUCTED OR REHABILITATED ON THIS PROJECT WILL HAVE WATERTIGHT CONSTRUCTION JOINTS, RINGS, AND COVERS. IF MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVERS WILL HAVE A LOCKING MECHANISM 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.
15. WHERE WATER LINES AND NEW SEWER LINE ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES), THE INSTALLATION WILL MEET THE REQUIREMENTS OF 30 TAC "317.13 (DESIGN OF SEWERAGE SYSTEMS) OR 30 TAC "290.44(E) (WATER HYGIENE).
16. NEW SEWAGE COLLECTION SYSTEM LINES WILL BE CONSTRUCTED WITH "STUB OUTS" FOR THE CONNECTION OF ANTICIPATED EXTENSIONS. THE LOCATION OF SUCH "STUB OUTS" WILL BE MARKED ON THE GROUND SUCH THAT THE LOCATION OF SUCH "STUB OUTS" CAN BE EASILY DETERMINED AT THE TIME OF CONNECTION OF THE EXTENSIONS. SUCH "STUB OUTS" WILL 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" WILL BE CONSTRUCTED SUFFICIENTLY TO EXTEND BEYOND THE EDGE(S) OF ANY STREET PAVEMENT UNDER WHICH THEY WILL PASS TO THE PROPERTY LINE. ALL "STUB-OUTS" WILL 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 EQUIPPED WITH "STUB OUTS" WILL BE CONNECTED USING A MANUFACTURED SADDLE AND IN ACCORDANCE WITH APPROVED PLUMBING TECHNIQUES.
17. SEWER LINES WILL BE TESTED FROM MANHOLE TO MANHOLE. WHEN A STUB OR CLEAN-OUT IS USED AT THE END OF A PROPOSED SEWER LINE, IT CANNOT BE CERTIFIED AS CONFORMING WITH THE PROVISIONS OF 30 TAC "213.5(C)(3)(E). WHEN A NEW SEWER LINE IS CONNECTED TO AN EXISTING STUB OR CLEAN-OUT, IT WILL BE TESTED FROM EXISTING MANHOLE TO NEW MANHOLE.
18. ALL SEWER LINES WILL BE TESTED IN ACCORDANCE WITH 30 TAC "317.2(A)(4). TESTING METHOD WILL BE:
    (a) INFILTRATION OR EXFILTRATION TESTS. THE TOTAL EXFILTRATION AS DETERMINED BY A HYDROSTATIC HEAD TEST, WILL 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 THE PIPE AT THE UPSTREAM MANHOLE, OR AT LEAST TWO FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER. FOR CONSTRUCTION WITHIN THE 25 YEAR FLOOD PLAIN, THE INFILTRATION OR EXFILTRATION WILL NOT EXCEED 10 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT THE SAME MINIMUM TEST HEAD IN THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY SPECIFIED, REMEDIAL ACTION WILL BE UNDERTAKEN IN ORDER TO REDUCE THE INFILTRATION OR EXFILTRATION TO AN AMOUNT WITHIN THE LIMITS SPECIFIED.
    (b) LOW PRESSURE AIR TEST. THE PROCEDURE FOR THE PRESSURE AIR TEST WILL CONFORM TO THE PROCEDURES DESCRIBED IN ASTM C-828, ASTM C-924, ASTM F-1417 OR OTHER APPROPRIATE PROCEDURES, EXCEPT FOR TESTING TIMES. THE TEST TIMES WILL BE AS OUTLINED IN THIS SECTION. FOR SECTIONS OF PIPE LESS THAN 36-INCH AVERAGE INSIDE DIAMETER, THE FOLLOWING PROCEDURE WILL APPLY: UNLESS THE PIPE IS TO BE TESTED WITH WATER, THE PIPE WILL BE PRESSURIZED TO 3.5 PSI GREATER THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE, ONCE THE PRESSURE IS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 POUNDS PER SQUARE INCH GAUGE TO 2.5 POUNDS PER SQUARE INCH GAUGE WILL BE COMPUTED FROM THE FOLLOWING EQUATION:

    $$T = 0.05\ SD(D)\ (K) / (Q)$$

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

    SINCE A K VALUE OF LESS THAN 1.0 WILL NOT BE USEO, THERE ARE MINIMUM TIMES FOR EACH PIPE DIAMETER AS OUTLINED BELOW:

PIPE DIAMETER (INCHES)	MINIMUM TIME (SECONDS)	LENGTH FOR MINIMUM (FEET)	TIME FOR LONGER LENGTH (SECONDS)
6	340	398	0.855(L)
8	454	298	1.520(L)
10	567	239	2.374(L)
12	680	199	3.419(L)
15	850	159	5.342(L)
18	1020	133	7.693(L)
21	1190	114	10.471(L)
24	1360	100	13.676(L)
27	1530	88	17.309(L)
30	1700	80	21.369(L)
33	1870	72	25.856(L)

    THE TEST MAY BE STOPPED 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 THE TESTING PERIOD, THEN THE TEST WILL CONTINUE FOR THE ENTIRE TEST DURATION AS OUTLINED ABOVE OR UNTIL FAILURE. LINES WITH A 21" DIAMETER OR SMALLER DIAMETER AND LARGER MAY BE AIR TESTED AT EACH JOINT. PIPE GREATER THAN 36 INCH DIAMETER WILL BE TESTED FOR LEAKAGE AT EACH JOINT. IF THE JOINT TEST IS USED, A VISUAL INSPECTION OF THE JOINT WILL BE PERFORMED IMMEDIATELY AFTER TESTING. THE PIPE IS TO BE PRESSURIZED TO 3.5 PSI GREATER THAN THE PRESSURE EXERTED BY GROUNDWATER ABOVE THE PIPE. ONCE THE PRESSURE HAS STABILIZED, THE MINIMUM TIME ALLOWABLE FOR THE PRESSURE TO DROP FROM 3.5 POUNDS PER SQUARE INCH GAUGE TO 2.5 POUNDS PER SQUARE INCH GAUGE GAUGE WILL BE 10 SECONDS.
    (c) DEFLECTION TESTING. DEFLECTION TESTS WILL BE PERFORMED ON ALL FLEXIBLE PIPES. FOR PIPELINES WITH INSIDE DIAMETERS LESS THAN 27 INCHES, A RIGID MANDREL WILL BE USED TO MEASURE DEFLECTION. FOR PIPELINES WITH AN INSIDE DIAMETER OF 27 INCHES AND GREATER, A METHOD APPROVED BY THE EXECUTIVE DIRECTOR WILL BE USED TO TEST FOR VERTICAL DEFLECTIONS. OTHER METHODS WILL PROVIDE A MEASURE OF N' TWO TENTHS OF ONE PERCENT OF DEFLECTION. TESTING WILL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. NO PIPE WILL EXCEED A DEFLECTION OF FIVE PERCENT. IF A PIPE SHOULD FAIL TO PASS THE DEFLECTION TEST, THE PROBLEM WILL BE CORRECTED AND A SECOND TEST WILL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AN ADDITIONAL 30 DAYS. THE MANDREL USED FOR DEFLECTION TESTING SHALL BE MECHANICAL PULLING DEVICES. THE DESIGN ENGINEER SHOULD RECOGNIZE THAT THIS IS A MAXIMUM DEFLECTION CRITERION FOR ALL PIPES AND A DEFLECTION TEST LESS THAN FIVE PERCENT MAY BE MORE MORE APPROPRIATE FOR SPECIFIC TYPES AND SIZES OF PIPE. UPON COMPLETION OF CONSTRUCTION AND BEFORE FINAL ACCEPTANCE OF SEWER LINES, THE DESIGN ENGINEER SHALL BE APPOINTED BY THE OWNER WILL CERTIFY, TO THE EXECUTIVE DIRECTOR, THAT THE ENTIRE INSTALLATION HAS PASSED THE DEFLECTION TEST, THIS CERTIFICATION MAY BE MADE IN CONJUNCTION WITH THE NOTICE OF COMPLETION REQUIRED IN "317.1(E)(1) OF THIS TITLE (RELATING TO GENERAL PROVISIONS). THIS CERTIFICATION WILL BE PROVIDED FOR THE COMMISSION TO CONSIDER THE REQUIREMENTS OF THE APPROVAL TO HAVE BEEN MET.
19. ALL MANHOLES WILL BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC "317.2(C)(5)(H).
20. ALL PRIVATE SERVICE LATERALS WILL BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC "213.5(C)(3)(I), IF APPLICABLE, AFTER INSTALLATION OF, PRIOR TO COVERING, AND PRIOR TO CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS REGISTERED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR WILL 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 WILL MAINTAIN SUCH CERTIFICATIONS FOR THREE YEARS AND FORWARD COPIES TO THE APPROPRIATE DISTRICT OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM SUBSEQUENT TO RECEIPT BY THE EXECUTIVE DIRECTOR OF THE CERTIFICATION OF NEW CONSTRUCTION OR REPAIRS, AND SUBSEQUENT TESTING AS REQUIRED BY 30 TAC 213.5(C)(3)(I).

TCEQ WATER/WASTEWATER LINE SEPARATION NOTES:

1. NEW WATERLINE INSTALLATION - PARALLEL LINES:
   WHEN NEW POTABLE WATER DISTRIBUTION LINES ARE CONSTRUCTED, THEY SHALL BE INSTALLED NO CLOSER THAN NINE FEET IN ALL DIRECTIONS TO WASTEWATER COLLECTION FACILITIES. ALL SEPARATION DISTANCES SHALL BE MEASURED FROM THE OUTSIDE SURFACE OF EACH OF THE RESPECTIVE PIECES.
2. NEW WATERLINE INSTALLATION - CROSSING LINES
   WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, NON-PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL, IF THE EXISTING WASTEWATER MAIN OR LATERAL IS DISTURBED OR SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.
   WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.

GEOTECHNICAL INFORMATION

THE SUBGRADE MATERIAL FOR PART

HAYS COUNTY ROAD DEPARTMENT

TO ALL CONTRACTORS: GENERAL CONSTRUCTION NOTES FOR PLANS

THESE PLANS ARE NOT TO BE CONSIDERED FINAL FOR CONSTRUCTION UNTIL APPROVED BY HAYS COUNTY. CHANGES MAY BE REQUIRED PRIOR TO APPROVAL.

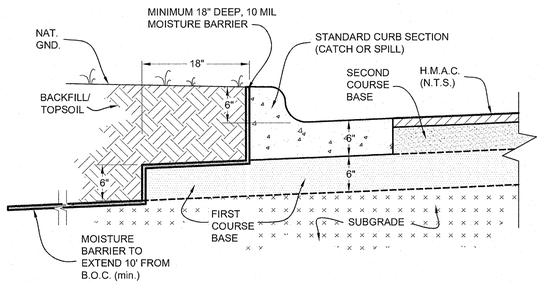
1. SEVENTY-TWO (72) HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION, THE DEVELOPER SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE WITH ALL PERTINENT PARTIES.
2. ALL ROADWAY AND DRAINAGE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HAYS COUNTY SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS FROM HAYS COUNTY ROAD AND BRIDGE DEPARTMENT PRIOR TO BEGINNING ANY ON-SITE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING THE NECESSARY INSPECTIONS FROM THE HAYS COUNTY ROAD AND BRIDGE DEPARTMENT. ALL REPAIRS TO IMPROVEMENTS CAUSED BY CONTRACTOR'S FAILURE TO INSTALL IMPROVEMENTS IN ACCORDANCE WITH HAYS COUNTY SPECIFICATIONS AND THESE CONSTRUCTION PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. HAYS COUNTY ROAD AND BRIDGE DEPARTMENTS ACCEPTANCE OF THE IMPROVEMENTS ARE CONTINGENT ON REPAIRS BEING MADE TO HAYS COUNTY'S SATISFACTION. DELAYS CAUSED BY REPAIRS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. A MINIMUM OF TWO (2) BENCHMARKS SHALL BE SHOWN ON THE CONSTRUCTION PLANS.
4. ALL BEDDING MATERIALS USED WITHIN THE ROW SHALL COMPLY WITH COA ITEM 510.
5. ALL CONCRETE PLACED WITHIN THE ROW SHALL BE A MINIMUM OF CLASS A. THE USE OF REBAR CHAIRS AND TEST CYLINDERS WILL BE REQUIRED ON PCC VALLEY GUTTER PLACEMENTS.
6. THE PROPOSED FULLY DEVELOPED STORMWATER RUNOFF RATE CANNOT EXCEED EXISTING CONDITIONS RUNOFF RATE.
7. DEWATERING OPERATIONS MUST USE SWPPP-SPECIFIED METHODS ONLY. IF SUCH METHODS ARE ONLY GENERAL OR NOT APPLICABLE, PUMP FROM THE TOP OF THE POOL (RATHER THAN THE BOTTOM) AND DISCHARGE TO A VEGETATED, UPLAND AREA (AWAY FROM WATERBODIES OR DRAINAGES) OR USE ANOTHER TYPE OF FILTRATION PRIOR TO DISCHARGE. REFER TO THE EPA 2017 GENERAL CONSTRUCTION PERMIT, SECTION 2.4, AS APPLICABLE.
8. THE CONTRACTOR SHALL SUPPLY QUALIFIED PERSONNEL TO PERFORM SWPPP INSPECTIONS ON PROJECT >= 1 ACRE. QUALIFIED PERSONNEL SHALL HAVE CISEC, CESSWI, OR EQUIVALENT CERTIFICATION APPROVED BY THE MS4.
9. CONTRACTOR SHALL PLACE GEO FABRIC UNDER SCE'S AND CLEAN UP ANY MUD AND DEBRIS TRACKED ONTO PUBLICALLY MAINTAINED ROADWAYS FROM VEHICLES LEAVING THE CONSTRUCTION SITE DAILY.
10. NO EXPLOSIVES SHALL BE USED FOR THIS PROJECT WITHOUT TCEQ APPROVAL.
11. ALL HOLES, TRENCHES AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY BARRICADES, FENCING, LIGHTS AND/OR OTHER PROTECTIVE DEVICES IN COMPLIANCE WITH COA 509S AND OSHA REGULATIONS AT ALL TIMES.
12. THE CONTRACTOR SHALL SUBMIT A TRENCH SAFETY PLAN PREPARED AND SEALED BY AN ENGINEER LICENSED BY THE STATE OF TEXAS PRIOR TO THE START OF THE PROJECT. THE CONTRACTOR SHALL ASSIGN A COMPETENT PERSON THAT HAS BEEN PROPERLY TRAINED AND IS QUALIFIED TO MAKE INSPECTIONS AND SUPERVISE THE INSTALLATION, MAINTENANCE, AND REMOVAL OF THE TRENCH SAFETY OR EXCAVATION SAFETY SYSTEM.
13. HAYS COUNTY IS NOT RESPONSIBLE FOR SIDEWALK MAINTENANCE. A FULLY EXECUTED LICENSE AGREEMENT MUST BE IN-PLACE PRIOR TO CONSTRUCTION OF SIDEWALKS WITHIN HAYS COUNTY ROW.
14. CONTRACTOR SHALL COMPLY WITH CONSTRUCTION SEQUENCING WHICH MAY BE SPECIFIED SOMEWHERE IN THE CONSTRUCTION PLANS.
15. PERMIT IS REQUIRED FOR CONSTRUCTION IN 'RIGHT OF WAY': ORDINANCE 7.10. NO DRIVEWAY, UTILITY CONSTRUCTION, MAILBOXES, LANDSCAPING OR ANY OTHER ENCROACHMENT INTO RIGHT-OF-WAY OR EASEMENT SHALL BE ALLOWED WITHOUT FIRST OBTAINING A PERMIT FROM HAYS COUNTY ROAD AND BRIDGE DEPARTMENT.
16. PRIOR TO THE INSTALLATION OF ANY ROAD BUILDING MATERIAL THE SUBGRADE SHALL BE INSPECTED BY HAYS COUNTY. PRIOR TO PAVING, BASE MATERIAL SHALL BE INSPECTED BY HAYS COUNTY. THE OWNER OR HIS AGENT SHALL NOTIFY HAYS COUNTY FORTY-EIGHT (48) HOURS PRIOR TO THE TIME WHEN THE INSPECTION IS NEEDED: ORDINANCE 1.05; 2.06.
17. ALL OUTFALLS CONSTRUCTED WITHIN HAYS COUNTY MUST BE SUBMITTED TO HAYS COUNTY WITH GPS COORDINATED AT THE END OF EACH PROJECT. COORDINATED WILL BE SUBMITTED ON THE NAD 1983 STATE PLANE SOUTH CENTRAL FIPS 4204 FEET COORDINATE SYSTEM. ALL COORDINATED WILL BE SUBMITTED IN GRID UNITS. THE REQUIRED FILE TYPE FOR COORDINATE DATA SUBMISSIONS IS *TXT FORMAT.
18. AT THE TIME A FINAL INSPECTION AND RELEASE OF PERFORMANCE SECURITY IS REQUESTED; THE DESIGN ENGINEER SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" RECORD DRAWINGS IN PDF FORMAT (300DPI) ON A VIRUS FREE DISK AND SHALL CERTIFY THAT ALL ROAD AND DRAINAGE CONSTRUCTION HAS BEEN COMPLETED IN SUBSTANTIAL ACCORDANCE WITH PREVIOUSLY APPROVED PLANS AND SPECIFICATIONS, EXCEPT AS NOTED. NO PERFORMANCE SECURITY WILL BE RELEASED WITHOUT THESE EXHIBITS.

HAYS COUNTY TYPICAL SEQUENCE OF CONSTRUCTION

1. HOLD PRE-CONSTRUCTION MEETING.
2. NO CLEARING OR ROUGH CUTTING MAY BE DONE UNTIL THE APPROVED EROSION AND SEDIMENT CONTROLS ARE IN PLACE AND APPROVED BY HAYS COUNTY.
3. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS AND STABILIZED CONSTRUCTION ENTRANCE, IF REQUIRED, IN THE APPROVED PLANS.
4. ROUGH CUT DETENTION/WATER QUALITY PONDS/BASINS AND DIRECT RUNOFF TO PONDS TO ACT AS A SEDIMENT TRAP.
5. ROUGH GRADE STREETS
6. INSTALL ALL UTILITIES IN THE RIGHTS-OF-WAY.
7. REGRADE AND COMPACT SUBGRADE. MEET WITH INSPECTOR AND /DESIGN ENGINEER TO DETERMINE AREAS OF DIFFERING STREET SECTIONS OR SUBGRADE PREPARATION, IF CALLED FOR IN THE GEOTECHNICAL REPORT.
8. INSURE ALL UNDERGROUND UNTILITY CROSSINGS ARE IN PLACE INCLUDING SLEEVES FOR DRY UTILITIES AND INSTALL FIRST COURSE OF BASE.
9. INSTALL CURBS, RIP-RAP AND MISCELLANEOUS CONCRETE.
10. INSTALL SECOND COURSE OF BASE.
11. PRIOR TO PAVING, ALL UTILITY TESTING MUST BE COMPLETE AND APPROVED BY THE UTILITY OWNER.
12. LAY ASPHALT.
13. FINAL GRADE ANY DITCHES AND PARKWAYS.
14. REVEGETATE ALL DISTURBED AREAS. DISPOSE OF SPOIL IN AN APPROVED MANNER.
15. SCHEDULE A FINAL INSPECTION.
16. AFTER ACCEPTANCE OF CONSTRUCTION, TEMPORARY EROSION CONTROLS MAY BE REMOVED.

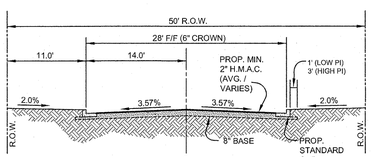
GENERAL CONSTRUCTION NOTES

1. ALL STREET AND DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HAYS COUNTY STANDARD SPECIFICATIONS.
2. BENCHMARKS FOR THE PROJECT ARE LOCATED ON THE COVER SHEET.
3. BARRICADES, BUILT TO HAYS COUNTY STANDARD SPECIFICATIONS, SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB SAFETY.
4. IF BLASTING IS PLANNED BY THE CONTRACTOR, A BLASTING PERMIT MUST BE SECURED PRIOR TO COMMENCEMENT OF ANY BLASTING.
5. THE LOCATION OF ANY EXISTING WATER AND/OR WASTEWATER LINES SHOWN ON THE PLANS MUST BE VERIFIED BY THE WEST TRAVIS COUNTY PUA AND THE SPRINGHOLLOW MUD OPERATOR CROSSROADS UTILITIES.
6. CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY AND STORM SEWER LINES WITH THE APPROPRIATE AUTHORITIES AND/OR UTILITY COMPANY PRIOR TO BACKFILLING TRENCHES.
7. ANY FITTINGS, VALVES, OR OTHER APPURTENANCES NECESSARY FOR TESTING OF UTILITY LINES SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
8. ALIGNMENT OF UTILITY AND STORM SEWER LINES SHOWN ON PLANS SHALL BE ACHIEVED BY DEFLECTION IN PIPE AND PIPE JOINTS NOT TO EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM DEFLECTION, EXCEPT WHERE SPECIFIC BENDS AND/OR FITTINGS ARE CALLED FOR ON PLANS.
9. THE LOCATION AND TYPE OF UTILITIES AND UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING UTILITIES. IN ADDITION TO NORMAL PRECAUTIONS WHEN EXCAVATING, USE EXTRA CAUTION WHEN EXCAVATING WITHIN 25 FEET OR ANY UTILITIES SHOWN ON THE PLANS.
10. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, AT HIS EXPENSE, ALL UTILITIES, PAVEMENT, CURB, FENCES, AND ANY OTHER ITEMS DAMAGED DURING CONSTRUCTION REGARDLESS OF WHETHER THESE ITEMS ARE SHOWN ON THE PLANS.
11. WHENEVER EXISTING UTILITIES, INDICATED OR NOT ON PLANS, PRESENT OBSTRUCTIONS TO GRADE OR ALIGNMENT OF PROPOSED PIPE, CONTRACTOR IS TO IMMEDIATELY NOTIFY ENGINEER WHO WILL DETERMINE IF EXISTING IMPROVEMENTS ARE TO BE RELOCATED OR IF THE GRADE AND ALIGNMENT OF PROPOSED PIPE IS TO BE CHANGED.
12. DISPOSAL OF SPOIL MATERIAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. SPOIL SHALL BE TEMPORARILY DISPOSED OF AT THE DESIGNATED ONSITE TEMPORARY DISPOSAL AREA, AND PERMANENTLY REMOVED TO A PERMITTED SPOIL DISPOSAL AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS IN CONJUNCTION WITH THIS WORK. DISPOSAL OF OF SPOIL MATERIAL SHALL BE COORDINATED WITH HAYS COUNTY INSPECTOR.
13. CLEANUP - UPON COMPLETION AND BEFORE MAKING APPLICATION FOR ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL CLEAN ALL STREETS AND ALL GROUND OCCUPIED BY HIM IN CONNECTION WITH THE WORK OF ALL RUBBISH, EXCESS MATERIALS, EXCESS ESCAVATED MATERIALS, TEMPORARY STRUCTURES, AND EQUIPMENT. ALL PARTS OF THE WORK SHALL BE LEFT IN A NEAT AND PRESENTABLE CONDITION SATISFACTORY TO THE OWNER AND GOVERNMENTAL BODIES HAVING JURISDICTION PRIOR TO SUBMITTAL OF THE FINAL PAYMENT. FINAL CLEANUP PAYMENT IS CONSIDERED AS INCIDENTAL TO UNIT PRICES ON THE BID PROPOSAL.
14. DEWATERING, IF NECESSARY, SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL PAYMENT. CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF 30 TAC CHAPTER 307, THE WATER CODE OF TEXAS CHAPTER 26, AND THE CONDITIONS OF THE STORMWATER POLLUTION PREVENTION PLAN AND THE GENERAL PERMIT TXR-150000.
15. THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE LIMITS OF CONSTRUCTION WHICH ARE GENERALLY DEFINED BY THE LIMITS OF RIGHT-OF-WAY AND/OR EASEMENTS, EXCEPT FOR THE DETOUR ROUTE. THE LIMITS OF CONSTRUCTION FOR THE DETOUR ARE AS INDICATED ON THE PLANS. NO CLEARING IS ALLOWED FOR THE INSTALLATION OF SILT FENCES OR ROCK BERMS WHICH ARE LOCATED OUTSIDE OF THE RIGHT-OF-WAY UNLESS AUTHORIZED BY THE OWNER OR HIS DESIGNATED REPRESENTATIVE.
16. ALL CONCRETE SHALL BE CLASS 'A' WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 P.S.I., UNLESS OTHERWISE NOTED.
17. ALL REINFORCED STEEL SHALL BE ASTM A615M, GRADE 60, UNLESS OTHERWISE NOTED.
18. NO WORK SHALL BE DONE BETWEEN THE HOURS OF 8:00 P.M. AND 6:00 A.M; NOR ON SUNDAYS OR LEGAL HOLIDAYS WITHOUT THE WRITTEN PERMISSION OF THE WTCPUA IN EACH CASE, EXCEPT SUCH WORK AS MAY BE NECESSARY FOR THE PROPER CARE, MAINTENANCE AND PROTECTION OF THE WORK ALREADY DONE OR IN THE CASE OF AN EMERGENCY.
19. ALL LINEWORK SHALL BE STAKED PRIOR TO CONSTRUCTION WITH SEALED CUT SHEETS PROVIDED TO THE WTCPUA INSPECTOR PRIOR TO CONSTRUCTION.
20. THE LIMITS OF CONSTRUCTION SHALL BE BOUNDED BY THE RIGHT OF WAY LINE OR PERMANENT/ TEMPORARY EASEMENT LIMITS SHOWN ON THE PLANS. LIMITS OF CONSTRUCTION MAY BE FURTHER RESTRICTED BY PLACEMENT OF SILT FENCE, TREE PROTECTION FENCING, OR OTHER APPURTENANCES AS SHOWN ON THE PLANS.
21. LIMITS OF CONSTRUCTION SHALL BE CLEARLY DELINEATED BY THE CONTRACTOR BY INSTALLING SILT FENCE, ORANGE TENSAR FENCING (4 - FOOT ROLL TIED TO 6 FOOT POSTS SET AT 10 FOOT INTERVALS) OR OTHER BARRIERS AS APPROVED BY THE ENGINEER. ALL TEMPORARY BARRIERS SHALL BE REMOVED AT THE END OF THE PROJECT.
22. ANY AREAS OUTSIDE THE LIMITS OF CONSTRUCTION DISTURBED BY THE CONTRACTOR SHALL IMMEDIATELY BE RESTORED TO PRECONSTRUCTION CONDITION.



MOISTURE BARRIER DETAIL FOR RAISED CURB @ LANDSCAPE / MEDIAN LOTS

N.T.S.



PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)

SCALE: 1" = 10'

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.
6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.
8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.
9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet __ of __.

   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: _____.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____.

    Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.
12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __.

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 108.2) 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	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
    (1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
        (A) *Mandrel Sizing.*
            (i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
            (ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
            (iii) All dimensions must meet the appropriate standard.
        (B) *Mandrel Design.*
            (i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
            (ii) A mandrel must have nine or more odd number of runners or legs.
            (iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
            (iv) Each size mandrel must use a separate proving ring.
        (C) *Method Options.*
            (i) An adjustable or flexible mandrel is prohibited.
            (ii) A test may not use television inspection as a substitute for a deflection test.
            (iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
    (2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
    (3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
    (4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
    (5) Gravity collection system pipe deflection must not exceed five percent (5%).
    (6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
    (a) All manholes must pass a leakage test.
    (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
        (1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office 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.

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: ___
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Gen_nts.dwg

LAUREN CRONE 128018 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 6 OF 50 SHEETS

PARTEN RANCH PHASE 8

GENERAL NOTES (SHEET 2)

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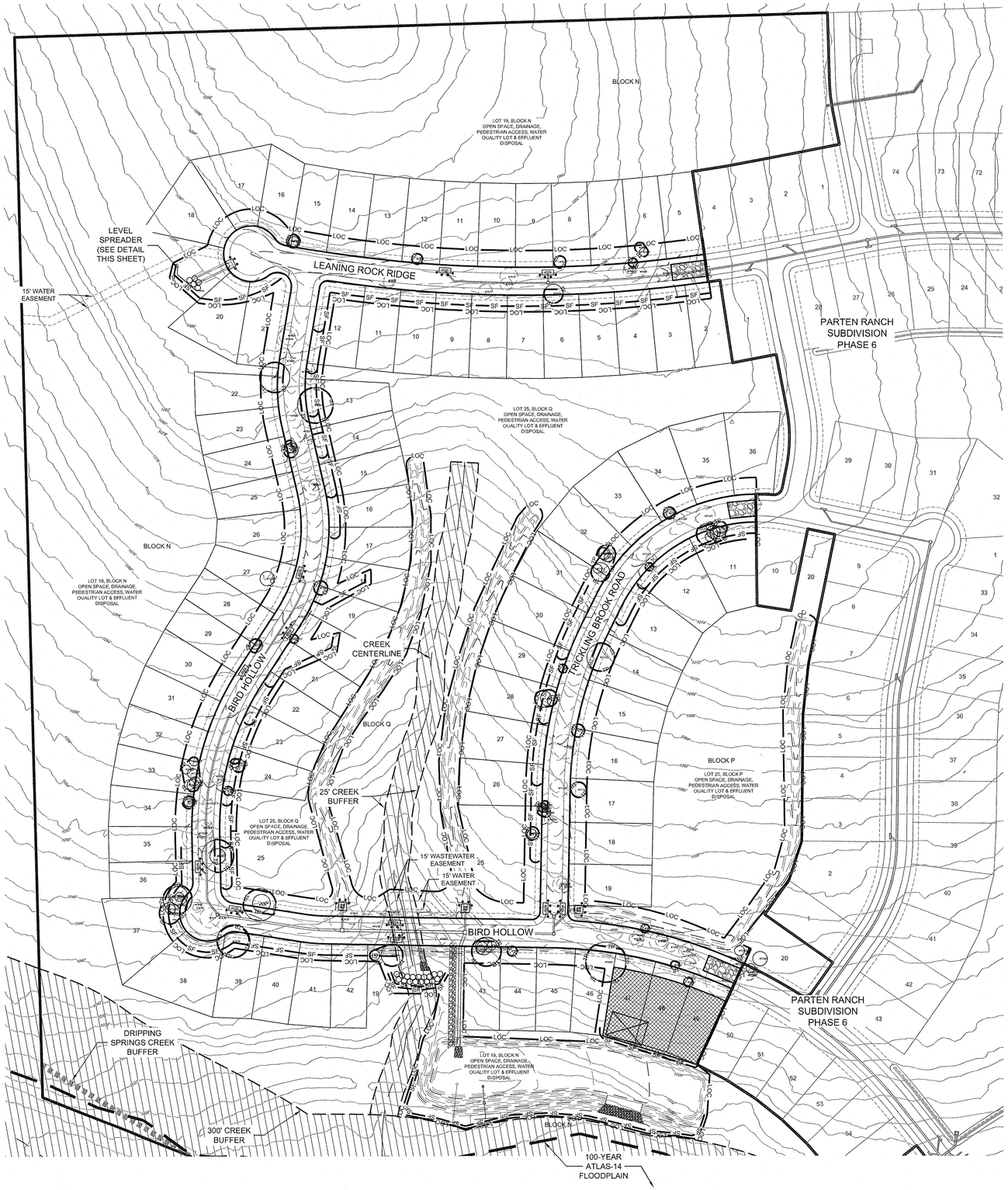
Last Modified: Oct. 31, 22 - 13:43
Plot Date/Time: Nov. 01, 22 - 08:52:21



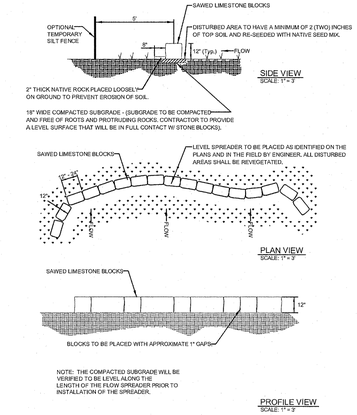
LEGEND:

- PROPOSED SILT FENCE
- PROPOSED LIMITS OF CONSTRUCTION
- PROPOSED TREE PROTECTION FENCING
- PROPOSED ROCK BERM
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED TEMPORARY SPOILS SITE/ CONTRACTORS STAGING AREA
- PROPOSED CONCRETE WASHOUT
- PROPOSED SEVERE SERVICE ROCK BERM
- TREE TO REMAIN
- TREE TO BE REMOVED
- J-HOOK SILT FENCE
- INLET PROTECTION

N

100 50 0 100 200

SCALE IN FEET



LEVEL SPREADER
N.T.S.

PARTEN RANCH PHASE 8
EROSION/SEDEMENTATION CONTROL PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Eros.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 7

OF 50 SHEETS

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Plot Date/Time: Nov. 01, 22 - 09:55:27

CITY OF AUSTIN
EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR EXCAVATION).

2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE ENVIRONMENTAL CRITERIA MANUAL AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.

3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.

4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF DRIPPING SPRINGS AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.

5. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST OR CITY ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY THE CITY OF DRIPPING SPRINGS. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.

6. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.

7. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY, AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.

8. ALL WORK MUST STOP IF A VOID IN THE ROCK SUBSTRATE IS DISCOVERED WHICH IS; ONE SQUARE FOOT IN TOTAL AREA; BLOWS AIR, FROM WITHIN THE SUBSTRATE AND/OR CONSISTENTLY RECEIVES WATER DURING ANY RAIN EVENT. AT THIS TIME IT IS THE RESPONSIBILITY OF THE PROJECT MANAGER TO IMMEDIATELY CONTACT THE CITY OF BEE CAVE FOR FURTHER INVESTIGATION.

9. TEMPORARY AND PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW.

A. ALL DISTURBED AREAS TO BE RE-VEGETATED ARE REQUIRED TO PLACE A MINIMUM OF SIX (6) INCHES OF TOPSOIL [SEE STANDARD SPECIFICATION ITEM NO. 601S.3(A)]. DO NOT ADD TOPSOIL WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES. THE TOPSOIL SHALL BE COMPOSED OF SOIL MIXED WITH 1 PART COMPOST, BY VOLUME. THE COMPOST APPROVED BY THE DILLO DIRT OR EQUAL APPROVED BY THE ENGINEER, OR DESIGNATED REPRESENTATIVE. THE APPROVED EQUAL, IF USED, SHALL MEET THE DEFINITION OF COMPOST (AS DEFINED BY THE U.S. COMPOST COUNCIL). THE SOIL SHALL BE LOCALLY AVAILABLE NATIVE SOIL THAT MEETS THE FOLLOWING SPECIFICATIONS:

- SHALL BE FREE OF TRASH, WEEDS, DELETERIOUS MATERIALS, ROCKS, AND DEBRIS.

- 100% SHALL PASS THROUGH A .375-INCH (⅜") SCREEN.

- SOIL TEXTURE CLASS TO BE LOAM, SANDY CLAY LOAM, OR SANDY LOAM IN ACCORDANCE WITH THE USDA TEXTURE TRIANGLE. SOIL KNOWN LOCALLY AS "RED DEATH" OR AUSTIN SANDY LOAM IS NOT AN ALLOWABLE SOIL. TEXTURAL COMPOSITION SHALL MEET THE FOLLOWING CRITERIA:

TEXTURE CLASS	MINIMUM	MAXIMUM
CLAY	5%	25%
SILT	10%	50%
SAND	30%	80%

TOPSOIL SALVAGED FROM THE EXISTING SITE MAY OFTEN BE USED, BUT IT SHOULD MEET THE SAME STANDARDS AS SET FORTH IN THESE STANDARDS.

THE VEGETATIVE STABILIZATION OF AREAS DISTURBED BY CONSTRUCTION SHALL BE AS FOLLOWS:

TEMPORARY VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH COOL SEASON COVER CROPS (WHEAT AT 0.5 POUNDS PER 1000 SF, OATS AT 0.5 POUNDS PER 1000 SF, CEREAL RYE GRAIN AT 0.5 POUNDS PER 1000 SF) WITH A TOTAL RATE OF 1.5 POUNDS PER 1000 SF. COOL SEASON COVER CROPS ARE NOT PERMANENT EROSION CONTROL.

2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SF.

A. FERTILIZER SHALL BE WATER SOLUBLE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF ½ POUND PER 1000 SF.

B. HYDROMULCH SHALL COMPLY WITH TABLE 1, BELOW.

C. TEMPORARY EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 ½ INCHES HIGH WITH 95% COVERAGE AND PROVED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.

D. WHEN REQUIRED, NATIVE GRASS SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL.

TABLE 1: HYDROMULCHING FOR TEMPORARY VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATE
70/30 WOOD/ CELLULOSE BLEND MULCH	70% WOOD 30% PAPER 3% TACKIFIER	0-3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	45.9 LBS/1000 SF
WOOD FIBER MULCH	96% WOOD 3% TACKIFIER	0-3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	45.9 LBS/1000 SF

PERMANENT VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING IS CONSIDERED TO BE TEMPORARY STABILIZATION ONLY. IF COOL SEASON COVER CROPS EXIST WHERE PERMANENT VEGETATIVE STABILIZATION IS DESIRED, THE GRASSES SHALL BE MOWED TO A HEIGHT OF LESS THAN ONE-HALF (1/2) INCH AND THE AREA SHALL BE RE-SEEDED IN ACCORDANCE WITH 2. BELOW.

2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION. BERMUDA GRASS IS A WARM SEASON GRASS AND IS CONSIDERED PERMANENT EROSION CONTROL.

A. FERTILIZER SHALL BE A WATER SOLUBLE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF ½ POUND PER 1000 SF.

B. HYDROMULCH SHALL COMPLY WITH TABLE 2, BELOW.

C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX INCHES. THE IRRIGATION SHALL OCCUR AT DAILY INTERVALS (MINIMUM) DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF ½ INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.

D. PERMANENT EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 ½ INCHES HIGH WITH 95% COVERAGE AND PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST

E. WHEN REQUIRED, NATIVE GRASS SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL.

TABLE 2: HYDROMULCHING FOR PERMANENT VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATE
BONDED FIBER MATRIX (BFM)	80% THERMALLY REFINED WOOD 10% TACKIFIER	6 MONTHS	ON SLOPES UP TO 2:1 AND EROSIVE SOIL CONDITIONS	68.9 LBS/SF TO 80.3/1000 SF
FIBER REINFORCED MATRIX (FRM)	75% THERMALLY REFINED WOOD 5% REINFORCING FIBERS 10% TACKIFIER	12 MONTHS	ON SLOPES UP TO 1:1 AND EROSIVE SOIL CONDITIONS	68.9 LBS/SFTO 80.3/1000 SF

10. DEVELOPER INFORMATION:

OWNER:
HM PARTEN RANCH DEVELOPMENT, INC. PHONE #: (512) 477-2436
ADDRESS: 101 NORTH LAMAR
AUSTIN, TEXAS 78703

OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:
LJA ENGINEERING, INC. PHONE #: 512-439-4700

PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE:
CONTRACTOR PHONE #: UNKNOWN

PERSON OR FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:
CONTRACTOR PHONE #: UNKNOWN

11. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF DRIPPING SPRINGS AND HAYSS COUNTY AT AT LEAST 48 HOURS PRIOR WITH THE LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.

CIY OF AUSTIN STANDARD NOTES
FOR TREE AND NATURAL AREA PROTECTION

1. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.

2. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO CITY OF AUSTIN STANDARDS FOR TREE PROTECTION.

3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.

4. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIP LINES.

5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE) , FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, IN ORDER TO PREVENT THE FOLLOWING:

A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS;

B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL), OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY ARBORIST;

C. WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT;

D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING, AND FIRES.

6. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING CASES:

A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;

B. WHERE PERMEABLE PAVING IS TO BE INSTALLED WITHIN A TREE'S DRIP LINE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZE ROOT DAMAGE);

C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW 6 TO 10 FEET OF WORK SPACE BETWEEN THE FENCE AND THE BUILDING;

D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE CITY ARBORIST AT 974-1876 TO DISCUSS ALTERNATIVES.

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

7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FT (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.

8. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.

9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.

10. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.

11. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.

12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).

13. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES AVAILABLE ON REQUEST FROM THE CITY ARBORIST).

14. DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS SUBSTANTIAL NON-COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

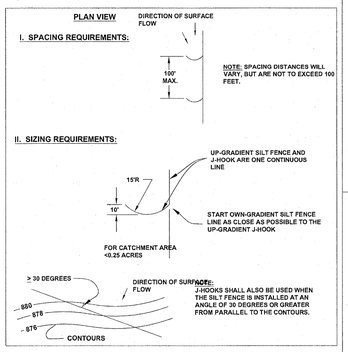
SPOILS MANAGEMENT AND DISPOSAL NOTES

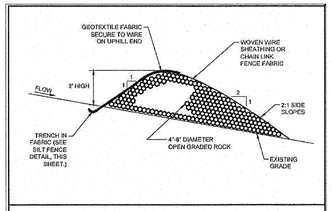
1. TEMPORARY HOLDING SITES AS NECESSARY TO STOCKPILE EXCAVATED SOILS, EMBEDMENT MATERIAL, AND/OR PIPING AND APPURTENANCES MAY BE LOCATED WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE PLANS.

2. NO PERMANENT SPOILS DISPOSAL SHALL BE ALLOWED ON-SITE, UNLESS APPROVED BY THE OWNER AND GOVERNING AUTHORITY.

3. ALL SPOILS MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED SPOIL DISPOSAL SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SECURING A PERMIT FOR THE SITE; AND SHALL NOTIFY THE OWNER AND/OR ENGINEER AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO DISPOSAL OF ANY SPOILS MATERIAL.

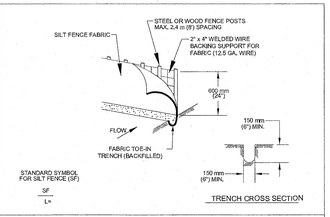
SILT FENCE 'J' HOOK DETAIL
N.T.S.





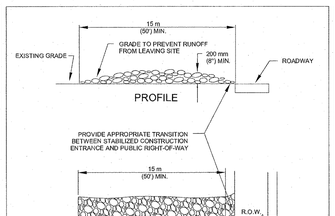
NOTES:
1. USE ONLY OPEN GRADED ROCK, 4-8 INCH DIAMETER, FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK, 3-5 INCH DIAMETER, FOR OTHER CONDITIONS.
2. ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN	FABRIC COVERED (SEVERE SERVICE) ROCK BERM	
GENERAL PERMIT PROGRAM — N/A — APPROVED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. N/A 1 OF 1



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

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS — 09/01/2011 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



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

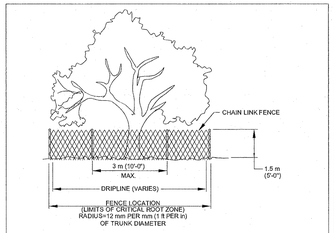
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 5/23/00 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1

NOTES:
1. MATERIAL - THE FABRIC MUST CORRESPOND TO THE FOLLWING REQUIREMENTS:

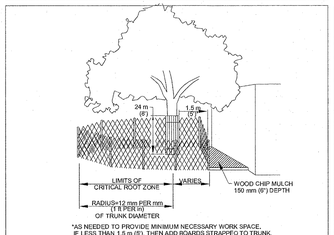
PROPERTY	ASTM TEST METHOD	REQUIREMENTS
FABRIC WEIGHT	D 3776	≥3.0 OUNCES/SQUARE YYAD
ULTRAVIOLET (UV) RADIATION STABILITY	D 4355	70% STRENGTH RETAINED MIN., AFTER 500 HOURS IN XENON ARC DEVICE
MULLEN BURST STRENGTH	D 3786	≥120 POUND PER SQUARE INCH
WATER FLOW RATE	D 4491	≥.275 GALLONS/MINUTE/SQUARE FEET

2. THIS MATERIAL SHOULD HAVE A MAXIMUM EXPECTED USEFUL LIFE OF APPROXIMATELY EIGHTEEN (18) MONTHS. THE INLET PROTECTION DEVICES SHOULD BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN OUT AND DISPOSAL OF TRAPPED SEDIMENT WHILE MINIMIZING INTERFERENCE WITH CONSTRUCTION ACTIVITIES. THEY SHOULD ALSO BE CONSTRUCTED SUCH THAT ANY PONDING OF STORM WATER WILL NOT CAUSE EXCESSIVE R.O.W. FLOODING (I.E. ≤ 4 INCHES OF STANDING WATER) OR DAMAGE TO THE STRUCTURE OR ADJACENT AREAS.
3. COVERAGE - THE FABRIC/WIRE SHOULD COMPLETELY COVER THE OPENING OF THE INLET AND DEVICES SHOULD BE INSTALLED WITHOUT PROTRUDING PARTS THAT COULD BE A TRAFFIC WORKER, OR PEDESTRIAN HAZARD. WHERE SECTIONS OF THE FABRIC OVERLAP, THEY SHALL OVERLAP AT LEAST THREEED INCHES.
4. THE INLET FILTER SHALL BE ATTACHED IN A WAY THAT THEY CAN EASILY BE REMOVED AND ARE NOT SECURED OR ATTACHED BY THE USE OF SAND BAGS. THE INLET FILTER MUST BE REMOVED UPON COMPLETION OF WORK. IF REMOVAL DAMAGES THE CONCRETE CURB, THE CURB MUST BE REPAIRED IMMEDIATELY.
5. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN THE DEPTH REACHES 50 MM (2 INCHES) INCHES OR ONE - THIRD THE HEIGHT OF THE INLET THROAT AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
6. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORMWATER BEGINS TO OVERTOP THE CURB.
7. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT HAS ACHIEVED FINAL STABILIZATION CONDITIONS.

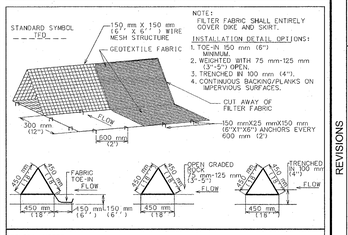
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	FILTER DIKE CURB INLET PROTECTION	
RECORD COPY SIGNED BY MARK VIDAL — 10/30/09 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S-2



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



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



GENERAL NOTES
1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75-125 mm (3-5") OPEN GRADED ROCK OR TOPPED IN 150 mm (6") WITH MECHANICALLY COMPACTED MATERIAL OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100 mm (4").
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150 mm (6") WIRE STAPLES OR EQUIVALENT SPACED ALONG BOTH EDGES AND SKIRT, OR STAKE USING 50 MM (2") DIAMETER BY 600 MM (24") WITH TEE END.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150 mm (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE MIN#0-1RO mmX50 mm 16 GA. 6"X6"W WIRE MESH, 450 mm (18") ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6") AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE D

N

100 50 0 100 200
SCALE IN FEET

LEGEND

- PROPOSED BOUNDARY
- CREEK BUFFER
- 100 YR FLOODPLAIN - CALCULATED (ATLAS-14 PRECIPITATION)
- TREE TO REMAIN
- TREE TO BE REMOVED

TAG No.	DIA.(IN)	SPECIE
* 430	16	LIVE OAK (MULTI)
* 431	18	LIVE OAK (MULTI)
* 432	8	LIVE OAK
* 433	10	LIVE OAK
434	16	LIVE OAK
435	29	LIVE OAK
436	30	LIVE OAK (MULTI)
437	–	–
* 438	27	LIVE OAK
* 439	23	LIVE OAK (MULTI)
* 440	20	LIVE OAK
441	9	LIVE OAK
442	20	LIVE OAK
* 443	10	LIVE OAK (MULTI)
444	8	LIVE OAK (MULTI)
445	26	LIVE OAK
446	15	LIVE OAK (MULTI)
447	9	LIVE OAK
448	8	LIVE OAK
449	9	CREPE MYRTLE
450	36	LIVE OAK
* 451	21	RED OAK
452	8	LIVE OAK (MULTI)
* 453	9	LIVE OAK (MULTI)
* 454	10	LIVE OAK
* 455	12	LIVE OAK
* 456	17	LIVE OAK (MULTI)
* 457	11	LIVE OAK
* 458	8	LIVE OAK (MULTI)
* 459	9	LIVE OAK
* 460	11	LIVE OAK (MULTI)
* 461	10	LIVE OAK
462	8	LIVE OAK
463	9	LIVE OAK (MULTI)
* 464	31	LIVE OAK
* 465	13	LIVE OAK (MULTI)
* 466	9	LIVE OAK (MULTI)
* 467	9	LIVE OAK
* 468	10	LIVE OAK (MULTI)
* 469	13	LIVE OAK
* 470	8	LIVE OAK
471	8	LIVE OAK (MULTI)
472	9	LIVE OAK (MULTI)
473	11	LIVE OAK (MULTI)
474	17	LIVE OAK
* 475	16	LIVE OAK (MULTI)
* 476	11	LIVE OAK
* 477	13	LIVE OAK
478	10	LIVE OAK (MULTI)
* 479	10	LIVE OAK
* 480	11	LIVE OAK (MULTI)
481	11	LIVE OAK
482	9	LIVE OAK
483	11	LIVE OAK
* 484	17	LIVE OAK
* 485	17	LIVE OAK
* 486	8	LIVE OAK (MULTI)
487	27	LIVE OAK
* 488	22	LIVE OAK
* 489	9	LIVE OAK (MULTI)
490	32	LIVE OAK (MULTI)
* 491	13	LIVE OAK (MULTI)
* 492	8	LIVE OAK (MULTI)
* 493	9	LIVE OAK (MULTI)
494	8	LIVE OAK
495	11	LIVE OAK (MULTI)
496	13	LIVE OAK (MULTI)
* 497	10	LIVE OAK (MULTI)
* 498	18	LIVE OAK (MULTI)
499	13	LIVE OAK (MULTI)
* 500	16	LIVE OAK (MULTI)
1053	8	LIVE OAK
1054	13	LIVE OAK (MULTI)
1055	12	LIVE OAK
1056	9	LIVE OAK
1057	8	LIVE OAK
1058	9	LIVE OAK
1059	12	LIVE OAK
* 1060	12	LIVE OAK
1061	8	LIVE OAK
* 1062	8	LIVE OAK
* 1063	10	LIVE OAK
* 1064	9	LIVE OAK (MULTI)
1065	13	LIVE OAK (MULTI)
1066	9	LIVE OAK
* 1067	28	LIVE OAK (MULTI)
* 1068	24	LIVE OAK
* 1069	15	CEDAR ELM
1070	14	LIVE OAK

TAG No.	DIA.(IN)	SPECIE
1071	29	LIVE OAK
* 1072	9	LIVE OAK (MULTI)
1073	10	LIVE OAK (MULTI)
1074	9	LIVE OAK (MULTI)
1075	9	LIVE OAK
1076	11	LIVE OAK (MULTI)
1077	9	LIVE OAK (MULTI)
1078	10	LIVE OAK
1079	9	LIVE OAK (MULTI)
1080	8	LIVE OAK
* 1081	13	CEDAR ELM
* 1082	10	CEDAR ELM
1083	8	LIVE OAK
1084	19	LIVE OAK
1085	9	LIVE OAK
1086	18	LIVE OAK
1087	26	LIVE OAK
1088	8	CEDAR ELM
1089	17	LIVE OAK (MULTI)
1090	8	LIVE OAK
* 1091	10	LIVE OAK (MULTI)
* 1092	15	LIVE OAK (MULTI)
* 1093	10	LIVE OAK
1094	12	LIVE OAK
* 1095	8	LIVE OAK (MULTI)
1096	8	LIVE OAK
1097	8	LIVE OAK
1098	8	LIVE OAK
1099	8	LIVE OAK
1100	8	LIVE OAK
1101	8	LIVE OAK
* 1102	16	LIVE OAK
1103	14	LIVE OAK (MULTI)
* 1104	22	LIVE OAK
1105	12	LIVE OAK (MULTI)
1106	9	LIVE OAK (MULTI)
1107	15	LIVE OAK
1108	15	LIVE OAK
1109	8	LIVE OAK (MULTI)
1110	25	LIVE OAK (MULTI)
1111	17	LIVE OAK (MULTI)
1112	8	LIVE OAK (MULTI)
* 1113	12	LIVE OAK (MULTI)
1114	13	LIVE OAK
1115	14	LIVE OAK (MULTI)
1116	12	LIVE OAK
1117	8	LIVE OAK
1118	10	LIVE OAK
1119	8	LIVE OAK
1120	19	LIVE OAK (MULTI)
* 1121	18	CREPE MYRTLE
* 1122	10	LIVE OAK
1123	8	CREPE MYRTLE
1124	11	CREPE MYRTLE
* 1125	13	LIVE OAK (MULTI)
1126	8	LIVE OAK (MULTI)
* 1127	10	CREPE MYRTLE
1128	10	LIVE OAK
1129	11	LIVE OAK (MULTI)
1130	15	LIVE OAK
1131	8	LIVE OAK

TOTAL TREE INCHES SURVEYED = 1933
* TOTAL TREE INCHES REMOVED = 833

PARTEN RANCH PHASE 8

TREE LIST

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: Pt8-Trees.dwg

LAUREN CRONE
STATE OF TEXAS
128018
LICENSED PROFESSIONAL ENGINEER
2/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 9 OF 50 SHEETS

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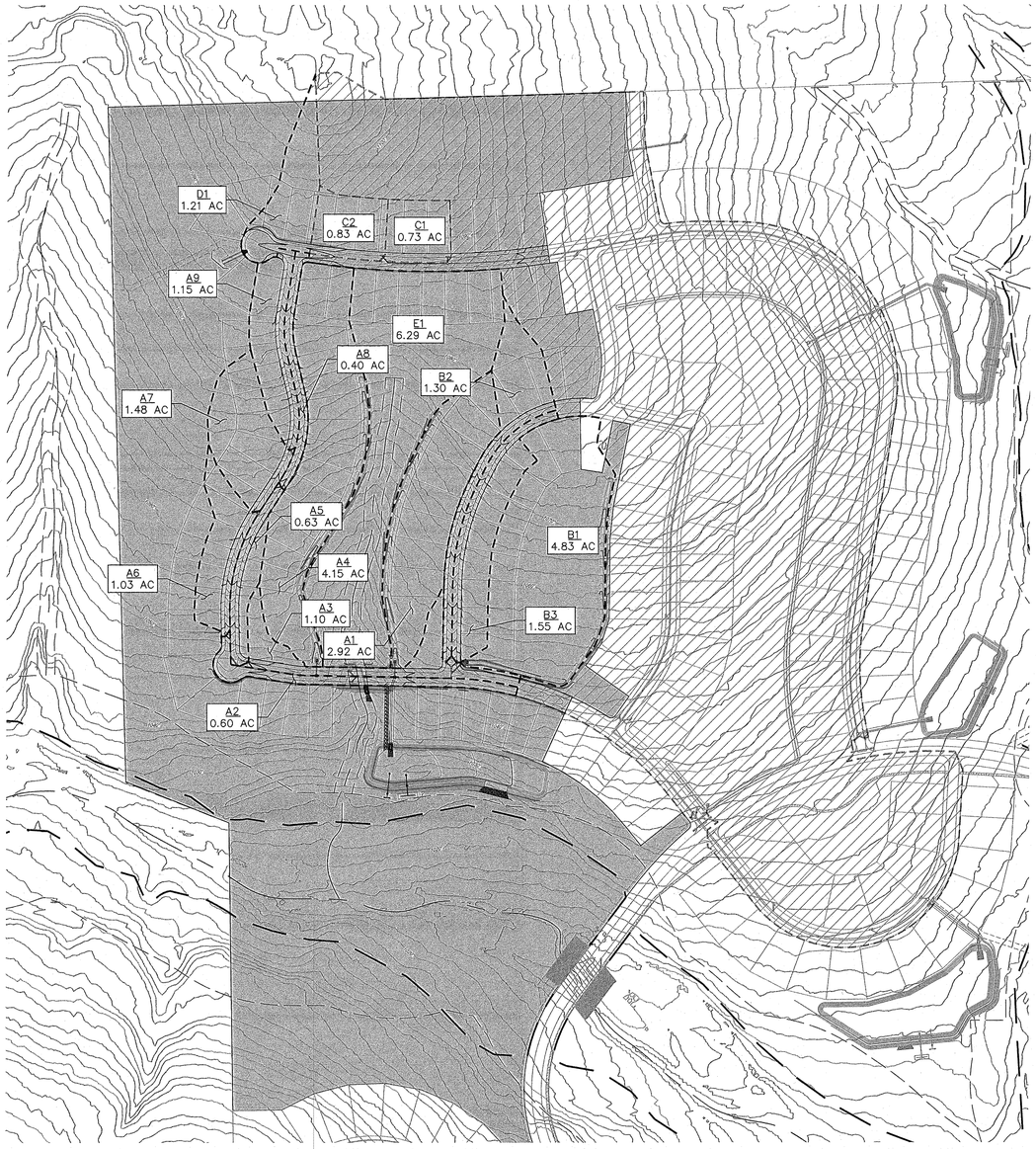
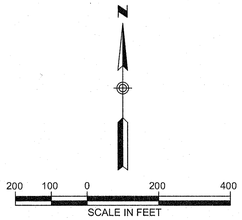
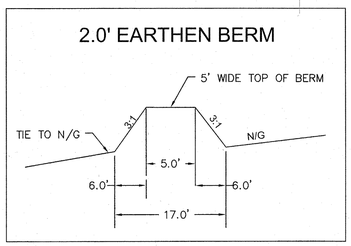
User: ccarnes
Last Modified: Oct. 31, 22 – 13:43
Plot Date/Time: Nov. 01, 22 – 09:54:15





LEGEND

- PHASE 8 PROPERTY LIMITS
- DRAINAGE AREAS MITIGATED WITH PHASES 6&7
- PROPOSED DRAINAGE AREA
- EXISTING DRAINAGE AREA



Rational Method Peak Runoff Calculations

DRAINAGE AREA	ACRE	Tc	I.C. (%)	CDEV,2 yr	CDEV,10 yr	CDEV,25 yr	CDEV,100 yr	I2 yr (in/hr)	I10 yr (in/hr)	I25 yr (in/hr)	I100 yr (in/hr)	Q2 yr (cfs)	Q10 yr (cfs)	Q25 yr (cfs)	Q100 yr (cfs)
A1	2.92	11	21%	0.40	0.46	0.50	0.58	4.84	7.23	8.88	11.68	**5.65**	**9.71**	**12.96**	**19.78**
A2	0.60	5	60%	0.57	0.64	0.69	0.77	6.27	9.43	11.62	15.32	**2.14**	**3.62**	**4.81**	**7.08**
A3	1.10	5	26%	0.42	0.48	0.52	0.60	6.27	9.43	11.62	15.32	**2.90**	**4.98**	**6.65**	**10.11**
A4	4.15	11	20%	0.40	0.45	0.50	0.57	4.84	7.23	8.88	11.68	**8.03**	**13.50**	**18.43**	**27.63**
A5	0.63	5	32%	0.45	0.51	0.55	0.63	6.27	9.43	11.62	15.32	**1.78**	**3.03**	**4.03**	**6.08**
A6	1.03	5	34%	0.46	0.52	0.56	0.64	6.27	9.43	11.62	15.32	**2.97**	**5.05**	**6.70**	**10.10**
A7	1.48	8	24%	0.42	0.47	0.52	0.59	5.45	8.15	10.03	13.19	**3.39**	**5.67**	**7.72**	**11.52**
A8	0.40	5	58%	0.57	0.63	0.68	0.76	6.27	9.43	11.62	15.32	**1.43**	**2.38**	**3.16**	**4.66**
A9	1.15	10	36%	0.47	0.53	0.57	0.65	5.02	7.51	9.22	12.14	**2.71**	**4.58**	**6.04**	**9.07**
B1	4.83	11	8%	0.35	0.40	0.44	0.51	4.84	7.23	8.88	11.68	**8.18**	**13.97**	**18.87**	**28.77**
B2	1.30	5	34%	0.46	0.52	0.56	0.64	6.27	9.43	11.62	15.32	**3.75**	**6.37**	**8.46**	**12.75**
B3	1.55	5	38%	0.48	0.54	0.58	0.66	6.27	9.43	11.62	15.32	**4.66**	**7.89**	**10.45**	**15.67**
C1	0.73	7	39%	0.48	0.54	0.59	0.67	5.69	8.53	10.50	13.82	**1.99**	**3.36**	**4.52**	**6.76**
C2	0.83	8	34%	0.46	0.52	0.56	0.64	5.45	8.15	10.03	13.19	**2.08**	**3.52**	**4.66**	**7.01**
D1	1.21	10	28%	0.43	0.49	0.53	0.61	5.02	7.51	9.22	12.14	**2.61**	**4.45**	**5.91**	**8.96**
E1	6.29	10	5%	0.33	0.38	0.42	0.50	5.02	7.51	9.22	12.14	**10.42**	**17.95**	**24.36**	**38.18**

INLET CALCULATIONS FOR 100-YR STORM (ALL INLETS ARE TYPE 1 ON-GRADE, UNLESS INDICATED AS SUMP)

DRAINAGE AREA / INLET NO.	FLOW (CFS)	CARRY OVER (CFS)	CARRY OVER FLOWS TO	TOTAL RUNOFF Qa (CFS)	STREET WIDTH (FT)	ROAD SLOPE (%)	GUTTER DEP. A , (IN)	STREET CAPACITY (CFS)	WATER DEPTH Yo , (FT)	PONDING WIDTH (FT)	QX OVER (CFS)	Qa / La (CFS/FT)	La (FT)	L (FT)	L / La	A / Yo	QCAPTURE / Qa	QCAPTURE (CFS)	QBYPASS (CFS)
A9	9.07	0.00	A7	9.07	28	4.50	5	18.4	0.40	7.6	0.0	0.9	10.6	10	0.9	1.1	0.97	8.77	0.30
A8	4.66	0.00	A5	4.66	28	4.00	5	17.3	0.32	5.7	0.0	0.8	6.0	10	1.7	1.3	1.00	4.66	0.00
A7	11.52	0.30	A6	11.82	28	2.50	5	13.7	0.48	10.9	0.0	0.9	12.5	10	0.8	0.9	0.88	10.41	1.41
A6	10.10	1.41	A2	11.51	28	4.16	5	17.7	0.43	8.9	0.0	0.9	12.9	10	0.8	1.0	0.86	9.93	1.58
A5	6.08	0.00	A3	6.08	28	1.00	5	8.7	0.44	9.3	0.0	0.9	6.7	10	1.5	0.9	1.00	6.08	0.00
A4	27.63	0.00		27.63	28	REFERENCE SUMP INLET CALCULATIONS													
A3	10.11	6.46		16.57	28	REFERENCE SUMP INLET CALCULATIONS													
A2	7.08	1.58		8.66	28	REFERENCE SUMP INLET CALCULATIONS													
A1	19.78	0.00		19.78	28	REFERENCE SUMP INLET CALCULATIONS													
B3	15.67	0.00	A3	15.67	28	4.00	5	17.3	0.48	11.5	0.0	1.0	16.5	10	0.6	0.9	0.73	11.50	4.17
B2	12.75	0.00	A3	12.75	28	4.00	5	17.3	0.45	9.7	0.0	0.9	13.9	10	0.7	0.9	0.82	10.46	2.29
B1	28.77	0.00		28.77	28	REFERENCE SUMP INLET CALCULATIONS													
C2	7.01	0.00	C1	7.01	28	0.75	5	7.5	0.49	11.9	0.0	1.0	7.3	10	1.4	0.9	1.00	7.01	0.00
C1	6.76	0.00		6.76	28	0.75	5	7.5	0.48	11.4	0.0	1.0	7.1	10	1.4	0.9	1.00	6.76	0.00
D1	8.96	0.00		8.96	28	REFERENCE SUMP INLET CALCULATIONS													

INLET CALCULATIONS FOR 25-YR STORM (ALL INLETS ARE TYPE 1 ON-GRADE, UNLESS INDICATED AS SUMP)

DRAINAGE AREA / INLET NO.	FLOW (CFS)	CARRY OVER (CFS)	CARRY OVER FLOWS TO	TOTAL RUNOFF Qa (CFS)	STREET WIDTH (FT)	ROAD SLOPE (%)	GUTTER DEP. A , (IN)	STREET CAPACITY (CFS)	WATER DEPTH Yo , (FT)	PONDING WIDTH (FT)	QX OVER (CFS)	Qa / La (CFS/FT)	La (FT)	L (FT)	L / La	A / Yo	QCAPTURE / Qa	QCAPTURE (CFS)	QBYPASS (CFS)
A9	6.04	0.00	A7	6.04	28	4.50	5	18.4	0.35	6.2	0.0	0.8	7.5	10	1.3	1.2	1.00	6.04	0.00
A8	3.16	0.00	A5	3.16	28	4.00	5	17.3	0.29	4.8	0.0	0.7	4.3	10	2.3	1.5	1.00	3.16	0.00
A7	7.72	0.00	A6	7.72	28	2.50	5	13.7	0.41	8.2	0.0	0.9	8.8	10	1.1	1.0	1.00	7.72	0.00
A6	6.70	0.00	A2	6.70	28	4.16	5	17.7	0.36	6.7	0.0	0.8	8.2	10	1.2	1.1	1.00	6.70	0.00
A5	4.03	0.00	A3	4.03	28	1.00	5	8.7	0.39	7.4	0.0	0.8	4.8	10	2.1	1.1	1.00	4.03	0.00
A4	18.43	0.00		18.43	28	REFERENCE SUMP INLET CALCULATIONS													
A3	6.65	0.96		7.61	28	REFERENCE SUMP INLET CALCULATIONS													
A2	4.81	0.00		4.81	28	REFERENCE SUMP INLET CALCULATIONS													
A1	12.96	0.00		12.96	28	REFERENCE SUMP INLET CALCULATIONS													
B3	10.45	0.00	A3	10.45	28	4.00	5	17.3	0.42	8.5	0.0	0.9	11.8	10	0.8	1.0	0.91	9.49	0.96
B2	8.46	0.00	A3	8.46	28	4.00	5	17.3	0.39	7.6	0.0	0.9	9.9	10	1.0	1.1	1.00	8.46	0.00
B1	18.87	0.00		18.87	28	REFERENCE SUMP INLET CALCULATIONS													
C2	4.66	0.00	C1	4.66	28	0.75	5	7.5	0.43	8.7	0.0	0.9	5.2	10	1.9	1.0	1.00	4.66	0.00
C1	4.52	0.00		4.52	28	0.75	5	7.5	0.42	8.5	0.0	0.9	5.1	10	2.0	1.0	1.00	4.52	0.00
D1	5.91	0.00		5.91	28	REFERENCE SUMP INLET CALCULATIONS													

SUMP INLET CALCULATIONS (100 YR STORM) Qmax = Cw * L * h1.5

DRAINAGE AREA / INLET NO.	FLOW (CFS)	INLET LENGTH, L (FT)	INLET TYPE	WEIR COEFF, Cw	ALLOWABLE HEAD, h (FT)	ACTUAL DEPTH, H (FT)	h > H
A1	19.78	14	WEIR	3	2	0.61	OK
A2	8.66	10	WEIR	3	0.7	0.44	OK
A3	16.57	10	WEIR	3	0.7	0.67	OK
A4	27.63	14	WEIR	3	2	0.76	OK
B1	28.77	14	WEIR	3	2	0.78	OK
D1	8.96	10	WEIR	3	0.7	0.45	OK

SUMP INLET CALCULATIONS (25 YR STORM) Qmax = Cw * L * h1.5

DRAINAGE AREA / INLET NO.	FLOW (CFS)	INLET LENGTH, L (FT)	INLET TYPE	WEIR COEFF, Cw	ALLOWABLE HEAD, h (FT)	ACTUAL DEPTH, H (FT)	h > H
A1	12.96	14	WEIR	3	2	0.46	OK
A2	4.81	10	WEIR	3	0.5	0.30	OK
A3	7.61	10	WEIR	3	0.5	0.40	OK
A4	18.43	14	WEIR	3	2	0.58	OK
B1	18.87	14	WEIR	3	2	0.59	OK
D1	5.91	10	WEIR	3	0.5	0.34	OK

PARTEN RANCH PHASE 8
DRAINAGE AREA MAP (ON-SITE)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Drainage-OnSite.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 10 OF 50 SHEETS

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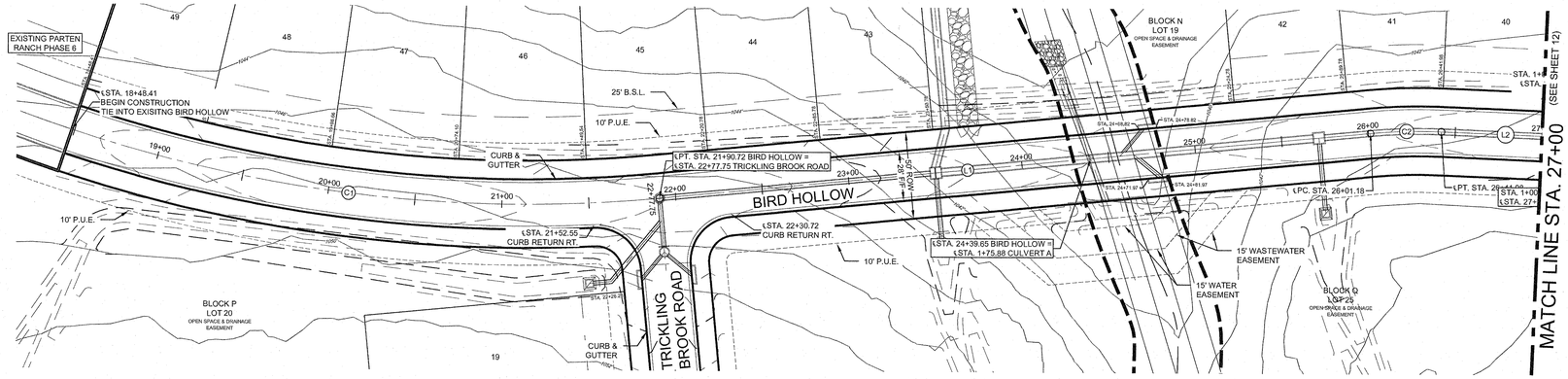
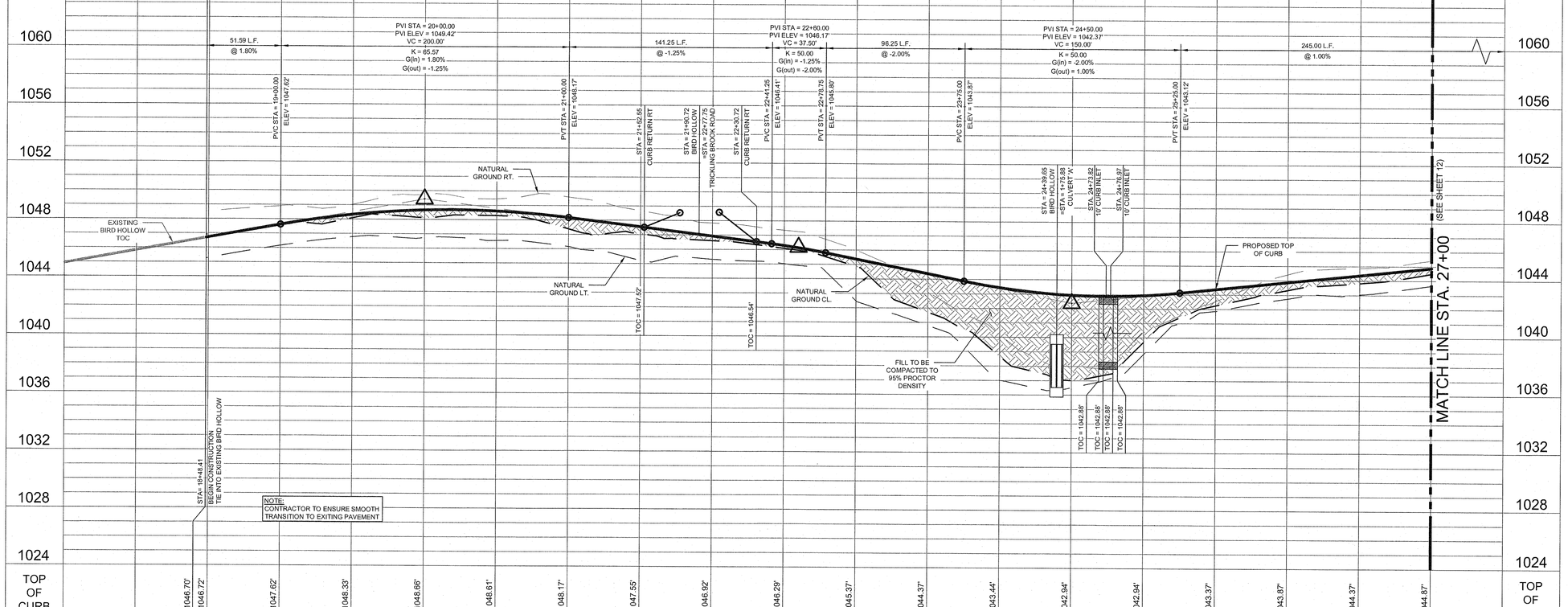
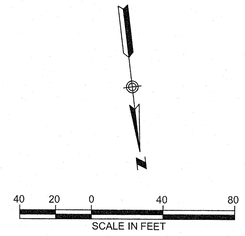


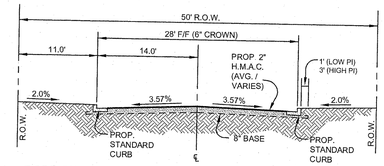
BIRD HOLLOW
STA. 18+00 TO 27+00





LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	410.48'	N88° 54' 52"W
L2	173.64'	N81° 07' 18"W

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C1	342.30'	825.00'	23° 46' 22"	173.65'	339.85'	S77° 01' 41"E



PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

PARTEN RANCH PHASE 8

BIRD HOLLOW
(18+00 TO 27+00)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Streets.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/2/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 11 OF 50 SHEETS

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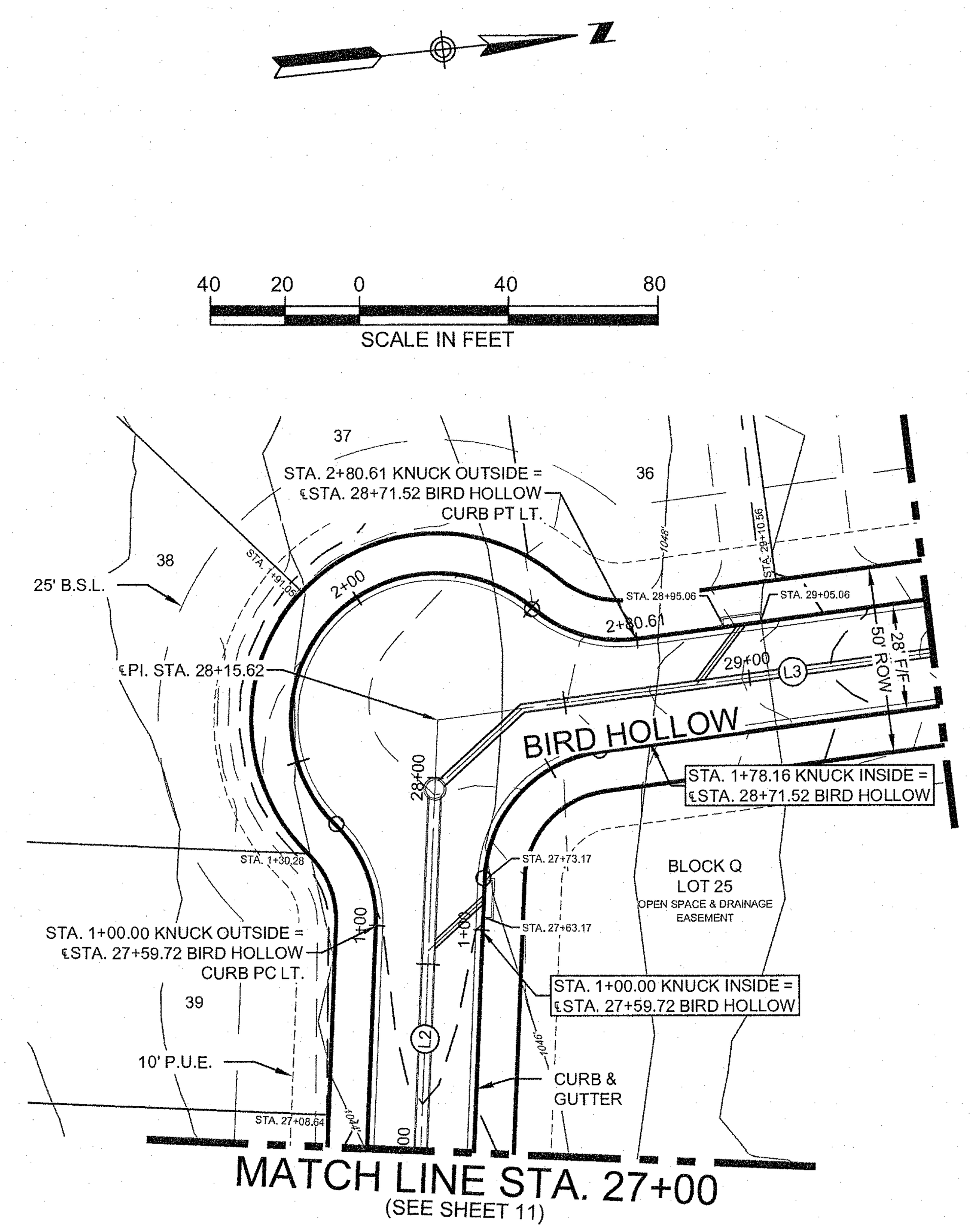
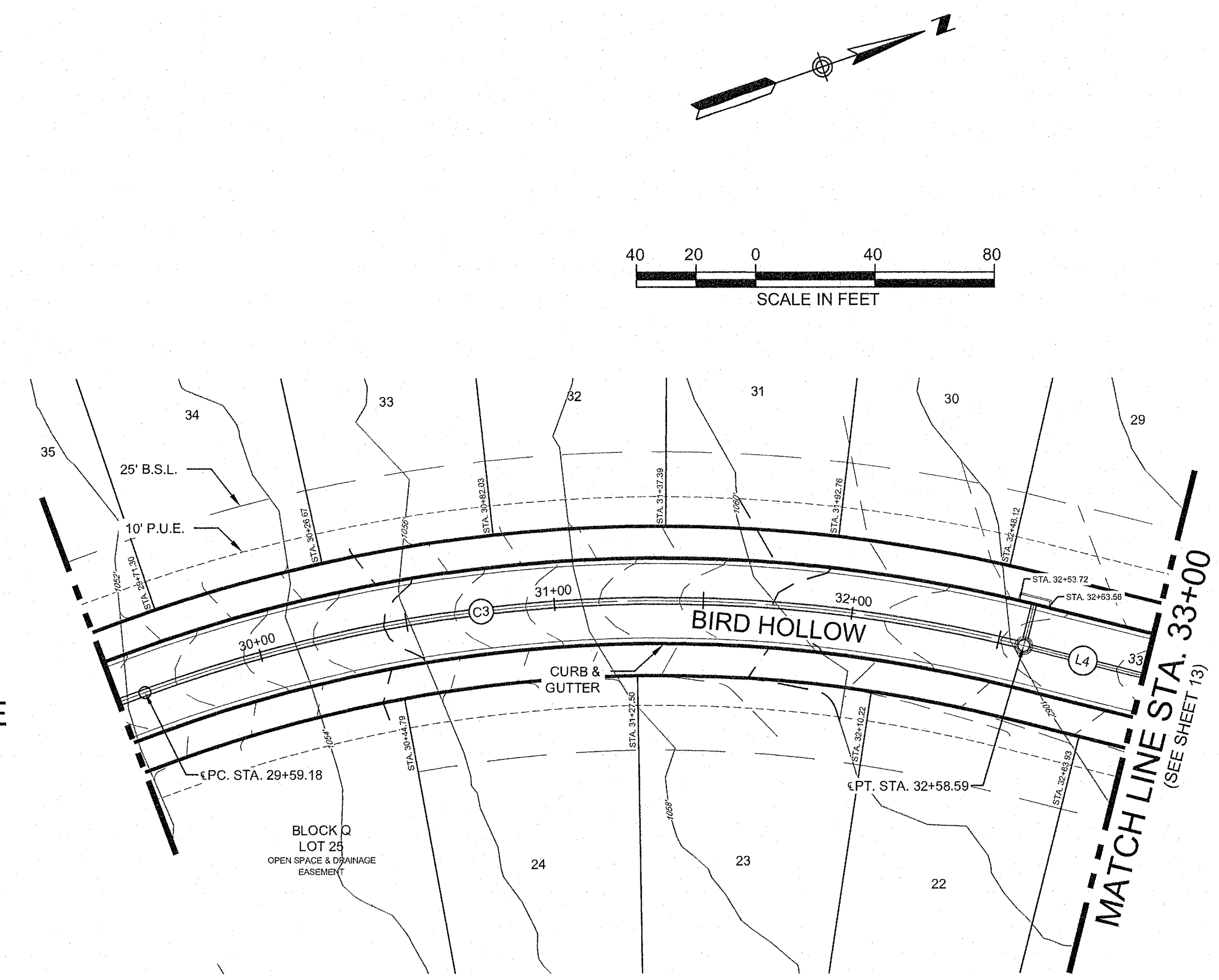
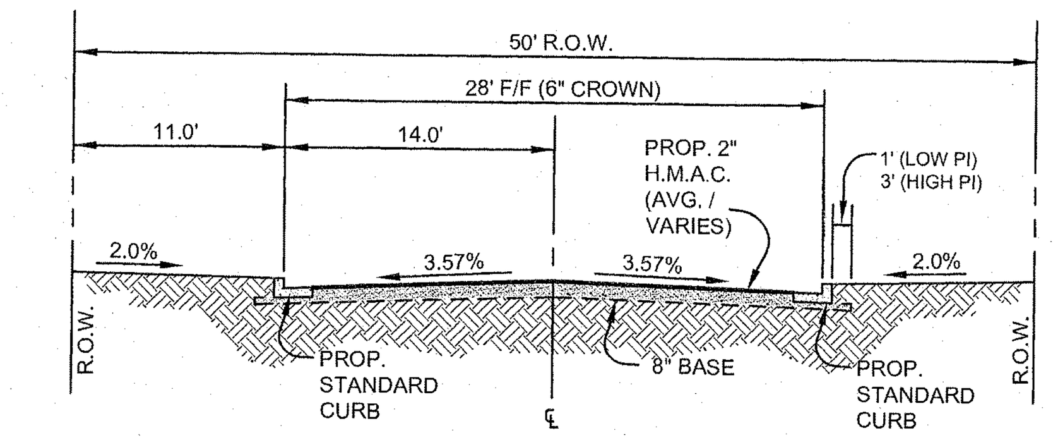


MATCH LINE
STA. 29+50



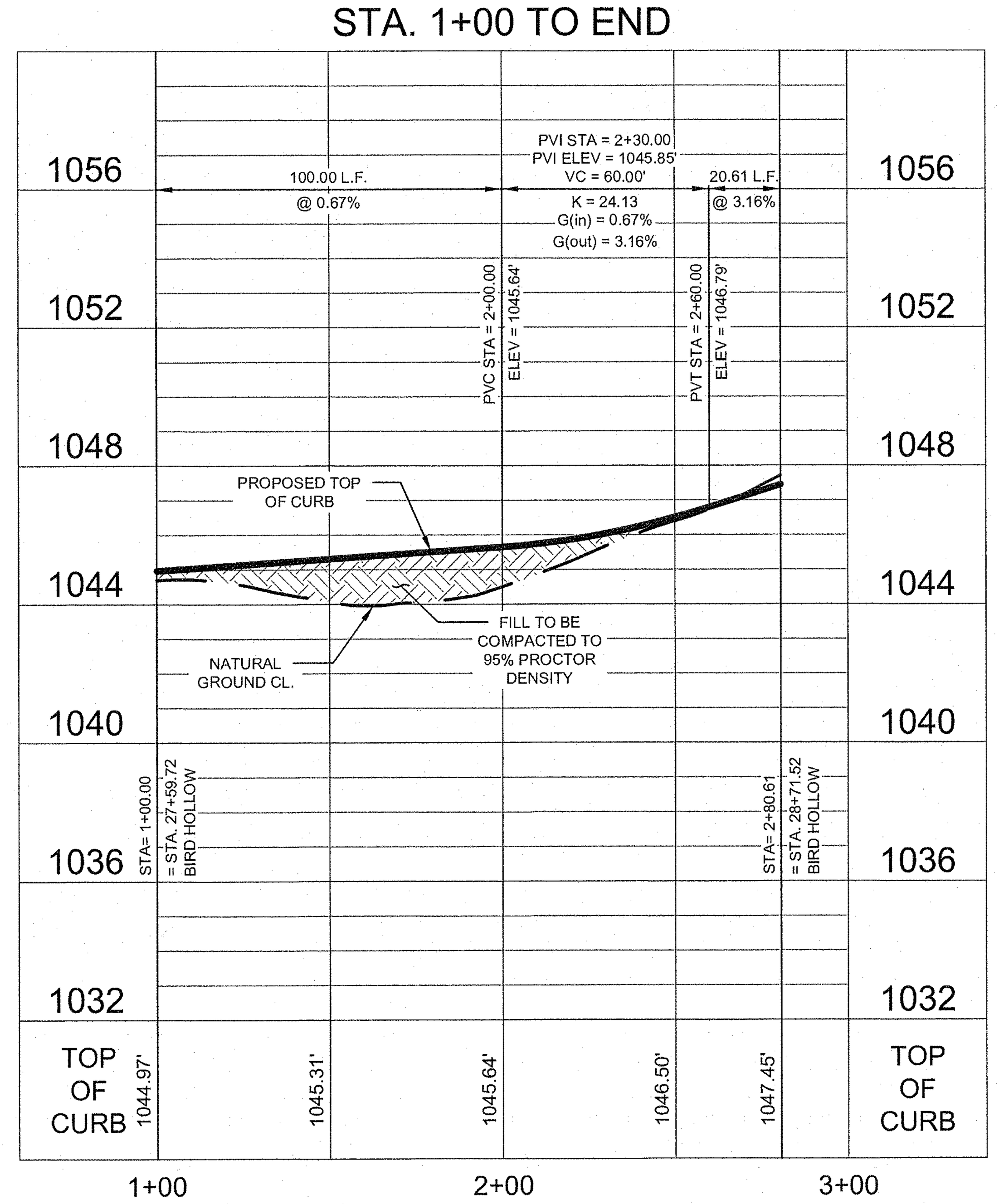
LINE TABLE		
LINE #	LENGTH	DIRECTION
L2	173.64'	N81° 07' 18"W
L3	143.55'	N1° 07' 18"W
L4	121.82'	N33° 11' 18"E

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C3	299.41'	500.00'	34° 18' 36"	154.35'	294.96'	S16° 02' 00"W

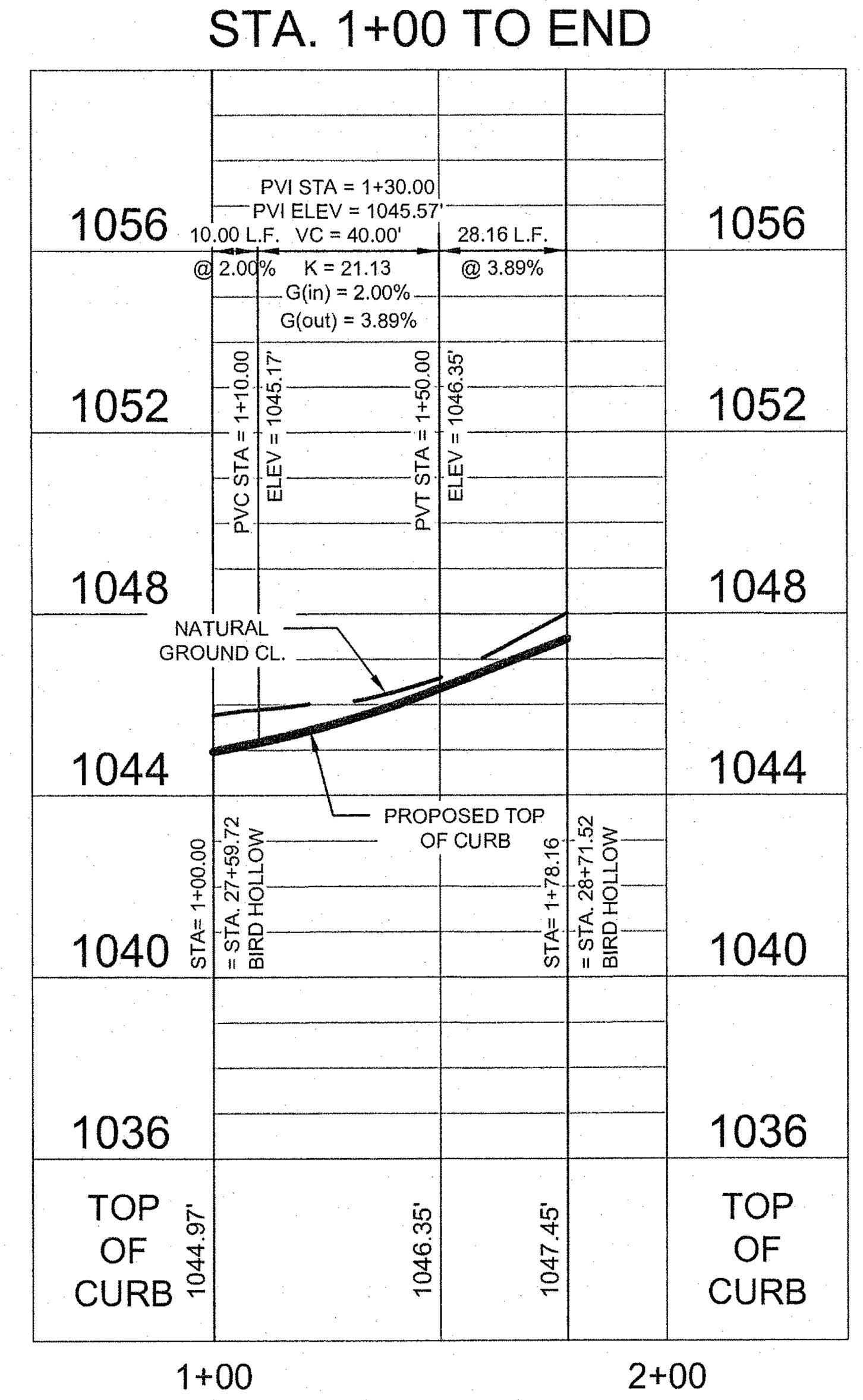


PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

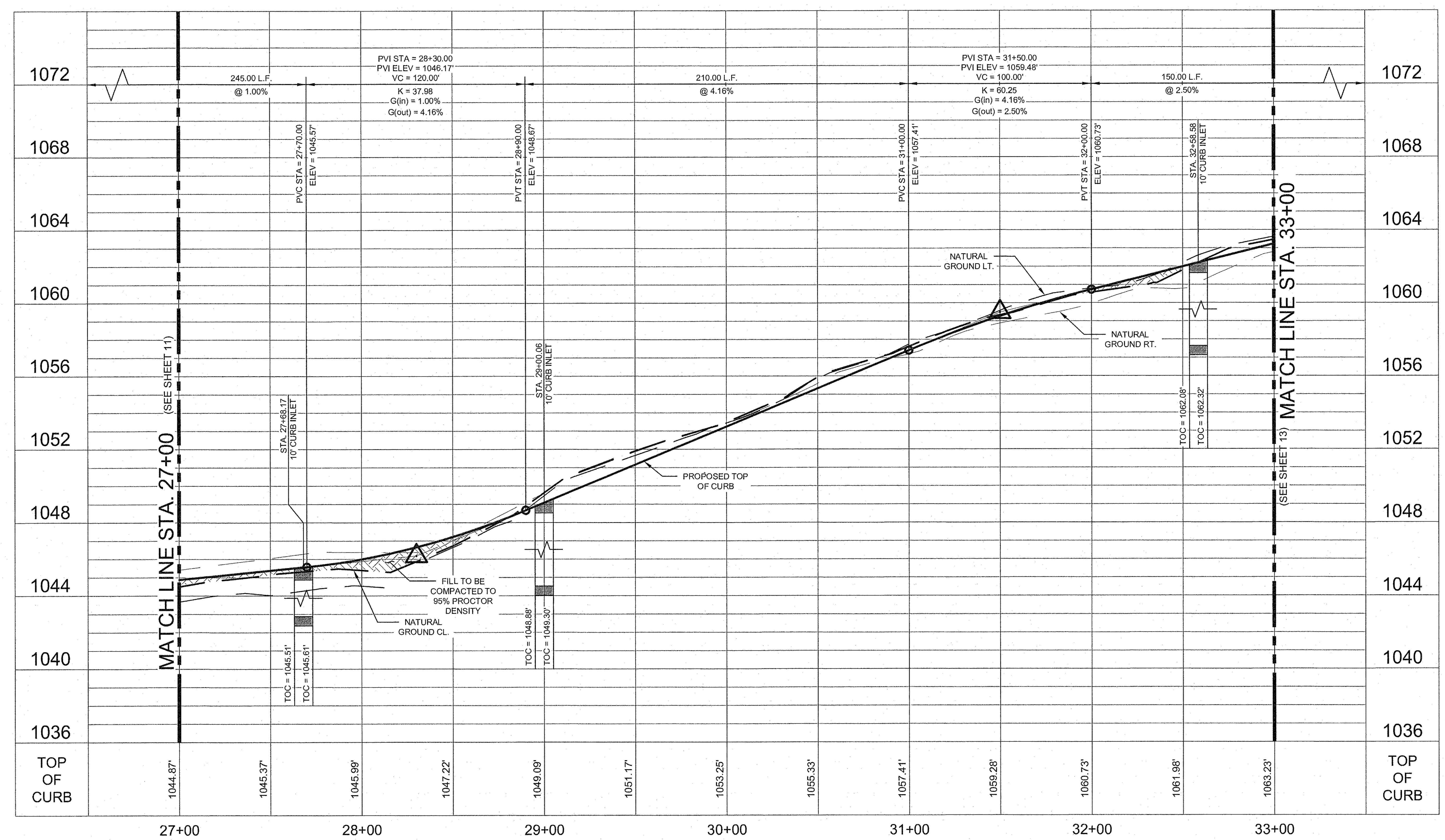
KNUCK OUTSIDE
STA. 1+00 TO END



KNUCK INSIDE
STA. 1+00 TO END



BIRD HOLLOW
STA. 27+00 TO 33+00



PARTEN RANCH PHASE 8
BIRD HOLLOW
(27+00 TO 33+00)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Streets.dwg

LAUREN CRONE
128018
3/1/2023

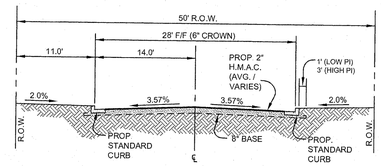
LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 12 OF 50 SHEETS

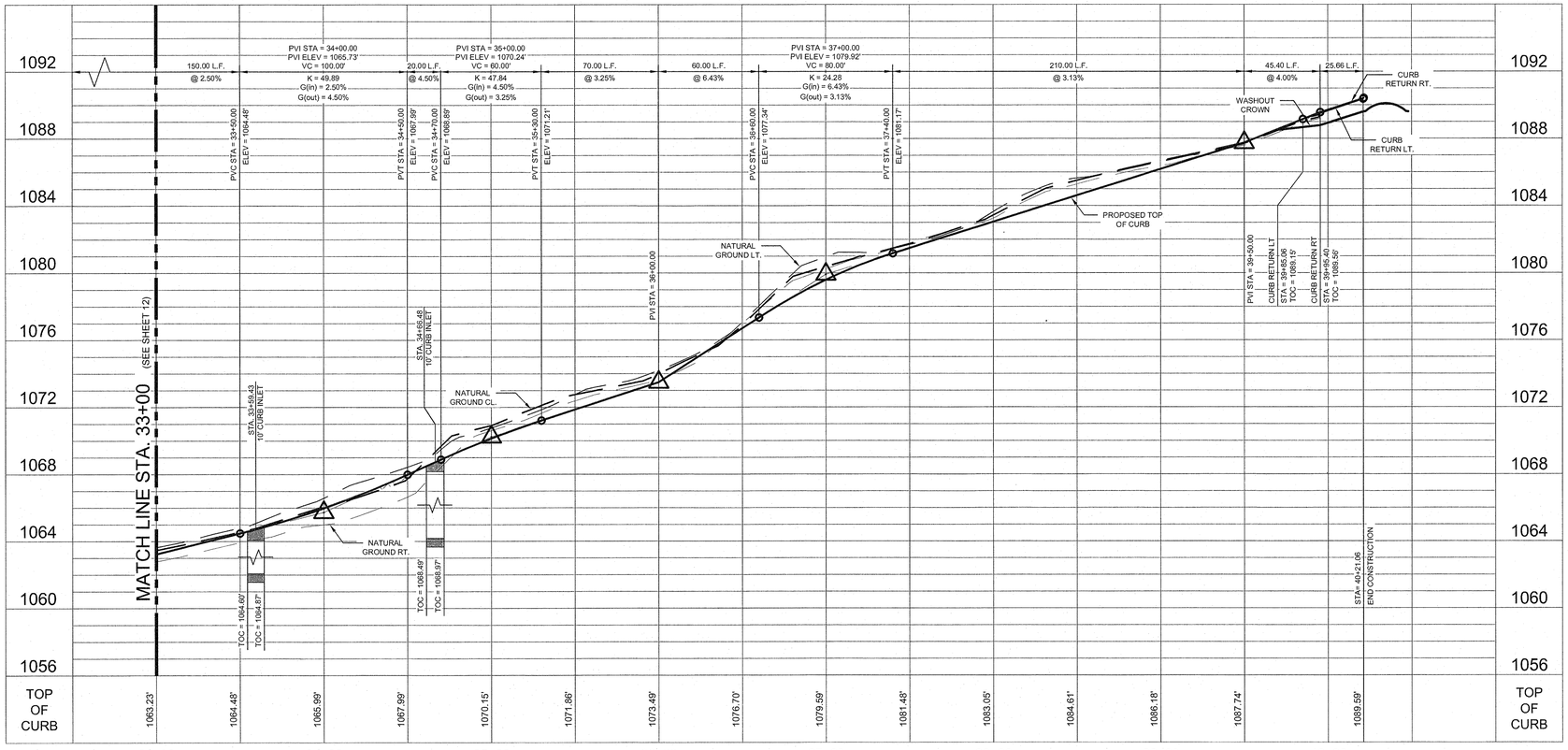
LINE TABLE		
LINE #	LENGTH	DIRECTION
L4	121.82'	N33° 11' 18"E
L5	120.90'	N12° 58' 33"W
L6	174.03'	N9° 33' 48"E

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C4	241.72'	300.00'	46° 09' 51"	127.85'	235.23'	S10° 06' 23"W
C5	118.01'	300.00'	22° 32' 21"	59.78'	117.25'	S1° 42' 23"E



PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

BIRD HOLLOW
STA. 33+00 TO END



PARTEN RANCH PHASE 8
BIRD HOLLOW
(33+00 TO END)

NO.	DESCRIPTION	DATE
	REVISIONS	

8½"

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Streets.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 13
OF 50 SHEETS

I:\A311 Parten Ranch\A13 Parten Ranch Phase 8\Submittal Drawings\PH8-Streets.dwg
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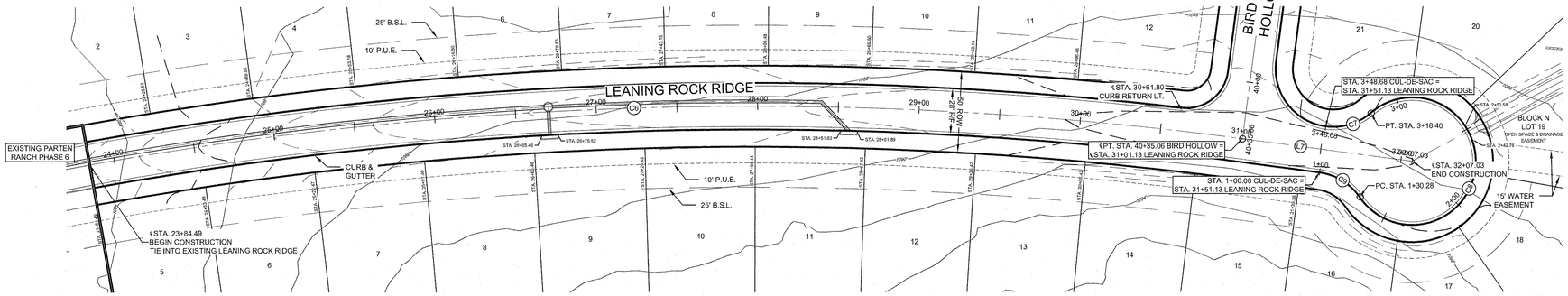
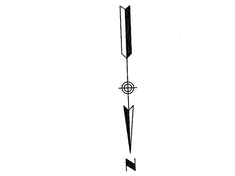
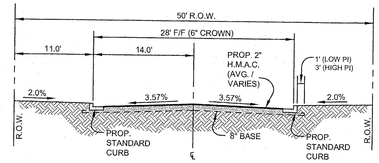
Last Modified: Sep. 08, 22 – 14:57
Plot Style/Time: Nov. 01, 22 – 08:01:01





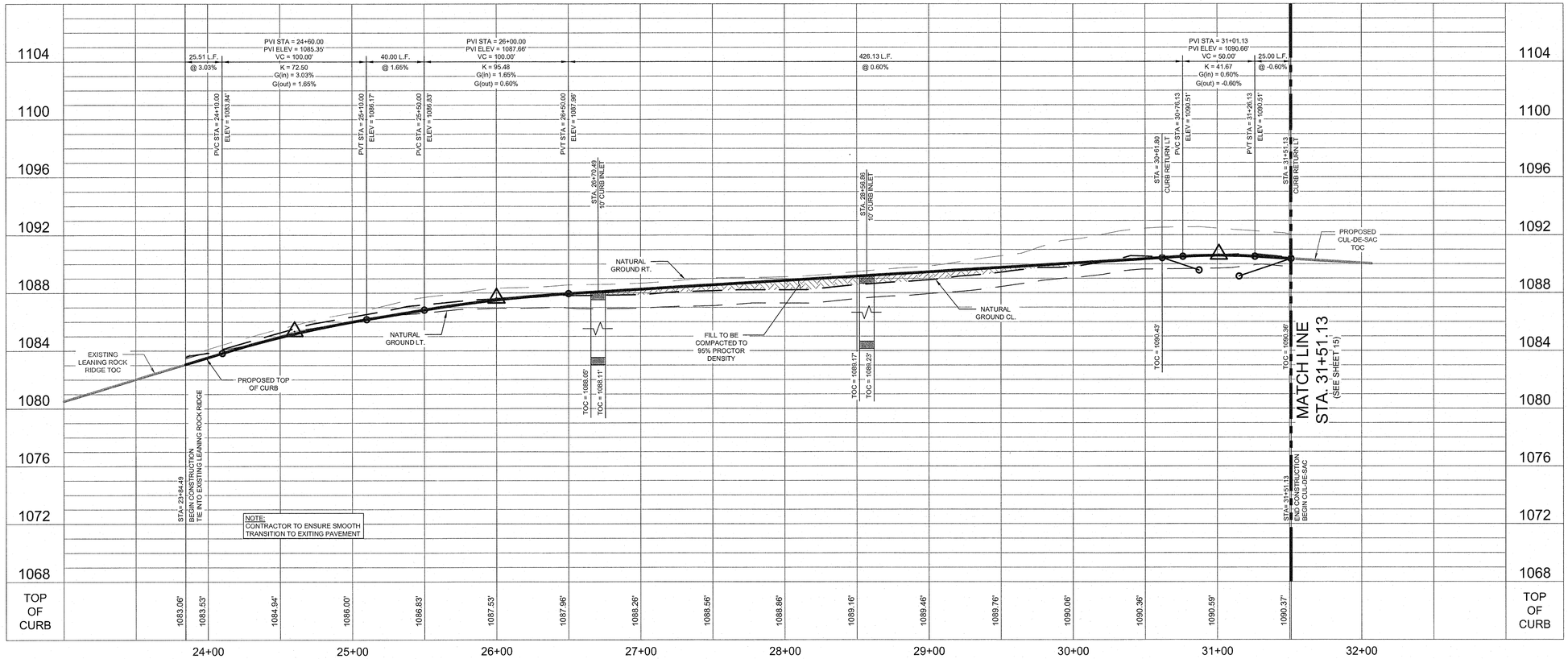
LINE TABLE		
LINE #	LENGTH	DIRECTION
L7	105.90'	N80° 26' 12"W

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C6	716.64'	2325.00'	17° 39' 37"	361.18'	713.80'	N89° 16' 01"W



PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

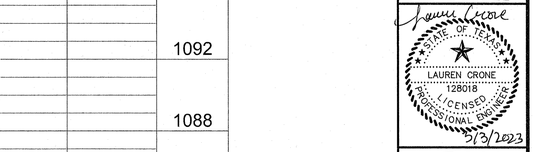
LEANING ROCK RIDGE
STA. 23+50 TO END



PARTEN RANCH PHASE 8
LEANING ROCK RIDGE (23+50 TO END)

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Streets.dwg



LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
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SHEET NO. 14 OF 50 SHEETS

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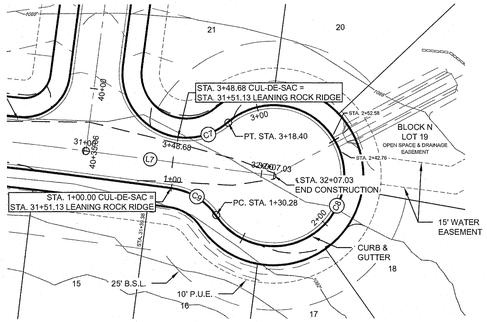
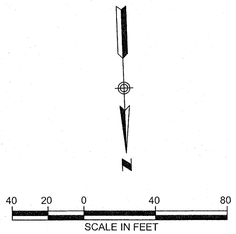
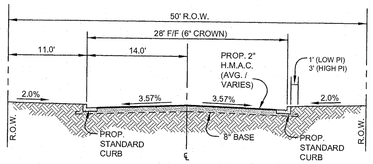


LINE TABLE		
LINE #	LENGTH	DIRECTION
L7	105.90'	N80° 26' 12"W

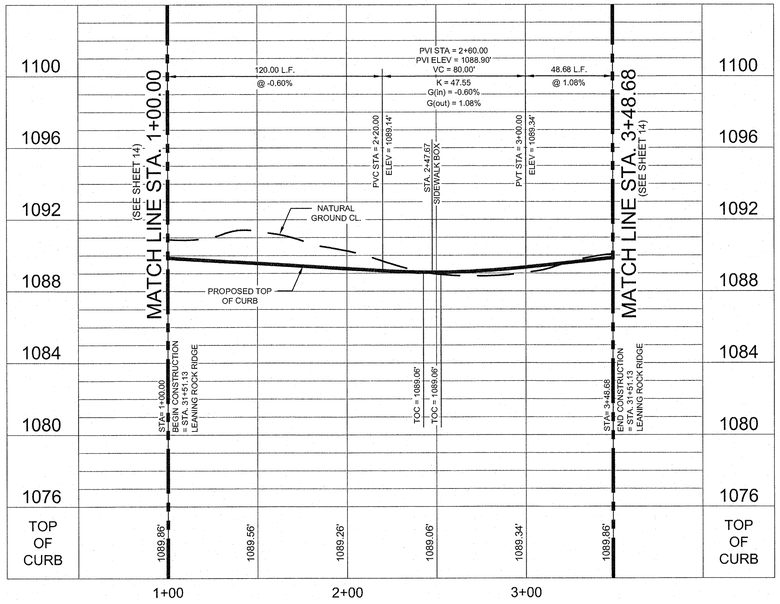
CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C7	86.83'	36.00'	138° 11' 23"	94.25'	67.26'	N59° 31' 54"W
C8	188.13'	39.00'	276° 22' 46"	34.88'	52.00'	N9° 33' 48"E
C9	30.28'	36.00'	48° 11' 23"	16.10'	29.39'	S56° 20' 31"E





PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

LEANING ROCK RIDGE CUL-DE-SAC
STA. 1+00 TO END



PARTEN RANCH PHASE 8
LEANING ROCK RIDGE CUL-DE-SAC
(1+00 TO END)

NO.	DESCRIPTION	BY	DATE

REVISIONS

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PHB-Streets.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 15
OF 50 SHEETS

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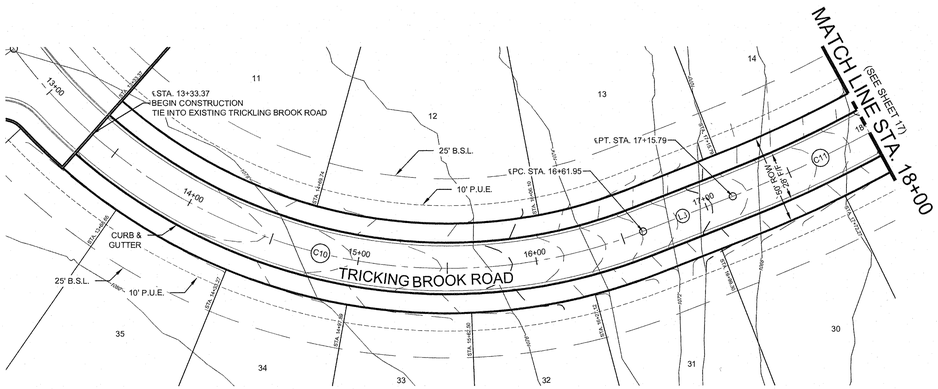
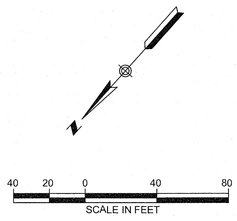
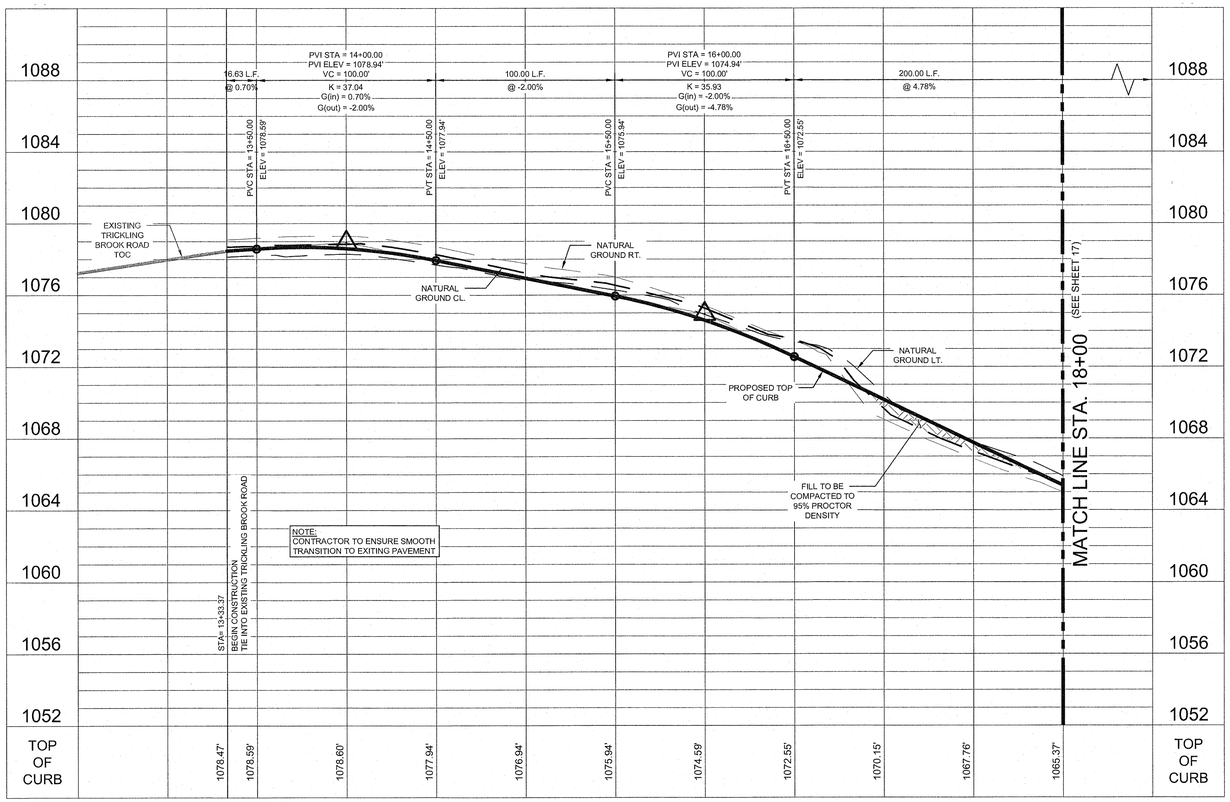


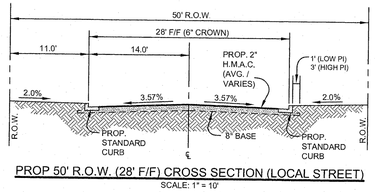


LINE TABLE		
LINE #	LENGTH	DIRECTION
L8	53.84'	S26° 33' 17"W

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C10	328.58'	300.00'	62° 45' 12"	182.95'	312.40'	N57° 55' 53"E
C11	300.05'	675.00'	25° 26' 10"	152.55'	297.59'	N13° 49' 12"E

TRICKLING BROOK ROAD
STA. 13+00 TO 18+00





PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

PARTEN RANCH PHASE 8
TRICKLING BROOK ROAD
(13+00 TO 18+00)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Streets.dwg

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 16
OF 50 SHEETS

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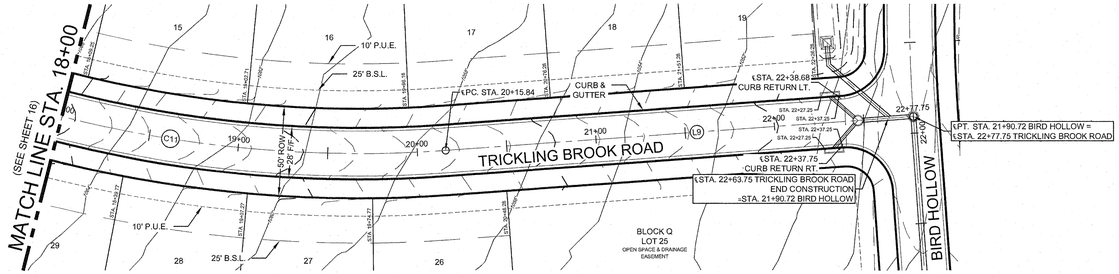
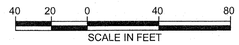
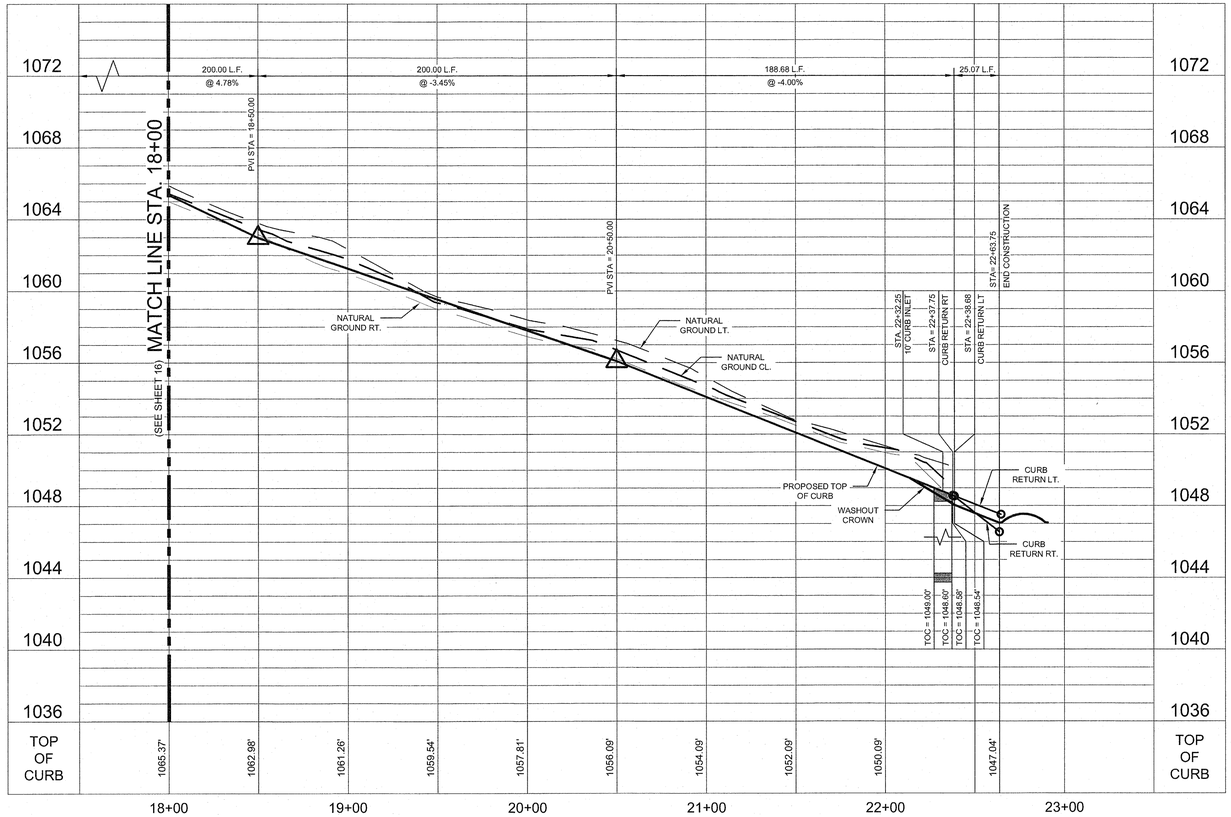


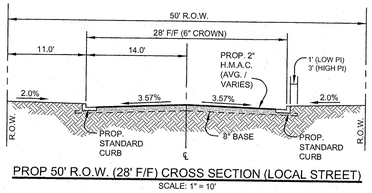


LINE TABLE		
LINE #	LENGTH	DIRECTION
L9	261.91'	S1° 05' 08"W

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C11	300.05'	675.00'	25° 28' 10"	152.55'	297.59'	N13° 49' 12"E

TRICKLING BROOK ROAD
STA. 18+00 TO END





PROP 50' R.O.W. (28' F/F) CROSS SECTION (LOCAL STREET)
SCALE: 1" = 10'

PARTEN RANCH PHASE 8
TRICKLING BROOK ROAD
(18+00 TO END)

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
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DRAWING NAME: PH8-Streets.dwg

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
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SHEET NO. 17
OF 50 SHEETS

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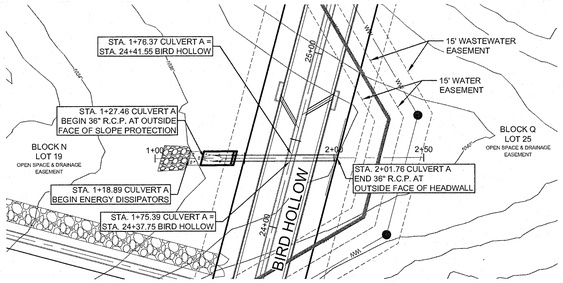
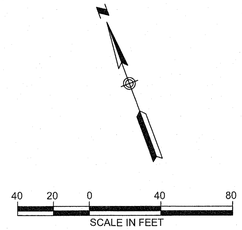
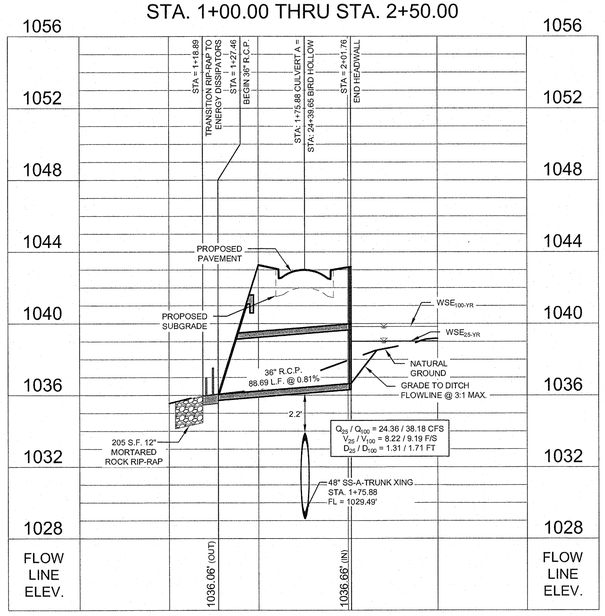




CULVERT A
STA. 1+00.00 THRU STA. 2+50.00



PARTEN RANCH PHASE 8

CULVERT 'A'
(1+00 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Culvert.dwg

Lauren Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/8/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER:
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SHEET NO.
18
OF 50 SHEETS

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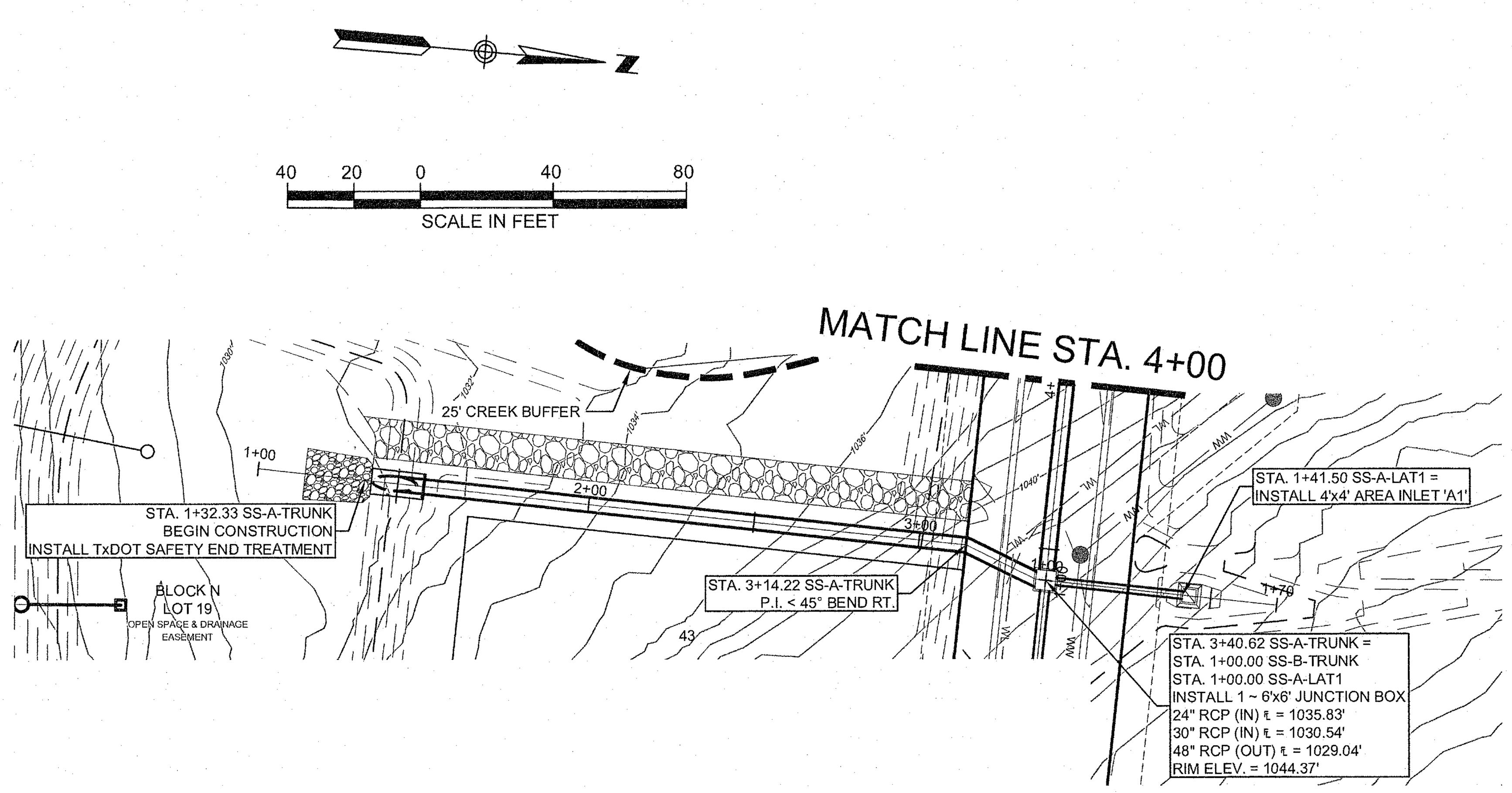
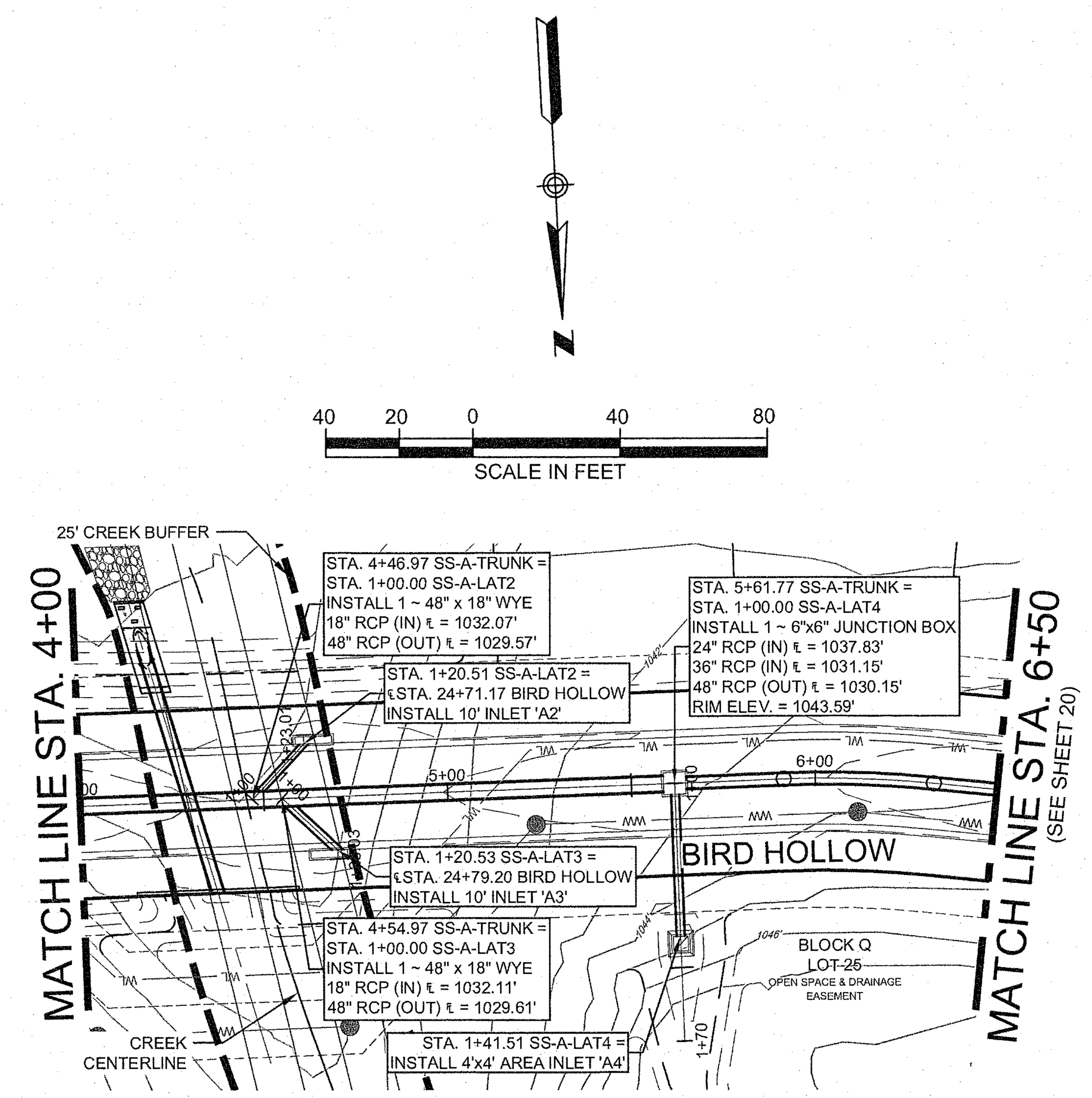
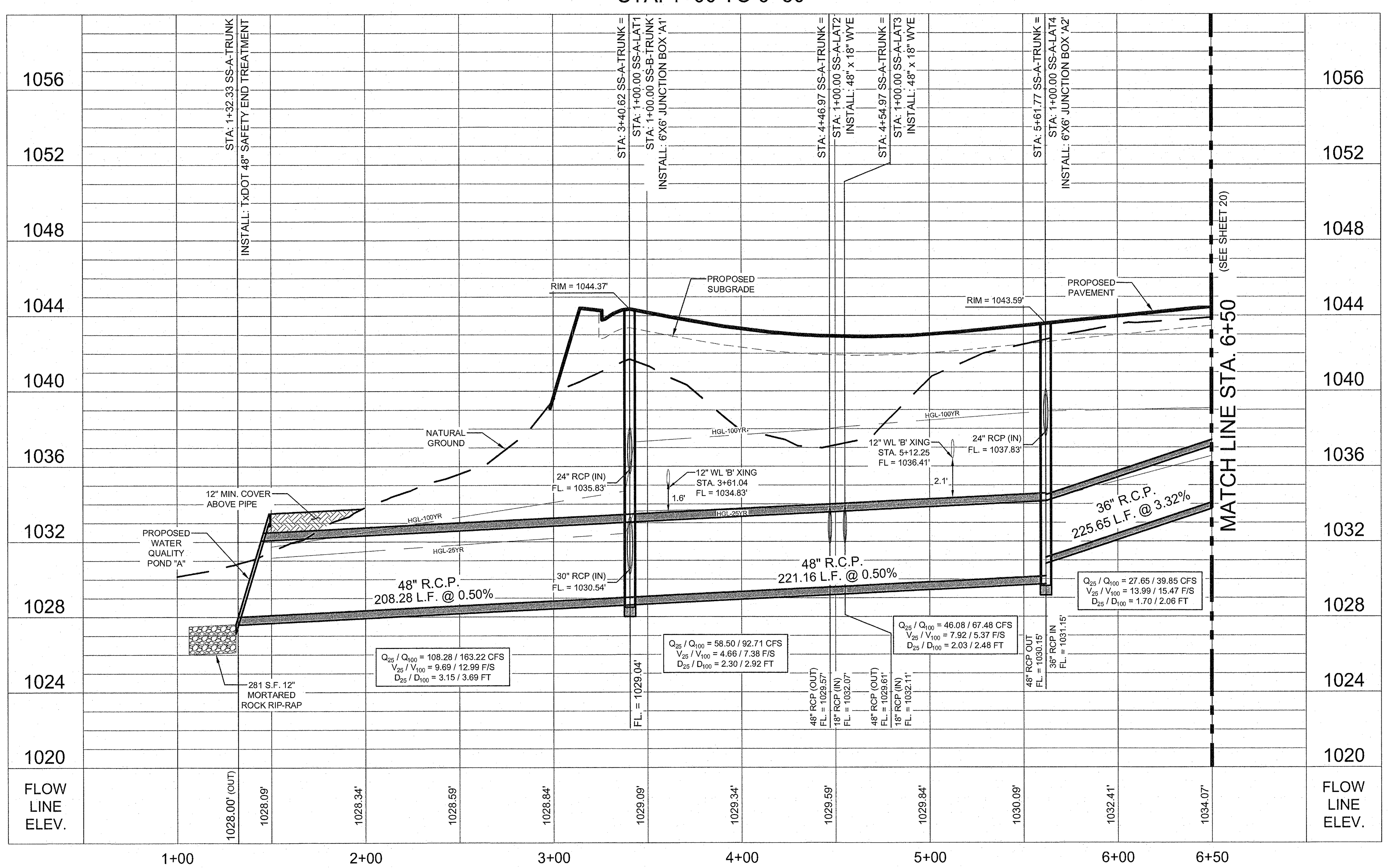




LEGEND:

- EASEMENT LINE
- R.O.W.
- EXISTING WATER LINE
- PROPOSED WATER LINE
- STORM SEWER
- WASTEWATER LINE

SS-A-TRUNK
STA. 1+00 TO 6+50



NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

PARTEN RANCH PHASE 8

STORM LINE 'A'
(1+00 TO 6+50)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Storm.dwg

STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/13/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER:
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SHEET NO.
19
OF 50 SHEETS

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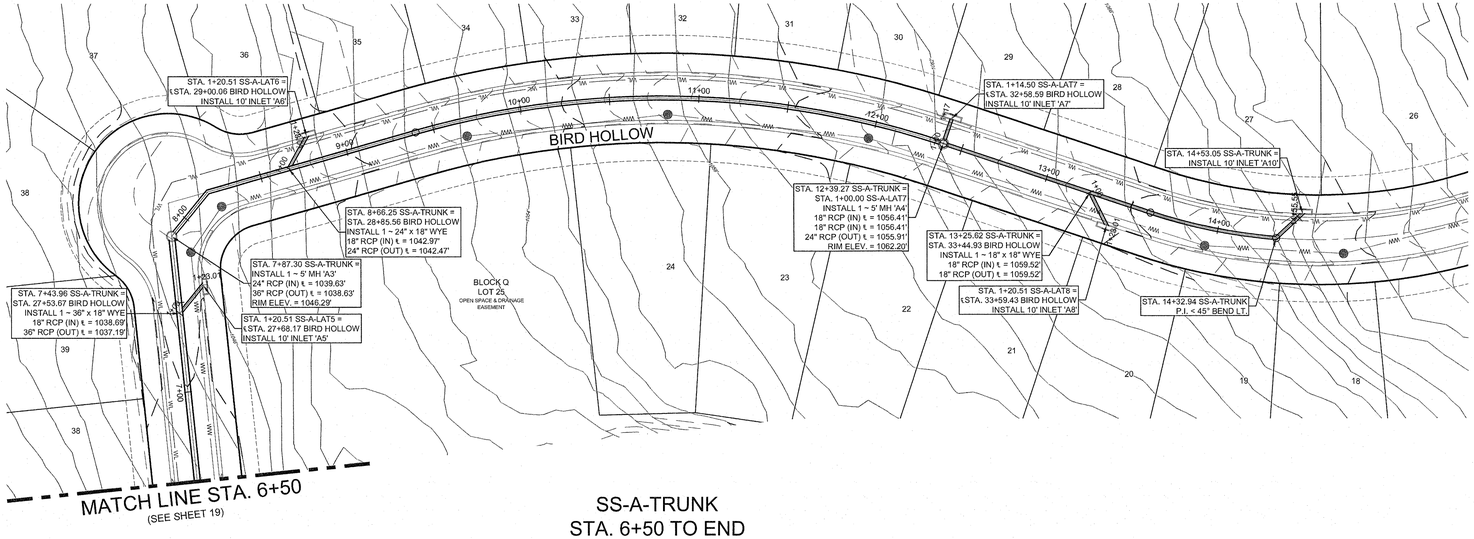
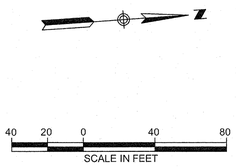
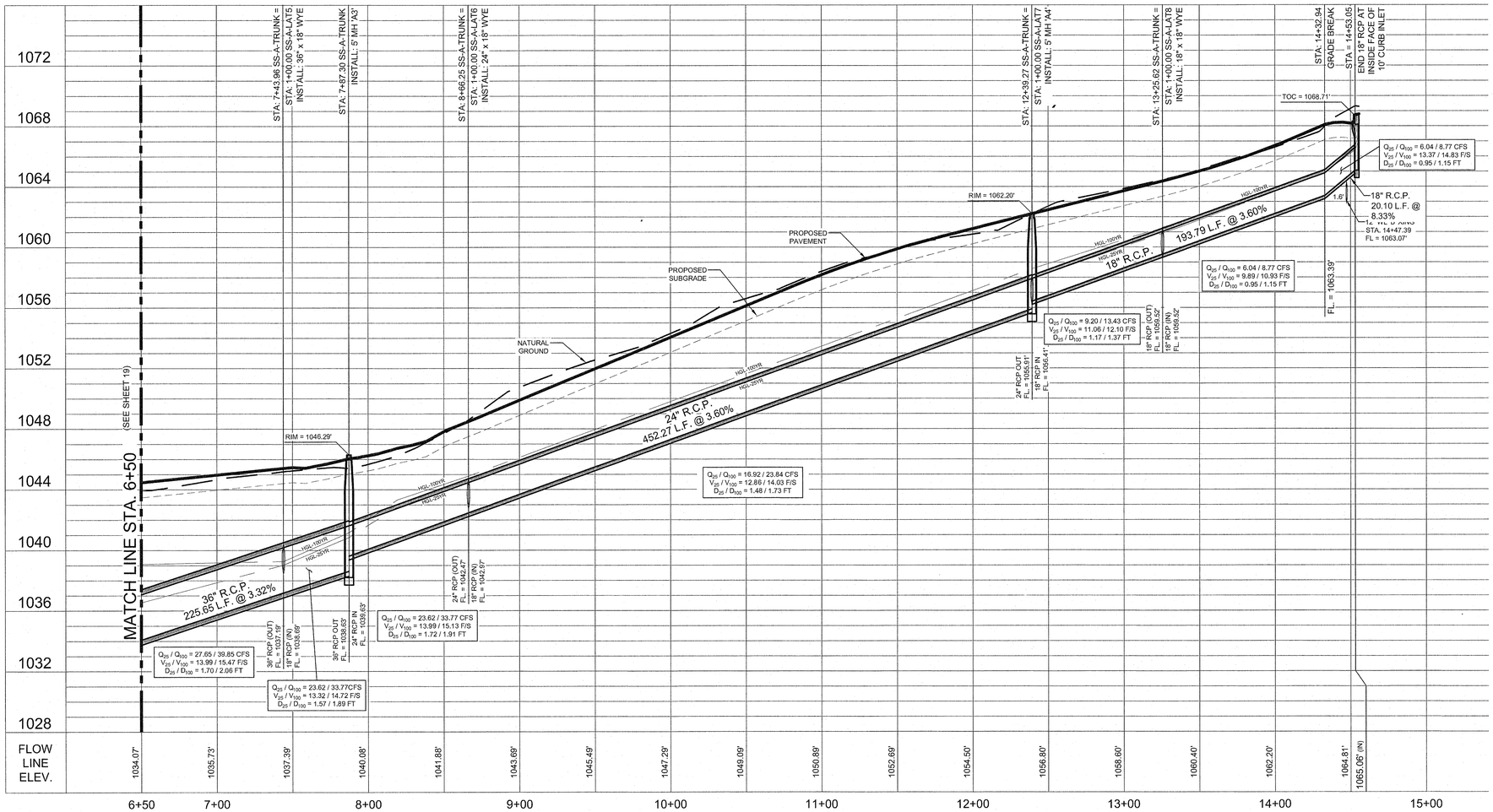




LEGEND:

- EASEMENT LINE
- R.O.W.
- WL — EXISTING WATER LINE
- WL — PROPOSED WATER LINE
- STORM SEWER
- WW — WASTEWATER LINE

SS-A-TRUNK
STA. 6+50 TO END



NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

PARTEN RANCH PHASE 8
STORM LINE 'A'
(6+50 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Storm.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

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SHEET NO. 20
OF 50 SHEETS

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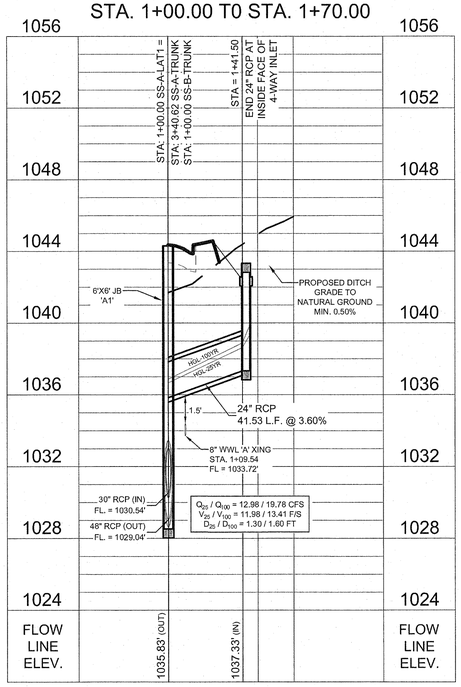
Last Modified: Oct. 31, 22 – 15:10
Plot Date/Time: Nov. 01, 22 – 10:25:41

SS-A-LAT1
STA. 1+00.00 T0 STA. 1+70.00



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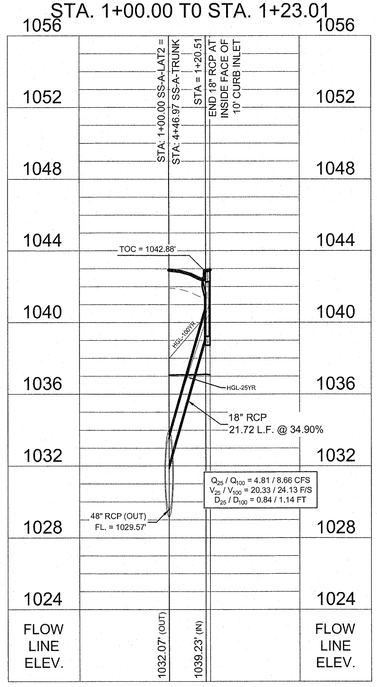
STA. 1+00.00 T0 STA. 1+23.01



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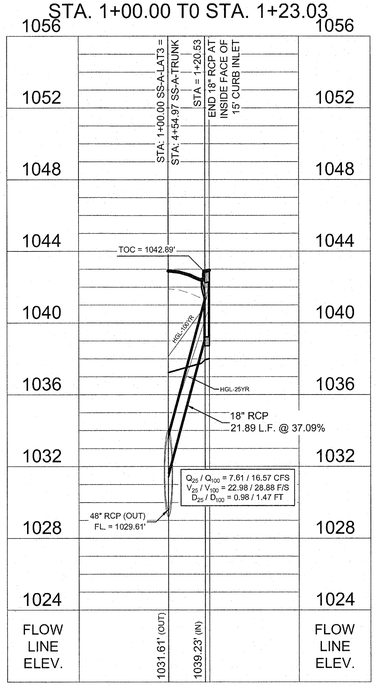
STA. 1+00.00 T0 STA. 1+23.03



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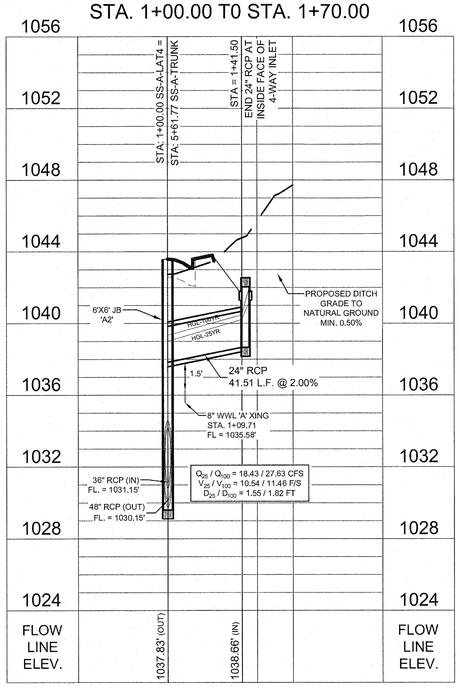
STA. 1+00.00 T0 STA. 1+70.00



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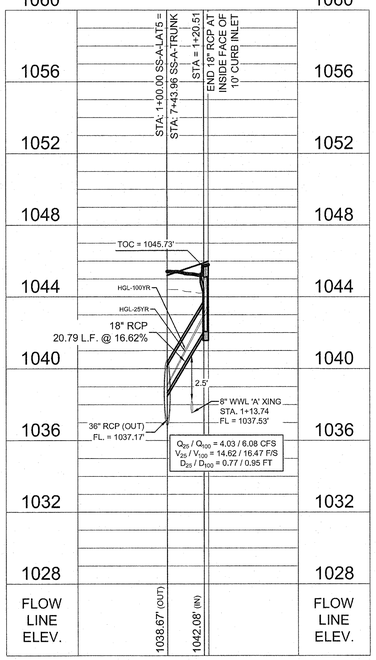

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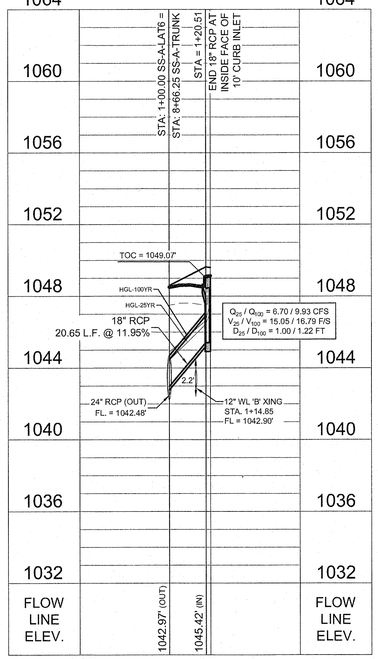

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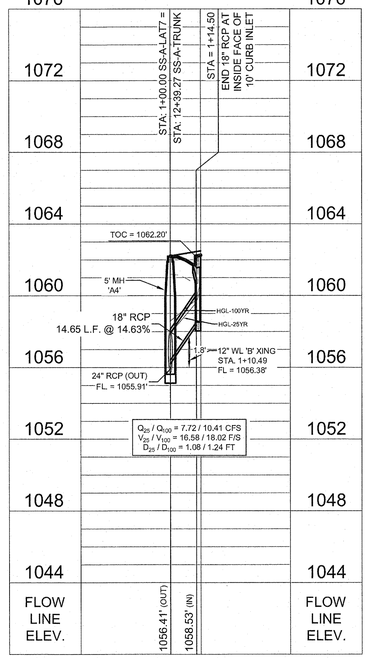
STA. 1+00.00 T0 STA. 1+17.00



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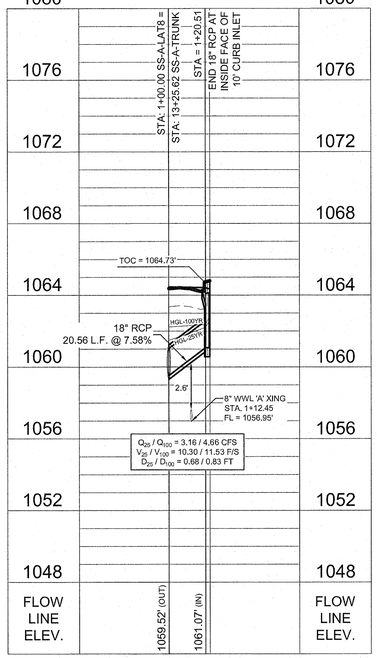
STA. 1+00.00 T0 STA. 1+23.01



NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

PARTEN RANCH PHASE 8

STORM LINE 'A' LATERALS

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Storm.dwng

LAUREN CRONE
STATE OF TEXAS
128018
LICENSED PROFESSIONAL ENGINEER
5/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 21 OF 50 SHEETS

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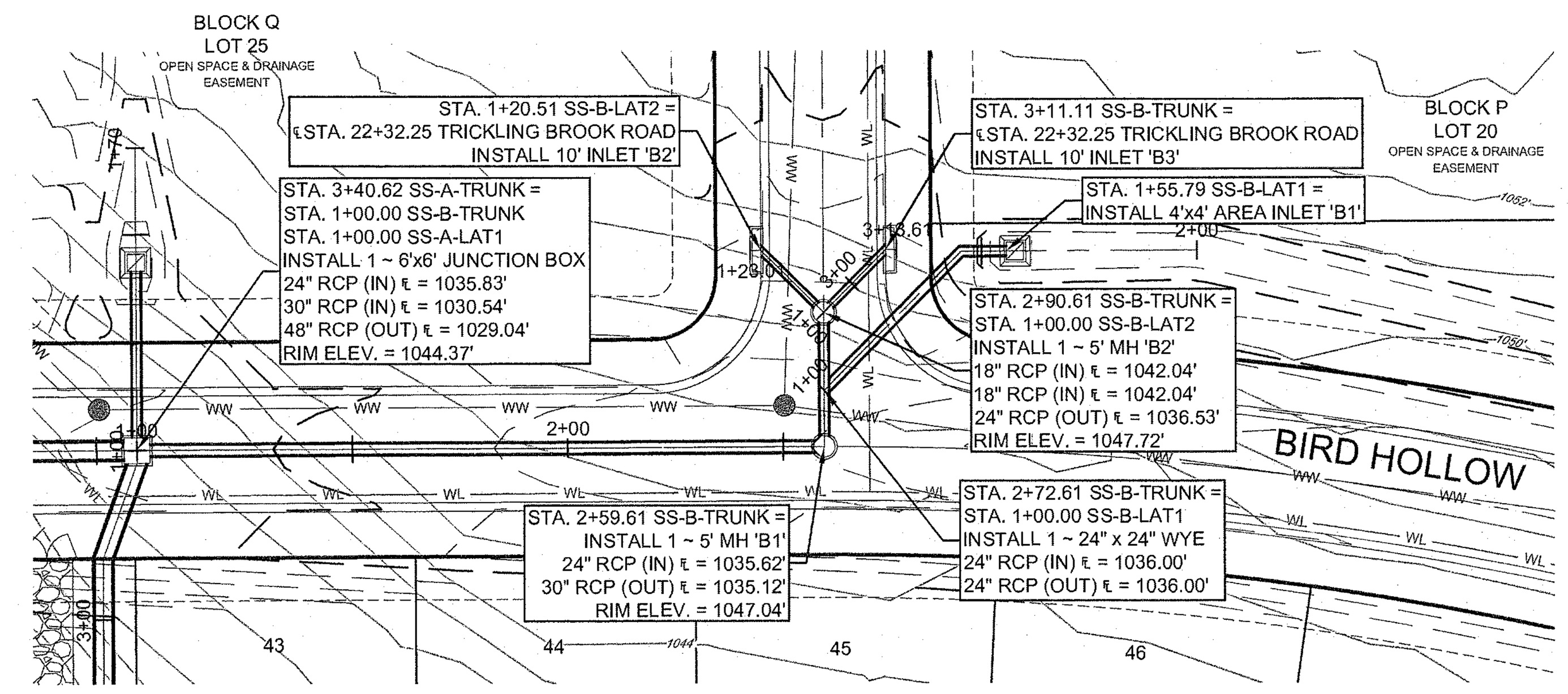
Last Modified: Oct. 31, '23 – 15:10
Plot: Date/Time: Nov. 01, '23 – 10:25:51

PARTEN RANCH PHASE 8

STORM LINE 'B' (1+00 TO END)



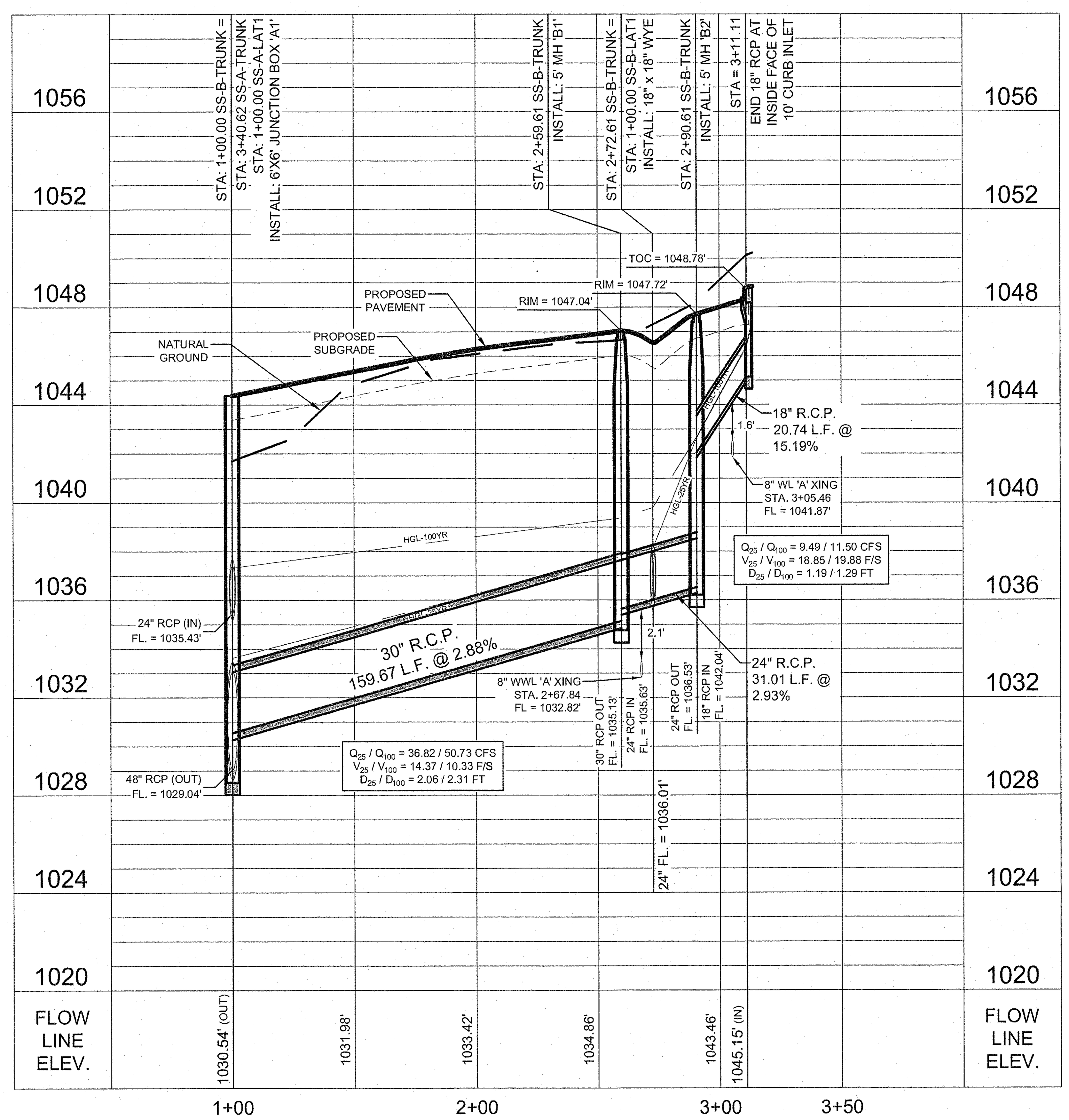
40 20 0 40 80

SCALE IN FEET

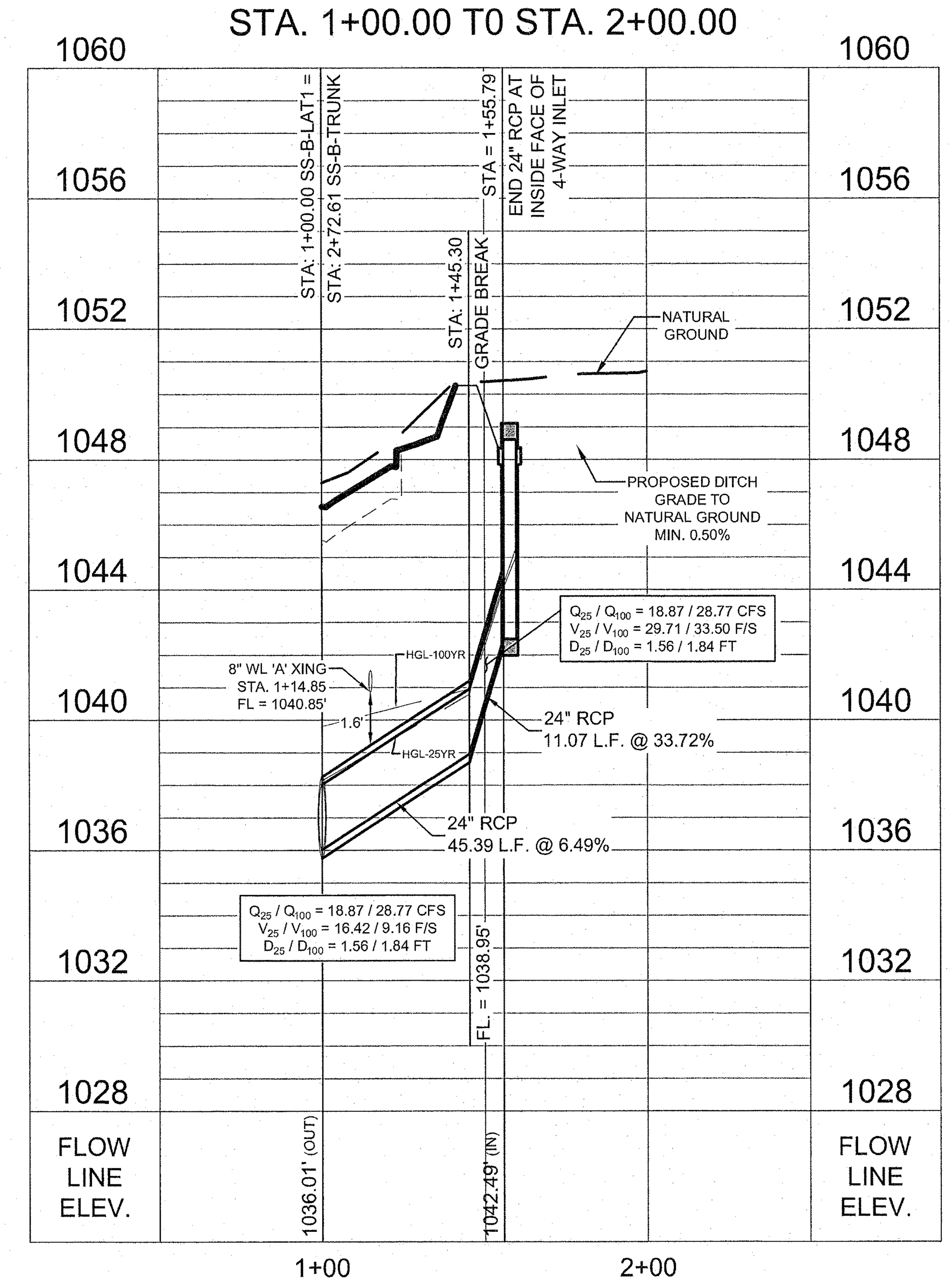
LEGEND:

— — — —	EASEMENT LINE
———	R.O.W.
— WL —	EXISTING WATER LINE
— WL —	PROPOSED WATER LINE
═══	STORM SEWER
— WW —	WASTEWATER LINE

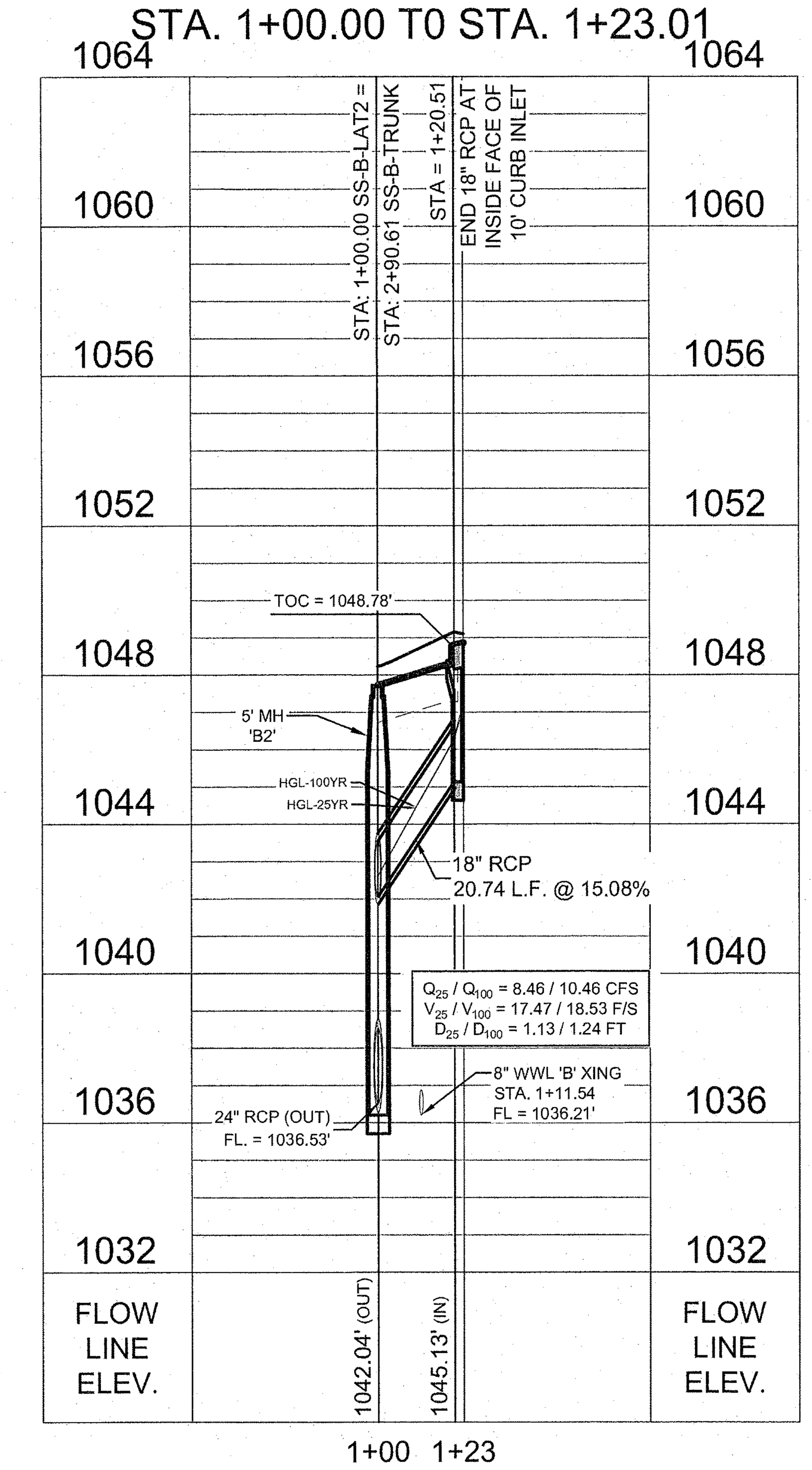
SS-B-TRUNK STA. 1+00 TO END



SS-B-LAT1 STA. 1+00.00 T0 STA. 2+00.00



SS-B-LAT2 STA. 1+00.00 T0 STA. 1+23.01



NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Storm.dwg

STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
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JOB NUMBER: A311-0413

SHEET NO. 22 OF 50 SHEETS

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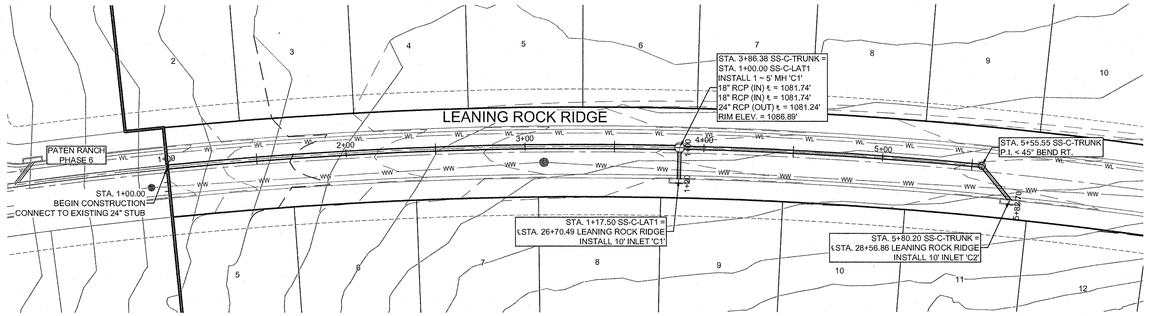
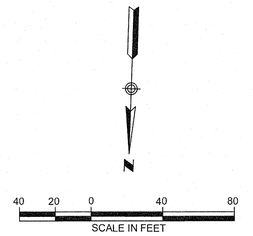
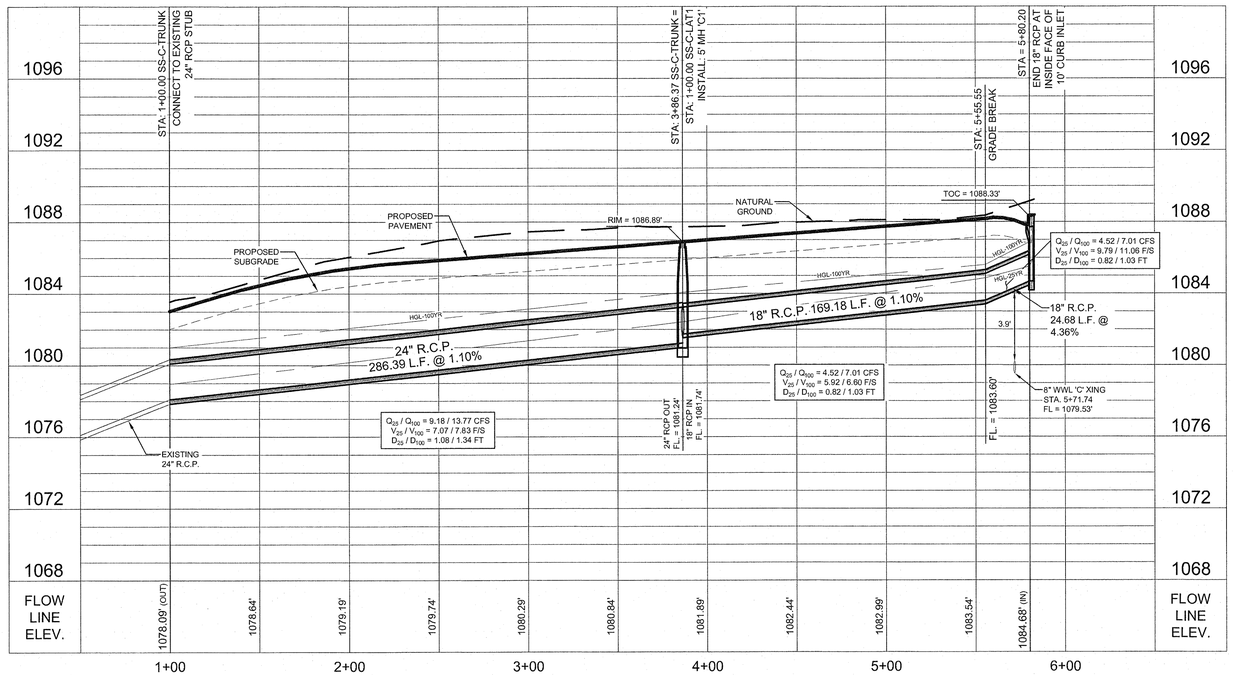




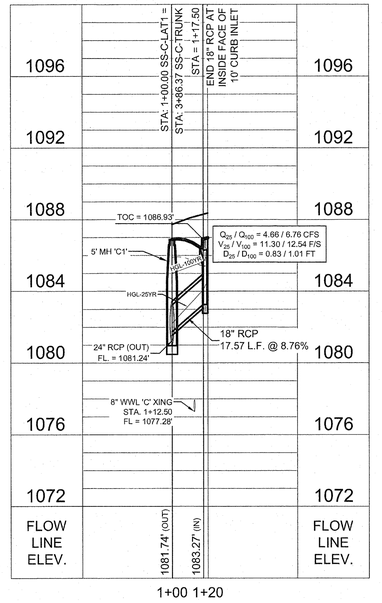
LEGEND:

- EASEMENT LINE
- R.O.W.
- WL — EXISTING WATER LINE
- WL — PROPOSED WATER LINE
- STORM SEWER
- WW — WASTEWATER LINE

SS-C-TRUNK
STA. 1+00 TO END



SS-C-LAT1
STA. 1+00 TO END



NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

PARTEN RANCH PHASE 8

STORM LINE 'C'
(1+00 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Storm.dwg

Lauren Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED
PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 23 OF 50 SHEETS

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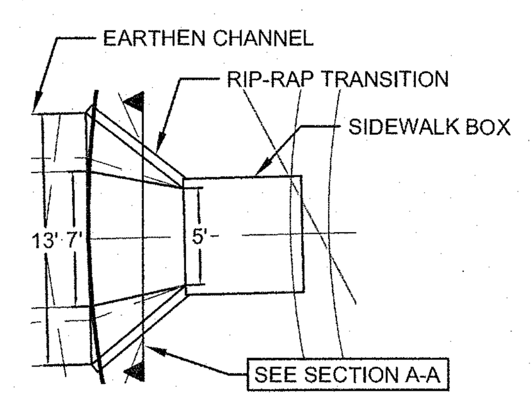
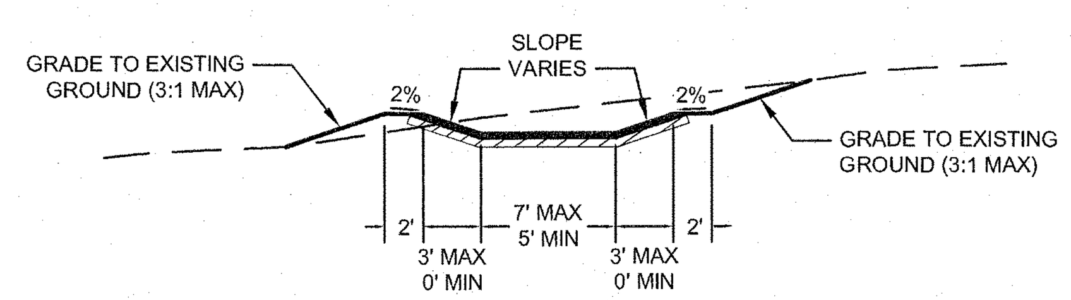
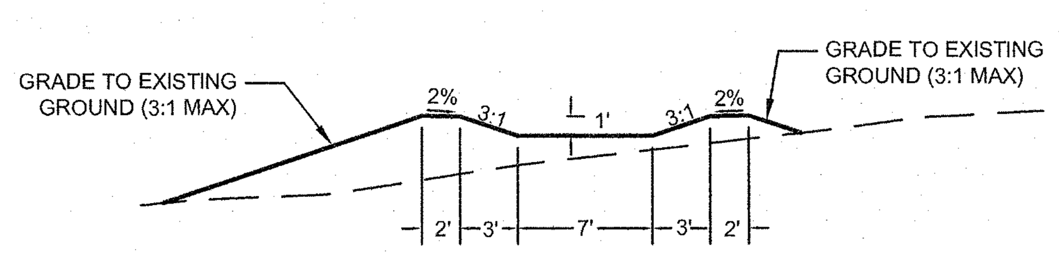
User Name: lcrone
Last Modified: Oct. 31, 22 - 15:10
Plot Date/Time: Nov. 01, 22 - 10:26:11



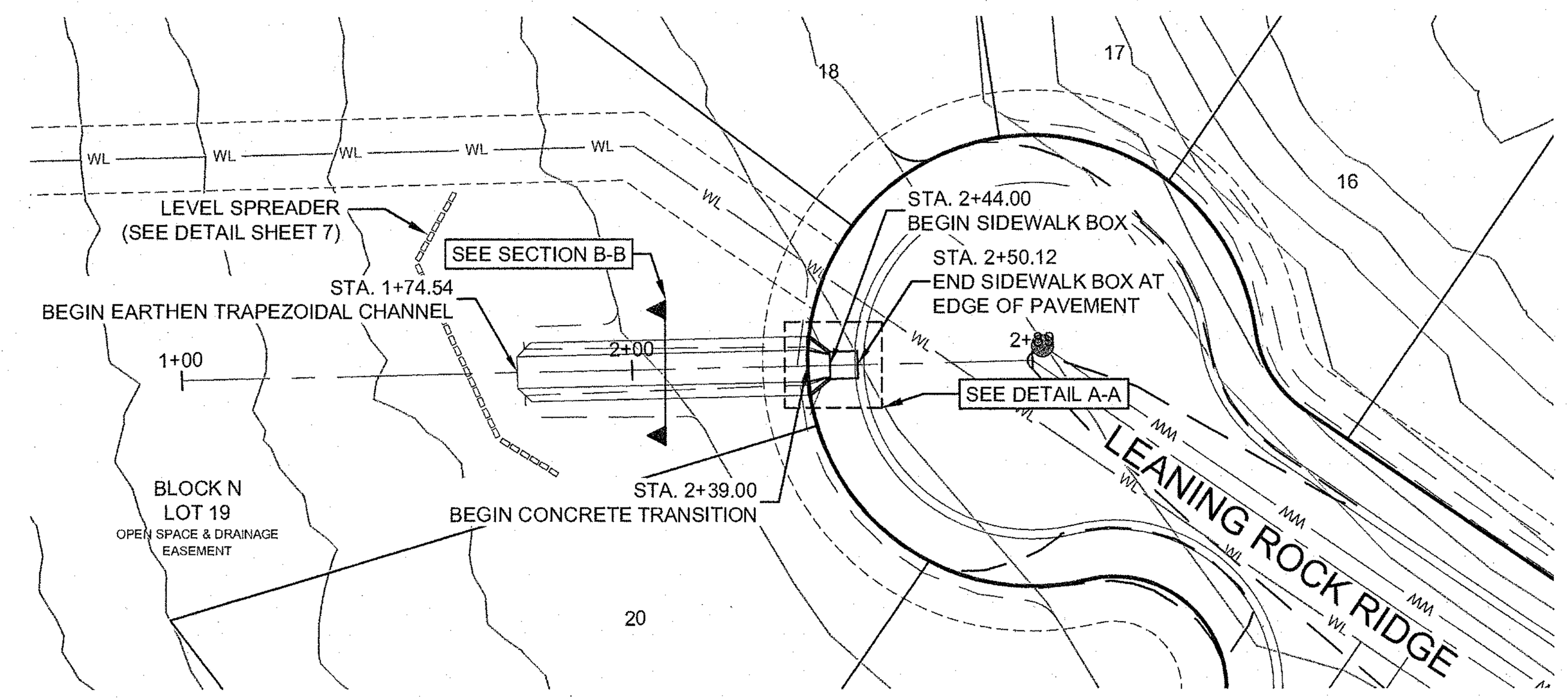
DETAIL A-A
N.T.S.

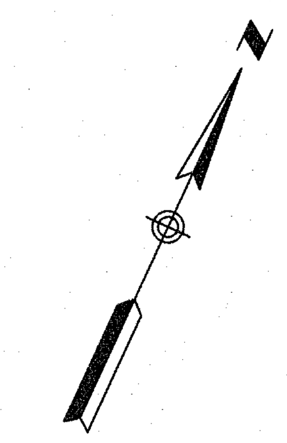


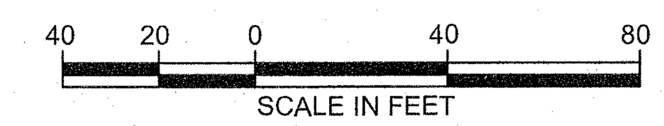
SECTION A-A
CONCRETE RIP-RAP TRANSITION
STA. 2+39.00 TO STA. 2+44.00
N.T.S.



SECTION B-B
EARTHEN TRAPEZOIDAL CHANNEL
STA. 1+74.54 TO STA. 2+39.00
N.T.S.



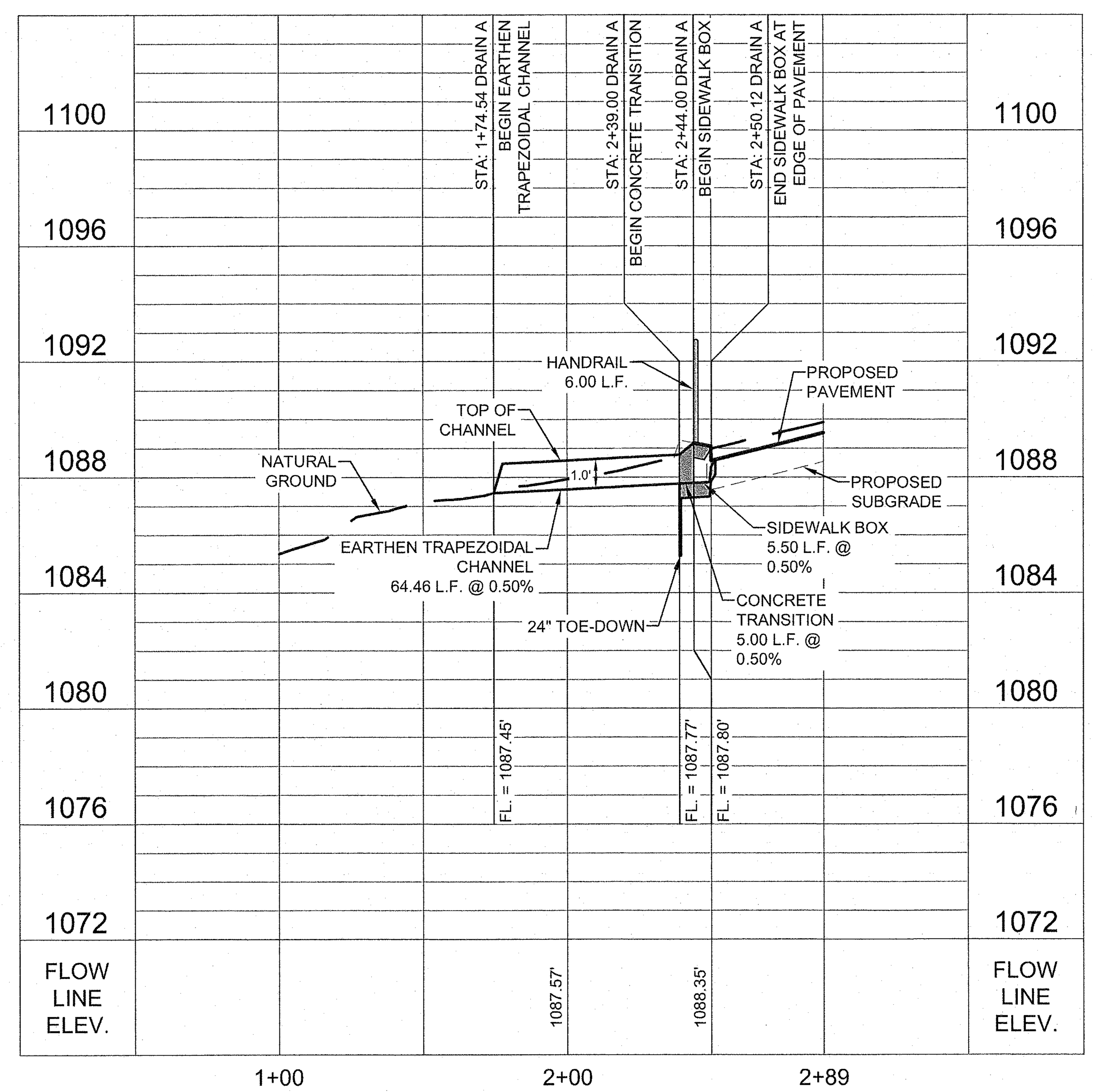


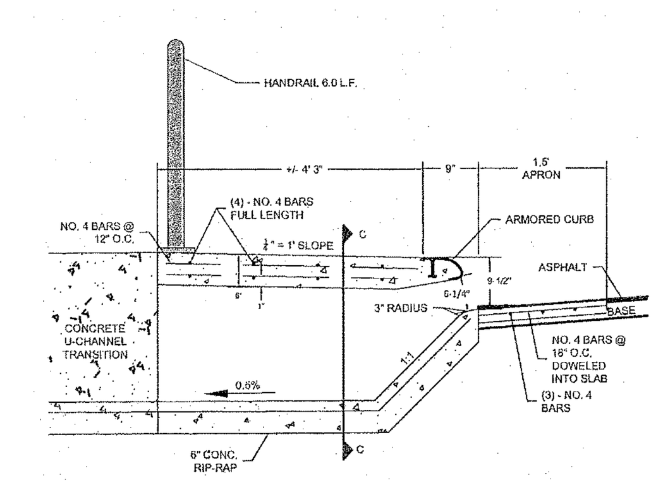


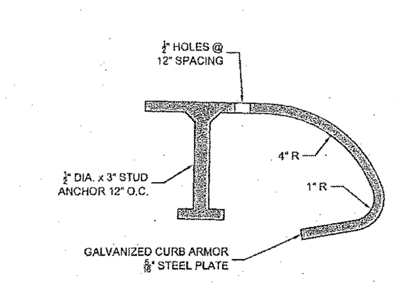
LEGEND:

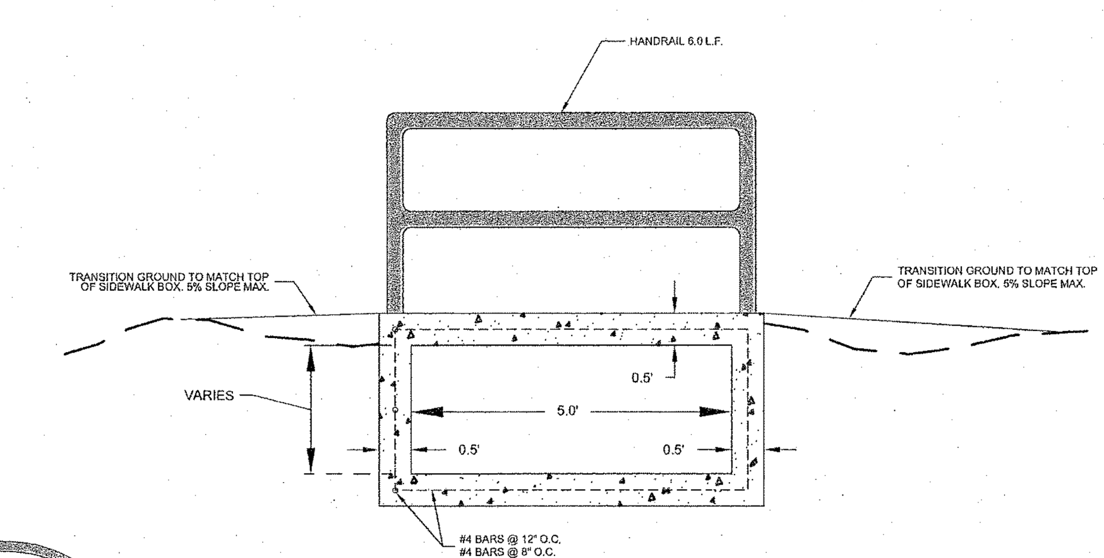
- EASEMENT LINE
- R.O.W.
- EXISTING WATER LINE
- PROPOSED WATER LINE
- STORM SEWER
- WASTEWATER LINE

DRAIN 'A'
STA. 1+00 TO END




SIDEWALK BOX
SCALE: NTS


ARMORED CURB
SCALE: NTS


SECTION C-C
SCALE: NTS

NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

PARTEN RANCH PHASE 8
STORM DRAIN 'D'
(1+00 TO END)

REVISIONS			
NO.	DESCRIPTION	BY	DATE

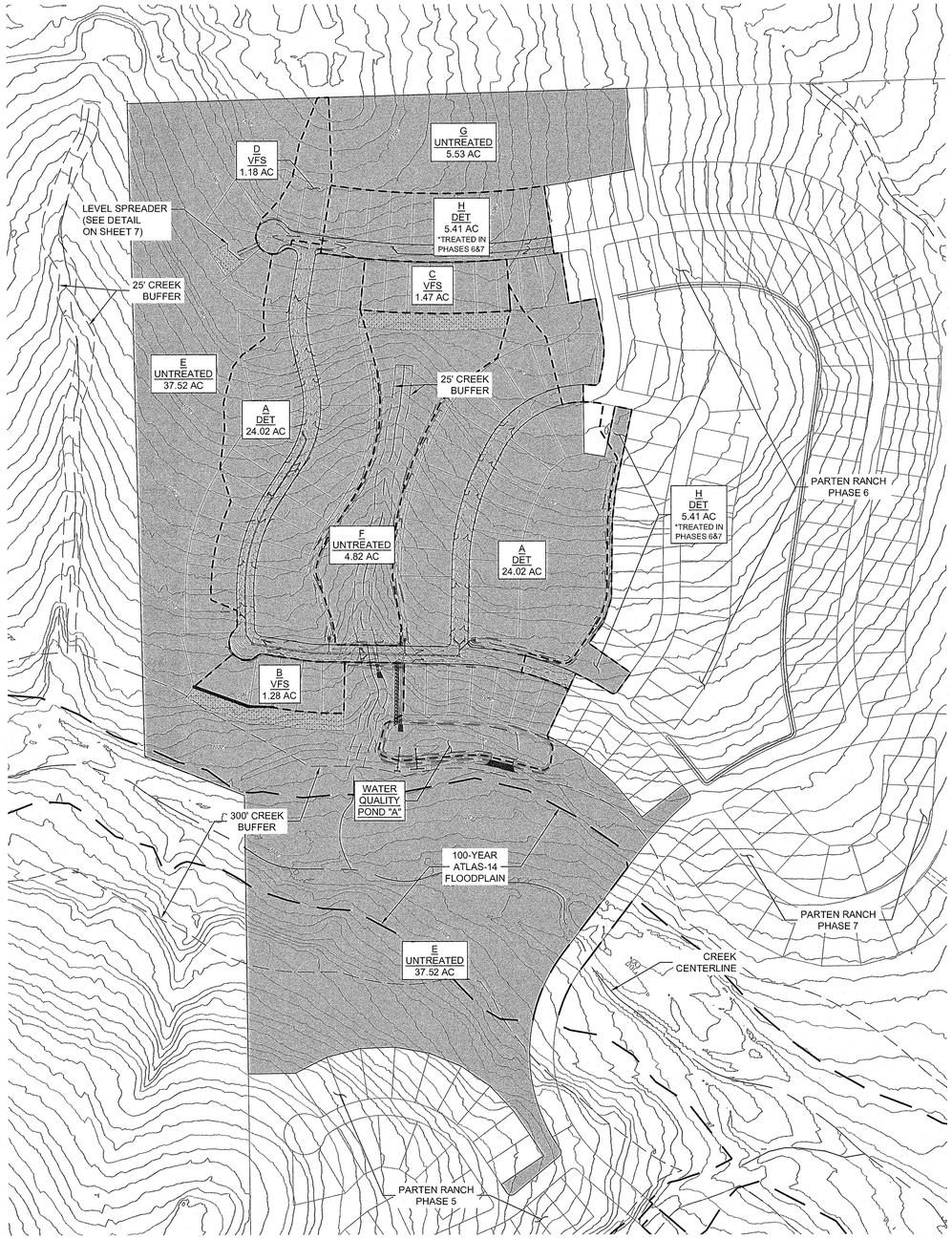
DATE:	
DESIGNED BY:	SR
DRAWN BY:	CRC
CHECKED BY:	LAC
DRAWING NAME:	PH8-Storm.dwg

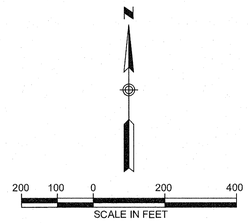
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER:
A311-0413

SHEET NO.
24
OF 50 SHEETS





LEGEND

- PROPERTY LIMITS
- VEGETATIVE FILTER STRIP (VFS)
- WATER QUALITY DRAINAGE AREA

PARTEN RANCH PHASE 8

WATER QUALITY PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Water Quality.dwg

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 25 OF 50 SHEETS

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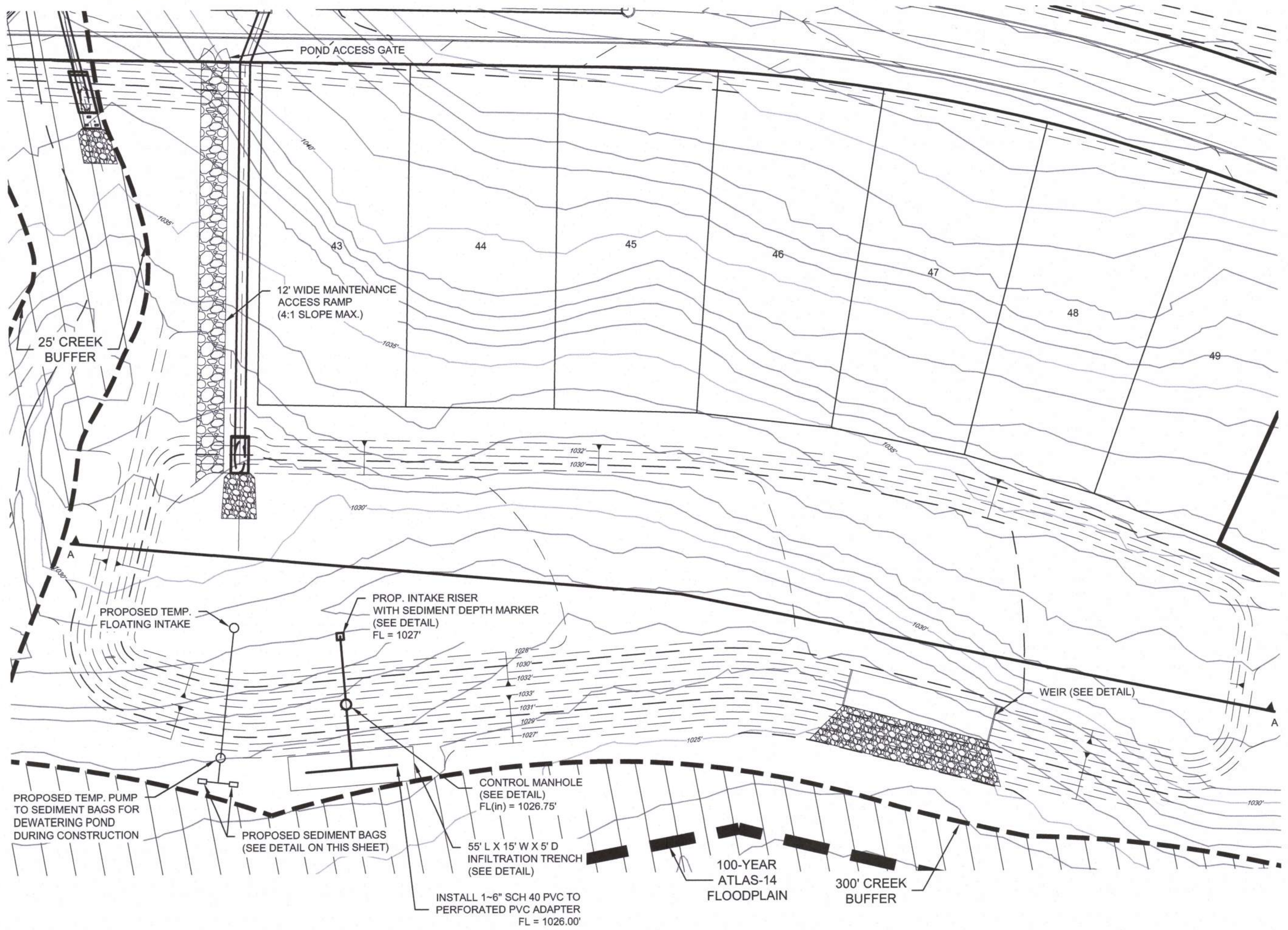
User: Cameron
Last Modified: Oct. 31, 22 - 15:38
Plot Date/Time: Nov. 01, 22 - 10:27:12



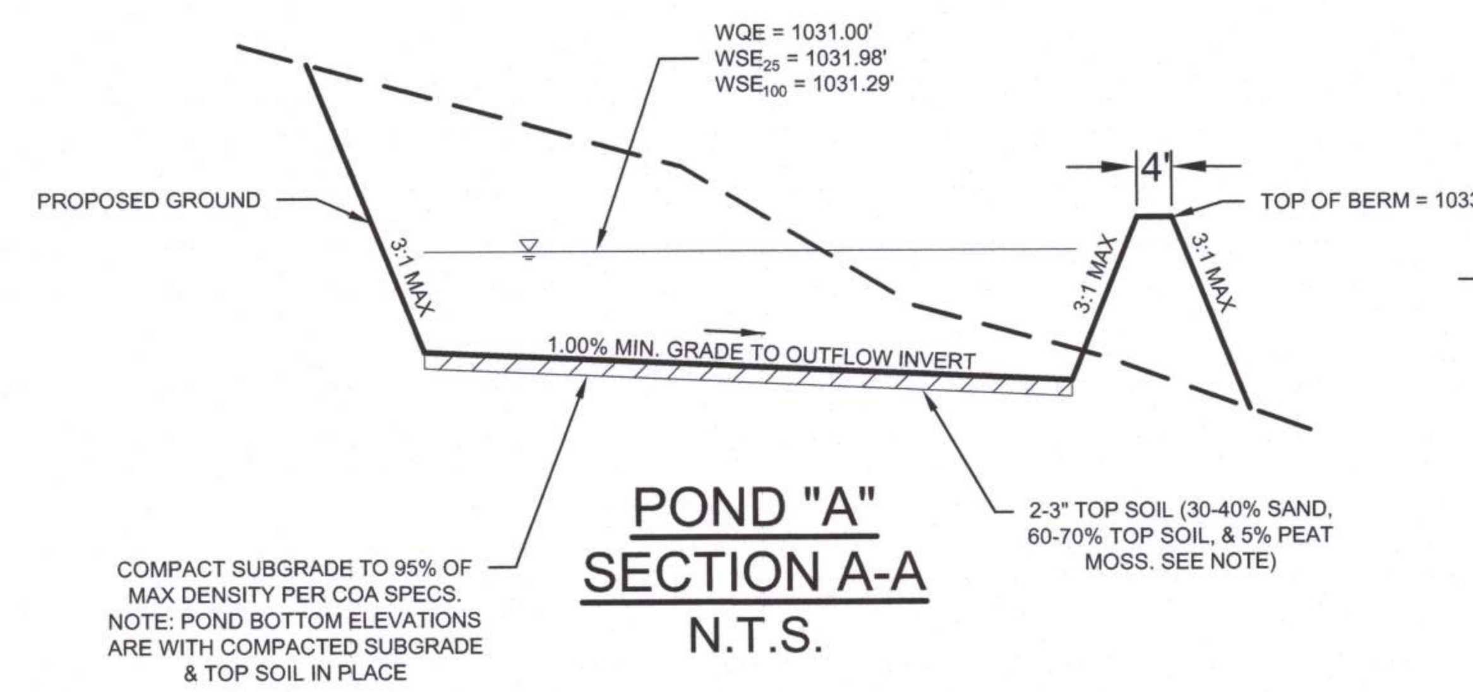
POND A								
Stage - Storage - Discharge								
Stage Elevation (ft)	Contour Area (sf)	Incremental Volume (cf)	Cumulative Volume (cf)	Cumulative Volume (ac-ft)	Pipe Discharge (cfs)	Weir Discharge (cfs)	Total Discharge (cfs)	
1028.00	13827	0	0	0.00	0.0	0.0	0.0	
1029.00	23339	18583	18583	0.43	1.4	0.0	1.4	
1030.00	33394	28367	46950	1.08	1.9	0.0	1.9	
1031.00	43223	38309	85258	1.96	2.3	0.0	2.3	WQ elev >>
1031.98	-	-	-	-	2.7	189.2	191.9	25 YR 24-HR STORM >>
1032.00	46678	44951	130209	2.99	2.7	195.0	197.7	
1032.29	-	-	-	-	2.8	285.7	288.5	100 YR 24-HR STORM >>
1033.00	51466	49072	179281	4.12	3.0	551.5	554.6	

NOTES:

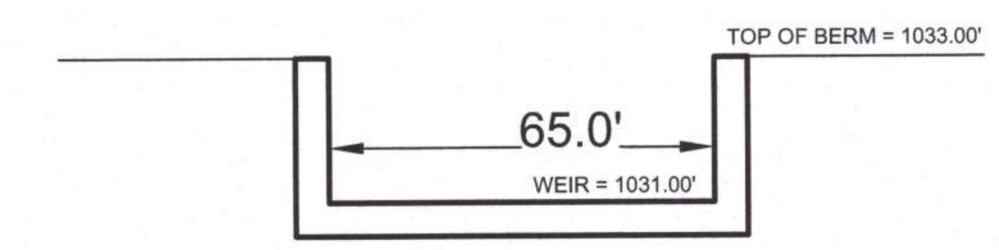
1. TOPSOIL MUST BE PLACED ON THE BASIN FLOOR AFTER EXCAVATED BOTTOM IS SCARIFIED TO A DEPTH OF 2 TO 3 INCHES. THE TOPSOIL MST BE 6 TO 8 INCHES DEEP AND A SOIL MIXTURE OF 30-40% SAND OR GRANITE SAND, 60-70% TOPSOIL, AND SUGGEST 5-10% COMPOST OR PEAT. SOIL ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN 1 INCH.
2. NON WOVEN FILTER FABRIC WITH A MINIMUM OPENING OF 0.15 MM (U.S. SIEVE SIZE 100) OPENING SHALL BE PLACED ON THE GABION.
3. NON WOVEN FILTER FABRIC WITH A 0.15 MM (U.S. SIEVE SIZE 100) OPENING SHALL BE PLACED ON THE GABION.
4. DISCHARGE COEFFICEINTS FOR OUTLETS TO CONTROL DISCHARGE TIME ARE 0.6.
5. ALL ROCK RIP-RAP SHALL BE MORTARED.

CONTROLS NARRATIVE:

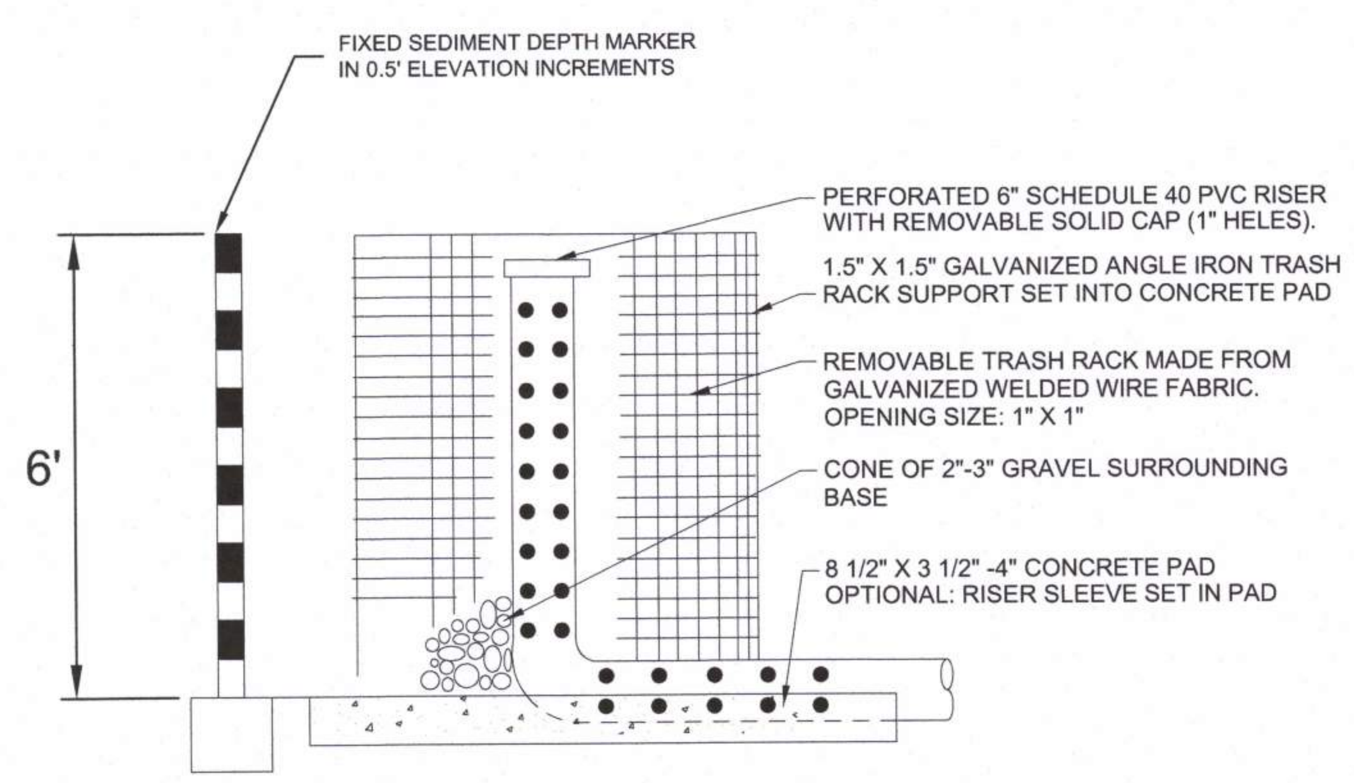
BATCH DETENTION POND IS EQUIPPED WITH A RAIN SENSOR MOUNTED AT THE CONTROL PANEL. VALVE IS TO REMAIN NORMALLY CLOSED. WHEN CONTACT IS MADE BY LEVEL SWITCH, 12 HOUR DELAY TIMER SHALL BEGIN AS SOON AS NO MOISTURE IS DETECTED BY THE RAIN SENSOR. IF THE RAIN SENSOR DETECTS PRECIPITATION, DELAY TIMER WILL RESET TO 12 HOURS. ONCE VALVE OPENS, IT WILL REMAIN OPEN UNTIL THE POND IS DRAINED OR RAIN SENSOR RESETS.



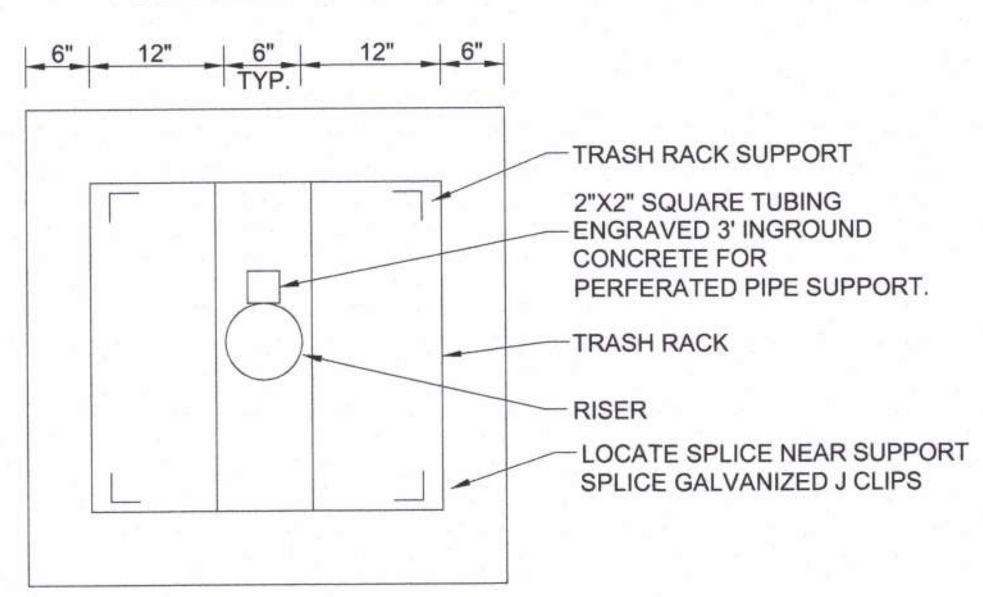
POND "A"
SECTION A-A
N.T.S.



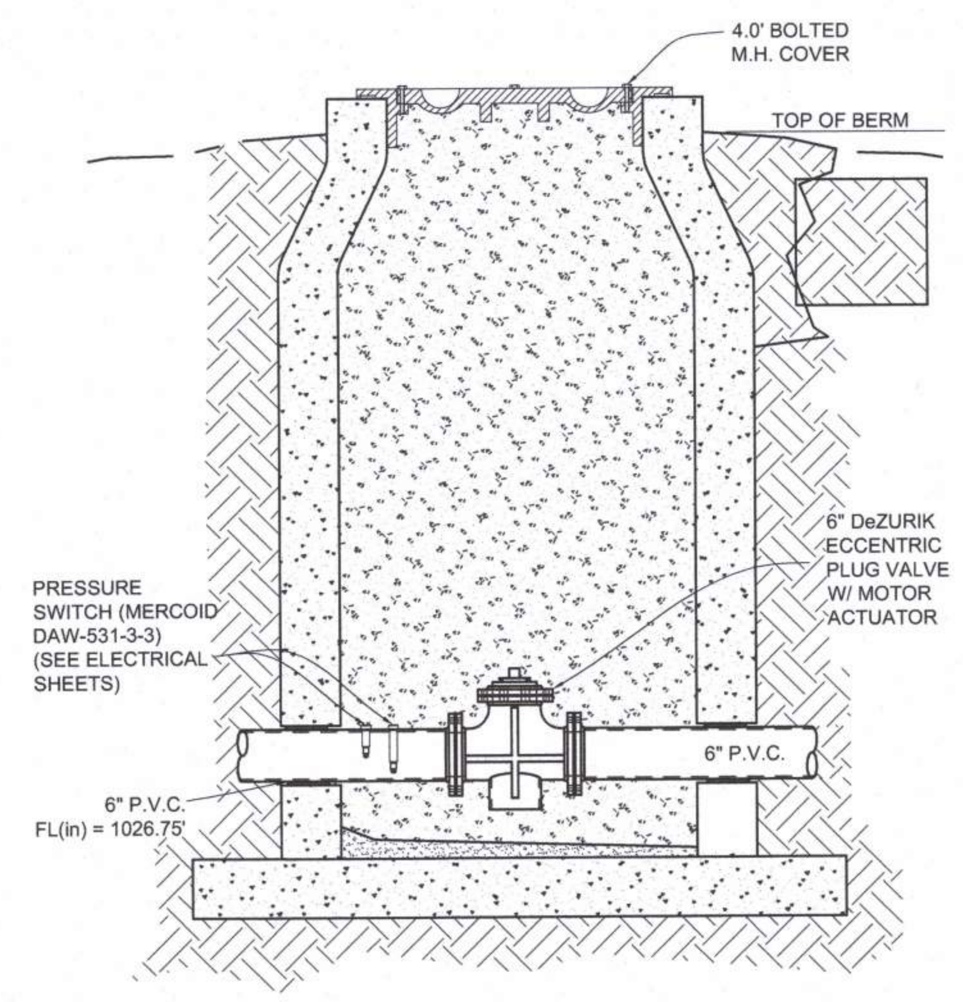
POND "A"
WEIR
N.T.S.



SIDE VIEW OF RISER



TOP VIEW OF RISER (SQUARE DESIGN)



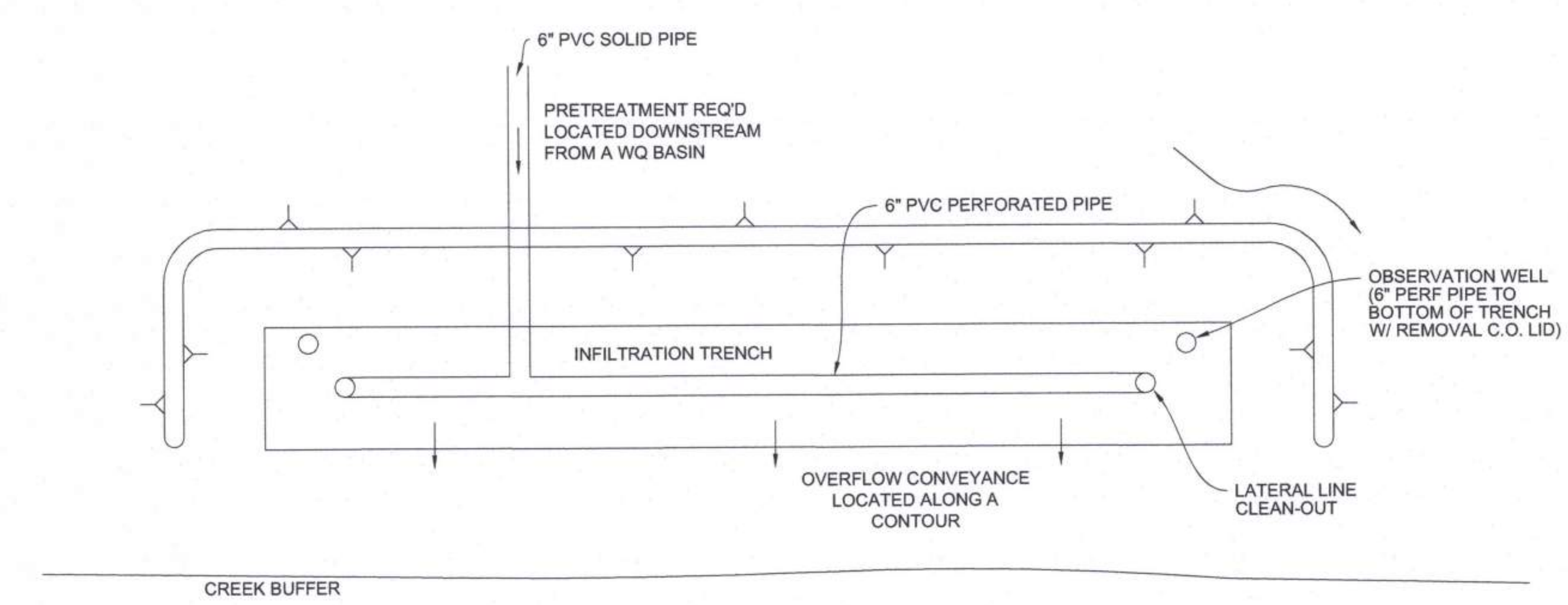
CONTROL MANHOLE DETAIL
N.T.S.

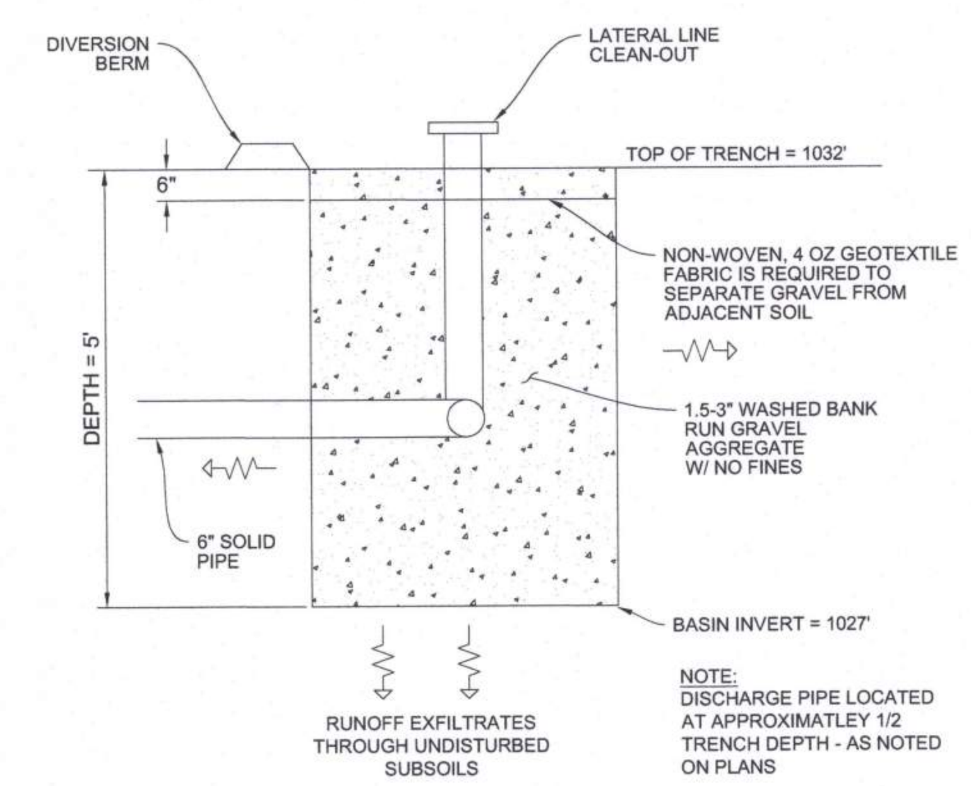
Infiltration Trench (Secondary BMP)		
Soil Type	Brackett (BiD)	
Permeability	0.31	in/hr
Porosity (n)	0.35	
VR%	0.3	
WQV_{req}	57231	cf
IT Volume Req. ($V_{IT,req}$)	921	cf
Trench Vol. Req. ($V_{T,req}$)	2,631	cf
Trench Depth	5	ft
Trench Width	15	ft
Trench Length	55	ft
$V_{T,provided}$	4125 cf	OK
$V_{IT,provided}$	1443.75 cf	OK
Infiltration Area (Ai)	1525 sf	
$V_{provided}$ / Ai < 1	0.95	OK

$$V_{IT,req} = 0.023\ WQV_{req}\ (1 - VR\%)$$

$$V_{T,req} = \frac{V_{IT,req}}{n}$$

$$V_{IT,provided} = V_{T,provided} * n$$





NOTE:
- NO PORTION OF THE TRENCH CAN BE USED TO COLLECT OR TREAT CONSTRUCTION-PHASE RUNOFF. NO RUNOFF SHALL BE RECEIVED UNTIL SITE IS COMPLETELY STABILIZED.
- SOIL INFILTRATION RATE BETWEEN 0.3 - 0.5 IN/HR REQUIRED.
- >3' SEPARATION BETWEEN BASIN INVERT AND HIGH WATER MARK.
- >1' SEPARATION BETWEEN BASIN INVERT AND BEDROCK.

INFILTRATION TRENCH SCHEMATIC

DESCRIPTION:
A GRAVITY BAG FILTER, ALSO REFERRED TO AS A DEWATERING BAG, IS A SQUARE OR RECTANGULAR BAG MADE OF NON-WOVEN GEOTEXTILE FABRIC THAT COLLECTS SAND, SILT, AND FINES.

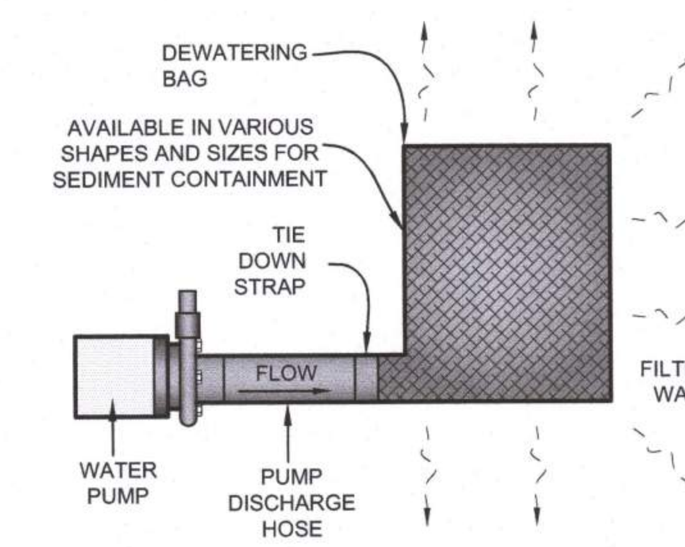
APPROPRIATE APPLICATIONS:
EFFECTIVE FOR THE REMOVAL OF SEDIMENTS (GRAVEL, SAND, AND SILT). SOME METALS ARE REMOVED WITH THE SEDIMENT.

IMPLEMENTATION:
WATER IS PUMPED INTO ONE SIDE OF THE BAG AND SEEPS THROUGH THE BOTTOM AND SIDES OF THE BAG.

A SECONDARY BARRIER, SUCH AS A ROCK FILTER BED OR STRAW/HAY BALE BARRIER IS PLACED BENEATH AND BEYOND THE EDGES OF THE BAG TO CAPTURE SEDIMENTS THAT ESCAPE THE BAG.

MAINTENANCE:
INSPECTION OF THE FLOW CONDITIONS, BAG CONDITION, BAG CAPACITY, AND THE SECONDARY BARRIER IS REQUIRED.

REPLACE THE BAG WHEN IT NO LONGER FILTERS SEDIMENT OR PASSES WATER AT A REASONABLE RATE. THE BAG IS DISPOSED OF OFFSITE.



SEDIMENT BAG (DEWATERING) DETAIL
N.T.S.

WATER QUALITY POND MAINTENANCE
FACILITY OPERATOR:
HM PARTEN RANCH DEVELOPMENT, INC.
(512) 477-2400
EDWARDS AQUIFER ID:
11000442

WQ POND SIGN (RG-348A)
(N.T.S.)

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

PARTEN RANCH PHASE 8
WATER QUALITY POND 'A'

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PH8-Pond.dwg

STATE OF TEXAS
LAUREN CROSE
128018
LICENSED PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 26

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User: ccarnes
Last Modified: Mar. 06, 23 - 09:19
Plot Date/Time: Mar. 06, 23 - 10:11:12

BATCH DETENTION

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

A

Drainage Basin/Outfall Area No. =	A	
Total drainage basin/outfall area =	24.02	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	5.62	acres
Post-development impervious fraction within drainage basin/outfall area =	0.23	
$L_{M\ THIS\ BASIN}$ =	5137	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

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

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

A_C =	23.82	acres
A_I =	5.62	acres
A_P =	18.20	acres
L_R =	6136	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	5728	lbs.
F =	0.93	

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

Rainfall Depth =	2.20	inches
Post Development Runoff Coefficient =	0.25	
On-site Water Quality Volume =	47660	cubic feet

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

Off-site area draining to BMP =	0.20	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	32	cubic feet
Storage for Sediment =	9538	
Total Capture Volume (required water quality volume(s) x 1.20) =	57231	cubic feet

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

Required Water Quality Volume for extended detention basin =	57231	cubic feet

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

H

Drainage Basin/Outfall Area No. =	H-6&7	
Total drainage basin/outfall area =	5.41	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.37	acres
Post-development impervious fraction within drainage basin/outfall area =	0.25	
$L_{M\ THIS\ BASIN}$ =	1252	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Batch Detention	
Removal efficiency =	91	percent

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

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

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

A_C =	16.95	acres
A_I =	1.37	acres
A_P =	15.58	acres
L_R =	1676	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	1676	lbs.
F =	1.00	

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

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.12	
On-site Water Quality Volume =	29214	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 =	5843	
Total Capture Volume (required water quality volume(s) x 1.20) =	35057	cubic feet

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

Required Water Quality Volume for extended detention basin =	35057	cubic feet

SUMMARY

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Parten Ranch Phase 8
Date Prepared: 7/13/2022

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: $L_M = 27.7(A_N \times P)$

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

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

County =	Hays	
Total project area included in plan * =	81.03	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	6.89	acres
Total post-development impervious cover fraction * =	0.11	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	7852	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 8

WATER QUALITY SUMMARY TABLE

WATER QUALITY DRAINAGE AREA	DRAINAGE AREA (acre)	I.C. (acre)	L_M REQ. (lbs.)	L_M DES. (lbs.)	WQV REQ. (c.f.)	WQV DES. (c.f.)
A - BATCH DETENTION	24.02*	5.62	5137	5728	57231	85256
B - VEGETATIVE FILTER STRIP	1.28	0.36	329	363		
C - VEGETATIVE FILTER STRIP	1.47	0.40	366	404		
D - VEGETATIVE FILTER STRIP	1.18	0.30	274	304		
E - UNTREATED	37.52	0.54	494	0		
F - UNTREATED	4.82	0.00	0	0		
G - UNTREATED	5.53	0.00	0	0		
H - BATCH DETENTION (CAPTURED BY OFF-SITE WATER QUALITY POND CONSTRUCTED IN PARTEN RANCH PHASES 6&7)	5.41	1.37				
TOTAL	81.23	8.59	6600	6800	57231	85258

*INCLUDES 0.20 AC. OF OFF-SITE CAPTURE

UNTREATED

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

E

Drainage Basin/Outfall Area No. =	E	
Total drainage basin/outfall area =	37.52	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.54	acres
Post-development impervious fraction within drainage basin/outfall area =	0.01	
$L_{M\ THIS\ BASIN}$ =	494	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

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

F

Drainage Basin/Outfall Area No. =	F	
Total drainage basin/outfall area =	4.82	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

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

G

Drainage Basin/Outfall Area No. =	G	
Total drainage basin/outfall area =	5.53	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.00	
$L_{M\ THIS\ BASIN}$ =	0	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Untreated	
Removal efficiency =	0	percent

VFS

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

B

Drainage Basin/Outfall Area No. =	B	
Total drainage basin/outfall area =	1.28	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.36	acres
Post-development impervious fraction within drainage basin/outfall area =	0.28	
$L_{M\ THIS\ BASIN}$ =	329	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Vegetated Filter Strips	
Removal efficiency =	85	percent

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

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

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

A_C =	1.28	acres
A_I =	0.36	acres
A_P =	0.92	acres
L_R =	363	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	363	lbs.
F =	1.00	

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

C

Drainage Basin/Outfall Area No. =	C	
Total drainage basin/outfall area =	1.47	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.40	acres
Post-development impervious fraction within drainage basin/outfall area =	0.27	
$L_{M\ THIS\ BASIN}$ =	366	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Vegetated Filter Strips	
Removal efficiency =	85	percent

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

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

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

A_C =	1.47	acres
A_I =	0.40	acres
A_P =	1.07	acres
L_R =	404	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	404	lbs.
F =	1.00	

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

D

Drainage Basin/Outfall Area No. =	D	
Total drainage basin/outfall area =	1.18	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.35	acres
Post-development impervious fraction within drainage basin/outfall area =	0.25	
$L_{M\ THIS\ BASIN}$ =	274	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Vegetated Filter Strips	
Removal efficiency =	85	percent

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

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

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

A_C =	1.18	acres
A_I =	0.30	acres
A_P =	0.88	acres
L_R =	304	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	304	lbs.
F =	1.00	

PARTEN RANCH PHASE 8

WATER QUALITY POND 'A'

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: PhB-Pond.dwg

STATE OF TEXAS
LAUREN CRONE
126018
LICENSED PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 27 OF 50 SHEETS

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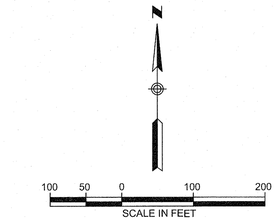
User: ccorres
Last Modified: Mar. 06, 23 - 09:19
Plot Date/Time: Mar. 06, 23 - 10:11:22



LEGEND

- PROPOSED BOUNDARY
- 10' P.U.E.
- CREEK BUFFER
- 100 YR FLOODPLAIN - CALCULATED (ATLAS-14 PRECIPITATION)
- WL — WATER LINE
- STORM SEWER
- WW — WASTEWATER LINE
- PROPOSED WW MANHOLE
- FLOW DIRECTION
- CREEK BUFFER

PARTEN RANCH PHASE 8

OVERALL UTILITY PLAN

NO.	DESCRIPTION	BY	DATE

REVISIONS

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-UTIL.dwg

LAUREN CRONE 128018 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

5/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 28 OF 50 SHEETS

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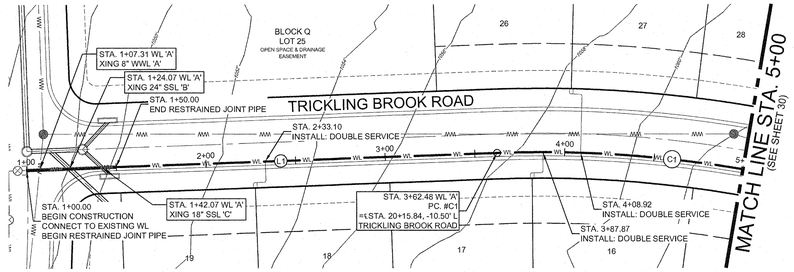
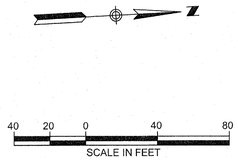
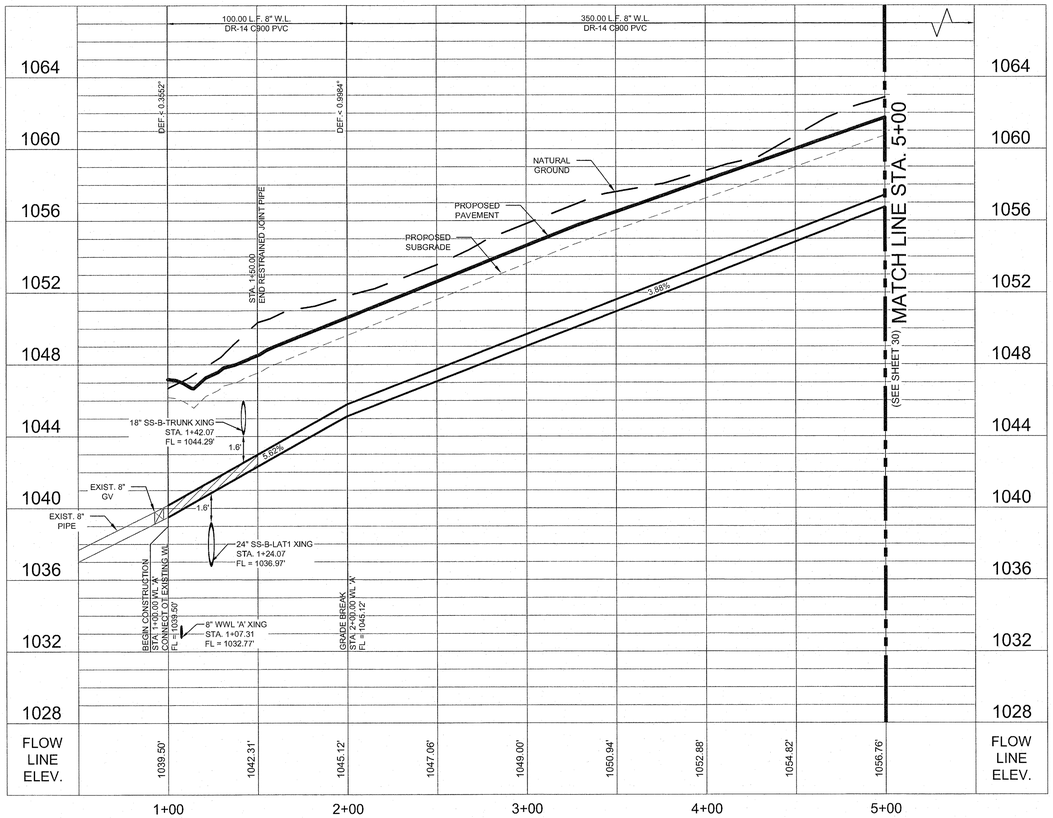




LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	262.48'	N1° 05' 08"E

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C1	295.39'	664.50'	25° 28' 10"	150.17'	292.96'	N13° 49' 12"E

WATER LINE 'A'
STA. 1+00 TO 5+00



LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER SERVICE (SINGLE)
- WATER SERVICE (DOUBLE)
- WL — WATER LINE
- FIRE HYDRANT
- GATE VALVE
- STORM SEWER
- WW — WASTEWATER LINE
- PROPOSED WW MANHOLE

NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
2. 12" WATER LINES SHALL BE CLASS 350 D.I.P., AWWA C150.
3. 8" WATER LINES SHALL BE DR14 C-900 PVC.
2. WITHIN R.O.W., 6" FIRE LINE LEADS SHALL BE CLASS 350 D.I.P. , AWWA C150, WATER LINES OUTSIDE OF R.O.W SHALL BE CLASS 350 D.I.P., AWWA C150.
3. ALL HORIZONTAL AND VERTICAL WATER LINE BENDS, TEES AND DEAD ENDS SHALL BE RESTRAINED TO THE WATER MAIN USING FACTORY RESTRAINED JOINT PIPE AS APPROVED IN SPL WW-27F, OR, MECHANICAL JOINT RESTRAINT DEVICES AS APPROVED IN SPL WW-27A. THE CALCULATED RESTRAINT LENGTH(S) SHALL BE INCLUDED AS CALL-OUT NOTES IN THE PLAN VIEW AND/ OR PROFILE, CALLED OUT FROM BEGINNING STATION TO END STATION PER UCM SECTION 2.9.2.B.9.
4. ALL WATERLINE P.I.'S BOTH HORIZONTAL AND VERTICAL SHALL BE ACHIEVED BASED UPON THE PIPE MANUFACTURER'S SPECIFIED MAXIMUM ALLOWABLE JOINT DEFLECTION. P.I.'S LESS THAN OR EQUAL TO 80% OF THE MANUFACTURER'S MAXIMUM SHALL BE CONSTRUCTED AS A SINGLE JOINT. DEFLECTION P.I.'S IN EXCESS OF 80% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE JOINT DEFLECTION ANGLE SHALL BE CONSTRUCTED AS A SERIES OF EVENLY DISTRIBUTED DEFLECTIONS OVER MULTIPLE JOINTS, SO THAT NO SINGLE DEFLECTION IS GREATER THAN 80% OF THE MAXIMUM.
5. PIPE JOINTS TO BE 18' LINKS. JOINT DEFLECTIONS EVENLY DISTRIBUTED THROUGHOUT PIPE.
6. ALL DOUBLE WATER SERVICES SHALL INCLUDE TWO (2) INDIVIDUAL METER BOXES.
7. MANUFACTURED INTEGRAL "STORZ" ADAPTER REQUIRED. FIRE HYDRANTS SHALL BE PROVIDED WITH APPROPRIATE FIVE (5) INCH "STORZ" TYPE ADAPTERS FOR THE PUMPER (STEAMER) CONNECTION. THIS ADAPTER MUST BE EQUIPPED WITH A BLIND CAP.
8. MINIMUM FOUR (4) FOOT COVER IS REQUIRED.
9. CHANGES IN ALIGNMENT FOR WATER LINES, BOTH HORIZONTAL AND VERTICAL, SHALL BE ACHIEVED BY DEFLECTION OF JOINTS OR BY USE OF FITTINGS. LONGITUDINAL BENDING OF PIPE IS NOT ALLOWED. CHANGES IN DIRECTION OF PVC PIPE SHALL ONLY BY USE OF FITTINGS OR BY DEFLECTING STRAIGHT PIPE SECTIONS AT JOINTS. DEFLECTION OF PVC PIPE AT FITTINGS IS NOT ALLOWED. DEFLECTION OF STRAIGHT PVC PIPE SECTIONS SHALL NOT EXCEED 1 DEGREE AT EACH JOINT (EVEN IF JOINT RESTRAINT DEVICES ARE INSTALLED). DEFLECTION OF PIPE JOINTS AT FITTINGS IS ONLY ALLOWED ON DUCTILE IRON PIPE.
10. UPON REMOVAL, THE AUTOMATIC FLUSH VALVE SHALL REMAIN THE PROPERTY OF WTCPUA. THE CONTRACTOR SHALL DELIVER THE AUTOMATIC FLUSH VALVE IN GOOD WORKING CONDITION TO THE WTCPUA INSPECTOR/OPERATION.
11. SINGLE WATER METER BOXES SHALL BE REQUIRED.
12. ALL WATER SERVICE LINES SHALL BE HDPE PIPE.

PARTEN RANCH PHASE 8
WATER LINE 'A'
(1+00 TO 5+00)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Water.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 29
OF 50 SHEETS

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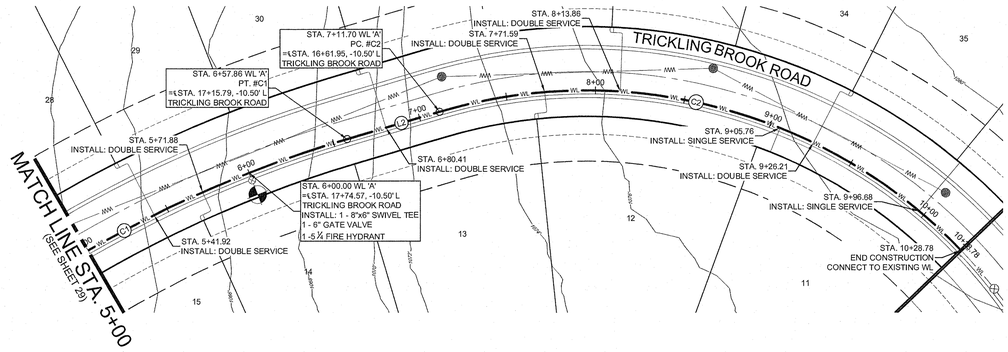
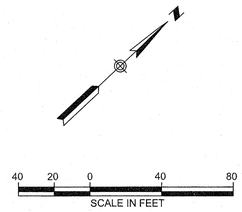
Plot Date/Time: Mar. 06, 23 - 10:13

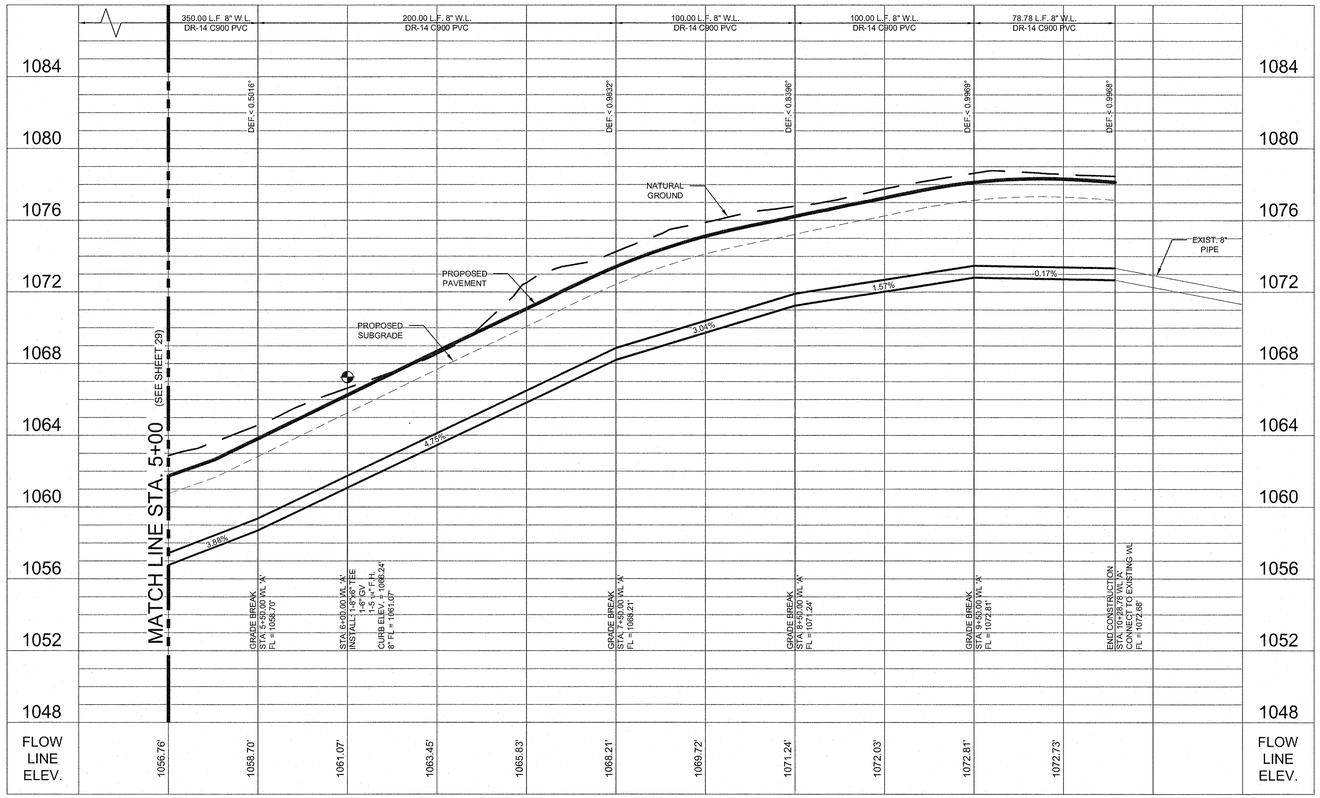




LINE TABLE		
LINE #	LENGTH	DIRECTION
L2	53.84'	N26° 33' 17"E

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C1	295.39'	664.50'	25° 28' 10"	150.17'	292.96'	N13° 49' 12"E
C2	317.08'	289.50'	62° 45' 12"	176.55'	301.46'	N57° 55' 53"E

WATER LINE 'A'
STA. 5+00 TO END



LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER SERVICE (SINGLE)
- WATER SERVICE (DOUBLE)
- WL — WATER LINE
- FIRE HYDRANT
- GATE VALVE
- STORM SEWER
- WW — WASTEWATER LINE
- PROPOSED WW MANHOLE

NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
2. 12" WATER LINES SHALL BE CLASS 350 D.I.P., AWWA C150.
3. 8" WATER LINES SHALL BE DR14 C-900 PVC.
2. WITHIN R.O.W., 8" FIRE LINE LEADS SHALL BE CLASS 350 D.I.P. , AWWA C150, WATER LINES OUTSIDE OF R.O.W SHALL BE CLASS 350 D.I.P., AWWA C150.
3. ALL HORIZONTAL AND VERTICAL WATER LINE BENDS, TEES AND DEAD ENDS SHALL BE RESTRAINED TO THE WATER MAIN USING FACTORY RESTRAINED JOINT PIPE AS APPROVED IN SPL WW-27F, OR, MECHANICAL JOINT RESTRAINT DEVICES AS APPROVED IN SPL WW-27A. THE CALCULATED RESTRAINT LENGTH(S) SHALL BE INCLUDED AS CALL-OUT NOTES IN THE PLAN VIEW AND/ OR PROFILE, CALLED OUT FROM BEGINNING STATION TO END STATION PER UCM SECTION 2.9.2.B.9.
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11. SINGLE WATER METER BOXES SHALL BE REQUIRED.
12. ALL WATER SERVICE LINES SHALL BE HDPE PIPE.

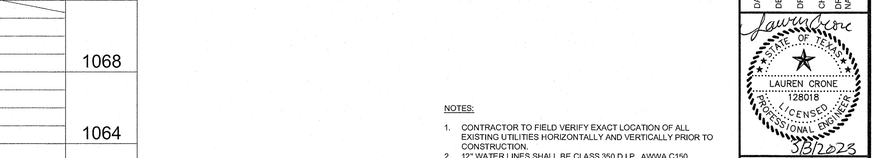
PARTEN RANCH PHASE 8

WATER LINE 'A'
(5+00 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Water.dwg



LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER:
A311-0413

SHEET NO.
30
OF 50 SHEETS

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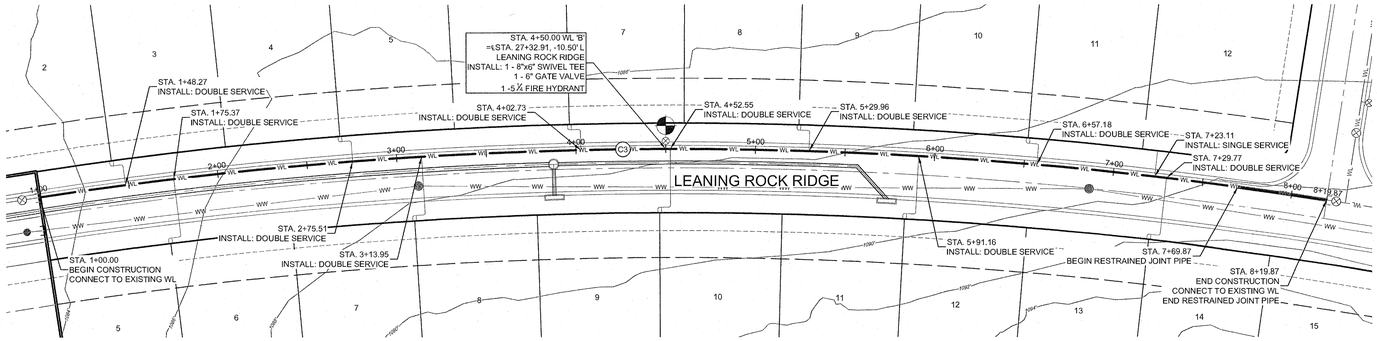

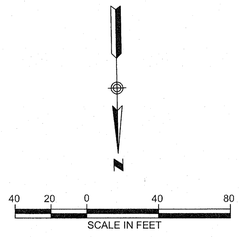

CURVE TABLE						
CURVE #	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD DIRECTION
C3	719.87'	2335.50'	17° 39' 37"	362.81'	717.03'	N89° 16' 01"W

WATER LINE 'B'
STA. 1+00 TO END

LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER SERVICE (SINGLE)
- WATER SERVICE (DOUBLE)
- WL — WATER LINE
- FIRE HYDRANT
- GATE VALVE
- STORM SEWER
- WW — WASTEWATER LINE
- PROPOSED WW MANHOLE

NOTES:

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2. 12" WATER LINES SHALL BE CLASS 350 D.I.P., AWWA C150.
3. 8" WATER LINES SHALL BE DR14 C-900 PVC.
2. WITHIN R.O.W., 6" FIRE LINE LEADS SHALL BE CLASS 350 D.I.P. , AWWA C150, WATER LINES OUTSIDE OF R.O.W SHALL BE CLASS 350 D.I.P., AWWA C150.
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6. ALL DOUBLE WATER SERVICES SHALL INCLUDE TWO (2) INDIVIDUAL METER BOXES.
7. MANUFACTURED INTERNAL "STORZ" ADAPTER REQUIRED. FIRE HYDRANTS SHALL BE PROVIDED WITH APPROPRIATE FIVE (5) INCH "STORZ" TYPE ADAPTERS FOR THE PUMPER (STEAMER) CONNECTION. THIS ADAPTER MUST BE EQUIPPED WITH A BLIND CAP.
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11. SINGLE WATER METER BOXES SHALL BE REQUIRED.
12. ALL WATER SERVICE LINES SHALL BE HDPE PIPE.

PARTEN RANCH PHASE 8

WATER LINE 'B'
(1+00 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Water.dwg

Lauren Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 31

OF 50 SHEETS

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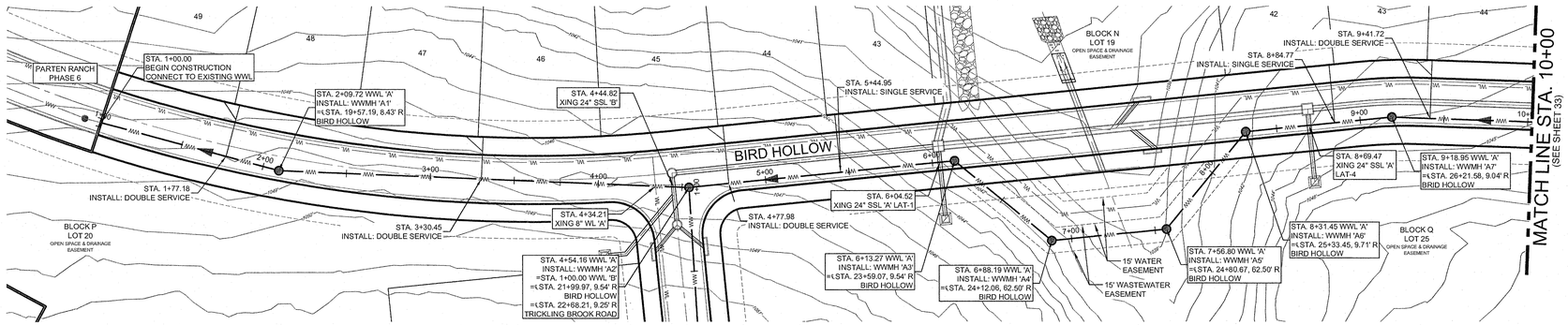
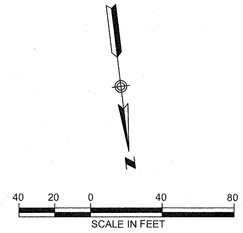
Last Modified: Mar. 06, 23 – 09:49
Plot Date/Time: Mar. 06, 23 – 10:11:47

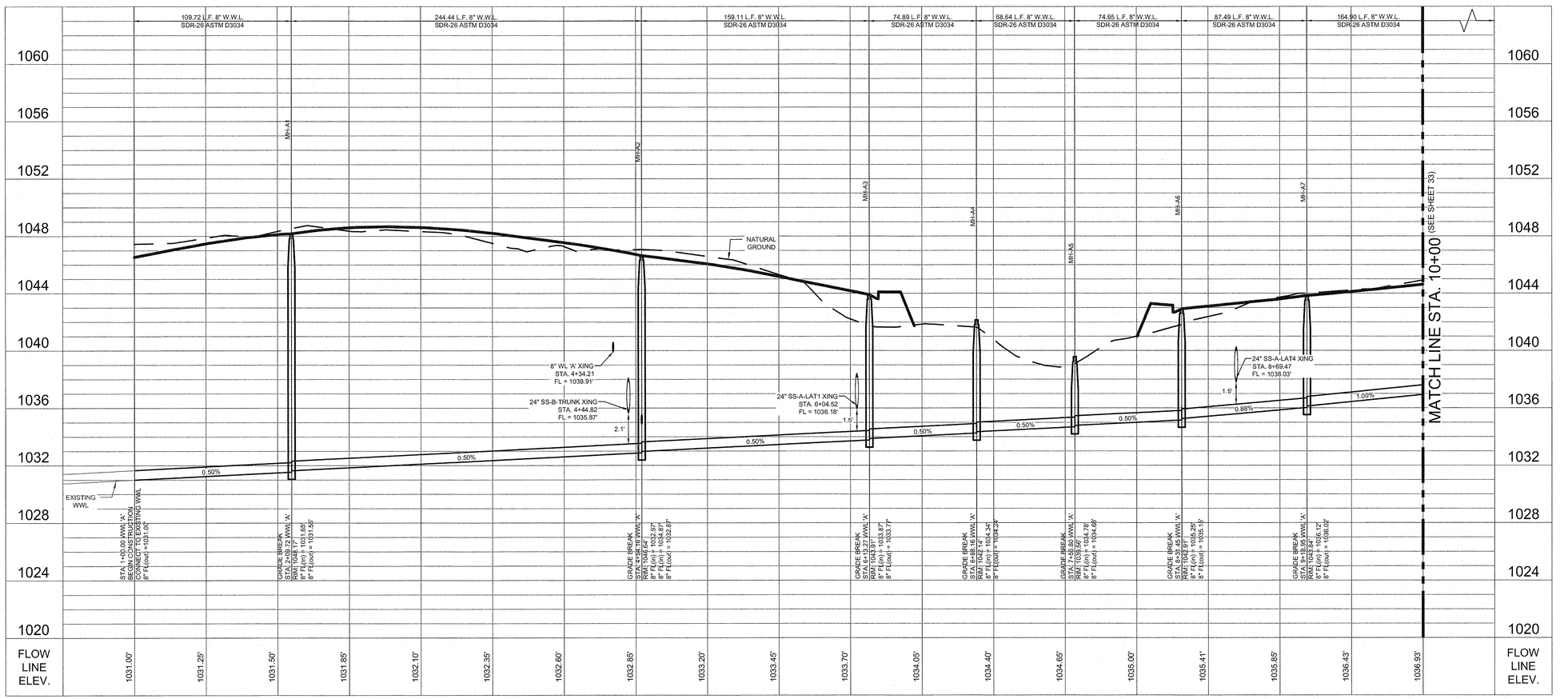




LEGEND:

- EASEMENT LINE
- R.O.W.
- WL — WATER LINE
- STORM SEWER
- WW — WASTEWATER LINE
- WASTEWATER SERVICE (DOUBLE)
- WASTEWATER SERVICE (SINGLE)
- PROPOSED WW MANHOLE
- FLOW DIRECTION

WASTEWATER LINE 'A'
STA. 1+00 TO 10+00



NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
2. ALL GRAVITY WASTEWATER LINES TO BE SDR-26 D3034 PVC UNLESS OTHERWISE NOTED.
3. ALL MANHOLES TO BE COATED PER COA SPECIFICATIONS.

PARTEN RANCH PHASE 8

WASTEWATER LINE 'A'
(1+00 TO 10+00)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-WW.dwg

LAUREN CRONE
STATE OF TEXAS
128018
LICENSED PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 32 OF 50 SHEETS

I:\A311 Parten Ranch\413 Parten Ranch Phase 8\Submittal Drawings\PH8-WW.dwg
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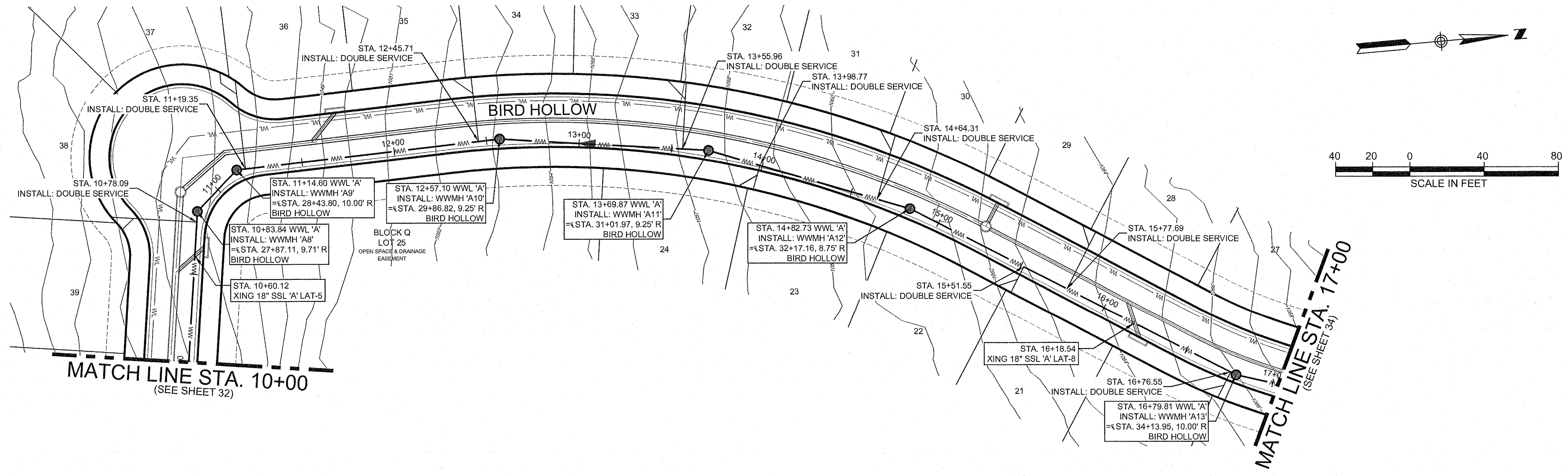
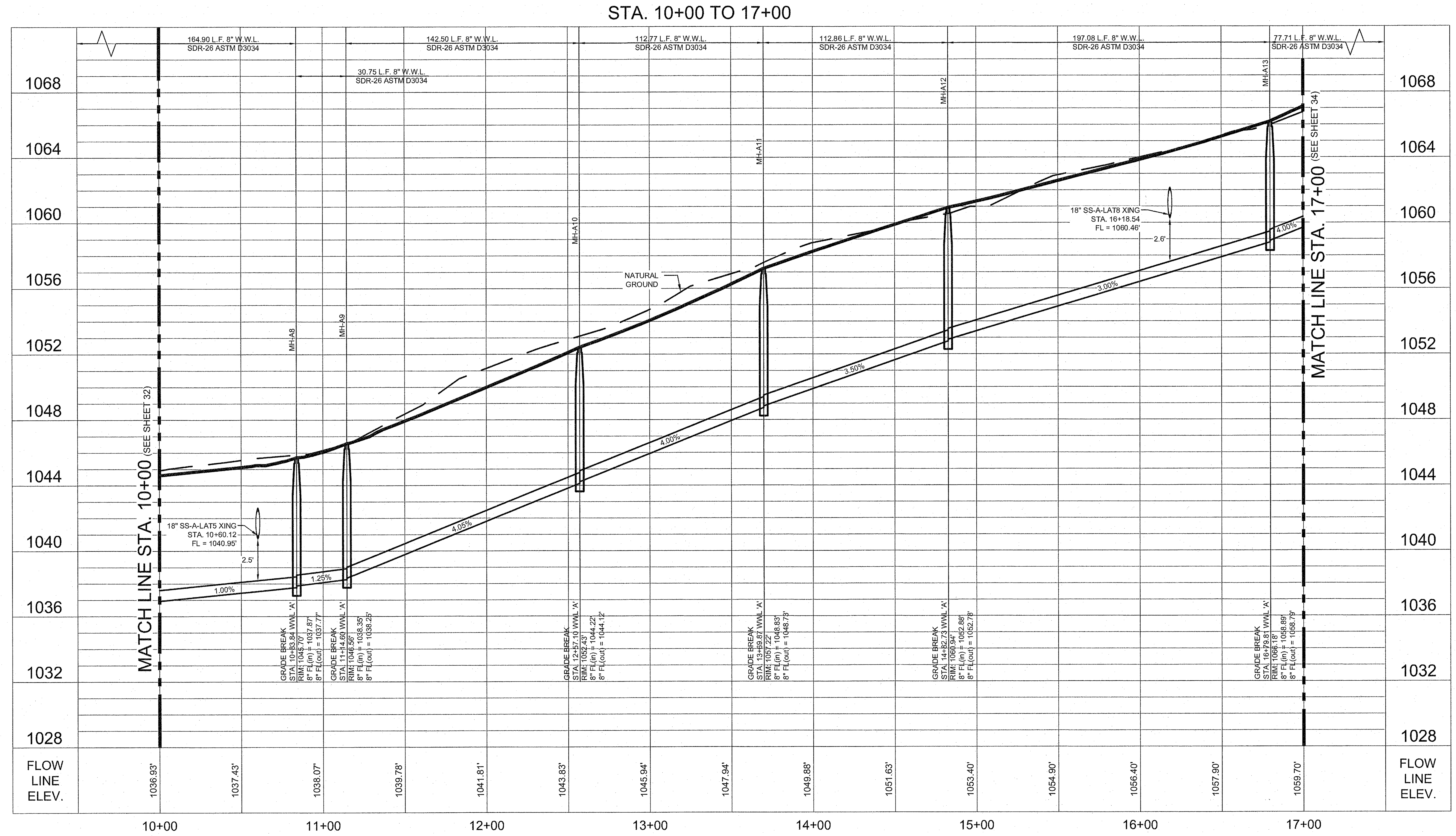
Last Modified: Nov. 01, 22 - 09:48
Plot Date/Time: Nov. 01, 22 - 10:31:35



LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER LINE
- STORM SEWER
- WASTEWATER LINE
- WASTEWATER SERVICE (DOUBLE)
- WASTEWATER SERVICE (SINGLE)
- PROPOSED WW MANHOLE
- FLOW DIRECTION

WASTEWATER LINE 'A' STA. 10+00 TO 17+00



NOTES:

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2. ALL GRAVITY WASTEWATER LINES TO BE SDR-26 D3034 PVC UNLESS OTHERWISE NOTED.
3. ALL MANHOLES TO BE COATED PER COA SPECIFICATIONS.

PARTEN RANCH PHASE 8

WASTEWATER LINE 'A' (10+00 TO 17+00)

NO.	DESCRIPTION	BY	DATE
REVISIONS			

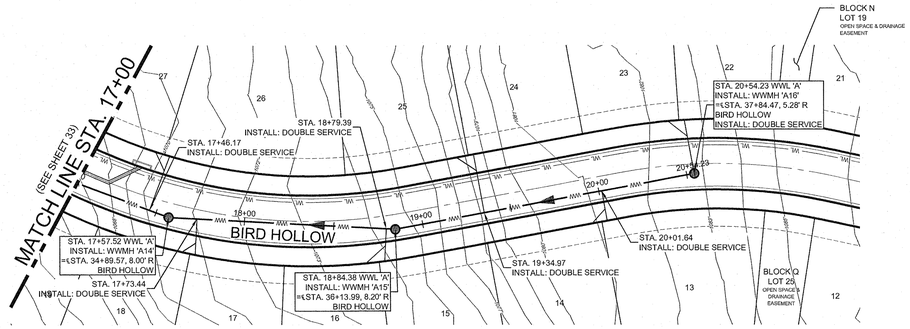
DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-WW.dwg

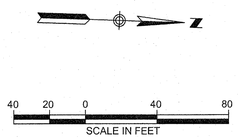
STATE OF TEXAS — LAUREN CRONE 128018 — LICENSED PROFESSIONAL ENGINEER — 3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
Phone 512.439.4700 Fax 512.439.4716 FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 33 OF 50 SHEETS

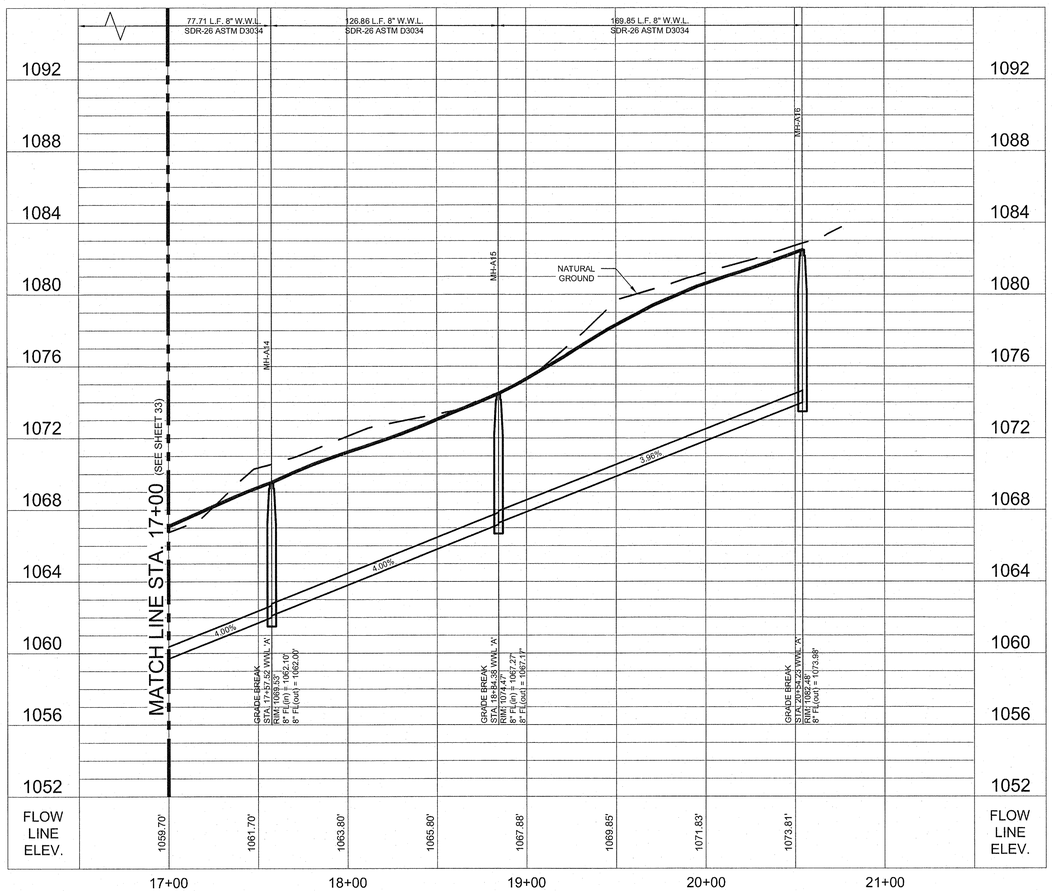




LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER LINE
- STORM SEWER
- WASTEWATER LINE
- WASTEWATER SERVICE (DOUBLE)
- WASTEWATER SERVICE (SINGLE)
- PROPOSED WW MANHOLE
- FLOW DIRECTION

WASTEWATER LINE 'A'
STA. 17+00 TO END



NOTES:

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PARTEN RANCH PHASE 8
WASTEWATER LINE 'A'
(17+00 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-WW.dwg

LAUREN CRONE
STATE OF TEXAS
128018
LICENSED PROFESSIONAL ENGINEER
5/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 34 OF 50 SHEETS

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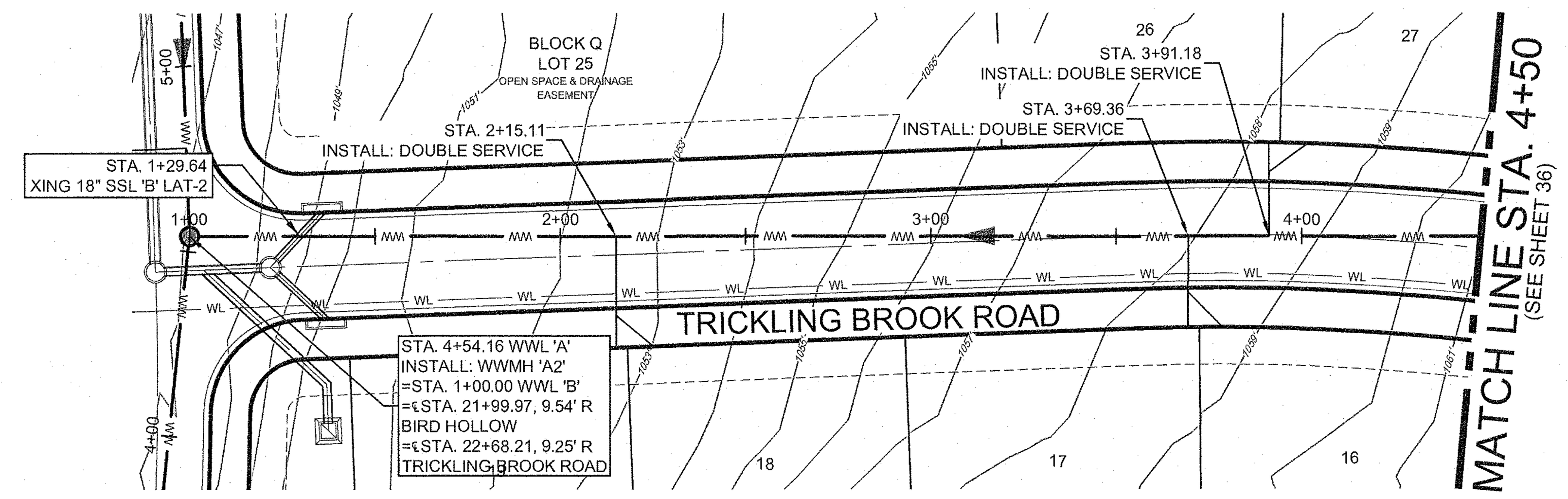
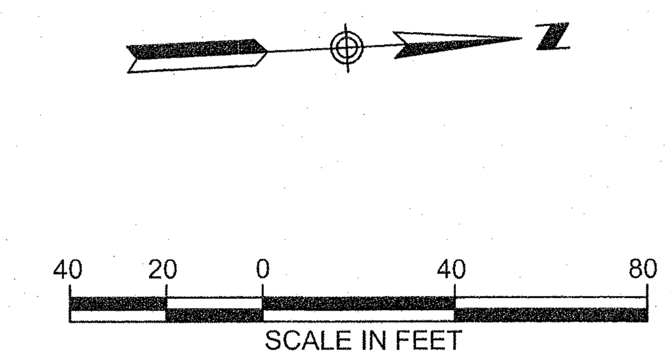
Last Modified: Nov. 01, 22 - 09:48
Plot Date/Time: Nov. 10, 22 - 10:31:55

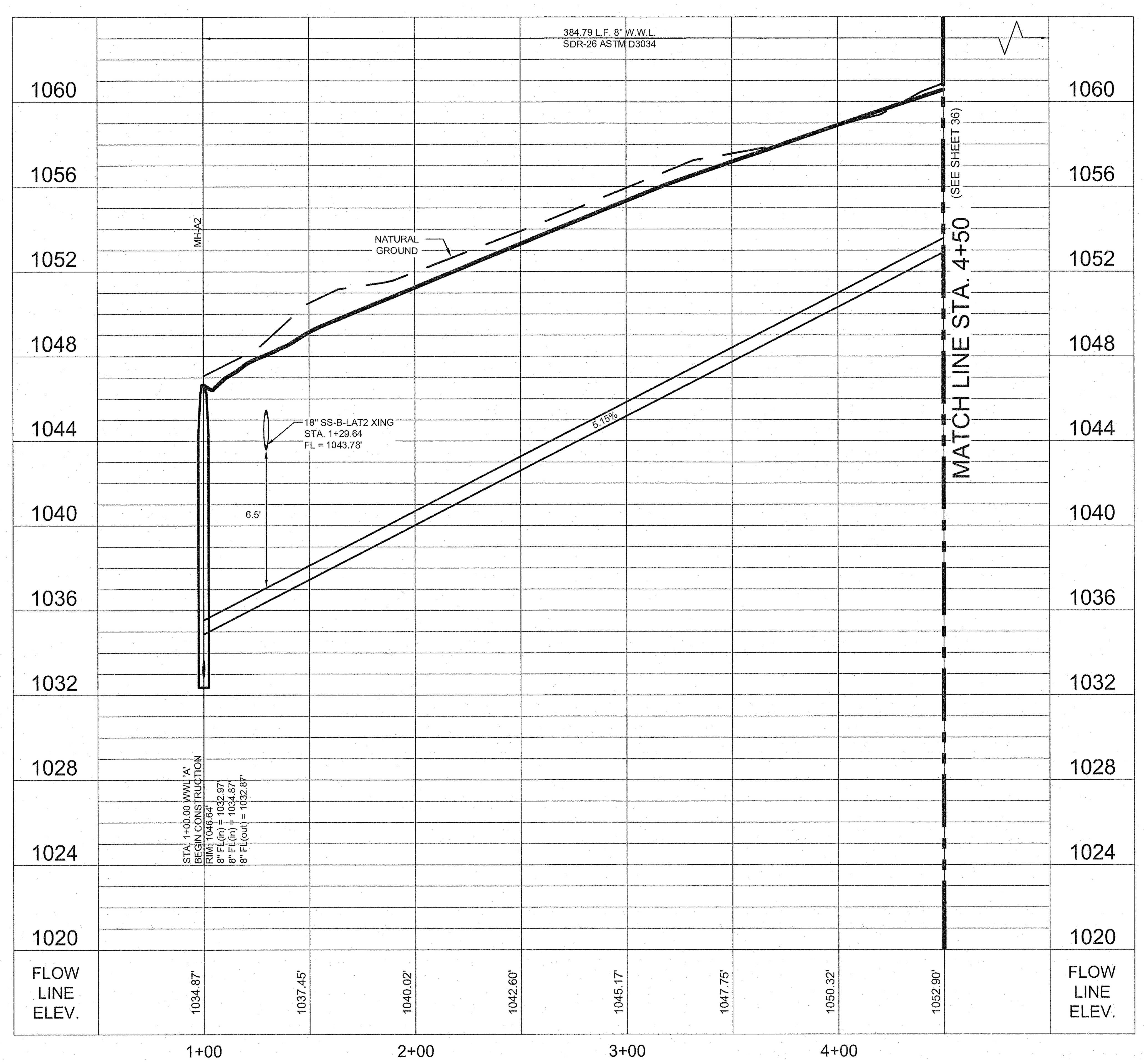




LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER LINE
- STORM SEWER
- WASTEWATER LINE
- WASTEWATER SERVICE (DOUBLE)
- WASTEWATER SERVICE (SINGLE)
- PROPOSED WW MANHOLE
- FLOW DIRECTION

WASTEWATER LINE 'B'
STA. 1+00 TO 4+50



NOTES:

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2. ALL GRAVITY WASTEWATER LINES TO BE SDR-26 D3034 PVC UNLESS OTHERWISE NOTED.
3. ALL MANHOLES TO BE COATED PER COA SPECIFICATIONS.

PARTEN RANCH PHASE 8
WASTEWATER LINE 'B'
(1+00 TO 4+50)

NO.	REVISIONS DESCRIPTION	BY	DATE

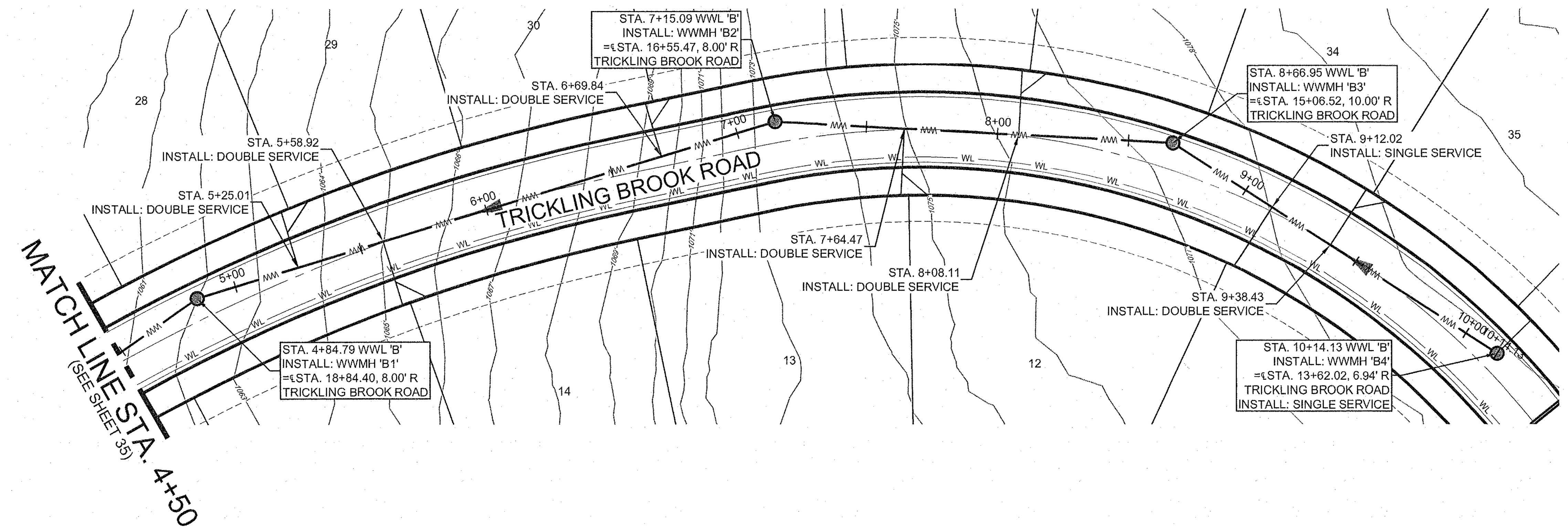
DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-WW.dwg

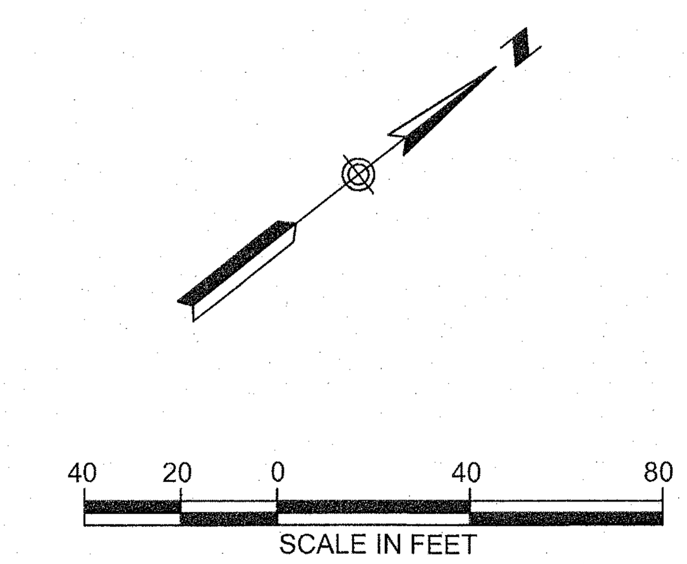
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED
PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 35 OF 50 SHEETS

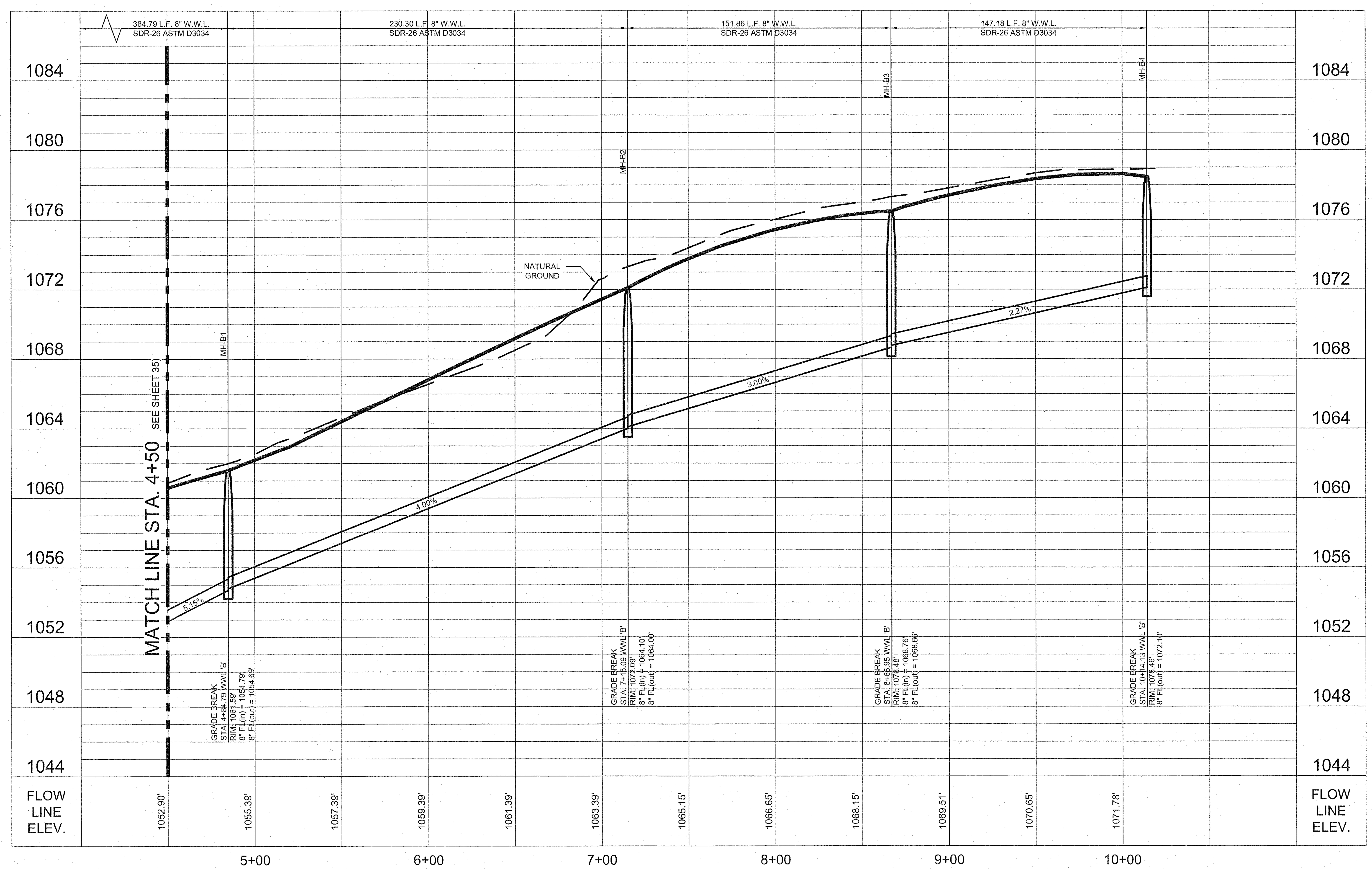




LEGEND:

- EASEMENT LINE
- R.O.W.
- WATER LINE
- STORM SEWER
- WASTEWATER LINE
- WASTEWATER SERVICE (DOUBLE)
- WASTEWATER SERVICE (SINGLE)
- PROPOSED WW MANHOLE
- FLOW DIRECTION

WASTEWATER LINE 'B'
STA. 4+50 TO END



NOTES:

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PARTEN RANCH PHASE 8
WASTEWATER LINE 'B'
(4+50 TO END)

REVISIONS			
NO.	DESCRIPTION	BY	DATE

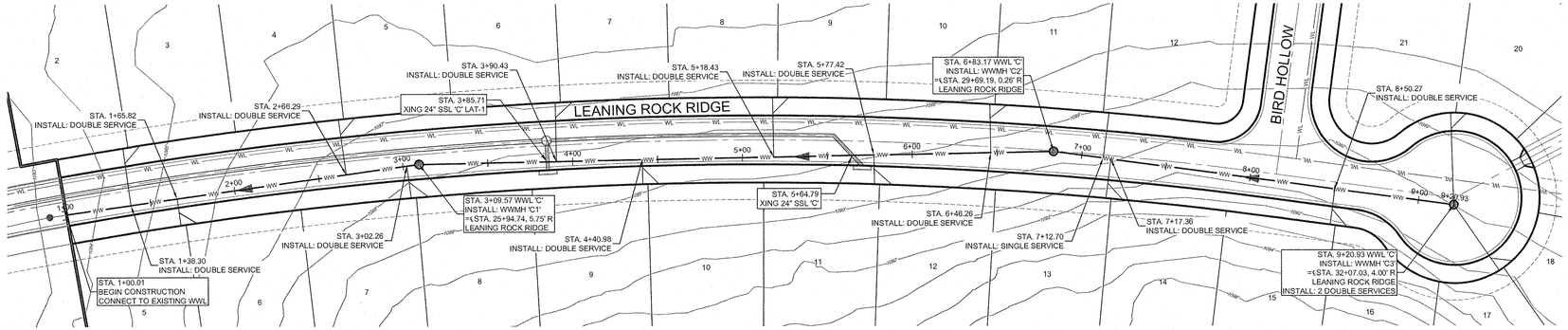
DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-WW.dwg

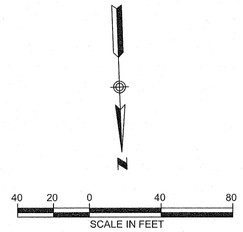
Lauren Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED
PROFESSIONAL ENGINEER
3/6/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 36 OF 50 SHEETS

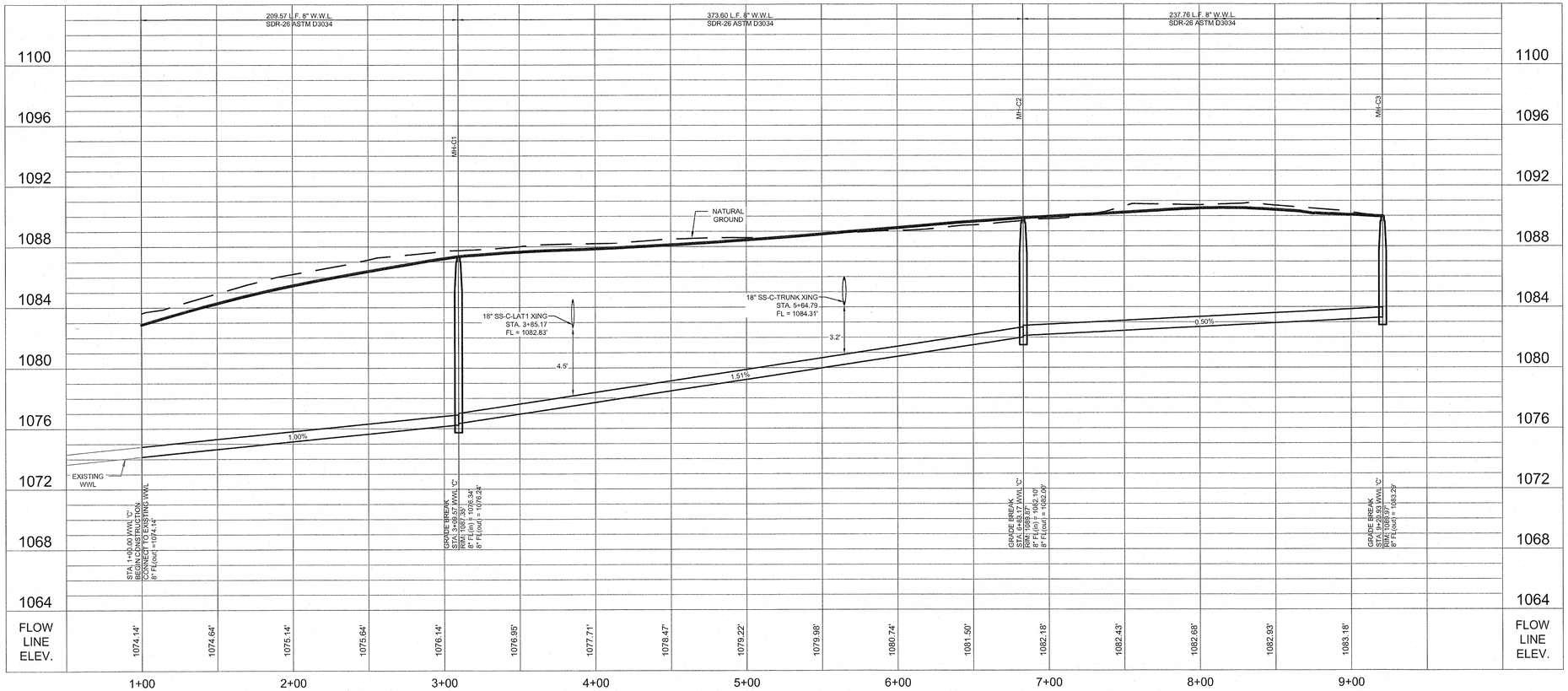




LEGEND:

- EASEMENT LINE
- R.O.W.
- WL — WATER LINE
- STORM SEWER
- WW — WASTEWATER LINE
- WASTEWATER SERVICE (DOUBLE)
- WASTEWATER SERVICE (SINGLE)
- PROPOSED WW MANHOLE
- FLOW DIRECTION

WASTEWATER LINE 'C'
STA. 1+00 TO END



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PARTEN RANCH PHASE 8

WASTEWATER LINE 'C'
(1+00 TO END)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-WW.dwg

LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
2/10/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 37
OF 50 SHEETS

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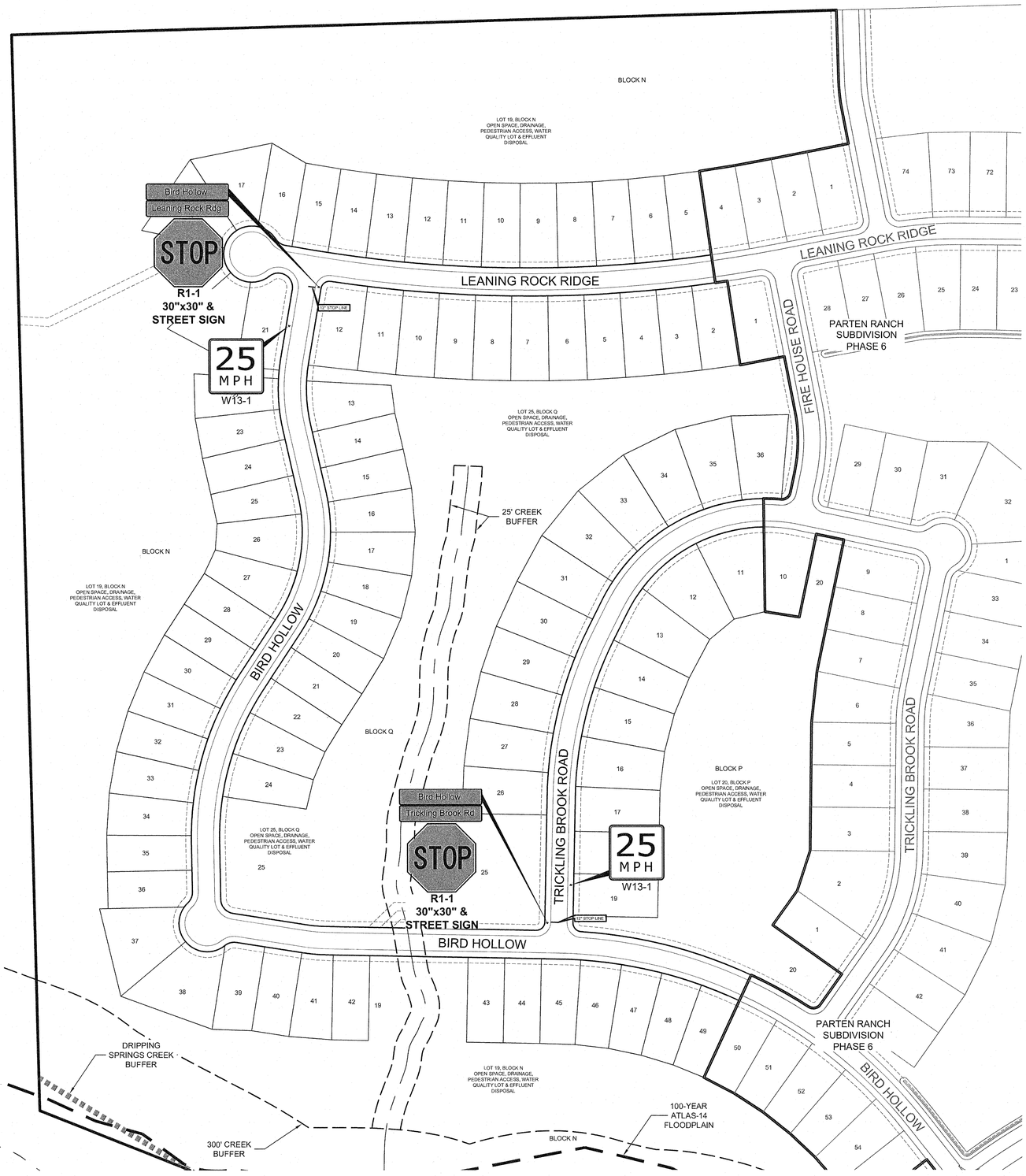
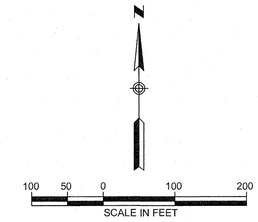
User: cronne
Last Modified: Mar. 06, 23 – 10:09
Plot Date/Time: Mar. 06, 23 – 10:23:22





LEGEND

- PROPOSED BOUNDARY
- CREEK BUFFER
- 100 YR FLOODPLAIN - CALCULATED (ATLAS-14 PRECIPITATION)

STRIPING NOTES:

1. ALL PAVEMENT MARKINGS ARE TO BE THERMOPLASTIC.
2. ALL SIGNS SHALL BE RETRO-REFLECTIVE PER LATEST FHWA STANDARDS AS DESCRIBED IN THE LATEST TEXAS MANUAL OF TRAFFIC CONTROL DEVICES (TMUTCD).
3. THE STOP LINE SHALL BE PLACED NO MORE THAN 30 FEET FROM THE NEAREST EDGE OF THE INTERSECTING TRAVELED WAY AND IN ADVANCE OF A NEARBY CROSSWALK OR CURB RAMP. IF THE PLACEMENT OF THE STOP LINE CAUSES THE CURB RAMP TO BE LOCATED WITHIN THE PC/PT OF CURB AND GUTTER, USE STD. DETAIL 432S-3H.
4. STREET SIGNS AND POSTS PER OWNERS REQUIREMENT AS APPROVED BY CITY OF DRIPPING SPRINGS AND HAYS COUNTY.
5. CLEAN ZONE OF 24 INCHES FOR RAISED CURB AND 10 FEET FOR RIBBON CURB, EXCEPT THAT SIGNS MAY BE POSTED AT 6 FEET FROM BACK OF CURB TO AVOID BEING PLACED IN A ROADSIDE DITCH.

PARTEN RANCH PHASE 8

TRAFFIC CONTROL PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Traffic.dwg

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 38 OF 50 SHEETS

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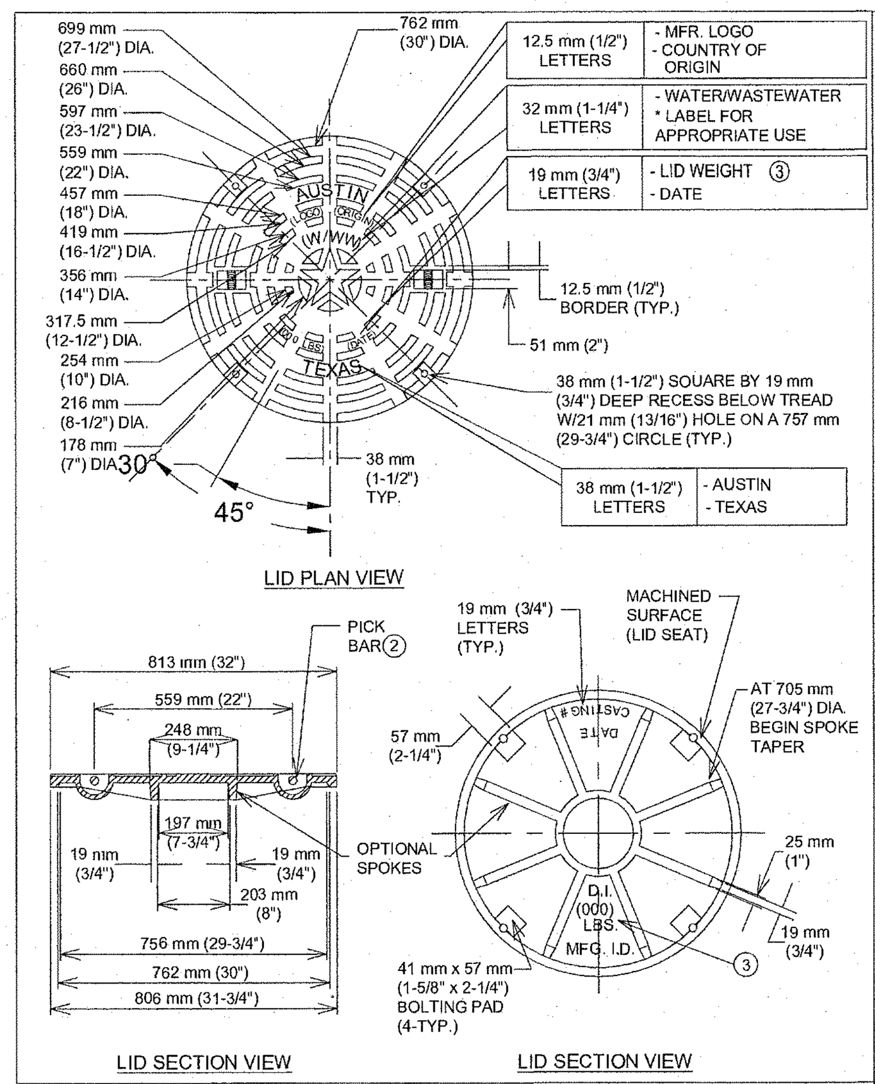
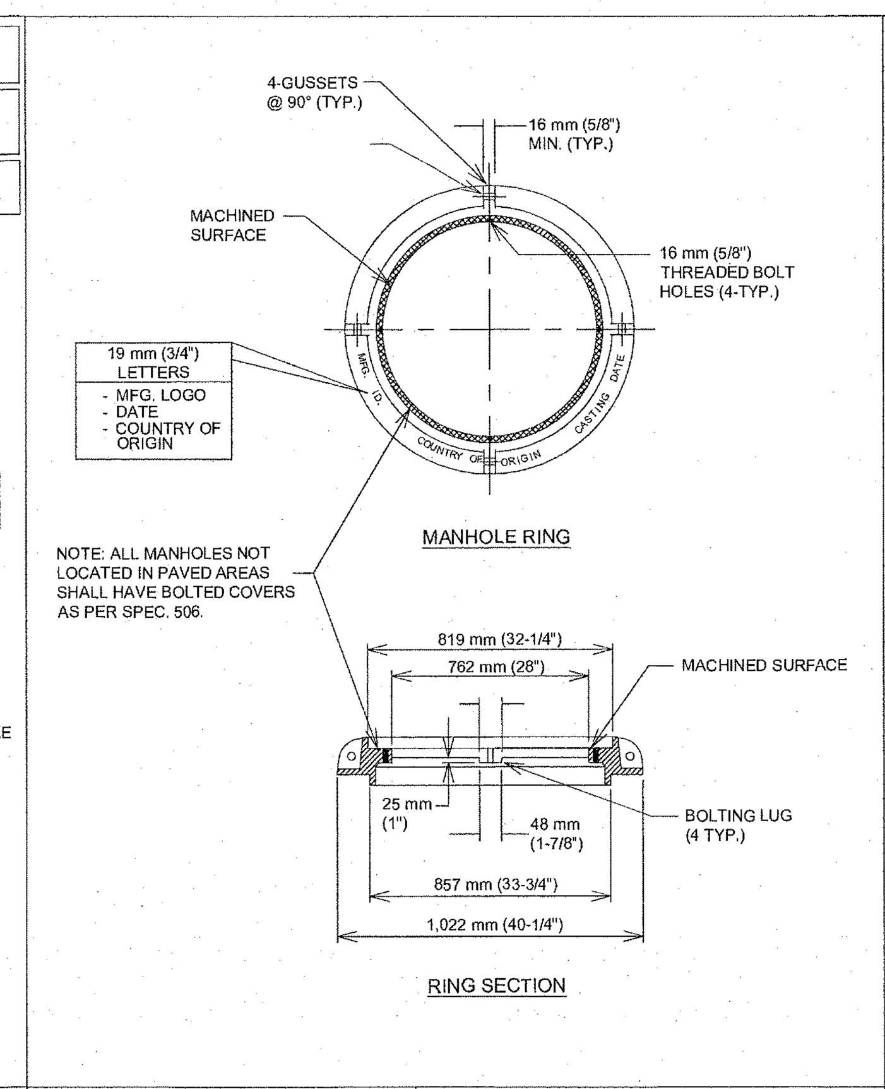
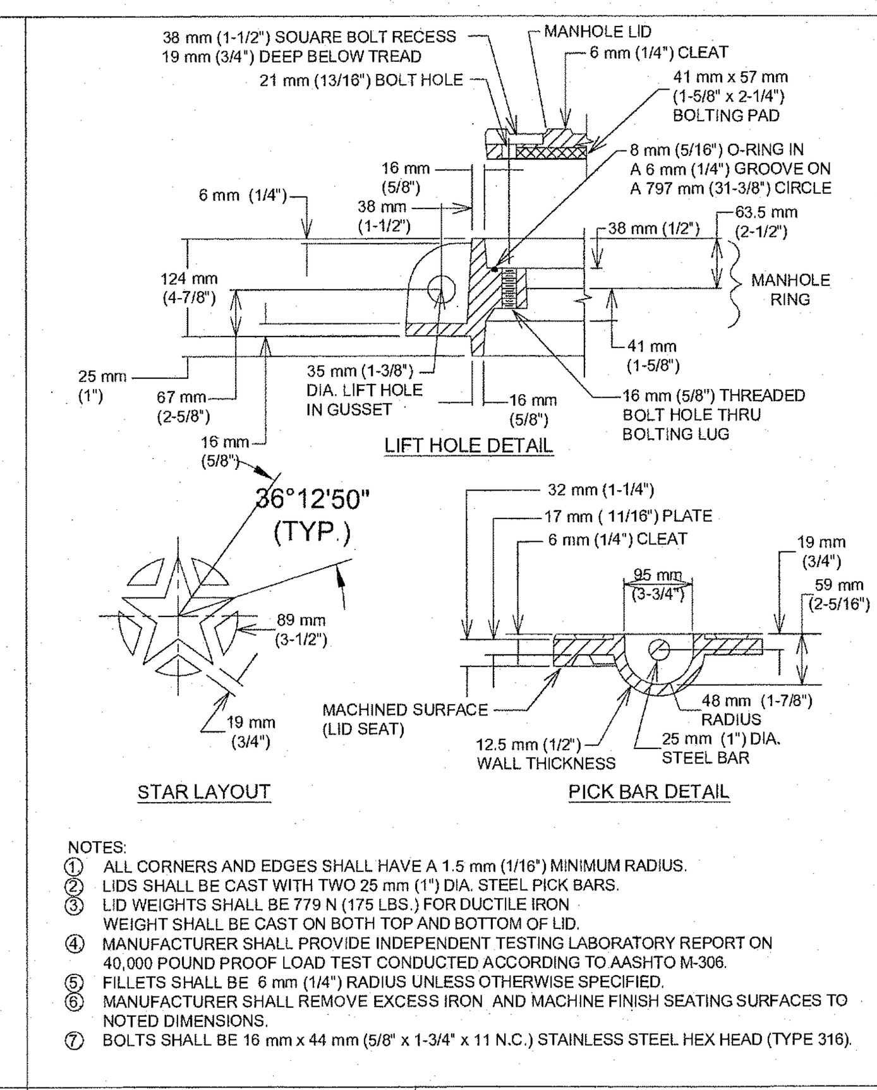
Last Modified: Oct. 31, 22 – 13:45
Plot Date/Time: Nov. 01, 22 – 10:32:49



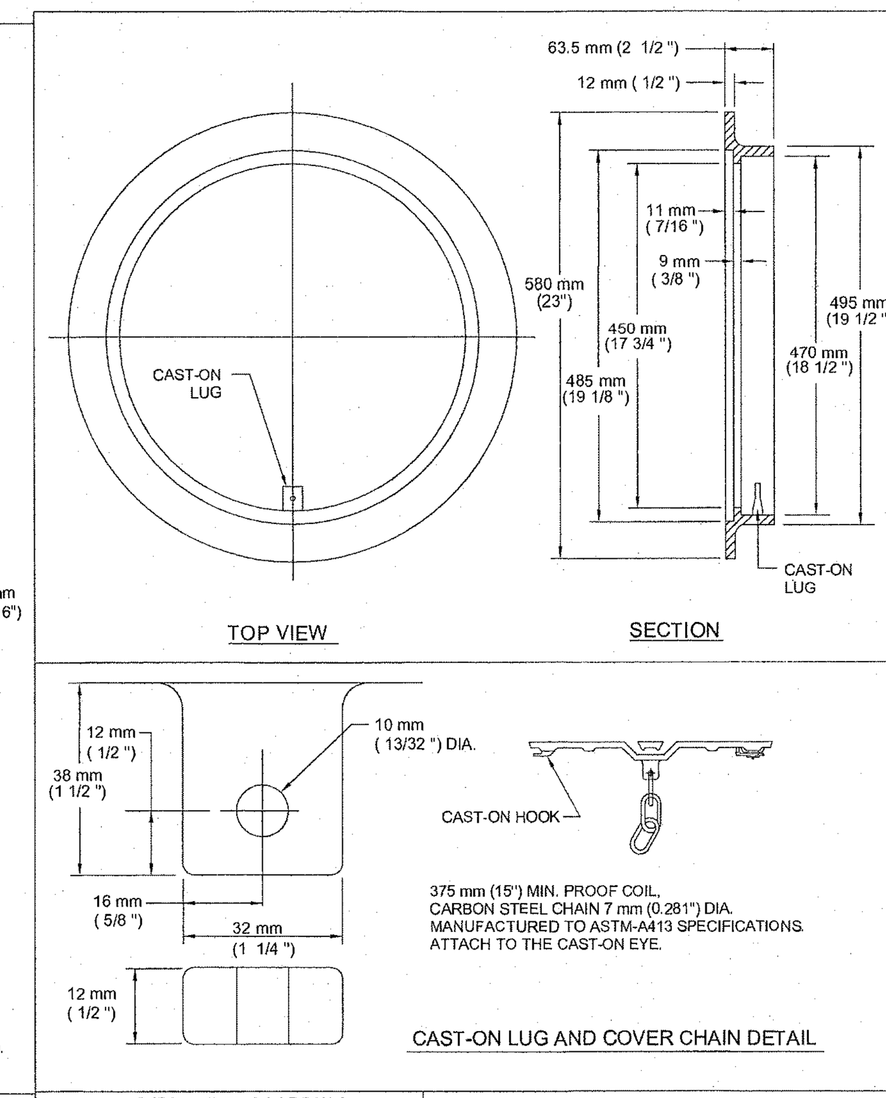
CITY OF AUSTIN
AUSTIN WATER UTILITY
BOLTED MANHOLE RING AND 813 mm 32" COVER
RECORD COPY SIGNED BY KATHI L FLOWERS 09/23/2010 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 503S-5W 1 OF 3



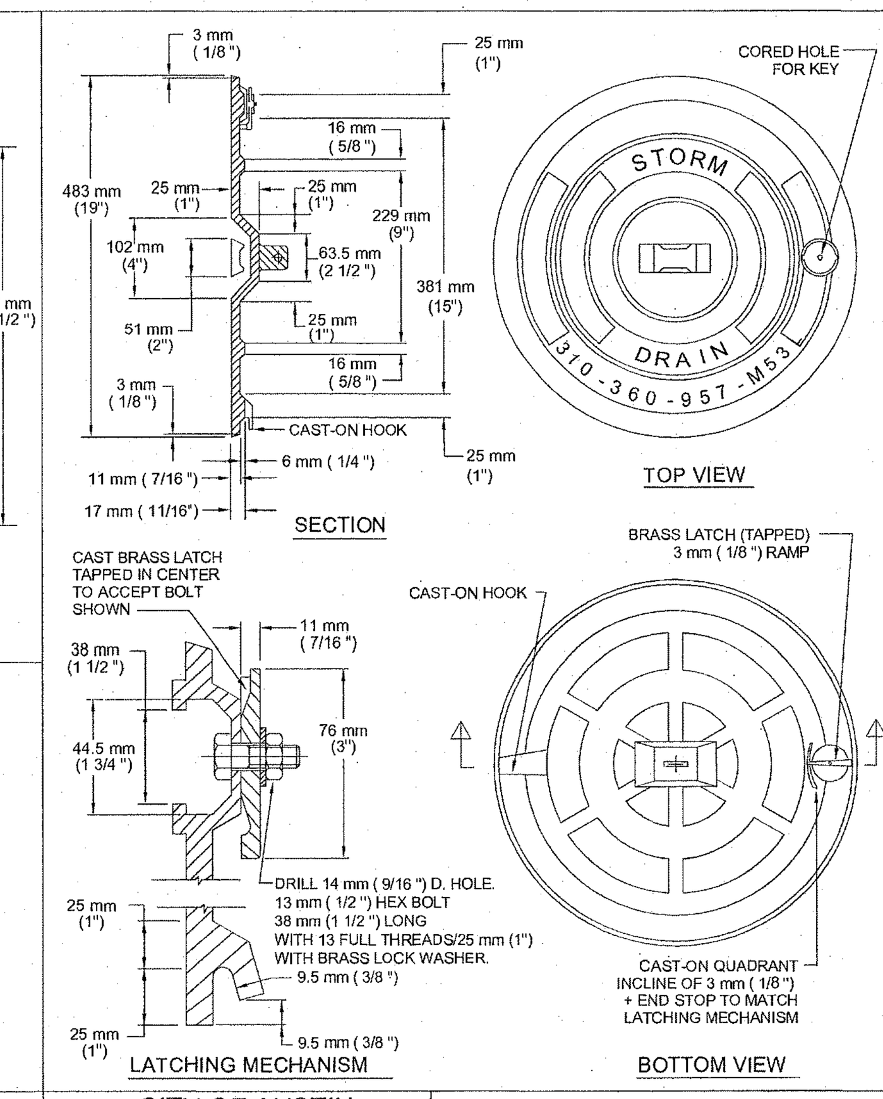
CITY OF AUSTIN
AUSTIN WATER UTILITY
BOLTED MANHOLE RING AND 813 mm 32" COVER
RECORD COPY SIGNED BY KATHI L FLOWERS 09/23/2010 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 503S-5W 2 OF 3



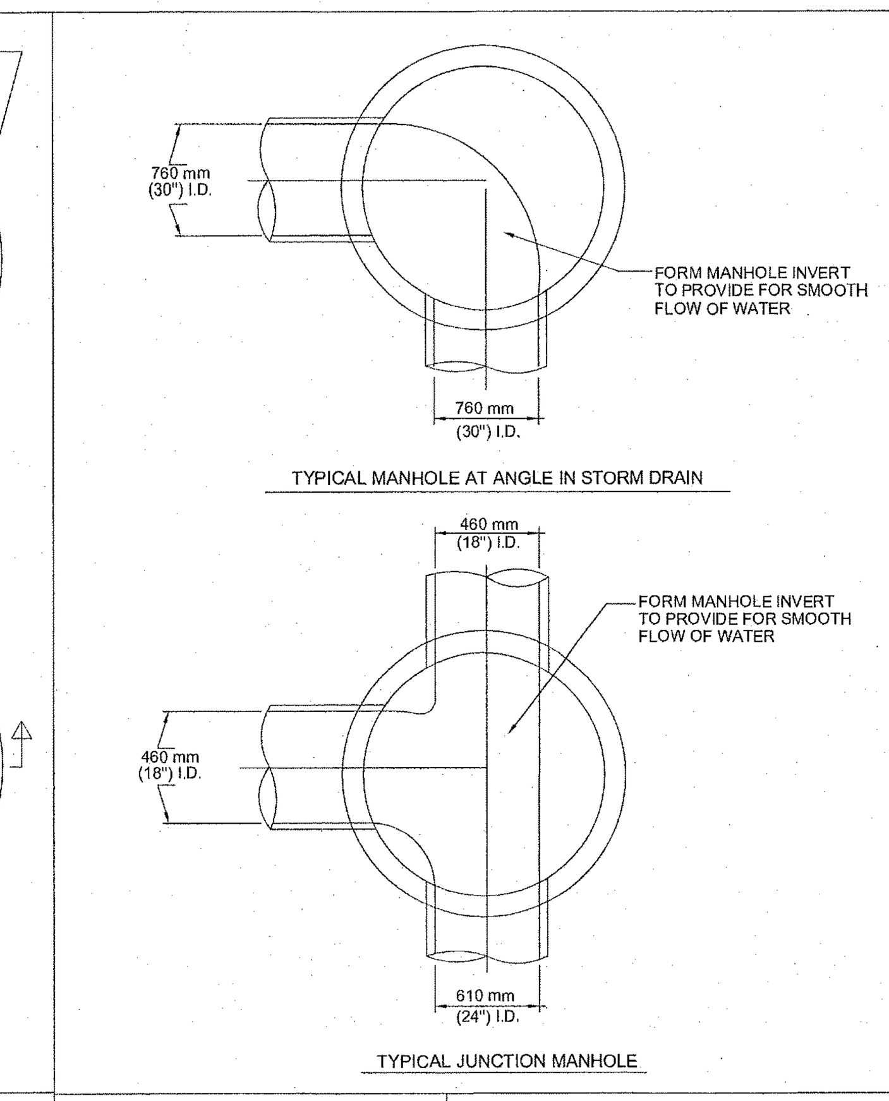
CITY OF AUSTIN
AUSTIN WATER UTILITY
BOLTED MANHOLE RING AND 813 mm 32" COVER
RECORD COPY SIGNED BY KATHI L FLOWERS 09/23/2010 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 503S-5W 3 OF 3



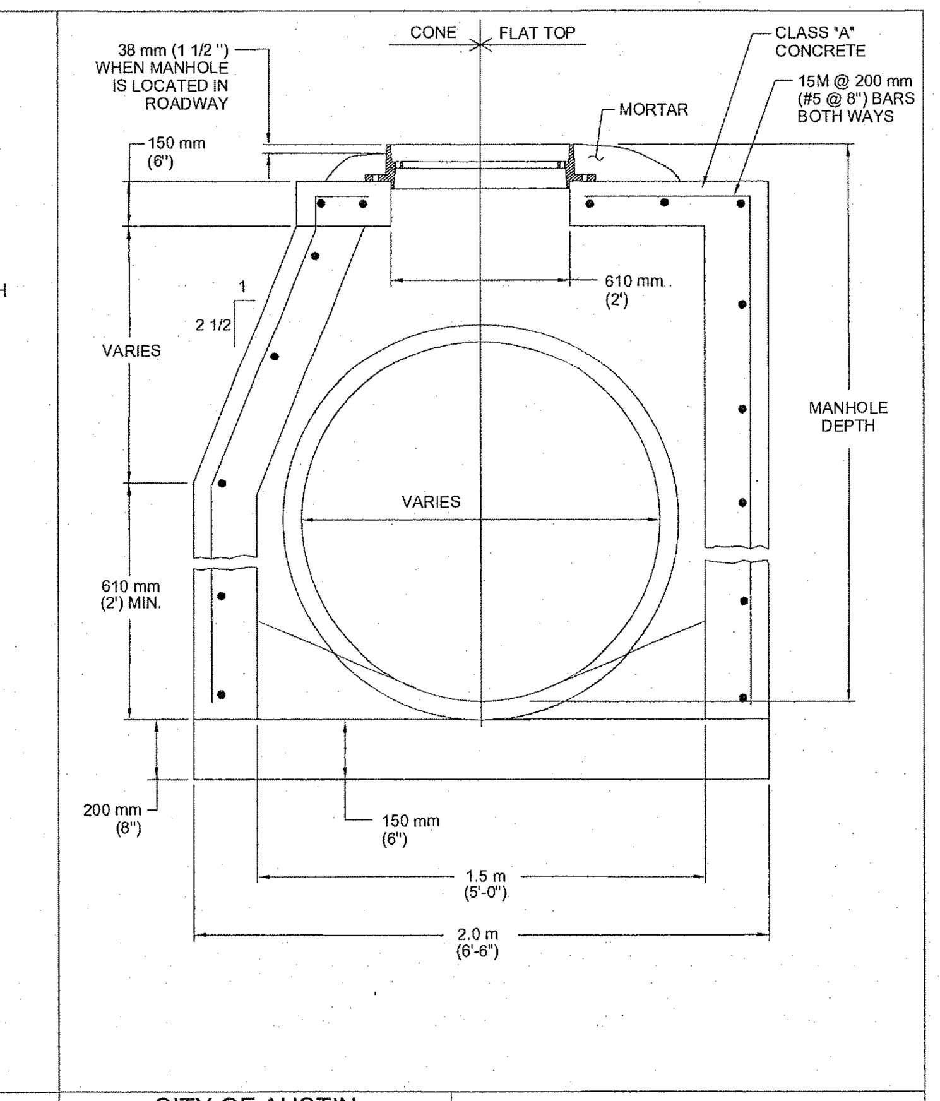
CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
457 mm (18") COVER AND FRAME
RECORD COPY SIGNED BY GEORGE E. OSWALD 2/14/02 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 503S-1 1 OF 2



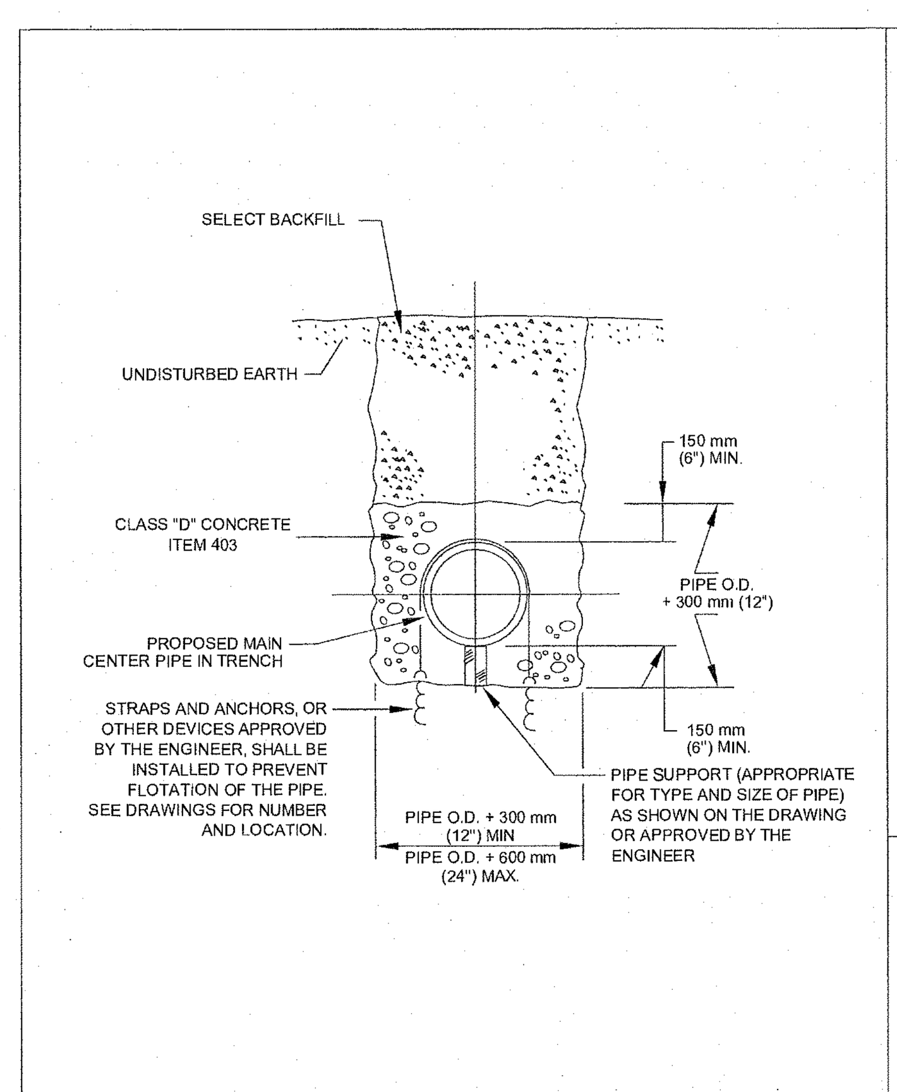
CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
457 mm (18") COVER AND FRAME
RECORD COPY SIGNED BY GEORGE E. OSWALD 2/14/02 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 503S-1 2 OF 2



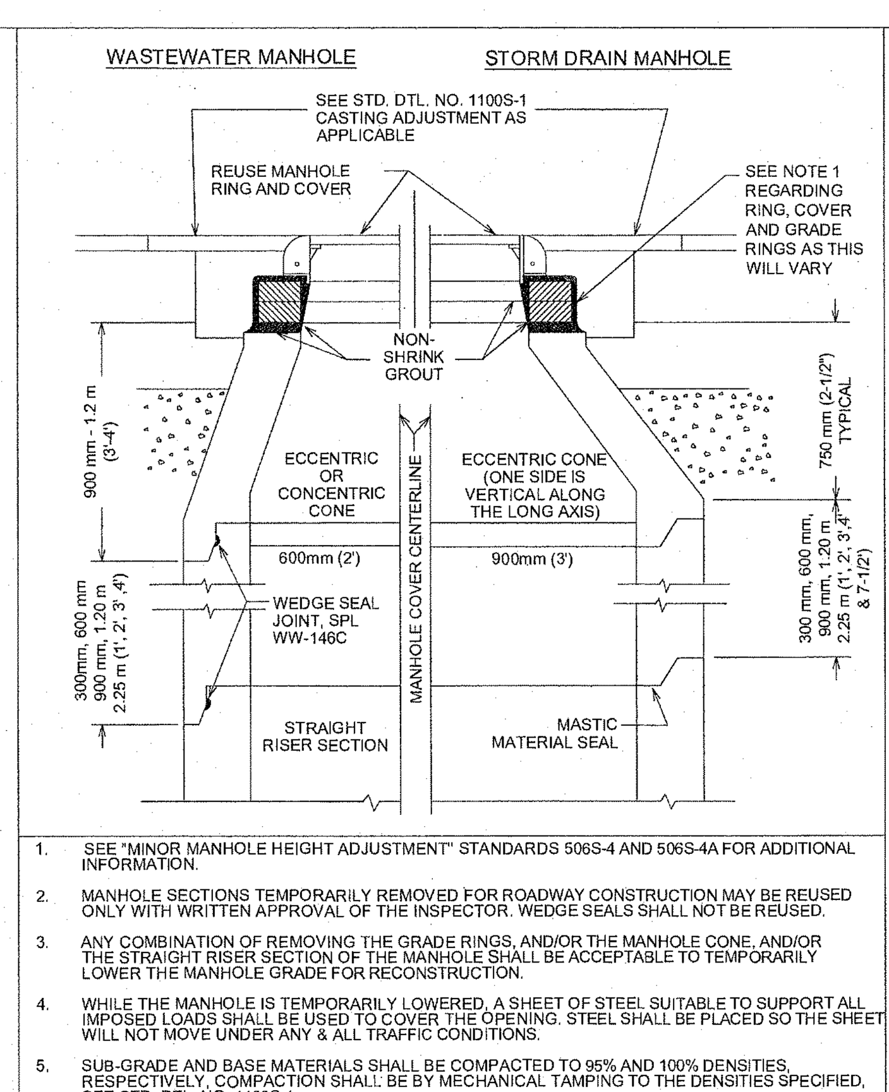
CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
MANHOLE INVERT PLAN
RECORD COPY SIGNED BY GEORGE E. OSWALD 2/14/02 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-1



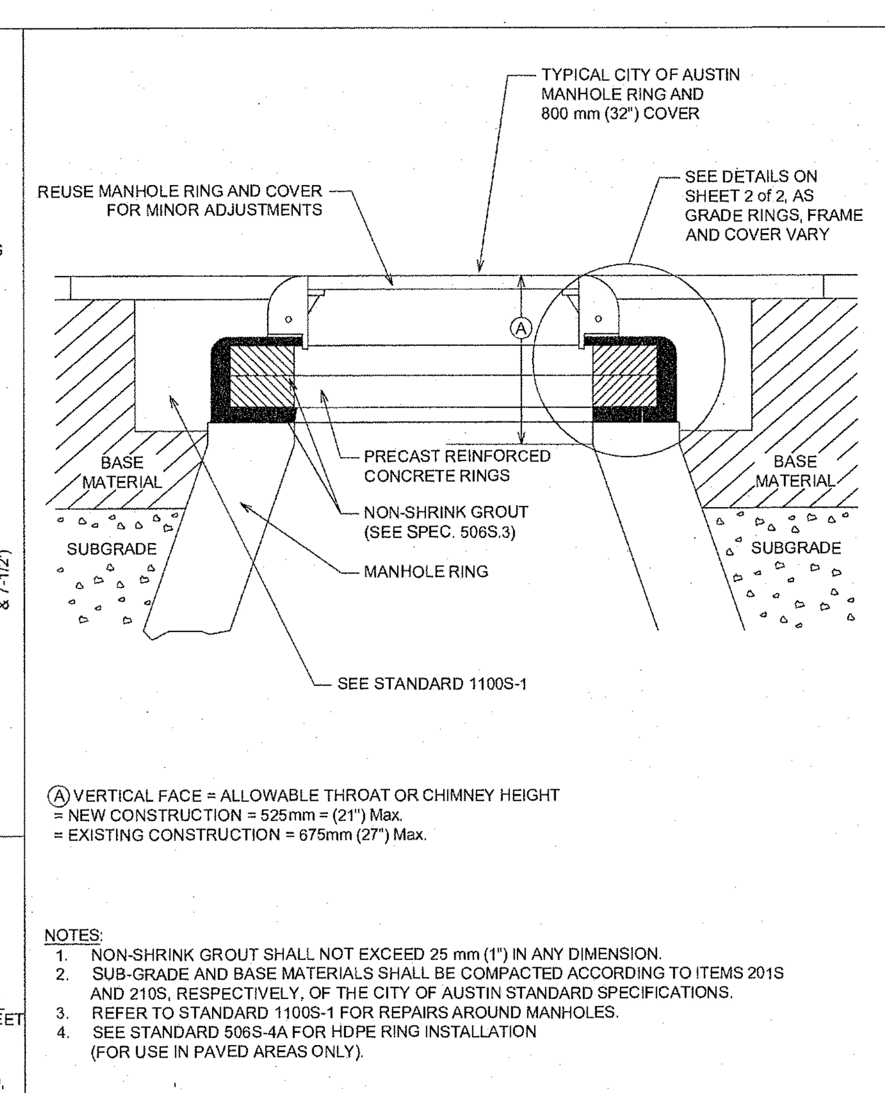
CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
STORM DRAIN MANHOLE DETAIL
RECORD COPY SIGNED BY GEORGE E. OSWALD 2/14/02 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-11



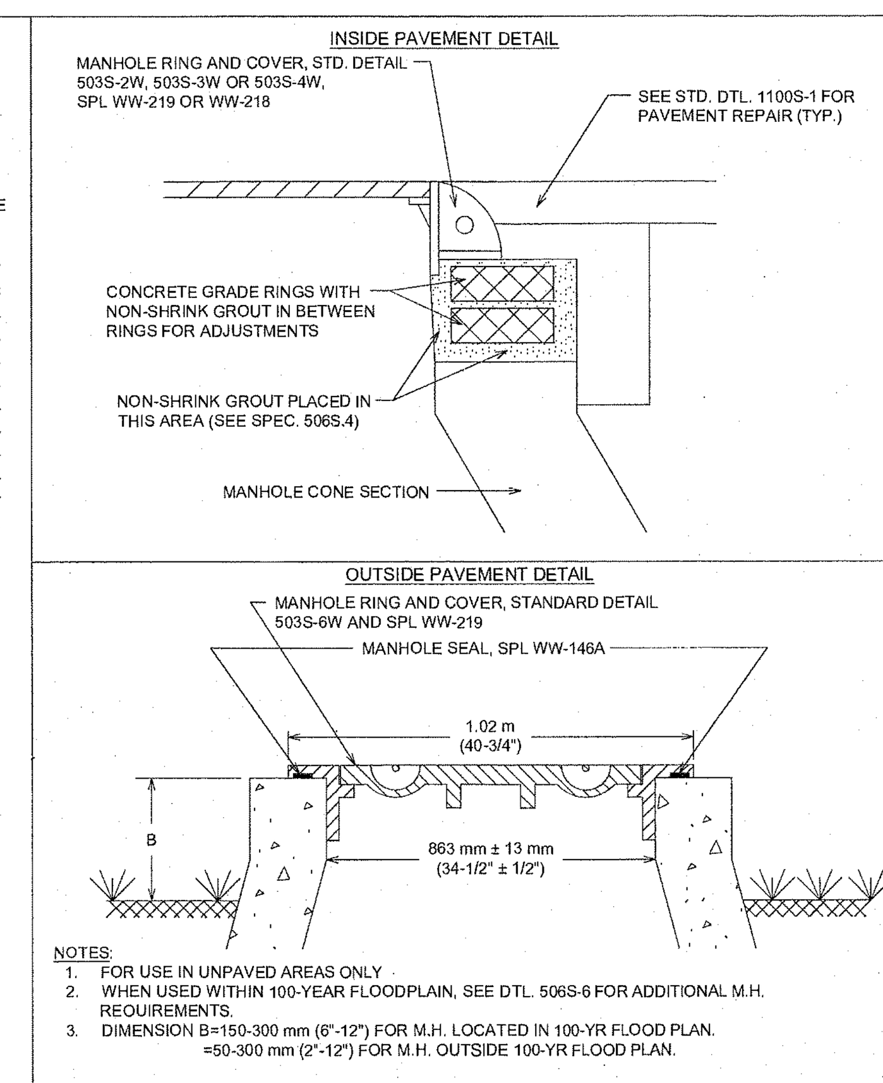
CITY OF AUSTIN
WATER AND WASTEWATER UTILITY
CONCRETE ENCASEMENT
RECORD COPY SIGNED BY LEON BARSA 8/18/00 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 505S-1



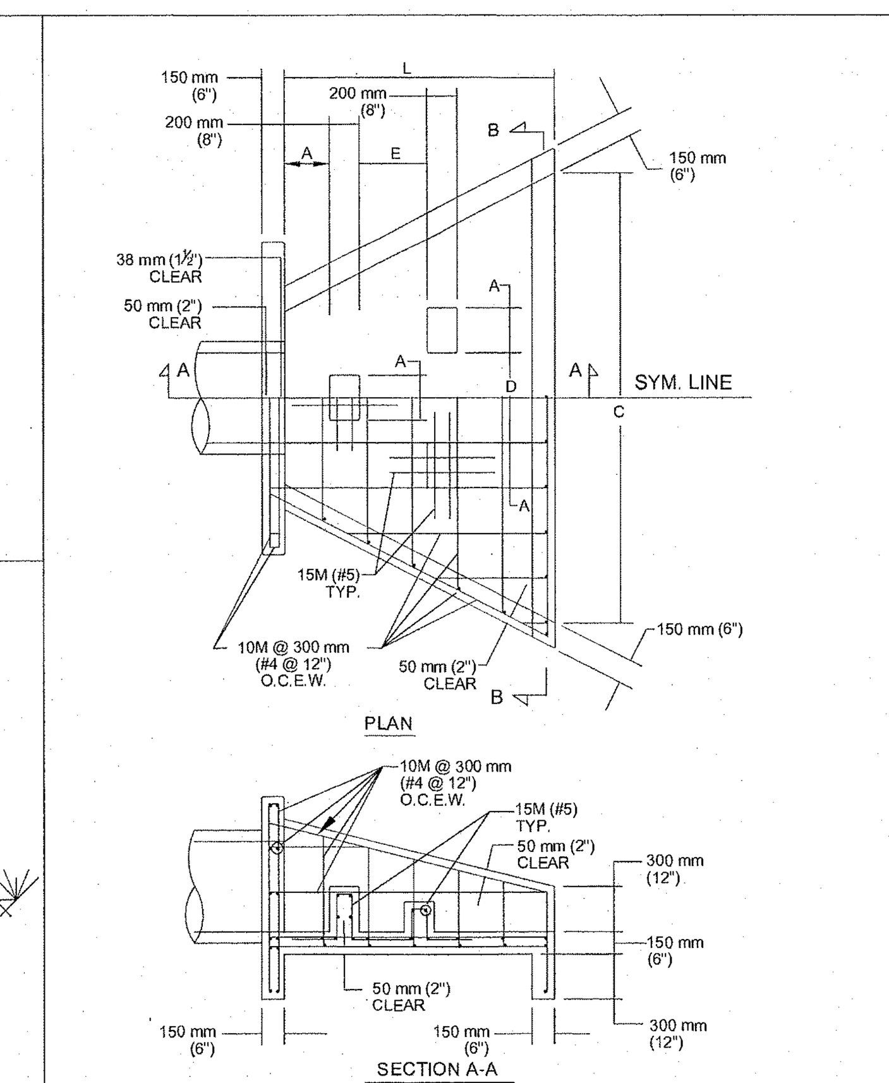
CITY OF AUSTIN
AUSTIN WATER UTILITY
MAJOR MANHOLE ADJUSTMENT
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-2



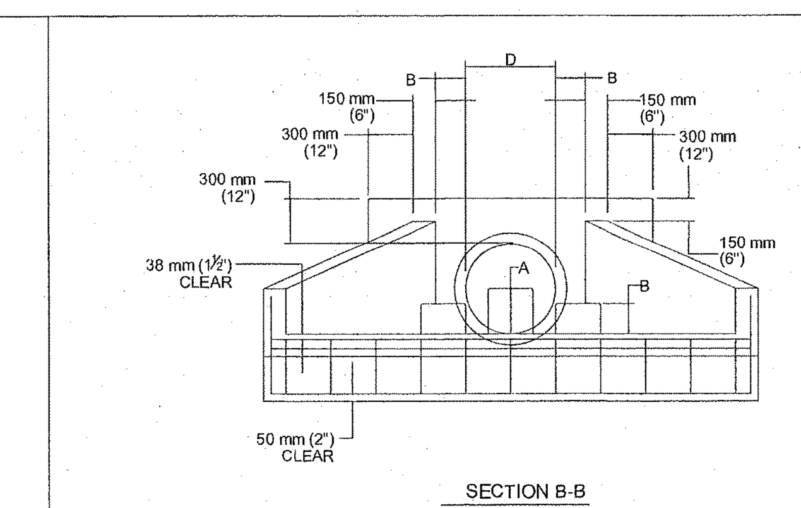
CITY OF AUSTIN
AUSTIN WATER UTILITY
MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-4 1 OF 2



CITY OF AUSTIN
AUSTIN WATER UTILITY
MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-4 2 OF 2



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



SECTION B-B

NOTES:

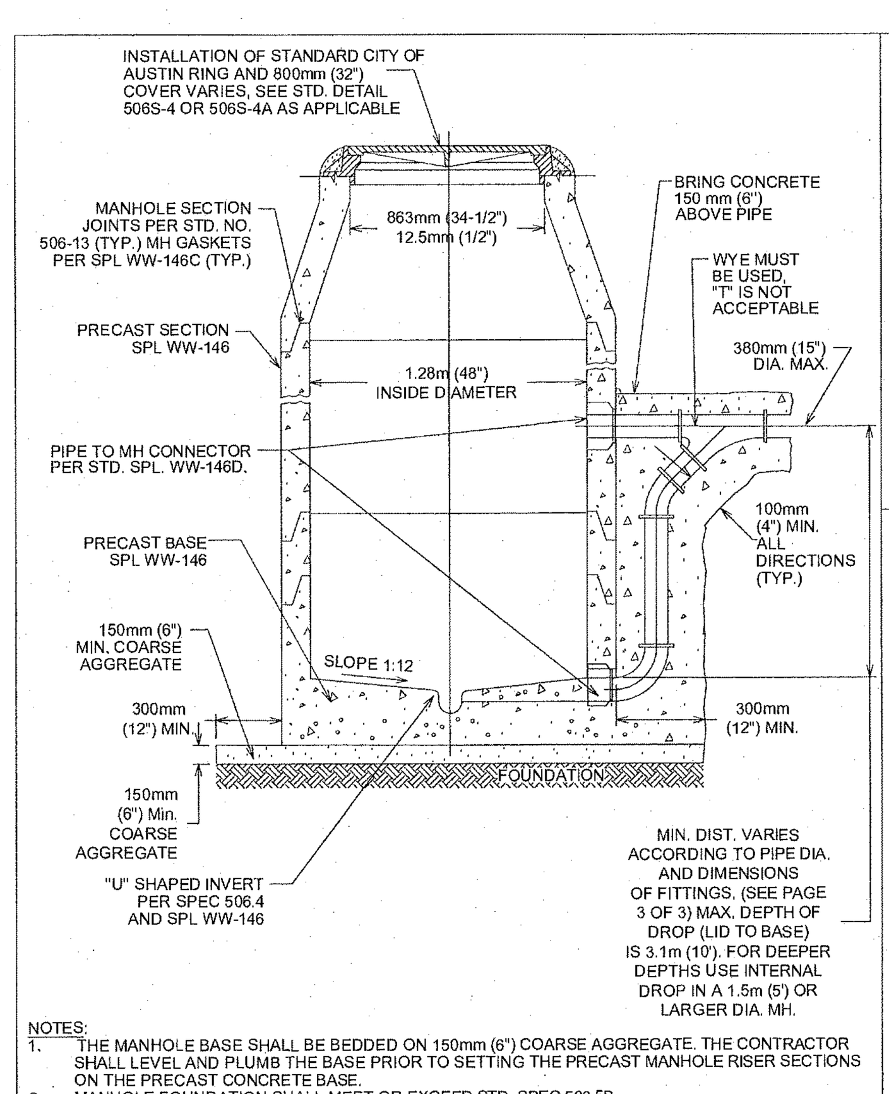
1. ALL CONCRETE SHALL BE TYPE "C" AS PER SPEC. 403S, CONCRETE FOR STURCTURES.
2. CHAMFER ALL EXTERNAL VISIBLE CORNERS.
3. DISSIPATOR BLOCKS REOUIRED ON DISCHARGE HEADWALLS ONLY.

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")

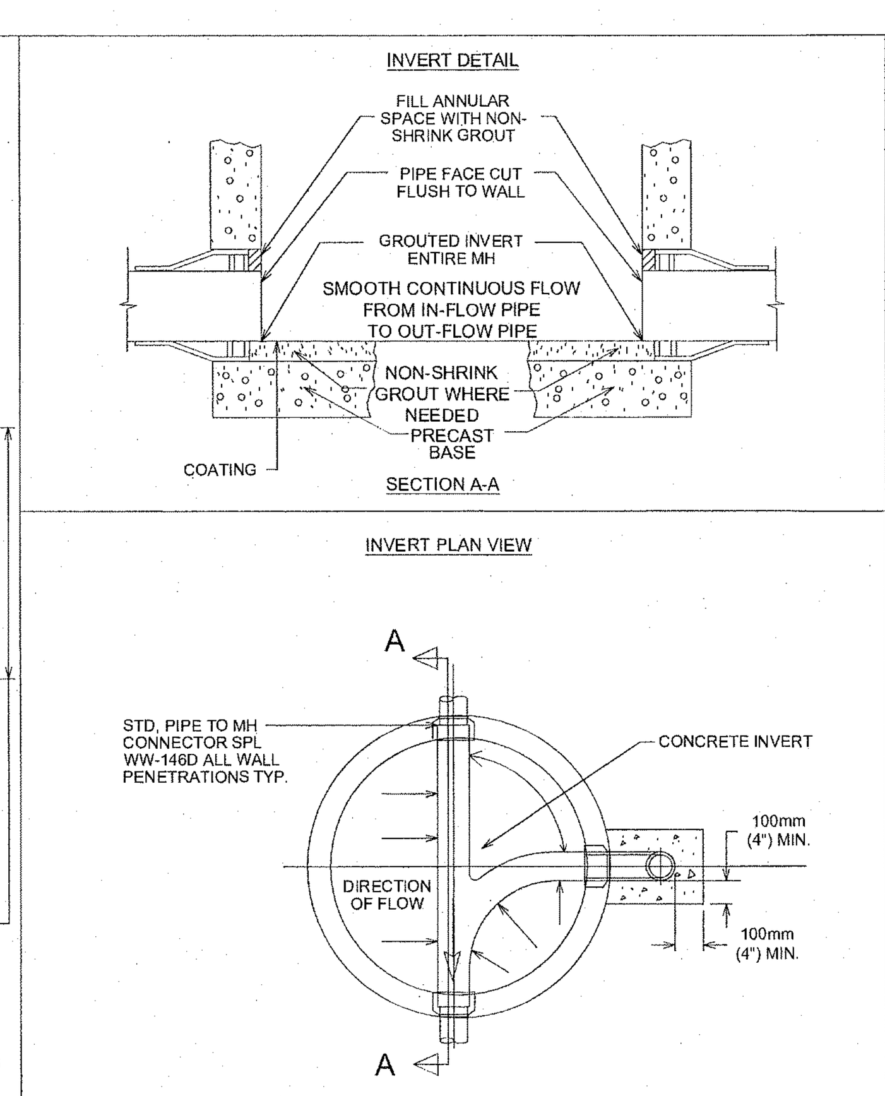
DIMENSIONS IN MILLIMETERS, METERS AND (INCHES).

DISCHARGE VELOCITIES GREATER THAN 3 METERS/SECOND (10 fps) REOUIRE ROCK OUTLET PROTECTION.

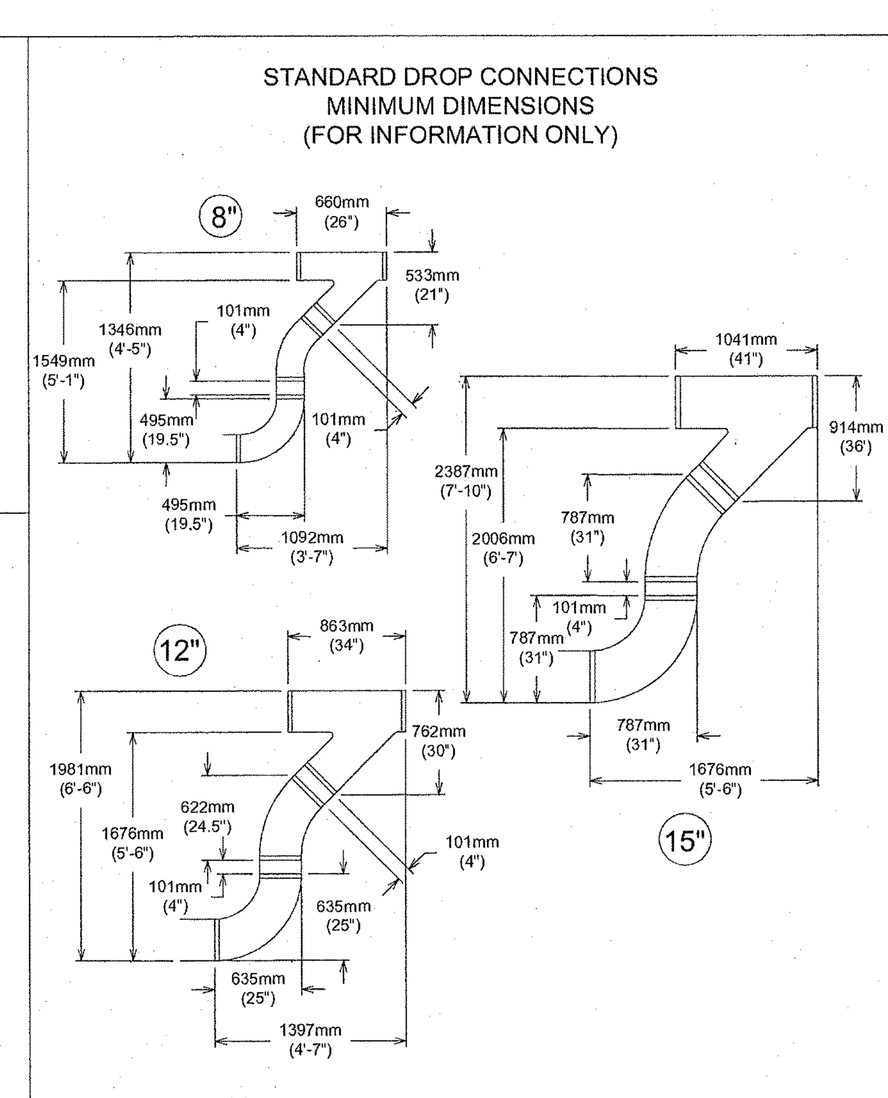
CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
STANDARD HEADWALL AND ENERGY DISSIPATORS
RECORD COPY SIGNED BY BILL GARDNER 08/20/07 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 508S-13 2 OF 2



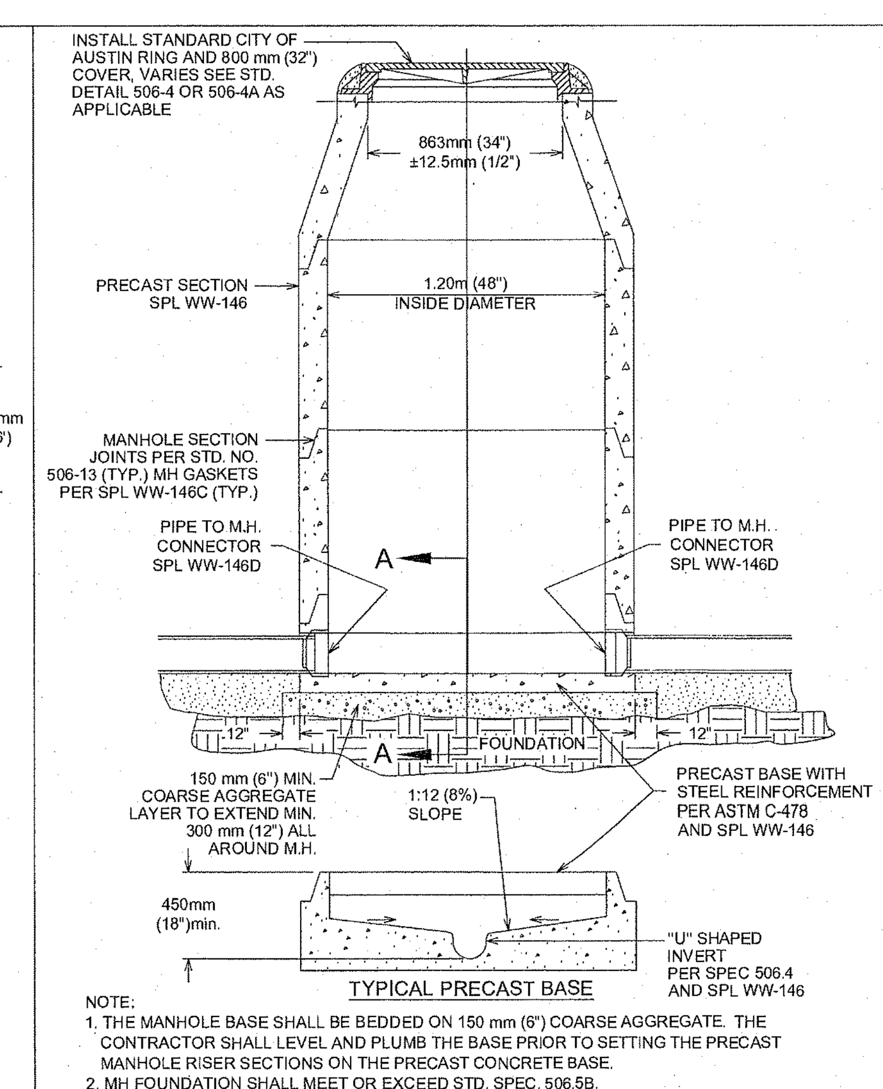
CITY OF AUSTIN
AUSTIN WATER UTILITY
PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-8 1 OF 3



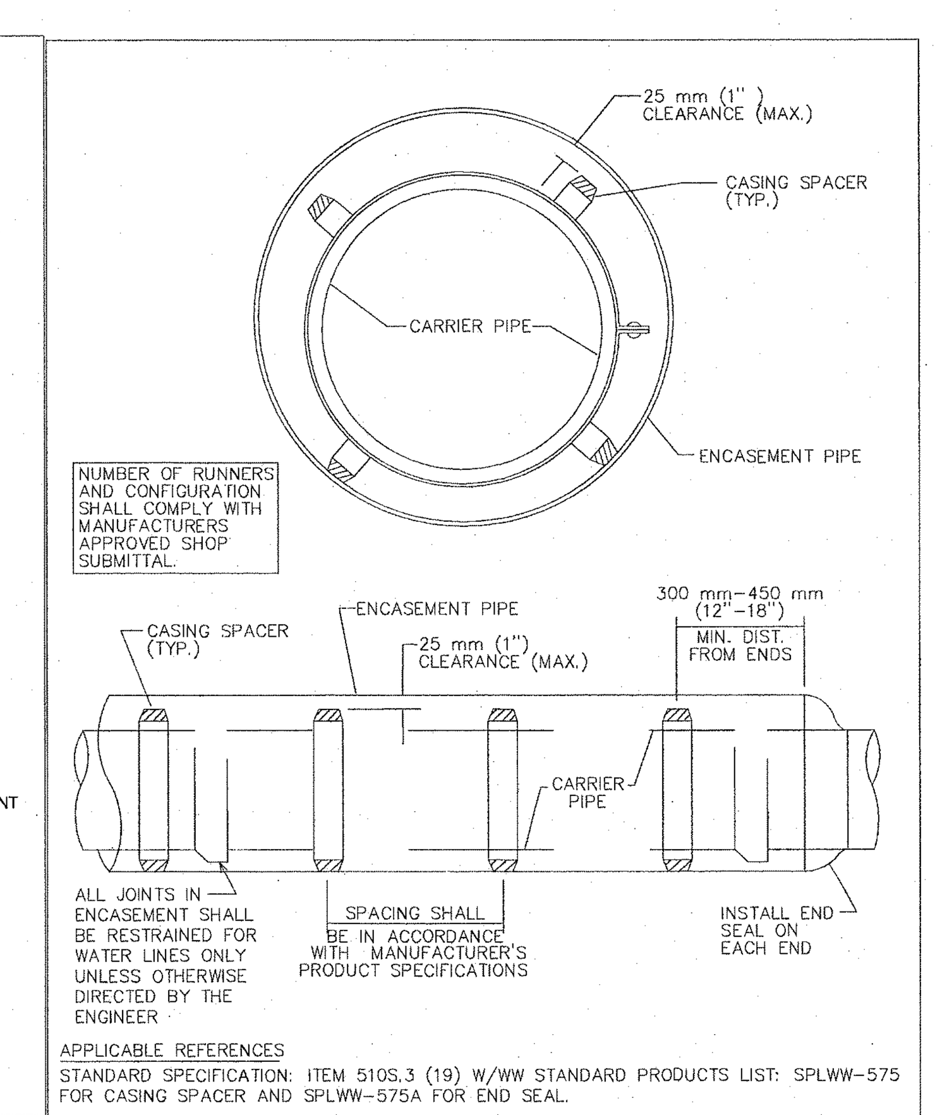
CITY OF AUSTIN
AUSTIN WATER UTILITY
PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-8 2 OF 3



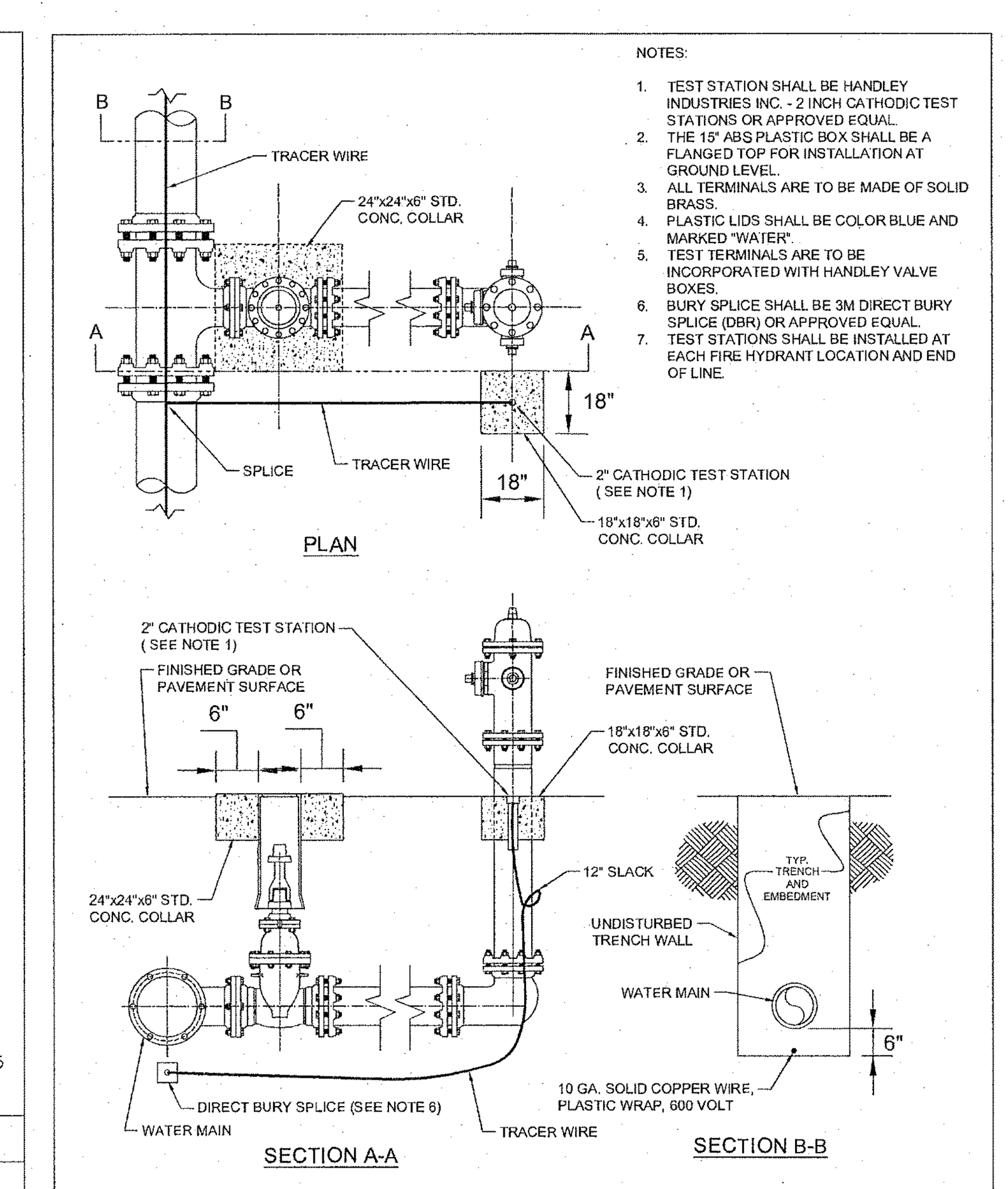
CITY OF AUSTIN
AUSTIN WATER UTILITY
PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-8 3 OF 3



CITY OF AUSTIN
AUSTIN WATER UTILITY
WASTEWATER MANHOLE ON PRECAST BASE
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 506S-10



AUSTIN WATER UTILITY
ENCASEMENT DETAIL W/ CASING SPACERS
RECORD COPY SIGNED BY KATHI L. FLOWERS 2/28/05 ADOPTED
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 501S-1



WTCPUA
CONSTRUCTION STANDARDS AND DETAILS
TRACER WIRE INSTALLATION AND TEST STATION LOCATION

PARTEN RANCH PHASE 8

GENERAL DETAILS (SHEET 1)

REVISIONS			
NO.	DESCRIPTION	BY	DATE

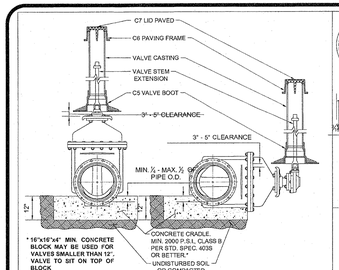
DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Details.dwg

Lauren Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED
PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 39 OF 50 SHEETS



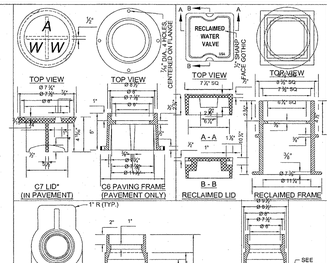
VERTICAL VALVE

HORIZONTAL VALVE
ONLY TO BE USED WHEN CALLED OUT ON THE DRAWINGS.

NOTES:
1. WELD SOCKET 3/8" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT, (SCH. 80 FOR LENGTHS OVER 10').
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 7' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.

RECLAIMED WATER: ALL RECLAIMED PVC PIPE SHALL BE MANUFACTURED PURPLE PIPE. HDPE PIPE SHALL BE MANUFACTURED WITH PURPLE STRIPES. ALL OTHER PIPE AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL PIPE AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-270. ALL COVERS SHALL HAVE "**RECLAIMED WATER**" CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 1 OF 4

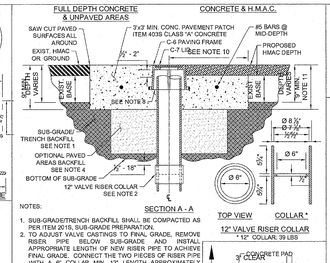


NOTES:
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID, FRAME, COLLAR AND BASE.
3. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
4. CASTING FINISH BY MANUFACTURER SHALL INCLUDE REMOVAL OF FINS AND FLASHING, AND PAINT WITH BLACK ASPHALT COATING.

WEIGHTS:
C7 LID: 13 LBS
RECLAIMED LID: 15 LBS
C6 FRAME: 23 LBS
RECLAIMED FRAME: 33 LBS
C5 BASE: 78 LBS

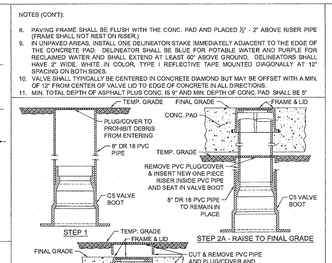
* LETTERING SHALL BE 1.5" 2 PICK BAR SLOTS REQUIRED

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 2 OF 4

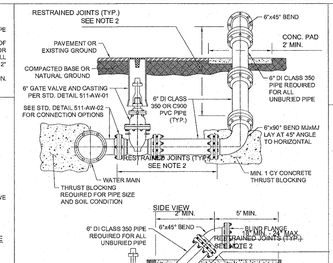


NOTES:
1. SUB-GRADE/TRENCH BACKFILL SHALL BE COMPACTED AS PER ITEM 201S, SUB-GRADE PREPARATION.
2. TO ADJUST VALVE CASTINGS TO FINAL GRADE, REMOVE RISER PIPE BELOW SUB-GRADE AND INSTALL APPROPRIATE LENGTH OF NEW RISER PIPE TO ACHIEVE FINAL GRADE. CONNECT THE TWO PIECES OF RISER PIPE WITH A 6" COLLAR MIN. 12" LENGTH APPROXIMATELY CENTERED ON THE JOINT WITH THE TOP OF SLEEVE LOCATED 3" - 18" BELOW SUB-GRADE. THE INSIDE 1/3RD OF COLLAR TO BE PAINTED WITH FLUORESCENT WHITE PAINT OR COVERED WITH FLUORESCENT WHITE TAPE. ALTERNATE: FOR OPTIONAL SINGLE PIECE RISER INSTALLATION SEE SHEET 4 OF 4.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE NUT OF THE VALVE NUT SHALL COMPLY WITH HYDRANTS.
4. WHERE CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 30" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL (SPEC. ITEM 401S) IN LIEU OF COMPACTED CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED CONCRETE.
5. REINFORCING STEEL SHALL MEET SPEC. ITEM 440S.7.
6. NO MORE THAN 2 SECTIONS OF PIPE SHALL BE USED FROM VALVE TO FINAL GRADE.
7. BELL AND SPIGOT IS ACCEPTABLE FOR DEPTH OVER 18'.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 3 OF 4

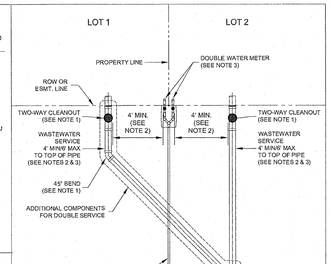


CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 4 OF 4



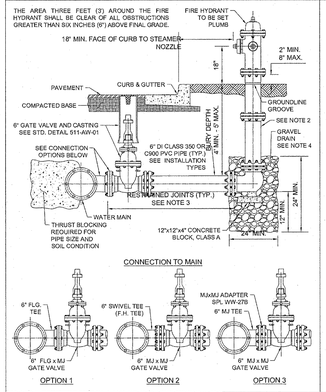
NOTES:
1. WRAP 8 MIL. POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS.
2. PROVIDE RESTRAINED JOINTS FOR ALL JOINTS PER SPL WW-37A. FLG-FLG JOINTS ARE ACCEPTABLE FROM MF BEND TO BLIND FLANGE.
3. EXTERIOR SURFACES OF EXPOSED PIPE SHALL BE PAINTED PER SPL WW-3C. POTABLE WATER PIPE SHALL BE PAINTED SAFETY BLUE.

CITY OF AUSTIN AUSTIN WATER	DRAIN VALVE	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-03 1 OF 1

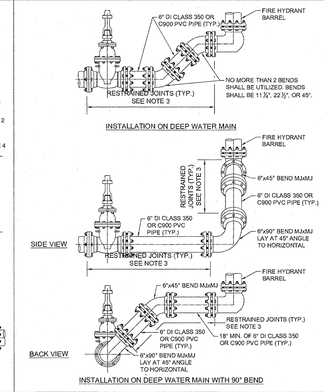


NOTES:
1. WASTEWATER SERVICE FITTINGS SHALL BE APPROVED FOR USE WITH THIS DETAIL AS LISTED ON SPL WW-227S-1.
2. UTILIZE EXISTING ALIGNMENT FOR REPAIR OR REPLACEMENT OF EXISTING WATER AND WASTEWATER SERVICES. WATER SERVICE SHALL BE INSTALLED AT A SHALLOWER GRADE THAN WASTEWATER SERVICE.
3. SEE STANDARD DETAIL 520-AW-01B FOR WATER SERVICE INSTALLATION AND 520-AW-01C FOR WASTEWATER SERVICE INSTALLATION.

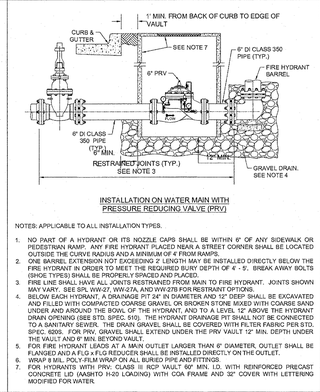
CITY OF AUSTIN AUSTIN WATER	WATER / WASTEWATER SERVICE ON COMMON LOT LINE	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01A 1 OF 1



CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 1 OF 3

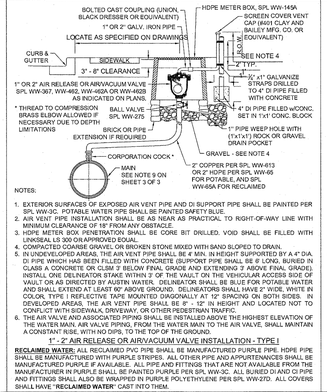


CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 2 OF 3



NOTES: APPLICABLE TO ALL INSTALLATION TYPES.
1. NO PART OF A HYDRANT OR ITS NOZZLE CAPS SHALL BE WITHIN 6' OF ANY SIDEWALK OR PEDESTRIAN RAMP. ANY FIRE HYDRANT PLACED NEAR A STREET CORNER SHALL BE LOCATED OUTSIDE THE CURVE RADIUS EXTENSION OF THE CURB FACE FROM RAMPS.
2. ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH MAY BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT IN ORDER TO MEET THE REQUIRED BURY DEPTH OF 4' - 5'. BREAK-AWAY BOLTS (SHOE TYPES) SHALL BE PROPERLY SPACED AND PLACED.
3. FIRE LINE SHALL HAVE A VALVE RESTRAINED FROM MAIN TO FIRE HYDRANT. JOINTS SHOWN MAY VARY. SEE SPL WW-27, WW-27A, AND WW-27B FOR RESTRAINT OPTIONS.
4. BELOW EARTH VARIES, A DRAINAGE PIT 3'x3'x3' IN DIAMETER AND 12" DEEP SHALL BE EXCAVATED AND FILLED WITH COMPACTED COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND UNDER AND AROUND THE SIDEWALK, DRIVEWAY, OR OTHER PEDESTRIAN TRAFFIC.
5. FOR HYDRANT DRAINAGE PIT SHALL NOT BE CONNECTED TO A SANITARY SEWER. THE DRAIN GRAVEL SHALL EXTEND UNDER THE FIRE VAULT 12" MIN. DEPTH UNDER THE VAULT AND 12" MIN. BEYOND VAULT.
6. FOR FIRE HYDRANT LEADS AT A MAIN OUTLET LARGER THAN 6" DIAMETER, OUTLET SHALL BE FLANGED AND A FLG x FLG RESTRAINED LENGTH SHALL BE INSTALLED DIRECTLY ON MAIN OUTLET.
7. WRAP 8 MIL. POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS.
8. FOR HYDRANTS WITH PRV: CLASS III RCP VAULT 60" MIN. I.D. WITH REINFORCED PRECAST CONCRETE LID (AASHTO H-20 LOADING) WITH COA FRAME AND 32" COVER WITH LETTERING MODIFIED FOR WATER.

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 3 OF 3

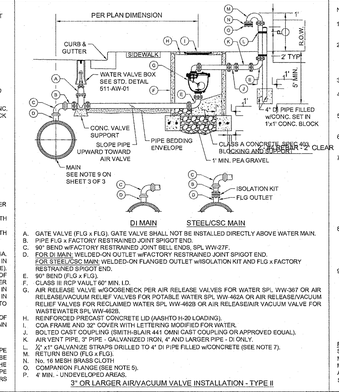


A. GATE VALVE (FLG x FLG). GATE VALVE SHALL NOT BE INSTALLED DIRECTLY ABOVE WATER MAIN.
B. PIPE FLG x FACTORY RESTRAINED JOINT SPIGOT END.
C. 90° BEND w/FACTORY RESTRAINED JOINT BELL ENDS, SPL WW-27F.
D. FOR DI MAIN, WELDED-ON OUTLET w/FACTORY RESTRAINED JOINT SPIGOT END. FOR STEEL/CSC MAIN, WELDED-ON FLANGED OUTLET w/ISOLATION KIT AND FLG x FACTORY RESTRAINED JOINT SPIGOT END.
E. 90° BEND (FLG x F.I.D.).
F. CLASS III RCP VAULT 60" MIN. I.D.
G. AIR RELEASE VALVE w/GOOSENECK PER AIR RELEASE VALVES FOR WATER SPL WW-367 OR AIR RELEASE/AIR VACUUM RELIEF VALVES FOR POTABLE WATER SPL WW-492 OR AIR RELEASE/AIR VACUUM RELIEF VALVES FOR RECLAIMED WATER SPL WW-462B OR AIR RELEASE/AIR VACUUM VALVE FOR WASTEWATER SPL WW-462C.
H. REINFORCED PRECAST CONCRETE LID (AASHTO H-20 LOADING).
I. CAST IRON FRAME AND 32" COVER WITH LETTERING MODIFIED FOR WATER.
J. BOLTED CAST COUPLING (SMITH-BLAIR 441 OMNI CAST COUPLING OR APPROVED EQUAL).
K. AIR VENT PIPE: 2" PVC (GALVANIZED IRON IF AND LARGER PIPE - C.I.D.M.).
L. 3/4" x1" GALVANIZE STRAPS DRILLED TO 4" DI PIPE FILLED w/CONCRETE (SEE NOTE 5).
M. RETURN BEND OR PLUG AS DIRECTED.
N. No. 16 MESH BRASS CLOTH
O. COMPANION FLANGE (SEE NOTE 5).
P. 4" MIN. - UNDEVELOPED AREAS.

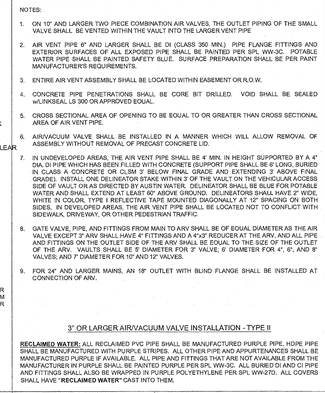
3", OR LARGER AIR/VACUUM VALVE INSTALLATION - TYPE II

RECLAIMED WATER: ALL RECLAIMED PVC PIPE SHALL BE MANUFACTURED PURPLE PIPE. HDPE PIPE SHALL BE MANUFACTURED WITH PURPLE STRIPES. ALL OTHER PIPE AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL PIPE AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-270. ALL COVERS SHALL HAVE "**RECLAIMED WATER**" CAST INTO THEM.

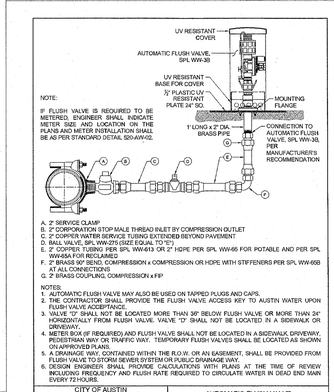
CITY OF AUSTIN AUSTIN WATER	AIR RELEASE AND AIR/VACUUM VALVE	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-04 1 OF 3



CITY OF AUSTIN AUSTIN WATER	AIR RELEASE AND AIR/VACUUM VALVE	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-04 2 OF 3



CITY OF AUSTIN AUSTIN WATER	AIR RELEASE AND AIR/VACUUM VALVE	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/19/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-04 3 OF 3



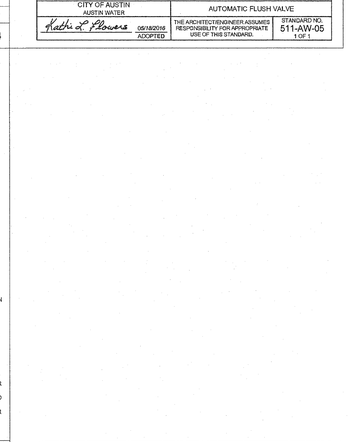
INSTALLATION IN LINED PIPE:
1. MARK LOCATION OF TAP.
2. BREAK & REMOVE HOST PIPE SO THAT OPENING IS AT LEAST 2" BUT NO MORE THAN 3" WIDER THAN DIAMETER OF THE SERVICE ADAPTOR.
3. DO NOT DAMAGE LINER.
4. CORE HOLE THROUGH LINER USING ADAPTOR MANUFACTURER RECOMMENDED BIT.
5. INSTALL SERVICE ADAPTOR.
6. HOLES CUT IN HOST PIPE SHALL BE PACKED WITH NON-SHRINK GROUT (ASTM C1107 GRADE). SEE DETAIL "B"

NOTES:
1. USE ONLY TO TAP EXISTING LINED PIPE.
2. SEE APPROPRIATE STD. FOR SERVICE LINE INFORMATION.
3. THE EDGE OF THE CORE HOLE MUST BE AT LEAST 3" FROM THE ENDS OF THE PIPE, ANY OTHER CORE SERVICE CONNECTIONS, AND ANY FITTINGS.
4. FOR DEEP SERVICE APPLICATIONS SEE SHEET 3 OF 4, EXCEPT SUBSTITUTE A CORED HOLE, AND SERVICE ADAPTOR FOR THE TEE OR WYE.
5. SERVICE CONNECTIONS TO MANHOLES MUST BE MADE USING A PIPE-TO-MANHOLE CONNECTOR WHICH LIMITS THE PIPE SLOPE INTO THE MANHOLE TO 10% MAX.

6" WASTEWATER CONNECTION TO EXISTING LINED MAIN

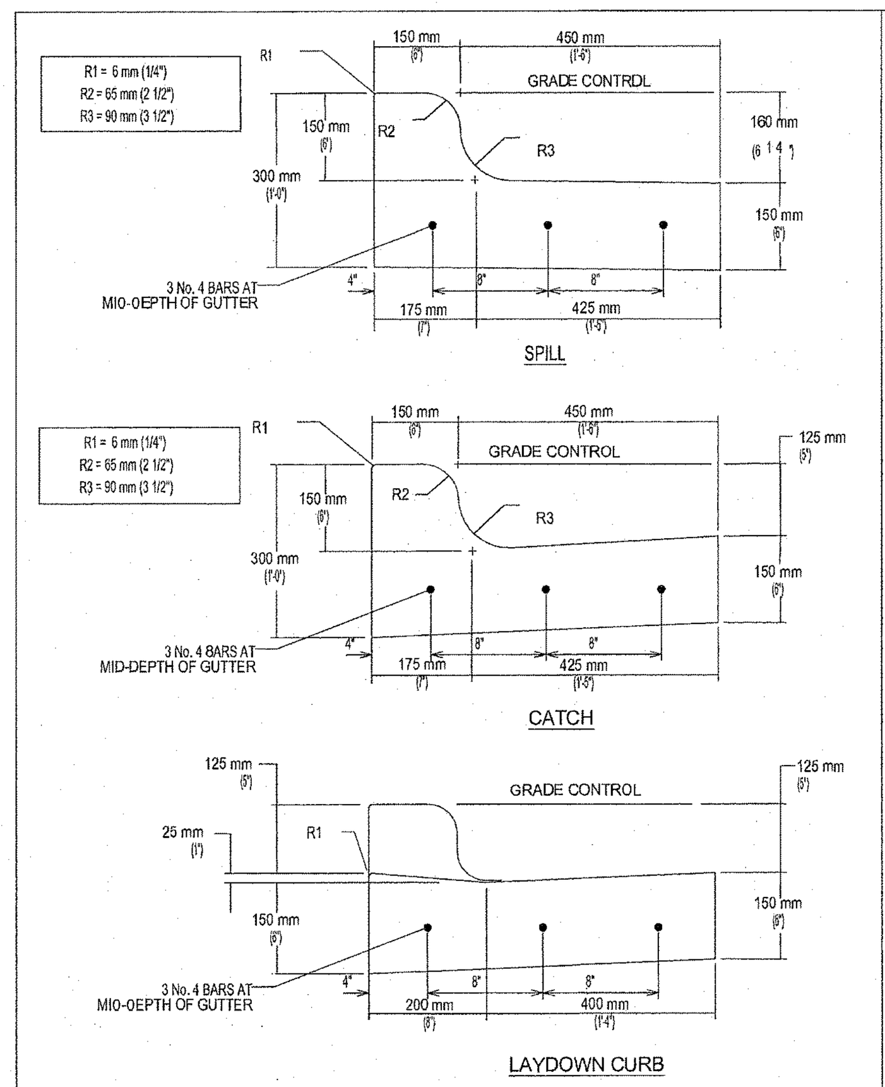
CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 3 OF 4

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 4 OF 4

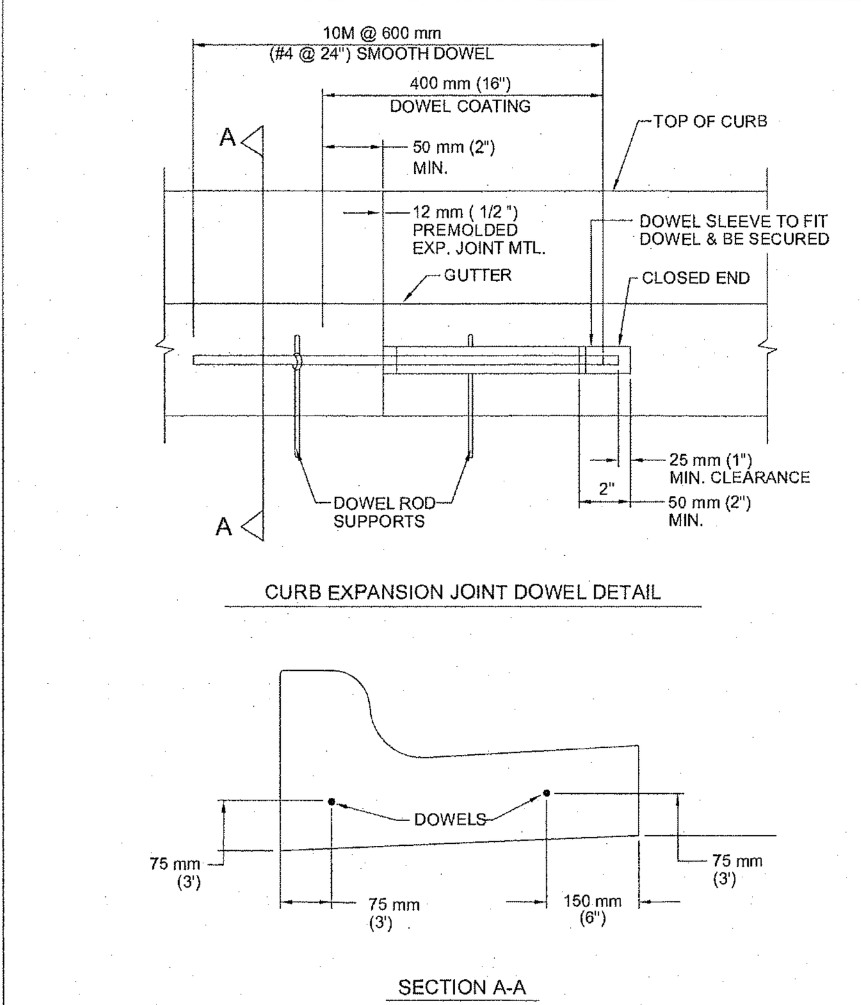


CITY OF AUSTIN AUSTIN WATER	AUTOMATIC FLUSH VALVE	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-05 1 OF 1

NOTES:
1. 9" FLUSH VALVE IS REQUIRED TO BE METERED. ENGINEER SHALL INDICATE METER SIZE AND LOCATION ON THE PLANS AND METER INSTALLATION SHALL BE AS PER STANDARD DETAIL 520-AW-02.
2. AIR VENT PIPE 6" AND LARGER SHALL BE DI (CLASS 350 MIN.). PIPE FLANGE FITTINGS AND EXTERIOR SURFACES OF ALL EXPOSED PIPE SHALL BE PAINTED PER SPL WW-3C. POTABLE WATER PIPE SHALL BE PAINTED SAFETY BLUE. SURFACE PREPARATION SHALL BE PER PAINT MANUFACTURER'S REQUIREMENTS.
3. ENTIRE AIR VENT ASSEMBLY SHALL BE LOCATED WITHIN EASEMENT OR R.O.W.
4. CONCRETE PIPE PENETRATIONS SHALL BE CORE BIT DRILLED. VOID SHALL BE SEALED w/LINSEAL (S 300 OR APPROVED EQUAL.
5. CROSS SECTIONAL AREA OF OPENING TO BE EQUAL TO OR GREATER THAN CROSS SECTIONAL AREA OF AIR VENT PIPE.
6. AIR/VACUUM VALVE SHALL BE INSTALLED IN A MANNER WHICH WILL ALLOW REMOVAL OF ASSEMBLY WITHOUT REMOVAL OF PRECAST CONCRETE LID.
7. IN UNDEVELOPED AREAS, THE AIR VENT PIPE SHALL BE 4" MIN. IN HEIGHT SUPPORTED BY A 4" DIA. DI PIPE WHICH HAS BEEN FILLED WITH CONCRETE (SUPPORT PIPE SHALL BE 6' LONG, BUR

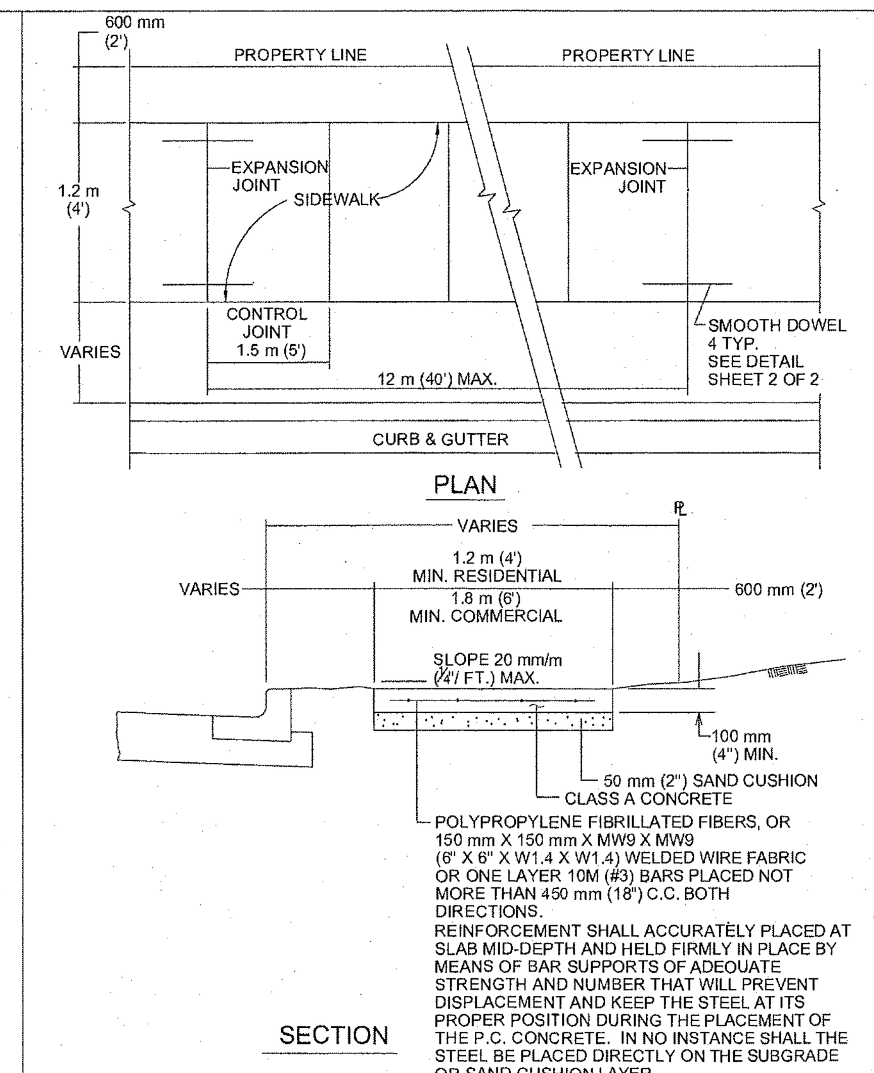


CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | REINFORCED CURB AND GUTTER SECTION | RECORD COPY SIGNED BY SAM ANGOORI 01/04/10 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 430S-2

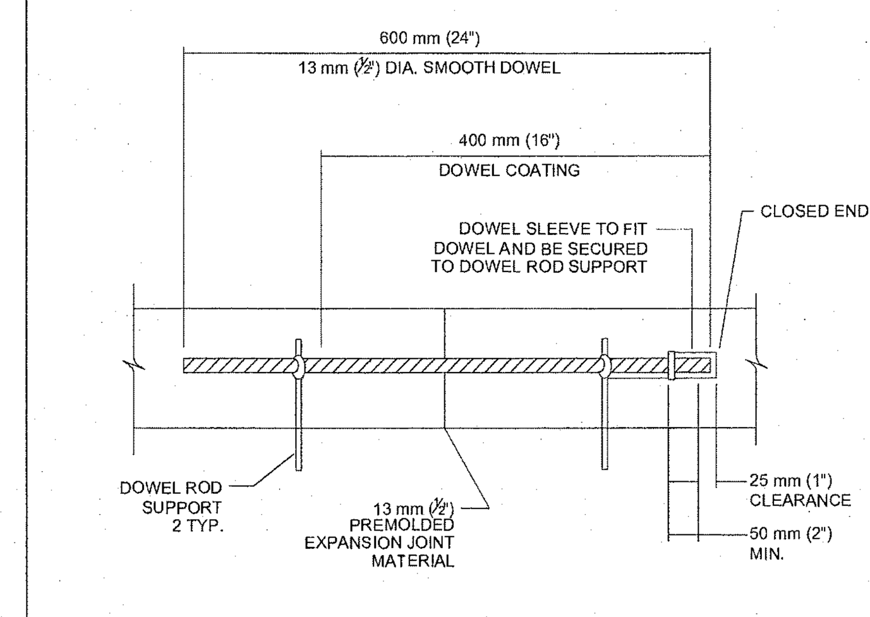


SEE STANDARD 430S-1 FOR TYPICAL CURB AND GUTTER SECTIONS.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION | CURB EXPANSION JOINT DOWEL DETAIL | RECORD COPY SIGNED BY LINO RIVERA 9/29/99 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 430S-3

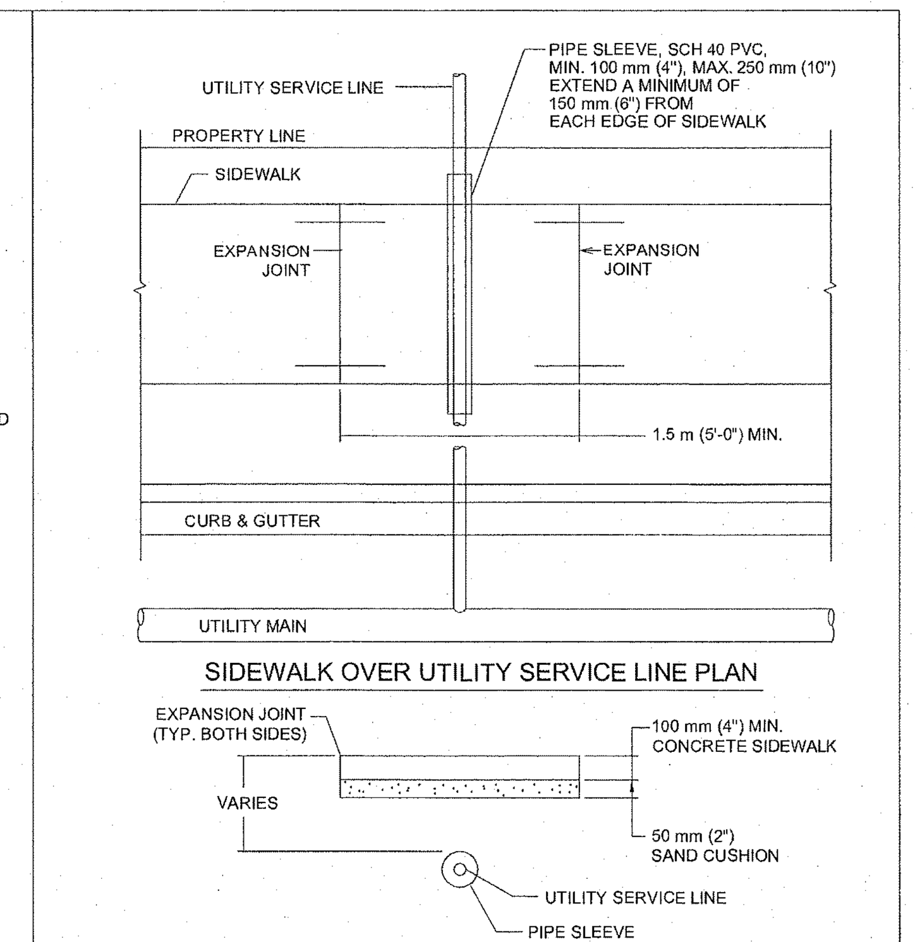


CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | SIDEWALK | RECORD COPY SIGNED BY BILL GARDNER 03/26/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-1 1 OF 3



DOWEL DETAIL

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | SIDEWALK | RECORD COPY SIGNED BY BILL GARDNER 03/26/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-1 2 OF 3

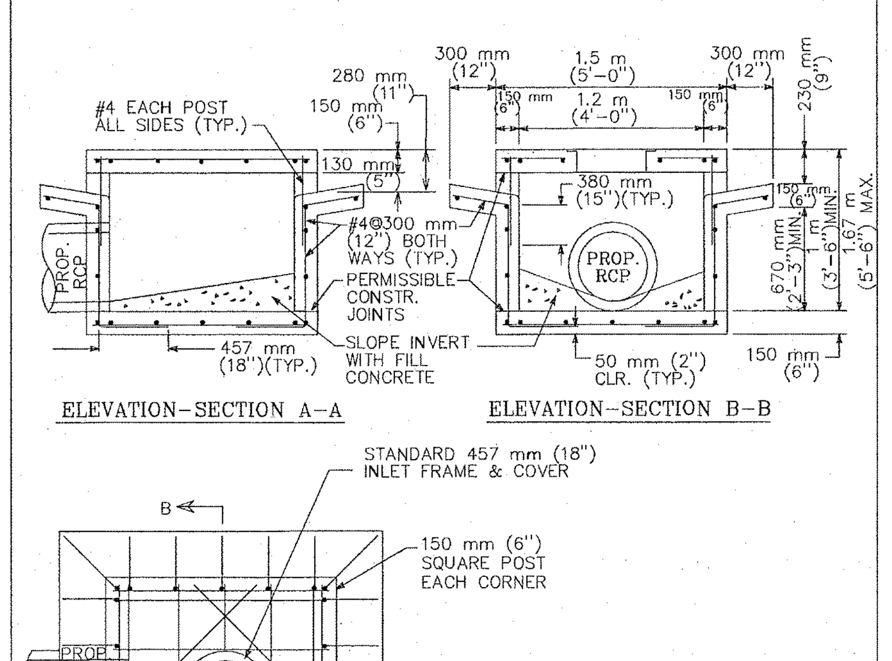


SIDEWALK OVER UTILITY SERVICE LINE PLAN

SECTION OF SIDEWALK OVER UTILITY SERVICE LINES

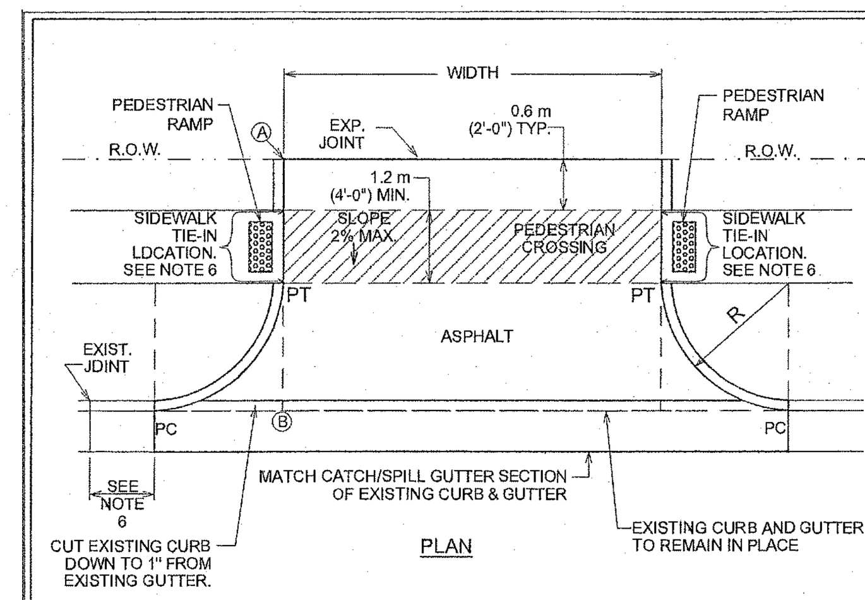
NOTES:
1. THIS STANDARD APPLIES TO THE INSTALLATION OF NEW UTILITIES OR UTILITIES BEING REPLACED BY A NEW LINE.
2. NO JOINTS IN UTILITY SERVICE PIPE TO BE LOCATED INSIDE PVC PIPE SLEEVE.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | SIDEWALK | RECORD COPY SIGNED BY BILL GARDNER 03/26/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-1 3 OF 3



NOTES:
1. CHAMFER ALL EXPOSED EDGES 20 mm (3/4").
2. REINFORCING STEEL SHALL BE CUT OR FIELD-BENT AS REQUIRED TO CLEAR PIPE AND INLET FRAME OPENING. ALL CUT STEEL SHALL BE REPLACED WITH ADDITIONAL DIAGONAL BARS OF THE SAME DIAMETER.
3. INLET FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
4. CONCRETE COVERAGE OF STEEL SHALL BE 50 mm (2") MIN. AT ALL SURFACES.

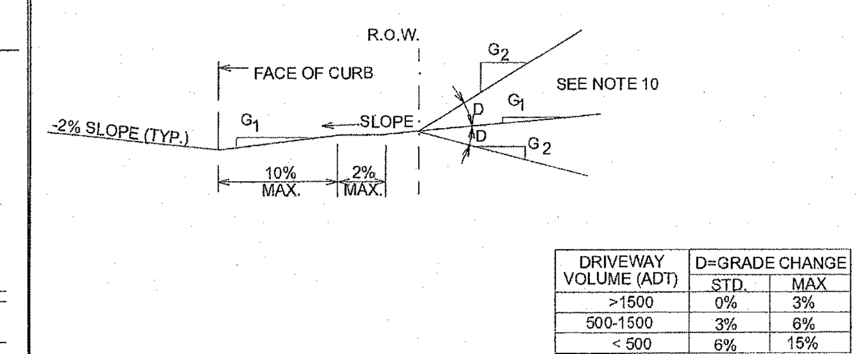
CITY OF AUSTIN — WATERSHED PROTECTION DEPARTMENT | 4-SIDED AREA INLET | RECORD COPY SIGNED BY ARTHUR C. ROMERO 08/18/2010 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 508S-9



NOTE: ALL DRIVEWAYS SHALL BE SLOPED TOWARDS THE STREET FROM THE R.O.W. LINE.

CROSS SECTION

TYPE II DRIVEWAY DETAIL — 1 OF 2

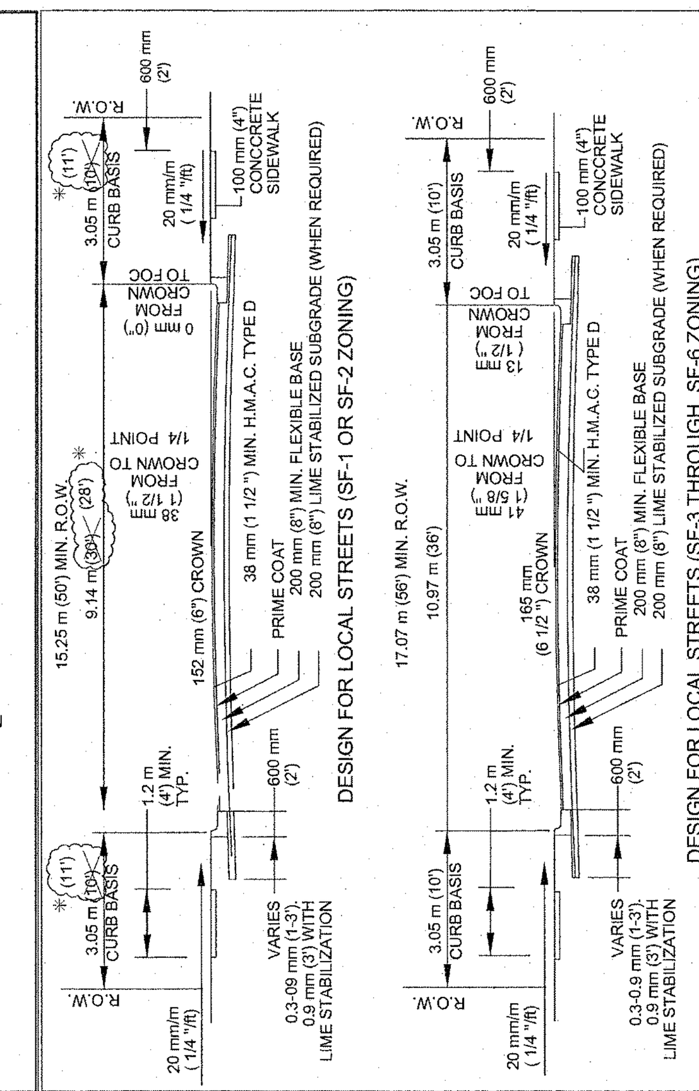


DRIVEWAY VOLUME (ADT)	D=GRADE CHANGE	
	STD.	MAX
>1500	0%	3%
500-1500	3%	6%
< 500	6%	15%

ALLOWABLE GRADES

NOTES:
1. ALL TYPE II DRIVEWAYS SHALL HAVE RADIUS ENDS.
2. TYPE II DRIVEWAYS ARE TO BE LOCATED NO CLOSER TO THE CORNER OF INTERSECTING RIGHT OF WAY THAN 60% OF PARCEL FRONTAGE AT 30 METERS (100 FEET): WHICHEVER IS LESS.
3. DRIVEWAY SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
4. WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHALL BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2 IS GREATER THAN 15%.
5. USE 12 MM (1/2") ASPHALT BOARD OR OTHER APPROVED MATERIAL FOR CURB AND GUTTER EXPANSION JOINTS. SIDEWALK, AT THE R.O.W. LINE AND AT MIDWIDTH, SEE NOTE 5.
6. THE SIDEWALK, REGARDLESS OF ITS LOCATION WITH RESPECT TO THE CURB OR PROPERTY LINE, SHALL BE CONNECTED TO THE DRIVEWAY AT THESE LOCATIONS.
7. WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.

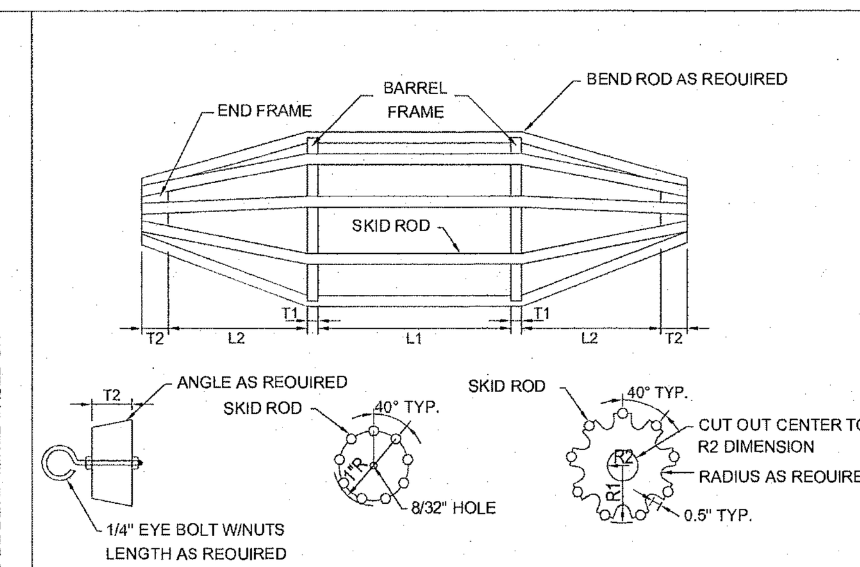
TYPE II DRIVEWAY DETAIL — 2 OF 2



NOTES:
1. ALL UNPAVED AREAS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE SODDED OR SEEDED AS INDICATED.
2. BASE COURSE TO EXTEND BEYOND CURB 0.3 m (1') FOR SOILS WITH PI OF 20 OR LESS, 0.9 m (3') FOR ALL OTHER SOILS.
3. 100 mm (4") MINIMUM THICKNESS OF BASE UNDER CURB.
4. CROWN IS PARABOLIC.
5. PAVEMENT THICKNESS IS A MINIMUM, ACTUAL THICKNESS TO BE BASED ON COMPUTERIZED PAVEMENT DESIGN.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION | LOCAL STREET SECTIONS | RECORD COPY SIGNED BY LINO RIVERA 9/29/99 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 1000S-10

* MODIFIED FOR THIS PROJECT.



NOTE: WELD ALL RODS TO FRAME

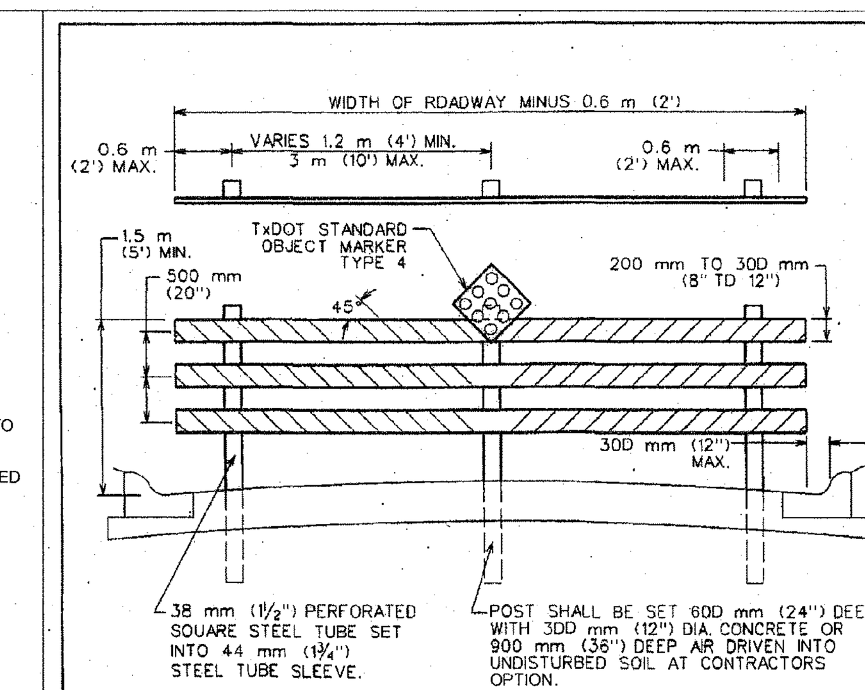
MANDREL SHALL BE CONSTRUCTED FROM METAL OR RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.

MANDREL DIMENSIONS
5% DEFLECTION
FOR O.D. CONTROLLED PVC PIPE
(ALL DIMENSIONS IN INCHES)

SIZE	TYPE	O.D. AVERAGE	MIN. WALL THICKNESS	L1	L2	R1	R2	T1	T2	ROD DIAMETER	MANDREL O.D.
8"	D3034 SDR26	8.40	0.323	6.00	6	3.78	1.25	0.375	1.0	0.375	7.366
10"	D3034 SDR26	10.50	0.404	7.50	6	4.72	1.50	0.375	1.0	0.375	9.207
12"	D3034 SDR26	12.50	0.481	9.00	6	5.59	1.75	0.375	1.0	0.375	10.567
15"	D3034 SDR26	15.30	0.588	11.25	6	7.08	2.00	0.375	1.0	0.375	13.418

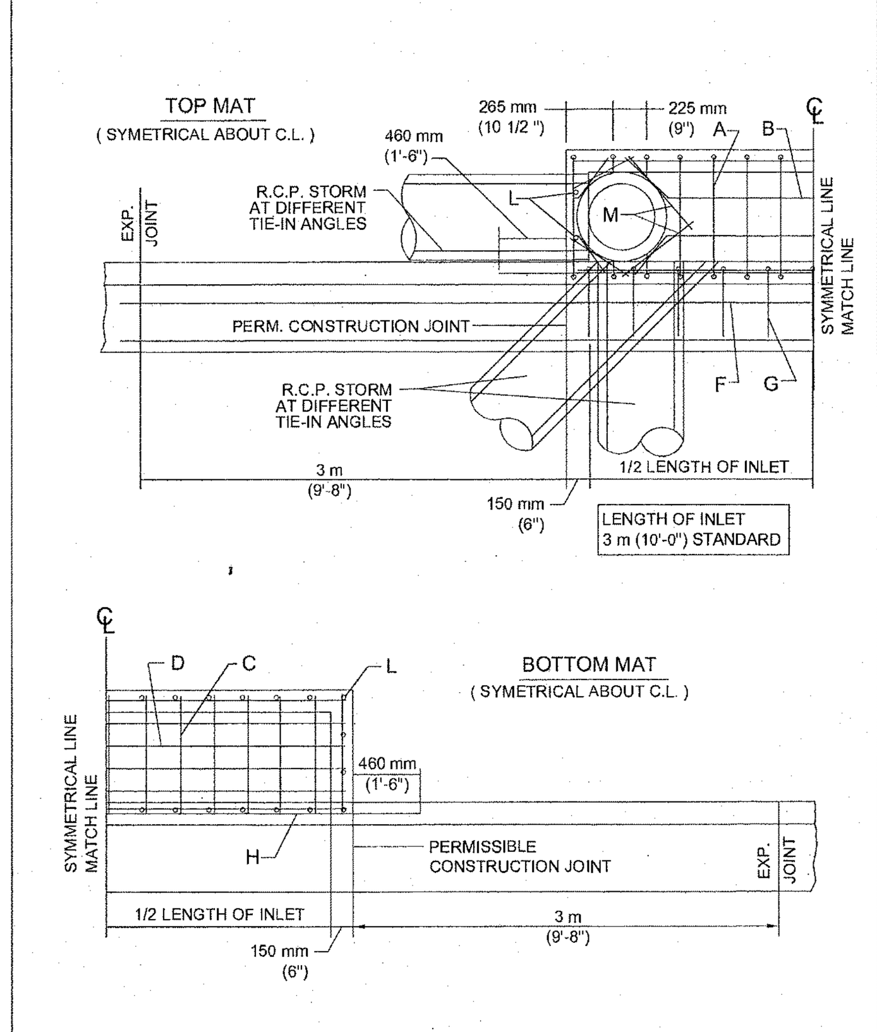
TYPICAL MANDREL DETAILS

N.T.S.

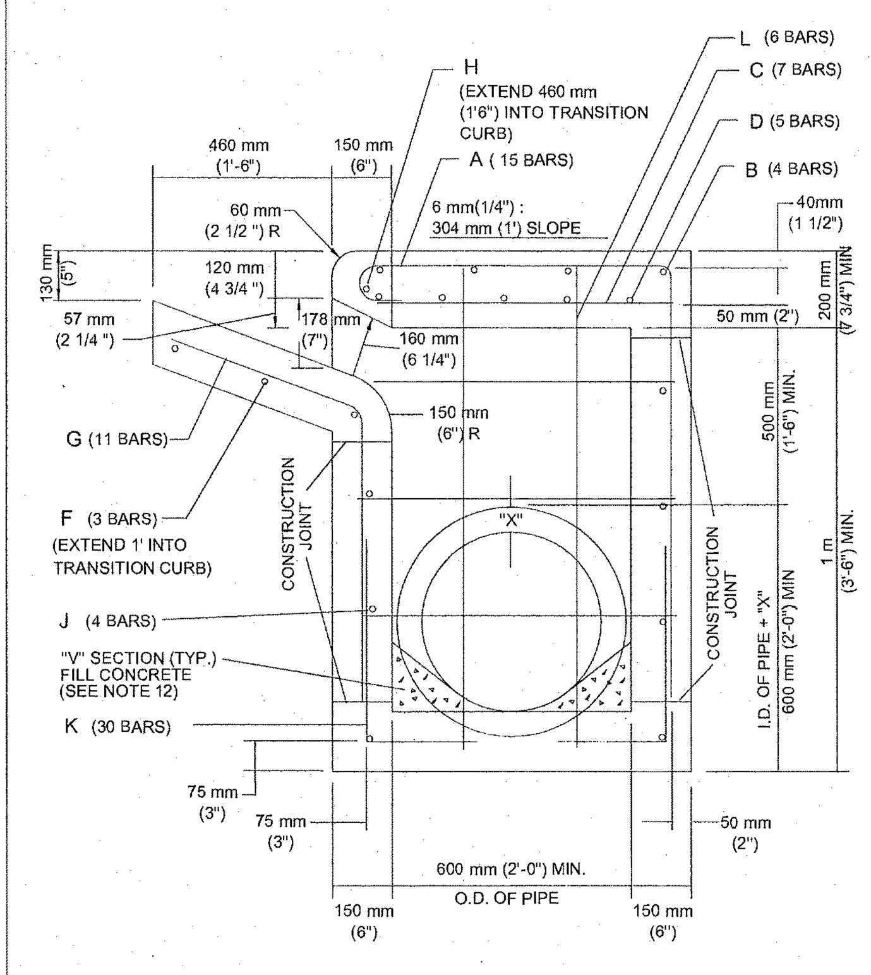


NOTES:
1. WIDTH OF RAIL SHALL BE A MINIMUM OF 200 mm (8") AND MAY BE UP TO A MAXIMUM DF 3D0 mm (12"), 25 mm (1") HOLLOW-PROFILE PLASTIC LUMBER WITH INTERNAL STIFFNERS.
2. RAILS SHALL BE FASTENED TD EACH TUBE WITH 50 mm (2") STEEL BOLTS WITH NUTS AND WASHERS ON EACH SIDE. BOLT THREADS SHALL BE PEENED.
3. THE RAILS SHALL HAVE 150 mm (6") WIDE REFLECTORIZED RED STRIPES OF TAPE PLACED ON 45 DEGREE SLOPES, DOWN AND TOWARD THE CENTER OF THE BARRICADE.
4. BARRICADES MAY BE CDNSTRUCTED IN SECTIONS OR MAY BE CONTINUOUS ACROSS ROADWAY WIDTH. SPLICES DN CDNTINUOUS RAIL BARRICADES SHALL BE AT POSTS AND SHALL HAVE A 600 mm (2') SPLICE BLOCK ON BACK SIDE OF THE SAME MATERIAL AS RAIL.
5. 45D mm (18") DIAMOND REFLECTORIZED RED PANEL DR 450 mm (18") DIAMOND RED DR BLACK PANEL WITH NINE-75 mm (3") DIAMETER RED REFLECTORS SYMMETRICALLY PLACED AT CENTER POSTS, A MINIMUM OF 1.2 m (4') ABOVE GROUND SHALL BE USED FOR END OF ROAD MARKERS AS PER TEXAS MANUAL on UNIFORM TRAFFIC CONTRDL DEVICES (TMUTCD) SECTION 3C.04.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | STREET-END BARRICADE | Bill Gardner 3/12/07 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 803S-1



CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | TYPICAL DETAILS FOR CURB INLET | RECORD COPY SIGNED BY BILL GARDNER 12/09/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 508S-3 1 OF 4



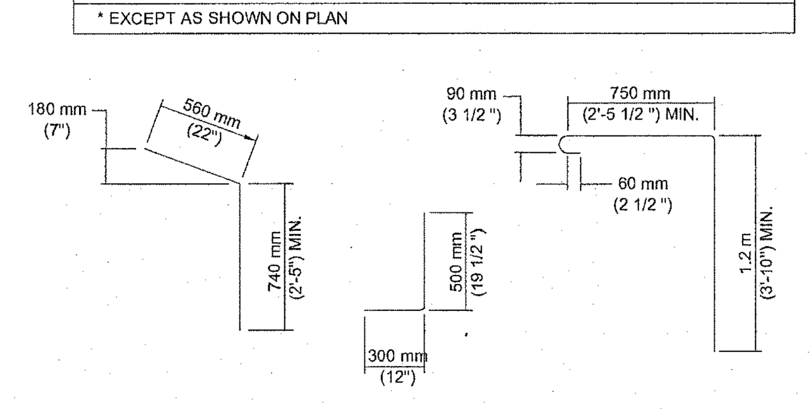
ELEVATION - SECTION

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | TYPICAL DETAILS FOR CURB INLET | RECORD COPY SIGNED BY BILL GARDNER 12/09/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 508S-3 2 OF 4

TABLE OF QUANTITIES
FOR 18" OUTLET PIPE
REINFORCING STEEL QUANTITIES

BARS	SIZE	SPACING	NUMBER	LENGTH	WEIGHT
A	4	230mm (9")*	15	2 m (7'-0")	73
B	4	250 mm (10")	4	3.25 m (10'-8")	29
C	4	460 mm (18")	7	760 mm (2'-6")	12
D	6	150 mm (6")	5	3.25 m (10'-8")	80
E	4	300 mm (12")	6	760 mm (2'-6")	10
F	4	250 mm (10")	3	4 m (13'-0")	35
G	4	300 mm (12")	11	1.25 m (4'-3")	31
H	6	-	1	4.25 m (14'-0")	20
J	4	300 mm (12")	7	3.25 m (10'-8")	50
K	4	230 mm (9")*	30	800 mm (2'-7 1/2")	52
L	4	300 mm (12")*	6	1.3 m (4'-4")	17
M	4	-	4	500 mm (1'-8") AVG	4
TOTAL STEEL, LB.					413
TOTAL CONCRETE, C.Y.					4.06

* EXCEPT AS SHOWN ON PLAN



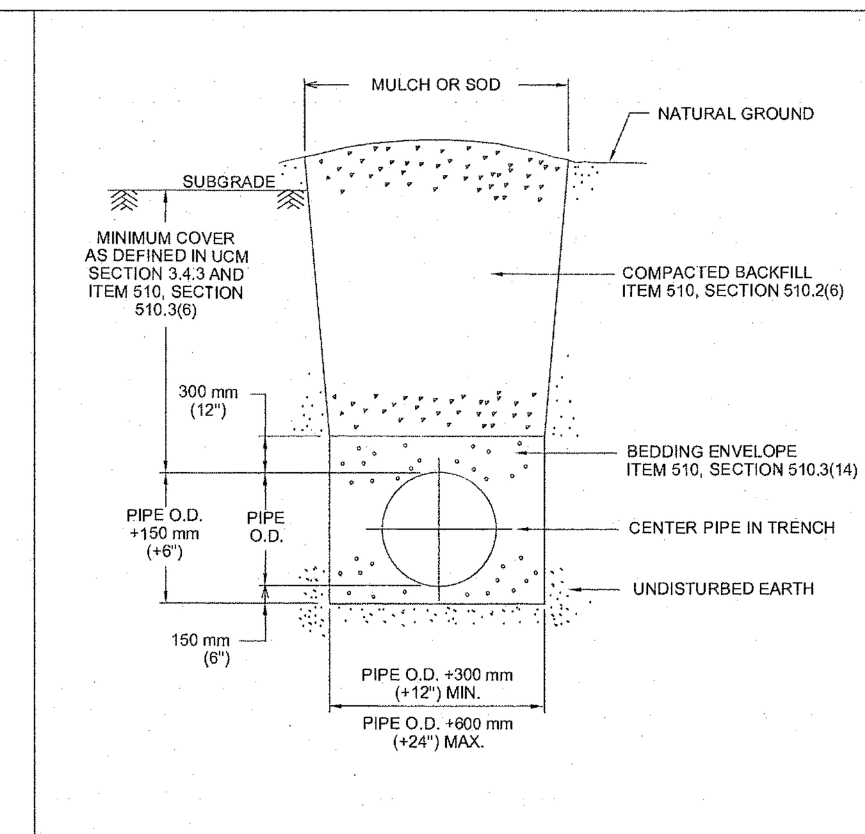
BAR G BAR K BAR A

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | TYPICAL DETAILS FOR CURB INLET | RECORD COPY SIGNED BY BILL GARDNER 12/09/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 508S-3 3 OF 4

NOTES:
1. ALL CONCRETE SHALL BE CLASS "A"
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (380 mm or 15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. QUANTITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S INFORMATION ONLY. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND OVER.
7. CHAMFER ALL EXPOSED EDGES 20 mm (3/4 ").
8. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
9. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
10. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES.
11. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
12. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE, SHAPED AS "V" SECTION
13. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.

REFERENCES:
FOR EXPANSION JOINT DOWEL AND DOWEL LOCATION DETAILS SEE STD. 430S-3, "CURB EXPANSION JOINT DOWEL DETAIL".
FOR 18" MANHOLE FRAME AND COVER DETAILS SEE STD. 503S-1, "18" COVER AND FRAME".

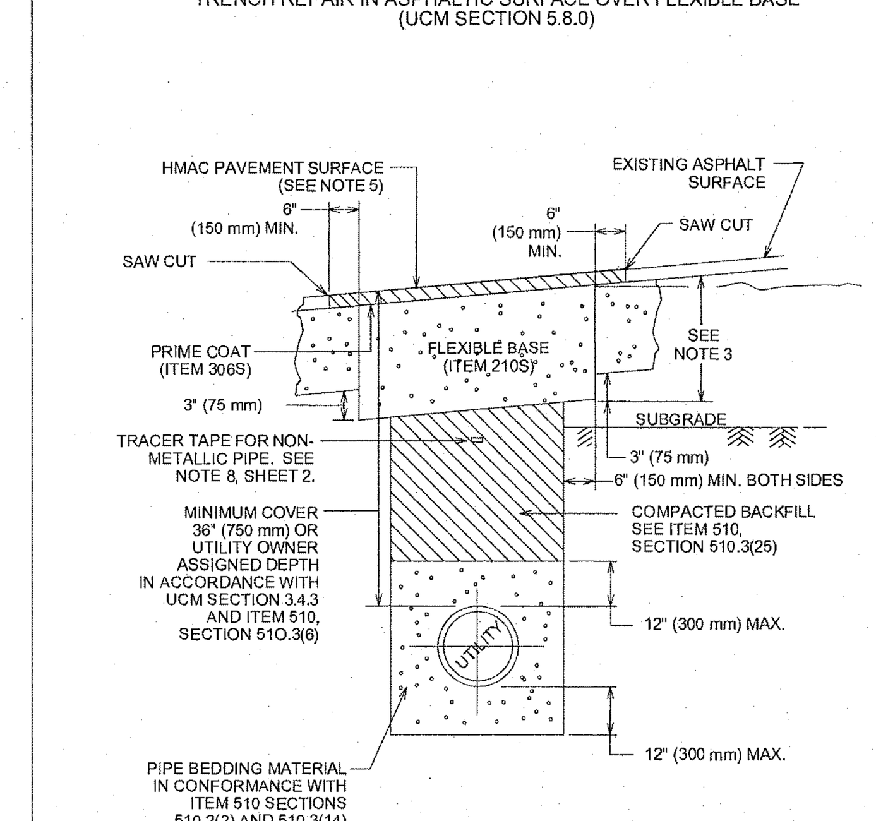
CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | TYPICAL DETAILS FOR CURB INLET | RECORD COPY SIGNED BY BILL GARDNER 12/09/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 508S-3 4 OF 4



REFERENCES:
1. UTILITY CRITERIA MANUAL SECTION 3.4.3, "FINAL DESIGN"
2. STANDARD SPECIFICATION MANUAL ITEM 510, SECTION 510.2(6), "SELECT BACKFILL OR BORROW"; SECTION 510.3(6), "TRENCH DEPTH AND DEPTH OF COVER"; SECTION 510.3(14), "PIPE BEDDING ENVELOPE"

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | TYPICAL TRENCH DETAIL WITH UNFINISHED SURFACE | RECORD COPY SIGNED BY BILL GARDNER 03/13/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 510S-5

TRENCH REPAIR IN ASPHALTIC SURFACE OVER FLEXIBLE BASE (UCM SECTION 5.8.0)



CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT | RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 1100S-2 1 OF 2

NOTES:
1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 12" (300 mm) WIDER THAN UNDISTURBED SIDES OF THE TRENCH AND SYMMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
2. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADDRENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAC. TEMPORARY MIX SHALL BE PLACED OVER FLEXIBLE BASE.
3. ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EOUAL TO EXISTING BASE THICKNESS PLUS 3" (75 mm), BUT IN NO CASE LESS THAN 12" (300 mm).
4. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A BASE THICKNESS OF 10" (250 mm) OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER.
5. REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
 a) MIN. 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
 b) MIN. 3" (75 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS.
 SEE ITEM 340S, SECTION 340S.4.
6. CLASS "J" PC CONCRETE (ITEM 403S) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED IN THESE REPAIRS FOR THE FLEXIBLE BASE AND COMPACTED BACKFILL. PC CONCRETE GREATER THAN A 2 SACK MIX WILL NOT BE ALLOWED.
7. TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).
8. AS PER CITY OF AUSTIN STANDARD SPECIFICATION 510, SECTION 510.2(8)(K)5, FOR ALL NON-METALLIC PIPE, DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND A MINIMUM OF 12" (300 mm) BELOW THE SUBGRADE, OR A MINIMUM OF 18" (450 mm) BELOW FINISHED GRADE ON AREAS OUTSIDE THE LIMITS OF PAVEMENT, SHALL BE PLACED INDUCTIVE TRACER TAPE IN ACCORDANCE WITH THE MANUFACTURER'S REOUIREMENTS. THE TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC DRKET AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS | FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT | RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 1100S-2 2 OF 2

PARTEN RANCH PHASE 8
GENERAL DETAILS (SHEET 3)

REVISIONS: NO. | DESCRIPTION | BY | DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Details.dwg

LAUREN CRONE 128018 LICENSED PROFESSIONAL ENGINEER 3/3/2022

LJA Engineering, Inc.
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 41 OF 50 SHEETS

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Last Modified: Oct. 31, 22 - 13:46
Plot Date/Time: Nov. 01, 22 - 10:33:21

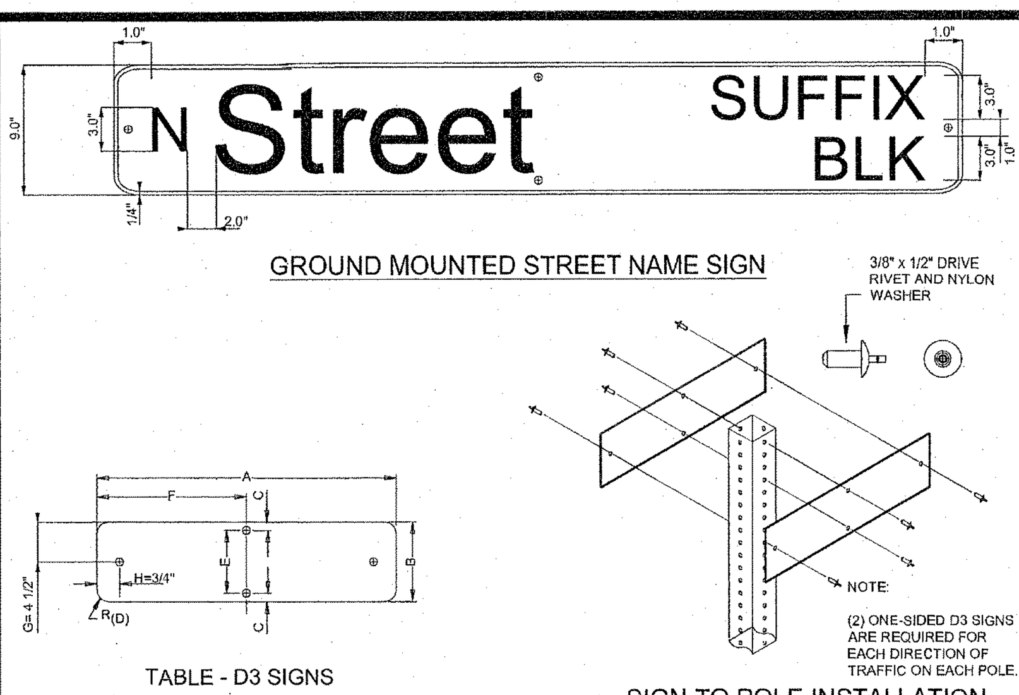


TABLE - D3 SIGNS

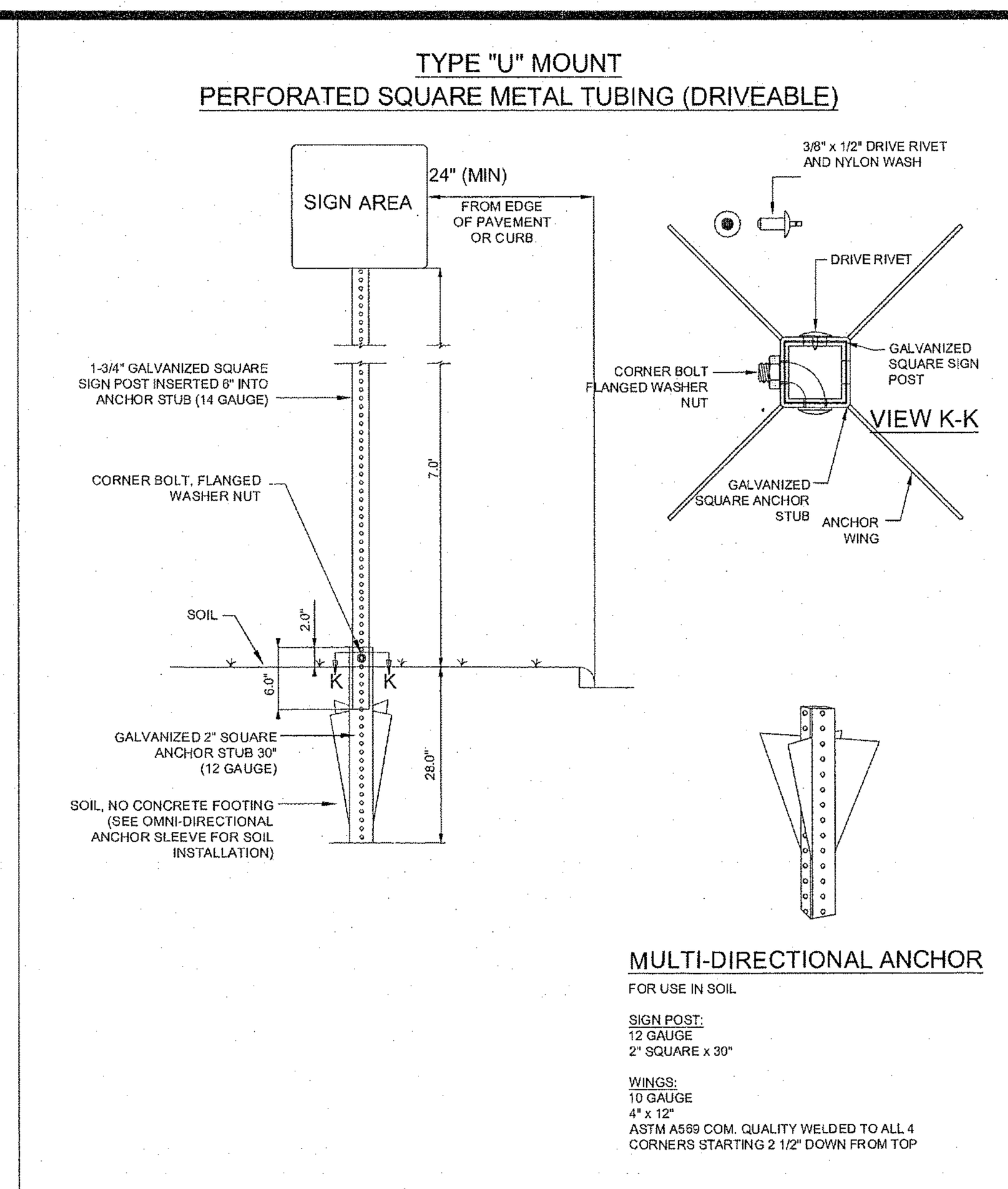
A	B	C	D	E	F	T
24"	9"	1/2"	3/4"	8"	12"	0.08"
30"	9"	1/2"	3/4"	8"	15"	0.08"
36"	9"	1/2"	3/4"	8"	18"	0.08"
42"	9"	1/2"	3/4"	8"	21"	0.08"
48"	9"	1/2"	3/4"	8"	24"	0.08"
54"	9"	1/2"	3/4"	8"	27"	0.08"

SIGN TO POLE INSTALLATION

HEIGHT	9"
LENGTH	24" MIN. 54 MAX. 6" INCREMENTS OF LENGTH
THICKNESS	0.08"
SUBSTRATE	ALUMINUM ALLOY, 6061-T-6, OR TYPE IV 5052-H38 (ASTM B-209)
SIGN FACE MATERIALS	GREEN FILM OVER HIGH INTENSITY PRISMATIC SHEETING
LEGENDS AND SYMBOLS	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH SIGN BLANK, IF NECESSARY
COLOR	WHITE LEGEND ON GREEN BACKGROUND WITH ¼" WHITE BORDER

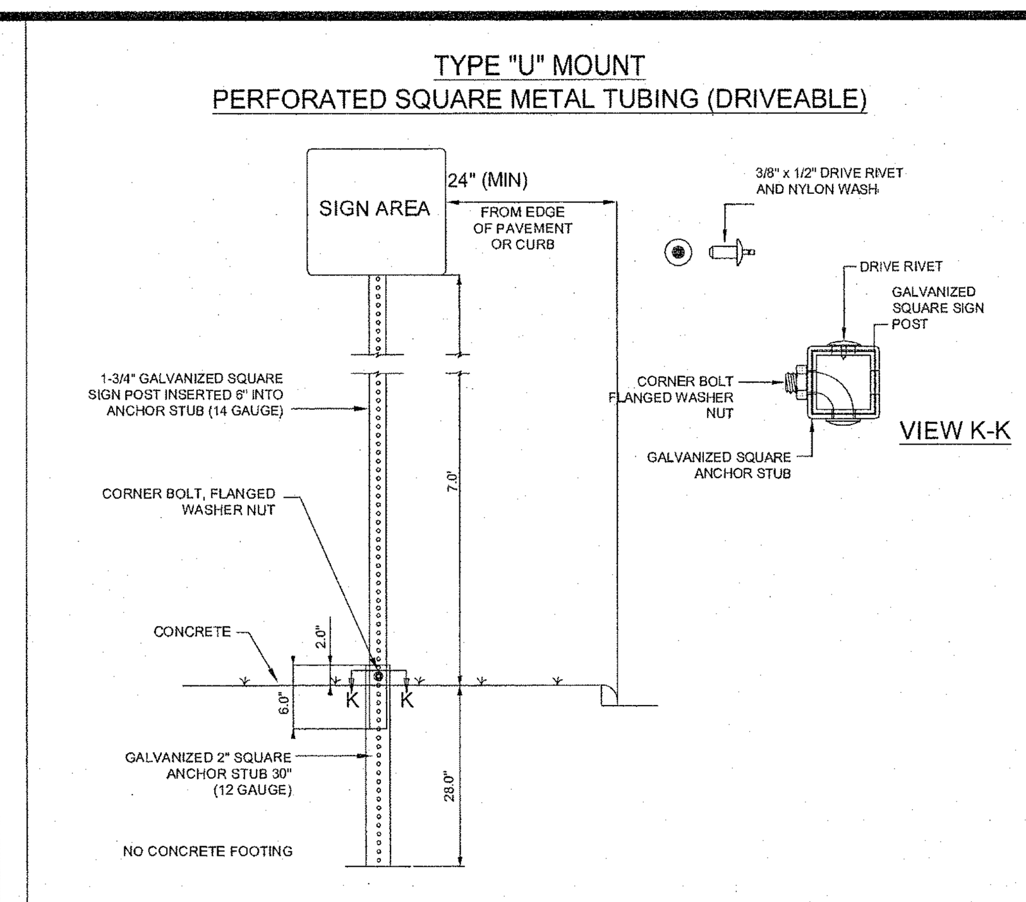
CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — GROUND MOUNTED TRAFFIC AND STREET NAME SIGNS — RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 824-2, 1 OF 3

TYPE "U" MOUNT
PERFORATED SQUARE METAL TUBING (DRIVEABLE)

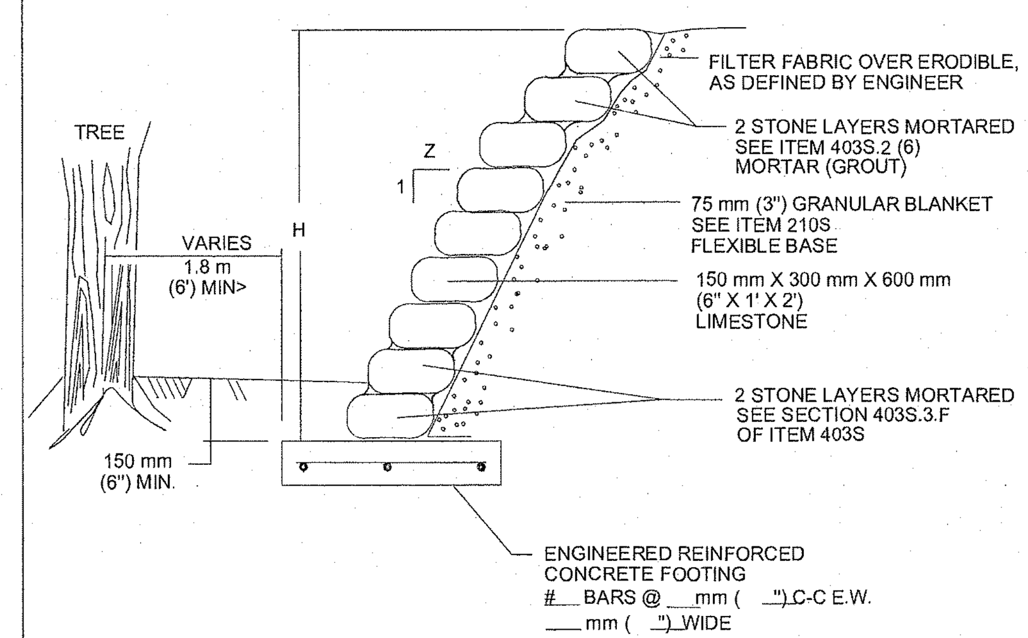


CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — GROUND MOUNTED TRAFFIC AND STREET NAME SIGNS - SOIL — RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 824-2, 2 OF 3

TYPE "U" MOUNT
PERFORATED SQUARE METAL TUBING (DRIVEABLE)



CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — GROUND MOUNTED TRAFFIC AND STREET NAME SIGNS - CONCRETE — RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 824-2, 3 OF 3



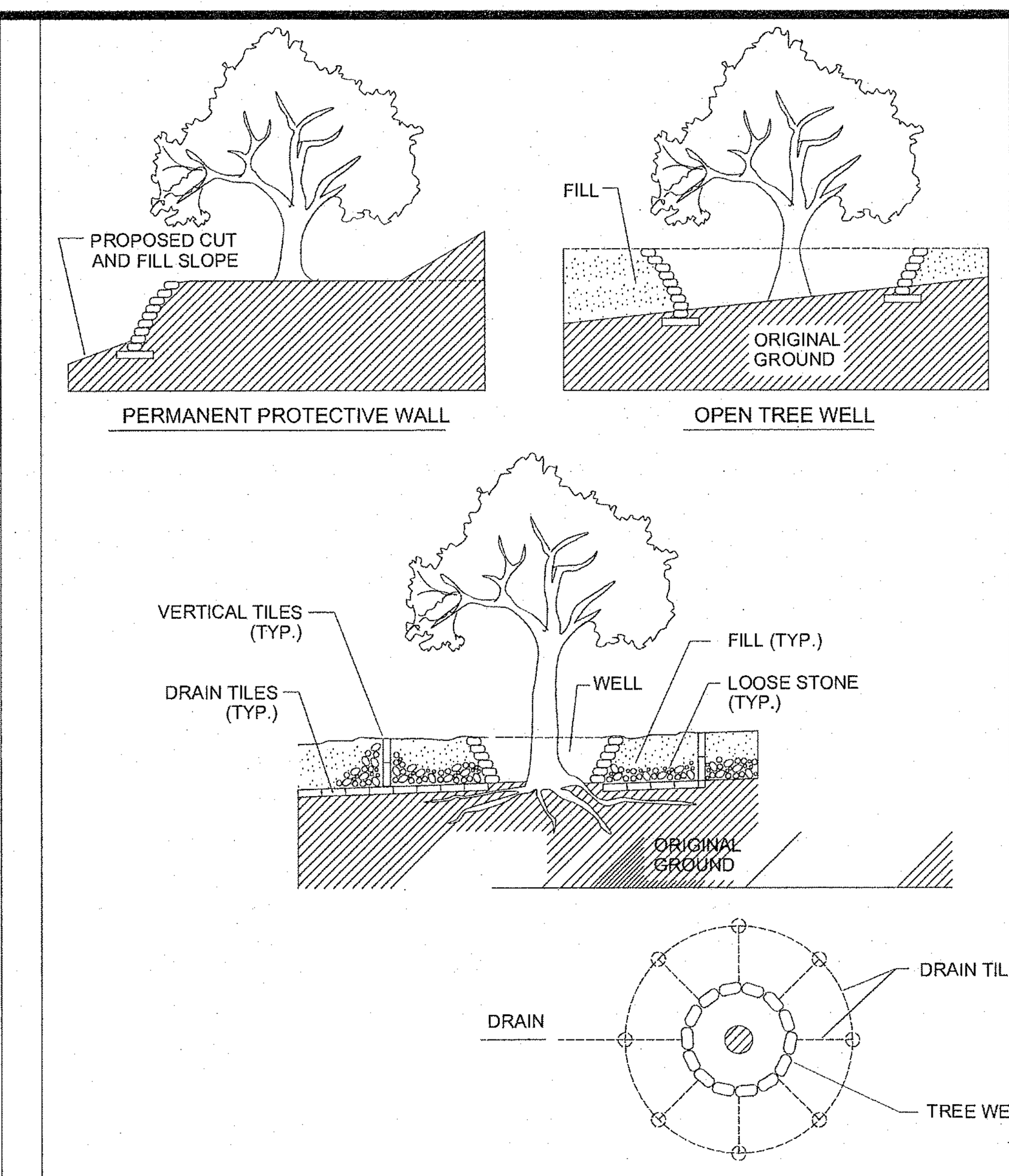
THIS STANDARD APPLIES ONLY UNDER THE FOLLOWING CONDITIONS:

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

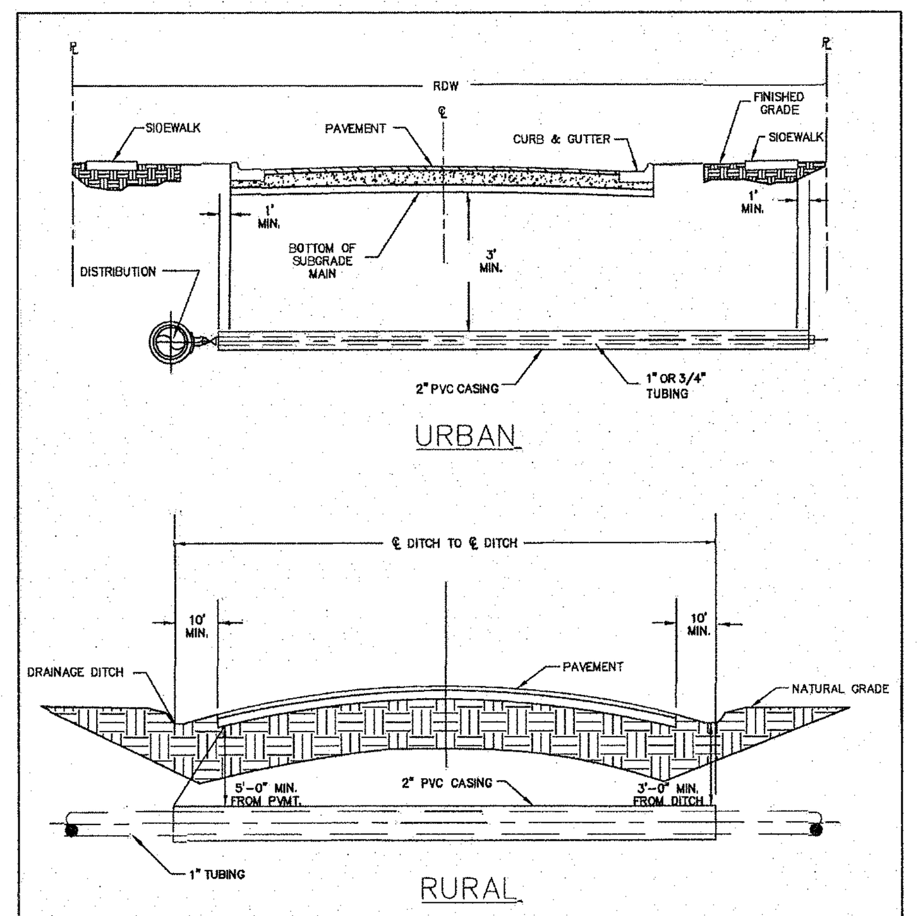
NOTES:

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

CITY OF AUSTIN — DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW — SLOPE PROTECTION AND TREE WELLS — RECORD COPY SIGNED BY J. PATRICK MURPHY 03/13/06 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 610S-6, 1 OF 2



CITY OF AUSTIN — DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW — SLOPE PROTECTION AND TREE WELLS — RECORD COPY SIGNED BY J. PATRICK MURPHY 03/13/06 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 610S-6, 2 OF 2

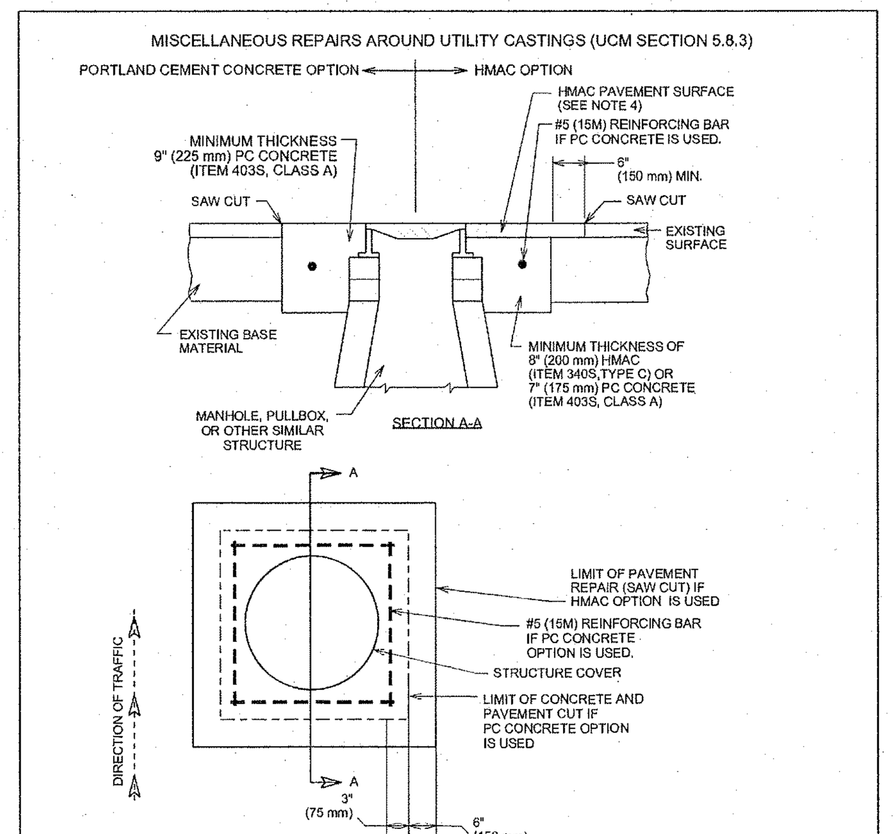


NOTES:

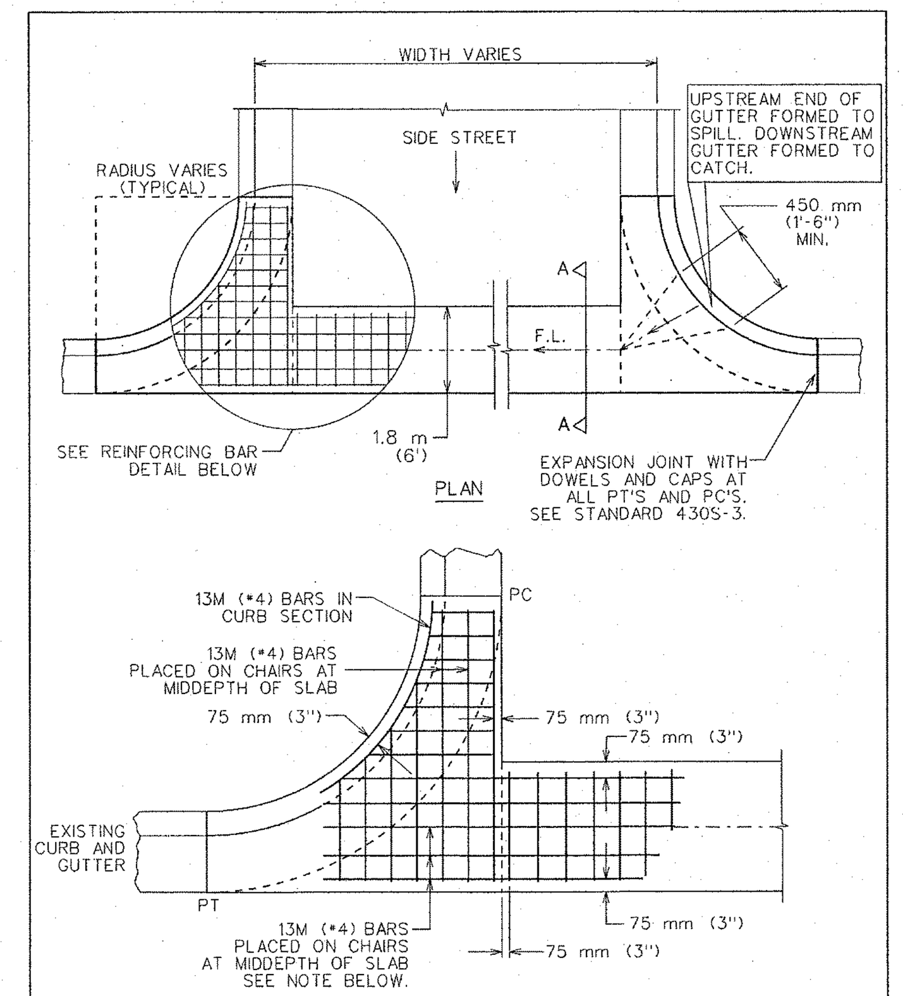
- Unless otherwise required by the Roadway Authority, casing pipe shall be ASTM D 2241, SDR21, or ASTM D 1785, SCH 40.
- Casing spacers are required for all lines 6" and larger.
- Bedding material shall comply with COA Item 510.

HAYS COUNTY, TEXAS — SERVICE LINE BORING & ENCASEMENT DETAILS

MISCELLANEOUS REPAIRS AROUND UTILITY CASTINGS (UCM SECTION 5.8.3)

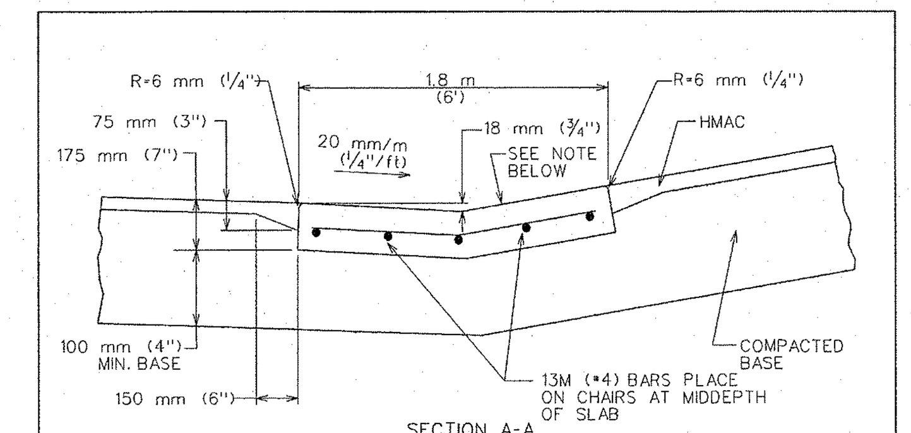


CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — CASTING ADJUSTMENT — RECORD COPY SIGNED BY SAM ANGOORI 01/04/10 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 1100S-1



NOTE:
ALTERNATE 13M (#4) BARS PLACED ON CHAIRS AT MIDDEPTH OF SLAB TO BE CONTINUOUS ACROSS EXPANSION JOINT. BREAK BOND 150 mm (6") ON EACH SIDE OF EXPANSION JOINT.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — CONCRETE VALLEY GUTTER — RECORD COPY SIGNED BY BILL GARDNER 06/12/06 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 436S-2, 1 OF 2

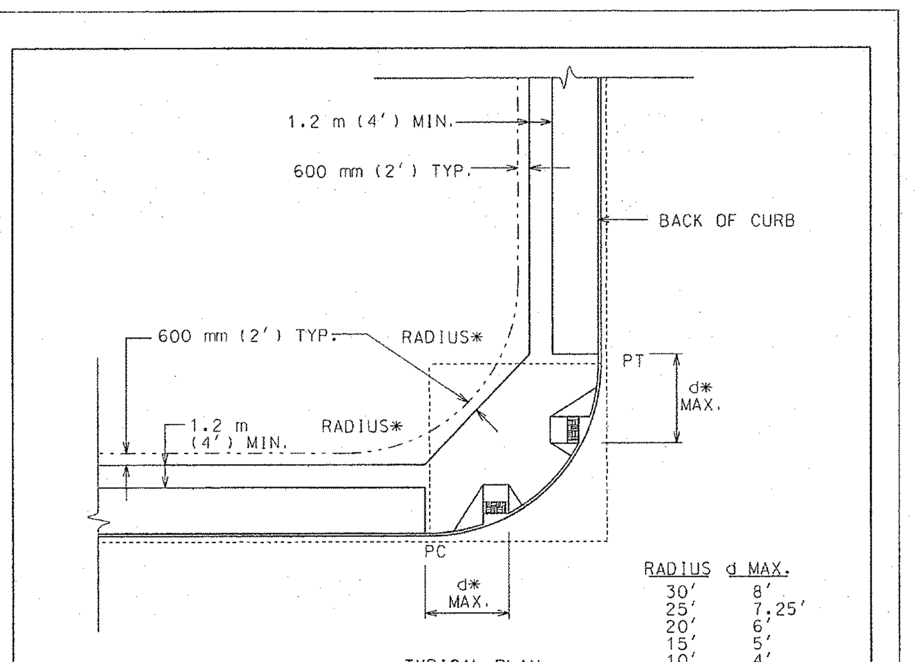


NOTE:
ADJUST SLOPE FROM 20 mm/m (¼"/ft) MINIMUM TO THE SLOPE OF THE SIDE STREET.

NOTES:

1. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
2. CONCRETE FOR THE VALLEY GUTTER SHALL BE CLASS A, ITEM 403S, "CONCRETE FOR STRUCTURES".
3. MONOLITHIC CURB AND GUTTER SHALL BE MEASURED BY PLAN QUANTITY PER SQUARE FEET AND PAID AS VALLEY GUTTER.
4. THE UPSTREAM CURB MID POINT MUST BE AT OR LOWER THAN THE BEGINNING P.C. AND 0.5% MINIMUM HIGHER THAN THE OPPOSING MID POINT.
5. ALLOWABLE CONSTRUCTION JOINT AT THE CENTER LINE WHEN TRAFFIC FLOW MUST BE MAINTAINED, CONSTRUCTED AS A CONTROL JOINT.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — CONCRETE VALLEY GUTTER — RECORD COPY SIGNED BY BILL GARDNER 06/12/06 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 436S-2, 2 OF 2

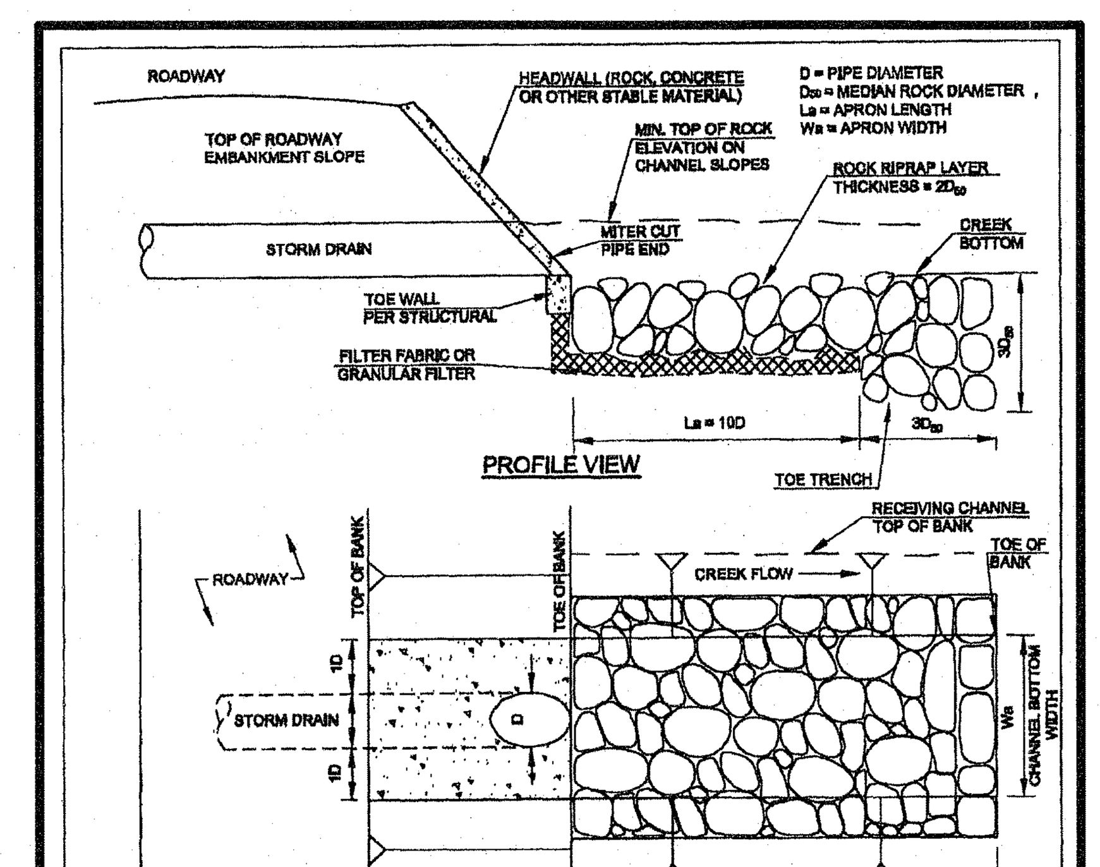


RADIUS	d MAX.
30'	8'
25'	7.25'
20'	6'
15'	5'
10'	4'

NOTES:

1. THIS STANDARD IS APPLICABLE FOR RAMP CONSTRUCTION WITHIN RIGHT-OF-WAY OR EASEMENT ONLY
2. CURB RAMPS WILL BE CONSTRUCTED PERPENDICULAR TO ROADWAY CENTERLINE AND SHALL ALIGN WITH THOSE LOCATED ACROSS THE ROADWAY.
3. THE CURB, GUTTER AND RAMP SYSTEM SHALL BE CONFIGURED TO MAINTAIN ALL RUNOFF FROM A 25 YEAR FREQUENCY STORM WITHIN THE RIGHT-OF-WAY (DRAINAGE CRITERIA MANUAL SECTION 1.2.2.B). WHEN THERE IS AN ELEVATION DIFFERENCE BET-WEEN THE BOTTOM OF RAMPS (IE. ELEVATION AT THE GUTTER) WITH-IN A QUADRANT OF AN INTERSECTION, THE LOWER ELEVATION RAMP SHALL BE CONSTRUCTED WITH A POSITIVE RAMP SLOPE OF 1:12 IN ACCORDANCE WITH STANDARDS 432S-5, 432S-5A AND 432S-5B.
4. PRIORITY SHALL BE GIVEN TO THE INSTALLATION OF RAMPS IN CONFORMANCE WITH STANDARDS 432S-3 AND 432S-3A.
5. THIS STANDARD SHALL ONLY BE USED WHEN WALKABLE SURFACES ARE PRESENT ON BOTH SIDES OF A RAMP.
6. THIS STANDARD MAY BE USED IN SUBDIVISION APPLICATIONS AND OTHER INSTANCES WHERE STANDARDS 432S-3 AND 432S-3A CANNOT BE UTILIZED DUE TO SPACE LIMITATIONS.
7. SEE STANDARD 432S-2A FOR DETECTABLE WARNING-PAVER INSTALLATION.
8. SEE STANDARDS 432S-5 FOR RAMP TYPE DETAIL.

CITY OF AUSTIN — DEPARTMENT OF PUBLIC WORKS — TYPE 1 RAMPS WITHIN PC/PT OF CURB AND GUTTER — RECORD COPY SIGNED BY BILL GARDNER 08/20/07 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 432S-3H, 1 OF 3



NOTE:

1. ROCK RIPRAP SHALL BE SOUND MATERIAL AND GRADED PER REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 591S.
2. ROCK SIZE (D_{50}) AND GRADATION SHALL BE STABLE FOR THE DESIGN HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH THE ECM 1.4.6.D PERMANENT STRUCTURAL PRACTICES, STONE RIPRAP OR OTHER ENGINEERING STANDARD OF PRACTICE FOR SIZING ROCK RIPRAP. ROCK RIPRAP D_{50} AND FILTER TYPE SHALL BE NOTED ON PLANS.
3. GEOTEXTILE FILTER FABRIC SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 620S.
4. AGGREGATE FOR GRANULAR FILTER SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 403, AGGREGATE SIZE CLASSIFICATION/GRADE, NUMBER OF LAYERS AND LAYER THICKNESS SHOULD BE NOTED ON THE PLANS.

CITY OF AUSTIN — WATERSHED PROTECTION DEPARTMENT — STORMDRAIN OUTFALL PROTECTION CULVERT UNDER ROADWAY/INLINE — 9/1/2011 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 508S-20

PARTEN RANCH PHASE 8
GENERAL DETAILS (SHEET 4)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Details.dwg

STATE OF TEXAS — LAUREN CRONE 128018 LICENSED PROFESSIONAL ENGINEER — 3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

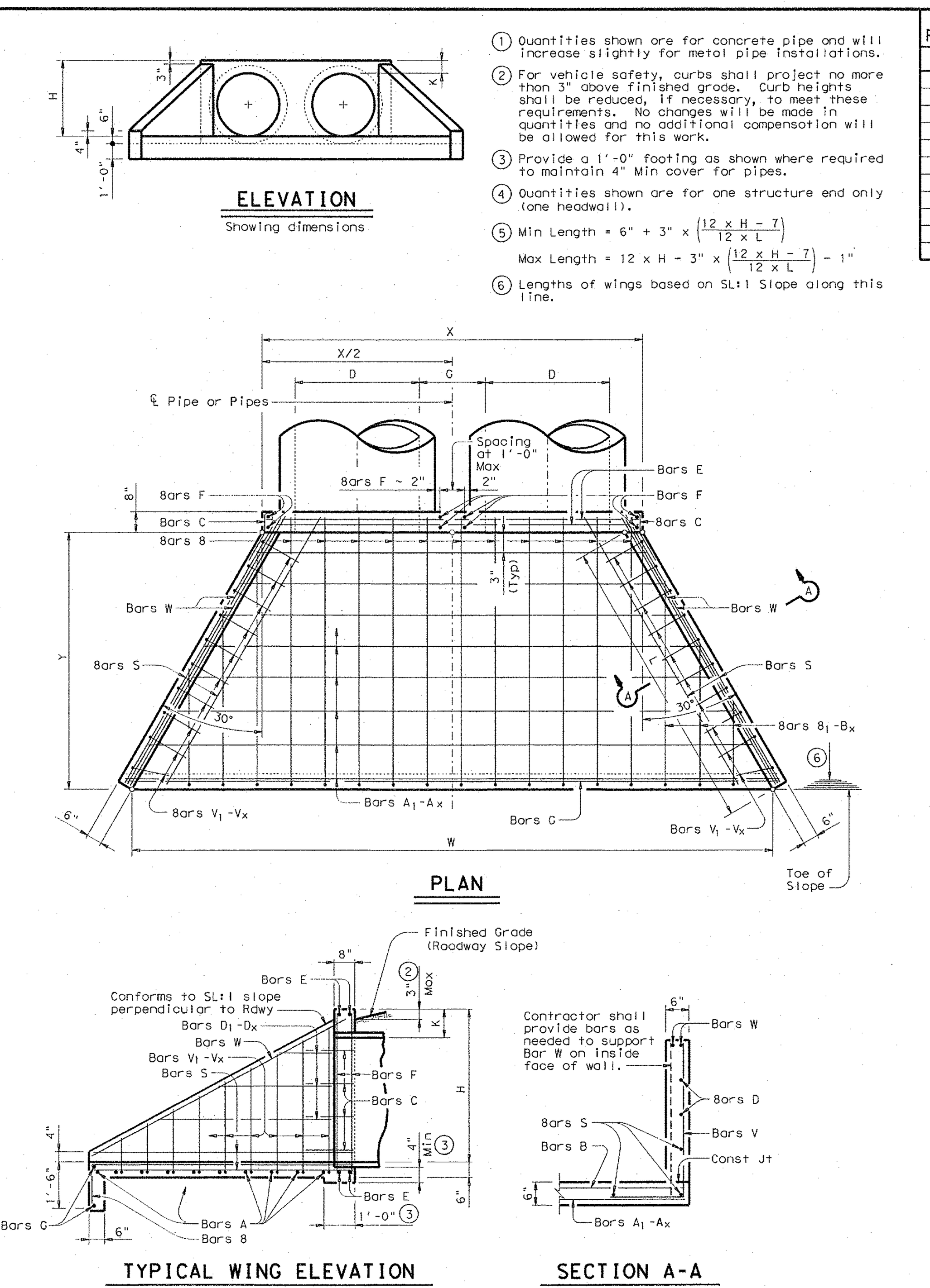
SHEET NO. 42 OF 50 SHEETS

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

SLOPE	DIA OF PIPE, D	W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	X and W (addt'l Pipe)	Reinf (Lbs) (addt'l Pipe)	Conc (CY) (1) (addt'l Pipe)
		Values for one Pipe						Values to be added for each addt'l Pipe		
2:1	12"	4'- 7 1/2"	2'- 6"	2'-10"	3'- 3 1/4"	84	0.6	1'- 9"	20	0.2
2:1	15"	5'- 5 3/4"	2'- 9 1/2"	3'- 4"	3'-10 1/4"	99	0.7	2'- 2"	24	0.3
2:1	18"	6'- 4 1/4"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3
2:1	21"	7'- 2 3/4"	3'- 4 1/2"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4
2:1	24"	8'- 2 1/2"	3'- 9 1/2"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5
2:1	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6
2:1	30"	9'-11 1/2"	4'- 4 1/2"	5'-10"	6'- 8 3/4"	197	1.7	4'- 4"	65	0.8
2:1	33"	10'-10"	4'- 8"	6'- 4"	7'- 3 3/4"	216	2.0	4'- 8"	71	0.9
2:1	36"	11'- 8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'- 1"	81	1.0
2:1	42"	13'- 5 1/4"	5'- 6 1/2"	7'-10"	9'- 0 1/2"	290	2.8	5'-10"	97	1.3
2:1	48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/4"	350	3.8	6'- 7"	117	1.7
2:1	54"	17'- 5 3/4"	6'- 8 1/2"	10'- 4"	11'-11 1/4"	415	4.5	7'- 6"	151	2.1
2:1	60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5
2:1	66"	20'-11 1/2"	7'-10 1/2"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9
2:1	72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	587	7.1	9'- 4"	213	3.3
3:1	12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2
3:1	15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/4"	133	1.1	2'- 2"	28	0.3
3:1	18"	8'- 6 3/4"	3'- 1"	5'- 9"	6'- 7 3/4"	166	1.3	2'- 8"	37	0.5
3:1	21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6
3:1	24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	221	2.0	3'- 7"	58	0.7
3:1	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 3/4"	245	2.3	3'-11"	67	0.8
3:1	30"	13'- 4"	4'- 4 1/2"	8'- 9"	10'- 1 1/4"	287	2.7	4'- 4"	77	1.0
3:1	33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'-11 3/4"	310	3.1	4'- 8"	84	1.2
3:1	36"	15'- 7 3/4"	4'-11 1/2"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4
3:1	42"	17'-11 1/2"	5'- 6 1/2"	11'- 9"	13'- 6 3/4"	424	4.5	5'-10"	119	1.7
3:1	48"	21'- 1 3/4"	6'- 1 1/2"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3
3:1	54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'-10 3/4"	618	7.3	7'- 6"	186	2.9
3:1	60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	707	8.7	8'- 3"	219	3.4
3:1	66"	28'- 1"	7'-10 1/2"	18'- 6"	21'- 4 1/4"	797	10.1	8'- 9"	242	3.9
3:1	72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 1/4"	910	11.7	9'- 4"	272	4.4
4:1	12"	7'-10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	144	1.1	1'- 9"	24	0.3
4:1	15"	9'- 4"	2'- 9 1/2"	6'- 8"	7'- 8 1/2"	177	1.5	2'- 2"	32	0.4
4:1	18"	10'- 9 1/2"	3'- 1"	7'- 8"	8'-10 1/4"	217	1.9	2'- 8"	42	0.5
4:1	21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7
4:1	24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9
4:1	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 3/4"	328	3.3	3'-11"	77	1.0
4:1	30"	16'- 8 1/4"	4'- 4 1/2"	11'- 8"	13'- 5 3/4"	379	3.8	4'- 4"	89	1.3
4:1	33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	417	4.5	4'- 8"	101	1.4
4:1	36"	19'- 7"	4'-11 1/2"	13'- 8"	15'- 9 1/4"	464	5.1	5'-1"	115	1.7
4:1	42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1
4:1	48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	720	8.9	6'- 7"	175	2.8
4:1	54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'-10 1/4"	863	10.7	7'- 6"	226	3.6
4:1	60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3
4:1	66"	35'- 2 1/2"	7'-10 1/2"	24'- 8"	28'- 5 3/4"	1126	14.9	8'- 9"	300	4.9
4:1	72"	38'- 1 1/4"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1283	17.3	9'- 4"	334	5.6
6:1	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 3/4"	220	1.9	1'- 9"	28	0.4
6:1	15"	13'- 2 1/4"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	264	2.5	2'- 2"	37	0.5
6:1	18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/4"	326	3.2	2'- 8"	50	0.7
6:1	21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/4"	381	3.9	3'- 1"	69	0.9
6:1	24"	19'- 4 1/2"	3'- 9 1/2"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2
6:1	27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	506	5.7	3'-11"	96	1.4
6:1	30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	587	6.7	4'- 4"	110	1.7
6:1	33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'-11 1/4"	667	7.8	4'- 8"	127	2.0
6:1	36"	27'- 5 3/4"	4'-11 1/2"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3
6:1	42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	914	11.5	5'-10"	179	3.0
6:1	48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0
6:1	54"	41'- 4 1/4"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1412	19.2	7'- 6"	300	5.0
6:1	60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



1. Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
2. For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
3. Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.
4. Quantities shown are for one structure end only (one headwall).
5. Min Length = 6" + 3" x $\left(\frac{12 \times H - 7}{12 \times L}\right)$

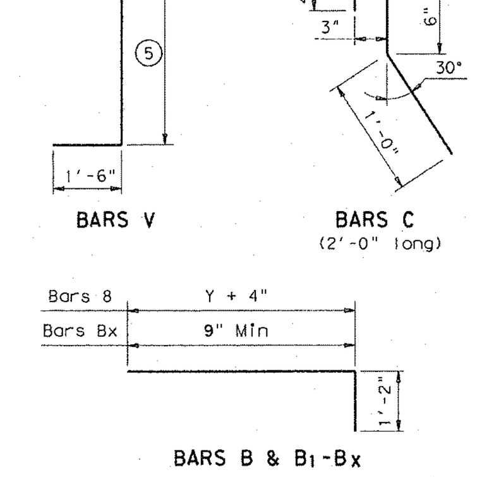
   Max Length = 12 x H - 3" x $\left(\frac{12 \times H - 7}{12 \times L}\right)$ - 1"
6. Lengths of wings based on SL:1 Slope along this line.

TABLE OF REINFORCING STEEL (4)

Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

TABLE OF CONSTANT DIMENSIONS

DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



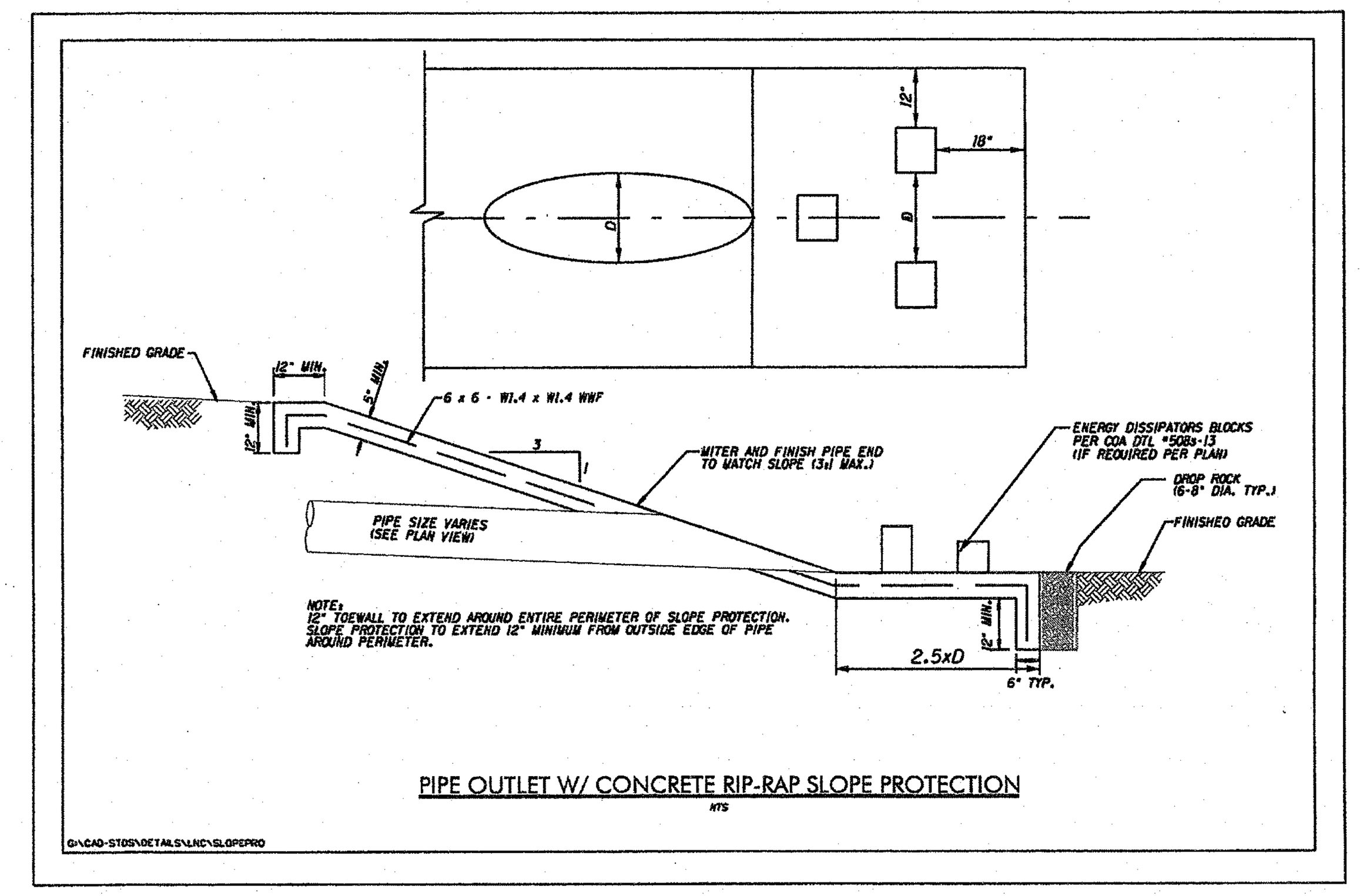
GENERAL NOTES:
Designed according to AASHTO LRFD Specifications.
Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.
No bridge rails of any type may be mounted directly to these culvert headwalls.

Texas Department of Transportation — Bridge Division Standard

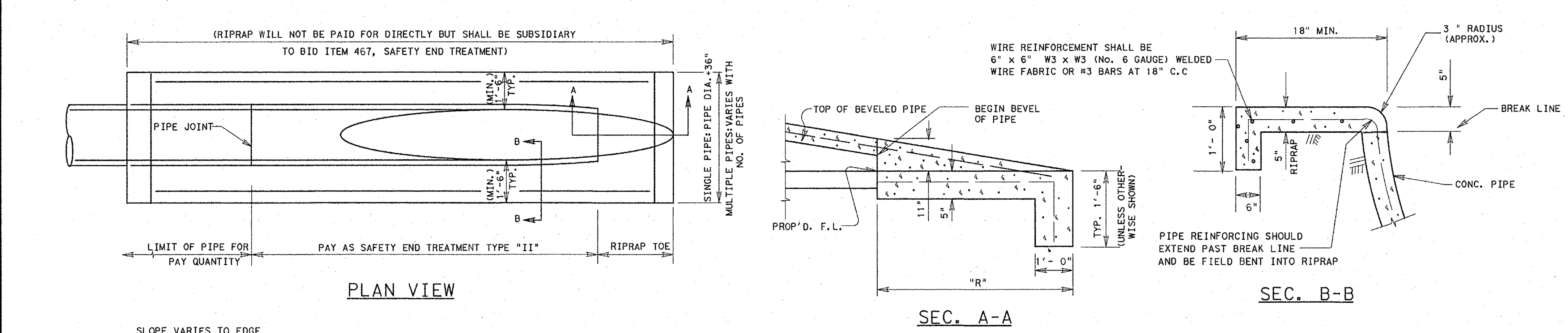
CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

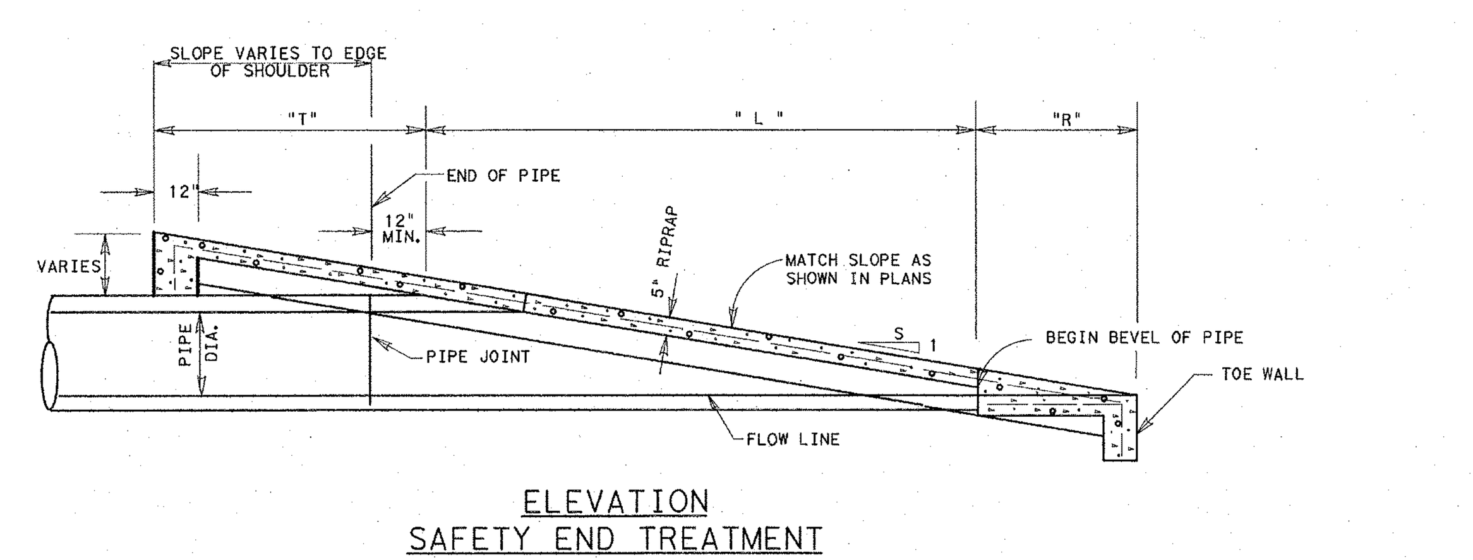
CH-FW-0

FILE: chfw00se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF		
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY		
REVISIONS	DIST	COUNTY	SHEET NO.			



PIPE OUTLET W/ CONCRETE RIP-RAP SLOPE PROTECTION





SAFETY END TREATMENT PIPE LENGTHS

PIPE DIA. (IN.)	"L" 3:1	4:1	5:1	6:1
12	2'-0"	2'-8"	3'-4"	4'-0"
15	2'-9"	3'-8"	4'-7"	5'-6"
18	3'-6"	4'-8"	5'-10"	7'-0"
24	5'-1 1/2"	6'-10"	8'-6 1/2"	10'-3"
30	6'-9"	9-0"	11'-3"	13'-6"
36	8'-6"	11'-4"	14'-2"	17'-0"
42	10'-1 1/2"	13'-6"	16'-10 1/2"	20'-3"
48	11'-9"	15'-8"	19'-7"	23'-6"

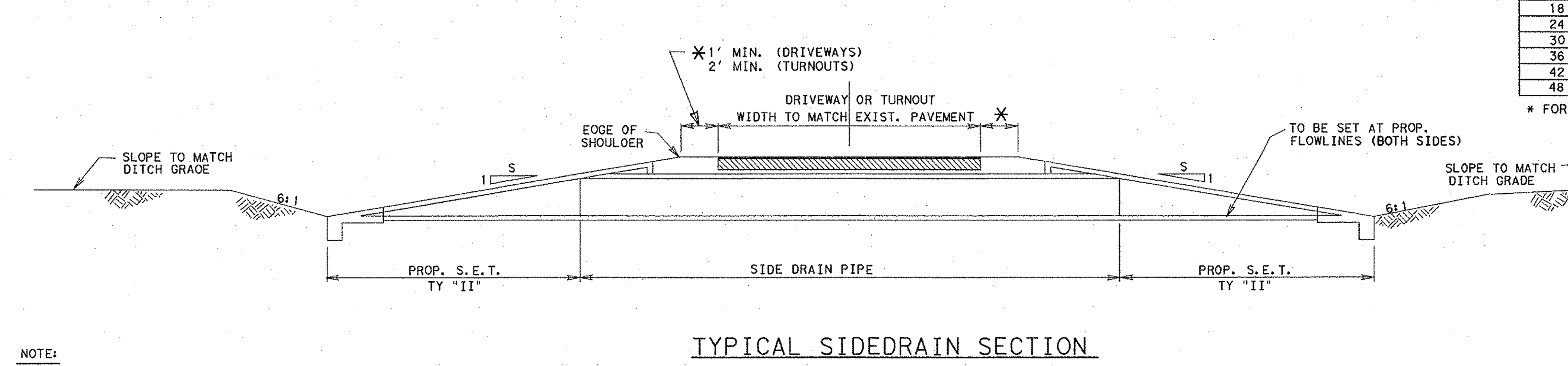
RIPRAP TOE LENGTHS

SLOPE	" R "	"T"
3:1	2'-9"	1'-9"
4:1	3'-8"	2'-4"
5:1	4'-7"	2'-11"
6:1	5'-6"	3'-6"

ESTIMATED RIPRAP VOLUME (CY)

PIPE DIA. (IN.)	3:1	4:1	5:1	6:1
12	.9	1.1	1.3	1.6
15	1.0	1.2	1.5	1.8
18	1.1	1.4	1.6	1.9
24	1.3	1.6	2.0	2.3
30	1.5	1.9	2.3	2.7
36	1.7	2.2	2.7	3.2
42	2.0	2.5	3.1	3.6
48	2.2	2.8	3.4	4.1

* FOR CONTRACTORS INFORMATION ONLY (SINGLE PIPE)



NOTE:
ALL EXCAVATION AND BACKFILL REQUIRED AT ALL PIPE SIDE DRAIN CONNECTIONS, ADJUSTMENTS AND/OR EXTENSIONS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO THE BID ITEMS INVOLVED AND IN ACCORDANCE WITH ITEM 400 "STRUCTURAL EXCAVATION".

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TEXAS DEPARTMENT OF TRANSPORTATION

SAFETY END TREATMENT DETAILS

REV. 11/10 — SET.DON

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

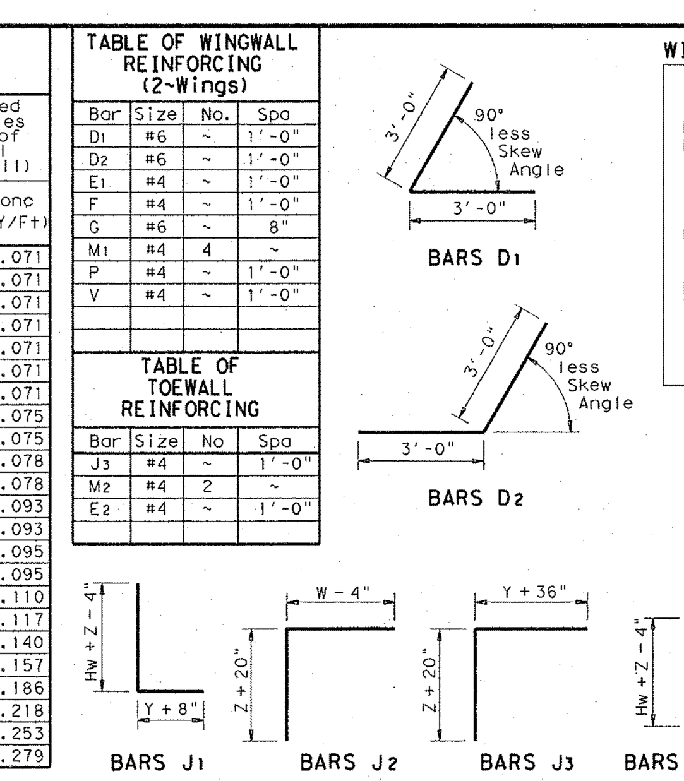
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Est. Quantities per ft of wing (2~Wings) (4) Reinf (Lb/Ft)	Conc (CY/Ft)	Est. Quantities per ft of Toewall (1~Toewall) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 6"	2'- 8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

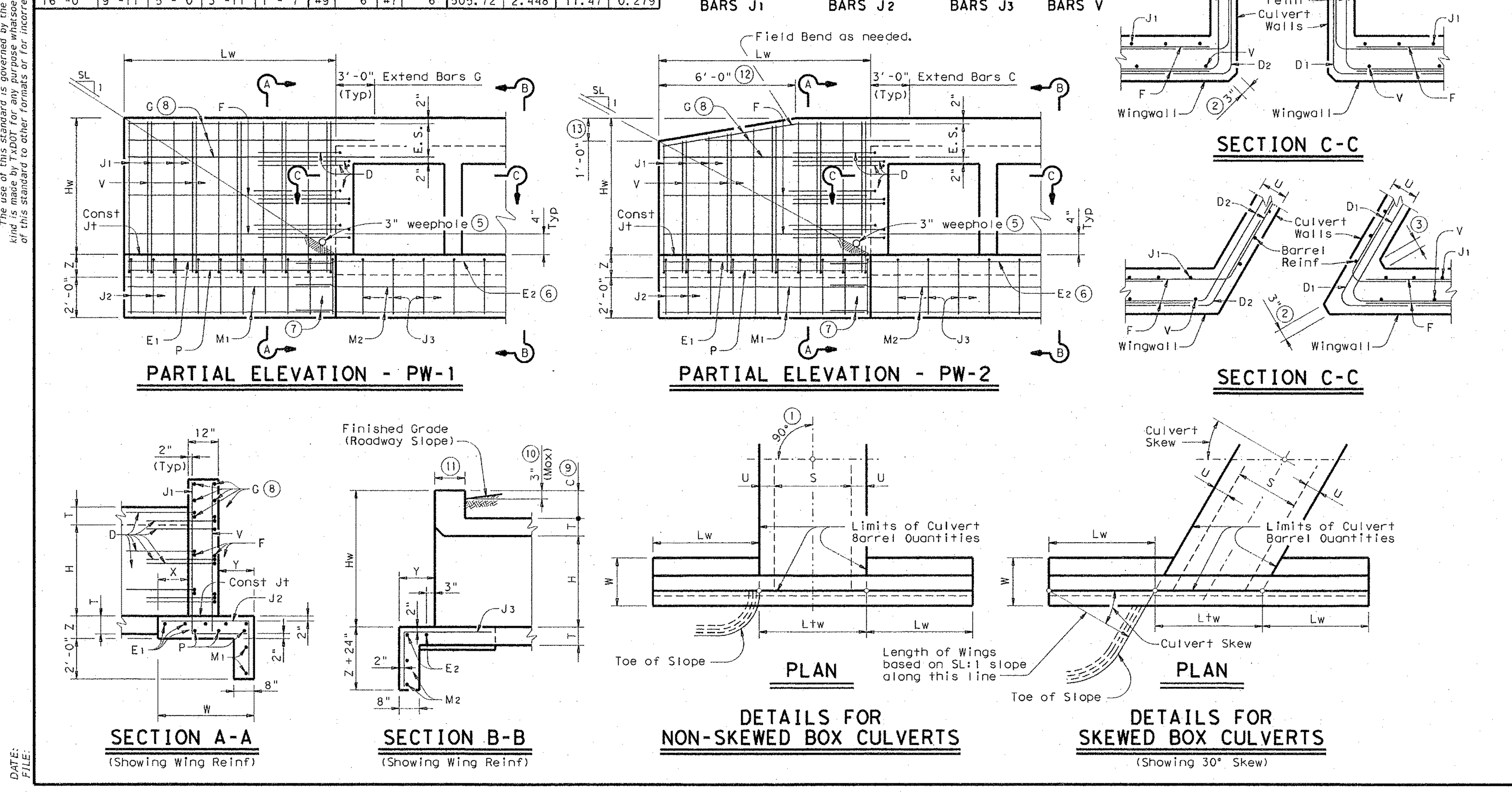
Hw = H + T + C
Lw = (Hw) (SL) ÷ Cosine θ for Ty PW-1
= (Hw - 1') (SL) ÷ Cosine θ for Ty PW-2 and Hw ≥ 4'
= (Hw - 0.5') (SL) ÷ Cosine θ for Ty PW-2 and Hw < 4'

For Cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] ÷ Cosine θ

For Precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] ÷ Cosine θ
Total Wingwall Area (Two Wings ~ SF)
= (2)(Hw)(Lw) for Ty PW-1
= (2)(Hw)(Lw) - 6 SF for Ty PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) - 1.5 SF for Ty PW-2 and Hw < 4'

Hw = Height of Wingwall
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
SL:1 = Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
θ = Culvert Skew

See applicable box culvert standard for S, H, T and U values.



1. Skew Angle = 0°
2. At discharge end, chamfer may be 3/4".
3. For 15° Skew ~ 1"
   For 30° Skew ~ 2"
   For 45° Skew ~ 3"
4. Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E2 1'-6" minimum into the wingwall footing.
7. Lap Bars M1 1'-6" minimum with Bars M2.
8. Bars G equally spaced at 8" maximum, place as shown. Provide at least two pair Bars G per wing.
9. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rail, curbs cannot project more than 3" above finished grade.
    - For structures with bridge rail, build curbs flush with finished grade.
    Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1'-0" typical. 2'-0" typical when RAC standard is referenced elsewhere in the plans.
12. 3'-0" for Hw < 4'.
13. 6" for Hw < 4'.

GENERAL NOTES:
Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Provide Class "C" Concrete (f'c = 3,600 psi Min) and Grade 60 reinforcing steel.
Provide 1 1/4" Min clear cover to reinforcing steel.
Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See BCS sheet for wingwall type and additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

DESIGNER NOTES:
Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

PW

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PARTEN RANCH PHASE 8
GENERAL DETAILS (SHEET 5)

NO.	REVISIONS DESCRIPTION	BY	DATE

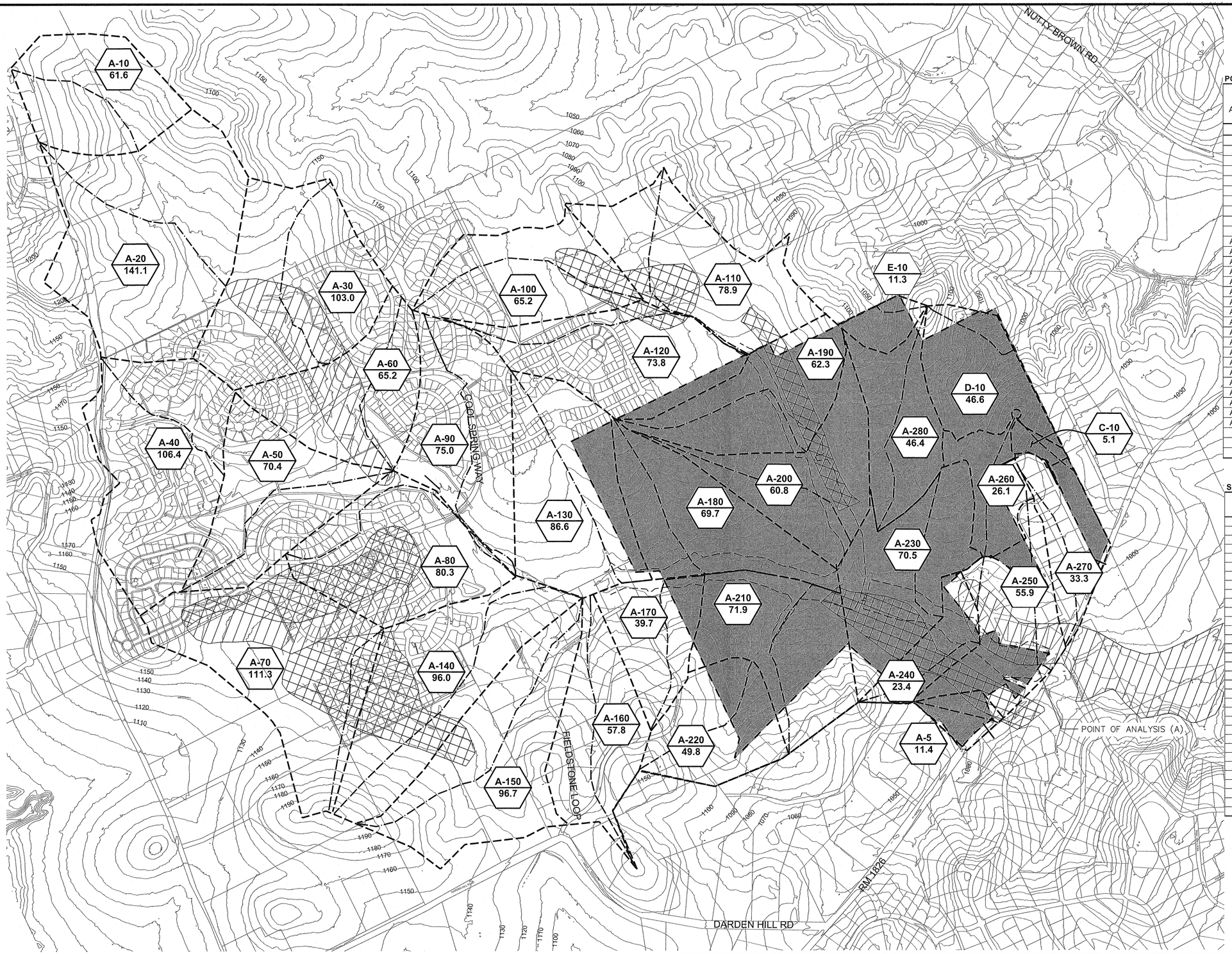
DATE:
DESIGNED BY: SR
DRAWN BY: CRC
CHECKED BY: LAC
DRAWING NAME: PH8-Details.dwg

Lauren Crone — STATE OF TEXAS — LAUREN CRONE — 128018 — LICENSED PROFESSIONAL ENGINEER — 3/13/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 43 OF 50 SHEETS



600 300 0 600 1200
SCALE IN FEET

PONDPACK INPUT SUMMARY

AREA ID.	AREA (AC)	EXISTING COMPOSITE CURVE NO.	EXISTING Tc (hrs)
EXISTING			
A-5	11.4	79	0.205
A-10	61.6	81	0.225
A-20	141.1	81	0.279
A-30	103.0	78	0.182
A-40	106.4	85	0.314
A-50	70.4	84	0.209
A-60	65.2	80	0.284
A-70	111.3	76	0.270
A-80	80.3	83	0.380
A-90	75.0	83	0.275
A-100	65.2	79	0.354
A-110	78.9	80	0.354
A-120	73.8	83	0.318
A-130	86.6	81	0.304
A-140	96.0	82	0.371
A-150	96.7	80	0.293
A-160	57.8	82	0.330
A-170	39.1	82	0.233
A-180	69.7	80	0.303
A-190	62.3	79	0.327
A-200	60.8	79	0.387
A-210	71.9	80	0.236
A-220	49.8	80	0.297
A-230	70.5	79	0.321
A-240	23.4	77	0.197
A-250	55.9	75	0.329
A-260	26.1	79	0.246
A-270	33.3	81	0.357
A-280	46.4	80	0.276
C-10	5.1	80	0.180
D-10	46.6	80	0.108
E-10	11.3	80	0.130

SUMMARY OF PONDPACK OUTPUT

AREA I.D.	EXISTING 2 YEAR STORM	EXISTING 10 YEAR STORM	EXISTING 25 YEAR STORM	EXISTING 100 YEAR STORM
A-5	31	60	80	112
A-10	173	326	429	596
A-20	358	674	888	1231
A-30	274	537	719	1022
A-40	296	526	678	922
A-50	227	406	526	717
A-60	158	304	402	561
A-70	233	479	650	929
A-80	189	348	453	624
A-90	206	376	489	670
A-100	137	267	356	500
A-110	172	330	438	611
A-120	188	346	451	621
A-130	211	400	527	732
A-140	218	407	533	737
A-150	230	443	588	821
A-160	141	264	347	480
A-170	112	209	274	378
A-180	164	315	418	585
A-190	134	264	354	499
A-200	120	238	318	448
A-210	188	362	481	673
A-220	119	229	304	424
A-230	153	302	404	570
A-240	59	118	159	226
A-250	101	213	293	425
A-260	64	127	169	239
A-270	75	142	187	259
A-280	113	217	288	401
A Point of Study	4521	8629	11408	15903
C-10	15	28	37	52
D-10	159	301	396	551
E-10	38	72	95	132

LEGEND

- DRAINAGE AREA BOUNDARY
- A-10 / 65.2 — DRAINAGE AREA AND ACREAGE
- PROPERTY BOUNDARY
- TYPE C SOILS
- TYPE B SOILS

10 FT TOPOGRAPHY - CAPCOG LIDAR 2012

SUMMARY OF PONDPACK OUTPUT

POINT OF STUDY	EXISTING CONDITIONS 2-YR (CFS)	EXISTING CONDITIONS 10-YR (CFS)	EXISTING CONDITIONS 25-YR (CFS)	EXISTING CONDITIONS 100-YR (CFS)	PROPOSED CONDITIONS 2-YR (CFS)	PROPOSED CONDITIONS 10-YR (CFS)	PROPOSED CONDITIONS 25-YR (CFS)	PROPOSED CONDITIONS 100-YR (CFS)	ULTIMATE CONDITIONS 2-YR (CFS)	ULTIMATE CONDITIONS 10-YR (CFS)	ULTIMATE CONDITIONS 25-YR (CFS)	ULTIMATE CONDITIONS 100-YR (CFS)
A	4521	8629	11408	15903	4140	7949	10387	14406	4360	8182	10537	14441
C	15	28	37	52	9	23	32	51	10	24	33	61
D	159	301	396	551	85	250	332	457	90	252	330	459
E	38	72	95	132	35	66	87	122	34	67	87	124

PARTEN RANCH PHASE 8

DRAINAGE AREA MAP
(EXISTING CONDITIONS)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE:
DESIGNED BY: LAC
DRAWN BY: LAC
CHECKED BY: DWR
DRAWING NAME: PARTEN-Dng-EXIST.dwg

STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 44 OF 50 SHEETS

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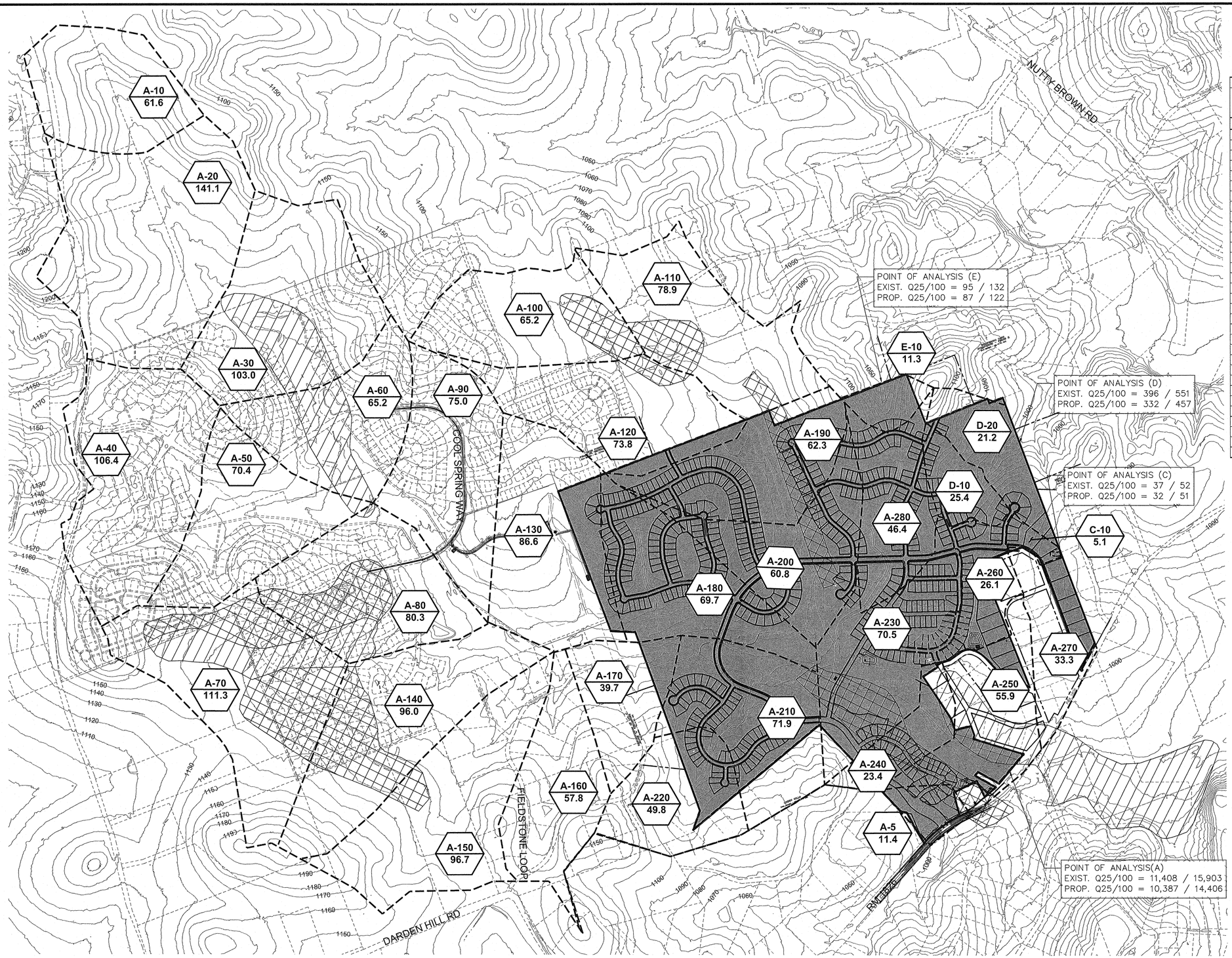
Last Modified: Oct. 31, 22 – 13:45
Plot Date/Time: Nov. 01, 22 – 10:34:00



PONDPACK INPUT SUMMARY

AREA I.D.	AREA (AC)	PROPOSED COMPOSITE CURVE NO.	PROPOSED Tc (hrs)
	PROPOSED		
A-5	11.4	81	0.205
A-10	61.6	81	0.225
A-20	141.1	81	0.279
A-30	103.0	78	0.182
A-40	106.4	85	0.314
A-50	70.4	84	0.209
A-60	65.2	80	0.284
A-70	111.3	76	0.270
A-80	80.3	83	0.380
A-90	75.0	83	0.275
A-100	65.2	79	0.354
A-110	78.9	80	0.354
A-120	73.8	83	0.318
A-130	86.6	81	0.304
A-140	96.0	82	0.371
A-150	96.7	80	0.293
A-160	57.8	82	0.330
A-170	39.1	82	0.233
A-180	69.7	83	0.289
A-190	62.3	82	0.220
A-200	60.8	82	0.292
A-210	71.9	82	0.230
A-220	49.8	80	0.297
A-230	70.5	81	0.258
A-240	23.4	79	0.197
A-250	55.9	75	0.329
A-260	26.1	82	0.329
A-270	33.3	82	0.357
A-280	46.4	83	0.275
C-10	5.1	82	0.180
D-10	46.6	81	0.108
E-10	11.3	81	0.130

SUMMARY OF PONDPACK OUTPUT

AREA I.D.	PROPOSED 2 YEAR STORM	PROPOSED 10 YEAR STORM	PROPOSED 25 YEAR STORM	PROPOSED 100 YEAR STORM
A-5	33	62	82	114
A-10	173	326	429	596
A-20	358	674	888	1231
A-30	274	537	719	1022
A-40	296	526	678	922
A-50	227	406	526	717
A-60	158	304	402	561
A-70	233	479	650	929
A-80	189	348	453	624
A-90	206	376	489	670
A-100	137	267	356	500
A-110	172	330	438	611
A-120	188	346	451	621
A-130	211	400	527	732
A-140	218	407	533	737
A-150	230	443	588	821
A-160	141	264	347	480
A-170	112	209	274	378
A-180	187	342	445	611
A-190	183	339	444	613
A-200	156	291	381	526
A-210	207	384	504	696
A-220	119	229	304	424
Pond Junction	3835	7229	9511	13200
Pond Outlet	3767	7149	9319	12949
A-230	183	345	456	635
A-240	64	123	164	230
A-250	101	213	293	425
A-260	63	118	155	215
A-270	78	145	189	262
A-280	127	231	300	412
A Point of Study	**4140**	**7949**	**10387**	**14406**
C-10	16	29	38	53
C OUTFALL	9	23	32	51
D-10	76	140	184	253
D-20	70	131	173	240
D OUTFALL	**85**	**250**	**332**	**457**
E-10	39	73	96	133
E OUTFALL	**35**	**66**	**87**	**122**

SUMMARY OF PONDPACK OUTPUT

POINT OF STUDY	EXISTING CONDITIONS 2-YR (CFS)	EXISTING CONDITIONS 10-YR (CFS)	EXISTING CONDITIONS 25-YR (CFS)	EXISTING CONDITIONS 100-YR (CFS)	PROPOSED CONDITIONS 2-YR (CFS)	PROPOSED CONDITIONS 10-YR (CFS)	PROPOSED CONDITIONS 25-YR (CFS)	PROPOSED CONDITIONS 100-YR (CFS)	ULTIMATE CONDITIONS 2-YR (CFS)	ULTIMATE CONDITIONS 10-YR (CFS)	ULTIMATE CONDITIONS 25-YR (CFS)	ULTIMATE CONDITIONS 100-YR (CFS)
A	4521	8629	11408	15903	4140	7949	10387	14406	4380	8182	10537	14441
C	15	28	37	52	9	23	32	51	10	24	33	61
D	159	301	396	551	85	250	332	457	90	252	330	459
E	38	72	95	132	35	66	87	122	34	67	87	124

LEGEND

- DRAINAGE AREA BOUNDARY
- A-10 / 65.2 — DRAINAGE AREA AND ACREAGE
- PROPERTY BOUNDARY
- TYPE C SOILS
- TYPE B SOILS

10 FT TOPOGRAPHY - CAPCOG LIDAR 2011

PARTEN RANCH PHASE 8

DRAINAGE AREA MAP (PROPOSED CONDITIONS)

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 3/3/2023
DESIGNED BY: LAC
DRAWN BY: LAC
CHECKED BY: DWR
DRAWING NAME: PARTEN-Dng-PROP.dwg

Jason Crone
STATE OF TEXAS
LAUREN CRONE
128018
LICENSED PROFESSIONAL ENGINEER
3/3/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0413

SHEET NO. 45 OF 50 SHEETS

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User: rcorrea
Last Modified: Oct. 31, 22 - 13:45
Plot Date/Time: Nov. 10, 22 - 10:34:22