ARIZA 290 WEST

Contributing Zone Plan Application and Optional Enhanced Measures

August 2023

PAPE-DAWSON ENGINEERS

Transportation | Water Resources | Land Development | Surveying | Environmental

PAPE-DAWSON ENGINEERS

August 23, 2023

Ms. Lillian Butler
Texas Commission on Environmental Quality (TCEQ)
12100 Park 35 Circle
Building A, Room 179
Austin, TX 78753

Re: Ariza 290 West
Contributing Zone Plan Application and Optional Enhanced Measures

Dear Ms. Butler:

Please find included herein the Ariza 290 West Contributing Zone Plan Application and Optional Enhanced Measures. This Contributing Zone Plan Application has been prepared in accordance with the Texas Administrative Code (30 TAC 213) and current policies for development over the Edwards Aquifer Contributing Zone. The Optional Enhanced Measures are prepared in accordance with Appendix A to RG-348 (RG-348A).

This Contributing Zone Application applies to an approximately 19.16-acre site as identified by the project limits. Please review the plan information for the items it is intended to address. If acceptable, please provide a written approval of the plan in order that construction may begin at the earliest opportunity.

Appropriate review fees ($6,500) and fee application form are included. If you have questions or require additional information, please do not hesitate to contact me at your earliest convenience.

Sincerely,
Pape-Dawson Engineers, Inc.

Shelly Mitchell

Shelly Mitchell, P.E.
Vice President

Attachments

H:\Projects\513\12\00\301 Construction Documents\Documents\Reports\CZP\230720a1 Letter.docx

ARIZA 290 WEST

Contributing Zone Plan Application and Optional Enhanced Measures

08/28/2023

August 2023

EDWARDS AQUIFER APPLICATION COVER PAGE (TCEQ-20705)

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: Ariza 290 West					**2. Regulated Entity No.:** 111458402				
3. Customer Name: Cypressbrook 290 LP					**4. Customer No.:** 605996032				
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):**			19.16
9. Application Fee:	$6,500		**10. Permanent BMP(s):**			Batch Detention, Jellyfish Filter, VFS			
11. SCS (Linear Ft.):			**12. AST/UST (No. Tanks):**						
13. County:	Hays		**14. Watershed:**			Onion Creek			

Application Distribution

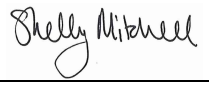
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Shelly Mitchell, P.E.
Print Name of Customer/Authorized Agent  08/28/2023
Signature of Customer/Authorized Agent Date

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

CONTRIBUTING ZONE PLAN APPLICATION (TCEQ-10257)

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.

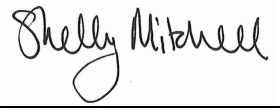
Signature

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: Shelly Mitchell, P.E.

Date: 08/28/2023

Signature of C :



08/28/2023

Regulated Entity Name: Ariza 290 West

Project Information

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

   Contact Person: Luis Bordes
   Entity: Cypressbrook 290 LP
   Mailing Address: 1776 Woodstead Ct. Ste 218
   City, State: Spring, TX Zip: 78620
   Telephone: (832) 602-4779 Fax: _____
   Email Address: LBordes@cypressbrook.com

5. Agent/Representative (If any):

Contact Person: Shelly Mitchell, P.E.
Entity: Pape-Dawson Engineers, Inc.
Mailing Address: 10801 North Mopac Expressway, Building 3 - Suite 200
City, State: Austin, Texas Zip: 78759
Telephone: (512) 454-8711 Fax: _____
Email Address: smitchell@pape-dawson.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.

From TCEQ's Regional Office, proceed south on I-35 approximately 21.2 miles to US-290W and turn right to travel west. Continue approximately 13.9 miles to the project site. The physical address is 13900 West US-290, Dripping Springs.

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

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

☒ Project site boundaries.
☒ USGS Quadrangle Name(s).

10. ☒ **Attachment C - Project Narrative**. A detailed narrative description of the proposed project is attached. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

11. Existing project site conditions are noted below:

☐ Existing commercial site

☐ Existing industrial site
☒ Existing residential site
☐ Existing paved and/or unpaved roads
☐ Undeveloped (Cleared)
☐ Undeveloped (Undisturbed/Not cleared)
☐ Other: _____

12. The type of project is:

☐ Residential: # of Lots: _____
☒ Residential: # of Living Unit Equivalents: 294
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 19.16 Acres

Total disturbed area: 19.16 Acres

14. Estimated projected population: 588 (based on 2 persons per unit)

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	84,594	÷ 43,560 =	1.942
Parking	207,171	÷ 43,560 =	4.756
Other paved surfaces	26,484	÷ 43,560 =	0.608
Total Impervious Cover	318,249	÷ 43,560 =	7.306

Total Impervious Cover 7.306 **÷ Total Acreage** 19.16 **X 100 =** 38.1**% 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 Ariza 290 West (name) Treatment Plant. The treatment facility is:

☐ Existing.
☒ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons

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

☒N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
1			
2			
3			
4			
5			

Total x 1.5 = _____ Gallons

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

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

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

Table 3 - Secondary Containment

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

Total: _____ Gallons

30. Piping:

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

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

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

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

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

☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

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

Site Plan Requirements

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

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

    Site Plan Scale: 1" = 40'.

35. 100-year floodplain boundaries:

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

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

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): DFIRM (Digital Flood Insurance Rate Map for Hays County) Panel Number: 48209C0115F dated September 02, 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.

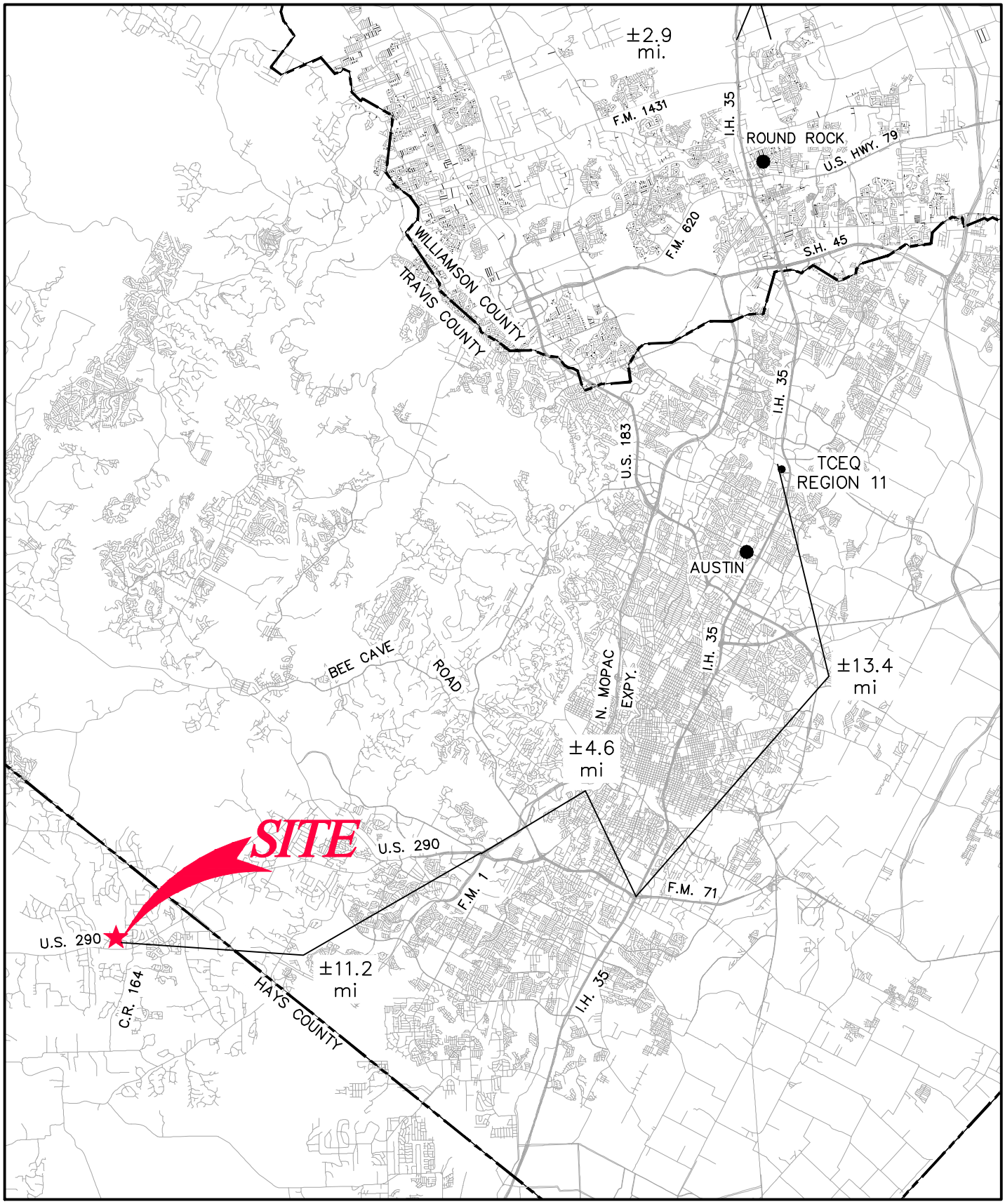
☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

ATTACHMENT A

ARIZA 290 WEST

Contributing Zone Plan

NOT TO SCALE



Pape-Dawson Engineers, Inc.

Date: Aug 24, 2023, 8:23am User ID: mgregory
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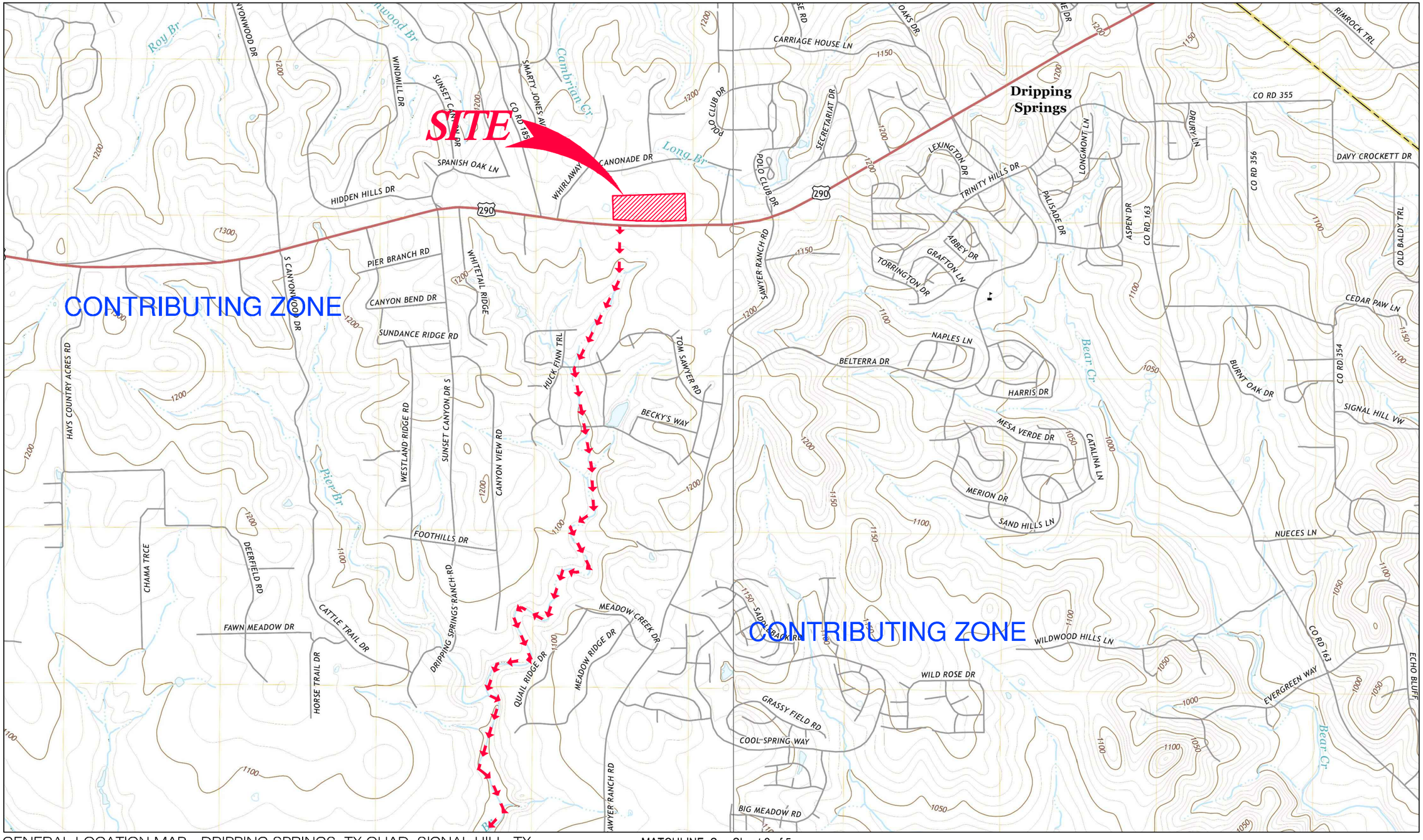
ATTACHMENT A
Road Map

ATTACHMENT B

ARIZA 290 WEST
Contributing Zone Plan

N
SCALE: 1" = 2000'



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GENERAL LOCATION MAP - DRIPPING SPRINGS, TX QUAD; SIGNAL HILL, TX QUAD; BUDA, TX QUAD; DRIFTWOOD, TX QUAD; MOUNTAIN CITY, TX QUAD

DRAINAGE FLOW → →

Pape-Dawson Engineers, Inc.

MATCHLINE See Sheet 2 of 5

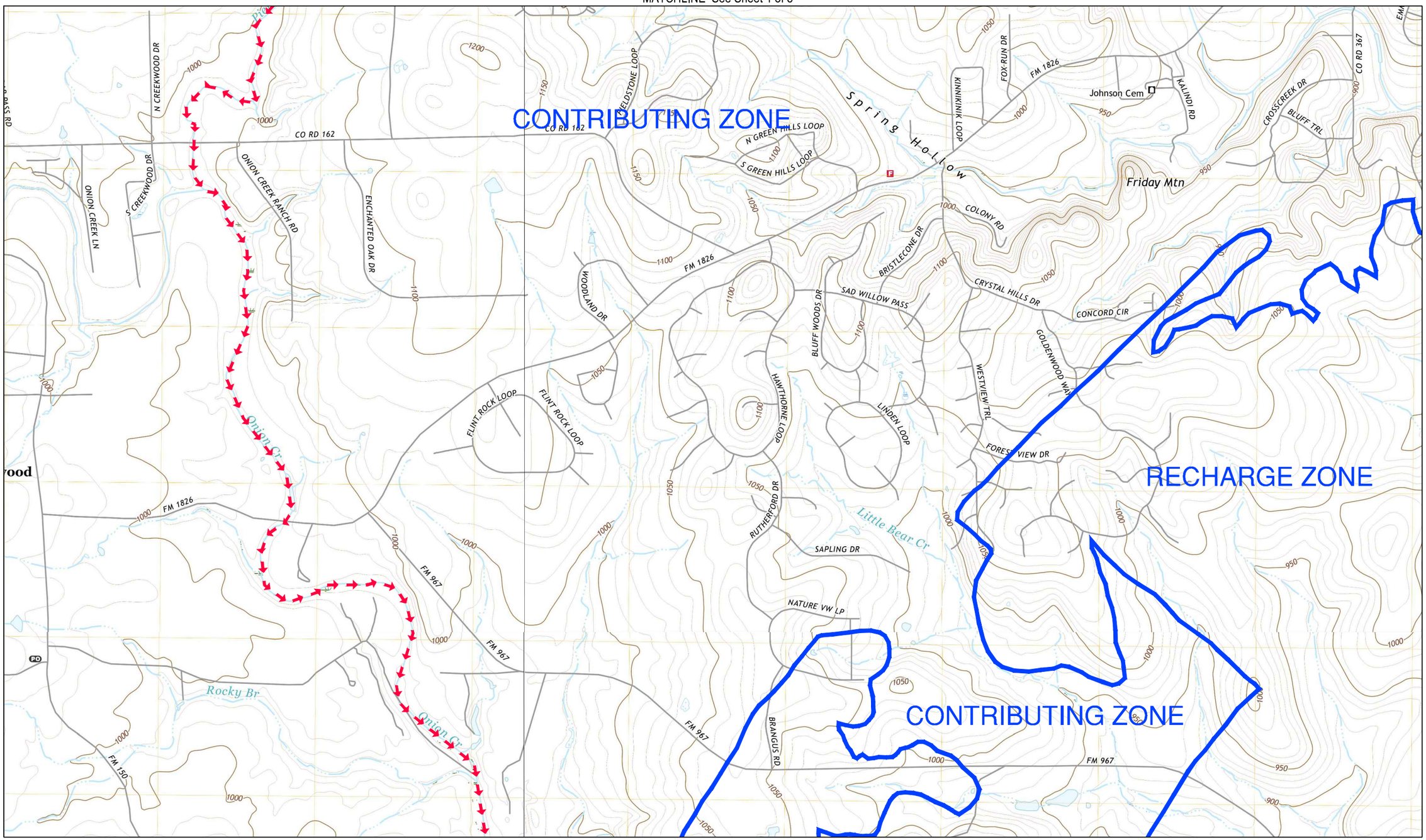
USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

ARIZA 290 WEST
Contributing Zone Plan

N

SCALE: 1" = 2000'

MATCHLINE See Sheet 1 of 5



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File: H:\Projects\513\12\00\301 Construction Documents\Exhibits\QD 5131200.dwg

GENERAL LOCATION MAP - DRIPPING SPRINGS, TX QUAD; SIGNAL HILL, TX QUAD; BUDA, TX QUAD; DRIFTWOOD, TX QUAD; MOUNTAIN CITY, TX QUAD

DRAINAGE FLOW → →

Pape-Dawson Engineers, Inc.

MATCHLINE See Sheet 3 of 5

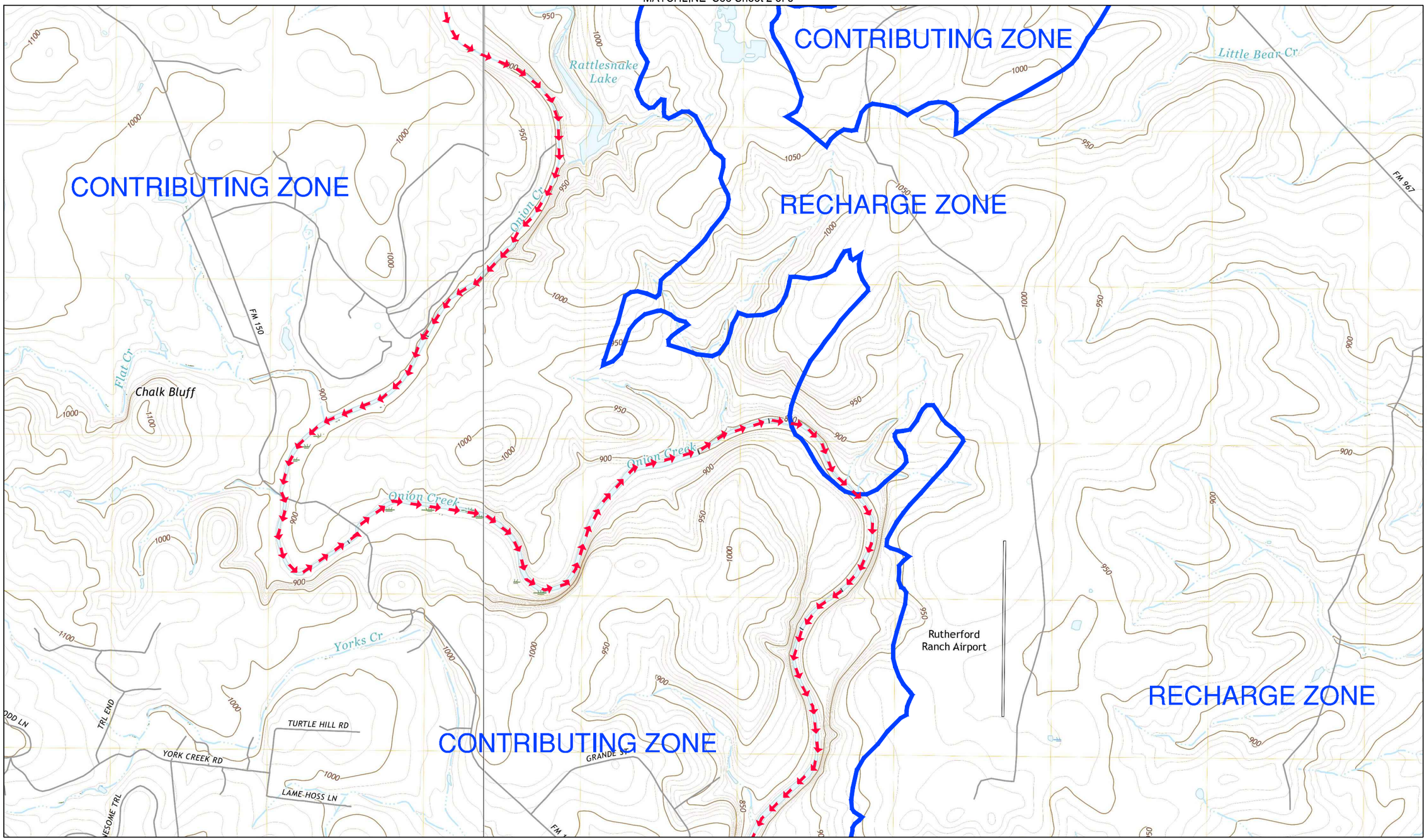
USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

ARIZA 290 WEST
Contributing Zone Plan

N

SCALE: 1" = 2000'

MATCHLINE See Sheet 2 of 5



MATCHLINE See Sheet 5 of 5

MATCHLINE See Sheet 4 of 5

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File: H:\Projects\513\12\00\301 Construction Documents\Exhibits\QD 5131200.dwg

GENERAL LOCATION MAP - DRIPPING SPRINGS, TX QUAD; SIGNAL HILL, TX QUAD; BUDA, TX QUAD; DRIFTWOOD, TX QUAD; MOUNTAIN CITY, TX QUAD

DRAINAGE FLOW → →

Pape-Dawson Engineers, Inc.

USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

ARIZA 290 WEST
Contributing Zone Plan

MATCHLINE See Sheet 3 of 5

MATCHLINE See Sheet 5 of 5

N

SCALE: 1" = 2000'

CONTRIBUTING ZONE

RECHARGE ZONE

RECHARGE ZONE

Hays City

Onion Cr

Halifax Cr

Mustang Br

W FM 150

BUFFLEHEAD ST

PINTAIL ST

MERGANSER ST

TEAL LN

INDIAN HILLS TRL

STORY DR

WARE DR

ARROYO RANCH RD

BELLA VISTA CIR

Date: Aug 24, 2023, 1:28pm User ID: mgregory
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GENERAL LOCATION MAP - DRIPPING SPRINGS, TX QUAD; SIGNAL HILL, TX QUAD; BUDA, TX QUAD; DRIFTWOOD, TX QUAD; MOUNTAIN CITY, TX QUAD

DRAINAGE FLOW → →

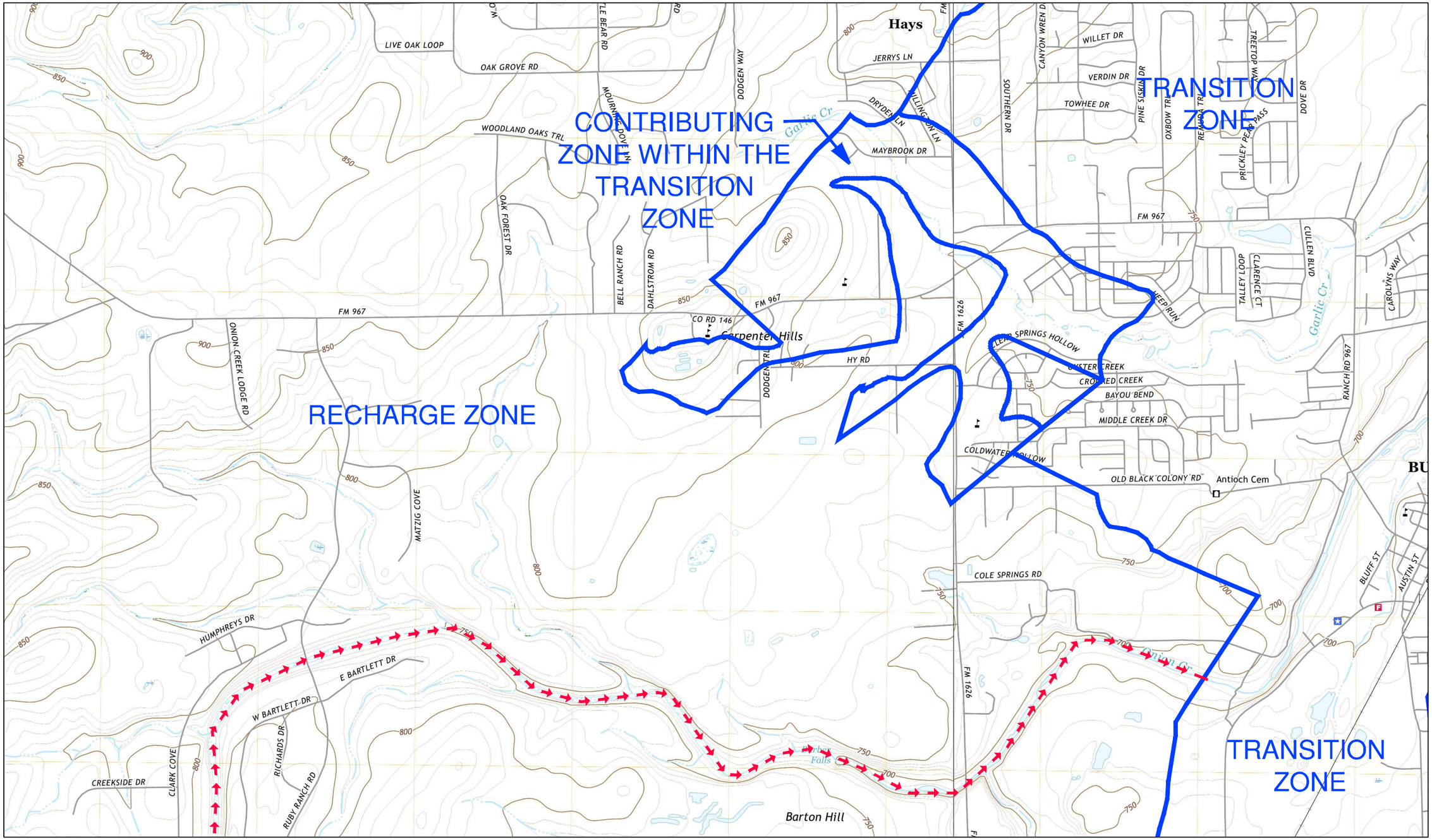
Pape-Dawson Engineers, Inc.

USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

ARIZA 290 WEST
Contributing Zone Plan

N

SCALE: 1" = 2000'



MATCHLINE See Sheet 3 of 5

MATCHLINE See Sheet 4 of 5

GENERAL LOCATION MAP - DRIPPING SPRINGS, TX QUAD; SIGNAL HILL, TX QUAD; BUDA, TX QUAD; DRIFTWOOD, TX QUAD; MOUNTAIN CITY, TX QUAD

DRAINAGE FLOW → →

Pape-Dawson Engineers, Inc.

USGS/EDWARDS RECHARGE ZONE MAP
ATTACHMENT B

Date: Aug 24, 2023, 1:31pm User ID: mgregory
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ATTACHMENT C

Attachment C – Project Narrative

The Ariza 290 West Contributing Zone Plan (CZP) proposes the construction of a 294-unit multi-family residential development with associated parking and drive access and approved WWTP on an approximately 19.16-acre project site within the Extra territorial jurisdiction of the City of Dripping Springs, in Hays County, Texas. The site is located approx. 0.28 mi northeast of Hwy 290 & Whirlaway Dr. intersection. The site is currently developed as a single family residential ranch and lies within the Onion Creek watershed which does not contain 100-year floodplain. There is approximately 0.52 acres of existing onsite impervious cover which pre-dates the 30 TAC 213 rules. While the project is located entirely over the Edwards Contributing Zone, a Geologic Assessment is not required by 30 TAC 213 regulations but was conducted in January 2022 for compliance with OEM requirements. No naturally-occurring sensitive features were found on the site.

The CZP proposes demolition of existing structures and paving onsite, additional clearing, grading, excavation, installation of utilities and drainage improvements, construction of water quality basins, multi-family residential buildings and associated parking and driveways as well a wastewater treatment plant with associated septic field. Approximately 7.306 acres of impervious cover, or 38.1% of the 19.16-acre project limits, are proposed for construction in this CZP. The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment are one (1) Batch Detention Basin with SmartBatch system, two (2) Jellyfish Filter Vaults, two (2) pervious paver areas, one (1) fifteen-foot (15') engineered vegetative filter strip (VFS), and two (2) reduced width VFS designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. Additional sizing of the PBMPs has accounted for the requirement of the City of Dripping Springs 85% TSS removal, as well as TCEQ Optional Enhanced Measures (OEM) in compliance with RG-348A requirements. TSS calculations for all have been included for reference.

As a requirement of the West Travis County Public Utility Agency, this project has chosen to design TCEQ Optional Enhanced Measures (OEM) within the proposed PBMPs in accordance with Appendix A and Appendix B of the RG-348. As part of compliance with the design, the 0.52 ac of existing grandfathered impervious cover was not accounted to offset the treatment load of the PBMPs. Calculations for these are included in the exhibits section of the application. Portions of the site will be treated by self treating pervious pavers which have been designed in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348 (2005). In watershed "F" a portion of the proposed WWTP service driveway will be constructed as pervious pavers to remain in compliance with the impervious cover requirements for the site per Dripping Springs. These will not comply with TCEQ design criteria therefore will be treated by the proposed 15' VFS that treats the abutted watershed "G".

Potable water service is to be provided by the West Travis County Public Utility Agency. The proposed development is approved to treat approximately 30,000 gallons per day (average flow) of domestic wastewater. See Attachment F located within this section of this application for details of the TCEQ approved Ariza 290 West Wastewater Treatment Facility operated by Cypressbrook 290 LP (WQ0016125001).

ATTACHMENT D

Attachment D – Factors Affecting Surface Water Quality

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

- Soil erosion due to the demolition and clearing of the site;
- Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle drippings;
- Hydrocarbons from asphalt paving operations;
- Miscellaneous trash and litter from construction workers and material wrappings;
- Concrete truck washout.
- Potential overflow/spills from portable toilets

Potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges from the site after development include:

- Oil, grease, fuel and hydraulic fluid contamination from vehicle drippings;
- Dirt and dust which may fall off vehicles; and
- Miscellaneous trash and litter.

ATTACHMENT E

Attachment E – Volume and Character of Stormwater

Stormwater runoff will increase as a result of this development. For a 25-year storm event, the overall project will generate approximately 91 cfs. The runoff coefficient for the site changes from approximately 0.44 before development to 0.70 after development. Values are based on the Rational Method using runoff coefficients per the City of Dripping Springs Unified Development Code.

ATTACHMENT F

PERMIT NO. WQ0016125001

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

PERMIT TO DISCHARGE WASTES
under provisions of Chapter 26
of the Texas Water Code

Cypressbrook 290, LP

whose mailing address is

1776 Woodstead Court, Suite 218
The Woodlands, Texas 77380

Nature of Business Producing Waste: Domestic wastewater treatment operation, SIC Code 4952.

General Description and Location of Waste Disposal System:

Description: The Ariza 290 West Wastewater Treatment Facility consists of an activated sludge process plant using the complete mix mode. Treatment units include a bar screen, an aeration basins, a final clarifier, a digester, and chlorine contact chamber. The permittee is authorized to dispose of treated domestic wastewater effluent at a daily average flow not to exceed 0.030 million gallons per day (MGD) via subsurface drip irrigation system with a minimum area of 6.9 acres of public access land. Application rates shall not exceed 0.1 gallons per square foot per day. The permittee will maintain the Bermudagrass (warm season) overseeded with Winter Ryegrass (cool season) on the disposal site.

Location: The wastewater treatment facility and disposal site are located at 13900 West Highway 290, in Hays County, Texas 78737. See Attachment A.

Drainage Area: The wastewater treatment facility and disposal site are located in the drainage basin of Barton Creek in Segment No. 1430 of the Colorado River Basin. No discharge of pollutants into water in the State is authorized by this permit.

This permit and the authorization contained herein shall expire at midnight, **five years from the date of issuance**.

ISSUED DATE: December 19, 2022

Erin E. Chancellor

For the Commission

ATTACHMENT J

Attachment J – BMPs for Upgradient Stormwater

No offsite upgradient stormwater will cross the project limits.

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) Batch Detention Basin, two (2) Jellyfish Filter Vaults, two (2) pervious paver areas, one (1) fifteen-foot (15') engineered vegetative filter strip (VFS), and two (2) reduced width VFS designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. Additional sizing of the PBMPs has accounted for the requirement of the City of Dripping Springs 85% TSS removal, as well as Optional Enhanced Measures (OEM) in compliance with RG-348A requirements.

ATTACHMENT K

Attachment K – BMPs for Onsite Stormwater

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) Batch Detention Basin, two (2) Jellyfish Filter Vaults, two (2) pervious paver areas, one (1) fifteen-foot (15') engineered vegetative filter strip (VFS), and two (2) reduced width VFS designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. Additional sizing of the PBMPs has accounted for the requirement of the City of Dripping Springs 85% TSS removal, as well as Optional Enhanced Measures (OEM) in compliance with RG-348A requirements.

ATTACHMENT L

Attachment L – BMPs for Surface Streams

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) Batch Detention Basin, two (2) Jellyfish Filter Vaults, two (2) pervious paver areas, one (1) fifteen-foot (15') engineered vegetative filter strip (VFS), and two (2) reduced width VFS designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. Additional sizing of the PBMPs has accounted for the requirement of the City of Dripping Springs 85% TSS removal, as well as Optional Enhanced Measures (OEM) in compliance with RG-348A requirements.

ATTACHMENT M

Attachment M – Construction Plans

Please refer to the Exhibits Section of this application for the Contributing Zone Plan Site Plans.

ATTACHMENT N

PERMANENT POLLUTION ABATEMENT MEASURES
MAINTENANCE SCHEDULE AND MAINTENANCE PROCEDURES

This document has been prepared to provide a description and schedule for the performance of maintenance on permanent pollution abatement measures. Maintenance measures to be performed will be dependent on what permanent pollution abatement measures are incorporated into the project. The project specific water pollution abatement plan should be reviewed to determine what permanent pollution abatement measures are incorporated into a project.

It should also be noted that the timing and procedures presented herein are general guidelines, adjustment to the timing and procedures may have to be made depending on project specific characteristics as well as weather related conditions but may not be altered without TCEQ approval.

Where a project is occupied by the owner, the owner may provide for maintenance with his own skilled forces or contract for recommended maintenance of Permanent Best Management Practices. Where a project is occupied or leased by a tenant, the owner shall require tenants to contract for such maintenance services either through a lease agreement, property owners association covenants, or other binding document.

I understand that I am responsible for maintenance of the Permanent Pollution Abatement Measures included in this project until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or ownership is transferred.

I, the owner, have read and understand the requirements of the attached Maintenance Plan and Schedule.

8-14-2023

Luis Bordes, Agent, VP of GP
Cypressbrook 290, LP

Date

INSPECTION AND MAINTENANCE SCHEDULE
FOR
PERMANENT POLLUTION ABATEMENT MEASURES

Recommended Frequency	Task to be Performed												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
After Rainfall	√							√			√		√
Biannually*	√	√	√	√	√	√	√	√	√	√	√	√	√

At least one biannual inspection must occur during or immediately after a rainfall event.
√Indicates maintenance procedure that applies to this specific site.

See description of maintenance task to be performed on the following pages. Frequency of maintenance tasks may vary depending on amount of rainfall and other weather-related conditions but may not be altered without TCEQ approval.

A w*ritten record should be kept of inspection results and maintenance performed.*

Task No. & Description	***Included in this project***	
1. Mowing	**Yes**	~~No~~
2. Litter and Debris Removal	**Yes**	~~No~~
3. Erosion Control	**Yes**	~~No~~
4. Level Sensor	**Yes**	~~No~~
5. Nuisance Control	**Yes**	~~No~~
6. Structural Repairs and Replacement	**Yes**	~~No~~
7. Discharge Pipe	**Yes**	~~No~~
8. Detention and Drawdown Time	**Yes**	~~No~~
9. Sediment Removal	**Yes**	~~No~~
10. Logic Controller	**Yes**	~~No~~
11. Vegetated Filter Strips	**Yes**	~~No~~
12. Visually Inspect Security Fencing for Damage or Breach	**Yes**	~~No~~
13. Recordkeeping for Inspections, Maintenance, and Repairs	**Yes**	~~No~~

MAINTENANCE PROCEDURES FOR PERMANENT POLLUTION ABATEMENT MEASURES

Note: Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 3.5.

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

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

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

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

4. Level Sensor. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin.

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

6. Structural Repairs and Replacement. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and

repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced. *A written record should be kept of inspection results and corrective measures taken*

7. Discharge Pipe. The basin discharge pipe shall be checked for accumulation of silt, debris or other obstructions which could block flow. Soil accumulations, vegetative overgrowth and other blockages should be cleared from the pipe discharge point. Erosion at the point of discharge shall be monitored. If erosion occurs, the addition of rock rubble to disperse the flow should be accomplished. *A written record should be kept of inspection results and corrective measures taken*

8. Detention and Drawdown Time. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. This characteristic can be a sign of the need for maintenance. The minimum drawdown time is 24 hours. If drawdown time is less than 24 hours, the actuator valve shall be checked and partially closed to limit the drawdown time. Extensive drawdown time greater than 48 hours may indicated blockage of the discharge pipe. Corrective actions should be performed and completed within 15 working days. *A written record of the inspection findings and corrective actions performed should be made.*

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

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

11. Vegetated Filter Strips. Vegetation height for native grasses shall be limited to no more than 18-inches. When vegetation exceeds that height, the filter strip shall be cut to a height of approximately 4 inches. Turf grass shall be limited to a height of 4-inches with regular maintenance that utilizes a mulching mower. Trash and debris shall be removed from filter strip prior to cutting. Check filter strip for signs of concentrated flow and erosion. Areas of filter strip showing signs of erosion shall be repaired by scarifying the eroded area, reshaping, regrading,

and placement of solid block sod over the affected area. *A written record of the inspection findings and corrective actions performed should be made*

12. Visually Inspect Security Fencing for Damage or Breach. Check maintenance access gates for proper operation. Damage to fencing or gates shall be repaired within 5 working days. *A written record should be kept of inspection results and maintenance performed.*

13. Recordkeeping Procedures for Inspections, Maintenance, Repairs, and Retrofits.
    - Written records shall be kept by the party responsible for maintenance or a designated representative.
    - Written records shall be retained for a minimum of five years.

PERMANENT POLLUTION ABATEMENT MEASURES
MAINTENANCE SCHEDULE AND MAINTENANCE PROCEDURES

This document has been prepared to provide a description and schedule for the performance of maintenance on permanent pollution abatement measures. Maintenance measures to be performed will be dependent on what permanent pollution abatement measures are incorporated into the project. The project specific water pollution abatement plan should be reviewed to determine what permanent pollution abatement measures are incorporated into a project.

It should also be noted that the timing and procedures presented herein are general guidelines, adjustment to the timing and procedures may have to be made depending on project specific characteristics as well as weather related conditions.

Where a project is occupied by the owner, the owner may provide for maintenance with his own skilled forces or contract for recommended maintenance of Permanent Best Management Practices. Where a project is occupied or leased by a tenant, the owner shall require tenants to contract for such maintenance services either through a lease agreement, property owners association covenants, or other binding document.

I understand that I am responsible for maintenance of the Permanent Pollution Abatement Measures included in this project until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or ownership is transferred.

I, the owner, have read and understand the requirements of the attached Maintenance Plan and Schedule.

	8-14-2023
Luis Bordes, Agent, VP of GP Cypressbrook 290, LP	Date

INSPECTION AND MAINTENANCE SCHEDULE
FOR
PERMANENT POLLUTION ABATEMENT MEASURES

Recommended Frequency	***Task to be Performed***		
	1	***2***	***3***
Annually*	√	√	√

Inspections to occur quarterly during the first year of operation.
√Indicates maintenance procedure that applies to this specific site.

See description of maintenance task to be performed on the following pages. Frequency of maintenance tasks may vary depending on amount of rainfall and other weather-related conditions but may not be altered without TCEQ approval. Inspection frequency in subsequent years is based on the maintenance plan developed in the first year, but must occur annually at a minimum.

A w*ritten record will be kept of inspection results and maintenance performed.*

Task No. & Description		***Included in this project***	
1.	Cleaning	**Yes**	~~No~~
2.	Manual Backflush / Flow Rate Test	**Yes**	~~No~~
3.	External Rinsing	**Yes**	~~No~~

MAINTENANCE PROCEDURES FOR PERMANENT POLLUTION ABATEMENT MEASURES (Jellyfish)

Note: Additional guidance can be obtained from the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Addendum, Section 3.2.22, as well as the Jellyfish® Filter Owner's Manual provided by Imbrium® Systems.

1. Cleaning. Removal and appropriate disposal of all water, sediment, oil and grease, and debris that has accumulated within the unit will be performed. The Jellyfish® Filter will be inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins. Since some of the maintenance procedures require manned entry into the Jellyfish structure, only professional maintenance service providers trained in confined space entry procedures should enter the vessel. *A written record will be kept of inspection results and maintenance performed.*

2. Manual Backflush / Flow Rate Test. A manual backflush must be performed on a single draindown cartridge using a Jellyfish Cartridge Backflush Pipe (described in the Jellyfish® Filter Owner's Manual). If the time required to drain 14 gallons of backflush water from the Backflush Pipe (from top of pipe to the top of the open flapper valve) exceeds 15 seconds, it is recommended to perform a manual backflush on each of the cartridges. After the manual backflush, the draindown test should be repeated on a single cartridge to determine if the cartridge can drain 14 gallons of water in 15 seconds. If the cartridge still does not achieve the design flow rate, it must be replaced. Filter cartridges should be tested for adequate flow rate, every 12 months and cleaned and re-commissioned, or replaced if necessary. *Written record will be kept of inspection results and maintenance performed.*

3. External Rinsing. If external rinsing is performed within the structure, the cartridge or individual filtration tentacles should be rinsed while safely suspended over the maintenance access wall opening in the cartridge deck, such that rinsate flows into the lower chamber of the Jellyfish® Filter. If the rinsing procedure is performed outside the structure, the cartridge or individual filtration tentacles should be rinsed in a suitable basin such as a plastic barrel or tub, and rinsate subsequently poured into the maintenance access wall opening in the cartridge deck. Sediment is subsequently removed from the lower chamber by standard vacuum service. *Written record will be kept of inspection results and maintenance performed.*

4. Hazardous Material Spill. Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site, and may be required in the event of a chemical spill or due to excessive sediment loading. In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and appropriate regulatory agencies immediately. Maintenance should be performed by a licensed liquid waste hauler. Cartridge replacement may also be required in the event of an accidental significant or hazardous spill. Industrial and hazardous waste materials will be disposed of in accordance with TCEQ rules in 30 Texas Administration Code (TAC) Sections (§§)335.501-.521 (subchapter R). If class I or II non-hazardous or hazardous wastes are generated, a third-party disposal contractor will manage the wastes. *Written record will be kept of inspection results and maintenance performed.*

ATTACHMENT P

Attachment P – Measures for Minimizing Surface Stream Contamination

Any points where discharge from the site is concentrated and erosive velocities exist will include appropriately sized energy dissipators to reduce velocities to non-erosive levels.

GEOLOGIC ASSESSMENT FORM (TCEQ-0585)

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

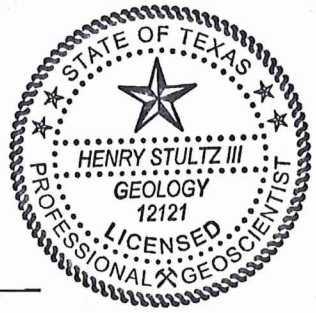
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: **Henry E. Stultz III, P.G.** Telephone: **210-375-9000**

Date: January 6, 2022 Fax: **210-375-9090**

Representing: **Pape-Dawson Engineers, Inc., TBPG registration number 50351**

Signature of Geologist:



Regulated Entity Name: **Ariza, Dripping Springs**

Project Information

1. Date(s) Geologic Assessment was performed: **December 2, 2021**
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☐ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone
   - ☒ Contributing 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)
Rumple-Comfort, rubbly association, 1-8% slopes (RcD)	D	2-4

** 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" = **60'**
   Site Geologic Map Scale: 1" = **60'**
   Site Soils Map Scale (if more than 1 soil type): **N/A**

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 four (4) 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.

ATTACHMENT A
Geologic Assessment Table

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Ariza, Dripping Springs

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	
S-1	30.19709	-98.00662	MB	30	Kkd	Well							NX	20	50		50	X		Hillside
S-2	30.19681	-98.00651	MB	30	Kkd	Well							NX	35	65		65	X		Hillside
S-3	30.19714	-98.00496	MB	30	Kkd	Well							NX	20	50		50	X		Hillside
S-4	30.19669	-98.00444	MB	30	Kkd	Well							NX	20	50		50	X		Hillside

** DATUM: NAD 83

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

STATE OF TEXAS
HENRY STULTZ III
GEOLOGY
12121
LICENSED
PROFESSIONAL GEOSCIENTIST

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 January 6, 2022

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

ATTACHMENT A

ATTACHMENT B
Stratigraphic Column

Attachment B – Stratigraphic Column

Period	Epoch	Group	Formation	Member	Thickness	Lithology	Hydro-logic Unit	Hydro-stratigraphic Unit	Hydrologic Function	Porosity	Cavern Development
Cretaceous	Early Cretaceous	Edwards	Kainer	Grainstone	40–50	Hard, dense limestone that consists mostly of a tightly cemented miliolid skeletal fragment grainstone; contains interspersed chalky mudstone and wackestone; chert as beds and nodules; crossbedding and ripple marks are common primarily at the contact with the overlying regional dense bed	Edwards Aquifer	V	Aquifer	IP, IG, BU, FR, BP, CV	Few
				Kirsch-berg Evaporite	40–50	Highly altered crystalline limestone and chalky mudstone with occasional grainstone associated with tidal channels; chert as beds and nodules, boxwork molds are common, matrix recrystallized to a coarse grain spar; intervals of collapse breccia and travertine deposits		VI	Aquifer	IG, MO, VUG, FR, BR, CV	Probably extensive cave development
				Dolomitic	90–120	Hard, dense to granular, dolomitic limestone; chert as beds and nodules (absent in lower 20 ft); *Toucasia* sp. abundant; lower three-fourths composed of sucrosic dolomites and grainstones with hard, dense limestones interspersed; upper one-fourth composed mostly of hard, dense mudstone, wackestone, packstone, grainstone, and recrystallized dolomites with bioturbated beds		VII	Aquifer	IP, IC, IG, MO, BU, VUG, FR, BP, CV	Cave development as shafts with minor horizontal extent
				Basal nodular	40–50	Moderately hard, shaly, nodular, burrowed mudstone to miliolid grainstone that also contains dolomite; contains dark, spherical textural features known as black rotund bodies; *Ceratostreon texana*, *Caprina* sp., miliolids, and gastropods		VIII	Aquifer, confining unit in areas without caves	IP, MO, BU, BP, FR, CV	Large lateral caves at surface
		Trinity	Glen Rose Limestone	Upper Glen Rose	0–120	Alternating resistant and nonresistant beds of blue shale, nodular marl, and impure, fossiliferous limestone; gray to yellowish gray; stair-step topography; contains two distinct evaporite zones; distinct *Corbula* sp. bed marks the contact with the underlying lower member of the Glen Rose Limestone; *Orbitulina texana*	Upper Trinity Lower confining unit to the Edwards aquifer	Cavernous	Aquifer	MO, BR, BP, FR, CV	Some surface cave development
					120–230			Camp Bullis	Confining	BU, BP, FR, occasional CV	
					0–10			Upper evaporite	Aquifer	IP, MO, BU, BR	
					0–40			Fossil-iferous Upper	Aquifer	MO, BU, FR, CV	
					80–150			Fossil-iferous Lower	Confining	MO, BU, FR	
					8–10			Lower evaporite	Aquifer	IP, MO, BU, BR	

Source: Clark, Golab, and Morris (2016); Cavern development modified from Stein and Ozuna (1995). Porosity types - Fabric selective: IP, interparticle porosity; IG, intergranular porosity; IC, intercrystalline porosity; SH, shelter porosity; MO, moldic porosity; BU, burrowed porosity; FE, fenestral; BP, bedding plane porosity. Not fabric selective: FR, fracture porosity; CH, channel porosity; BR, breccia; VUG, vug porosity; CV, cave porosity.

ATTACHMENT C
Site Geology

ARIZA, DRIPPING SPRINGS
Geologic Assessment

Attachment C – Site Geology

SUMMARY

The Ariza, Dripping Springs site is located north of W US-290, approximately ½ mile west of the intersection of W US-290 and Sawyer Ranch Road in Hays County, Texas.

Based on the results of the field survey conducted in accordance with *Instructions for Geologists for Geologic Assessments in the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 Instructions),* no naturally occurring sensitive features were identified on site. The overall potential for fluid migration to the Edwards Aquifer for the site is low.

SITE GEOLOGY

As observed through field evidence, the geologic formation which outcrops at the surface within the subject site is the dolomitic (Kekd) member of the Kainer formation. The Kekd is a massively bedded, mudstone to grainstone, crystalline limestone. Karst development within the Kekd is characterized by small sinkholes and often caves develop as vertical shafts.

The predominant trend of faults in the vicinity of the site is approximately N47°E, based on faults identified during the previous mapping of the area.

FEATURE DESCRIPTIONS:

A description of the features observed onsite is provided below:

Features S-1, S-3, and S-4

Features S-1, S-3, and S-4 are capped wells that are either in use or in good condition. The wells were not in the TWDB database. However, the ages of the well and integrity of casing are unknown. Therefore, the probability of rapid infiltration is intermediate.

Feature S-2

Feature S-2 is an existing water well near the existing residential structure. The well was not in the TWDB database. This well may be referenced as a hand drawn well (DeCook, 1963). The age of the well and integrity of casing are unknown. Therefore, the probability of rapid infiltration is high.

REFERENCES

1. DeCook, K.J., 1963, Geology and ground-water resources of Hays County, Texas, U.S. Geological Survey, Water-Supply Paper 1612.

2. Nationwide Environmental Title Research, LLC. Historical Aerials, HistoricAerials.com. https://www.historicaerials.com/viewer, May 10, 2021.

3. Pedraza, D.E., Clark, A.K., and Morris, R.R., 2018, Geospatial Dataset of the Geologic Framework and Hydrostratigraphy of the Edwards and Trinity Aquifers within Hays County, Texas at 1:24,000 scale: U.S. Geological Survey data release, https://doi.org/10.5066/P9IEJHMH.

4. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. http://websoilsurvey.sc.egov.usda.gov/, May 10, 2021.

5. Stein, W.G., and Ozuna, G.B., 1995, Geologic framework and hydrogeologic characteristics of the Edwards Aquifer recharge zone, Bexar County, Texas: U.S. Geological Survey Water-Resources Investigations Report 95–4030, 8 p.

6. Texas Water Development Board, Wells in TWDB Groundwater Database Viewer, https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer, May 10, 2021.

7. U.S. Geological Survey, National Water Information System: Mapper, https://maps.waterdata.usgs.gov/mapper/index.html, May 10, 2021. January 6, 2022.

ATTACHMENT D
Site Geologic Map(s)

LEGEND

PROJECT LIMITS
100 YEAR FLOODPLAIN
STREAM

SYMBOLS AND LINES

- S-1 POTENTIAL RECHARGE FEATURE
- CONTACT, LOCATED APPROXIMATELY
- CONTACT, INFERRED
- FAULT, LOCATED APPROXIMATELY (D, DOWNTHROWN SIDE; U, UPTHROWN SIDE)
- FAULT, EXTRAPOLATED
- FAULT, INFERRED
- STRIKE AND DIP OF BEDDING
- STRIKE AND DIP OF JOINTS
- STRIKE OF VERTICAL JOINTS
- CAVE
- SOLUTION CAVITY

GEOLOGIC FORMATIONS

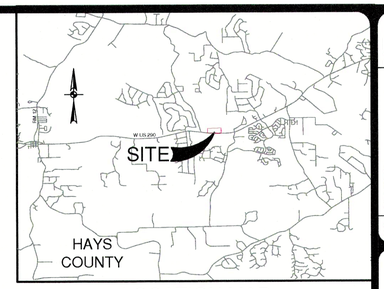
Qal	ALLUVIUM	Kgt	GEORGETOWN
Kef	EAGLE FORD	Kep	PERSON
Kbu	BUDA	Kek	KAINER
Kdr	DEL RIO	Kgr	GLEN ROSE

- SOLUTION ENLARGED FRACTURE
- SWALLOW HOLE
- SINKHOLE
- NON-KARST CLOSED DEPRESSION
- ZONE
- OTHER NATURAL BEDROCK FEATURES
- SPRING/SEEP
- MB MAN-MADE FEATURE IN BEDROCK
- W WATER WELL
- SANITARY SEWER LINE

NOTE: THE GEOSCIENTIST SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR PURPOSES OF GEOLOGIC INFORMATION. ALL OTHER INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SIGNED AND SEALED CIVIL ENGINEERING DRAWINGS.

NOTE: THE RECHARGE ZONE BOUNDARY IS NOT WITHIN THE AREA SHOWN ON THIS SHEET. THE SITE IS LOCATED ENTIRELY WITHIN THE CONTRIBUTING ZONE.

SCALE: 1"= 60'
0' 60' 120' 180'



LOCATION MAP
NOT-TO-SCALE

NO.	REVISION	DATE

STATE OF TEXAS
HENRY STULTZ III
GEOLOGY
12121
LICENSED
PROFESSIONAL GEOSCIENTIST
1.6.2022

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPG FIRM REGISTRATION #50351

ARIZA, DRIPPING SPRINGS
HAYS COUNTY, TEXAS

SITE GEOLOGIC MAP
WATER POLLUTION ABATEMENT PLAN

JOB NO. 51312-00
DATE DECEMBER 2021
DESIGNER HS
CHECKED HDJ DRAWN HS

ATTACHMENT D

Date: Dec 08, 2021, 4:17pm User ID: HStultz
File: H:\Projects\513\12\00\ENV\GA\Attachments\GA5131200_Att D.dwg

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TEMPORARY STORMWATER SECTION (TCEQ-0602)

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Shelly Mitchell, P.E.

Date: 08/28/2023

Signature of Customer/Agent:

Regulated Entity Name: Ariza 290 West

Project Information

Potential Sources of Contamination

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

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

   ☒ The following fuels and/or hazardous substances will be stored on the site: construction staging area

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

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

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

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

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

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

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

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

Sequence of Construction

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

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

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

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

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

ATTACHMENT A

Attachment A – Spill Response Actions

In the event of an accidental leak or spill:

- Spill must be contained and cleaned up immediately.
- Spills will not be merely buried or washed with water.
- Contractor shall take action to contain spill. Contractor may use sand or other absorbent material stockpiled on site to absorb spill. Absorbent material should be spread over the spill area to absorb the spilled product.
- In the event of an uncontained discharge the contractor shall utilize onsite equipment to construct berms downgradient of the spill with sand or other absorbent material to contain and absorb the spilled product.
- Spill containment/absorbent materials along with impacted media must be collected and stored in such a way so as not to continue to affect additional media (soil/water). Once the spill has been contained, collected material should be placed on poly or plastic sheeting until removed from the site. The impacted media and cleanup materials should be covered with plastic sheeting and the edges weighed down with paving bricks or other similarly dense objects as the material is being accumulated. This will prevent the impacted media and cleanup materials from becoming airborne in windy conditions or impacting runoff during a rain event. The stockpiled materials should not be located within an area of concentrated runoff such as along a curb line or within a swale.
- Contaminated soils and cleanup materials will be sampled for waste characterization. When the analysis results are known the contaminated soils and cleanup materials will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.
- The contractor will be required to notify the owner, who will in turn contact TCEQ to notify them in the event of a significant hazardous/reportable quantity spill. Additional notifications as required by the type and amount of spill will be conducted by owner or owner's representative.

In the event of an accidental significant or hazardous spill:

The contractor will be required to report significant or hazardous spills in reportable quantities to:

- Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

- Notification should first be made by telephone and followed up with a written report.

- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

- Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

- Contaminated soils will be sampled for waste characterization. When the analysis results are known the contaminated soils will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.

Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 1.4.16. Contractor shall review this section.

ATTACHMENT B

Attachment B – Potential Sources of Contamination

Other potential sources of contamination during construction include:

- Potential Source
  - Asphalt products used on this project.
- Preventative Measure
  - After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain.
- Potential Source
  - Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping.
- Preventative Measure
  - Vehicle maintenance when possible will be performed within the construction staging area.
  - Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.
- Potential Source
  - Accidental leaks or spills of oil, petroleum products and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site.
- Preventative Measure
  - Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures.
  - Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures.
  - Hazardous materials and wastes shall be stored in covered containers and protected from vandalism.
  - A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible.
- Potential Source
  - Miscellaneous trash and litter from construction workers and material wrappings.
- Preventive Measure
  - Trash containers will be placed throughout the site to encourage proper trash disposal.
- Potential Source
  - Construction debris.
- Preventive Measure
  - Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis.

- Potential Source
  - Spills/Overflow of waste from portable toilets
- Preventative Measure
  - Portable toilets will be placed away from high traffic vehicular areas and storm drain inlets.
  - Portable toilets will be placed on a level ground surface.
  - Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.

ATTACHMENT C

Attachment C – Sequence of Major Activities

The sequence of major activities which disturb soil during construction on this site will be divided into two stages. No more than 10 acres will be disturbed within a common drainage area at one time, as construction of civil infrastructure (utilities, driveway, drainage, etc.) will precede building construction. The site is comprised of multiple sub-drainage areas which are proposed to be collected in a storm sewer and routed to the proposed Batch Detention Basin. Site preparation including demolition, clearing and grubbing of vegetation where applicable, may disturb the entire 19.16-ac project limits. A description of the sequence of major activities on the site and the estimated area of disturbance for each activity is provided below:

- Demolition of existing Structures: Approximately 1.5 acres
- Construction of Utilities: Approximately 2.5 acres
- Construction of onsite WWTP – 0.25 acres
- Installation of drip irrigation for WWTP – 7 acres
- Construction of a Driveway section: Approximately 1 acre
- Drainage Improvements (including storm drain): Approximately 2 acres
- Drainage to Batch Detention Basin: Approximately 0.6 acres
- Driveway and Sidewalks: Approximately 2 acres
- Buildings and Parking: Approximately 6.25 acres
- Landscaping: Approximately 1 acre
- Site Cleanup: Approximately 10 acres

Total construction may disturb approximately 10.75 acres, based on affected watershed, with final proposed impervious cover is 7.306 acres. However due to construction of the WWTP and drain field the entire 19.16-acre site could be disturbed.

ATTACHMENT D

Attachment D – Temporary Best Management Practices and Measures

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

No upgradient stormwater will cross the site. All TBMPs are adequate for the drainage areas they serve.

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

Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include: (1) erection of silt fences along the downgradient boundary of construction activities for temporary erosion and sedimentation controls, (2) installation of rock berms with silt fencing downgradient from areas of concentrated stormwater flow for temporary erosion control, (3) Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities for sediment control (4) installation of stabilized construction entrance/exit(s) to reduce the dispersion of sediment from the site, and (5) installation of construction staging area(s).

Prior to the initiation of construction, all previously installed control measures will be repaired or reestablished for their designed or intended purpose. This work, which is the remainder of all activity on the project, may also disturb additional soil. The construction contractor will be responsible for the installation of all remaining on-site control measures that includes installation of the concrete truck washout pit(s), as construction phasing warrants.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features.

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

As this site is entirely over the Edwards Aquifer Contributing Zone, a Geologic Assessment was not required but was conducted for OEM compliance. No sensitive features were identified. There are no surface streams on or immediately adjacent to the site.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features.

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

As this site is entirely over the Edwards Aquifer Contributing Zone, a Geologic Assessment was not required but was conducted for OEM compliance. No sensitive features were identified. There are no surface streams on or immediately adjacent to the site.

ATTACHMENT F

Attachment F – Structural Practices

The following structural measures will be installed prior to the initiation of site preparation activities:

- Erection of silt fences along the downgradient boundary of construction activities and rock berms with silt fence for secondary protection, as located on Sheets 13 &14 of 71 and illustrated in Sheet 62 of 71.
- Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities, as located on Sheets 13 &14 of 71 and illustrated in Sheet 62 of 71.
- Installation of stabilized construction entrance/exit(s) and construction staging area(s), as located on Sheets 13 &14 of 71 and illustrated in Sheet 62 of 71.

The following structural measures will be installed at the initiation of construction activities or as appropriate based on the construction sequencing:

- Installation of concrete truck washout pit(s), as required and located on Sheets 13 &14 of 71 and illustrated in Sheet 62 of 71.

ATTACHMENT G

Attachment G – Drainage Area Map

No more than ten (10) acres will be disturbed for regulated activities proposed on this project. All TBMPs utilized are adequate for the drainage areas served. Refer to included exhibits for additional details.

ATTACHMENT I

INSPECTIONS

Designated and qualified person(s) shall inspect Pollution Control Measures weekly and within 24 hours after a storm event. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of Storm Water TPDES data for a period of three years after the Notice of Termination (NOT) has been filed. A copy of the Inspection Report Form is provided in this Storm Water Pollution Prevention Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, (6) concrete truck rinse-out pit for signs of potential failure, (7) embankment, spillways, and outlet of sediment basin (where applicable) for erosion damage, and (8) sediment basins (where applicable) for evidence that basin has accumulated 50% of its volume in silt. Deficiencies noted during the inspection will be corrected and documented within seven calendar days following the inspection or before the next anticipated storm event if practicable.

Contractor shall review Sections 1.3 and 1.4 of TCEQ's Technical Guidance Manual for additional BMP inspection and maintenance requirements.

Pollution Prevention Measure	Inspected in Compliance	Corrective Action Required	
		Description (use additional sheet if necessary)	Date Completed
Best Management Practices			
Natural vegetation buffer strips			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Silt fences			
Rock berms			
Gravel filter bags			
Drain inlet protection			
Other structural controls			
Vehicle exits (off-site tracking)			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Concrete washout pit (leaks, failure)			
General site cleanliness			
Trash receptacles			
Evidence of Erosion			
Site preparation			
Roadway or parking lot construction			
Utility construction			
Drainage construction			
Building construction			
Major Observations			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

_____ A brief statement describing the qualifications of the inspector is included in this SWP3.

"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 I am an authorized signatory in accordance with the provisions of 30 TAC §305.128."

Inspector's Name _____ Inspector's Signature _____ Date _____

PROJECT MILESTONE DATES

Date when major site grading activities begin:

Construction Activity	Date
Installation of BMPs	

Dates when construction activities temporarily or permanently cease on all or a portion of the project:

Construction Activity	Date

Dates when stabilization measures are initiated:

Stabilization Activity	Date
Removal of BMPs	

ATTACHMENT J

Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

Interim on-site stabilization measures, which are continuous, will include minimizing soil disturbances by exposing the smallest practical area of land required for the shortest period of time and maximizing use of natural vegetation. As soon as practical, all disturbed soil will be stabilized as per project specifications in accordance with pages 1-35 to 1-60 of TCEQ's Technical Guidance Manual (TGM) RG-348 (2005). Mulching, netting, erosion blankets and seeding are acceptable.

Stabilization measures will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided below, will be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

NOTICE OF INTENT
(TCEQ-20022)

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 605997303

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

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

Click here to enter text.

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

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

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

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

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

E–mail: Click here to enter text.

Mailing Address: Click here to enter text.

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

Mailing Information if outside USA:

Territory: Click here to enter text.

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

d) Indicate the type of customer:

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

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

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

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

☐ 0–20 ☐ 251–500

☐ 21–100 ☐ 501 or higher

☐ 101–250

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

State Franchise Tax ID Number: Click here to enter text.

Federal Tax ID: Click here to enter text.

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

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

SECTION 2. APPLICATION CONTACT

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

☐ Yes, go to Section 3

☐ No, complete this section

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

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

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

Organization Name: Click here to enter text.

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

E–mail: Click here to enter text.

Mailing Address: Click here to enter text.

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

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

Mailing information if outside USA:

Territory: Click here to enter text.

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

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

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN 111458402

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

b) Name of project or site (the name known by the community where it's located): Ariza 290 West

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Multi-Family Residential

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

e) Latitude: 30.196963 N Longitude: -98.006764 W

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: 13900 W. US-290

City, State, and Zip Code: Dripping Springs, TX 78620

Section B:

Location Description: Click here to enter text

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

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

SECTION 4. GENERAL CHARACTERISTICS

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

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

☒ No

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

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

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? **1522**

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

e) What is the total number of acres to be disturbed? 19.16

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? January 2027

h) What is the estimated end date of the project? December 2029

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? Onion Creek

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? 1430B

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

☒ Yes ☐ No

If Yes, provide the name of the MS4 operator: Dripping Springs

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

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

☒ Yes, complete the certification below.

☐ No, go to Section 5

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

SECTION 5. NOI CERTIFICATION

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

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

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

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

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

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: Click here to enter text.

Operator Signatory Title: Click here to enter text.

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

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

Signature (use blue ink): _____Date: _____

NOTICE OF INTENT CHECKLIST (TXR150000)

Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Confirm each item (or applicable item) in this form is complete. This checklist is for use by the applicant to ensure a complete application is being submitted. **Missing information may result in denial of coverage under the general permit.** (See NOI process description in the General Information and Instructions.)

APPLICATION FEE

If paying by check:

☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)

☐ Check number and name on check is provided in this application.

If using ePay:

☐ The voucher number is provided in this application and a copy of the voucher is attached.

RENEWAL

☐ If this application is for renewal of an existing authorization, the authorization number is provided.

OPERATOR INFORMATION

☐ Customer Number (CN) issued by TCEQ Central Registry

☐ Legal name as filed to do business in Texas. (Call TX SOS 512–463–5555 to verify.)

☐ Name and title of responsible authority signing the application.

☐ Phone number and e–mail address

☐ Mailing address is complete & verifiable with USPS. www.usps.com

☐ Type of operator (entity type). Is applicant an independent operator?

☐ Number of employees.

☐ For corporations or limited partnerships – Tax ID and SOS filing numbers.

☐ Application contact and address is complete & verifiable with USPS. http://www.usps.com

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

☐ Regulated Entity Number (RN) (if site is already regulated by TCEQ)

☐ Site/project name and construction activity description

☐ County

☐ Latitude and longitude http://www.tceq.texas.gov/gis/sqmaview.html

☐ Site Address/Location. Do not use a rural route or post office box.

GENERAL CHARACTERISTICS

☐ Indian Country Lands –the facility is not on Indian Country Lands.

☐ Construction activity related to facility associated to oil, gas, or geothermal resources

☐ Primary SIC Code that best describes the construction activity being conducted at the site. www.osha.gov/oshstats/sicser.html

☐ Estimated starting and ending dates of the project.

☐ Confirmation of concrete truck washout.

☐ Acres disturbed is provided and qualifies for coverage through a NOI.

☐ Common plan of development or sale.

☐ Receiving water body or water bodies.

☐ Segment number or numbers.

☐ MS4 operator.

☐ Edwards Aquifer rule.

CERTIFICATION

☐ Certification statements have been checked indicating Yes.

☐ Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original.

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

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

By Regular Mail:
TCEQ
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711–3087

By Overnight or Express Mail:
TCEQ
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX

Application Fee:

The application fee of $325 is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit. Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Mailed Payments:

Use the attached General Permit Payment Submittal Form. The application fee is submitted to a different address than the NOI. Read the General Permit Payment Submittal Form for further instructions, including the address to send the payment.

ePAY Electronic Payment: http://www.tceq.texas.gov/epay

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

TCEQ Contact List:

Application – status and form questions:	512–239–3700,
swpermit@tceq.texas.gov Technical questions:	512–239–4671, swgp@tceq.texas.gov
Environmental Law Division:	512–239–0600
Records Management – obtain copies of forms:	512–239–0900
Reports from databases (as available):	512–239–DATA (3282)
Cashier's office:	512–239–0357 or 512–239–0187

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

- **Administrative Review**: Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(es) on the form must be verified with the US Postal service as receiving regular mail delivery. Do not give an overnight/express mailing address.

- **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.
- **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

  or

  Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site http://www.tceq.texas.gov. Search using keyword TXR150000.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated project or site changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number, if one has not already been assigned to this customer or site.

For existing customers and sites, you can find the Customer Number and Regulated Entity Number by entering the following web address into your internet browser: http://www15.tceq.texas.gov/crpub/ or you can contact the TCEQ Stormwater Processing Center at 512–239–3700 for assistance. On the website, you can search by your permit number, the Regulated Entity (RN) number, or the Customer Number (CN). If you do not know these numbers, you can select “Advanced Search” to search by permittee name, site address, etc.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For this permit, a Notice of Change form must be submitted to the program area.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied, a new permit number will be issued.

Section 1. OPERATOR (APPLICANT)

a) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number**.

If the applicant is an existing TCEQ customer, the Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the applicant is not an existing TCEQ customer, leave the space for CN blank.

b) Legal Name of Applicant

Provide the current legal name of the applicant. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, as filed in the county. You may contact the SOS at 512–463–5555, for more information related to filing in Texas. If filed in the county, provide a copy of the legal documents showing the legal name.

c) Contact Information for the Applicant (Responsible Authority)

Provide information for the person signing the application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: https://tools.usps.com/go/ZipLookupAction!input.action.

The phone number should provide contact to the applicant.

The fax number and e–mail address are optional and should correspond to the applicant.

d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for an authorization.

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). If the customer is a 'General Partnership' or 'Joint Venture' filed in the county (not filed with TX SOS), the legal name of each partner forming the 'General Partnership' or 'Joint Venture' must be provided. Each 'legal entity' must apply as a co–applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Sole Proprietorship (DBA)

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

1. be under the person's name
2. have its own name (doing business as or DBA)
3. have any number of employees.

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Corporation

A customer that meets all of these conditions:

1. is a legally incorporated entity under the laws of any state or country
2. is recognized as a corporation by the Texas Secretary of State
3. has proper operating authority to operate in Texas

The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization is not recognized as the 'legal name'.

Other

This may include a utility district, water district, tribal government, college district, council of governments, or river authority. Provide the specific type of government.

e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter the Tax ID number.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512–463–5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

Section 2. APPLICATION CONTACT

Provide the name and contact information for the person that TCEQ can contact for additional information regarding this application.

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

a) Regulated Entity Number (RN)

The RN is issued by TCEQ's Central Registry to sites where an activity is regulated by TCEQ. This is not a permit number, registration number, or license number. Search TCEQ's Central Registry to see if the site has an assigned RN at http://www15.tceq.texas.gov/crpub/. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, an RN may already be assigned for the larger site. Use the RN assigned for the larger site.

If the site is found, provide the assigned RN and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Name of the Project or Site

Provide the name of the site or project as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Provide the name of the county where the site or project is located. If the site or project is located in more than one county, provide the county names as secondary.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to: http://www.tceq.texas.gov/gis/sqmaview.html.

f) Site Address/Location

If a site has an address that includes a street number and street name, enter the complete address for the site in *Section A*. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street number and street name, provide a complete written location description in *Section B.* For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and zip code of the site location.

Section 4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas (RRC) and may need to obtain authorization from EPA Region 6.

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a

carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the RRC's jurisdiction must be authorized by the EPA and the RRC, as applicable. Activities under RRC jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the RRC; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The RRC also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the RRC. Under 33 U.S.C. §1342(l)(2) and §1362(24), EPA cannot require a permit for discharges of stormwater from field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under §3.8 of this title (relating to Water Protection), the RRC prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

For more information about the jurisdictions of the RRC and the TCEQ, read the Memorandum of Understanding (MOU) between the RRC and TCEQ at 16 Texas Administrative Code, Part 1, Chapter 3, Rule 3.30, by entering the following link into an internet browser: http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30 or contact the TCEQ Stormwater Team at 512–239–4671 for additional information.

c) Primary Standard Industrial Classification (SIC) Code

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 – Construction of Single Family Homes
- 1522 – Construction of Residential Buildings Other than Single Family Homes
- 1541 – Construction of Industrial Buildings and Warehouses

- 1542 – Construction of Non–residential Buildings, other than Industrial Buildings and Warehouses
- 1611 – Highway and Street Construction, except Highway Construction
- 1622 – Bridge, Tunnel, and Elevated Highway Construction
- 1623 – Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, enter the following link into your internet browser: http://www.osha.gov/pls/imis/sicsearch.html or you can contact the TCEQ Small Business and Local Government Assistance Section at 800–447–2827 for assistance.

d) Secondary SIC Code

Secondary SIC Code(s) may be provided. Leave this blank if not applicable. For help with SIC Codes, enter the following link into your internet browser: http://www.osha.gov/pls/imis/sicsearch.html or you can contact the TCEQ Small Business and Environmental Assistance Section at 800–447–2827 for assistance.

e) Total Number of Acres Disturbed

Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at 512–239–4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development

Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on what a common plan of development is, refer to the definition of "Common Plan of Development" in the Definitions section of the general permit or enter the following link into your internet browser: www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage enter the following link into your internet browser: www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If you have any further questions about the Common Plan of Development you can contact the TCEQ Stormwater Team at 512–239–4671 or the TCEQ Small Business and Environmental Assistance at 800–447–2827.

g) Estimated Start Date of the Project

This is the date that any construction activity or construction support activity is initiated at the site. If renewing the permit provide the original start date of when construction activity for this project began.

h) Estimated End Date of the Project

This is the date that any construction activity or construction support activity will end and final stabilization will be achieved at the site.

i) Will concrete truck washout be performed at the site?

Indicate if you expect that operators of concrete trucks will washout concrete trucks at the construction site.

j) Identify the water body(s) receiving stormwater runoff

The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

k) Identify the segment number(s) of the classified water body(s)

Identify the classified segment number(s) receiving a discharge directly or indirectly. Enter the following link into your internet browser to find the segment number of the classified water body where stormwater will flow from the site: www.tceq.texas.gov/waterquality/monitoring/viewer.html or by contacting the TCEQ Water Quality Division at (512) 239–4671 for assistance.

You may also find the segment number in TCEQ publication GI–316 by entering the following link into your internet browser: www.tceq.texas.gov/publications/gi/gi–316 or by contacting the TCEQ Water Quality Division at (512) 239–4671 for assistance.

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at 512–239–4671 for further assistance.

l) Discharge into MS4 – Identify the MS4 Operator

The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note

that the Construction General Permit requires the Operator to supply the MS4 with a copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at 512–239–4671.

m) Discharges to the Edwards Aquifer Recharge Zone and Certification

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer by entering the following link into an internet browser: www.tceq.texas.gov/field/eapp/viewer.html or by contacting the TCEQ Water Quality Division at 512–239–4671 for assistance.

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site–specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512–339–2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233–4480, 210–490–3096.

Section 5. NOI CERTIFICATION

Note: Failure to indicate Yes to all of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. Electronic applications submitted through ePermits have immediate provisional coverage. You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site by entering the following link into an internet browser: www.tceq.texas.gov/goto/construction or you may contact the TCEQ Stormwater processing Center at 512–239–3700 for assistance.

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512–463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under the Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Section 6. APPLICANT CERTIFICATION SIGNATURE

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

If you are a corporation:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

If you are a municipality or other government entity:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the TCEQ's Environmental Law Division at 512–239–0600.

30 Texas Administrative Code

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice–president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision–making functions for the

corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second–quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post–closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality
General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

Instructions:

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- *Do not mail this form with your NOI form.*
- *Do not mail this form to the same address as your NOI.*

Mail this form and your check to either of the following:

By Regular U.S. Mail
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC–214
P.O. Box 13088
Austin, TX 78711–3088

By Overnight or Express Mail
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC–214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check or Money Order No: Click here to enter text
2. Amount of Check/Money Order: Click here to enter text
3. Date of Check or Money Order: Click here to enter text
4. Name on Check or Money Order: Click here to enter text
5. NOI Information:

   If the check is for more than one NOI, list each Project or Site (RE) Name and Physical Address exactly as provided on the NOI. **Do not submit a copy of the NOI with this form, as it could cause duplicate permit application entries!**

   If there is not enough space on the form to list all of the projects or sites the authorization will cover, then attach a list of the additional sites.

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

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

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

AGENT AUTHORIZATION FORM (TCEQ-0599)

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

I Luis Bordes,
Print Name

VP of GP,
Title - Owner/President/Other

of Cypressbrook 290, LP,
Corporation/Partnership/Entity Name

have authorized **Pape-Dawson Engineers, Inc.**
Print Name of Agent/Engineer

of **Pape-Dawson Engineers, Inc.**
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

8-14-2023
Date

THE STATE OF TX §

County of Montgomery §

BEFORE ME, the undersigned authority, on this day personally appeared Luis Borden 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 14th day of August, 2023.

Jodi Kay Fitch
NOTARY PUBLIC

JODI KAY FITCH
Notary Public, State of Texas
Comm. Expires 03-20-2024
Notary ID 126453979

Jodi Kay Fitch
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 3/20/2024

APPLICATION FEE FORM (TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Ariza 290 West
Regulated Entity Location: 13900 W. US-290, Dripping Springs TX 78620
Name of Customer: Cypressbrook 290 LP
Contact Person: Luis Bordes Phone: 632-602-4779
Customer Reference Number (if issued):CN 605996032
Regulated Entity Reference Number (if issued):RN 111458402

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	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	19.16 Acres	$ 6,500
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: Shelly Mitchell Date: 08/28/2023

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

CORE DATA FORM
(TCEQ-10400)

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 605996032		RN 111458402

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:*

Cypressbrook 290 LP

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

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

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:

City	State	ZIP	ZIP + 4

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

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

SECTION III: Regulated Entity Information

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

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

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

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

Ariza 290 West

23. Street Address of the Regulated Entity: *(No PO Boxes)*	13900 W. US-290							
	Dripping Springs							
	City		**State**	TX	**ZIP**	78620	**ZIP + 4**	
24. County	Hays							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**
Dripping Springs			TX		78620
27. Latitude (N) In Decimal:	30.196963		**28. Longitude (W) In Decimal:**	-98.006764	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	11	49.1	98	00	24.4

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)
1522	1623	236116	237110

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

Construction of Multi-Family Residential development

34. Mailing Address:	**1776 Woodstead Ct.**							
	Suite 218							
	City	**Spring**	**State**	**TX**	**ZIP**	**77380**	**ZIP + 4**	

35. E-Mail Address:	**lbordes@cypressbrook.com**		
36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*	
(832) 602-4779		**( ) -**	

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:	Jean Autrey, P.E., CESSWI	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(210) 375-9000		(210) 375-9010	jautrey@pape-dawson.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:	Pape-Dawson Engineers, Inc.	**Job Title:**	Vice President
Name *(In Print):*	Shelly Mitchell, P.E.	**Phone:**	(512) 454- **8711**
Signature:	Shelly Mitchell	**Date:**	08/28/2023

POLLUTANT LOAD AND REMOVAL CALCULATIONS

ARIZA 290 WEST

Treatment Summary by Watershed

Watershed	Total Watershed Area (ac.)	*EXISTING Impervious Cover (ac)	Proposed Impervious Cover (ac.)	Total Impervious Cover TO TREAT (ac)	PBMP	Required TSS Removal Annually @85% (lbs)	Required TSS Removal Annually @80% (lbs)	Required TSS Removal Annually for OEM (lbs)	TSS Removed Annually (lbs)
A	8.295	0.070	5.938	5.868	Proposed Batch Detention Basin	5,596	5,267	5,428	5,494
B	0.635	0.323	0.323	0.000	Jellyfish-NE	0	0	295	315
C	0.242		0.242	0.242	Jellyfish-WWTP	231	217	221	231
D - 8' sidewalk	0.383		0.146	0.146	reduced width VFS	139	131	133	139
E	0.097		0.097	0.097	self treating TCEQ Pervious Pavers drive	93	87	89	93
Pervious Pavers sidewalk	0.149		0.149	0.149	self treating TCEQ Pervious Paver sidewalk	142	134	136	142
F**	0.160		0.160	0.160	Pervious paver (not TCEQ) - 15' VFS	153	144	146	155
G	0.068		0.068	0.068	15' VFS	65	61	62	66
uncaptured NE drive	0.058	0.058	0.058	0.000	Overtreatment	0	0	53	
H - 8' sidewalk	0.560		0.056	0.056	reduced width VFS	53	50	51	53
uncaptured SW drive	0.069	0.069	0.069	0.000	Overtreatment	0	0	63	
TOTAL	**10.72**	**0.520**	**7.306**	**6.786**	---	**6,472**	**6,091**	**6,678**	**6,688**

*Approx 0.52 ac grandfathered IC not accounted in OEM

**Pervious pavers are considered pervious for City of Dripping Springs but do not comply with TCEQ requirements in this watershed. Treatment provided by 15' VFS shared with watershed G.

	Required TCEQ volume (cf)	Required Dripping Springs Vol (cf)	Required OEM volume (cf)	Basin Vol Provided (cf)
Batch Detention Basin	24,894	32,061	35,689	37,972

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/23/2023

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

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6472	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Basin 85%

Total drainage basin/outfall area =	8.295	acres
Predevelopment impervious area within drainage basin/outfall area =	0.070	acres
Post-development impervious area within drainage basin/outfall area =	5.938	acres
Post-development impervious fraction within drainage basin/outfall area =	0.72	
$L_{M\ THIS\ BASIN}$ =	5596	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

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

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

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

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

A_C =	8.295	acres
A_I =	5.938	acres
A_P =	2.36	acres
L_R =	6208	lbs

08/28/2023

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

Desired $L_{M\ THIS\ BASIN}$ = 5596 lbs.

F = 0.90

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

Rainfall Depth =	1.70	inches
Post Development Runoff Coefficient =	0.52	
On-site Water Quality Volume =	26717	cubic feet

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

Off-site area draining to BMP =		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 =	5343	
Total Capture Volume (required water quality volume(s) x 1.20) =	32061	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/23/2023

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6091	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 1

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

Drainage Basin/Outfall Area No. = Basin TCEQ

Total drainage basin/outfall area =	8.30	acres
Predevelopment impervious area within drainage basin/outfall area =	0.070	acres
Post-development impervious area within drainage basin/outfall area =	5.938	acres
Post-development impervious fraction within drainage basin/outfall area =	0.72	
$L_{M\ THIS\ BASIN}$ =	5267	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

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

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

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

where:

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

A_C =	8.295	acres
A_I =	5.938	acres
A_P =	2.36	acres
L_R =	6208	lbs

Shelly Mitchell 08/28/2023

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

Desired $L_{M\ THIS\ BASIN}$ =	5267	lbs.
F =	0.85	

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

Rainfall Depth =	1.32	inches
Post Development Runoff Coefficient =	0.52	
On-site Water Quality Volume =	20745	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 =	4149	
Total Capture Volume (required water quality volume(s) x 1.20) =	24894	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/25/2023

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

Page 3-29 Equation 3.3: $L_M = 27.7(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% o
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6678	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Basin OEM

Total drainage basin/outfall area =	8.295	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	5.938	acres
Post-development impervious fraction within drainage basin/outfall area =	0.72	
$L_{M\ THIS\ BASIN}$ =	5428	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

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

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

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

where:

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

A_C =	8.295	acres
A_I =	5.938	acres
A_P =	2.36	acres
L_R =	6208	lbs

Shelly Mitchell 08/28/2023

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

Desired $L_{M\ THIS\ BASIN}$ = 5494 lbs.

F = 0.88

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

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.66	
On-site Water Quality Volume =	29741	cubic feet

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

Off-site area draining to BMP =		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 =	5948	
Total Capture Volume (required water quality volume(s) x 1.20) =	35689	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 V
Date Prepared: 8/25/2023

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.305	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **6090** lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = WS F & G

08/28/2023

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

Drainage Basin/Outfall Area No. = VFS-TCEQ

Total drainage basin/outfall area =	0.228	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.228	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	205	lbs.

3. Indicate the proposed BMP Code for this basin.

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

Aqualogic Car
Bioretention
Contech Storr
Constructed V
Extended Det
Grassy Swale
Retention / Irri
Sand Filter
Stormceptor
Vegetated Filt
Vortechs
Wet Basin
Wet Vault

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

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

where:

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

A_C =	0.228	acres
A_I =	0.228	acres
A_P =	0.00	acres
L_R =	221	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 221 lbs.

F = **1.00**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 V
Date Prepared: 8/25/2023

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

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **6472** lbs.

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

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

08/28/2023

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

Drainage Basin/Outfall Area No. = VFS-85%

Total drainage basin/outfall area =	0.16	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.160	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	153	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Car
Bioretention
Contech Storr
Constructed V
Extended Det
Grassy Swale
Retention / Irri
Sand Filter
Stormceptor
Vegetated Filt
Vortechs
Wet Basin
Wet Vault

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

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

where:

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

A_C =	0.16	acres
A_I =	0.160	acres
A_P =	0.00	acres
L_R =	155	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 155 lbs.

F = **1.00**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 V
Date Prepared: 8/25/2023

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Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches

$L_{M\ TOTAL\ PROJECT}$ = **6472** lbs.

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

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

08/28/2023

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

Drainage Basin/Outfall Area No. = VFS-85%

Total drainage basin/outfall area =	0.068	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.068	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	65	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Car
Bioretention
Contech Storr
Constructed V
Extended Det
Grassy Swale
Retention / Irri
Sand Filter
Stormceptor
Vegetated Filt
Vortechs
Wet Basin
Wet Vault

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

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

where:

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

A_C =	0.068	acres
A_I =	0.068	acres
A_P =	0.00	acres
L_R =	66	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 66 lbs.

F = **1.00**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 V
Date Prepared: 8/25/2023

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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
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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6678	lbs.

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

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

08/28/2023

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

Drainage Basin/Outfall Area No. = VFS OEM

Total drainage basin/outfall area =	0.228	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.228	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	208	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Car
Bioretention
Contech Storr
Constructed V
Extended Det
Grassy Swale
Retention / Irri
Sand Filter
Stormceptor
Vegetated Filt
Vortechs
Wet Basin
Wet Vault

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

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

where:

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

A_C =	0.228	acres
A_I =	0.228	acres
A_P =	0.00	acres
L_R =	221	lbs

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

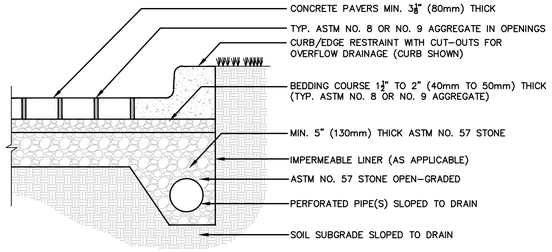
Desired $L_{M\ THIS\ BASIN}$ = 221 lbs.

F = 1.00

EXHIBITS

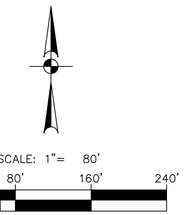
Treatment Summary by Watershed

Watershed	Total Watershed Area (ac.)	*EXISTING Impervious Cover (ac)	Proposed Impervious Cover (ac.)	Total Impervious Cover TO TREAT (ac)	PBMP	Required TSS Removal Annually @85% (lbs)	Required TSS Removal Annually @80% (lbs)	Required TSS Removal Annually for OEM (lbs)	TSS Removed Annually (lbs)
A	8.295	0.070	5.938	5.868	Proposed Batch Detention Basin	5,596	5,267	5,428	5,494
B	0.635	0.323	0.323	0.000	Jellyfish	0	0	295	315
C	0.242		0.242	0.242	Jellyfish-WWTP	231	217	221	231
D - 8' sidewalk	0.383		0.146	0.146	reduced width VFS	139	131	133	139
E	0.097		0.097	0.097	self treating TCEQ Pervious Pavers drive	93	87	89	93
Pervious Pavers sidewalk	0.149		0.149	0.149	self treating TCEQ Pervious Paver sidewalk	142	134	136	142
F*	0.160		0.160	0.160	Pervious paver (not TCEQ) - 15' VFS	153	144	146	155
G	0.068		0.068	0.068	15' VFS	65	61	62	66
uncaptured NE drive	0.058	0.058	0.058	0.000	Overtreatment	0	0	53	
H - 8' sidewalk	0.560		0.056	0.056	reduced width VFS	53	50	51	53
uncaptured SW drive	0.069	0.069	0.069	0.000	Overtreatment	0	0	63	
TOTAL	**10.72**	**0.520**	**7.306**	**6.786**	---	**6,472**	**6,091**	**6,678**	**6,688**



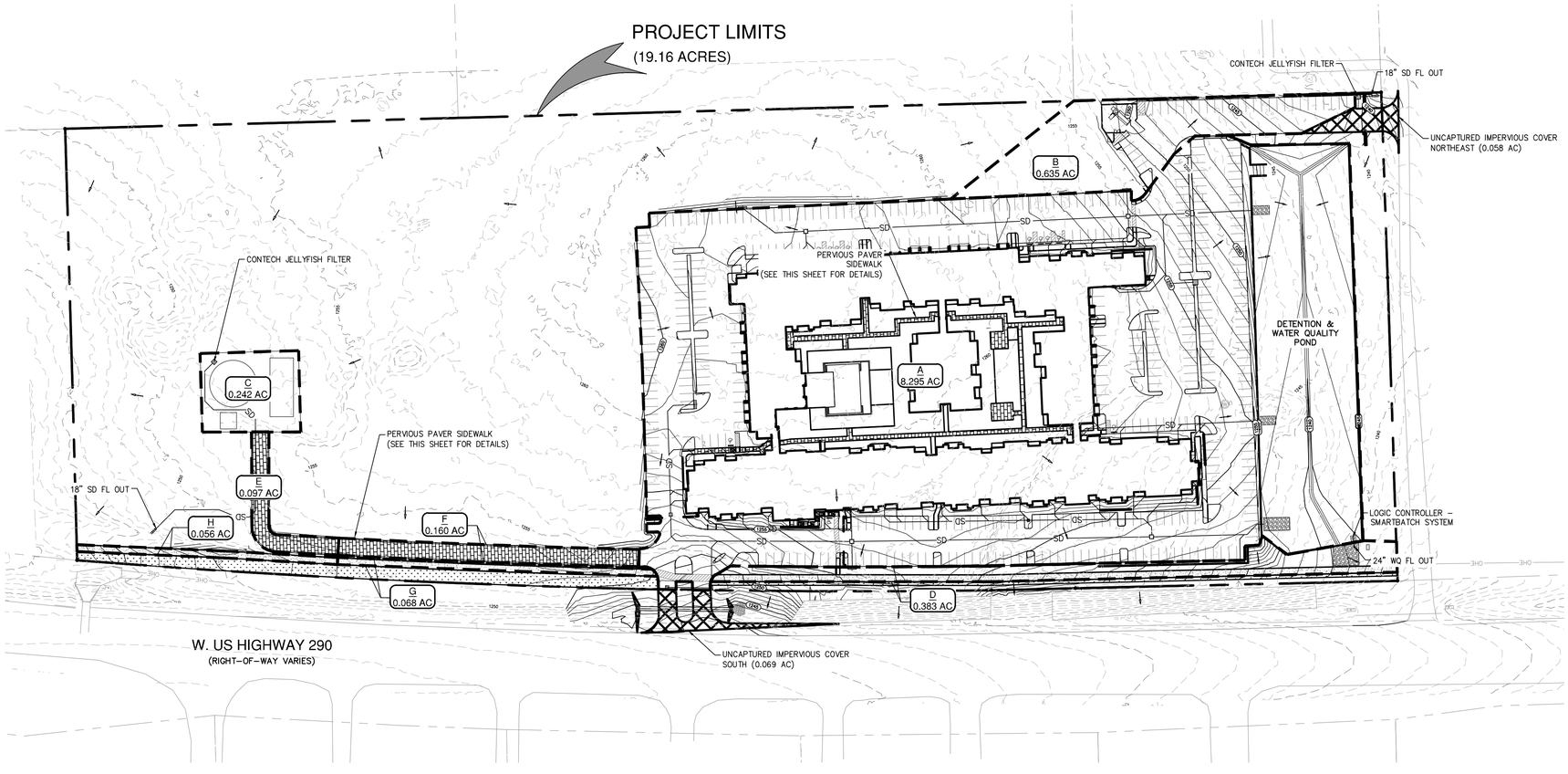
PERVIOUS PAVER DETAIL

NOT TO SCALE



LEGEND

- PROJECT LIMITS
- 976 EXISTING CONTOUR
- 970 PROPOSED CONTOUR
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- AREA X.XX AC — DRAINAGE AREA
- WATERSHED BOUNDARY
- UNCAPTURED IMPERVIOUS COVER
- VEGETATIVE FILTER STRIP
- PERVIOUS PAVERS



SUMMARY OF PERMANENT POLLUTION ABATEMENT MEASURES:

1.) TEMPORARY BMP'S WILL BE MAINTAINED UNTIL THE SITE IMPROVEMENTS ARE COMPLETED AND THE SITE HAS BEEN STABILIZED, INCLUDING SUFFICIENT VEGETATION BEING ESTABLISHED.

2.) DURING CONSTRUCTION, TO THE EXTENT PRACTICAL, CONTRACTOR SHALL MINIMIZE THE AREA OF SOIL DISTURBANCE. AREAS OF DISTURBED SOIL SHALL BE REVEGETATED TO STABILIZE SOIL USING SOLID SOD IN A STAGGERED PATTERN. SEE DETAIL ON TEMPORARY POLLUTION ABATEMENT DETAIL SHEET AND REFER TO SECTION 1.3.11 IN TCEQ'S TECHNICAL GUIDANCE MANUAL RG-348 (2005). SOD SHOULD BE USED IN CHANNELS AND ON SLOPES > 15%. THE CONTRACTOR MAY SUBSTITUTE THE USE OF SOD WITH THE PLACEMENT OF TOP SOIL AND A FRIABLE SEED BED WITH A PROTECTIVE MATTING OR HYDRAULIC MULCH ALONG WITH WATERING UNTIL VEGETATION IS ESTABLISHED. APPLICATIONS AND PRODUCTS SHALL BE THOSE APPROVED BY TXDOT AS OF FEBRUARY 2001 AND IN COMPLIANCE WITH THE TGM RG-348 (2005). SEED MIXTURE AND/OR GRASS TYPE TO BE DETERMINED BY OWNER AND SHOULD BE IN COMPLIANCE WITH TGM RG-348 (2005) GUIDELINES. IRRIGATION MAY BE REQUIRED IN ORDER TO ESTABLISH SUFFICIENT VEGETATION.

3.) FOR DISTURBED AREAS WHERE INSUFFICIENT SOIL EXISTS TO ESTABLISH VEGETATION, CONTRACTOR SHALL PLACE A MINIMUM OF 6" OF TOPSOIL PRIOR TO REVEGETATION.

4.) PERMANENT BMP'S FOR THIS SITE INCLUDE A DETENTION POND, THREE (3) VFS, AND TWO (2) JELLYFISH FILTERS. THESE PERMANENT BMP'S HAVE BEEN DESIGNED TO REMOVE AT LEAST 80% OF THE INCREASED TOTAL SUSPENDED SOLIDS (TSS) FOR THE 19.16 ACRES IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348 (2005).

PERMANENT POLLUTION ABATEMENT MEASURES:

1.) SILT FENCING AND ROCK BERMS, WHERE APPROPRIATE, WILL BE MAINTAINED UNTIL THE ROADWAY, UTILITY, DRAINAGE IMPROVEMENTS, AND BUILDING CONSTRUCTION ARE COMPLETED.

2.) ONE (1) DETENTION POND, THREE (3) VFS, AND TWO (2) JELLYFISH FILTERS. WILL SERVE AS THE PERMANENT BEST MANAGEMENT PRACTICES (BMPS).

3.) ENERGY DISSIPATORS (TO HELP REDUCE EROSION) WILL BE PROVIDED AT POINTS OF CONCENTRATED DISCHARGE WHERE EXCESSIVE VELOCITIES MAY BE ENCOUNTERED.

NOTES:

1.) CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION FOR SOIL STABILIZATION PRIOR TO SITE CLOSEOUT.

2.) ALL PERMANENT BMP'S MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2

DATE

NO. REVISION

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/28/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

PERMANENT POLLUTION ABATEMENT PLAN

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED ____ DRAWN JW
SHEET EX 2

ADMIN2022-0099

Date: Aug 15, 2023, 9:37am User ID: mgregory
File: H:\Projects\513\12\00\301 Construction Documents\Exhibits\PM 230725.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

WEST TRAVIS COUNTY PUA WATER & WASTEWATER UTILITY NOTES:

1. WEST TRAVIS COUNTY PUA IS THE WATER AND/OR WASTEWATER SERVICE PROVIDER FOR THIS PROJECT. A PRE-CONSTRUCTION MEETING WITH THE WTCPUA SHALL BE HELD PRIOR TO COMMENCEMENT OF CONSTRUCTION TO SCHEDULE INSPECTION OF INSTALLATION OF WATER/WASTEWATER FACILITIES. WATER FACILITIES WILL BE INSPECTED UP TO, AND INCLUDING, THE WATER METER AND/OR FIRE HYDRANTS. THE CONTACT NUMBER FOR WTCPUA IS (512) 263-0100.
2. THE CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARD DETAILS CURRENT AT THE TIME OF CONSTRUCTION SHALL GOVERN MATERIALS AND METHODS USED TO PERFORM THIS WORK.
3. CONTRACTOR SHALL OBTAIN A STREET CUT PERMIT FROM THE CITY OF DRIPPING SPRINGS AND HAYS COUNTY OR OTHER APPROPRIATE PARTY BEFORE BEGINNING CONSTRUCTION WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR ALLEY.
4. THE WTCPUA SHALL BE CONTACTED AT (512) 263-0100 AT LEAST 48 HOURS BEFORE CONNECTING TO THEIR EXISTING WATER AND/OR WASTEWATER FACILITIES.
5. THE CONTRACTOR SHALL CONTACT "ONE CALL" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION. IN ADVANCE OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS.
6. NO OTHER UTILITY SERVICE/APPURTENANCES SHALL BE PLACED NEAR THE PROPERTY LINE, OR OTHER ASSIGNED LOCATION DESIGNATED FOR WATER AND WASTEWATER UTILITY SERVICE THAT WOULD INTERFERE WITH THE WATER AND/OR WASTEWATER SERVICES.
7. THE SEPARATION DISTANCE BETWEEN WATER MAINS, WASTEWATER MAINS, AND OTHER UTILITIES SHALL COMPLY WITH TCEQ RULES OR HAVE A VARIANCE APPROVED BY TCEQ BEFORE SUBMITTING PIPING ASSIGNMENTS TO THE WTCPUA.
8. THE CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS WILL BE REQUIRED AS A MINIMUM TRENCH SAFETY MEASURE. CONTRACT DOCUMENTS, WHICH INCLUDE A TRENCH SAFETY PLAN AND A PAY ITEM FOR TRENCH SAFETY MEASURES, IN COMPLIANCE WITH OSHA, STATE AND ALL CITY OF DRIPPING SPRINGS REQUIREMENTS BEFORE BEGINNING WORK ON THE PROJECT.
9. ALL MATERIAL TESTS, INCLUDING SOIL DENSITY TESTS AND RELATED SOIL ANALYSIS, SHALL BE ACCOMPLISHED BY AN INDEPENDENT LABORATORY FUNDED BY THE OWNER IN ACCORDANCE WITH CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARD SPECIFICATION ITEM 1804S.
10. PRESSURE TAPS SHALL BE IN ACCORDANCE WITH CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS. CONTRACTOR SHALL PERFORM ALL WORK AND SHALL FURNISH ALL MATERIALS, INSTALL, AND AIR TEST THE SLEEVE AND VALVE. CONTRACTOR SHALL SCHEDULE ALL SUCH CONNECTIONS IN ADVANCE AND SUCH SCHEDULE SHALL BE APPROVED BY THE WTCPUA BEFORE BEGINNING THE WORK. AT LEAST 48 HOURS NOTICE SHALL BE GIVEN TO THE WTCPUA PRIOR TO MAKING THE CONNECTION, AND A REPRESENTATIVE FROM THE WTCPUA SHALL BE PRESENT WHEN THE CONNECTION IS MADE. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED, UNLESS IT HAS BEEN DEMONSTRATED THAT A MORE ACCEPTABLE CONNECTION WOULD INVOLVE CONSIDERABLE HARDSHIP TO THE UTILITY SYSTEM. ALL TAPS SHALL BE MADE BY USE OF AND APPROVED FULL CIRCLE, GASKETED CAST IRON OR DUCTILE IRON TAPPING SLEEVE. CONCRETE BLOCKING SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES PRIOR TO MAKING THE PRESSURE TAP AND THE USE OF PRECAST BLOCKS MAY BE USED TO HOLD THE TAP IN ITS CORRECTION POSITION PRIOR TO BLOCKING. THE BLOCKING BEHIND AND UNDER THE TAP SHALL HAVE A MINIMUM OF 24 HOURS CURING TIME BEFORE THE VALVE CAN BE REOPENED FOR SERVICE FROM THAT TAP.
11. THRUST RESTRAINT SHALL BE IN ACCORDANCE WITH CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS.
12. FIRE HYDRANTS SHALL BE SET IN ACCORDANCE WITH CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS AND SHALL BE APPROVED FIRE DEPARTMENT OR OTHER APPROPRIATE PARTY PRIOR TO INSTALLATION. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH A POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP WILL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED IN SERVICE. FIRE HYDRANTS THAT ARE TO BE USED AS DRAIN HYDRANTS SHALL BE PAINTED SILVER W/ BLUE CAPS PRIOR TO ACCEPTANCE.
13. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS AND/OR TCEQ RULES.
14. TEST PRESSURE FOR 2-HOUR TEST SHALL BE AT 175 PSI AT THE LOWEST POINT IN THE LINE.
15. PRIOR TO PRESSURE TESTING, CONTRACTOR SHALL VERIFY THAT THRUST BLOCKING AND/OR THRUST RESTRAINT BACK TO AND INCLUDING THE VALVE AGAINST WHICH THE PRESSURE TEST SHALL BE PERFORMED, HAS BEEN INSTALLED TO AT LEAST THE SPECIFICATIONS OF THIS PROJECT. FAILURE TO VERIFY THAT THRUST BLOCKING AND/OR THRUST RESTRAINT IN THE EXISTING LINE MEETS OR EXCEEDS THE SPECIFICATIONS OF THIS PROJECT MAY RESULT IN SERIOUS DAMAGE TO THE EXISTING WATERLINE.
16. WATER LINES SHALL BE FILLED WITH WATER AND ALL AIR EXPELLED AT LEAST 24 HOURS BEFORE TESTING. ALL SERVICE LATERALS AND DRAIN VALVE LEADS, WITH THE HYDRANT VALVES CLOSED AND NOZZLE CAPS OPEN SHALL BE INCLUDED IN THE TESTS.
17. CONTRACTOR SHALL SUBMIT A DISINFECTION AND FLUSHING PLAN IN ACCORDANCE WITH AWWA STANDARDS TO THE WTCPUA FOR APPROVAL. REQUIRED FLUSHING VOLUMES, FLUSHING SCHEDULE, AND METHOD OF DISPOSAL OF FLUSH WATER SHALL BE IN ACCORDANCE WITH THE APPROVED PLAN.
18. GATE VALVES SHALL BE RESILIENT SEATED GATE VALVES CONFORMING TO AWWA C509, WITH A MINIMUM RATED WORKING PRESSURE OF 250 PSIG.
19. FORCE MAIN TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS AND/OR TCEQ RULES.
20. GRAVITY SANITARY SEWER MAIN TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARDS AND/OR TCEQ RULES. IN ADDITION, ALL GRAVITY SANITARY SEWER MAINS SHALL BE TELEVISED PRIOR TO ACCEPTANCE BY WTCPUA. DIGITAL FILES (VIA CD-ROM) CLEARLY SHOWING TELEVISED RECORDING SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOLLOWING INSPECTION.
21. LOCATOR 'FINDER' WIRE – ALL NON-METALLIC WATER LINES SHALL HAVE A FINDER WIRE LOCATED ABOVE THE PIPE. THE WIRE SHALL BE POLY-INSULATED NO. 10 SOLID COPPER AND WILL TERMINATE AT EACH ISOLATION VALVE SUCH THAT IT IS ACCESSIBLE FROM THE VALVE BOX.
22. LOCATOR 'FINDER' WIRE – ALL NON-METALLIC WASTEWATER LINES SHALL HAVE A FINDER WIRE LOCATED ABOVE THE PIPE. THE WIRE SHALL BE POLY-INSULATED NO. 10 SOLID COPPER AND WILL TERMINATE AT READILY ACCESSIBLE LOCATIONS THROUGHOUT THE COLLECTION SYSTEM.
23. ALL VALVE RISERS SHALL HAVE A 1'-6" SQUARE CONCRETE BOX POURED AROUND THEM AT FINISHED GRADE.
24. ALL MANHOLES SHALL BE LINED WITH A CORROSION RESISTANT LINING APPROVED BY THE WTCPUA.
25. BOLTED AND GASKETED COVERS SHALL BE USED FOR ALL MANHOLES LOCATED IN THE 100-YEAR FLOODPLAIN. WHERE THERE ARE MORE THAN THREE GASKETED MANHOLES IN A ROW, VENTS SHALL BE PROVIDE ON EVERY THIRD MANHOLE.
26. THE DOWN STREAM END OF ANY FORCE MAIN SHALL BE TERMINATED IN A SANITARY SEWER MANHOLE IN A MANNER TO MINIMIZE TURBULENCE.
27. CONTRACTOR SHALL HAVE NECESSARY EROSION AND SEDIMENTATION CONTROLS IN PLACE PRIOR TO COMMENCING WATER/WASTEWATER FACILITY CONSTRUCTION.
28. RECORD DRAWINGS, AS STIPULATED BY THE WTCPUA, SHALL BE SUBMITTED TO THE ENGINEER OF RECORD AND FURNISHED TO THE WTCPUA UPON COMPLETION OF THE PROJECT.
29. THE WCPUA WILL OWN AND OPERATE ALL WATER LINES AND APPURTENANCES UP TO AND INCLUDING THE WATER METER. THESE IMPROVEMENTS WILL BE DEFINED BY A RECORDED EASEMENT OR IN PUBLIC RIGHT-OF-WAY.
30. ANY PORTIONS OF WASTEWATER LINES INCLUDING SERVICES THAT ARE LOCATED OUTSIDE OF A RECORDED EASEMENT OR PUBLIC RIGHT-OF-WAY WILL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER, OR HIS/HER ASSIGNS.
31. WHERE EXISTING WATER AND/OR WASTEWATER INFRASTRUCTURE IS TO BE ABANDONED, THE ENGINEER SHALL SUBMIT AN ABANDONMENT PLAN FOR APPROVAL BY THE WTCPUA.
32. WATER SERVICES SHALL BE INSTALLED USING HDPE PIPE. COPPER IS NOT ALLOWED.
33. FOR ANY STORM SEWER LINE CROSSING A WATER OR WASTEWATER LINE CLOSER THAN 18', THE STORM SEWER PIPE SHALL BE LAID SUCH THAT NO STORM SEWER JOINTS WILL BE OVER THE WATER PIPE CROSSING.

WTCPUA WATER & WASTEWATER GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE STATE STATUTES AND U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS (O.S.H.A.). COPIES OF O.S.H.A. STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE. INFORMATION AND RELATED REFERENCE MATERIALS MAY BE OBTAINED FROM O.S.H.A. 611 EAST 6TH STREET, ROOM 303, AUSTIN, TEXAS
2. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE CITY OF DRIPPING SPRINGS AND HAYS COUNTY STANDARD SPECIFICATIONS AND TO THE STATE LAW, (VERNON'S ANNOTATED TEXAS STATUTES, ARTICLE 1436 c) AND THE NEED FOR EFFECTIVE PRECAUTIONARY MEASURES WHEN OPERATING IN THE VICINITY OF ELECTRICAL LINES. THE CONTRACTOR IS RESPONSIBLE FOR ALL SAFETY REQUIREMENTS, AND FOR COORDINATION OF ALL WORK WITH THE APPROPRIATE ELECTRIC UTILITY COMPANY.
3. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION. 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 ADDITIONAL TO NORMAL PRECAUTIONS WHEN EXCAVATING, USE EXTRA CAUTION WHEN EXCAVATING WITHIN 25 FEET OF ANY UTILITIES SHOWN ON THE PLANS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION BETWEEN HIMSELF AND OTHER CONTRACTORS AND UTILITIES IN THE VICINITY OF THE PROJECT. THIS INCLUDES ALL WATER, WASTEWATER, GAS, ELECTRICAL, TELEPHONE, CABLE TELEVISION, AND STREET AND DRAINAGE WORK. ONCE THE CONTRACTOR BECOMES AWARE OF A POSSIBLE CONFLICT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER WITHIN TWENTY-FOUR (24) HOURS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSING OF ALL SPOILS MATERIAL FROM THE CONSTRUCTION SITE. ALL SPOILS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED SPOIL SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SECURING A PERMIT FOR THE SITE, SHALL NOTIFY THE WTCPUA INSPECTOR AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO DISPOSAL OF THE MATERIAL. NO SPOILS ARE TO REMAIN OVERNIGHT IN THE FLOODPLAIN.
6. NO BLASTING OR BURNING WILL BE ALLOWED.
7. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, AT HIS EXPENSE, ALL UTILITIES, PAVEMENT, CURB, FENCES OR ANY OTHER ITEMS DAMAGED DURING CONSTRUCTION REGARDLESS OF WHETHER THESE ITEMS ARE SHOWN ON THE CONSTRUCTION PLANS.
8. WHENEVER EXISTING UTILITIES, INDICATED OR NOT ON PLANS, PRESENT OBSTRUCTIONS TO GRADE AND/OR ALIGNMENT OF PROPOSED PIPE, CONTRACTOR IS TO IMMEDIATELY NOTIFY THE ENGINEER WHO WILL DETERMINE IF EXISTING IMPROVEMENTS ARE TO BE RELOCATED OR IF THE GRADE AND/OR ALIGNMENT OF PROPOSED PIPE IS TO BE CHANGED.
9. DUST PREVENTION SHALL BE PROVIDED BY THE CONTRACTOR AT HIS OWN EXPENSE. DUST CONTROL SHALL INCLUDE SPRAYING OF WATER ON ALL DISTURBED AREAS, SPOIL PILES, OR HAUL MATERIALS ASSOCIATED WITH THE PROJECT OR OTHER METHODS APPROVED BY THE WTCPUA.
10. 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 EXCAVATED MATERIALS, TEMPORARY STRUCTURES AND EQUIPMENT. ALL PARTS OF THE WORK SHALL BE LEFT IN A NEAT AND PRESENTABLE CONDITION SATISFACTORY TO THE WTCPUA AND OTHER GOVERNMENTAL BODIES HAVING JURISDICTION PRIOR TO SUBMITTAL OF THE FINAL PAYMENT.
11. MAINTAIN ACCESS TO BUSINESSES AND RESIDENCES AT ALL TIMES. COORDINATE WITH PROPERTY OWNERS TO MINIMIZE DISRUPTION OF DELIVERIES, PARKING, AND OTHER ACTIVITIES.
12. DEWATERING, IF NECESSARY, SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL PAYMENT.
13. MINIMUM DEPTH OF COVER FROM TOP OF PIPE TO FINISHED GRADE FOR ALL WATER LINES SHALL BE FOUR FEET, UNLESS OTHERWISE SHOWN ON THE PLANS. INSTALL LINES TO AVOID HIGH POINTS.
14. CONCRETE SHALL BE CLASS 'A' WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI, UNLESS OTHERWISE NOTED.
15. REINFORCING STEEL SHALL BE ASTM A 615M, GRADE 60 UNLESS OTHERWISE NOTED.
16. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE WTCPUA MUST RELY ON THE ADEQUACY OF THE DESIGN ENGINEER. APPROVAL OF THESE PLANS BY THE WTCPUA DOES NOT RELEASE THE DESIGN ENGINEER OF THESE RESPONSIBILITIES.

WEST TRAVIS COUNTY PUA NOTES:

1. 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.
2. NO LOTS CONTAIN USFWS STREAM BUFFER ZONES AND/OR SENSITIVE FEATURE BUFFER ZONES AS INDICATED HEREON THAT MUST REMAIN FREE OF CONSTRUCTION, DEVELOPMENT, OR OTHER ALTERATIONS.
3. IMPERVIOUS COVER SHALL COMPLY WITH THE WATER QUALITY PLAN APPROVED FOR THIS SUBDIVISION AND SHALL NOT BE ALTERED.
4. DECLARANT AGREES THAT THE LOTS IN THIS PLAT DOCUMENT ARE SUBJECT TO [DECLARANT TO SELECT 2000 USFWS MEMORANDUM OF UNDERSTANDING WITH THE LOWER COLORADO RIVER AUTHORITY OR THE TEXAS COMMISSION OF ENVIRONMENTAL QUALITY OPTIONAL ENHANCED MEASURES].

TCEQ CONTRIBUTING ZONE PLAN GENERAL CONSTRUCTION NOTES:

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER NOTES:

1. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED ANSI.
2. ALL PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST ALSO BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS.
3. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY.
4. WATER TRANSMISSION AND DISTRIBUTION LINES MUST 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.
5. THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY AWWA FORMULAS.
6. ALL WATER LINES SHALL BE HYDROSTATIC LEAK TESTED IN CONFORMANCE WITH AWWA C600 FOR DUCTILE IRON PIPE AND AWWA C605 FOR PVC PIPE.
7. ALL WATER LINES SHALL BE DISINFECTED IN CONFORMANCE WITH AWWA C651.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY 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.

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023
Shelly Mitchell

PAPE-DAWSON ENGINEERS
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10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
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ARIZA 290 WEST
13900 W. US-290
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TCEQ & WEST TRAVIS COUNTY PUA NOTES

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 06 of 71

Date: Aug 15, 2023, 11:58am User ID: jwolf
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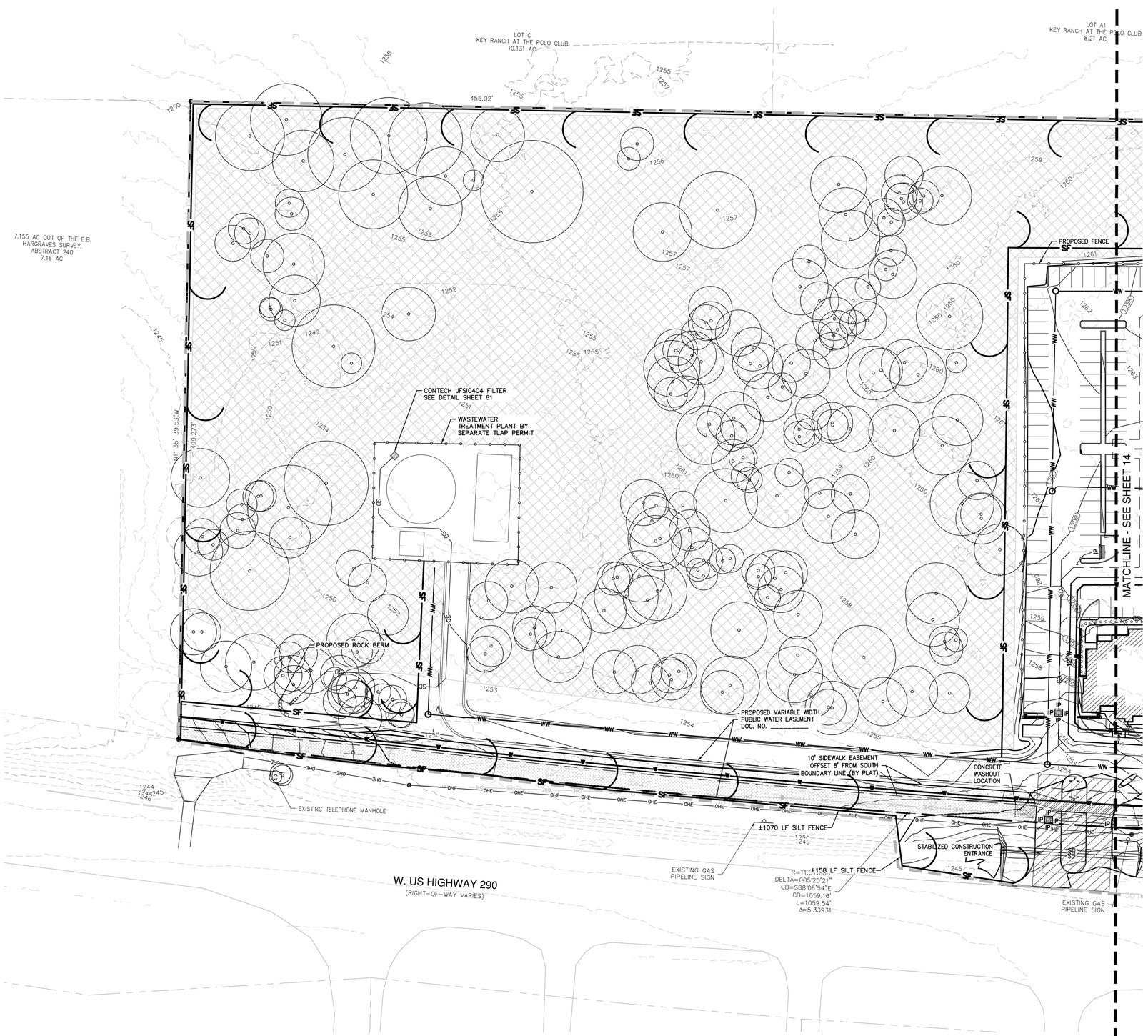
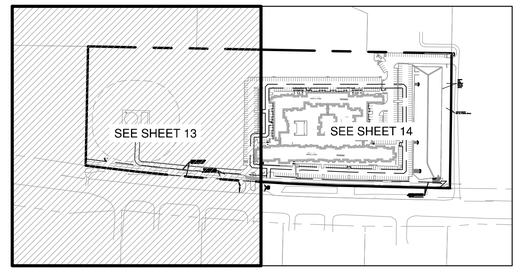


SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY BOUNDARY
- PROPOSED BUILDING
- WASTEWATER TREATMENT BY SEPARATE TLAP PERMIT BY OTHERS
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (TO BE FIELD LOCATED)
- CONSTRUCTION STAGING AREA
- BENCHMARK
- PROPOSED CURB
- PROPOSED FENCE
- OVERHEAD ELECTRIC
- PROPOSED SILT FENCE
- PROPOSED TREE PROTECTION
- PROPOSED INLET PROTECTION
- EXISTING WATER VALVE
- EXISTING ELECTRIC MANHOLE
- EXISTING WATER METER
- EXISTING WASTEWATER MANHOLE
- EXISTING GUY ANCHOR
- EXISTING LAMP POST
- EXISTING UTILITY POLE
- EXISTING STORM DRAIN MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED STORM INLET
- EXISTING TREE TO REMAIN



KEY MAP

GENERAL NOTES

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.

2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.

3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.

4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.

5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.

6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.

7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.

8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.

9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.

10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.

11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT & EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.

12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
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ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

EROSION & SEDIMENTATION CONTROL (1 OF 2)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 13 of 71

Date: Aug 15, 2023, 11:36am User ID: jeff
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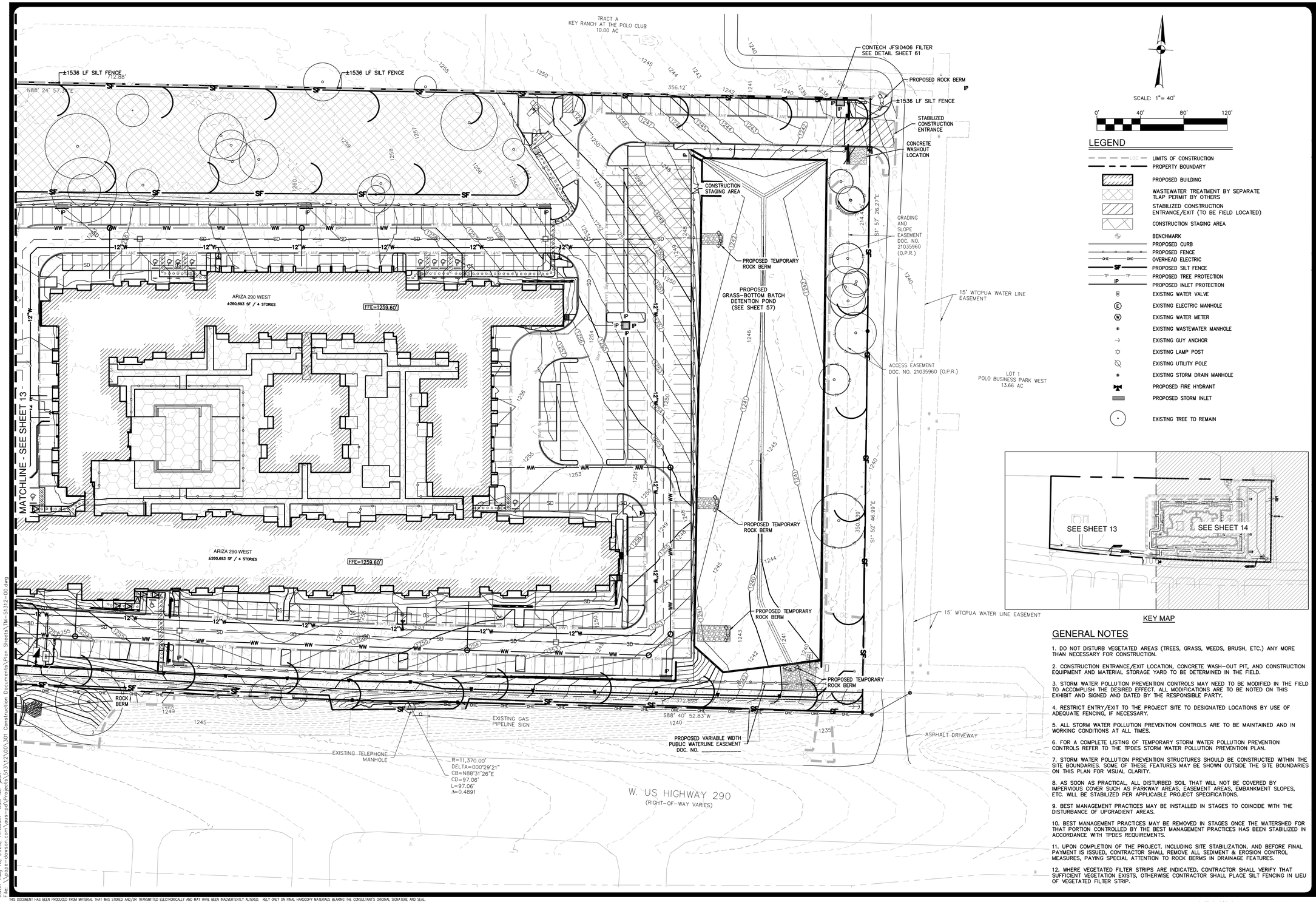

SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY BOUNDARY
- PROPOSED BUILDING
- WASTEWATER TREATMENT BY SEPARATE TLAP PERMIT BY OTHERS
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (TO BE FIELD LOCATED)
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- EXISTING STORM DRAIN MANHOLE
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NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

EROSION & SEDIMENTATION CONTROL (2 OF 2)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 14 of 71

Date: Aug 15, 2023, 11:36am User ID: jwolf
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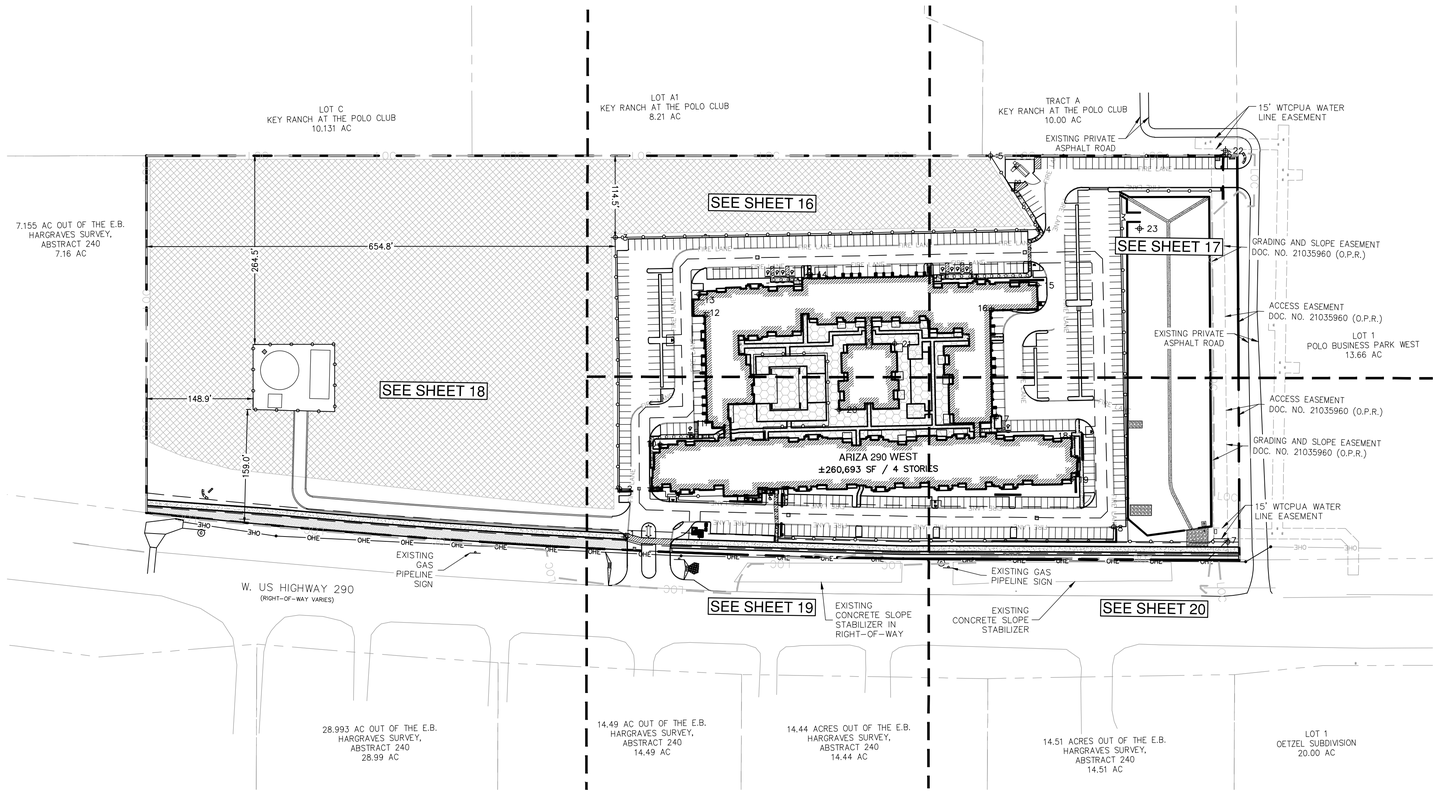
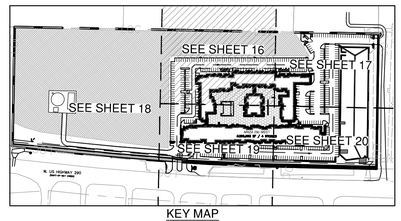


SCALE: 1" = 100'

0' 100' 200' 300'

LEGEND

- PARCEL BOUNDARY
- PROPOSED BUILDING
- SEPTIC FIELD BY SEPARATE PERMIT (BY OTHERS)
- LANDSCAPE COURTYARD AREA (BY OTHERS)
- BENCHMARK
- OVERHEAD ELECTRIC
- PROPOSED HANDICAP SPACE
- PROPOSED FIRE HYDRANT
- PROPOSED FENCE
- EXISTING TELEPHONE MANHOLE
- PROPOSED UTILITY POLE
- PROPOSED ROCK RIPRAP



KEY MAP

Point Table		
Point #	Northing	Easting
1	13985805.29	2282494.95
2	13985872.31	2282484.47
3	13986223.42	2282468.59
4	13986251.02	2283059.12
5	13986351.90	2282989.62
6	13986360.90	2283315.15
7	13985821.69	2283336.03
8	13985838.05	2283176.28
9	13985875.16	2282529.66
10	13985935.26	2282539.18
11	13985969.60	2282603.38

DIMENSIONAL CONTROL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ALL HORIZONTAL AND VERTICAL CONTROL PER THE CONSTRUCTION DRAWINGS.
3. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL USE THE PROPERTY PINS FOR HORIZONTAL CONTROL POINTS. BENCHMARKS ARE NOT TO BE USED FOR HORIZONTAL CONTROL.
4. DIMENSIONAL CONTROL POINTS ARE TO BACK OF CURB. DIMENSIONS ARE TO THE FACE OF CURB, FACE OF RETAINING WALL, AND CENTER OF PAINT STRIPING. ALL DIMENSIONS ARE PERPENDICULAR TO THE POINT OF REFERENCE.
5. REFER TO THE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL DIMENSION CONTROL INFORMATION.
6. ALL CONCRETE CURB RADII ARE 3' UNLESS OTHERWISE NOTED.
7. COORDINATES FOR HORIZONTAL CONTROL POINTS ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, FROM THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00, DISPLAYED IN SURFACE VALUES USING A SURFACE ADJUSTMENT FACTOR FOR EACH COUNTY.
8. REFER TO THE GEOTECHNICAL REPORT PREPARED BY MTEC COMPANIES, LLC, DATED MARCH 10, 2022 – PROJECT NO. 2016-010-008 FOR ALL EARTHWORK RECOMMENDATIONS AND REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING FILL SUPERVISION AND TESTING.

PARKING :

PARKING REQUIRED:

177 ONE BEDROOM UNITS @ 1.50 CARS PER UNIT =	266 CARS
100 TWO BEDROOM UNITS @ 2.00 CARS PER UNIT =	200 CARS
16 THREE BEDROOM UNITS @ 2.50 CARS PER UNIT =	40 CARS
GUEST PARKING @ 5% =	25 CARS
TOTAL REQUIRED PARKING	531 CARS

PARKING PROVIDED:	VAN ACCESSIBLE	H.C. ACCESSIBLE	STANDARD	TOTAL
OPEN PARKING (SECURED)	0	0	446	446 CARS
ATTACHED GARAGES (SECURED)	0	0	39	39 CARS
TANDEM PARKING (SECURED)	0	0	39	39 CARS
AMENITY PARKING (NON-SECURED)	0	0	10	10 CARS
TOTAL PROVIDED PARKING	0	0	534	534 CARS

ACCESSIBLE PARKING REQUIRED (2% OF TOTAL): 11 SPACES
ACCESSIBLE PARKING PROVIDED: 11 SPACES

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
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ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

OVERALL DIMENSIONAL CONTROL & SITE PLAN

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 15 of 71

Date: Aug 15, 2023, 11:36am User ID: JeffF
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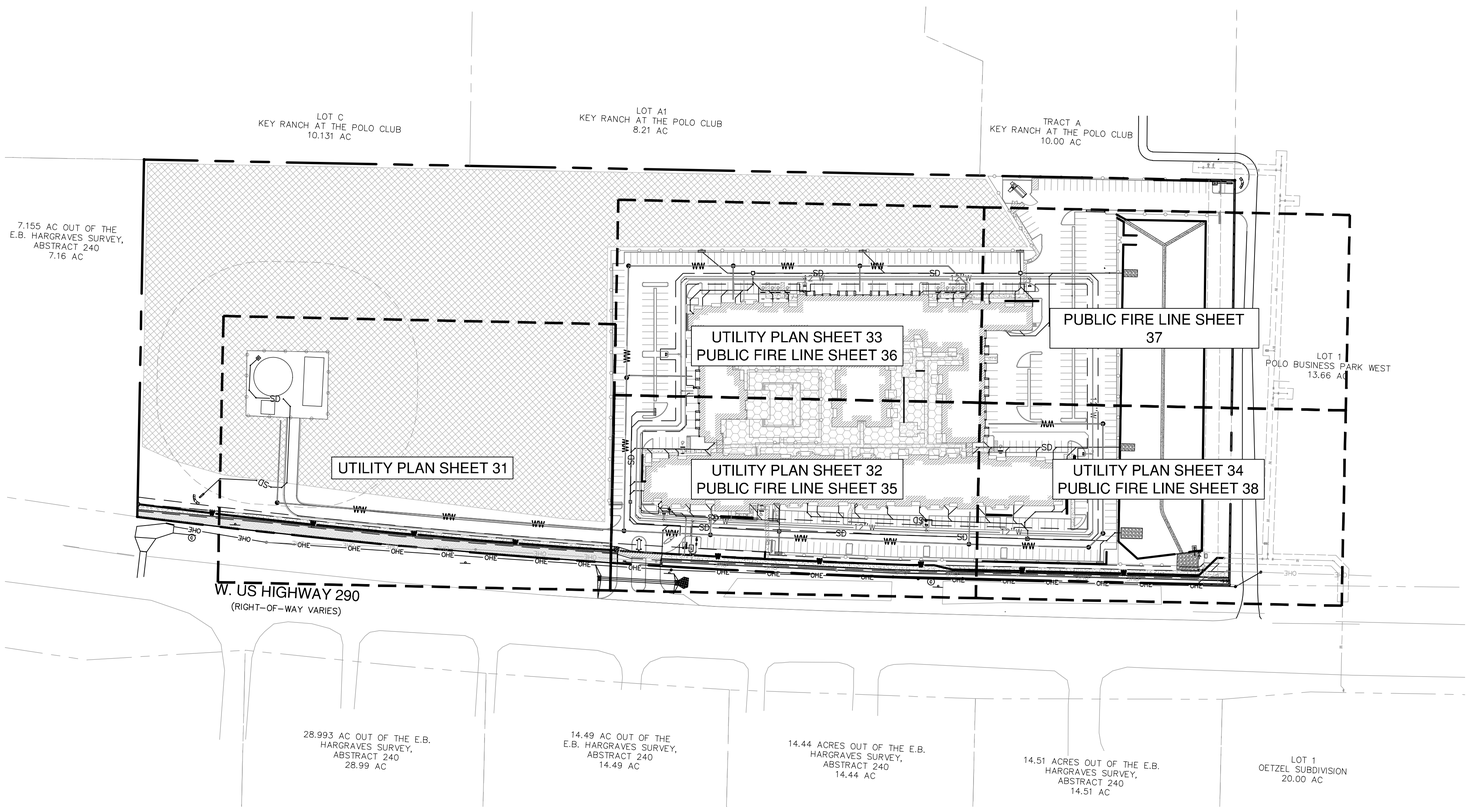

SCALE: 1"= 100'

0' 100' 200' 300'

LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY BOUNDARY
- 786 EXISTING CONTOURS
- PROPOSED BUILDING
- BENCHMARK
- PROPOSED CURB
- PROPOSED FENCE
- PROPOSED UTILITY EASEMENT
- OVERHEAD ELECTRIC
- PROPOSED WASTEWATER LINE
- PROPOSED FIRE LINE
- PROPOSED WATER LINE
- PROPOSED WATER LINE
- EXISTING WATER VALVE
- EXISTING ELECTRIC MANHOLE
- EXISTING WATER METER
- EXISTING WASTEWATER MANHOLE
- EXISTING GUY ANCHOR
- EXISTING LAMP POST
- EXISTING UTILITY POLE
- EXISTING STORM DRAIN MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER MANHOLE
- PROPOSED WATER METER
- PROPOSED BACK FLOW PREVENTOR
- PROPOSED CURB INLET

UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. EXISTING CONTOUR INFORMATION SHOWN IS AT ONE (1) FOOT INTERVALS. THE CONTOURS ARE COMPUTER GENERATED USING FIELD DATA COLLECTED ON OR ABOUT DECEMBER 2021.
3. ALL EXISTING MANHOLE COVERS, METER BOXES, VALVE CASTINGS, POST INDICATOR VALVES, FIRE HYDRANTS, ETC. SHALL BE ADJUSTED TO FINISHED GRADE.
4. ALL EXISTING UTILITIES TO BE ABANDONED WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS OR WITHIN 6' BELOW THE PROPOSED SUB-GRADE, SHALL BE REMOVED AT NO ADDITIONAL COST. THE REMOVAL SHALL BE SUBSIDIARY TO OTHER BID ITEMS.
5. THE CONTRACTOR SHALL POTHOLE AND FIELD VERIFY THE LOCATION AND DEPTHS OF ALL PROPOSED UTILITY CROSSINGS AND CONNECTIONS PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL REPORT DISCREPANCIES OF EXISTING UTILITIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE SITE FACILITIES OPERATIONS MANAGER.
7. NO WATER METERS SHALL BE LOCATED IN SIDEWALK AREAS.
8. TERMINATE ALL BUILDING SERVICES AT A MAXIMUM OF 5' FROM THE BUILDING. REQUIRED WATER AND WASTEWATER SERVICE LINE AND METER SIZES PROVIDED BY MEP. REFER TO ARCHITECTURAL PLAN SET FOR CALCULATIONS.
9. REFER TO MEP PLAN AND LANDSCAPE PLAN FOR SLEEVES PERTAINING TO SITE LIGHTING AND IRRIGATION.
10. DOMESTIC AND IRRIGATION METERS ARE TO BE STANDARD WTCPUA AND MUST BE PURCHASED FROM WTCPUA.
11. GREASE TRAP SHALL MEET CITY OF AUSTIN REQUIREMENTS.
12. ALL CONCRETE MANHOLES SHALL BE COATED WITH CEMENTITIONS LINING, BY SUPER COAT ON THE INSIDE PER CITY OF DRIPPING SPRINGS AND HAYS COUNTY REQUIREMENTS.
13. BACKFILL FOR WASTEWATER LINES SHALL BE IN ACCORDANCE WITH CITY OF DRIPPING SPRINGS AND HAYS COUNTY REQUIREMENTS.
14. THE CONTRACTOR SHALL PROVIDE THE CITY OF DRIPPING SPRINGS VIDEO INSPECTIONS OF ALL INSTALLED WASTEWATER PIPES PRIOR TO ACCEPTANCE.
15. SEPTIC SYSTEM AND GREASE TRAP DESIGN BY SANITARIAN. REFERENCE SANITARIAN'S PLANS FOR DETAILS.
16. FIRE FLOW IS NOT GUARANTEED BY THE HAYS COUNTY PUBLIC UTILITY AGENCY
17. ALL WATER PIPE SHALL BE AWWA C-900 DR-14

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

OVERALL UTILITY PLAN

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 30 of 71

Date: Aug 15, 2023, 11:37am User ID: jwolf
File: \\corp.pape-dawson.com\austin-pd\Projects\51\312\00\301 Construction Documents\Plan Sheets\UT-04-51312-00.dwg
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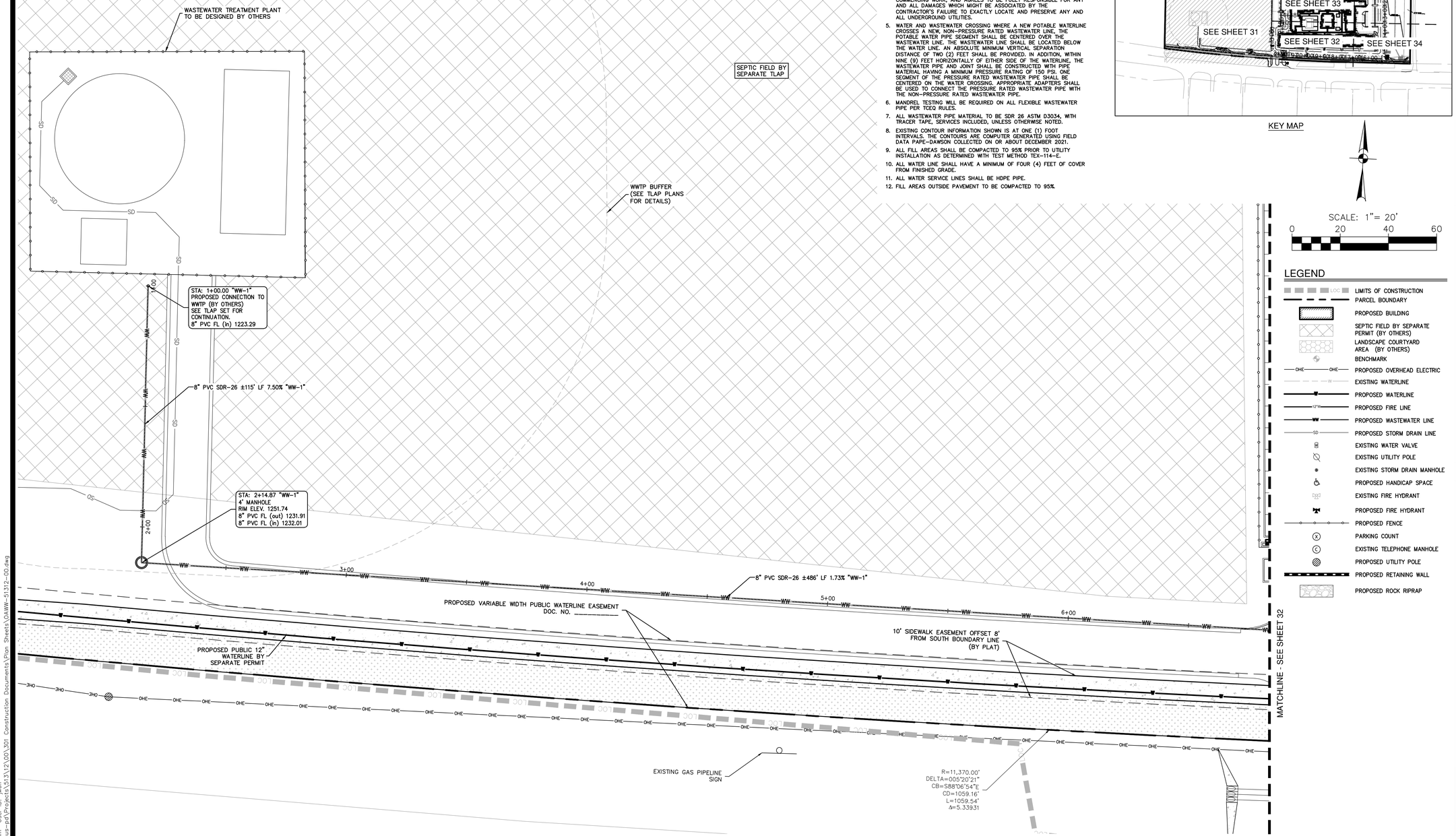

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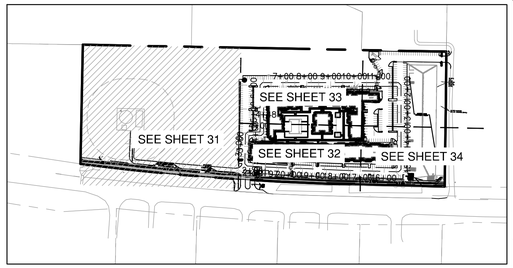

KEY MAP

LEGEND

- LIMITS OF CONSTRUCTION
- PARCEL BOUNDARY
- PROPOSED BUILDING
- SEPTIC FIELD BY SEPARATE PERMIT (BY OTHERS)
- LANDSCAPE COURTYARD AREA (BY OTHERS)
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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

UTILITY PLAN (1 OF 4)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 31 of 71

Date: Aug 15, 2023, 11:38am User ID: jwtf
File: \\pape-dawson.com\pape-pw\Projects\51312\00\301 Construction Documents\Plan Sheets\0AWW-51312-00.dwg
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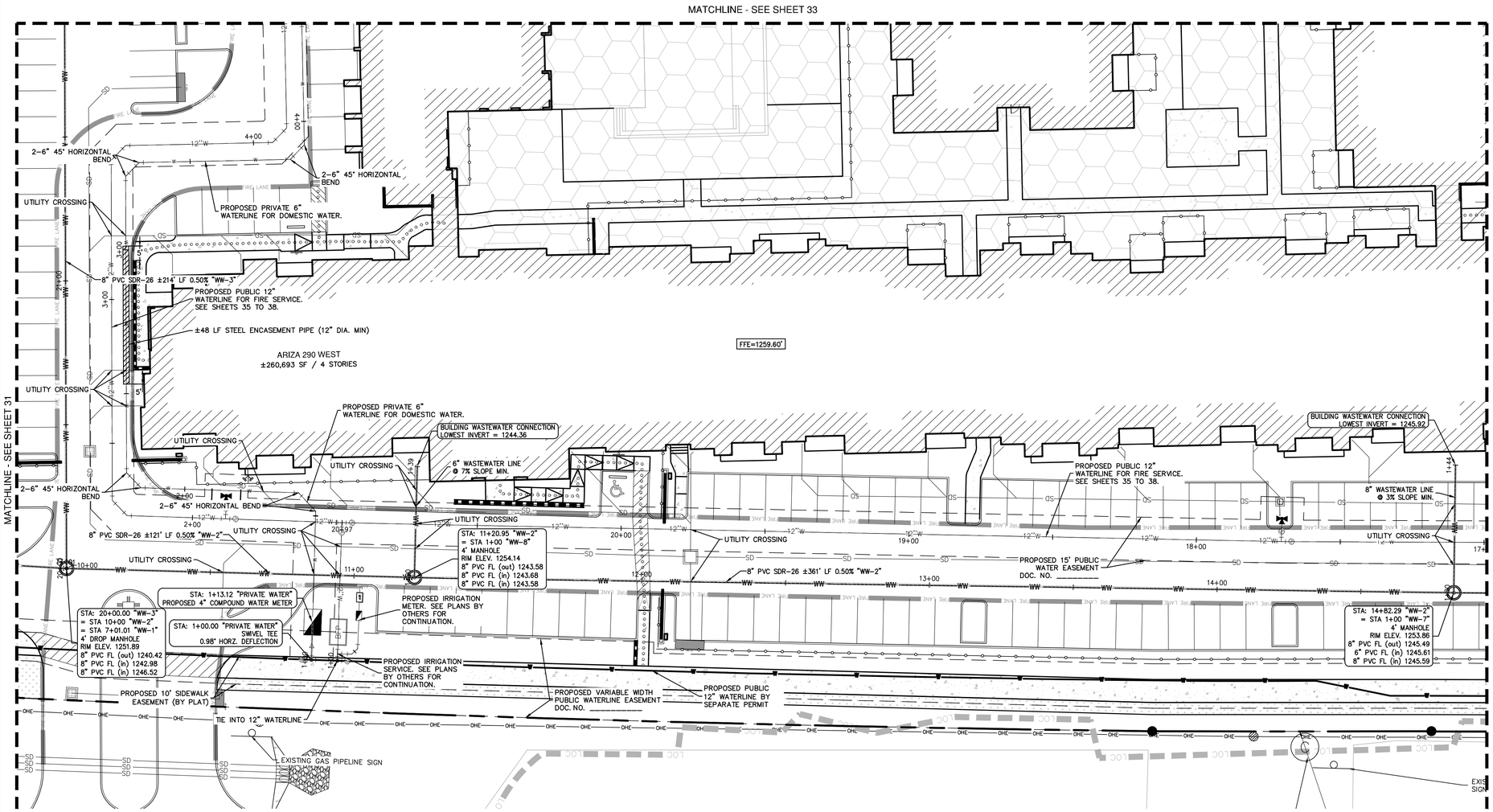

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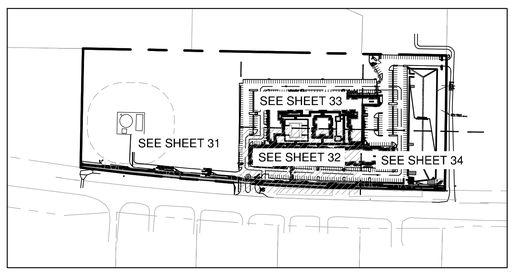

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ARIZA 290 WEST
13900 W. US-290
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UTILITY PLAN (2 OF 4)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 32 of 71

Date: Aug 15, 2023, 11:38am User ID: jeff
File: \\pdenas-dawson.com\data-pd\Projects\51312\00\301 Construction Documents\Plan Sheets\OAWW-51312-00.dwg
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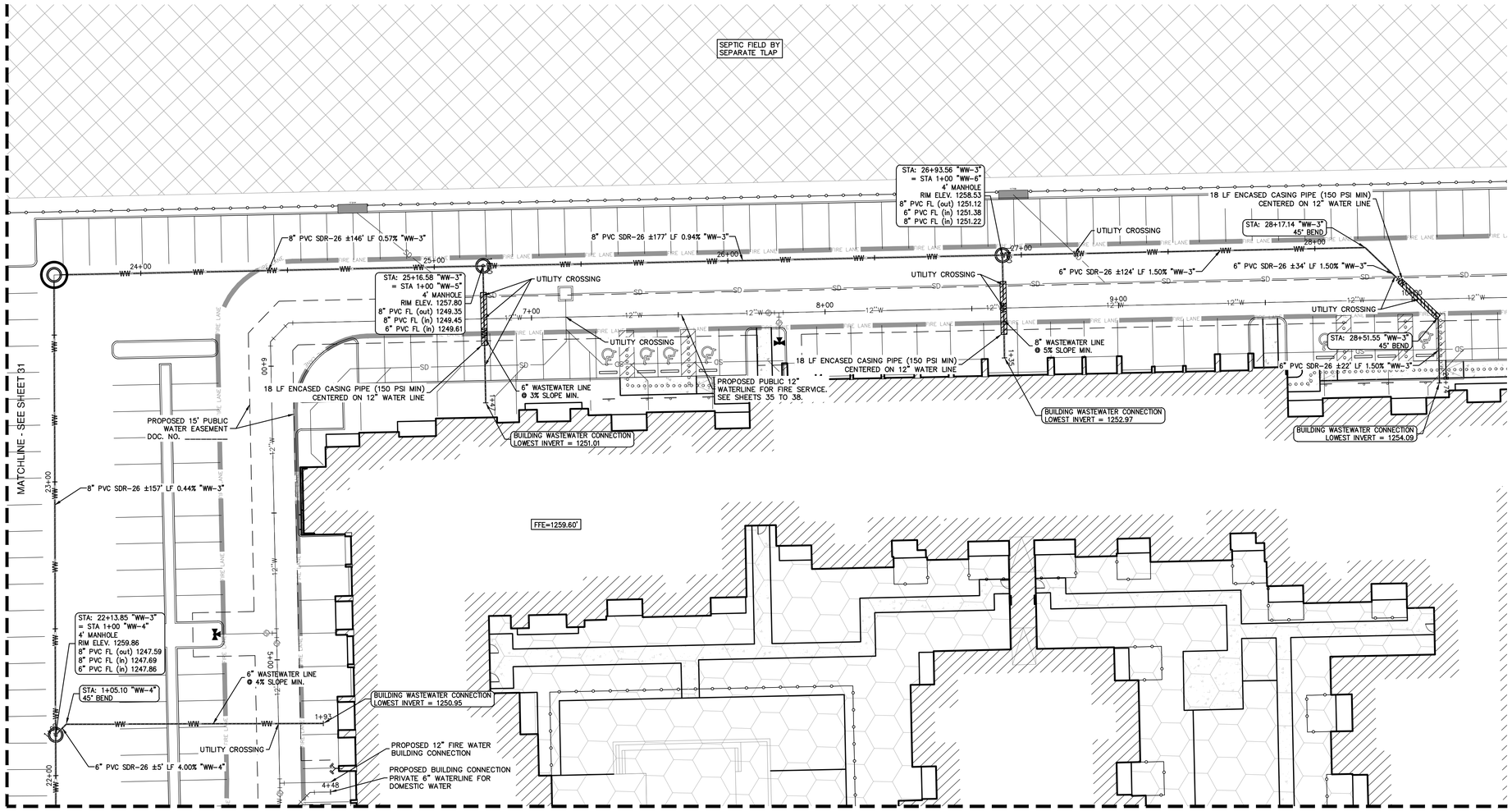

SCALE: 1"= 20'

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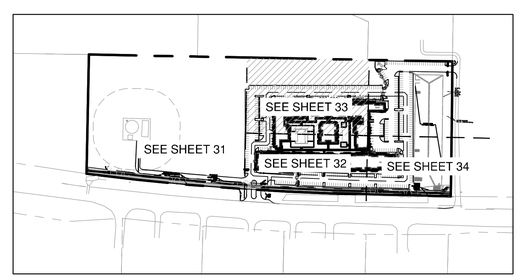

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ARIZA 290 WEST
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DRIPPING SPRINGS, TEXAS 78620

UTILITY PLAN (3 OF 4)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 33 of 71

ADMIN2022-0099

Date: Aug 15, 2023, 11:38am User ID: jeff
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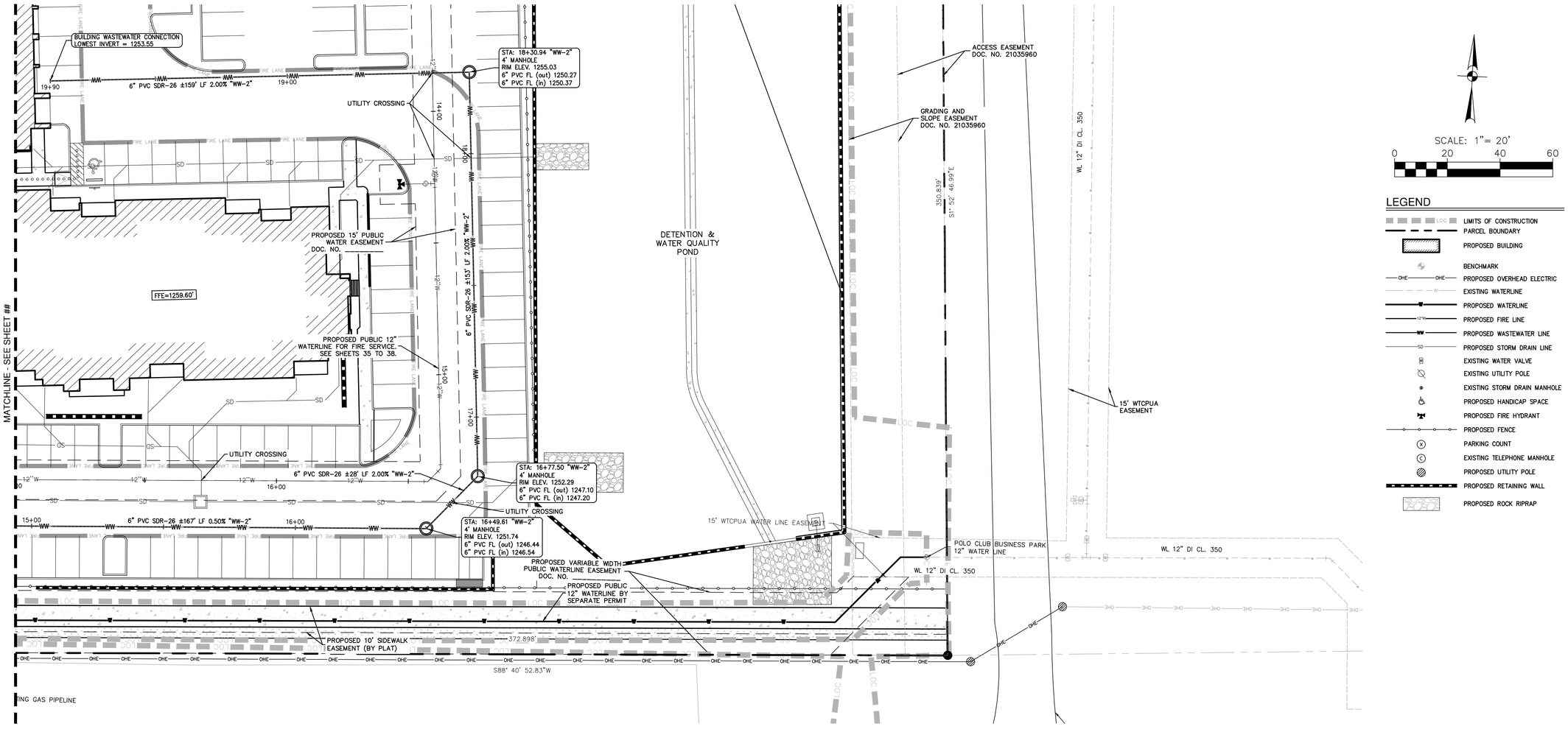

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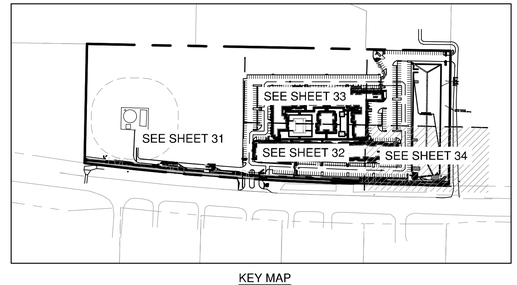

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UTILITY PLAN (4 OF 4)

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WEST TRAVIS COUNTY PUA WATER AND WASTEWATER UTILITY NOTES

1. WEST TRAVIS COUNTY PUA IS THE WATER AND / OR WASTEWATER SERVICE PROVIDER FOR THIS PROJECT. A PRE-CONSTRUCTION MEETING WITH THE WTCPUA SHALL BE HELD PRIOR TO COMMENCEMENT OF CONSTRUCTION TO SCHEDULE INSPECTION OF INSTALLATION OF WATER/WASTEWATER FACILITIES. WATER FACILITIES WILL BE INSPECTED UP TO, AND INCLUDING, THE WATER METER AND/OR FIRE HYDRANTS. THE CONTACT NUMBER FOR WTCPUA IS (512) 263- 0100.

2. THE CITY OF AUSTIN STANDARD SPECIFICATIONS AND STANDARD DETAILS CURRENT AT THE TIME OF CONSTRUCTION SHALL GOVERN MATERIALS AND METHODS USED TO PERFORM THIS WORK. CITY OF AUSTIN SPECIFICATIONS AND STANDARDDETAILS ARE AVAILABLEAT HTTPS://LIBRARY.MUNICODE.COM/TX/AUSTIN/CODES/

3. CONTRACTOR SHALL OBTAIN ALL APPROVALS AND PERMITS, INCLUDING BUT NOT LIMITED TO STREET/DRIVEWAY CUT AND UTILITY CUT PERMITS FROM THE APPROPRIATE GOVERNMENTAL AGENCY BEFORE BEGINNING CONSTRUCTION WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR ALLEY.

4. THE WTCPUA SHALL BE CONTACTED AT (512) 263-0100 AT LEAST 48 HOURS BEFORE CONNECTING TO THEIR EXISTING WATER AND/OR WASTEWATER FACILITIES.

5. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM AT 811 OR 1-800-545-6005 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION. IN ADVANCE OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS.

6. NO OTHER UTILITY SERVICE/APPURTENANCES SHALL BE PLACED NEAR THE PROPERTY LINE, OR OTHER ASSIGNED LOCATION DESIGNATED FOR WATER AND WASTEWATER UTILITY SERVICE THAT WOULD INTERFERE WITH THE WATERAND/OR WASTEWATER SERVICES.

8. WHERE WATER LINES AND 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). ANY DEVIATION THESE STANDARDS SHALL REQUIRE A VARIANCE APPROVED BY TCEQ BEFORE SUBMITTING PIPING ASSIGNMENTS TO THE WTCPUA.

9. THE CITY OF AUSTIN SPECIFICATION ITEM 509S WILL BE REQUIRED AS A MINIMUM TRENCH SAFETY MEASURE. CONTRACT DOCUMENTS, WHICH INCLUDE A TRENCH SAFETY PLAN SIGNED AND SEALED BY A TEXAS PROFESSIONAL ENGINEER AND A PAY ITEM FOR TRENCH SAFETY MEASURES, IN COMPLIANCE WITH OSHA, STATE, COUNTY, AND CITY REQUIREMENTS BEFORE BEGINNING WORK ON THE PROJECT.

10. ALL MATERIAL TESTS, INCLUDING SOIL DENSITY TESTS AND RELATED SOIL ANALYSIS, SHALL BE ACCOMPLISHED BY AN INDEPENDENT LABORATORY FUNDED BY THE OWNER IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATION ITEM 1804S.4.

11. CONNECTIONS TO EXISTING WTCPUA WATER LINES SHALL BE MADE BY CUT-IN TEES IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATION ITEM 510.3(24). ISOLATION VALVES SHALL BE INSTALLED ON THE ENDS OF THE CUT-IN TEE, AS NECESSARY. A SHUT-OUT VALVE PLAN SHALL BE PROVIDED SHOWING THE LOCATION OF EXISTING GATE VALVES IN THE VICINITY OF THE CONNECTION. THE SHUT-OUT PLAN SHALL IDENTIFY ALL AFFECTED PROPERTY OWNERS CONTRACTOR SHALL PERFORM ALL WORK AND SHALL FURNISH ALL MATERIALS, INCLUDING DRAINING AND CUTTING INTO EXISTING PIPING AND CONNECTING A NEW PIPELINE OR OTHER EXTENSION INTO THE EXISTING PRESSURE PIPING, FORMING AN ADDITION TO THE POTABLE WATER TRANSMISSION AND DISTRIBUTION NETWORK AND PERFORMING NECESSARY SHUTOFFS. CONTRACTOR SHALL SCHEDULE ALL SUCH CONNECTIONS IN ADVANCE AND SUCH SCHEDULE SHALL BE APPROVED BY THE WTCPUA BEFORE BEGINNING THE WORK. AT LEAST 48 HOURS- NOTICE SHALL BE GIVEN TO THE WTCPUA PRIOR TO MAKING THE CONNECTION, AND A REPRESENTATIVE FROM THE WTCPUA SHALL BE PRESENT WHEN THE CONNECTION IS MADE. PRESSURE TAPS MAY BE APPROVED ON A CASE-BY-CASE BASIS. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED. WHEN APPROVED, ANY TAPS SHALL BE MADE BY USE OF AND APPROVED FULL CIRCLE, GASKETED CAST IRON OR DUCTILE IRON TAPPING SLEEVE. CONCRETE BLOCKING SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES PRIOR TO MAKING THE PRESSURE TAP AND THE USE OF PRECAST BLOCKS MAY BE USED TO HOLD THE TAP IN ITS CORRECTION POSITION PRIOR TO BLOCKING. THE BLOCKING BEHIND AND UNDER THE TAP SHALL HAVE A MINIMUM OF 24 HOURS CURING TIME BEFORE THE VALVE CAN BE REOPENED FOR SERVICE FROM THAT TAP. THE CONTRACTOR SHALL NOTIFY THE WTCPUA INSPECTOR A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE FOR THE WTCPUA TO NOTIFY THE AFFECTED CUSTOMERS. THE WTCPUA SHALL BE PRESENT WHILE ALL WORK IS PERFORMED TO MAKE THE CONNECTION.

12. THRUST RESTRAINT SHALL BE BY METAL THRUST RESTRAINTS IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATION ITEM 510.3(22).

13. FIRE HYDRANTS SHALL BE SET IN ACCORDANCE WITH CITY OF STANDARD SPECIFICATION ITEM 5ILS.3 E AND SHALL BE APPROVED FIRE DEPARTMENT OR OTHER APPROPRIATE PARTY PRIOR TO INSTALLATION. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH A POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP WILL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED IN SERVICE. FIRE HYDRANTS THAT ARE TO BE USED AS DRAIN HYDRANTS SHALL BE PAINTED SILVER W/ BLUE CAPS PRIOR TO ACCEPTANCE. WHERE STORZ ADAPTORS ARE REQUIRED (HAYS COUNTY), FIRE HYDRANTS SHALL BE MANUFACTURED WITH INTEGRAL STORZ ADAPTORS.

14. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATION ITEM 510.3(29) AND/OR TCEQ RULES.

15. TEST PRESSURE FOR 2-HOUR TEST SHALL BE AT 175 PSI AT THE LOWEST POINT IN THE LINE.

    NOTE:
    PRIOR TO PRESSURE TESTING, CONTRACTOR SHALL VERIFY THAT THRUST BLOCKING AND/OR THRUST RESTRAINT BACK TO AND INCLUDING THE VALVE AGAINST WHICH THE PRESSURE TEST SHALL BE PERFORMED, HAS BEEN INSTALLED TO AT LEAST THE SPECIFICATIONS OF THIS PROJECT. FAILURE TO VERIFY THAT THRUST BLOCKING AND/OR THRUST RESTRAINT IN THE EXISTING LINE MEETS OR EXCEEDS THE SPECIFICATIONS OF THIS PROJECT MAY RESULT IN SERIOUS DAMAGE TO THE EXISTING WATERLINE.

16. WATER LINES SHALL BE FILLED WITH WATER AND ALL AIR EXPELLED AT LEAST 24 HOURS BEFORE TESTING. ALL SERVICE LATERALS AND DRAIN VALVE LEADS, WITH THE HYDRANT VALVES CLOSED AND NOZZLE CAPS OPEN SHALL BE INCLUDED IN THE TESTS.

17. CONTRACTOR SHALL SUBMIT A DISINFECTION AND FLUSHING PLAN IN ACCORDANCE WITH AWWA STANDARDS TO THE WTCPUA FOR APPROVAL. REQUIRED FLUSHING VOLUMES, FLUSHING SCHEDULE, AND METHOD OF DISPOSAL OF FLUSH WATER SHALL BE IN ACCORDANCE WITH THE APPROVED PLAN.

18. GATE VALVES SHALL BE RESILIENT SEATED GATE VALVES CONFORMING TO AWWA C509, WITH A MINIMUM RATED WORKING PRESSURE OF 250 PSIG.

19. FORCE MAIN TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATION ITEM 510.3(27) AND/OR TCEQ RULES.

20. GRAVITY SANITARY SEWER MAIN TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATION ITEMS 510.3(26) AND/OR TCEQ RULES. IN ADDITION, ALL GRAVITY SANITARY SEWER MAINS SHALL BE TELEVISED PRIOR TO ACCEPTANCE BY WTCPUA. DIGITAL FILES (MA CD-ROM) CLEARLY SHOWING TELEVISED RECORDING SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOLLOWING INSPECTION.

21. LOCATOR 'FINDER' WIRE – ALL NON -METALLIC WATER LINES SHALL HAVE A FINDER WIRE LOCATED ABOVE THE PIPE. THE WIRE SHALL BE POLY-INSULATED NO. 10 SOLID COPPER AND WILL TERMINATE AT EACH ISOLATION VALVE SUCH THAT IT IS ACCESSIBLE FROM THE VALVE BOX.

22. LOCATOR 'FINDER' WIRE – ALL NON-METALLIC WASTEWATER LINES SHALL HAVE A FINDER WIRE LOCATED ABOVE THE PIPE. THE WIRE SHALL BE POLY-INSULATED NO. 10 SOLID COPPER AND WILL TERMINATE AT READILY ACCESSIBLE LOCATIONS THROUGHOUT THE COLLECTION SYSTEM.

23. ALL VALVE RISERS SHALL HAVE A 1'-6" SQUARE CONCRETE BOX POURED AROUND THEM AT FINISHED GRADE.

24. ALL MANHOLES SHALL BE LINED WITH A CORROSION RESISTANT LINING APPROVED BY THE WTCPUA.

25. BOLTED AND GASKETED COVERS SHALL BE USED FOR ALL MANHOLES LOCATED IN THE 100-YEAR FLOODPLAIN. WHERE THERE ARE MORE THAN THREE GASKETED MANHOLES IN A ROW, VENTS SHALL BE PROVIDED ON EVERY THIRD MANHOLE.

26. THE DOWNSTREAM END OF ANY FORCE MAIN SHALL BE TERMINATED IN A SANITARY SEWER MANHOLE IN A MANNER TO MINIMIZETURBULENCE.

27. CONTRACTOR SHALL HAVE NECESSARY EROSION AND SEDIMENTATION CONTROLS IN PLACE PRIOR TO COMMENCING WATER/WASTEWATER FACILITY CONSTRUCTION.

28. RECORD DRAWINGS, AS STIPULATED BY THE WTCPUA, SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR VERIFICATION AND FURNISHED TO THE WTCPUA UPON COMPLETION OF THE PROJECT.

29. THE WTCPUA WILL OWN AND OPERATE ALL WATER LINES AND APPURTENANCES UP TO AND INCLUDING THE WATER METER. THESE IMPROVEMENTS WILL BE DEFINED BY A RECORDED EASEMENT OR IN PUBLIC RIGHT-OF-WAY.

30. ANY PORTIONS OF WASTEWATER LINES INCLUDING SERVICES THAT ARE LOCATED OUTSIDE OF A RECORDED EASEMENT OR PUBLIC RIGHT-OF-WAY WILL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER, OR HIS/HER ASSIGNS.

31. WHERE EXISTING WATER AND/OR WASTEWATER INFRASTRUCTURE IS TO BE ABANDONED, THE ENGINEER SHALL SUBMIT AN ABANDONMENT PLAN FOR APPROVAL BY THE WTCPUA.

32. WATER SERVICES SHALL BE INSTALLED USING HDPE PIPE. COPPER IS NOT ALLOWED.

33. FOR ANY STORM SEWER LINE CROSSING A WATER OR WASTEWATER LINE CLOSER THAN 18", THE STORM SEWER PIPE SHALL BE LAID SUCH THAT NO STORM SEWER JOINTS WILL BE OVER THE WATER PIPE CROSSING.

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

WATER & WASTEWATER NOTES

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 39 of 71

Date: Aug 15, 2023, 11:39am User ID: jwolf
File: \\pape-dawson.com\pape-pw\Projects\51312\00\301 Construction Documents\Plan Sheets\DAWP-51312-00.dwg
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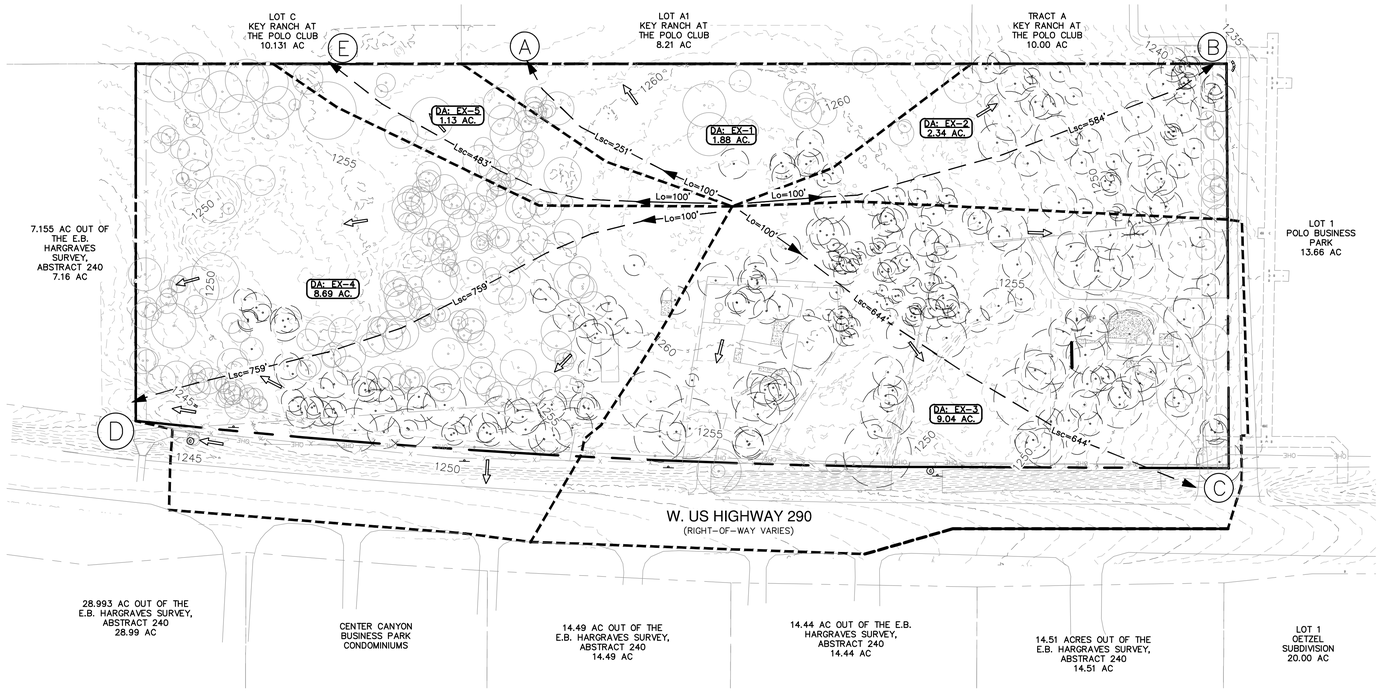

SCALE: 1"= 100'

0' 100' 200' 300'

NOTES:

1. EXISTING CONTOUR INFORMATION SHOWN IS AT 1-FOOT INTERVALS. THE CONTOURS ARE COMPUTER GENERATED USING FIELD SURVEY DATA COLLECTED BY PAPE-DAWSON ENGINEERS FROM JANUARY 2022.
2. EXISTING RUNOFF CALCULATIONS PERFORMED USING HEC-HMS 4.2 AND ATLAS 14 RAINFALL DATA.

TCEQ OEM'S NOTE:

A GEOLOGIC ASSESSMENT WAS PERFORMED BY PAPE-DAWSON ENGINEERS FOR THE SUBJECT PROPERTY IN JANUARY 2022 TO LOCATE SENSITIVE FEATURES ON-SITE PER TCEQ REQUIREMENTS. THE ONLY EXISTING SENSITIVE FEATURES ON-SITE IDENTIFIED BY THIS STUDY ARE MAN-MADE FEATURES (WELLS). THESE ARE PROPOSED TO BE REMOVED WITH THIS SITE PLAN PER TCEQ STANDARDS. THIS PROJECT DOES NOT DISCHARGE DIRECTLY INTO THE MAIN STEM OF THE BLANCO RIVER, FRIO RIVER, GUADALUPE RIVER, MEDINA RIVER, NUECES RIVER, CANYON LAKE, OR MEDINA LAKE. BATCH DETENTION IS PROVIDED AS THE PROPOSED WATER QUALITY ELEMENT TO MEET TCEQ STANDARDS.

EXISTING CONDITIONS								CURVE NUMBER				
Area #		AREA (ac)	AREA (mi^2)	SOIL TYPE	IC (ac)	PC (ac)	%IC	perv CN		Imp CN		Weighted CN
EX-1	Analysis PT A	1.88	0.0029375	D	0.00	1.88	0.00%	80	80.00	98	0.00	80.00
EX-2	Analysis PT B	2.34	0.0036563	D	0.00	2.34	0.00%	80	80.00	98	0.00	80.00
EX-3	Analysis PT C	9.04	0.0141250	D	2.22	6.82	24.56%	80	60.35	98	24.07	84.42
EX-4	Analysis PT D	8.69	0.0135781	D	0.90	7.79	10.36%	80	71.71	98	10.15	81.86
EX-5	Analysis PT E	1.13	0.0017656	D	0.00	1.13	0.00%	80	80.00	98	0.00	80.00
TOTAL		23.08	0.036	-	3.120	19.96	13.52%					

Ariza - Existing Time of Concentration

EXISTING	SHEET FLOW				SHALLOW CONCENTRATED FLOW				STORM DRAIN FLOW			TIME OF CONC	LAG TIME
Area	Length (ft)	n	Slope	Tc (min.)	Length (ft)	Paved? (Y or N)	Slope	Tc (min.)	V (FT/S)	Length (ft)	Tc (min.)		
EX-1	100	0.150	0.21%	21.37	251	N	2.23%	1.74				24.10	14.46
EX-2	100	0.150	1.05%	11.23	584	N	4.20%	2.94				14.17	8.50
EX-3	100	0.150	0.85%	12.22	666	N	3.63%	3.61				15.83	9.50
EX-4	100	0.150	1.22%	10.57	759	N	2.51%	4.95				15.52	9.31
EX-5	100	0.150	1.67%	9.33	483	N	1.53%	4.04				13.36	8.02

PRE-DEVELOPMENT FLOWS		
Analysis Point	Year	Existing Q (CFS)
POINT A	2	3.83
	10	7.5
	25	10.03
	100	14.25
POINT B	2	6.05
	10	11.82
	25	15.76
	100	22.34
POINT C	2	26.28
	10	47.71
	25	61.97
	100	85.57
POINT D	2	23.25
	10	43.97
	25	57.95
	100	81.31
POINT E	2	2.99
	10	5.84
	25	7.79
	100	11.05

NO. REVISION | DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

EXISTING DRAINAGE AREA MAP

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 40 of 71

Date: Aug 15, 2023, 1:35pm User ID: jwolf
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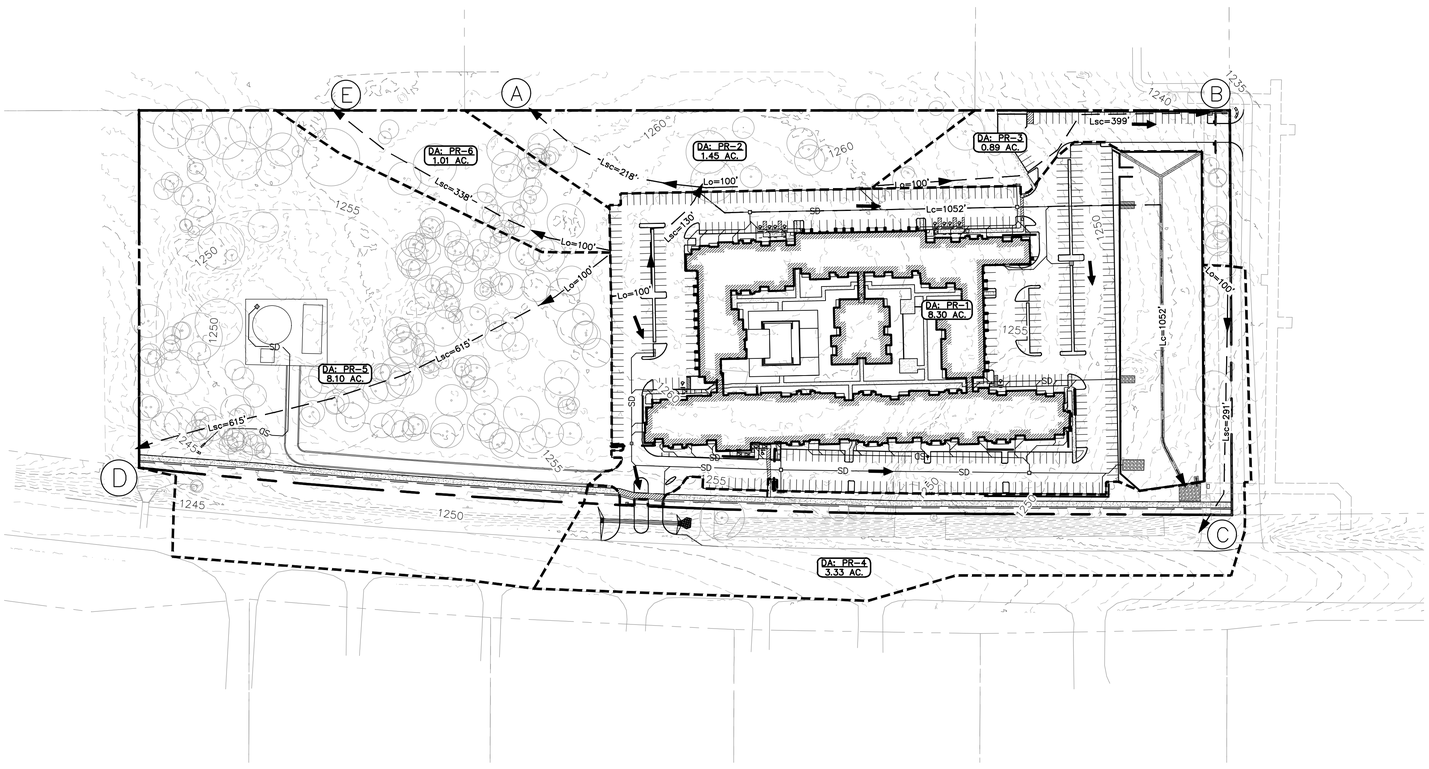

SCALE: 1"= 100'

0' 100' 200' 300'

NOTES:

1. EXISTING CONTOUR INFORMATION SHOWN IS AT 1-FOOT INTERVALS. THE CONTOURS ARE COMPUTER GENERATED USING FIELD SURVEY DATA COLLECTED BY PAPE-DAWSON ENGINEERS FROM JANUARY 2022.
2. EXISTING RUNOFF CALCULATIONS PERFORMED USING HEC-HMS 4.2 AND ATLAS 14 RAINFALL DATA.
3. SEE SHEETS 07-10 FOR TREE NUMBERS AND TREE LIST.

TCEQ OEM'S NOTE:

A GEOLOGIC ASSESSMENT WAS PERFORMED BY PAPE-DAWSON ENGINEERS FOR THE SUBJECT PROPERTY IN JANUARY 2022 TO LOCATE SENSITIVE FEATURES ON-SITE PER TCEQ REQUIREMENTS. THE ONLY EXISTING SENSITIVE FEATURES ON-SITE IDENTIFIED BY THIS STUDY ARE MAN-MADE FEATURES (WELLS). THESE ARE PROPOSED TO BE REMOVED WITH THIS SITE PLAN PER TCEQ STANDARDS. THIS PROJECT DOES NOT DISCHARGE DIRECTLY INTO THE MAIN STEM OF THE BLANCO RIVER, FRIO RIVER, GUADALUPE RIVER, MEDINA RIVER, NUECES RIVER, CANYON LAKE, OR MEDINA LAKE. BATCH DETENTION IS PROVIDED AS THE PROPOSED WATER QUALITY ELEMENT TO MEET TCEQ STANDARDS.

PROPOSED CONDITIONS								CURVE NUMBER				
Area #		AREA (ac)	AREA (mi^2)	SOIL TYPE	IC (ac)	PC (ac)	%IC	perv CN		Imp CN		Weighted CN
PR-1	Analysis PT C	8.30	0.0129688	D	5.84	2.46	70.36%	80	23.71	98	68.95	92.67
PR-2	Analysis PT A	1.45	0.0022656	D	0.00	1.45	0.00%	80	80.00	98	0.00	80.00
PR-3	Analysis PT B	0.89	0.0013906	D	0.36	0.53	40.45%	80	47.64	98	39.64	87.28
PR-4	Analysis PT C	3.33	0.0052031	D	1.95	1.38	58.56%	80	33.15	98	57.39	90.54
PR-5	Analysis PT D	8.10	0.0126563	D	1.34	6.76	16.54%	80	66.77	98	16.21	82.98
PR-6	Analysis PT E	1.01	0.0015781	D	0.00	1.01	0.00%	80	80.00	98	0.00	80.00
TOTAL		23.08	0.036	-	9.490	13.59	41.12%					

* Curve Number for Hydrologic Soil Groups using Table 2-5 in the City of Austin Drainage Criteria Manual 2.5.2

**Soil Group D per NRCS Web Soil Survey

Ariza - Proposed Time of Concentration

PROPOSED	SHEET FLOW				SHALLOW CONCENTRATED FLOW				STORM DRAIN FLOW			TIME OF CONC	LAG TIME
Area	Length (ft)	n	Slope	Tc (min.)	Length (ft)	Paved? (Y or N)	Slope	Tc (min.)	V (FT/S)	Length (ft)	Tc (min.)		
PR-1	100	0.015	1.88%	1.41	130	Y	1.27%	0.95	6.00	1052.0	2.92	5.28	3.17
PR-2	100	0.150	0.78%	12.65	218	N	1.63%	1.76				14.41	8.64
PR-3	100	0.150	3.00%	7.38	399	Y	4.86%	1.48				8.86	5.32
PR-4	100	0.150	0.74%	12.92	291	N	2.36%	1.95				14.87	8.92
PR-5	100	0.150	1.22%	10.57	615	N	2.34%	4.15				14.73	8.84
PR-6	100	0.150	1.67%	9.33	338	N	1.35%	3.01				12.33	7.40

PRE-DEVELOPMENT VS. POST DEVELOPMENT FLOWS			
Analysis Point	Year	Existing Q (CFS)	Proposed Q (CFS)
POINT A	2	3.83	3.72
	10	7.50	7.28
	25	10.03	9.71
	100	14.25	13.76
POINT B	2	6.05	3.50
	10	11.82	6.08
	25	15.76	7.79
	100	22.34	10.60
POINT C	2	26.28	22.78
	10	47.71	34.33
	25	61.97	41.70
	100	85.57	53.89
POINT D	2	23.25	23.04
	10	43.97	42.86
	25	57.95	56.17
	100	81.31	78.22
POINT E	2	2.99	2.76
	10	5.84	5.38
	25	7.79	7.17
	100	11.05	10.16
POND (OUT)	2		11.27
	10		15.26
	25		17.67
	100		21.53

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX. 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

PROPOSED DRAINAGE AREA MAP

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 41 of 71

Date: Aug 15, 2023, 1:35pm User ID: jwolf
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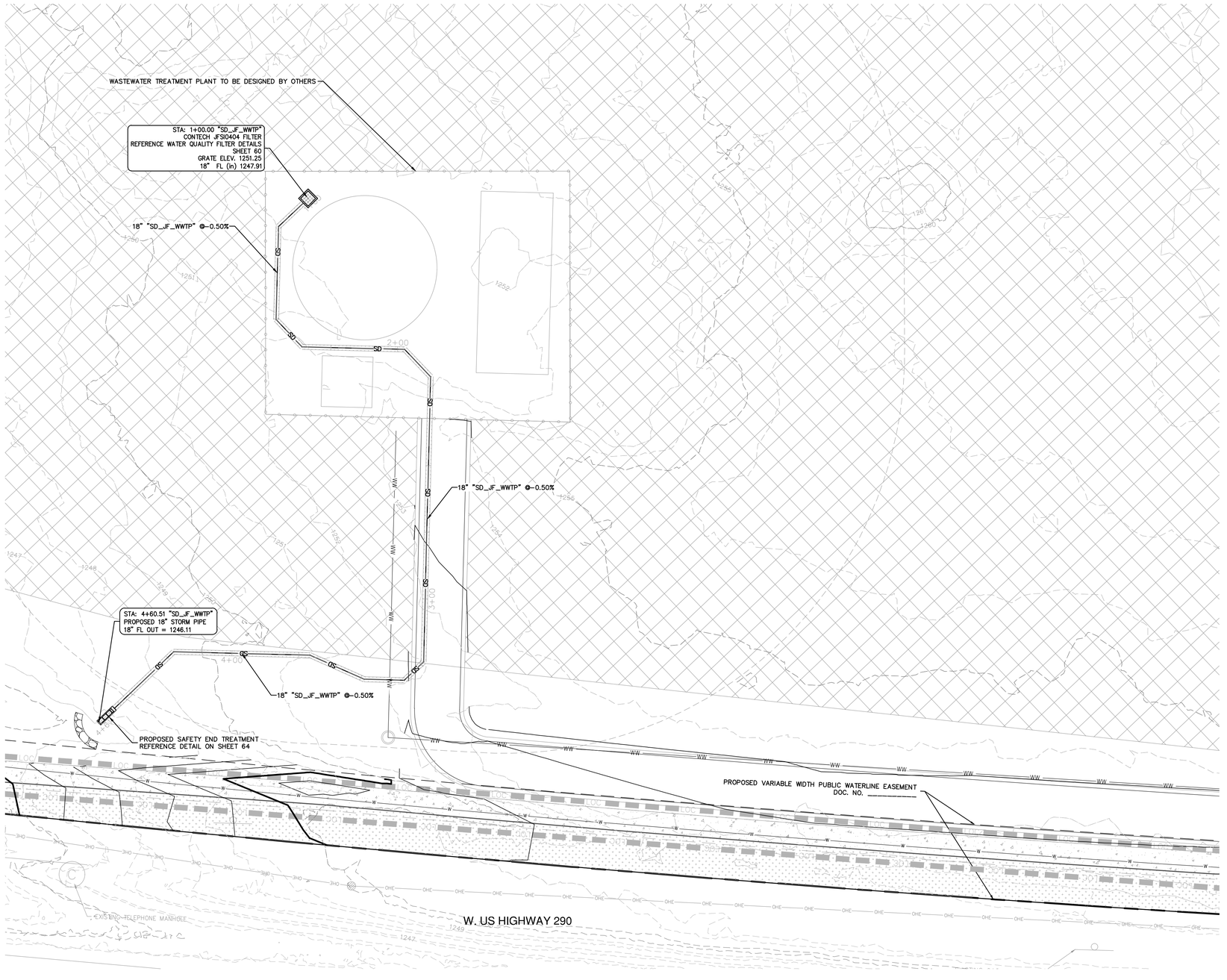


SCALE: 1"= 20'

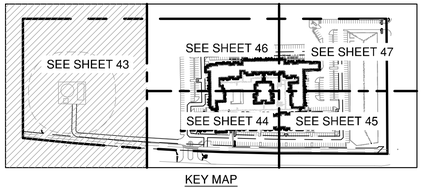
0' 20' 40' 60'

LEGEND

- PROPERTY BOUNDARY
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING NATURAL GAS LINE
- PROPOSED DOMESTIC WATER LINE
- PROPOSED 12" FIRE WATER LINE AND FIRE HYDRANT
- PROPOSED WASTEWATER LINE
- PROPOSED OVERHEAD ELECTRIC
- PROPOSED STORM DRAIN
- COURTYARD
- SEPTIC FIELD

NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ALL FILL AREAS SHALL BE COMPACTED TO 95% PRIOR TO UTILITY INSTALLATION.
3. CONTRACTOR SHALL PROVIDE BOLLARDS FOR PROTECTION OF ALL ABOVE-GROUND UTILITIES AND APPURTENANCES IN DRIVE AREAS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED TESTING, APPROVALS, AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
5. ALL UTILITIES ARE TO BE INSTALLED PRIOR TO PAVEMENT CONSTRUCTION.
6. ALL UTILITY CONNECTIONS SHALL BE COORDINATED WITH THE MEP PLANS. CONTRACTOR TO NOTIFY ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
7. FOR ALL UTILITIES ENTERING BUILDINGS SEE MEP PLANS FOR CONTINUATION 5 FT FROM BUILDINGS.
8. PRIVATE STORM SEWER WITH MORE THAN OR EQUAL TO 2 FEET OF SEPARATION FROM TOP OF PIPE TO SUBGRADE CAN BE HDPE PIPE OR EQUIVALENT. PRIVATE STORM SEWER PIPE WITH LESS THAN 2 FEET FROM TOP OF PIPE TO SUBGRADE, OR EQUAL TO OR GREATER THAN 48" PIPE, SHALL BE HP DUAL WALL OR CLASS 5 CONCRETE PIPE.
9. ALL BUILDING STORM CONNECTION LINES ARE TO BE 8" AT 0.75% SLOPE UNLESS OTHERWISE SPECIFIED.



KEY MAP

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST

13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

STORM DRAINAGE PLAN (1 OF 5)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 43 of 71

ADMIN2022-0099

Date: Aug 15, 2023, 11:40am User ID: jwolf
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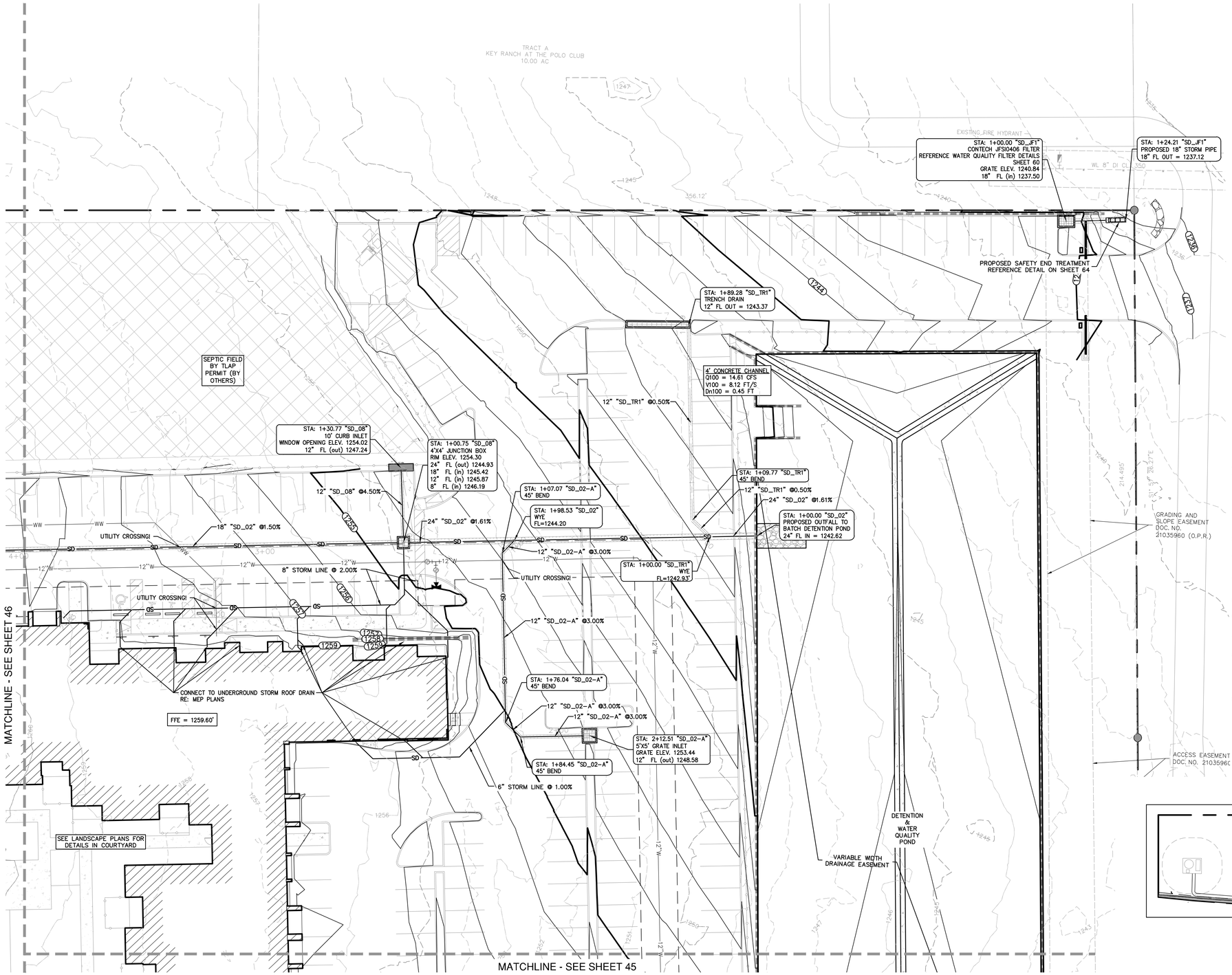
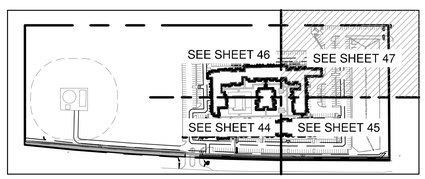


LEGEND

- PROPERTY BOUNDARY
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING NATURAL GAS LINE
- PROPOSED DOMESTIC WATER LINE
- PROPOSED 12" FIRE WATER LINE AND FIRE HYDRANT
- PROPOSED WASTEWATER LINE
- PROPOSED OVERHEAD ELECTRIC
- PROPOSED STORM DRAIN
- COURTYARD
- SEPTIC FIELD

NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ALL FILL AREAS SHALL BE COMPACTED TO 95% PRIOR TO UTILITY INSTALLATION.
3. CONTRACTOR SHALL PROVIDE BOLLARDS FOR PROTECTION OF ALL ABOVE-GROUND UTILITIES AND APPURTENANCES IN DRIVE AREAS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED TESTING, APPROVALS, AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
5. ALL UTILITIES ARE TO BE INSTALLED PRIOR TO PAVEMENT CONSTRUCTION.
6. ALL UTILITY CONNECTIONS SHALL BE COORDINATED WITH THE MEP PLANS. CONTRACTOR TO NOTIFY ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
7. FOR ALL UTILITIES ENTERING BUILDINGS SEE MEP PLANS FOR CONTINUATION 5 FT FROM BUILDINGS.
8. PRIVATE STORM SEWER WITH MORE THAN OR EQUAL TO 2 FEET OF SEPARATION FROM TOP OF PIPE TO SUBGRADE CAN BE HDPE PIPE OR EQUIVALENT. PRIVATE STORM SEWER PIPE WITH LESS THAN 2 FEET FROM TOP OF PIPE TO SUBGRADE, OR EQUAL TO OR GREATER THAN 48" PIPE, SHALL BE HP DUAL WALL OR CLASS 5 CONCRETE PIPE.
9. ALL BUILDING STORM CONNECTION LINES ARE TO BE 8" AT 0.75% SLOPE UNLESS OTHERWISE SPECIFIED.



KEY MAP

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620
STORM DRAINAGE PLAN (5 OF 5)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 47 of 71

Date: Aug 15, 2023, 11:41am User ID: jwolf
File: I:\pdc-dawson.com\pds-pd1\Projects\513\12\00\301 Construction Documents\Plan Sheets\SD-51312-00.dwg
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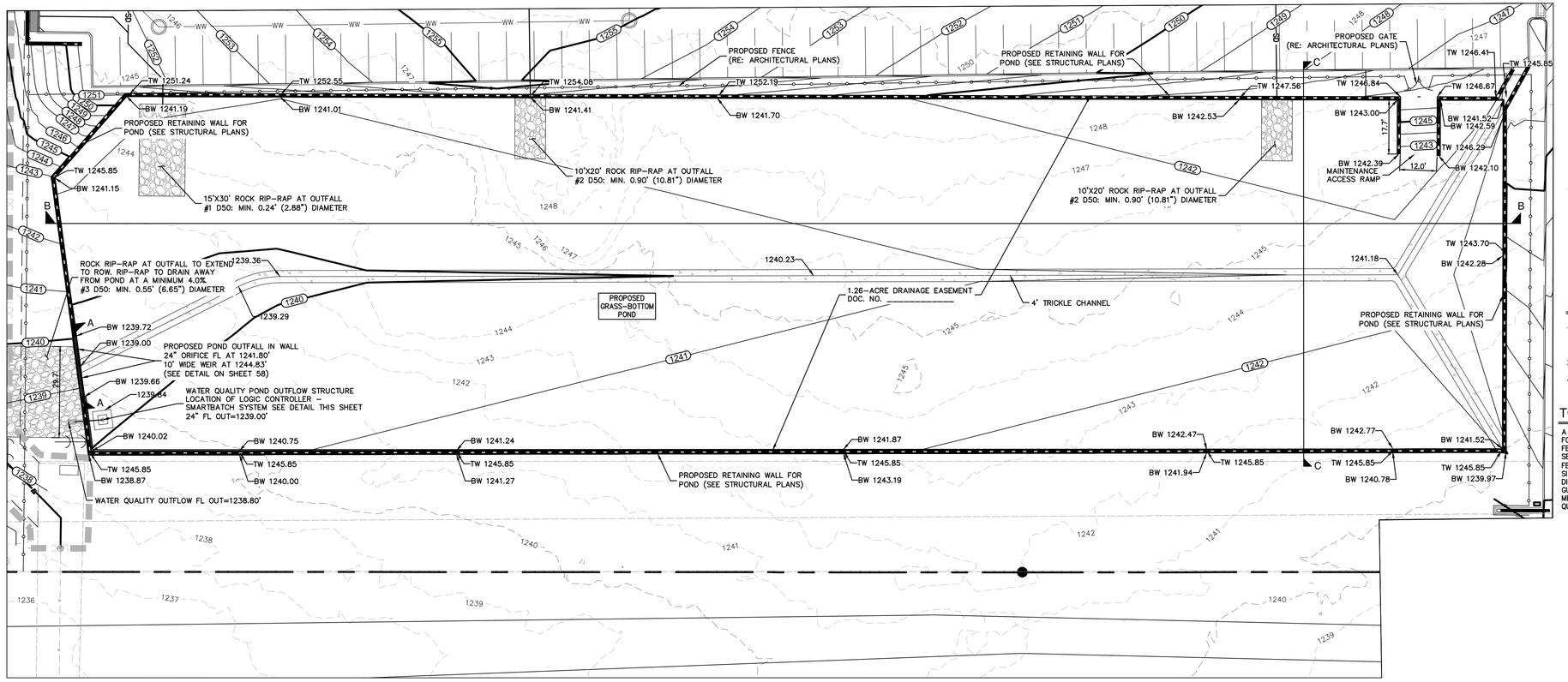
ADMIN2022-0099



LEGEND

- PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- 760 EXISTING CONTOUR LINE
- 790 PROPOSED CONTOURS
- PROPOSED RETAINING WALL

NOTES:

1. EXISTING CONTOUR INFORMATION SHOWN IS AT 1 FOOT INTERVALS. THE CONTOURS ARE COMPUTER GENERATED USING FIELD SURVEY DATA FROM JANUARY 2022.
2. PRELIMINARY POND DESIGN PERFORMED USING POND PACK SOFTWARE, JANUARY 2022.
3. PROPOSED POND INTENDED TO PROVIDE STACKED WATER QUALITY TREATMENT PER TCEQ STANDARDS AND DETENTION FOR SITE.

TCEQ OEM'S NOTE:

A GEOLOGIC ASSESSMENT WAS PERFORMED BY PAPE-DAWSON ENGINEERS FOR THE SUBJECT PROPERTY IN JANUARY 2022 TO LOCATE SENSITIVE FEATURES ON-SITE PER TCEQ REQUIREMENTS. THE ONLY EXISTING SENSITIVE FEATURES ON-SITE IDENTIFIED BY THIS STUDY ARE MAN-MADE FEATURES (WELLS). THESE ARE PROPOSED TO BE REMOVED WITH THIS SITE PLAN PER TCEQ STANDARDS. THIS PROJECT DOES NOT DISCHARGE DIRECTLY INTO THE MAIN STEM OF THE BLANCO RIVER, FRIO RIVER, GUADALUPE RIVER, MEDINA RIVER, NUECES RIVER, CANYON LAKE, OR MEDINA LAKE. BATCH DETENTION IS PROVIDED AS THE PROPOSED WATER QUALITY ELEMENT TO MEET TCEQ STANDARDS.

BATCH DETENTION POND

Elev. (ft)	Depth (ft)	Pr. Area (ft^2)	Area (ac)	Incremental Volume (ft^3)	Cumulative Volume (ft^3)	Cumulative Volume (ac-ft)	Notes
1239.00	0.00	0	***0.000000***	0	0	0	Bottom of pond
1240.00	1.00	2,751	***0.063154***	1,376	1,376	0.03	
1241.00	1.00	21,199	***0.486662***	11,975	13,351	0.31	
1241.80	0.80	40,354	***0.926400***	24,621	**37,972**	0.87	WQE - Start of Detention
1242.00	0.20	45,127	***1.035973***	8,548	46,520	1.07	
1243.00	1.00	53,422	***1.226400***	49,275	95,794	2.20	
1244.00	1.00	53,422	***1.226400***	53,422	149,216	3.43	
1244.83	0.83	53,422	***1.226400***	44,340	193,557	4.44	100 YR WSEL
1245.00	0.17	53,422	***1.226400***	9,082	202,638	4.65	
1245.85	0.85	53,422	***1.226400***	45,409	248,047	5.69	TW Elevation

DETENTION POND ROUTING

Return Event	Peak In-Flow (CFS)	Peak Out-Flow (CFS)	Max Water Surface Elevation (ft)	Max Storage (Ac-ft)
2	42.92	11.27	1243.36	1.76
10	69.20	15.26	1243.82	2.33
25	86.45	17.67	1244.17	2.76
100	115.25	21.53	1244.83	3.57

#1 D50 CALCULATION:
V = 4.54 FPS

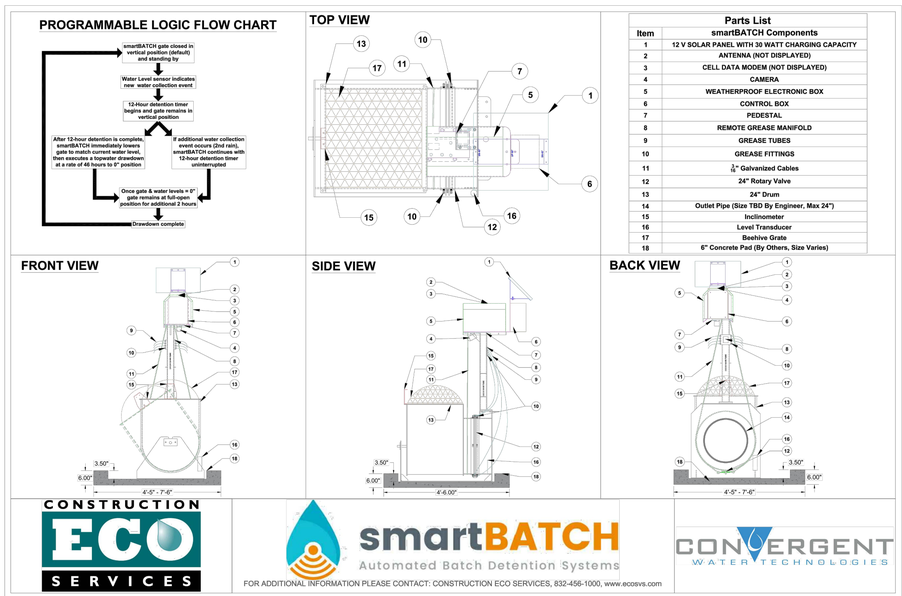
D50 = 0.0105 * (V)^2.06
D50 = 0.0105 * (4.54)^2.06
D50 = 0.24 FT (2.88 IN)

#2 D50 CALCULATION:
V = 8.68 FPS

D50 = 0.0105 * (V)^2.06
D50 = 0.0105 * (8.68)^2.06
D50 = 0.90 FT (10.81 IN)

#3 D50 CALCULATION:
V = 6.86 FPS

D50 = 0.0105 * (V)^2.06
D50 = 0.0105 * (6.86)^2.06
D50 = 0.55 FT (6.65 IN)



Parts List	
Item	smartBATCH Components
1	12 V SOLAR PANEL WITH 30 WATT CHARGING CAPACITY
2	ANTENNA (NOT DISPLAYED)
3	CELL DATA MODEM (NOT DISPLAYED)
4	CAMERA
5	WEATHERPROOF ELECTRONIC BOX
6	CONTROL BOX
7	PEDESTAL
8	REMOTE GREASE MANIFOLD
9	GREASE TUBES
10	GREASE FITTINGS
11	¼" Galvanized Cables
12	24" Rotary Valve
13	24" Drum
14	Outlet Pipe (Size TBD By Engineer, Max 24")
15	Inclinometer
16	Level Transducer
17	Beehive Grate
18	6" Concrete Pad (By Others, Size Varies)

CONSTRUCTION ECO SERVICES

smartBATCH Automated Batch Detention Systems

FOR ADDITIONAL INFORMATION PLEASE CONTACT: CONSTRUCTION ECO SERVICES, 832-456-1000, www.ecosvs.com

CONVERGENT WATER TECHNOLOGIES

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

DETENTION & WATER QUALITY POND PLAN (1 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 57 of 71

Date: Aug 15, 2023, 11:41am User ID: jwolf
File: \\pape-dawson.com\pape-ps\Projects\51312\120\001\301 Construction Documents\Plan Sheets\DWGP-51312-00.dwg

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TCEQ OEM'S NOTE:

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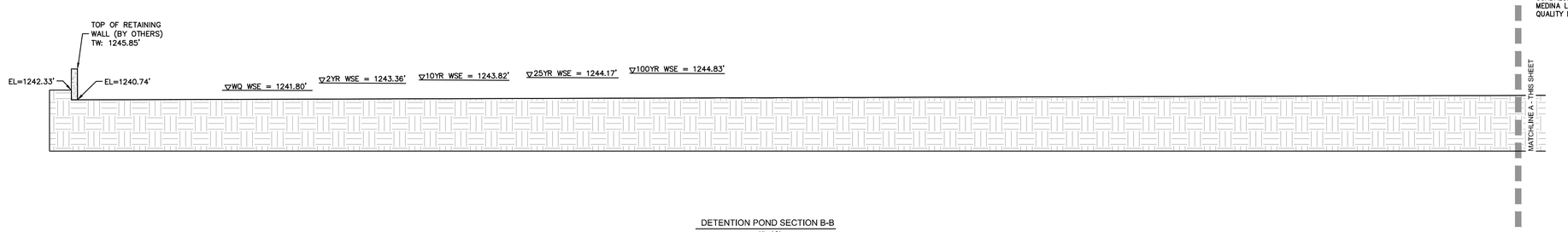
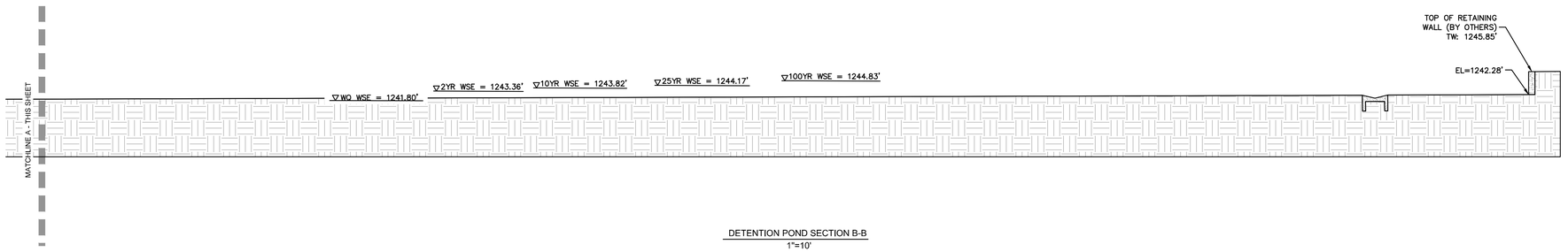
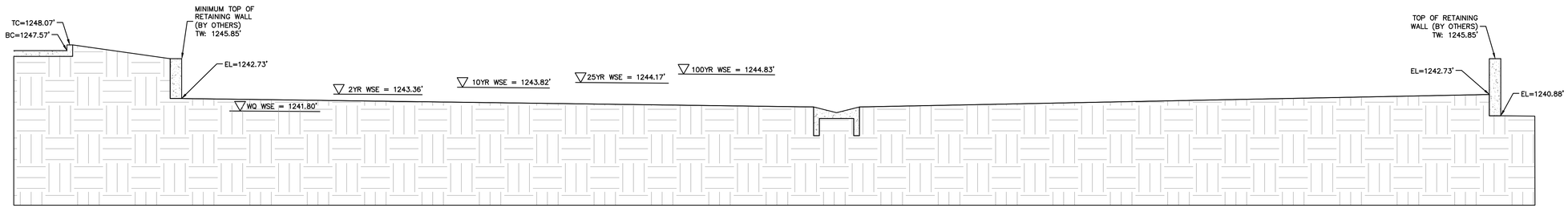


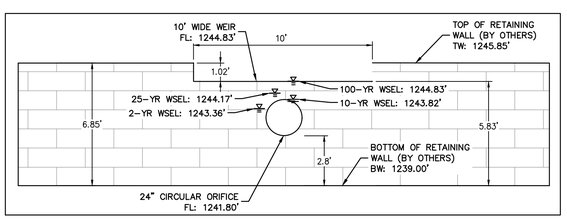
DETENTION POND SECTION B-B
1"=10'



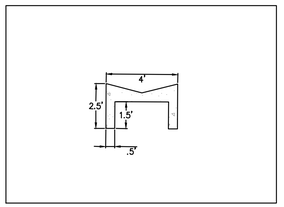
DETENTION POND SECTION B-B
1"=10'



DETENTION POND SECTION C-C
1"=5'



OUTFALL DETAIL A-A
1" = 4'



CONCRETE CHANNEL DETAIL
1' = 4"

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/22/2023
Shelly Mitchell

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
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ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620
DETENTION & WATER QUALITY POND PLAN (2 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 58 of 71

Date: Aug 15, 2023, 11:41am User ID: jwolf
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ADMIN2022-0099

BASIN TCEQ CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/14/2023

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

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

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

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

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

County =	Hays	
Total project area included in plan * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6091	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 1

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

Drainage Basin/Outfall Area No. = Basin TCEQ

Total drainage basin/outfall area =	8.30	acres
Predevelopment impervious area within drainage basin/outfall area =	0.070	acres
Post-development impervious area within drainage basin/outfall area =	5.938	acres
Post-development impervious fraction within drainage basin/outfall area =	0.72	
$L_{M\ THIS\ BASIN}$ =	5267	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

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

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

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

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

A_C =	8.295	acres
A_I =	5.938	acres
A_P =	2.36	acres
L_R =	6208	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 5267 lbs.

F = 0.85

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

Rainfall Depth =	1.32	inches
Post Development Runoff Coefficient =	0.52	
On-site Water Quality Volume =	20745	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 =	4149	
Total Capture Volume (required water quality volume(s) x 1.20) =	24894	cubic feet

BASIN OEM CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/14/2023

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

Page 3-29 Equation 3.3: $L_M = 27.7(A_N \times P)$

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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6678	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Basin OEM

Total drainage basin/outfall area =	8.295	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	5.938	acres
Post-development impervious fraction within drainage basin/outfall area =	0.72	
$L_{M\ THIS\ BASIN}$ =	5428	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

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

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

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

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

A_C =	8.295	acres
A_I =	5.938	acres
A_P =	2.36	acres
L_R =	6208	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 5494 lbs.

F = 0.88

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

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.66	
On-site Water Quality Volume =	29141	cubic feet

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

Off-site area draining to BMP =		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 =	5948	
Total Capture Volume (required water quality volume(s) x 1.20) =	35689	cubic feet

VEGETATIVE FILTER STRIP TCEQ CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/14/2023

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

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

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

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

County =	Hays	
Total project area included in plan * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.52	acres
Total post-development impervious area within the limits of the plan* =	7.305	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6090	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = WSF & G

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

Drainage Basin/Outfall Area No. = VFS-TCEQ

Total drainage basin/outfall area =	0.228	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.228	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	205	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

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

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

A_C =	0.228	acres
A_I =	0.228	acres
A_P =	0.00	acres
L_R =	221	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 221 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 =	0.52	
On-site Water Quality Volume =	2702	cubic feet

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

Off-site area draining to BMP =		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 =	540	
Total Capture Volume (required water quality volume(s) x 1.20) =	3243	cubic feet

VEGETATIVE FILTER STRIP OEM CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Ariza 290 West
Date Prepared: 8/14/2023

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Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

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

Page 3-29 Equation 3.3: $L_M = 27.7(A_N \times P)$

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 * =	19.16	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	7.306	acres
Total post-development impervious cover fraction * =	0.38	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6678	lbs.

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

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

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

Drainage Basin/Outfall Area No. = VFS OEM

Total drainage basin/outfall area =	0.228	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.228	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	208	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

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

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

A_C =	0.228	acres
A_I =	0.228	acres
A_P =	0.00	acres
L_R =	221	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 221 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 =	0.52	
On-site Water Quality Volume =	2702	cubic feet

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

Off-site area draining to BMP =		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 =	540	
Total Capture Volume (required water quality volume(s) x 1.20) =	3243	cubic feet

DATE
NO. REVISION

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N. MOPAC EXPY., BLDG 3, STE 200 I AUSTIN, TX. 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

DETENTION & WATER QUALITY POND PLAN (3 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 59 of 71

Date: Aug 15, 2023, 11:41am User ID: jwolf
File: \\pape-dawson.com\ausis-pw\Projects\51312\001\301 Construction Documents\Plan Sheets\DWG-51312-00.dwg

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ADMIN2022-0099

NORTHEAST 80% TCEQ FILTER CALCULATION

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Ariza Multifamily - Dripping Springs
Date Prepared: 7/21/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: LM = 27.2(AN x P)
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = 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 * =	19.160	acres
Predevelopment impervious area within the limits of the plan * =	0.000	acres
Total post-development impervious area within the limits of the plan* =	6.092	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	5468	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	1	

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

Drainage Basin/Outfall Area No. =	WWTP Filter	
Total drainage basin/outfall area =	0.242	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.242	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	217	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
LR = (BMP efficiency) x F x (A_I x 34.6 + A_P x 0.54)

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

A_C =	0.242	acres
A_I =	0.242	acres
A_P =	0.000	acres
L_R =	238	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	217	lbs.
F =	0.91	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.000	acres
Offsite impervious cover draining to BMP =	0.000	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	1.15	inches per hour
Effective Area =	0.218	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	0.25	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	JFSI0404-1-1
Jellyfish Treatment Flow Rate =	0.27 cfs

NORTHEAST 85% WTCPUA FILTER CALCULATION

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Ariza Multifamily - Dripping Springs
Date Prepared: 7/21/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: L_M = 28.9(A_N x P)
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% 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 * =	19.160	acres
Predevelopment impervious area within the limits of the plan * =	0.000	acres
Total post-development impervious area within the limits of the plan* =	6.092	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	5810	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	WWTP Filter	
Total drainage basin/outfall area =	0.242	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.242	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	231	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
LR = (BMP efficiency) x F x (A_I x 34.6 + A_P x 0.54)

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

A_C =	0.242	acres
A_I =	0.242	acres
A_P =	0.000	acres
L_R =	238	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	231	lbs.
F =	0.97	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.000	acres
Offsite impervious cover draining to BMP =	0.000	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	2.00	inches per hour
Effective Area =	0.218	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	0.44	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	JFSI0404-2-1
Jellyfish Treatment Flow Rate =	0.45 cfs

NORTHEAST OEM FILTER CALCULATION

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Ariza Multifamily - Dripping Springs
Date Prepared: 7/21/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: LM = 27.7(AN x P)
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = OEM
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 * =	19.160	acres
Predevelopment impervious area within the limits of the plan * =	0.000	acres
Total post-development impervious area within the limits of the plan* =	6.092	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	5569	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	1	

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	0.242	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.242	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	221	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
LR = (BMP efficiency) x F x (A_I x 34.6 + A_P x 0.54)

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

A_C =	0.242	acres
A_I =	0.242	acres
A_P =	0.000	acres
L_R =	238	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	221	lbs.
F =	0.93	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.000	acres
Offsite impervious cover draining to BMP =	0.000	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	1.10	inches per hour
Effective Area =	0.218	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	0.24	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	JFSI0404-1-1
Jellyfish Treatment Flow Rate =	0.27 cfs

WWTP 80% TCEQ FILTER CALCULATION

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Ariza Multifamily - Dripping Springs
Date Prepared: 7/21/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: LM = 27.2(AN x P)
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = 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 * =	19.160	acres
Predevelopment impervious area within the limits of the plan * =	0.320	acres
Total post-development impervious area within the limits of the plan* =	6.092	acres
Total post-development impervious cover fraction * =	0.318	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	5001	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	1	

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

Drainage Basin/Outfall Area No. =	Northeast Filter	
Total drainage basin/outfall area =	0.640	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.326	acres
Post-development impervious fraction within drainage basin/outfall area =	0.509	
$L_{M\ THIS\ BASIN}$ =	293	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
LR = (BMP efficiency) x F x (A_I x 34.6 + A_P x 0.54)

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

A_C =	0.640	acres
A_I =	0.326	acres
A_P =	0.314	acres
L_R =	325	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	293	lbs.
F =	0.90	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	1.10	inches per hour
Effective Area =	0.303	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	0.34	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	JFSI0404-2-1
Jellyfish Treatment Flow Rate =	0.45 cfs

WWTP 85% WTCPUA FILTER CALCULATION

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Ariza Multifamily - Dripping Springs
Date Prepared: 7/21/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: L_M = 28.9(A_N x P)
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% 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 * =	19.160	acres
Predevelopment impervious area within the limits of the plan * =	0.320	acres
Total post-development impervious area within the limits of the plan* =	6.092	acres
Total post-development impervious cover fraction * =	0.318	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	5314	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	NorthEast Filter	
Total drainage basin/outfall area =	0.640	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.326	acres
Post-development impervious fraction within drainage basin/outfall area =	0.509	
$L_{M\ THIS\ BASIN}$ =	311	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
LR = (BMP efficiency) x F x (A_I x 34.6 + A_P x 0.54)

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

A_C =	0.640	acres
A_I =	0.326	acres
A_P =	0.314	acres
L_R =	325	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	315	lbs.
F =	0.97	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.000	acres
Offsite impervious cover draining to BMP =	0.000	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	2.00	inches per hour
Effective Area =	0.303	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	0.61	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	JFSI0406-3-1
Jellyfish Treatment Flow Rate =	0.62 cfs

WWTP FILTER OEM FILTER CALCULATION

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Ariza Multifamily - Dripping Springs
Date Prepared: 7/21/2023

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: LM = 27.7(AN x P)
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = OEM
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 * =	19.160	acres
Predevelopment impervious area within the limits of the plan * =	0.000	acres
Total post-development impervious area within the limits of the plan* =	6.092	acres
Total post-development impervious cover fraction * =	0.318	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	5569	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	1	

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	0.640	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.326	acres
Post-development impervious fraction within drainage basin/outfall area =	0.509	
$L_{M\ THIS\ BASIN}$ =	298	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
LR = (BMP efficiency) x F x (A_I x 34.6 + A_P x 0.54)

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

A_C =	0.640	acres
A_I =	0.326	acres
A_P =	0.314	acres
L_R =	325	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	315	lbs.
F =	0.97	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.000	acres
Offsite impervious cover draining to BMP =	0.000	acres
Calculations from RG-348 / Pages Section 3.2.22 — Rainfall Intensity =	1.10	inches per hour
Effective Area =	0.303	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	0.34	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	JFSI0404-2-1
Jellyfish Treatment Flow Rate =	0.45 cfs

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N. MOPAC EXPY., BLDG 3, STE 200 I AUSTIN, TX. 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620
WATER QUALITY FILTER CALCULATIONS

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 60 of 71

Date: Aug 15, 2023, 11:41am User ID: jwolf
File: C:\Users\jwolf.com\Documents\Projects\51312\001\301 Construction Documents\Plan Sheets\DWGP-51312-00.dwg

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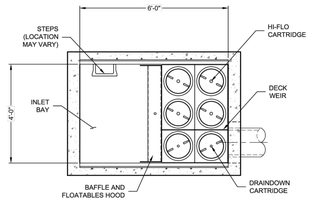
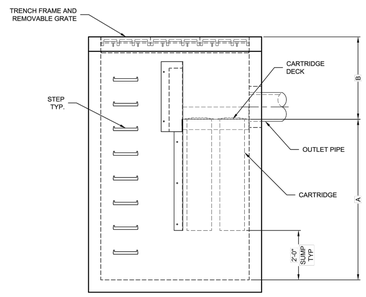
ADMIN2022-0099



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



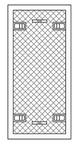
ELEVATION VIEW

JELLYFISH DESIGN NOTES

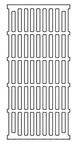
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.89	0.67	0.45	0.25
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



24" TRENCH COVER
N.T.S.



24" TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID					NE FILTER
WATER QUALITY FLOW RATE (cfs)					0.61
PEAK FLOW RATE (cfs)					5.34
RETURN PERIOD OF PEAK FLOW (yrs)					100
# OF CARTRIDGES REQUIRED (HF / DD)					3/1
CARTRIDGE LENGTH					54
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	1237.50	RCP	18	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	1240.84

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

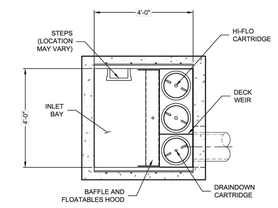
GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDEDTO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

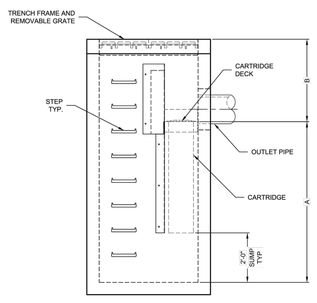
Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0406 - 692602-020
ARIZA MULTIFAMILY
DRIPPING SPRINGS, TX
SIRE DESIGNATION: NE FILTER



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



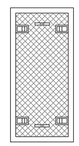
ELEVATION VIEW

JELLYFISH DESIGN NOTES

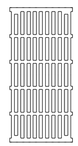
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.45	0.33	0.22	0.12
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



24" TRENCH COVER
N.T.S.



24" TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID					WWTP
WATER QUALITY FLOW RATE (cfs)					0.34
PEAK FLOW RATE (cfs)					3.62
RETURN PERIOD OF PEAK FLOW (yrs)					100
# OF CARTRIDGES REQUIRED (HF / DD)					2/1
CARTRIDGE LENGTH					54
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	1247.91	RCP	18	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	1251.25

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
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Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0404 - 692602-035
ARIZA MULTIFAMILY
DRIPPING SPRINGS, TX
SITE DESIGNATION :WWTP FILTER

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

WATER QUALITY FILTER DETAILS

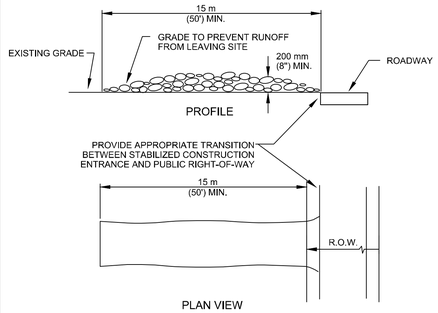
JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 61 of 71

ADMIN2022-0099

I:\STORMWATER\COMMOPS\13 JELLYFISH FILTERS\STANDARD DRAWINGS\JF ONLINE (SI)\DWG\JFSI0404-DTL.DWG, 8/10/2023 9:46 AM

Date: Aug 15, 2023, 11:41am User ID: jeff
File: \\pape-dawson.com\pdfs-data-sa\Projects\51312\001.301 Construction Documents\Plan Sheets\DWGP-51312-00.dwg

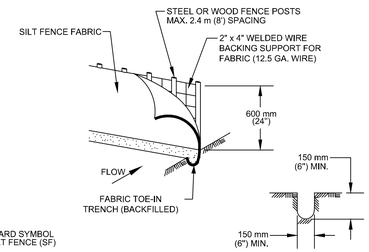
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.



NOTES:

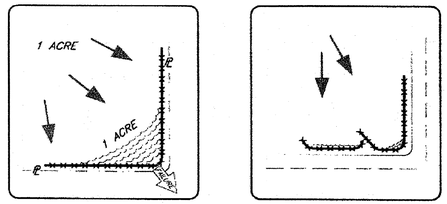
1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO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

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



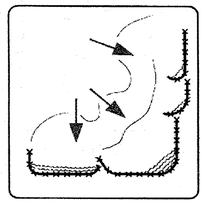
1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED 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.

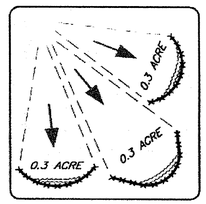
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS	09/01/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



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

Correct – install J-hooks





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

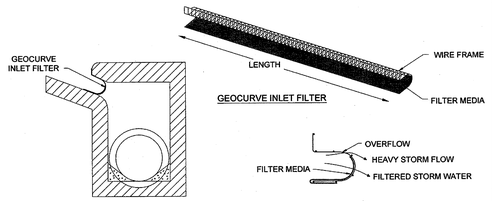
SILT FENCE PLACEMENT FOR PERIMETER CONTROL

© 2001 JOHN McCULLAH

FILE: SF-PERIMETER CONTROL

GeoSolutions, Inc. — Product Data Sheet
GeoCurve Inlet Filter

The GeoCurve Inlet Filter is a stormwater filter for placement into a stormwater curb inlet for the purpose of capturing debris and sediment that is transported by stormwater runoff. The device is comprised of a filter media (woven monofilament filter fabric) affixed to the lower portion of a "C" shaped 12 gauge welded wire frame (2" x 4" openings) with an upper retention flange. The device effectively filters stormwater, can easily be removed for maintenance and cleaning and incorporates an overflow window for heavy storm events.



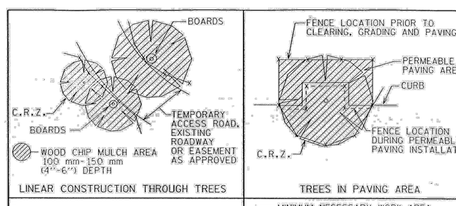
CROSS-SECTION SHOWING PLACEMENT OF GEOCURVE IN CURB INLET

GEOCURVE INLET FILTER CROSS-SECTION

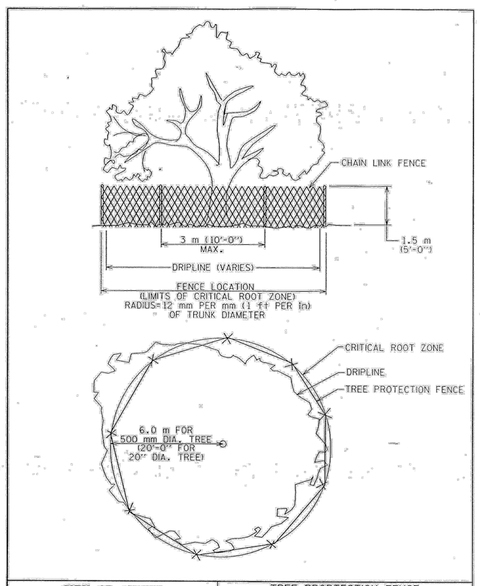
FILTER MEDIA PROPERTIES: Mono-filament Woven Filter Fabric

PROPERTY	ASTM TEST METHOD	VALUE	C.O.A. REQ'T
Fabric Weight	D 3776	4.5 oz/sy	3 oz/sy
Grab Tensile Strength	D 4632	170 lbs	----
Mullen Burst Strength	D 3786	410 lbs/sq in	120 lbs/sq in
UV Stability	D 4355	80 %	70 %
Water Flow Rate	D 4491	325 gal/min/sf	275 gal/min/sf

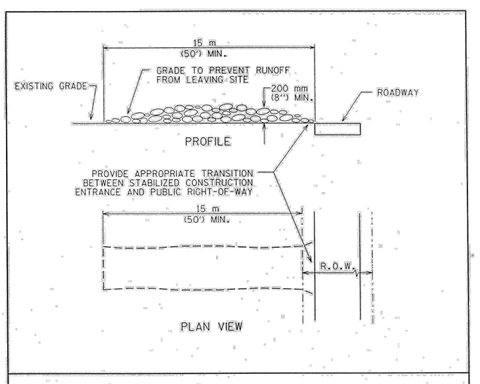
GeoSolutions, Inc. 4417 Burleson Road Austin, Texas 78744 512-330-0796



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TREE PROTECTION FENCE LOCATIONS	
11/5/99 ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-1



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
11/5/99 ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2



NOTES:

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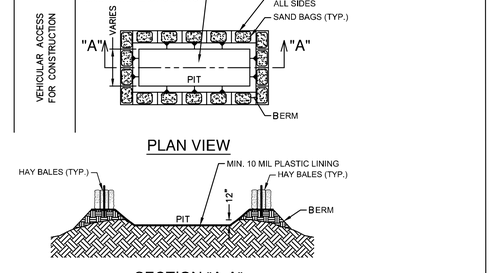
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

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



GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.
2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.
3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

NOT-TO-SCALE

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103682
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N. MOPAC EXPY., BLDG 3, STE 200 | AUSTIN, TX. 78759 | 512-454-8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

EROSION CONTROL & SEDIMENTATION DETAILS

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 62 of 71

Date: Aug 15, 2023, 11:42am User ID: jwolf
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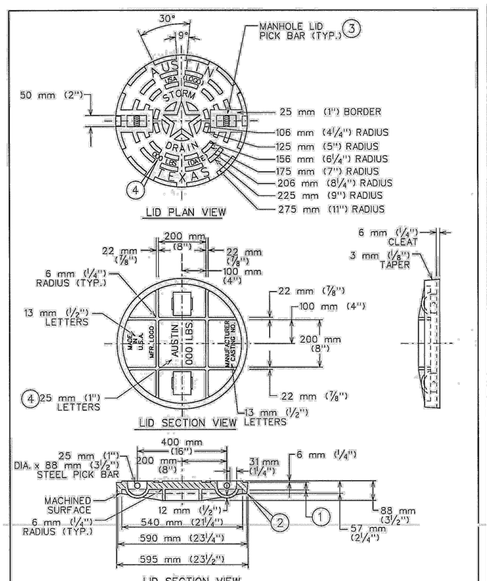
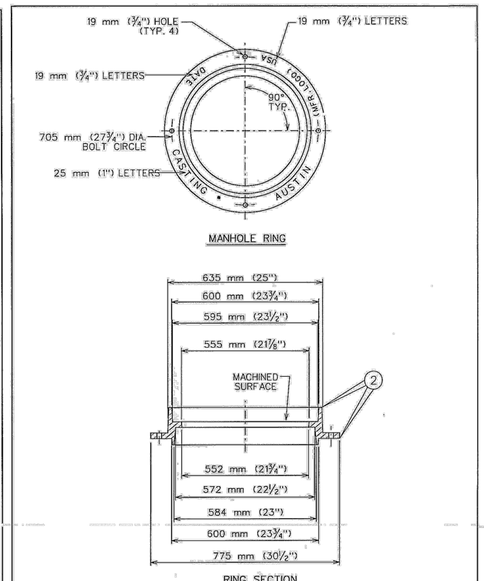
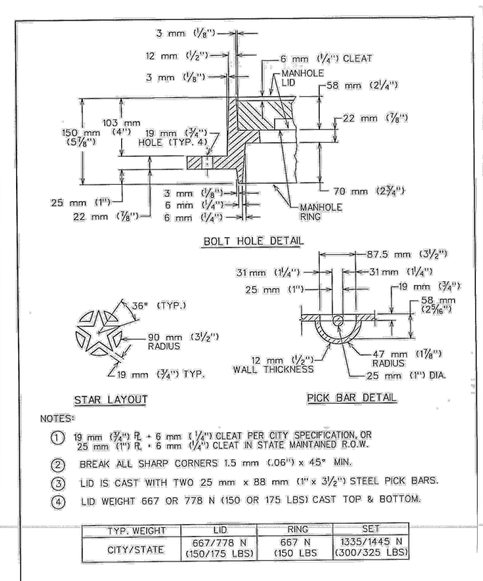


CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE RING AND 610 mm (24") COVER	
George E. Rowell 2/14/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-2S 1 OF 3



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE RING AND 610 mm (24") COVER	
George E. Rowell 2/14/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-2S 2 OF 3

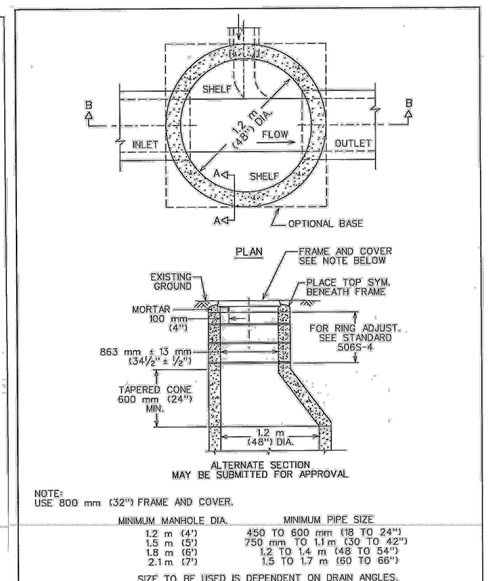


NOTES:

1. 19 mm (3/4") R. + 6 mm (1/4") CLEAT PER CITY SPECIFICATION, OR 25 mm (1") R. + 6 mm (1/4") CLEAT IN STATE MAINTAINED R.O.W.
2. BREAK ALL SHARP CORNERS 1.5 mm (.06") x 45° MIN.
3. LID IS CAST WITH TWO 25 mm x 88 mm (1" x 3 1/2") STEEL PICK BARS.
4. LID WEIGHT 667 OR 778 N (150 OR 175 LBS) CAST TOP & BOTTOM.

TYP. WEIGHT	LID	RING	SET
CITY/STATE	667/778 N (150/175 LBS)	667 N (150 LBS	1335/1445 N (300/325 LBS)

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE RING AND 610 mm (24") COVER	
George E. Rowell 2/14/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-2S 3 OF 3



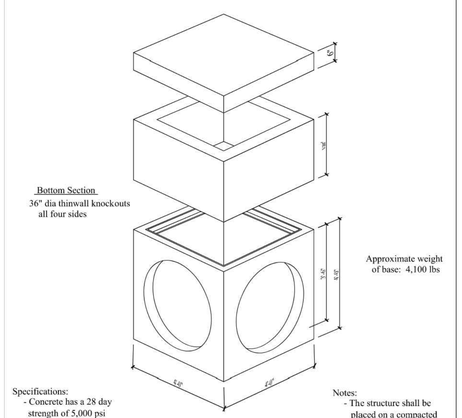
NOTE:
USE 800 mm (32") FRAME AND COVER.

MINIMUM MANHOLE DIA.	MINIMUM PIPE SIZE
1.2 m (4') 1.5 m (5') 1.8 m (6') 2.1 m (7')	450 TO 600 mm (18 TO 24") 750 mm TO 1.1 m (30 TO 42") 1.2 TO 1.4 m (48 TO 54") 1.5 TO 1.7 m (60 TO 66")

SIZE TO BE USED IS DEPENDENT ON DRAIN ANGLES.

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	PRE-CAST CONCRETE STORM DRAIN MANHOLE	
George E. Rowell 2/14/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-3 1 OF 2

3' x 3' x var Junction Box

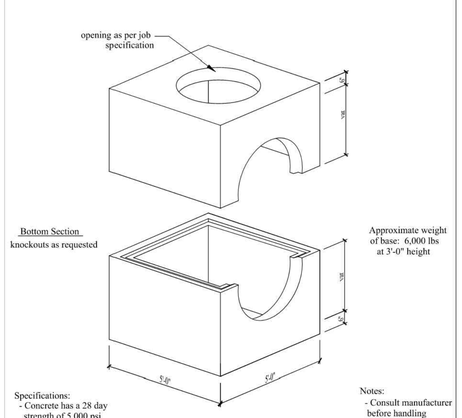


Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 Grade 60
- Load design is H-20

Notes:
- The structure shall be placed on a compacted granular base
- Consult manufacturer before handling

CAPITAL PRECAST, INC. 6905 SOUTH OLD BASTROP SAN MARCOS, TEXAS 7866 PH. (830) 606-6200	FOR 3' x 3' x var Junction Box JOB	
	DRAWN RW DATE 8/22/2013 Rev. No.	SHEET 1 OF 1
	FILE catalog/grate inlets/3x3 JB solid	

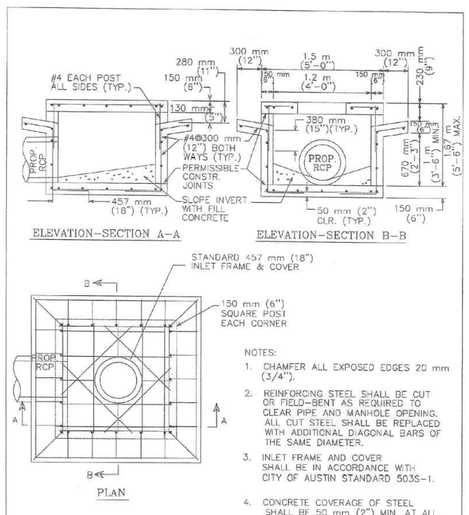
4' x 4' x var Junction Box



Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling
- The structure shall be placed on a compacted granular base

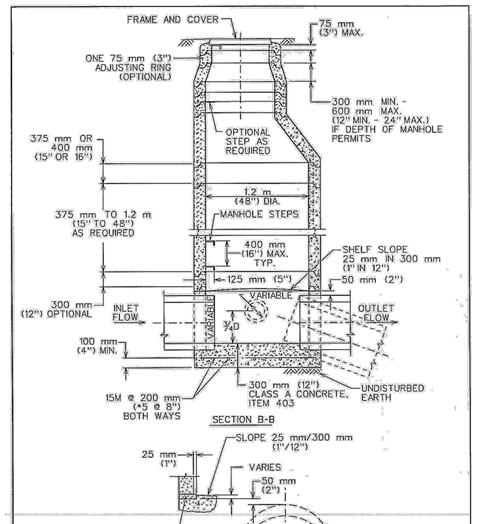
CAPITAL PRECAST, INC. 6905 SOUTH OLD BASTROP HWY SAN MARCOS, TEXAS 78666 PH. (830) 606-6200	FOR 4' x 4' x var' Junction Box JOB	
	DRAWN EJ DATE 9/21/2016 Rev. No.	SHEET 1 OF 1
	FILE catalog/junction boxes/4x4-2piece	



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 MANHOLE 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.
5. ANY MODIFICATION TO THIS STANDARD SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	4-SIDED AREA INLET	
Keith C. Rhoten, P.E. 5/14/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	STANDARD NO. 508S-9



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	PRE-CAST CONCRETE STORM DRAIN MANHOLE	
George E. Rowell 2/14/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-3 2 OF 2

NO. REVISION | DATE

STATE OF TEXAS
SHELLY MITCHELL
103682
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST

13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

STORM DRAIN DETAILS (1 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 63 of 71

Date: Aug 15, 2023, 11:42am User ID: jwolf
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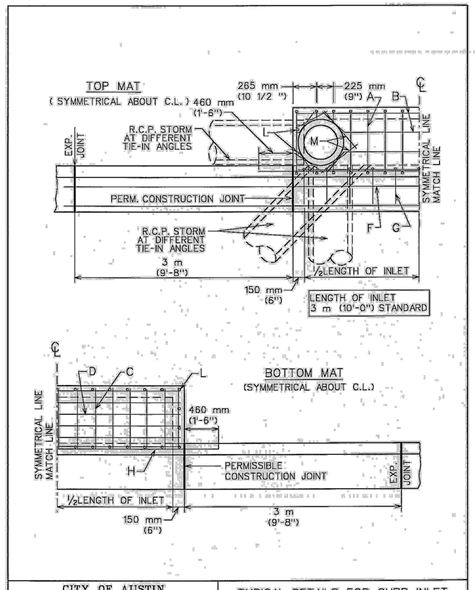
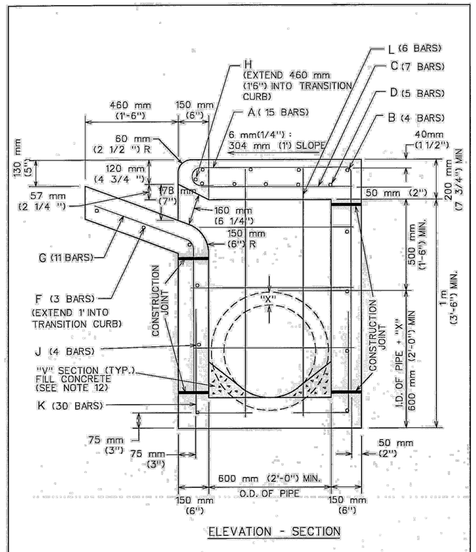


CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 1 OF 4



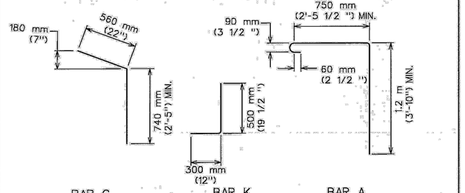
ELEVATION - SECTION

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 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



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 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.
5. 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".

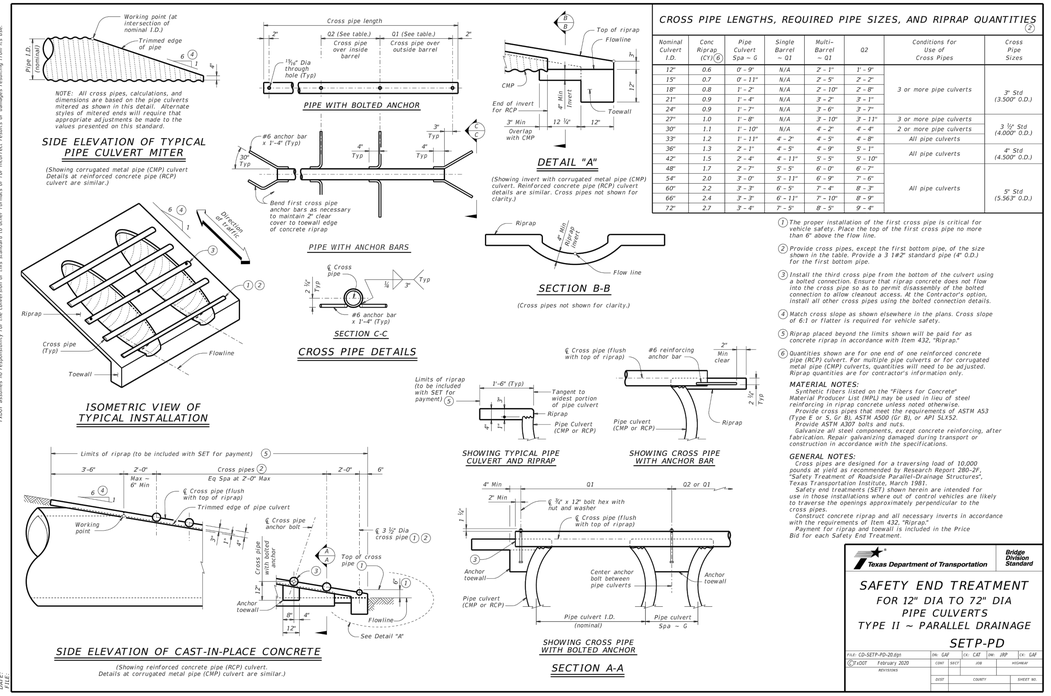
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
Bill Gardner 12/9/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 4 OF 4

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620
STORM DRAIN DETAILS (2 OF 3)



CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES (7)

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

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

MATERIAL NOTES:
Synthetic fibers listed on the "Fibers For Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.
Provide ASTM A307 bolts and nuts.
Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

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

Texas Department of Transportation | Bridge Division Standard

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

File: CD-SETP-PD-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: LM
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DATE: AUG 2022
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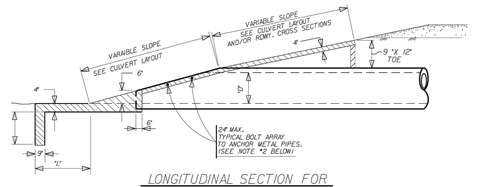


LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES

DIMENSIONS FOR CIRCULAR (CMP and RCP) PIPE CULVERTS

"D" INSIDE DIA. OF PIPE	"L"	"S"		SINGLE	DOUBLE	TRIPLE	QUADRUPLE
		CMP	RCP	"W"			
18"	2'-0"	1'-2"	0'-9"	4'-6"	7'-2"	9'-10"	12'-6"
21"	2'-6"	1'-3"	0'-10"	5'-3"	8'-4"	11'-4"	13'-4"
24"	3'-0"	1'-5"	0'-11"	6'-0"	9'-5"	12'-10"	16'-3"
30"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
36"	5'-0"	1'-11"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
42"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	21'-10"	27'-6"
48"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
54"	8'-0"	2'-8"	1'-9"	13'-6"	20'-8"	28'-2"	35'-6"
60"	9'-0"	3'-2"	2'-0"	15'-0"	23'-2"	31'-4"	39'-6"

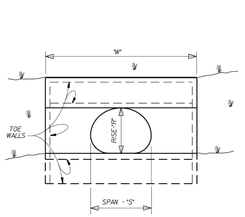
"D" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

DIMENSIONS FOR C.M.P. ARCH PIPE CULVERTS

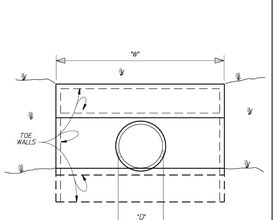
DESIGN SIZE	APPROX. ARCH DIM.		"L"	"S"	SINGLE	DOUBLE	TRIPLE	QUADRUPLE
	SPAN "S"	RISE "R"			"W"			
2	21"	15"	2'-0"	1'-2"	4'-3"	7'-2"	10'-1"	13'-0"
3	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13'-2"	16'-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-6"	16'-1"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-1"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-8"	12'-5"	20'-8"	28'-11"	37'-1"
9	71"	47"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	40'-0"

BASED ON 2-2/3" X 1/2" CORRUGATION
"D" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

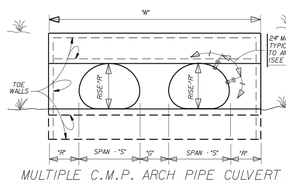
NOTES:
1.) FOR RIPRAP QUANTITIES AND SLOPES, SEE CULVERT LAYOUT SHEET. CONCRETE SHALL BE CLASS B UNLESS OTHERWISE SHOWN IN THE PLANS.
2.) ALL METAL PIPES (CIRCULAR AND/OR ARCH) SHALL HAVE 5/8"X 6" GALVANIZED BOLTS WITH 2 HEX NUTS AT 24" CENTERS TO ANCHOR THE PIPE TO THE CONCRETE. THIS WORK WILL BE SUBSIDIARY TO THE RIPRAP HEADWALL.
3.) FOR CONCRETE ARCH PIPES, THE CMP ARCH PIPE CULVERT DIMENSIONS WILL HAVE TO BE ADJUSTED FOR THE PIPE WALL THICKNESS.
4.) FOR PIPES LARGER THAN SHOWN, USE THE CLEAR DISTANCE BETWEEN PIPES SHOWN IN ITEMS 460 AND/OR 464.
5.) IF THE SIDES OF THE HEADWALL IS ADJACENT TO A RIPRAP SLOPE AND IF THE TOP OF THE HEADWALL IS ADJACENT TO THE ROADWAY FOUNDATION OR RIPRAP SLOPE, THE SIDE AND TOP TOE WALLS MAY BE ELIMINATED IF APPROVED BY THE ENGINEER.



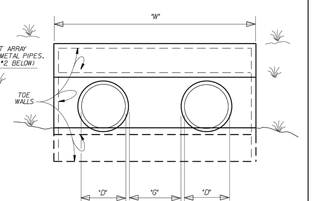
SINGLE C.M.P. ARCH PIPE CULVERT



SINGLE CIRCULAR PIPE CULVERT
(CMP or RCP)



MULTIPLE C.M.P. ARCH PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT
(CMP or RCP)

SAN ANTONIO
DISTRICT STANDARD
RIPRAP HEADWALL

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FED.RD. DIV. NO.	PROJECT NO.		SHEET NO.
STATE	DIST. (REGN.)	COUNTY	
TEXAS	SAT		
CONT.	SECT.	JOB	HIGHWAY NO.

10/95

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 64 of 71

ADMIN2022-0099

Date: Aug 15, 2023, 11:42am User ID: jeff
File: \\corsair\corp.com\projects\51312\00\301 Construction Documents\Plan Sheets\DT-51312-00.dwg
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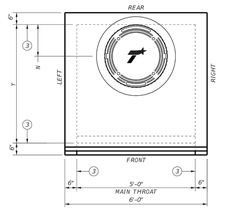
Size (Y)	N	MH Dia (2)
3'	9"	19"
4'	16"	32"
5'	16"	32"
6'	16"	32"

(1) Reinforcing bar used only with extension(s).

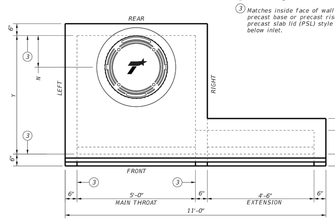
(2) Nominal ring and cover size.

(3) Matches inside face of wall of precast base or precast riser or precast slab lid (PSL) style "S1" below inlet.

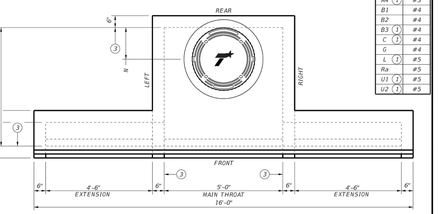
BAR TABLE	
BAR	SIZE
A1	#3
A2	#3
A3 (1)	#3
A4 (1)	#3
B1	#4
B2	#4
B3 (1)	#4
C (1)	#4
G	#4
L (1)	#5
Ra	#5
U1 (1)	#5
U2 (1)	#5



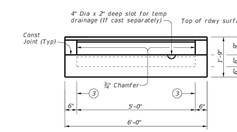
PLAN VIEW
(Shown without extensions.)
See SHEET 2 OF 4 for details.



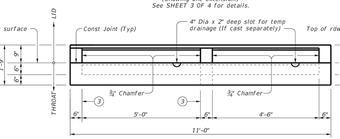
PLAN VIEW
(Showing one extension.)
See SHEET 3 OF 4 for details.



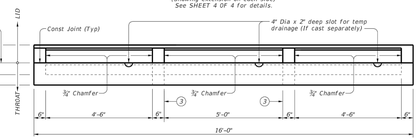
PLAN VIEW
(Showing extension on each side)
See SHEET 4 OF 4 for details.



FRONT VIEW
(Shown without extensions.)
See SHEET 2 OF 4 for details.



FRONT VIEW
(Showing one extension.)
See SHEET 3 OF 4 for details.



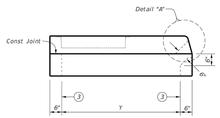
FRONT VIEW
(Showing extension on each side.)
See SHEET 4 OF 4 for details.

CONSTRUCTION NOTES:
Chamfer all vertical edges of inlet lid ¾" as shown in Front View, Sheet 1 of 4.
Maintain 1 ½" clear cover to ends of all vertical reinforcing bars, unless otherwise noted.

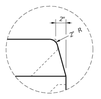
MATERIAL NOTES:
Provide Class "S" concrete (f'_c = 4,000 psi).
Provide Grade 60 reinforcing steel or equivalent area of WWR.
Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
The intent of this standard is to provide a cast-in-place lid to be used with precast base, precast riser or precast slab lid style "S1".
Inlet throat and lid are not intended for direct traffic. Do not place in roadway.
Lid and throat may be cast monolithically or separately.
See Precast Base (PB) standard for details and notes not shown.
See Precast Slab Lid (PSL) standard for details and notes not shown.
See Curb & Gutter Transitions Details (CGT-PCO) standard for transition examples.
Extensions may be right, left, both, or none. Provide extensions as specified elsewhere in the plans.
Shop drawings for approval are not required.
Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, size, and extension placement. Extensions are subsidiary to inlet.
Open area of main throat = 360 sq in.
Open area of one extension throat = 324 sq in.

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



LEFT SIDE VIEW
(Extensions not shown for clarity.)



DETAIL "A"

HL93 LOADING SHEET 1 OF 4

Texas Department of Transportation | Bridge Division Standard

CAST-IN-PLACE CURB
INLET OUTSIDE ROADWAY

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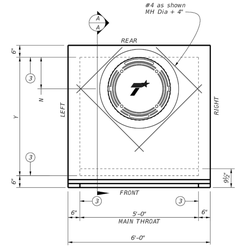
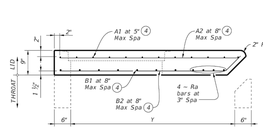
REVISIONS	DIST	COUNTY		SHEET NO.

DISCLAIMER
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by the Texas Department of Transportation for any purpose whatsoever. TxDOT disclaims responsibility for the use of this standard in other than its intended application and for any misuse or incorrect results or damages resulting from its use.

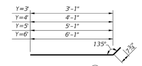
DATE:
FILE:



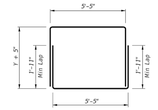
LID PLAN VIEW
(Shown without extensions)



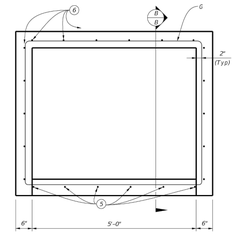
LID SECTION A-A



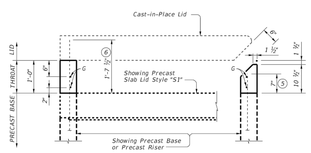
BARS B2 (4)



BARS G
Showing one complete bar.



THROAT PLAN VIEW
(Shown without extensions)



THROAT SECTION B-B
(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)

(3) Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

(4) Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

(5) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

(6) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

HL93 LOADING SHEET 2 OF 4

Texas Department of Transportation | Bridge Division Standard

CAST-IN-PLACE CURB
INLET OUTSIDE ROADWAY

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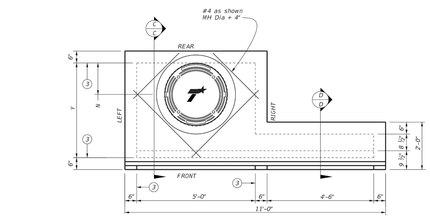
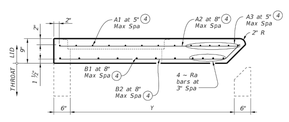
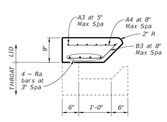


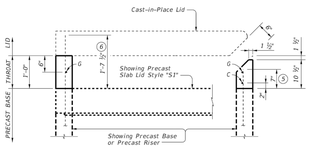
LID PLAN VIEW
(Showing one extension.)



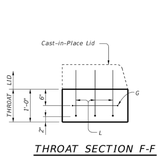
LID SECTION C-C



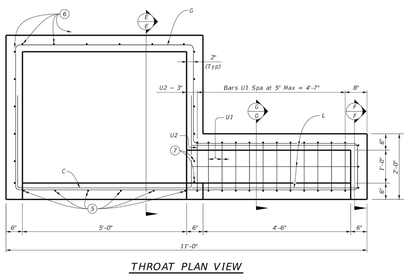
LID SECTION D-D



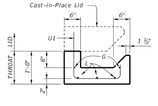
THROAT SECTION E-E
(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)



THROAT SECTION F-F



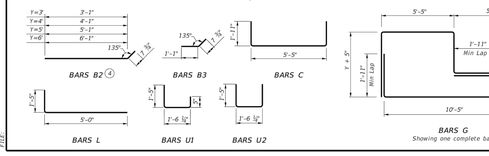
THROAT PLAN VIEW
(Showing one extension.)



BARS U1 LOCATION

BARS U2 LOCATION

THROAT SECTION G-G



BARS B2 (4)

BARS B3

BARS C

BARS L

BARS U1

BARS U2

BARS G
Showing one complete bar.

(3) Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

(4) Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

(5) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

(6) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

(7) Do not extend reinforcing bars from precast base.

HL93 LOADING SHEET 3 OF 4

Texas Department of Transportation | Bridge Division Standard

CAST-IN-PLACE CURB
INLET OUTSIDE ROADWAY

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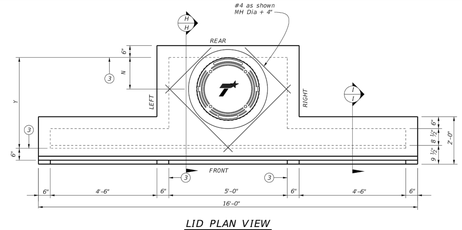
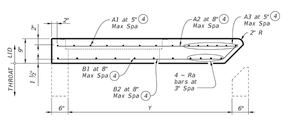
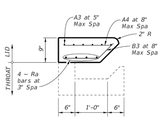


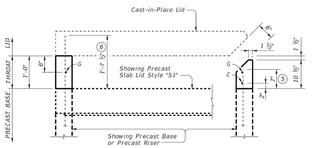
LID PLAN VIEW
(Showing extension on each side.)



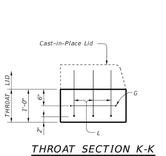
LID SECTION H-H



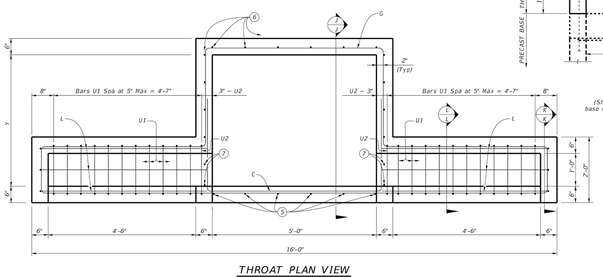
LID SECTION I-I



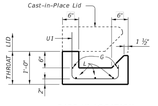
THROAT SECTION J-J
(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)



THROAT SECTION K-K



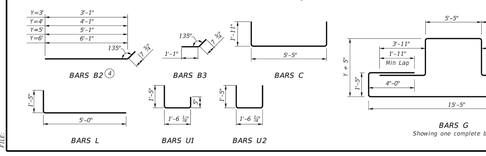
THROAT PLAN VIEW
(Showing extension on each side.)



BARS U1 LOCATION

BARS U2 LOCATION

THROAT SECTION L-L



BARS B2 (4)

BARS B3

BARS C

BARS L

BARS U1

BARS U2

BARS G
Showing one complete bar.

(3) Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

(4) Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

(5) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

(6) Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

(7) Do not extend reinforcing bars from precast base.

HL93 LOADING SHEET 4 OF 4

Texas Department of Transportation | Bridge Division Standard

CAST-IN-PLACE CURB
INLET OUTSIDE ROADWAY

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NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

STATE OF TEXAS
SHELLY MITCHELL
103682
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

STORM DRAIN DETAILS (3 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 65 of 71

ADMIN2022-0099

Date: Aug 15, 2023, 11:42am User ID: jwolf
File: \\pape-dawson.com\pdfs-sa\Projects\51312\001\301 Construction Documents\Plan Sheets\DT-51312-00.dwg

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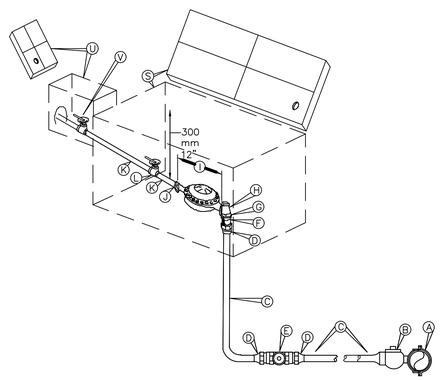
CITY RESPONSIBILITY
ENDS ON THE CUSTOMER
SIDE OF THE METER BOX



	38mm & 50mm (1–1/2 " & 2") METER INSTALLATION SHOWING OPTIONAL BYPASS	
MODIFIED		STANDARD NO. 520S–13 1 OF 3

MATERIALS LIST

	METER SIZE	
	38 mm (1–1/2")	50 mm (2")
(A) SERVICE CLAMP FOR CONNECTION–REQUIRED ON ALL PLASTIC AND ASBESTOS CEMENT PIPE AND ALL IRON PIPE 300 mm (12") AND SMALLER	38 mm (1–1/2")	50 mm (2")
(B) CORPORATION STOP – SERVICE PIPE OUTLET	38 mm (1–1/2")	50 mm (2")
(C) SERVICE PIPE	38 mm (1–1/2")	50 mm (2")
(D) COUPLING: SERVICE PIPE TO MALE I.P.T. (COMPRESSION FITTING)	38 mm (1–1/2")	50 mm (2")
(E) BALL VALVE. SEE SPL WW 275.	38 mm (1–1/2")	50 mm (2")
(F) TEES, BRASS	38 mm x 38mm x 25mm (1–1/2"x1–1/2"x1")	50mmx50mmx25mm (2"x2"x1")
(G) CLOSE–NIPPLE, BRASS.	38 mm (1–1/2")	50 mm (2")
(H) ANGLE METER STOP, FEMALE I.P. THREAD INLET X FLANGE OUTLET	38 mm (1–1/2")	50 mm (2")
(I) WATER METER LENGTH WITH GASKETS	338 mm (13–1/2")	444 mm (17–3/4")
(J) FLANGE, BRASS; FEMALE I.P. THREAD	38 mm (1–1/2")	50 mm (2")
(K) NIPPLES, BRASS	38 mm x 200mm (1–1/2"x8")	50mm x 200 mm (2"x8")
(L) AWU'S BALL VALVE. SEE SPL WW 275.	38 mm (1–1/2 ")	50 mm (2")

(S) AMR/AMI READY RECTANGULAR METER BOX AND LID. SEE SPL–WW–145 OR WW–145A

(T) N/A

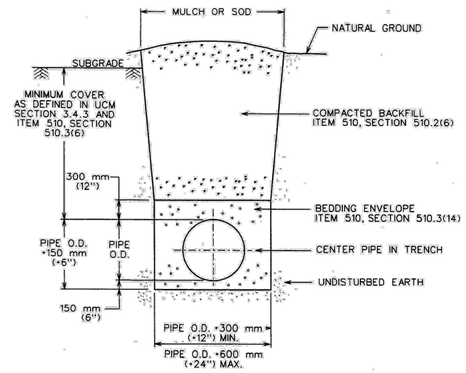
(U) PROPERTY OWNER'S BALL VALVE BOX AND LID–RECTANGULAR PLASTIC BOX, DFW #D1200 OR EQUAL

(V) CUSTOMER'S BALL VALVE.

	38mm & 50mm (1–1/2 " & 2") METER INSTALLATION SHOWING OPTIONAL BYPASS	
MODIFIED		STANDARD NO. 520S–13 2 OF 3

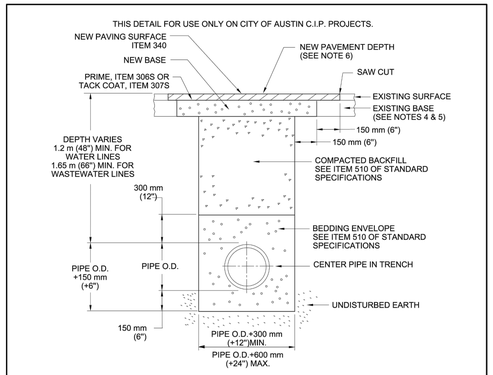
NOTES:
1. SERVICE PIPE SHALL BE COPPER TUBE SIZE. IT SHALL BE ANNEALED SEAMLESS TYPE "K" COPPER TUBING MEETING THE CURRENT ASTM B88 STANDARD WITH NO SWEAT OR SOLDERED JOINTS.
2. SERVICE SADDLE SHALL BE WRAPPED COMPLETELY WITH 0.2mm (8 MIL) POLYETHYLENE FILM.
3. TOP OF BOXES SHOULD BE 25mm (1") ABOVE GROUND OR FLUSH WITH PAVEMENT SURFACE.
4. PIPING AND TUBING IN STREET RIGHT–OF–WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SECTION 510.3 (14) OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS: BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SECTION 510.3 (25).
5. BOX MUST BE BEHIND CURB NEXT TO PROPERTY LINE OR EASEMENT, AND OUT OF SIDEWALK AND OUT OF VEHICULAR TRAFFIC AREA.
6. BALL VALVES E SHALL NOT BE LOCATED UNDER CURB OR PAVEMENT, AND NOT LOCATED MORE THAN 600mm (24") HORIZONTALLY FROM METER BOX OR 900mm (36") BELOW FINAL GRADE.

	38mm & 50mm (1–1/2 " & 2") METER INSTALLATION SHOWING OPTIONAL BYPASS	
MODIFIED		STANDARD NO. 520S–13 3 OF 3



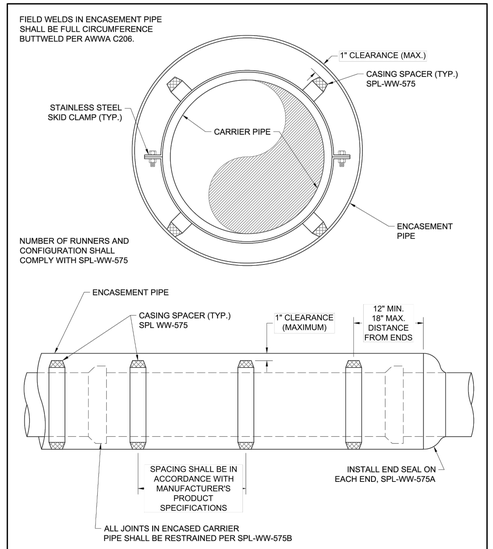
REFERENCES:
1. UTILITY CRITERIA MANUAL SECTION 3.4.3, "FINAL DESIGN"
2. STANDARD SPECIFICATION MANUAL ITEM 510, SECTION 510.2(6), "SELECT BACKFILL OR BORROW"; SECTION 510.3(6), "TRENCH DEPTH AND DEPTH OF COVER"; SECTION 510.3(14), "PIPE BEDDING ENVELOPE"

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL TRENCH DETAIL WITH UNFINISHED SURFACE	
Bill Gurdner 3/13/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 510S-5



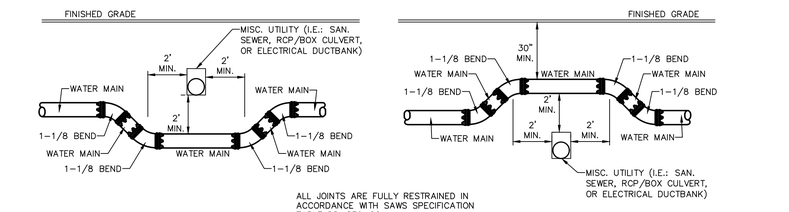
NOTES:
1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE A MINIMUM OF 300 mm (12") WIDER THAN THE UNDISTURBED SIDES OF THE TRENCH, SYMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
2. ANY CONCRETE PAVING SHALL BE SAW CUT 150 mm (6") WIDER THAN UNDISTURBED SIDES OF EXCAVATION.
3. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX OR TEMPORARY HOT MIX ASPHALTIC CONCRETE.
4. ROAD BASE AND SURFACE MATERIALS IN THE TRENCH CUT SHALL BE REPLACED IN KIND OF EQUAL THICKNESS, OR MINIMUM BASE THICKNESS OF 250 mm (10"), WHICHEVER IS GREATER.
5. ALL DAMAGED AREAS OF PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH MINIMUM OF 200 mm (8") OF BASE OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
6. SURFACE PAVEMENT SHALL BE OF THE KIND AND THICKNESS AS EXISTING, OR MINIMUM 50 mm (2"), WHICHEVER IS GREATER.

CITY OF AUSTIN WATER AND WASTEWATER UTILITY	TYPICAL TRENCH WITH PAVED SURFACE	
RECORD COPY SIGNED BY LEON BARBA 8/19/02 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 510S-3 1 OF 1



APPLICABLE REFERENCES:
STANDARD SPECIFICATION: ITEM 505.4 & 510.3 (19)

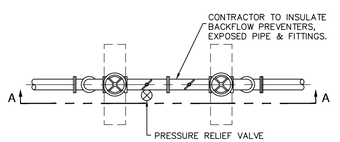
CITY OF AUSTIN AUSTIN WATER	ENCASEMENT PIPE DETAIL WITH CASING SPACERS	
JEFF A. KYLE 02/22/2021 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 501-AW-01 1 OF 1



ALL JOINTS ARE FULLY RESTRAINED IN ACCORDANCE WITH SAWS SPECIFICATION TABLE DD–839–06.

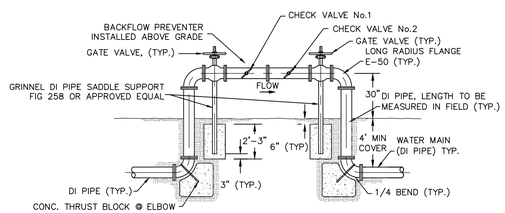
TYPICAL UTILITY/WATER CROSSING DETAIL

NOT–TO–SCALE



PLAN VIEW

NOTE:
BACKFLOW DEVICE TO BE SAWS APPROVED.



SECTION A-A

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

NOT–TO–SCALE

NO. REVISION | DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED PROFESSIONAL ENGINEER
08/22/2023

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620
UTILITY DETAILS (1 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 67 of 71

Date: Aug 15, 2023, 11:42am User ID: jwolf
File: \\pape-dawson.com\pape-pw\Projects\51312\00\301 Construction Documents\Plan Sheets\DT-51312-00.dwg

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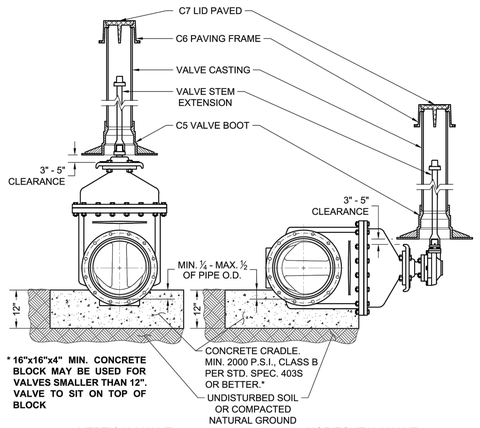
ADMIN2022-0099



*** 16"x16"x4" MIN. CONCRETE BLOCK MAY BE USED FOR VALVES SMALLER THAN 12". VALVE TO SIT ON TOP OF BLOCK**

VERTICAL VALVE

HORIZONTAL VALVE

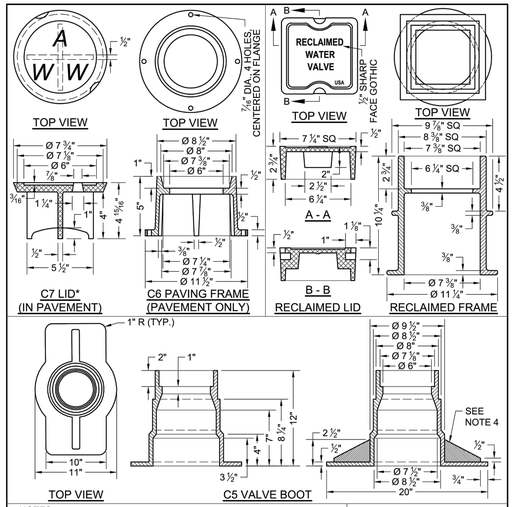
ONLY TO BE USED WHEN CALLED OUT ON THE DRAWINGS.

NOTES:

1. WELD SOCKET 2½" 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 3' 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-27D. 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:

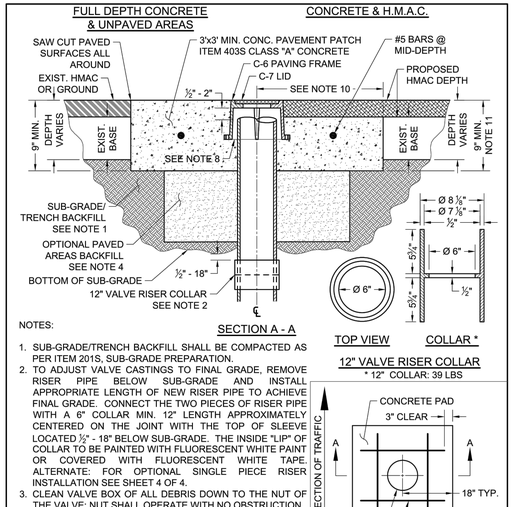
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID, FRAME, COLLAR AND BASE.
3. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
4. CASTING 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 ½" 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



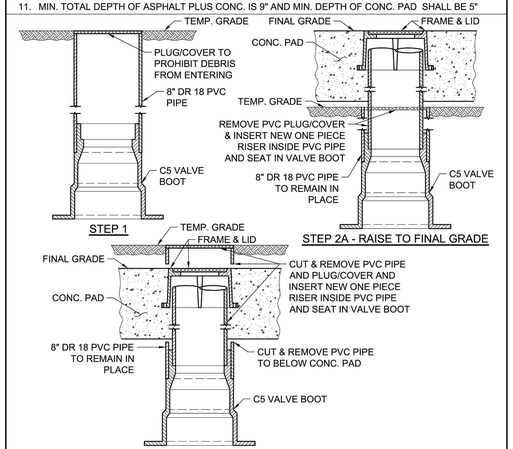
NOTES:

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 ½" - 18" BELOW SUB-GRADE. THE INSIDE "LIP" 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 OPERATE WITH NO OBSTRUCTION.
4. WHERE CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL (SPEC. ITEM 402S) TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
5. REINFORCING STEEL SHALL MEET SPEC. ITEM 406S.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

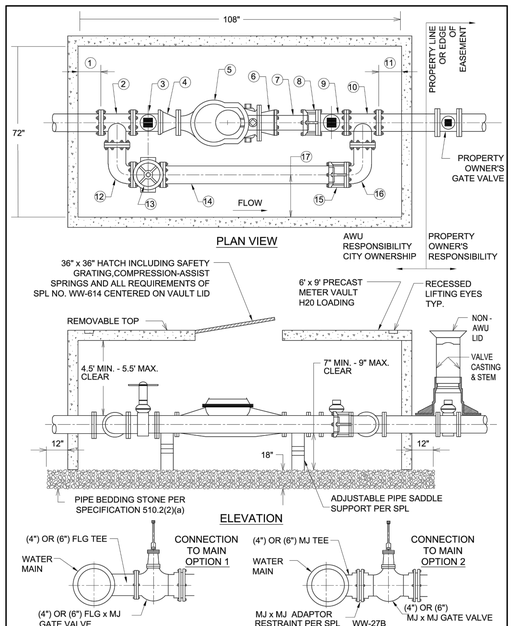
NOTES (CON'T):

8. PAVING FRAME SHALL BE FLUSH WITH THE CONC. PAD AND PLACED ½" - 2" ABOVE RISER PIPE (FRAME SHALL NOT REST ON RISER.)
9. IN UNPAVED AREAS, INSTALL ONE DELINEATOR STAKE IMMEDIATELY ADJACENT TO THE EDGE OF THE CONCRETE PAD. DELINEATOR SHALL BE BLUE FOR POTABLE WATER AND PURPLE FOR RECLAIMED WATER AND SHALL EXTEND AT LEAST 60" ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE IN COLOR, TYPE I REFLECTIVE TAPE MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES.
10. VALVE SHALL TYPICALLY BE CENTERED IN CONCRETE DIAMOND BUT MAY BE OFFSET WITH A MIN. OF 12" FROM CENTER OF VALVE LID TO EDGE OF CONCRETE IN ALL DIRECTIONS.
11. MIN. TOTAL DEPTH OF ASPHALT PLUS CONC. IS 9" AND MIN. DEPTH OF CONC. PAD SHALL BE 5"



OPTIONAL ONE PIECE VALVE CASTING INSTALLATION

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



CITY OF AUSTIN AUSTIN WATER UTILITY	3", 4" AND 6" COMPOUND & TURBINE METER INSTALLATIONS	
RECORD COPY SIGNED BY KATHI L. FLOWERS 11/19/2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-06 1 OF 2

LARGE METER INSTALLATIONS

DIMENSIONS IN INCHES		3" TURBINE	3" COMPOUND	4" TURBINE	4" COMPOUND	6" TURBINE	8" COMPOUND
No.	METER LINE	4" BYPASS	4" BYPASS	4" BYPASS	4" BYPASS	6" BYPASS	6" BYPASS
1	CLEARANCE FROM VALVE WALL TO TEE	8"	8"	12"	12"	6"	6"
2	FLANGED TEE	13"	13"	13"	13"	16"	16"
3	COA GATE VALVE SQUARE NUT	9"	9"	9"	9"	10 1/2"	10 1/2"
4	3" X 4" FLANGED REDUCER (3" METER ONLY)	7"	7"	—	—	—	—
5	METER	17"	19"	20"	23"	24"	27"
6	3" X 4" FLANGED REDUCER (3" METER ONLY)	7"	7"	—	—	—	—
7+8	⑦ FLANGED X PLAIN END DI PIPE + ⑧ RESTRAINED FLANGE COUPLING ADAPTER (RFCA) OR ⑦ FLANGE X DI PIPE + ⑧ DISMANTLING JOINT (DJ)	17"	15"	20"	17"	19"	16"
9	COA GATE VALVE SQUARE NUT	9"	9"	9"	9"	10 1/2"	10 1/2"
10	FLANGED TEE	13"	13"	13"	13"	16"	16"
11	CLEARANCE FROM INSIDE WALL TO TEE	8"	8"	12"	12"	6"	6"
	TOTAL (INCHES)	108.0"	108.0"	108.0"	108.0"	108.0"	108.0"
	BYPASS LINE						
1	CLEARANCE FROM INSIDE WALL TO TEE	8"	8"	12"	12"	6"	6"
	1/2 TEE	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
12	FLANGED 90° ELBOW	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
13	BYPASS GATE VALVE WITH HAND WHEEL	9"	9"	9"	9"	10 1/2"	10 1/2"
14+15	⑭ FLANGED X PLAIN END DI PIPE + ⑮ RESTRAINED FLANGE COUPLING ADAPTOR (RFCA) OR ⑭ FLANGE X FLANGE DI PIPE + ⑤ DISMANTLING JOINT (DJ)	57"	57"	49"	49"	53 1/2"	53 1/2"
16	FLANGED 90° ELBOW	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
	1/2 TEE	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
11	CLEARANCE FROM VALVE WALL TO TEE	8"	8"	12"	12"	6"	6"
	TOTAL (INCHES)	108.0"	108.0"	108.0"	108.0"	108.0"	108.0"
17	CLEARANCE FROM INSIDE WALL TO CENTER OF BYPASS LINE	23"	23"	23"	23"	20"	20"

NOTES:

1. METER VAULT MUST BE PLACED AT THE PROPERTY LINE WITHIN PUBLIC RIGHT-OF-WAY OR WITHIN A DEDICATED WATER METER EASEMENT. METER SHALL NOT BE PLACED IN THE PATH OF VEHICULAR TRAFFIC INCLUDING ROADWAYS, DRIVEWAYS AND PARKING LOTS. METERS MAY NOT BE PLACED IN SIDEWALKS UNLESS SPECIFICALLY APPROVED BY AUSTIN WATER. METERS MUST BE ACCESSIBLE TO SERVICE VEHICLES AND SHALL NOT BE ENCLOSED WITHIN PROPERTY FENCES.
2. ALL PIPE AND FITTINGS FROM MAIN TO CUSTOMER VALVE SHALL BE RESTRAINED.
3. FACTORY NOTCHES WHERE PIPING GOES THROUGH VAULT WALL SHALL BE FILLED WITH NON-SHRINK GROUT PER SPL NO. WW-704A.

CITY OF AUSTIN AUSTIN WATER UTILITY	3", 4" AND 6" COMPOUND & TURBINE METER INSTALLATIONS	
RECORD COPY SIGNED BY KATHI L. FLOWERS 11/19/2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-06 2 OF 2

DATE | NO. | REVISION

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N. MOPAC EXPY., BLDG 3, STE 200 | AUSTIN, TX. 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

STATE OF TEXAS
SHELLY MITCHELL
103682
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

UTILITY DETAILS (2 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 68 of 71

Date: Aug 15, 2023, 11:42am User ID: jeff
File: \\pdaserver.com\dfs-pd\Projects\513\12\00\301 Construction Documents\Plan Sheets\DT-51312-00.dwg

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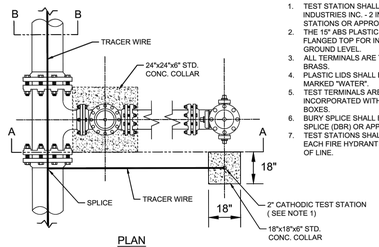
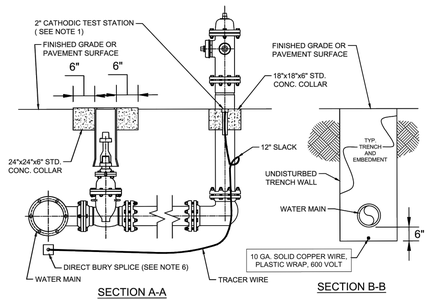
ADMIN2022-0099



PLAN

NOTES:

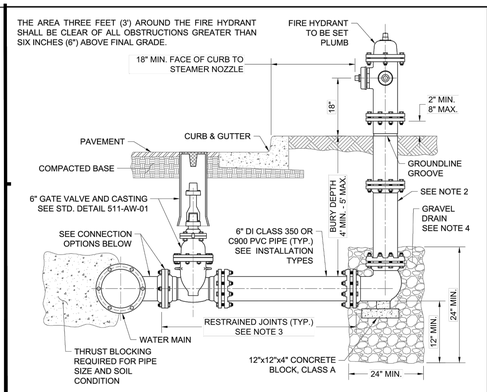
1. TEST STATION SHALL BE HANDLEY INDUSTRIES INC. - 2 INCH CATHODIC TEST STATIONS OR APPROVED EQUAL.
2. THE 15" ABS PLASTIC BOX SHALL BE A FLANGED TOP FOR INSTALLATION AT GROUND LEVEL.
3. ALL TERMINALS ARE TO BE MADE OF SOLID BRASS.
4. PLASTIC LIDS SHALL BE COLOR BLUE AND MARKED "WATER".
5. TEST TERMINALS ARE TO BE INCORPORATED WITH HANDLEY VALVE BOXES.
6. BURY SPLICE SHALL BE 3M DIRECT BURY SPLICE (DBR) OR APPROVED EQUAL.
7. TEST STATIONS SHALL BE INSTALLED AT EACH FIRE HYDRANT LOCATION AND END OF LINE.



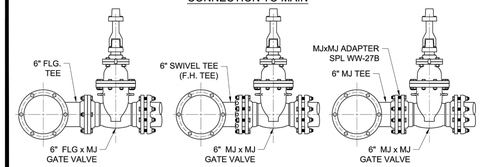
SECTION A-A SECTION B-B

CITY OF AUSTIN AUSTIN WATER		WTCPUA CONSTRUCTION STANDARDS AND DETAILS TRACER WIRE INSTALLATION AND TEST STATION LOCATION	
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

THE AREA THREE FEET (3') AROUND THE FIRE HYDRANT SHALL BE CLEAR OF ALL OBSTRUCTIONS GREATER THAN SIX INCHES (6") ABOVE FINAL GRADE.

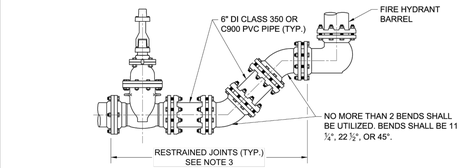


CONNECTION TO MAIN

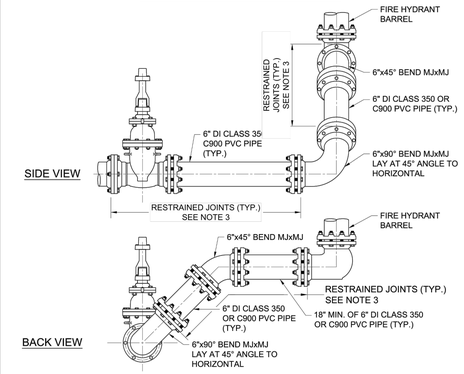


OPTION 1 OPTION 2 OPTION 3

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 1 OF 3

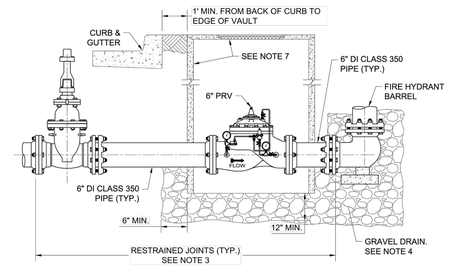


INSTALLATION ON DEEP WATER MAIN



INSTALLATION ON DEEP WATER MAIN WITH 90° BEND

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



INSTALLATION ON WATER MAIN WITH PRESSURE REDUCING VALVE (PRV)

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 AND A MINIMUM OF 4' 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 ALL JOINTS RESTRAINED FROM MAIN TO FIRE HYDRANT. JOINTS SHOWN MAY VARY. SEE SPL WW-27, WW-27A, AND WW-27B FOR RESTRAINT OPTIONS.
4. BELOW EACH HYDRANT, A DRAINAGE PIT 24" 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 BOWL OF THE HYDRANT, AND TO A LEVEL 12" ABOVE THE HYDRANT DRAIN OPENING (SEE STD. SPEC. 510). THE HYDRANT DRAINAGE PIT SHALL NOT BE CONNECTED TO A SANITARY SEWER. THE DRAIN GRAVEL SHALL BE COVERED WITH FILTER FABRIC PER STD. SPEC. 620S. FOR PRV, GRAVEL SHALL EXTEND UNDER THE PRV VAULT 12" MIN. DEPTH UNDER THE VAULT AND 6" MIN. BEYOND VAULT.
5. FOR FIRE HYDRANT LEADS AT A MAIN OUTLET LARGER THAN 6" DIAMETER, OUTLET SHALL BE FLANGED AND A FLG x FLG REDUCER SHALL BE INSTALLED DIRECTLY ON THE OUTLET.
6. WRAP 8 MIL. POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS.
7. 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	
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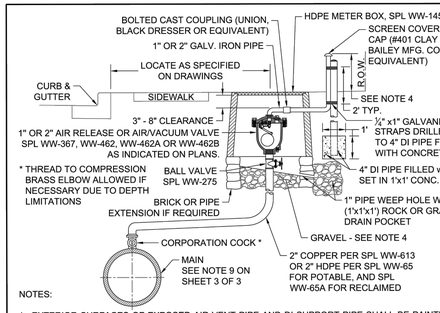

NOTES:

1. EXTERIOR SURFACES OF EXPOSED AIR VENT PIPE AND DI SUPPORT PIPE SHALL BE PAINTED PER SPL WW-3C. POTABLE WATER PIPE SHALL BE PAINTED SAFETY BLUE.
2. AIR VENT PIPE INSTALLATION SHALL BE AS NEAR AS PRACTICAL TO RIGHT-OF-WAY LINE WITH MINIMUM CLEARANCE OF 18" FROM ANY OBSTACLE.
3. HDPE METER BOX PENETRATION SHALL BE CORE BIT DRILLED. VOID SHALL BE FILLED WITH LINKSEAL LS 300 OR APPROVED EQUAL.
4. COMPACTED COARSE GRAVEL OR BROKEN STONE MIXED WITH SAND SLOPED TO DRAIN.
5. 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, BURIED IN CLASS A CONCRETE OR CLSM 3' BELOW FINAL GRADE AND EXTENDING 3' ABOVE FINAL GRADE). INSTALL ONE DELINEATOR STAKE WITHIN 3' OF THE VAULT ON THE VEHICULAR ACCESS SIDE OF VAULT OR AS DIRECTED BY AUSTIN WATER. DELINEATOR SHALL BE BLUE FOR POTABLE WATER AND SHALL EXTEND AT LEAST 60" ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE IN COLOR, TYPE I REFLECTIVE TAPE MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES. IN DEVELOPED AREAS, THE AIR VENT PIPE SHALL BE 8' - 12' IN HEIGHT AND LOCATED NOT TO CONFLICT WITH SIDEWALK, DRIVEWAY, OR OTHER PEDESTRIAN TRAFFIC.
6. THE AIR VALVE AND ASSOCIATED PIPING SHALL BE INSTALLED ABOVE THE HIGHEST ELEVATION OF THE WATER MAIN. AIR VALVE PIPING, FROM THE WATER MAIN TO THE AIR VALVE, SHALL MAINTAIN A CONSTANT RISE, WITH NO DIPS, TO THE TOP OF THE GROUND.

1" - 2" AIR RELEASE OR AIR/VACUUM VALVE INSTALLATION - TYPE I

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-27D. ALL COVERS SHALL HAVE **"RECLAIMED WATER"** CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER		AIR RELEASE AND AIR/VACUUM VALVE	
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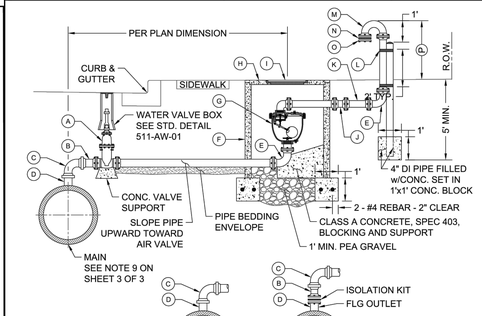

DI MAIN STEEL/CSC MAIN

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 SPIGOT END.
E. 90° BEND (FLG x FLG).
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/VACUUM RELIEF VALVES FOR POTABLE WATER SPL WW-462A OR AIR RELEASE/VACUUM RELIEF VALVES FOR RECLAIMED WATER SPL WW-462B OR AIR RELEASE/AIR VACUUM VALVE FOR WASTEWATER SPL WW-462B.
H. REINFORCED PRECAST CONCRETE LID (AASHTO H-20 LOADING).
I. COA 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, 3" PIPE - GALVANIZED IRON, 4" AND LARGER PIPE - DI ONLY.
L. ¾" x1" GALVANIZE STRAPS DRILLED TO 4" DI PIPE FILLED w/CONCRETE (SEE NOTE 7).
M. RETURN BEND (FLG x FLG).
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

CITY OF AUSTIN AUSTIN WATER		AIR RELEASE AND AIR/VACUUM VALVE	
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NOTES:

1. ON 10" AND LARGER TWO PIECE COMBINATION AIR VALVES, THE OUTLET PIPING OF THE SMALL VALVE SHALL BE VENTED WITHIN THE VAULT INTO THE LARGER VENT PIPE
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/LINKSEAL LS 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, BURIED IN CLASS A CONCRETE OR CLSM 3' BELOW FINAL GRADE AND EXTENDING 3' ABOVE FINAL GRADE). INSTALL ONE DELINEATOR STAKE WITHIN 3' OF THE VAULT ON THE VEHICULAR ACCESS SIDE OF VAULT OR AS DIRECTED BY AUSTIN WATER. DELINEATOR SHALL BE BLUE FOR POTABLE WATER AND SHALL EXTEND AT LEAST 60" ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE IN COLOR, TYPE I REFLECTIVE TAPE MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES. IN DEVELOPED AREAS, THE AIR VENT PIPE SHALL BE LOCATED NOT TO CONFLICT WITH SIDEWALK, DRIVEWAY, OR OTHER PEDESTRIAN TRAFFIC.
8. GATE VALVE, PIPE, AND FITTINGS FROM MAIN TO ARV SHALL BE OF EQUAL DIAMETER AS THE AIR VALVE EXCEPT 3" ARV SHALL HAVE 4" FITTINGS AND A 4"x3" REDUCER AT THE ARV, AND ALL PIPE AND FITTINGS ON THE OUTLET SIDE OF THE ARV SHALL BE EQUAL TO THE SIZE OF THE OUTLET OF THE ARV. VAULTS SHALL BE 5' DIAMETER FOR 3" VALVE; 6' DIAMETER FOR 4", 6", AND 8" VALVES; AND 7' DIAMETER FOR 10" AND 12" VALVES.
9. FOR 24" AND LARGER MAINS, AN 18" OUTLET WITH BLIND FLANGE SHALL BE INSTALLED AT CONNECTION OF ARV.

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-27D. ALL COVERS SHALL HAVE **"RECLAIMED WATER"** CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER		AIR RELEASE AND AIR/VACUUM VALVE	
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NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103682
LICENSED
PROFESSIONAL ENGINEER
08/22/2023

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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

ARIZA 290 WEST
13900 W. US-290
DRIPPING SPRINGS, TEXAS 78620

UTILITY DETAILS (3 OF 3)

JOB NO. 51312-00
DATE DECEMBER 2022
DESIGNER JR
CHECKED TR DRAWN JW
SHEET 69 of 71

Date: Aug 15, 2023, 11:42am User ID: jwolf
File: \\pape-dawson.com\pape-dfs\Projects\51312\00\301 Construction Documents\Plan Sheets\01-51312-00.dwg

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