



# **BULVERDE COMMERCIAL**

## **Water Pollution Abatement Plan Modification**

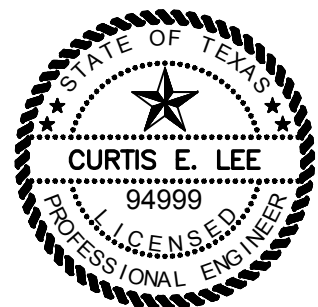


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Transportation | Water Resources | Land Development | Surveying | Environmental

# BULVERDE COMMERCIAL

## Water Pollution Abatement Plan Modification



*Curtis Lee*



December 3, 2024

Ms. Monica Reyes  
Texas Commission on Environmental Quality (TCEQ)  
Region 13  
14250 Judson Road  
San Antonio, Texas 78233-4480

Re: Bulverde Commercial  
Water Pollution Abatement Plan Modification

Dear Ms. Reyes:

Please find included herein the Bulverde Commercial Water Pollution Abatement Plan (WPAP) Modification. This WPAP Modification has been prepared in accordance with the regulations of the Texas Administrative Code (30 TAC 213) and current policies for development over the Edwards Aquifer Recharge Zone.

This WPAP Modification applies to an approximate 17.43-acre tract located within the city limits of San Antonio, Texas and is a modification to the WPAP for Bulverde Commercial that was approved on December 22, 2023 (Edwards Aquifer Protection Plan ID 13001845, Regulated Entity No. RN111821823). 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 are included. If you have questions or require additional information, please do not hesitate to contact me at your earliest convenience.

Sincerely,  
Pape-Dawson Consulting Engineers, LLC



Curtis Lee, P.E.  
Vice President

Attachments

P:\127\87\01\Word\Reports\WPAP Modification\240709a1.docx

**EDWARDS AQUIFER  
APPLICATION COVER PAGE  
(TCEQ-20705)**

# Texas Commission on Environmental Quality

## Edwards Aquifer Application Cover Page

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### 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.

<b>1. Regulated Entity Name:</b> Bulverde Commercial					<b>2. Regulated Entity No.:</b> RN111821823				
<b>3. Customer Name:</b> 2021 FII Bulverde, LLC					<b>4. Customer No.:</b> 606101368				
<b>5. Project Type:</b> (Please circle/check one)	New	Modification			Extension	Exception			
<b>6. Plan Type:</b> (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
<b>7. Land Use:</b> (Please circle/check one)	Residential	Non-residential				<b>8. Site (acres):</b>		17.43	
<b>9. Application Fee:</b>	\$6,500		<b>10. Permanent BMP(s):</b>			Jellyfish Filter and Aquashield Aqua-Filter			
<b>11. SCS (Linear Ft.):</b>	N/A		<b>12. AST/UST (No. Tanks):</b>			N/A			
<b>13. County:</b>	Bexar		<b>14. Watershed:</b>			Elm Waterhole 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](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)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

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

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

Curtis Lee, P.E.

Print Name of Customer/Authorized Agent

*Curtis Lee*

10/15/24

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):

**GENERAL INFORMATION  
FORM (TCEQ-0587)**

# General Information Form

## Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) 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 **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Curtis Lee, P.E.

Date: 10/15/24

Signature of Customer/Agent:

  
\_\_\_\_\_

## Project Information

1. Regulated Entity Name: Bulverde Commercial
2. County: Bexar
3. Stream Basin: Elm Waterhole Creek
4. Groundwater Conservation District (If applicable): Trinity Glen Rose
5. Edwards Aquifer Zone:  
☒ Recharge Zone  
☐ Transition Zone
6. Plan Type:  

<input checked="" type="checkbox"/> WPAP	<input type="checkbox"/> AST
<input type="checkbox"/> SCS	<input type="checkbox"/> UST
<input checked="" type="checkbox"/> Modification	<input type="checkbox"/> Exception Request



7. Customer (Applicant):

Contact Person: Lloyd A Denton Jr.

Entity: 2021 FII Bulverde, LLC

Mailing Address: 11 Lynn Batts Lane, Suite 100

City, State: San Antonio, Texas

Zip: 78218-3077

Telephone: (210) 828-6131

FAX: (210) 828-6137

Email Address: LaddieDenton@bitterblue.com

8. Agent/Representative (If any):

Contact Person: Curtis Lee, P.E.

Entity: Pape-Dawson Engineers

Mailing Address: 2000 NW Loop 410

City, State: San Antonio, Texas

Zip: 78213

Telephone: (210) 375-9000

FAX: (210) 375-9010

Email Address: clee@pape-dawson.com

9. Project Location:

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

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

From TCEQ's regional office, turn right onto Judson Rd toward N Loop 1604. Follow N Loop 1604 E traveling east for approximately 4.3 miles to exit for US-281 S. Travel approximately 5.7 miles before turning left on Bulverde Rd. The project site is located northwest of the intersection of Bulverde Rd and US Hwy 281.

11. ☒ **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.
12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:
- ☒ Project site boundaries.
  - ☒ USGS Quadrangle Name(s).
  - ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
  - ☒ Drainage path from the project site to the boundary of the Recharge Zone.
13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate

the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey staking will be completed by this date: 12/8/2023

14. ☒ **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. 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

15. 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/Uncleared)
- ☐ Other: \_\_\_\_\_

### ***Prohibited Activities***

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☐ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

### ***Administrative Information***

18. The fee for the plan(s) is based on:

- ☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

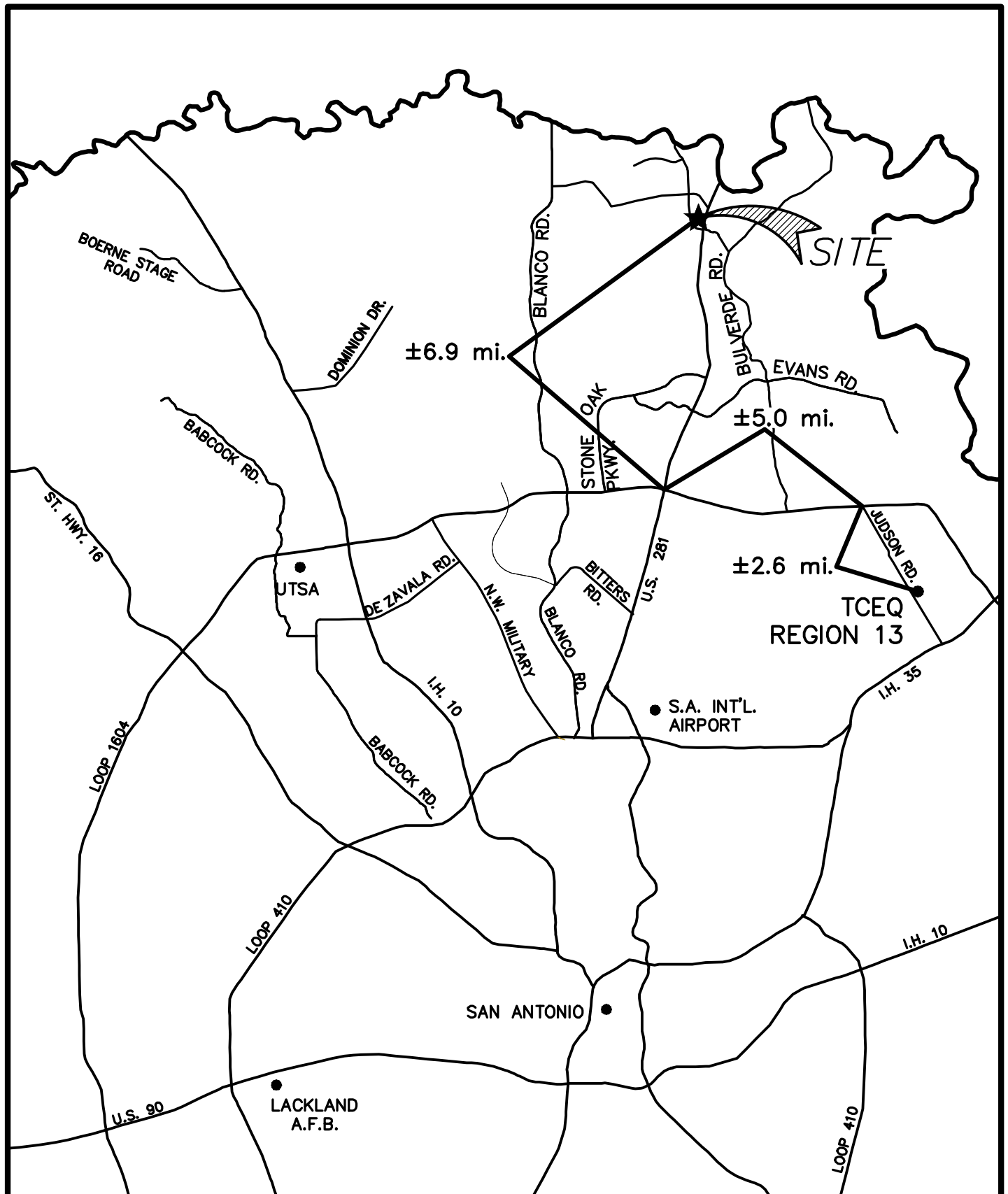
- ☐ TCEQ cashier
- ☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ 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.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

**ATTACHMENT A**

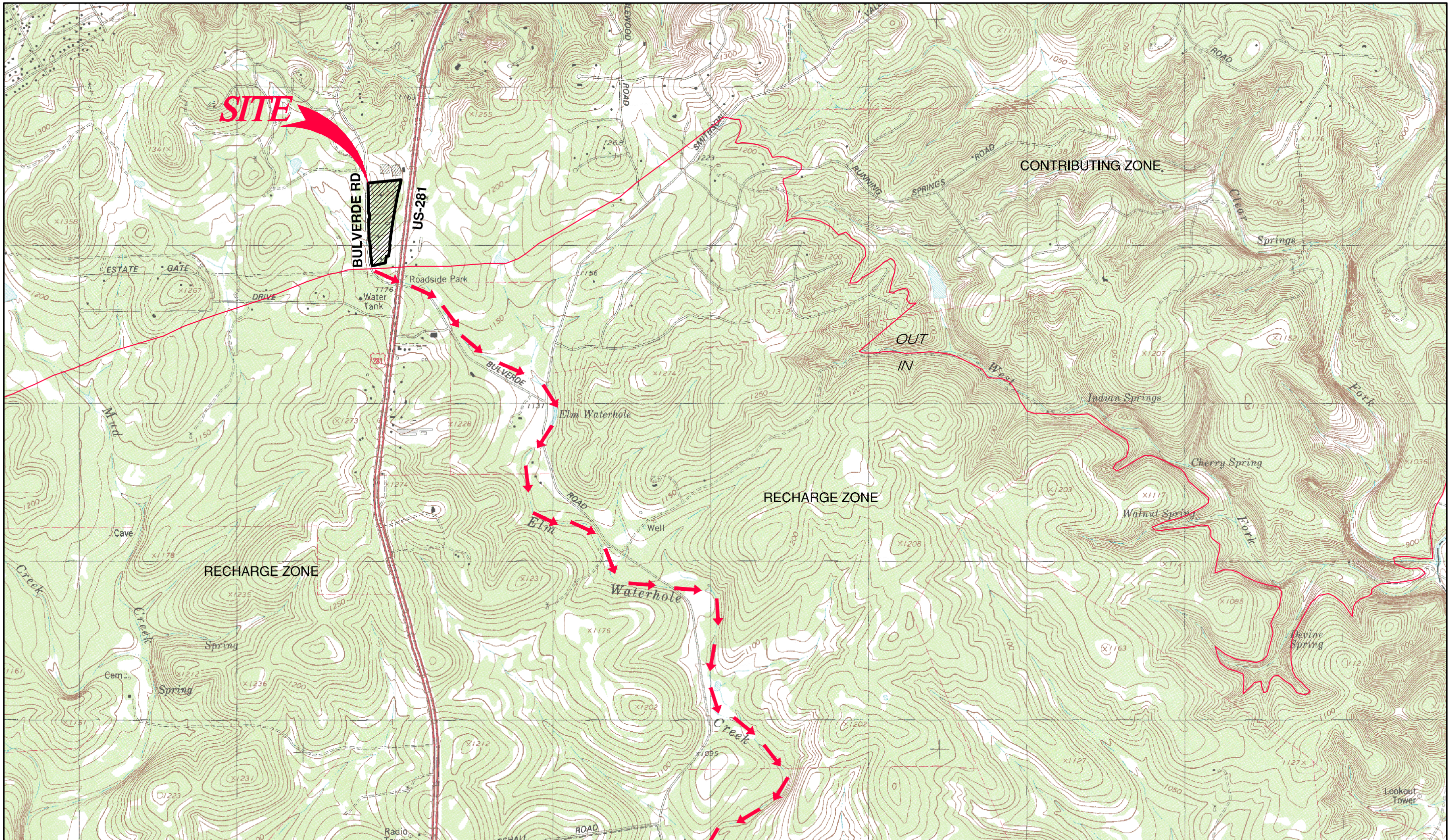
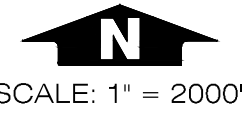
**BULVERDE COMMERCIAL**  
**Water Pollution Abatement Plan Modification**



**ATTACHMENT B**



# BULVERDE COMMERCIAL Water Pollution Abatement Plan Modification



BULVERDE, TX QUAD AND LONGHORN, TX QUAD

USGS/EDWARDS RECHARGE ZONE MAP  
Sheet 1 Of 1  
ATTACHMENT B

DRAINAGE FLOW   
Pape-Dawson Engineers, Inc.



**ATTACHMENT C**



# **BULVERDE COMMERCIAL**

## **Water Pollution Abatement Plan Modification**

### **Attachment C – Project Description**

The Bulverde Commercial Water Pollution Abatement Plan (WPAP) Modification applies to an approximate 17.43-acre tract located within the city limits of San Antonio, Texas and is a modification to the WPAP for Bulverde Commercial that was approved on December 22, 2023 (Edwards Aquifer Protection Plan ID 13001845, Regulated Entity No. RN111821823). This WPAP Modification proposes construction of a commercial development with associated parking and drive access and turn lanes within the larger Bulverde Commercial development. The site is located northwest of the Bulverde Rd and US Hwy 281 intersection. The site is currently a mix of undeveloped land and commercial developments and lies within Elm Waterhole Creek watershed which does not contain 100-year floodplain. There are approximately 0.41 acres of existing onsite impervious cover which pre-dates the 30 TAC 213 rules. There were no naturally occurring sensitive geological features identified in the Geologic Assessment (GA). Four wells were identified in the GA within the project limits have been properly abandoned.

This WPAP Modification proposes demolition, additional clearing, grading, excavation, installation of utilities and drainage improvements, construction of two (2) Aqua-Filter® basins, one (1) Jellyfish® filter basin, drive access, commercial buildings, turn lanes and associated parking. The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment remove 80% of the increase in Total Suspended Solids (TSS) from the site. Approximately 15.67 acres of impervious cover, or 89.90% of the 17.43-acre project limits, are proposed for construction in this WPAP. All PBMPs have been designed in accordance with the Texas Commission on Environmental Quality's (TCEQ) Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.

Watersheds "1" and "2" will be conveyed to the proposed Aqua-Filter® basins for treatment and watershed "3" will be conveyed to the proposed Jellyfish® filter basin for treatment. There are 0.41 acres of existing grandfathered onsite impervious cover contained within the limits of our Project Limits. Approximately 14.24 acres of impervious cover from the buildings, road, parking, and drives will be treated by the Aqua-Filter® and Jellyfish® filter basins; leaving 1.43 acres as overtreatment. There is approximately 0.41 acres of grandfathered impervious cover which has reduced the required treatment of impervious cover to 15.26 acres. Please see the Treatment Summary table shown on Exhibit 3 which can be found within the Exhibits section of this application.

The impervious cover associated with the development of a 3.066-acre tract that is a portion of the overall 23.51-acre Project Limits shown on Exhibit 3 within this report is covered under a separate WPAP Modification that was completed for QuikTrip Store #4013 dated August 2024.

Potable water service is to be provided by the San Antonio Water System (SAWS). The proposed development has an approved USA for 235 EDUs which will generate approximately 47,000 gallons per day (average flow) of domestic wastewater based on the assumption of 200 gpd per EDU. Wastewater will be disposed of by conveyance to the existing Steven M. Clouse Water Recycling Center (WRC) operated by SAWS.

**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.

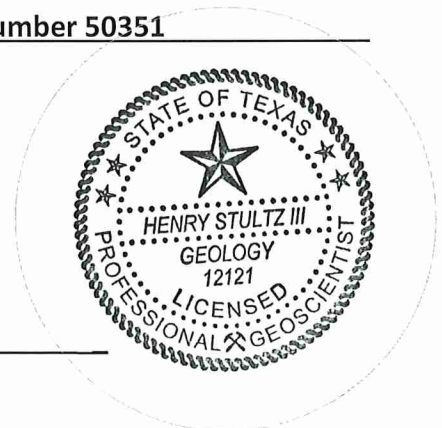
Telephone: 210-375-9000

Date: December 7, 2022

Fax: 210-375-9090

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

Signature of Geologist:



Regulated Entity Name: Bulverde Commercial

## Project Information

1. Date(s) Geologic Assessment was performed: December 1, 2022

2. Type of Project:

- ☒ WPAP  
☐ SCS

- ☐ AST  
☐ UST

3. Location of Project:

- ☒ Recharge Zone  
☐ Transition Zone  
☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups\* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

**Table 1 - Soil Units, Infiltration Characteristics and Thickness**

Soil Name	Group*	Thickness(feet)
Anhalt clay, 0-2% slopes (Ca)	D	1-2
Crawford, stony and Bexar soils, 0-5% slopes (Cb)	D	1-3
Krum clay, 1-5% slopes (Kr)	C	3-4
Eckrant cobbly clay, 1-8% slopes (TaB)	D	0-1

\* Soil Group Definitions (Abbreviated)

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. ☒ **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'  
 Applicant's Site Plan Scale: 1" = 100'  
 Site Geologic Map Scale: 1" = 100'  
 Site Soils Map Scale (if more than 1 soil type): 1" = 400'
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: Bulverde Commercial									
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									<1.6	>1.6	
S-1	29.69656°	-98.45273°	MB	30	Kgr	>2000				10				20	50	50	X		Hillside
S-2	29.69541°	-98.45331°	MB	30	Kgr	Well								20	50	50	X		Hillside
S-3	29.69678°	-98.45323°	MB	30	Kgr	Well								20	50	50	X		Hillside
S-4	29.69687°	-98.45366°	MB	30	Kgr	Well								5	35	35			Hillside
S-5	29.69829°	-98.45323°	MB	30	Kgr	Well								5	35	35			Hillside
S-6	29.69492°	-98.45328°	MB	30	Kgr	Septic								5	35	35			Hillside
S-7	29.69643°	-98.45403°	MB	30	Kgr	Septic								5	35	35			Hillside
S-8	29.69885°	-98.45316°	MB	30	Kgr	Septic								5	35	35			Hillside
S-9	29.69475°	-98.45351°	F	20	Kgr/Kek	>2000			N74°E	10				5	35	35		X	Drainage

\*\* 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

I have read, I understand, 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 December 7, 2022



# **ATTACHMENT B**

## **Stratigraphic Column**



# BULVERDE COMMERCIAL

## Geologic Assessment (TCEQ-0585)

### 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); <i>Toucasia</i> 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; <i>Ceratastreon texana</i> , <i>Caprina</i> 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 (absent in northern Comal Co.)	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 <i>Corbula</i> sp. bed marks the contact with the underlying lower member of the Glen Rose Limestone; <i>Orbitulina texana</i>	Upper Trinity Lower confining unit to the Edwards aquifer	Cavernous		Aquifer	MO, BR, BP, FR, CV	Some surface cave development
					Camp Bullis			Confining	BU, BP, FR, occasional CV			
					Upper evaporite			Aquifer	IP, MO, BU, BR			
					Fossiliferous			Upper	Aquifer	MO, BU, FR, CV		
								Lower	Confining	MO, BU, FR		
					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**

# BULVERDE COMMERCIAL

## Geologic Assessment

### Attachment C – Site Geology

## SUMMARY

The Bulverde Commercial site is located at the northwest corner of State Highway 281 and Bulverde Road in Bexar 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 formations which outcrop at the surface within the subject site are the upper member of the Glen Rose (Kgru) formation, and the basal nodular (Kekbn) member of the Kainer formation. A description of the units observed onsite is provided below:

- The Kgru is characterized as yellowish-tan thinly bedded limestone and marl. Karst development within the Kgru is characterized by cave formation, with predominantly lateral large rooms.
- The Kekbn is a massive, shaly, mudstone to grainstone, nodular limestone. Karst development within the Kekbn is characterized by vertical shafts as well as large lateral caves.

The predominant trend of faults in the vicinity of the site is approximately N74°E, based on faults identified during the previous mapping of the area.

## FEATURE DESCRIPTIONS:

A description of the features observed onsite is provided below:

### Feature S-1

Feature S-1 is a series of existing sewer lines that are partially located beneath pavement. The sewer lines have been trenched through bedrock and backfilled with a mix of fine and coarse fill material that may be

## **BULVERDE COMMERCIAL**

### **Geologic Assessment**

more permeable than surrounding undisturbed areas. Therefore, the probability of rapid infiltration is intermediate.

#### Features S-2 and S-3

Feature S-2 are existing water wells near an existing residential structure. The pad and well head appear to be in good condition. However, the age of the well and integrity of casing are unknown. Therefore, the probability of rapid infiltration is intermediate.

#### Features S-4 and S-5

Features S-4 and S-5 are existing water wells near existing residential structures. The wells are listed in the TWDB groundwater database as State of Texas well numbers 395164 and 92020 respectively. As the wells were documented and installed per Texas regulations, the probability of rapid infiltration is low.

#### Features S-6, S-7, and S-8

Features S-6, S-7, and S-8 are septic tanks. Due to the non-karst origin and the likelihood that the septic system is confined to the soil horizon, the probability for rapid infiltration is low.

#### Feature S-9

Feature S-9 is an informational fault that juxtaposes the Kek to the south with the Kgr to the north. It was identified by review of aerial photography and published maps. Lack of evidence of enhanced permeability and the presence of fine-grained soil cover suggests a low probability for rapid infiltration.

## **REFERENCES**

Clark, A.K., Golab, J.A., and Morris, R.R., 2016, Geologic Framework and Hydrostratigraphy of the Edwards and Trinity Aquifers Within Northern Bexar and Comal Counties, Texas: U.S. Geological Survey Scientific Investigations Map 3366, scale 1:24,000, 20 p. pamphlet.

Nationwide Environmental Title Research, LLC. Historical Aerials, HistoricAerials.com. <https://www.historicaerials.com/viewer>, December 7, 2022.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. <http://websoilsurvey.sc.egov.usda.gov/>, December 7, 2022.

## **BULVERDE COMMERCIAL**

### **Geologic Assessment**

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.

Texas Water Development Board, Wells in TWDB Groundwater Database Viewer, <https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>, December 7, 2022.

U.S. Geological Survey, National Water Information System: Mapper, <https://maps.waterdata.usgs.gov/mapper/index.html>, December 7, 2022.

**ATTACHMENT D**  
**Site Geologic Map(s)**





**LEGEND**

Site Boundary

JOB NO.	12787-01
DATE	Dec 2022
DRAWN	HS
CHECKED	HDJ
SHEET	ATTACHMENT D

**BULVERDE COMMERCIAL**  
**SITE SOILS MAP**  
**BEXAR COUNTY, TEXAS**

**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 | TBPLS FIRM REGISTRATION #10028800  
 TBPG FIRM REGISTRATION #50351



LEGEND

LIMITS OF ASSESSMENT

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

Eagle Ford

Kbu

DEL RIO

Kgt

GEORGETOWN

Kep

PERSON

Kek

KAINER

Kgr

GLEN ROSE

SOLUTION ENLARGED FRACTURE

SWALLOW HOLE

SINKHOLE

NON-KARST CLOSED DEPRESSION

ZONE

OTHER NATURAL BEDROCK FEATURES

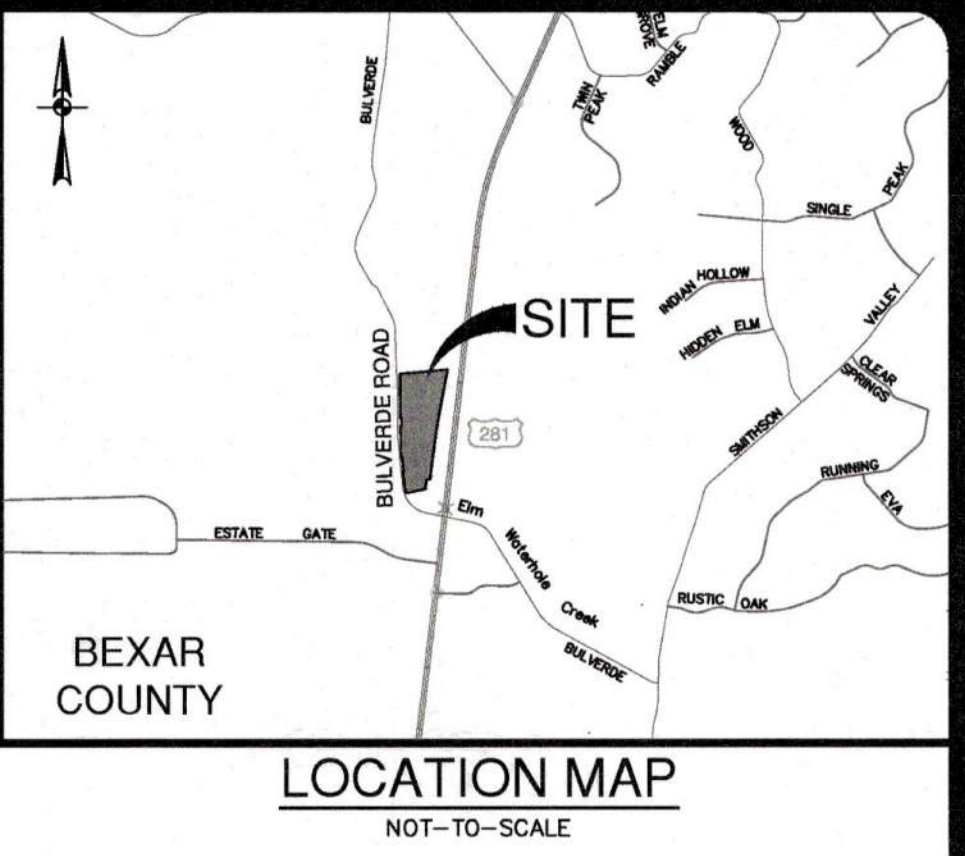
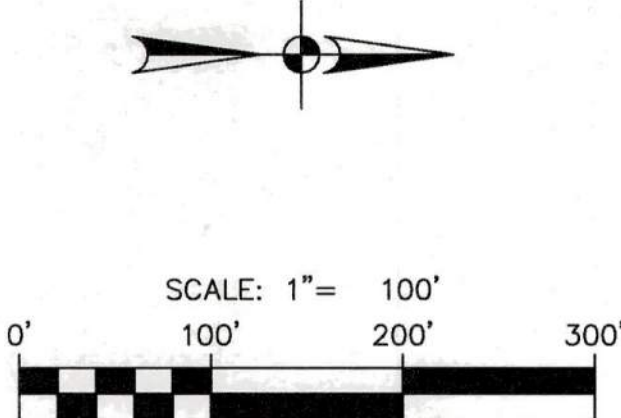
SPRING/SEEP

MAN-MADE FEATURE IN BEDROCK

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.



DATE

NO. REVISION

STATE OF TEXAS

PROFESSIONAL SEAL

12121

December 7, 2022



PAPE-DAWSON

ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.975.9000

TBPE FIRM REGISTRATION #479 | TBPE FIRM REGISTRATION #0351

BULVERDE COMMERCIAL

BULVERDE, TEXAS

SITE GEOLOGIC MAP

WATER POLLUTION ABATEMENT PLAN

JOB NO. 12787-01

DATE DECEMBER 2022

DESIGNER HS

CHECKED HDJ DRAWN HS

ATTACHMENT D



**MODIFICATION OF A  
PREVIOUSLY APPROVED  
WATER POLLUTION  
ABATEMENT PLAN (TCEQ-  
0590)**

# Modification of a Previously Approved Plan

## Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), 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 request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Curtis Lee, P.E.

Date: 10/15/24

Signature of Customer/Agent:



---

## Project Information

1. Current Regulated Entity Name: Bulverde Commercial  
Original Regulated Entity Name: Bulverde Commercial  
Regulated Entity Number(s) (RN): RN111821823  
Edwards Aquifer Protection Program ID Number(s): 13001845  
☒ The applicant has not changed and the Customer Number (CN) is: 606101368  
☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.
2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
- ☒ Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
  - ☐ Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
  - ☐ Development of land previously identified as undeveloped in the original water pollution abatement plan;
  - ☐ Physical modification of the approved organized sewage collection system;
  - ☐ Physical modification of the approved underground storage tank system;
  - ☐ Physical modification of the approved aboveground storage tank system.
4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

<b><i>WPAP Modification</i></b>	<b><i>Approved Project</i></b>	<b><i>Proposed Modification</i></b>
<b><i>Summary</i></b>		
Acres	<u>17.18</u>	<u>17.43</u>
Type of Development	<u>Commercial</u>	<u>Commercial</u>
Number of Residential Lots	<u>0</u>	<u>0</u>
Impervious Cover (acres)	<u>15.56</u>	<u>15.67</u>
Impervious Cover (%)	<u>90.57%</u>	<u>89.90%</u>
Permanent BMPs	<u>2-Jellyfish Filters</u>	<u>2-Aqua-Filters and</u>
Other	<u>          </u>	<u>1-Jellyfish Filter</u>

<b><i>SCS Modification</i></b>	<b><i>Approved Project</i></b>	<b><i>Proposed Modification</i></b>
<b><i>Summary</i></b>		
Linear Feet	<u>          </u>	<u>          </u>
Pipe Diameter	<u>          </u>	<u>          </u>
Other	<u>          </u>	<u>          </u>

<b><i>AST Modification</i></b>	<b><i>Approved Project</i></b>	<b><i>Proposed Modification</i></b>
--------------------------------	--------------------------------	-------------------------------------

***Summary***

Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

<b><i>UST Modification</i></b>	<b><i>Approved Project</i></b>	<b><i>Proposed Modification</i></b>
--------------------------------	--------------------------------	-------------------------------------

***Summary***

Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification.** A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.
  
6. ☒ **Attachment C: Current Site Plan of the Approved Project.** A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
  - ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
  - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
  - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
  - ☒ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
  - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.
  
7. ☐ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
  - ☒ Acreage has not been added to or removed from the approved plan.
  
8. ☒ 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**

Jon Niermann, *Chairman*  
Emily Lindley, *Commissioner*  
Bobby Janecka, *Commissioner*  
Kelly Keel, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

December 22, 2023

Mr. Lloyd A. Denton Jr.  
2021 FI Bulverde, LLC.  
11 Lynn Batts Lane, Suite 100  
San Antonio, Texas, 78218-3077

Re: Approval of a Water Pollution Abatement Plan (WPAP)  
Bulverde Commercial; Located at the northwest corner of Bulverde Road and US HWY  
281 intersection; San Antonio, Bexar County, Texas  
Edwards Aquifer Protection Program ID: 13001845, Regulated Entity No. RN111821823

Dear Mr. Denton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review on the application for the above-referenced project submitted to the Edwards Aquifer Protection Program (EAPP) by Pape-Dawson Engineers, Inc. on behalf of the applicant, 2021 FII Bulverde, LLC. on October 11, 2023. Final review of the application was completed after additional material was received on December 1, 2023.

As presented to the TCEQ, the application was prepared in general compliance with the requirements of 30 Texas Administrative Codes (TAC) Chapter §213. The permanent best management practices (BMPs) and measures represented in the application were prepared by a Texas licensed professional engineer (PE). All construction plans and design information were sealed, signed, and dated by a Texas licensed PE. Therefore, the application for the construction of the proposed project and methods to protect the Edwards Aquifer are **approved**, subject to applicable state rules and the conditions in this letter.

**This approval expires two years from the date of this letter**, unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been officially requested. This approval or extension will expire, and no extension will be granted if more than 50 percent of the project has not been completed within ten years from the date of this letter.

The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed in accordance with 30 TAC §50.139.

### PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 22.65-acres and lies within the boundary of the Recharge Zone and Contributing Zone of the Edwards Aquifer. The project will include demolition, additional clearing, grading, excavation, installation of utilities and drainage improvements, drive access, commercial buildings, turn lanes, and associated parking. The impervious cover will be 15.56-acres (68.7 percent) with 0.41-acres of pre-existing impervious cover to be demolished. Project wastewater will be disposed of by conveyance to the existing Steven M. Clouse Water Recycling Center owned and operated by the San Antonio Water System.

#### PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two (2) Jellyfish filter models, designed using the TCEQ technical guidance, *RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices*, will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 12,362 pounds of TSS generated from the 15.15-acres of impervious cover. The approved permanent BMPs and measures meet the required 80 percent removal of the increased load in TSS caused by the project.

**The permanent BMPs shall be operational prior to occupancy or use of the proposed project.** Inspection, maintenance, repair, and retrofit of the permanent BMPs shall be in accordance with the approved application.

#### GEOLOGY

According to the Geologic Assessment (GA) included with the application, the surficial units of the site are the upper member of the Glen Rose formation, and the basal nodular member of the Kainer formation. No sensitive geologic features were identified in the GA. The site assessment conducted on December 20, 2023, by TCEQ staff determined the site to be generally as described by the GA.

#### STANDARD CONDITIONS

1. The plan holder (applicant) must comply with all provisions of 30 TAC Chapter §213 and all technical specifications in the approved plan. The plan holder should also acquire and comply with additional and separate approvals, permits, registrations or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, Dam Safety, Underground Injection Control) as required based on the specifics of the plan.
2. In addition to the rules of the Commission, the plan holder must also comply with state and local ordinances and regulations providing for the protection of water quality as applicable.

#### Prior to Commencement of Construction:

3. Within 60 days of receiving written approval of an Edwards Aquifer protection plan, the plan holder must submit to the EAPP proof of recordation of notice in the county deed records, with the volume and page number(s) of the county record. A description of the property boundaries shall be included in the deed recordation in the county deed records. TCEQ form, Deed Recordation Affidavit (TCEQ-0625), may be used.
4. The plan holder of any approved Edwards Aquifer protection plan must notify the EAPP and obtain approval from the executive director prior to initiating any modification to the activities described in the referenced application following the date of the approval.
5. The plan holder must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the EAPP no later than 48 hours prior to commencement of the regulated activity. Notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person.
6. Temporary erosion and sedimentation (E&S) controls as described in the referenced application, must be installed prior to construction, and maintained during construction.

Temporary E&S controls may be removed when vegetation is established, and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

7. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring or gravel. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation.

During Construction:

8. This approval does not authorize the installation of temporary or permanent aboveground storage tanks on this project that will have a total storage capacity of five hundred gallons or more of static hydrocarbons or hazardous substances without prior approval of an Aboveground Storage Tank facility application.
9. If any sensitive feature is encountered during construction, replacement, or rehabilitation on this project, all regulated activities must be **immediately** suspended near it and notification must be made to TCEQ EAPP staff. Temporary BMPs must be installed and maintained to protect the feature from pollution and contamination. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality.
10. All water wells, including injection, dewatering, and monitoring wells shall be identified in the geologic assessment and must be in compliance with the requirements of the Texas Department of Licensing and Regulation 16 TAC Chapter §76 and all other locally applicable rules, as appropriate.
11. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
12. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge must be filtered through appropriately selected BMPs.
13. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
14. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

15. Owners of permanent BMPs and temporary measures must ensure that the BMPs and measures are constructed and function as designed. A Texas licensed PE must certify in



Mr. Lloyd A. Denton Jr.

Page 4

December 22, 2023

writing that the **permanent** BMPs or measures were constructed as designed. The certification letter must be submitted to the EAPP within 30 days of site completion.

16. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or the ownership of the property is transferred to the entity. A copy of the transfer of responsibility must be filed with the executive director through the EAPP within 30 days of the transfer. TCEQ form, Change in Responsibility for Maintenance on Permanent BMPs and Measures (TCEQ-10263), may be used.

The holder of the approved Edwards Aquifer protection plan is responsible for compliance with Chapter §213 and any condition of the approved plan through all phases of plan implementation. Failure to comply with any condition within this approval letter is a violation of Chapter §213 and is subject to administrative rule or orders and penalties as provided under §213.10 of this title (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan.

This action is taken as delegated by the executive director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Hunter Patterson of the Edwards Aquifer Protection Program at (210) 403-4026 or the regional office at 512-339-2929.

Sincerely,



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

LIB/hhp

cc: Mr. Curtis Lee, P.E., Pape-Dawson Engineers, Inc.

**ATTACHMENT B**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment B – Narrative of Proposed Modification**

This Bulverde Commercial Water Pollution Abatement Plan (WPAP) Modification proposes revisions to the watershed areas and the Permanent Best Management Practices (PBMPs) for the development. The previously approved Bulverde Commercial WPAP consisted of Watersheds “1” and “2” that conveyed runoff to two (2) proposed Jellyfish® filter basins for treatment.

This Bulverde Commercial WPAP Modification proposes the division of Watershed “1” into two (2) separate watersheds (Watershed “1” and Watershed “2”), and the previous Watershed “2” is now Watershed “3”. Watersheds “1” and “2” will now convey runoff to two (2) proposed Aqua-Filter® basins for treatment. Watershed “3” (previously Watershed “2”), will convey runoff to one (1) proposed Jellyfish® filter basin for treatment.

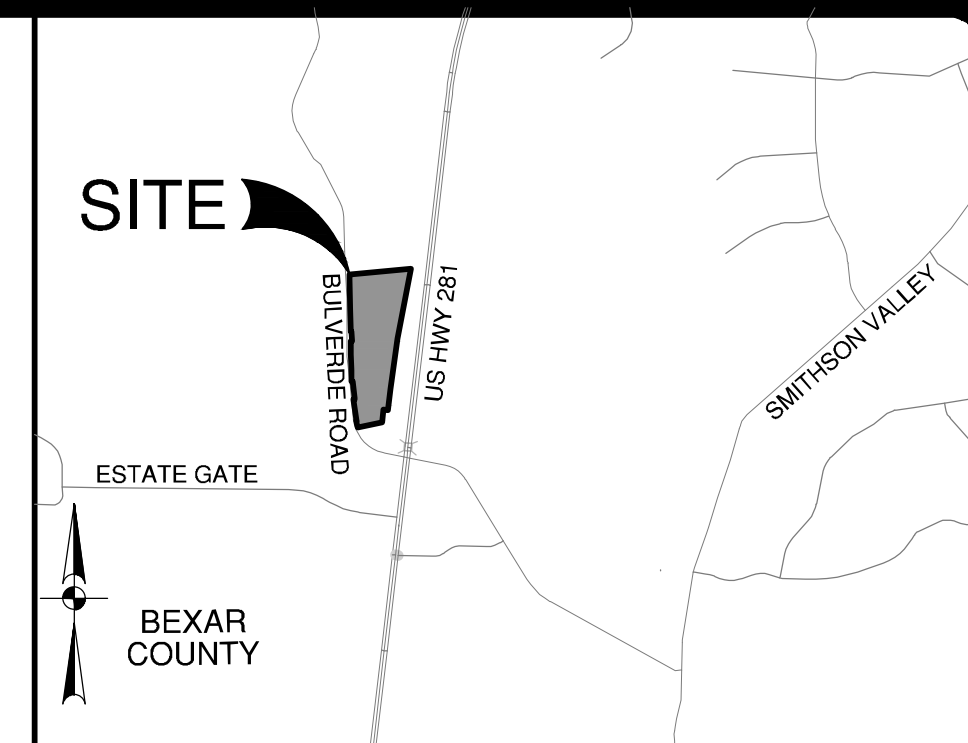
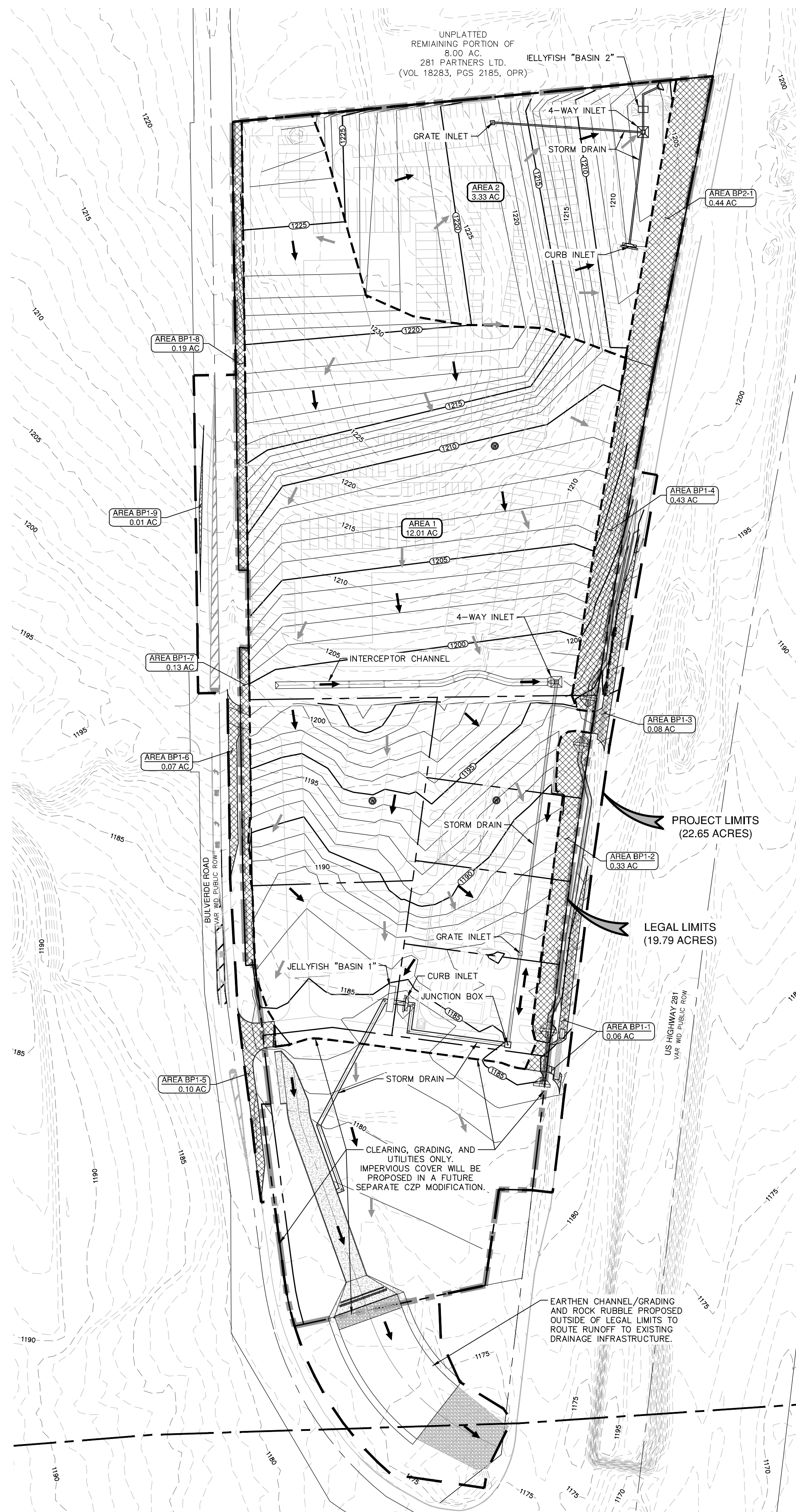
The project limits have increased from a previously approved amount of 17.18 acres to a proposed amount of 17.43 acres. This change in the project limits is due to the inclusion of offsite street improvements that are required by the City of San Antonio. The proposed impervious cover has increased from a previously approved amount of 15.56 acres to a proposed amount of 15.67 acres. Please see the Treatment Summary table shown on Exhibit 3 which can be found within the Exhibits section of this application.

**ATTACHMENT C**



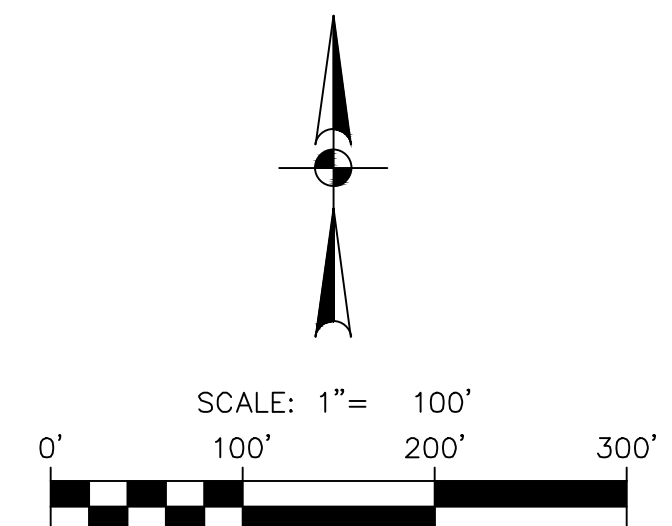
### Treatment Summary by Watershed

Watershed	Total Watershed Area (ac.)	Existing Grandfathered Impervious Cover (ac.)	Proposed Impervious Cover (ac.)	PBMP	Required TSS Removal Annually (lbs)	TSS Removed Annually (lbs)
1	12.01	0.41	11.41	Jellyfish "Basin 1"	8,976	9,629
Uncaptured 1 (BP1-1 - BP1-9)	1.40	0.00	0.80	Overtreatment Jellyfish "Basin 1"	653	0
2	3.33	0.00	3.16	Jellyfish "Basin 2"	2,579	2,735
Uncaptured 2 (BP2-1)	0.44	0.00	0.19	Overtreatment Jellyfish "Basin 2"	155	0
<b>TOTAL</b>	<b>17.18</b>	<b>0.41</b>	<b>15.56</b>	<b>---</b>	<b>12,362</b>	<b>12,364</b>



### LOCATION MAP

NOT-TO-SCALE



### LEGEND

- 
- PROJECT LIMITS  
 LEGAL LIMITS  
 EDWARDS AQUIFER RECHARGE ZONE BOUNDARY  
 DRAINAGE AREA  
 EXISTING GRADE  
 PROPOSED GRADE  
 WATER WELL  
 FLOW ARROW (EXISTING)  
 FLOW ARROW (PROPOSED)  
 OVERTREATMENT AREA  
 PROPOSED I.C. UNCAPTURED  
 EXISTING STORM DRAINAGE  
 PROPOSED STORM DRAINAGE  
 WITH GRATE

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 SOIL 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). CONTRACTOR SHALL BE REQUIRED TO SOD ON SLOPES  $> 15\%$  THE CONTRACTOR MAY SUBSTITUTE THE USE OF SOD WITH THE PLACEMENT OF TOP SOIL AND A FRABLE SEED BED WITH A PROTECTIVE MATTING OR HYDRAULIC MULCH ALONG WITH WATERING UNTIL VEGETATION IS ESTABLISHED. CONTRACTORS AND SUBS CONTRACTORS SHALL BE REQUIRED TO SOD ON FEBRUARY 1, 2006 AND THEREAFTER 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 TWO (2) JELLYFISH FILTER CONTRACTS. THESE PERMANENT BMP'S HAVE BEEN DESIGNED TO REMOVE AT LEAST 80% OF THE INCREASED TOTAL SUSPENDED SOLIDS (TSS) FOR THE INCREASED IMPERVIOUS COVER IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348 (2005).
5. TYPICAL SLOPES ON THIS PROJECT RANGE FROM APPROXIMATELY 1% TO 10%.

PERMANENT POLLUTION ABATEMENT MEASURES:

1. SILT FENCING AND ROCK BERM, WHERE APPROPRIATE, WILL BE MAINTAINED UNTIL THE ROADWAY, UTILITY, DRAINAGE IMPROVEMENTS, AND BUILDING CONSTRUCTION ARE COMPLETED.
2. TWO (2) JELLYFISH FILTER UNITS WILL SERVE AS THE PERMANENT BEST MANAGEMENT PRACTICE (BMP) FOR DRAINAGE AREAS "1" AND "2".
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.

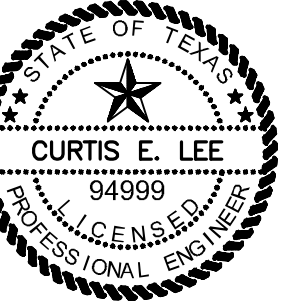
THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

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 3

[illegible]

1/29/23



Ant. Lee



**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

**BULVERDE COMMERCIAL**  
**SAN ANTONIO, TEXAS**

# WATER POLLUTION ABATEMENT APPLICATION PERMANENT POLLUTION ABATEMENT PLAN

PLAT NO. 22-11800706

JOB NO. 12787-01

DATE NOVEMBER 2023

DESIGNER \_\_\_\_\_ CK \_\_\_\_\_

CHECKED \_\_\_\_\_ DRAWN JQ



**WATER POLLUTION  
ABATEMENT PLAN  
APPLICATION FORM (TCEQ-  
0584)**

# Water Pollution Abatement Plan Application

## Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), 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 **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Curtis Lee, P.E.

Date: 10/15/24

Signature of Customer/Agent:



---

Regulated Entity Name: Bulverde Commercial

## Regulated Entity Information

1. The type of project is:

- ☐ Residential: Number of Lots: \_\_\_\_\_
- ☐ Residential: Number of Living Unit Equivalents: \_\_\_\_\_
- ☒ Commercial
- ☐ Industrial
- ☐ Other: \_\_\_\_\_

2. Total site acreage (size of property): 17.43

3. Estimated projected population: N/A

4. The amount and type of impervious cover expected after construction are shown below:

**Table 1 - Impervious Cover Table**

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	67,867	÷ 43,560 =	1.56
Parking	203,600	÷ 43,560 =	4.67
Other paved surfaces	411,118	÷ 43,560 =	9.44
Total Impervious Cover	682,585	÷ 43,560 =	15.67

**Total Impervious Cover 15.67 ÷ Total Acreage 17.43 X 100 = 89.90% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

### ***For Road Projects Only***

**Complete questions 7 - 12 if this application is exclusively for a road project.**

7. 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.

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

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: \_\_\_\_\_

9. Length of Right of Way (R.O.W.): \_\_\_\_\_ feet.

Width of R.O.W.: \_\_\_\_\_ feet.

L x W = \_\_\_\_\_ Ft<sup>2</sup> ÷ 43,560 Ft<sup>2</sup>/Acre = \_\_\_\_\_ acres.

10. Length of pavement area: \_\_\_\_\_ feet.

Width of pavement area: \_\_\_\_\_ feet.

L x W = \_\_\_\_\_ Ft<sup>2</sup> ÷ 43,560 Ft<sup>2</sup>/Acre = \_\_\_\_\_ acres.

Pavement area \_\_\_\_\_ acres ÷ R.O.W. area \_\_\_\_\_ acres x 100 = \_\_\_\_\_% impervious cover.

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

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



12. ☐ 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***

13. ☒ **Attachment B - 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 the 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***

14. The character and volume of wastewater is shown below:

_____ % Domestic	_____ Gallons/day
_____ % Industrial	_____ Gallons/day
_____ % Commingled	_____ Gallons/day
TOTAL gallons/day _____	

15. Wastewater will be disposed of by:

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

☐ **Attachment C - 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):

☒ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☐ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

☐ The SCS was previously submitted on \_\_\_\_\_.

☐ The SCS was submitted with this application.

☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

☒ The sewage collection system will convey the wastewater to the Steven M. Clouse Recycling Center (name) Treatment Plant. The treatment facility is:

☒ Existing.

☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

## **Site Plan Requirements**

**Items 17 – 28 must be included on the Site Plan.**

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

Site Plan Scale: 1" = \_\_\_\_'.

18. 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): FIRM Map Number 48029C0130G (Last Revised 9/29/2010, Obtained 9/25/2023).

19. ☒ 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, open space, etc. are shown on the plan.

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

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☒ There are 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 §76.

☐ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

☒ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

☐ **Attachment D - Exception to the Required Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.

- 22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
- 23. ☒ Areas of soil disturbance and areas which will not be disturbed.
- 24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- 25. ☒ Locations where soil stabilization practices are expected to occur.
- 26. ☐ Surface waters (including wetlands).
  - ☒ N/A
- 27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.
  - ☒ There will be no discharges to surface water or sensitive features.
- 28. ☒ Legal boundaries of the site are shown.

### ***Administrative Information***

- 29. ☒ 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.
- 30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

**ATTACHMENT A**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment A – Factors Affecting 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 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 B**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment B – 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 213.8 cfs. The runoff coefficient for the site changes from approximately 0.55 before development to 0.97 after development. Values are based on the Rational Method using runoff coefficients per the City of San Antonio Unified Development Code.

**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: Curtis Lee, P.E.

Date: 10/15/24

Signature of Customer/Agent:



Regulated Entity Name: Bulverde Commercial

## 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: Elm Waterhole 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**

# **BULVERDE COMMERCIAL**

## **Water Pollution Abatement Plan Modification**

### **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. [https://www.tceq.texas.gov/response/spills/spill\\_rq.html](https://www.tceq.texas.gov/response/spills/spill_rq.html)
- 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.

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

- 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**

# BULVERDE COMMERCIAL

## Water Pollution Abatement Plan Modification

### Attachment B – Potential Sources of Contamination

Other potential sources of contamination during construction include:

Potential Source	Preventative Measure
Asphalt products used on this project.	<ul style="list-style-type: none"> <li>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.</li> </ul>
Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dripping.	<ul style="list-style-type: none"> <li>Vehicle maintenance when possible, will be performed within the construction staging area.</li> <li>Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.</li> </ul>
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.	<ul style="list-style-type: none"> <li>Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures.</li> <li>Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures.</li> <li>Hazardous materials and wastes shall be stored in covered containers and protected from vandalism.</li> <li>A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible.</li> </ul>
Miscellaneous trash and litter from construction workers and material wrappings.	<ul style="list-style-type: none"> <li>Trash containers will be placed throughout the site to encourage proper trash disposal.</li> </ul>
Construction debris.	<ul style="list-style-type: none"> <li>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.</li> </ul>
Spills/Overflow of waste from portable toilets	<ul style="list-style-type: none"> <li>Portable toilets will be placed away from high-traffic vehicular areas and storm drain inlets.</li> <li>Portable toilets will be placed on a level ground surface.</li> <li>Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.</li> </ul>



**ATTACHMENT C**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **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. The first is site preparation that will include clearing and grubbing of vegetation where applicable. This will disturb approximately 17.43 acres. The second is construction that will include construction of homes, the sedimentation/filtration basins and detention basin, construction of new pavement area, landscaping and site cleanup. This will disturb approximately 17.43 acres.

**ATTACHMENT D**

## BULVERDE COMMERCIAL

### Water Pollution Abatement Plan Modification

#### Attachment D – Temporary Best Management Practices and Measures

- a. 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 water will cross the site. Upgradient water will be intercepted through earthen channels around 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.

***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.***

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### Water Pollution Abatement Plan Modification

- 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.

***BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site.***

**ATTACHMENT F**

# **BULVERDE COMMERCIAL**

## **Water Pollution Abatement Plan Modification**

### **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 Exhibit 1 and illustrated in Exhibit 2.
- Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities, as located on Exhibit 1 and illustrated in Exhibit 2.
- Installation of stabilized construction entrance/exit(s) and construction staging area(s), as located on Exhibit 1, and illustrated on Exhibit 2.

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 Exhibit 1 and illustrated on Exhibit 2.

**ATTACHMENT G**



## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment G – Drainage Area Map**

No more than ten (10) acres will be disturbed within a common drainage area at one time as construction of civil infrastructure (utilities, roads, drainage, etc.) will precede home building construction. All TBMPs utilized are adequate for the drainage areas served.

**ATTACHMENT I**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **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.

# BULVERDE COMMERCIAL

## Water Pollution Abatement Plan Modification

Pollution Prevention Measure	Inspected in Compliance	Corrective Action Required	
		Description (use additional sheet if necessary)	Date Completed
<b>Best Management Practices</b>			
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			
<b>Evidence of Erosion</b>			
Site preparation			
Roadway or parking lot construction			
Utility construction			
Drainage construction			
Building construction			
<b>Major Observations</b>			
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

# BULVERDE COMMERCIAL

## Water Pollution Abatement Plan Modification

### PROJECT MILESTONE DATES

Date when major site grading activities begin:

<u>Construction Activity</u>	<u>Date</u>
Installation of BMPs	

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

<u>Construction Activity</u>	<u>Date</u>

Dates when stabilization measures are initiated:

<u>Stabilization Activity</u>	<u>Date</u>
Removal of BMPs	

**ATTACHMENT J**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **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 14<sup>th</sup> day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

**PERMANENT STORMWATER  
SECTION (TCEQ-0600)**



# Permanent 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)(C), (D)(li), (E), and (5), 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 **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Curtis Lee, P.E.

Date: 10/15/24

Signature of Customer/Agent



Regulated Entity Name: Bulverde Commercial

## Permanent Best Management Practices (BMPs)

***Permanent best management practices and measures that will be used during and after construction is completed.***

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.  
☐ N/A
2. ☒ 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

3. ☒ 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

4. 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.

5. 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 A - 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.

6. ☒ **Attachment B - 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.
7. ☒ **Attachment C - 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.
8. ☒ **Attachment D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.
- ☐ N/A
9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.
- ☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
  - ☐ **Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.
10. ☒ **Attachment F - Construction Plans.** All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:
- ☒ Design calculations (TSS removal calculations)
  - ☒ TCEQ construction notes
  - ☒ All geologic features
  - ☒ All proposed structural BMP(s) plans and specifications
- ☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
- ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
  - ☒ Signed by the owner or responsible party
  - ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
  - ☒ A discussion of record keeping procedures
- ☐ N/A
12. ☐ **Attachment H - 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
13. ☒ **Attachment I - 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 results in water quality degradation.
- ☐ N/A

### ***Responsibility for Maintenance of Permanent BMP(s)***

***Responsibility for maintenance of best management practices and measures after construction is complete.***

14. ☒ 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.
- ☐ N/A
15. ☒ 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.
- ☐ N/A

**ATTACHMENT B**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment B – BMPs for Upgradient Stormwater**

Offsite area to the northwest will flow over Bulverde Rd to the project limits and be intercepted by drainage improvements and routed through the site to an existing box culvert system that flows underneath US Highway 281 to match existing drainage conditions.

The upgradient stormwater will be routed to match existing drainage conditions and will not be treated with onsite PBMPs.

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment are two (2) Aqua-Filter® basins and one (1) Jellyfish® filter basin, which are 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.

**ATTACHMENT C**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment C – BMPs for On-Site Stormwater**

The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment are two (2) Aqua-Filter® basins and one (1) Jellyfish® filter basin, which are 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.



**ATTACHMENT D**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment D – BMPs for Surface Streams**

No surface streams are located on or adjacent to the project site. The proposed Permanent Best Management Practices (PBMPs) for stormwater treatment are two (2) Aqua-Filter® basins and one (1) Jellyfish® filter basin, which are 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.

**ATTACHMENT F**

# **BULVERDE COMMERCIAL**

## **Water Pollution Abatement Plan Modification**

### **Attachment F – Construction Plans**

Please refer to the Exhibits Section of this application for the Water Pollution Abatement Site Plans.

**ATTACHMENT G**

## BULVERDE COMMERCIAL Water Pollution Abatement Plan Modification

### PERMANENT POLLUTION ABATEMENT MEASURES MAINTENANCE SCHEDULES 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 Plans and Schedules.



\_\_\_\_\_  
Lloyd A. Denton, Jr., Owner  
2021 FII Bulverde, LLC

10.07.24  
Date

# BULVERDE COMMERCIAL

## Water Pollution Abatement Plan Modification

### INSPECTION AND MAINTENANCE SCHEDULE FOR PERMANENT POLLUTION ABATEMENT MEASURES (JELLYFISH®)

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 written record will be kept of inspection results and maintenance performed.*

<u>Task No. &amp; Description</u>		<u>Included in this project</u>	
1.	Cleaning	Yes	<del>No</del>
2.	Manual Backflush / Flow Rate Test	Yes	<del>No</del>
3.	External Rinsing	Yes	<del>No</del>

## BULVERDE COMMERCIAL

### Water Pollution Abatement Plan Modification

#### 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.*



# BULVERDE COMMERCIAL

## Water Pollution Abatement Plan Modification

### INSPECTION AND MAINTENANCE SCHEDULE FOR PERMANENT POLLUTION ABATEMENT MEASURES (AQUA-FILTER®)

<i>Recommended Frequency</i>	<i>Task to be Performed</i>
	<i>1</i>
<i>Annually*</i>	✓

*\*Inspections to occur every three months during construction and the first year of operation. For the second and subsequent years post construction, the inspection and cleaning is annual.  
✓ 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 written record will be kept of inspection results and maintenance performed.*

<i>Task No. &amp; Description</i>	<i>Included in this project</i>
1. Maintenance	Yes <del>No</del>

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **MAINTENANCE PROCEDURES FOR PERMANENT POLLUTION ABATEMENT MEASURES (Aqua-Filter®)**

An Aqua-Filter® Inspection & Maintenance Manual is provided for each site delivery. The disposal of captured material and spent filter media is periodically needed to ensure proper functionality of the Aqua-Filter® system. Maintenance cycles are ultimately dependent on site-specific pollutant loading conditions.

Fresh perlite filter media is white in color. The replacement of filter containers is generally needed if the perlite filter media is observed to exhibit a dark brown or black color, and/or if a noticeable excessive accumulation of sediment, oil or other materials occurs across the filter bed. Upon installation and during construction, AquaShield® recommends that the Aqua-Filter® system be inspected every three months and the system be cleaned as needed. The HDS chamber should be inspected and cleaned at the end of construction regardless of whether it has reached its sediment or oil storage capacity. The HDS chamber relies on a single treatment and storage chamber which allows easy and open access from the surface to facilitate inspections and maintenance. There are no hidden or “blind” chambers in the HDS chamber.

During the first-year post-construction, the Aqua-Filter® should again be inspected every three months and cleaned as needed. The unit should be inspected and cleaned once annually regardless of whether it has reached its sediment or floatable pollutant storage capacity. For the second and subsequent years post-construction, the Aqua-Filter® can be inspected and cleaned once annually if the system did not reach full sediment or floatable pollutant capacity in the first-year post-construction. If the Aqua-Filter® reached full sediment or floatable pollutant capacity in less than 12 months in the first-year post-construction, the system should be inspected once every six months and cleaned as needed. AquaShield® recommends that bypass structures should also be inspected whenever the Aqua-Filter® is inspected and maintained as needed. The filter media containers are the only components of the facility that require replacement.

Filter replacement activities can be performed without the on-site assistance of an AquaShield® representative. AquaShield® does not operate a maintenance service fleet, but on request can assist stakeholders to arrange for maintenance events. AquaShield® further recommends that confined space entry techniques be used to perform tasks associated with filter replacement or entry to the filtration chamber for any other reason. Maintenance of the HDS chamber can be performed from the surface without entry.

Typically, the spent filter media and sediment do not require special waste handling or disposal permits. AquaShield® recommends that all materials removed during the maintenance process be handled and disposed of in accordance with all applicable state and local guidelines. Depending on the influent pollutant characteristics of the facility drainage area, it may be appropriate to perform Toxicity Characteristics Leaching Procedure (TCLP) analyses on representative samples of the spent filter media to ensure that the handling and disposition of materials complies with all locally applicable environmental regulations. A properly permitted (e.g., lined) landfill will commonly accept materials recovered from a stormwater treatment system.

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

Essential elements of a maintenance event include the replacement and disposal of the filter media containers and vacuuming of floatable pollutants and sediment from the HDS and filtration chambers. Provided that there are no significant access restrictions to the facility, it is considered that a system inspection should not exceed one hour. Two scenarios for Aqua-Filter® maintenance events are likely. The first and most common scenario provides for cleaning both components of the Aqua-Filter TM by utilizing a vacuum truck and replacing the filter media containers. It is estimated that on-site tasks associated with this scenario would require approximately one to two hours with a minimum two-man crew to meet confined space entry criteria. The second maintenance event scenario provides only for the cleaning of the HDS and filtration chambers by use of a vacuum truck; but no replacement of the filter media containers. It is estimated that the on-site activities for the second scenario would require approximately one hour or less and could be performed by a one- or two-man crew, depending on whether entry to the filtration chamber is performed.

**ATTACHMENT I**

## **BULVERDE COMMERCIAL**

### **Water Pollution Abatement Plan Modification**

#### **Attachment I – 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.

**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 **Lloyd A. Denton, Jr.**,  
Print Name

**Owner**,  
Title - Owner/President/Other

of **2021 Fil Bulverde, LLC**,  
Corporation/Partnership/Entity Name

have authorized **Curtis Lee**  
Print Name of Agent/Engineer

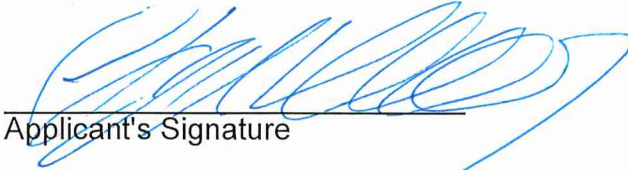
of **Pape-Dawson Engineers, Inc.**  
Print Name of Firm

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

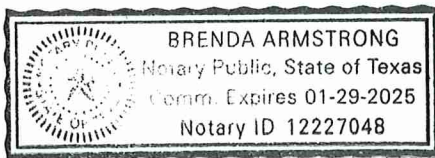
10/4/2023  
Date

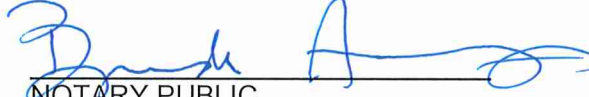
THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Lloyd A. Denton Jr. 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 4 day of October, 2023



  
NOTARY PUBLIC

Brenda Armstrong  
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 01.29.25



**APPLICATION FEE FORM**  
**(TCEQ-0574)**

# Application Fee Form

## Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Bulverde Commercial

Regulated Entity Location: Northwest of the intersection of Bulverde Rd and US Hwy 281

Name of Customer: 2021 FII Bulverde, LLC

Contact Person: Lloyd A. Denton, Jr.

Phone: 210-828-6131

Customer Reference Number (if issued): CN 606101368

Regulated Entity Reference Number (if issued): RN 111821823

### Austin Regional Office (3373)

☐ Hays

☐ Travis

☐ Williamson

### San Antonio Regional Office (3362)

☒ Bexar

☐ Medina

☐ Uvalde

☐ Comal

☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to:

☐ Austin Regional Office

☒ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

### Site Location (Check All That Apply):

☐ Recharge Zone

☒ Contributing Zone

☐ Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
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	17.43 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: \_\_\_\_\_



Date: 10/15/24

## 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***

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

#### ***Organized Sewage Collection Systems and Modifications***

<b><i>Project</i></b>	<b><i>Cost per Linear Foot</i></b>	<b><i>Minimum Fee- Maximum Fee</i></b>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

#### ***Underground and Aboveground Storage Tank System Facility Plans and Modifications***

<b><i>Project</i></b>	<b><i>Cost per Tank or Piping System</i></b>	<b><i>Minimum Fee- Maximum Fee</i></b>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

#### ***Exception Requests***

<b><i>Project</i></b>	<b><i>Fee</i></b>
Exception Request	\$500

***Extension of Time Requests***

<b><i>Project</i></b>	<b><i>Fee</i></b>
Extension of Time Request	\$150

# **POLLUTANT LOAD AND REMOVAL CALCULATIONS**

**TSS Removal Calculations for Aqua-Filter**Project Name: **Bulverde Commercial Basin 1**Date Prepared: **8/5/2024**

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:

 $L_{M \text{ TOTAL PROJECT}}$  = 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 = **Bexar**Total project area included in plan \* = **23.51** acresPredevelopment impervious area within the limits of the plan \* = **0.41** acresTotal post-development impervious area within the limits of the plan \* = **15.67** acresTotal post-development impervious cover fraction \* = **0.67** $P$  = **30** inches $L_{M \text{ TOTAL PROJECT}}$  = **12453** lbs.

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

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. = **Basin 1**Total drainage basin/outfall area = **9.09** acresPredevelopment impervious area within drainage basin/outfall area = **0.41** acresPost-development impervious area within drainage basin/outfall area = **8.64** acresPost-development impervious fraction within drainage basin/outfall area = **0.95** $L_{M \text{ THIS BASIN}}$  = **6716** lbs.**3. Indicate the proposed BMP Code for this basin.**Proposed BMP = **Aqua-Filter**Removal efficiency = **92** percent**4. Calculate Maximum TSS Load Removed ( $L_R$ ) for this Drainage Basin by the selected BMP Type.**RG-348 Page 3-33 Equation 3.7:  $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$ 

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 $A_C$  = **9.09** acres $A_i$  = **8.64** acres $A_p$  = **0.45** acres $L_R$  = **8258** lbs**5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area**Desired  $L_{M \text{ THIS BASIN}}$  = **7400** lbs. $F$  = **0.90****6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

Calculations from RG-348

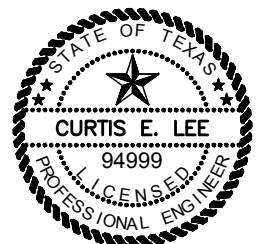
Pages 3-34 to 3-36

Rainfall Depth = **1.70** inchesPost Development Runoff Coefficient = **0.78**On-site Water Quality Volume = **43528** cubic feet

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

Off-site area draining to BMP = **0.00** acres

10/15/24



A handwritten signature in blue ink that reads "Curtis Lee".

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

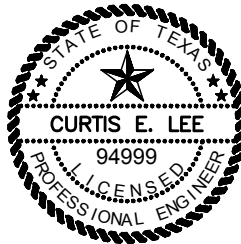
Storage for Sediment = 8706  
Total Capture Volume (required water quality volume(s) x 1.20) = 52234 cubic feet

#### 7. Aqua-Filter Flow Sizing

C = runoff coefficient for the drainage area = 0.86  
i = design rainfall intensity = 1.70 in/hour  
A = drainage area in acres = 9.09 acres

Required Water Quality Flow for Aqua-Filter = 13.24 cubic feet per second  
Aqua-Filter Model Recommended = AF-13.32 Twin

10/15/24



*Curtis Lee*

**TSS Removal Calculations for Aqua-Filter**Project Name: **Bulverde Commercial Basin 2**Date Prepared: **8/5/2024**

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:

 $L_{M \text{ TOTAL PROJECT}}$  = 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 = **Bexar**Total project area included in plan \* = **23.51** acresPredevelopment impervious area within the limits of the plan \* = **0.41** acresTotal post-development impervious area within the limits of the plan \* = **15.67** acresTotal post-development impervious cover fraction \* = **0.67** $P$  = **30** inches $L_{M \text{ TOTAL PROJECT}}$  = **12453** lbs.

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

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. = **Basin 2**Total drainage basin/outfall area = **2.57** acresPredevelopment impervious area within drainage basin/outfall area = **0.00** acresPost-development impervious area within drainage basin/outfall area = **2.44** acresPost-development impervious fraction within drainage basin/outfall area = **0.95** $L_{M \text{ THIS BASIN}}$  = **1991** lbs.**3. Indicate the proposed BMP Code for this basin.**Proposed BMP = **Aqua-Filter**Removal efficiency = **92** percent**4. Calculate Maximum TSS Load Removed ( $L_R$ ) for this Drainage Basin by the selected BMP Type.**RG-348 Page 3-33 Equation 3.7:  $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$ 

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 $A_C$  = **2.57** acres $A_i$  = **2.44** acres $A_p$  = **0.13** acres $L_R$  = **2332** lbs**5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area**Desired  $L_{M \text{ THIS BASIN}}$  = **2319** lbs. $F$  = **0.99****6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

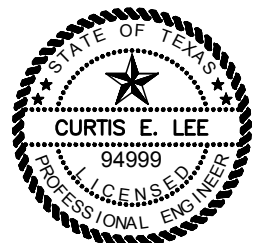
Calculations from RG-348

Pages 3-34 to 3-36

10/15/24

Rainfall Depth = **3.66** inchesPost Development Runoff Coefficient = **0.78**On-site Water Quality Volume = **26466** cubic feet

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

Off-site area draining to BMP = **0.00** acres

A handwritten signature in blue ink that reads "Curtis E. Lee".



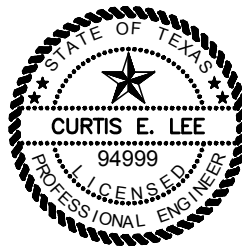
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	5293	
Total Capture Volume (required water quality volume(s) x 1.20) =	31759	cubic feet

#### 7. Aqua-Filter Flow Sizing

C = runoff coefficient for the drainage area =	0.86	
i = design rainfall intensity =	3.66	in/hour
A = drainage area in acres =	2.57	acres

Required Water Quality Flow for Aqua-Filter =	8.05	cubic feet per second
Aqua-Filter Model Recommended =	AF-10.19	

10/15/24



*Curtis Lee*

**CORE DATA FORM**  
**(TCEQ-10400)**



# TCEQ Core Data Form

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

## SECTION I: General Information

<b>1. Reason for Submission</b> (If other is checked please describe in space provided.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
<b>2. Customer Reference Number</b> (if issued)	<a href="#">Follow this link to search for CN or RN numbers in Central Registry**</a>	<b>3. Regulated Entity Reference Number</b> (if issued)
CN 606101368		RN 111821823

## SECTION II: Customer Information

<b>4. General Customer Information</b>		<b>5. Effective Date for Customer Information Updates</b> (mm/dd/yyyy)			
<input type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>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).</i>					
<b>6. Customer Legal Name</b> (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
2021 FII Bulverde, LLC					
<b>7. TX SOS/CPA Filing Number</b>		<b>8. TX State Tax ID</b> (11 digits)		<b>9. Federal Tax ID</b> (9 digits)	<b>10. DUNS Number</b> (if applicable)
<b>11. Type of Customer:</b>		<input checked="" type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
<b>12. Number of Employees</b>				<b>13. Independently Owned and Operated?</b>	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>14. Customer Role</b> (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
<b>15. Mailing Address:</b>	11 Lynn Batts Lane				
	Suite 100				
	<b>City</b>	San Antonio	<b>State</b>	TX	<b>ZIP</b> 78218 <b>ZIP + 4</b> 3077
<b>16. Country Mailing Information</b> (if outside USA)				<b>17. E-Mail Address</b> (if applicable)	

<b>18. Telephone Number</b>	<b>19. Extension or Code</b>	<b>20. Fax Number (if applicable)</b>
( 210 ) 828-6131		(   )   -

## SECTION III: Regulated Entity Information

<b>21. General Regulated Entity Information</b> (If 'New Regulated Entity' is selected, a new permit application is also required.)								
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information								
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>								
<b>22. Regulated Entity Name</b> (Enter name of the site where the regulated action is taking place.)								
Bulverde Commercial								
<b>23. Street Address of the Regulated Entity:</b>  (No PO Boxes)								
	City		State		ZIP		ZIP + 4	
<b>24. County</b>								

If no Street Address is provided, fields 25-28 are required.

<b>25. Description to Physical Location:</b>	Northwest of the intersection of Bulverde Rd and US Highway 281							
<b>26. Nearest City</b>					<b>State</b>	<b>Nearest ZIP Code</b>		
San Antonio				TX		78260		
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>								
<b>27. Latitude (N) In Decimal:</b>		29.696931			<b>28. Longitude (W) In Decimal:</b>		-98.453397	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
29	41	48.95	98	27	12.23			
<b>29. Primary SIC Code</b> (4 digits)	<b>30. Secondary SIC Code</b> (4 digits)		<b>31. Primary NAICS Code</b> (5 or 6 digits)		<b>32. Secondary NAICS Code</b> (5 or 6 digits)			
1542	1623		236220		237110			
<b>33. What is the Primary Business of this entity?</b> (Do not repeat the SIC or NAICS description.)								
Commercial Development								
<b>34. Mailing Address:</b>	11 Lynn Batts Lane							
	Suite 100							
	City	San Antonio	State	TX	ZIP	78218	ZIP + 4	3077
<b>35. E-Mail Address:</b>		LaddieDenton@bitterblue.com						
<b>36. Telephone Number</b>			<b>37. Extension or Code</b>			<b>38. Fax Number (if applicable)</b>		
( 210 ) 828-6131						(   )   -		

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


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

## **SECTION IV: Preparer Information**

<b>40. Name:</b>	Curtis Lee, P.E.	<b>41. Title:</b>	Vice President
<b>42. Telephone Number</b>	<b>43. Ext./Code</b>	<b>44. Fax Number</b>	<b>45. E-Mail Address</b>
( 210 ) 375-9000		( 210 ) 375-9010	clee@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.

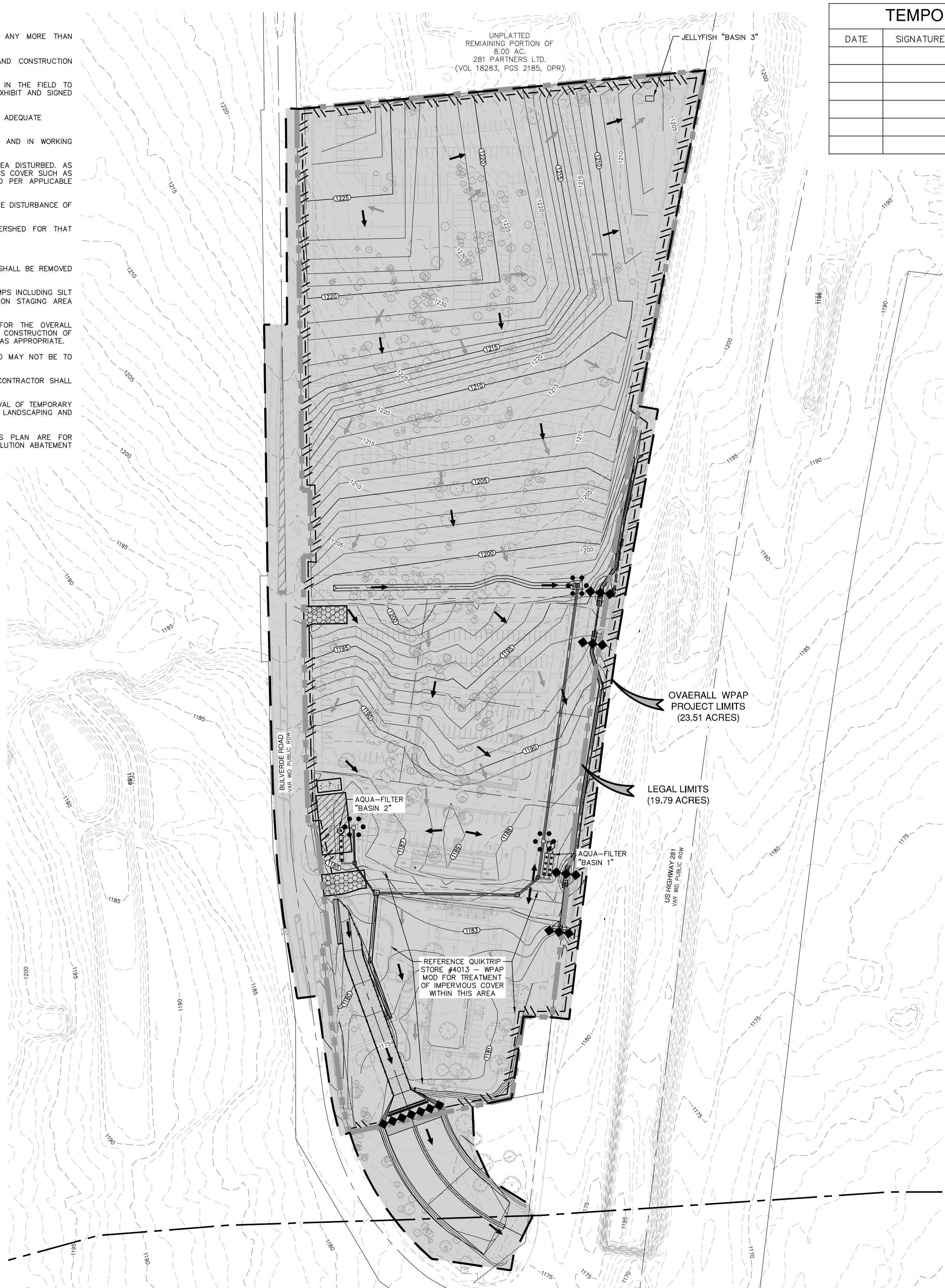
<b>Company:</b>	Pape-Dawson Engineers, LLC	<b>Job Title:</b>	Vice President
<b>Name (In Print):</b>	Curtis Lee, P.E.	<b>Phone:</b>	( 210 ) 375- 9000
<b>Signature:</b>		<b>Date:</b>	10/15/24

**EXHIBITS**



GENERAL NOTES

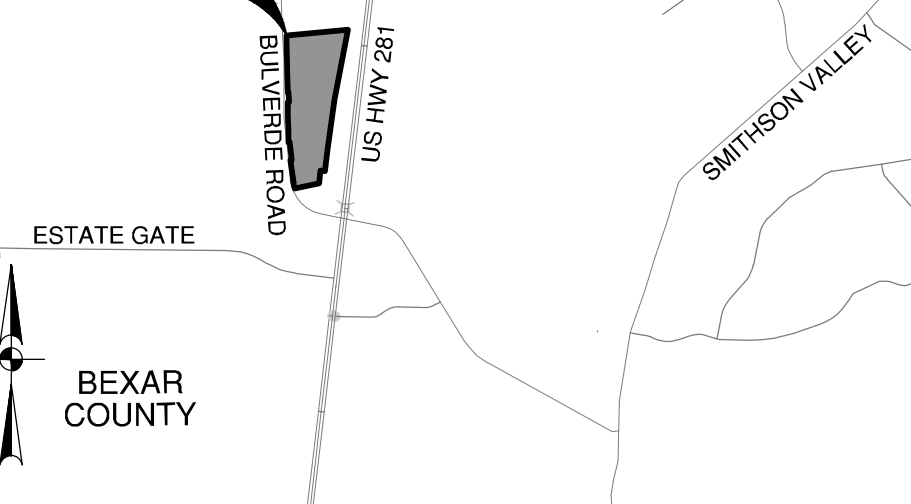
- DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
- LOCATIONS OF CONSTRUCTION ENTRANCE/EXITS, CONCRETE WASHOUT PITS, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARDS TO BE DETERMINED IN THE FIELD.
- STORM WATER POLLUTION PREVENTION CONTROLS 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.
- RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
- ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
- CONTRACTOR, TO THE EXTENT PRACTICAL, SHALL MINIMIZE THE AMOUNT OF AREA DISTURBED. 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.
- BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.
- BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED.
- ALL TEMPORARY BMPs WILL BE REMOVED ONCE WATERSHED IS STABILIZED.
- MUD OR DIRT INADVERTENTLY TRACKED OFF-SITE AND ONTO EXISTING STREETS SHALL BE REMOVED IMMEDIATELY BY HAND OR MECHANICAL BROOM SWEEPING.
- PRIOR TO INITIATION OF SUBSEQUENT PHASES OF CONSTRUCTION, TEMPORARY BMPs INCLUDING SILT FENCING, CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND CONSTRUCTION STAGING AREA SHALL BE FIELD LOCATED AS APPROPRIATE FOR THE AREA OF CONSTRUCTION.
- TEMPORARY POLLUTION ABATEMENT MEASURES SHOWN ON THE PLAN ARE FOR THE OVERALL DEVELOPMENT. TEMPORARY BMPs MAY REQUIRE ADJUSTMENT BASED ON PHASING OF CONSTRUCTION OF THE DEVELOPMENT. RECORDS OF ADJUSTMENTS AND REVISIONS SHALL BE MAINTAINED AS APPROPRIATE.
- TEMPORARY BMPs SHOWN ON THIS SHEET ARE FOR GRAPHICAL PURPOSES AND MAY NOT BE TO SCALE. BMPs SHALL BE LOCATED WITHIN THE PROJECT LIMITS.
- UPON COMPLETION OF THE PROJECT AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION SEQUENCING AND REMOVAL OF TEMPORARY POLLUTION ABATEMENT MEASURES THAT CONFLICT WITH SITE IMPROVEMENTS SUCH AS LANDSCAPING AND FENCES SO AS TO PREVENT SEDIMENT FROM ESCAPING THE PROJECT SITE.
- BEST MANAGEMENT PRACTICES (BMPs) AND CALCULATIONS DEPICTED ON THIS PLAN ARE FOR TEMPORARY MEASURES ONLY. REFERENCE THE BULVERDE COMMERCIAL PERMANENT POLLUTION ABATEMENT PLAN AND BASIN DETAILS SHEETS FOR JELLYFISH BASIN DETAILS AND CALCULATIONS.



TEMPORARY BMP MODIFICATIONS

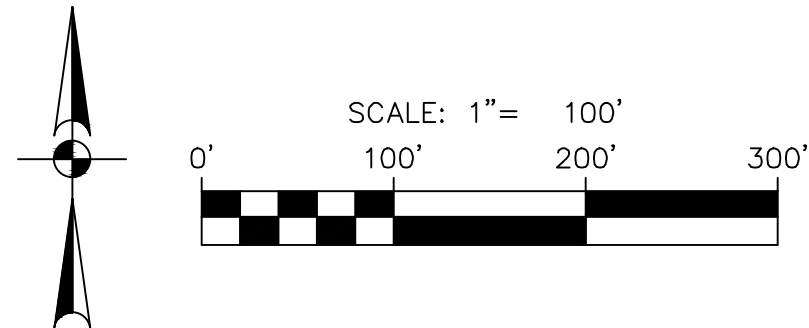
DATE	SIGNATURE	DESCRIPTION

SITE



LOCATION MAP

NOT-TO-SCALE



SWPPP LEGEND

PROJECT LIMITS	---
LEGAL LIMITS	---
EDWARDS AQUIFER RECHARGE ZONE BOUNDARY	---
EXISTING CONTOUR	---1200---
PROPOSED CONTOUR	---1200---
FLOW ARROW (EXISTING)	→
FLOW ARROW (PROPOSED)	→
SILT FENCE	--- --- --- ---
ROCK BERM	--- --- --- ---
GRAVEL FILTER BAGS	--- --- --- ---
GRATE INLET PROTECTION	--- --- --- ---
SEDIMENT CONTROL ROLLS	--- --- --- ---
LIMITS OF DISTURBED AREA	---
STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)	---
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)	---
CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE)	---

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
CONTRIBUTING ZONE PLAN  
GENERAL CONSTRUCTION NOTES

- WRITTEN CONSTRUCTION NOTIFICATION SHOULD BE PROVIDED TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION SHOULD INCLUDE THE DATE ON WHICH THE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR WITH THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
- ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN 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.
- NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM MAY BE INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL.
- PRIOR TO COMMENCING CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE SWPPP SECTION OF THE APPROVED EDWARDS AQUIFER CONTRIBUTING ZONE PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
- 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).
- SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.
- 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).
- ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE AND STORED ON-SITE MUST HAVE PROPER E&S CONTROLS INSTALLED.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND CONSTRUCTION ACTIVITIES WILL NOT RESUME WITHIN 21 DAYS. WHEN THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
- 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.
- THE HOLDER OF ANY APPROVED CONTRIBUTING ZONE PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
  - ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
  - ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
  - ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER AND HYDROLOGICALLY CONNECTED SURFACE WATER; OR
  - ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED IN A CONTRIBUTING ZONE PLAN AS UNDEVELOPED.

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

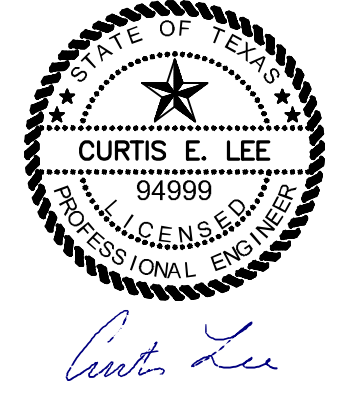
THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

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 1

DATE	
NO.	
REVISION	

10/15/24



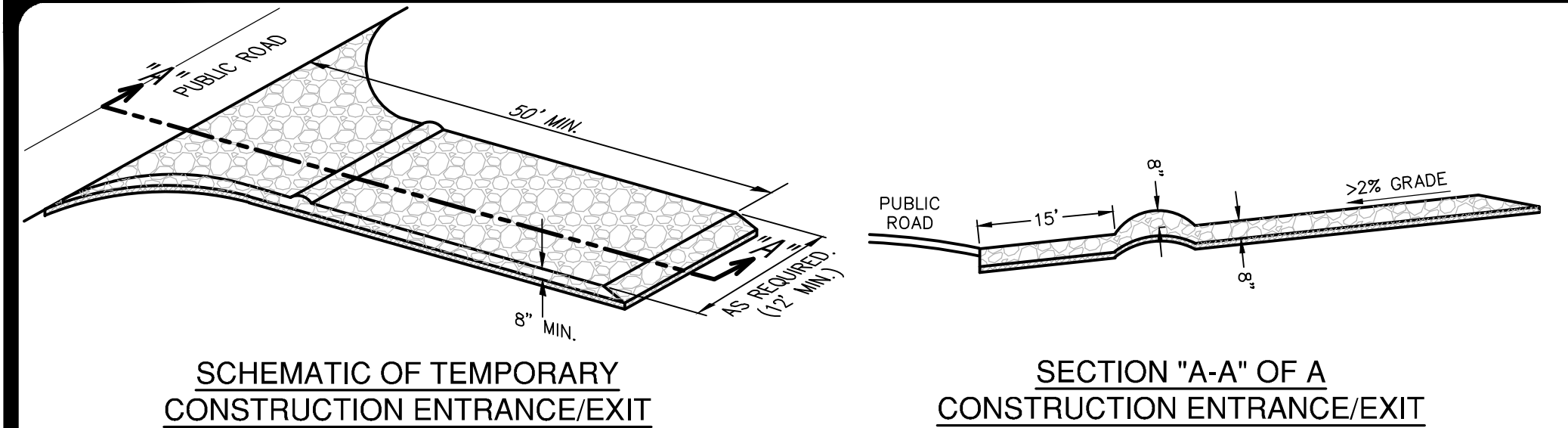
**PAPE-DAWSON  
ENGINEERS**  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

**BULVERDE COMMERCIAL**  
SAN ANTONIO, TEXAS

TEMPORARY POLLUTION ABATEMENT PLAN

PLAT NO.	22-11800706
JOB NO.	12787-01
DATE	OCTOBER 2024
DESIGNER	BB
CHECKED	BB
DRAWN	JQ
SHEET	-





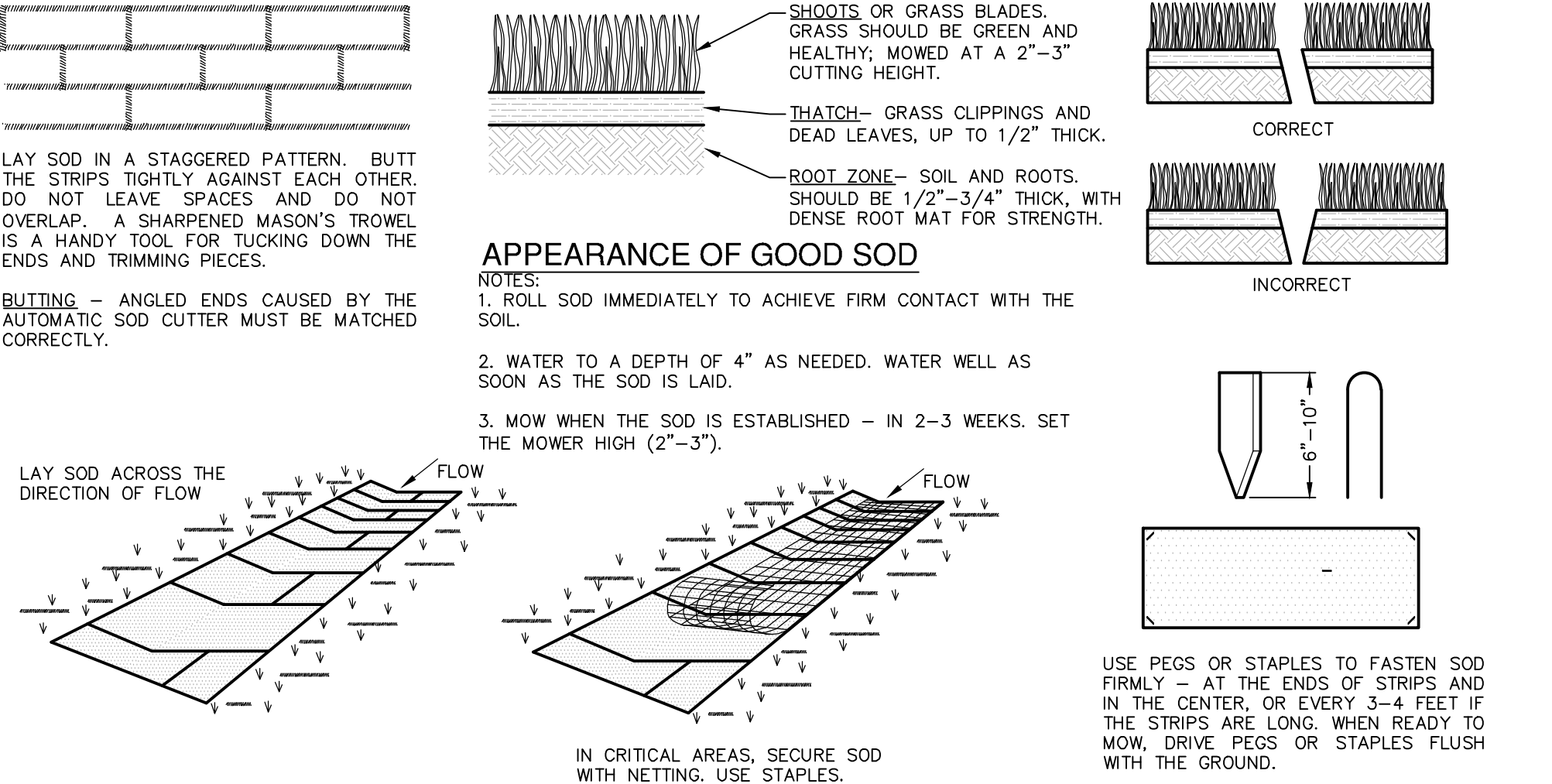
MATERIALS

1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.
3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD<sup>2</sup>, A MULLEN BURST RATING OF 140 LB/IN<sup>2</sup>, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4-INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION

1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6-INCHES TO 8-INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.
8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

NOT-TO-SCALE



MATERIALS

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.
2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.
3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT, THEIR SIZE AND SHAPE WHEN SUBJECTED TO A FIRM GRASP ON ONE END OF THE SECTION.
4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION

1. PRIOR TO SOD PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.
2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.
3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).
2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

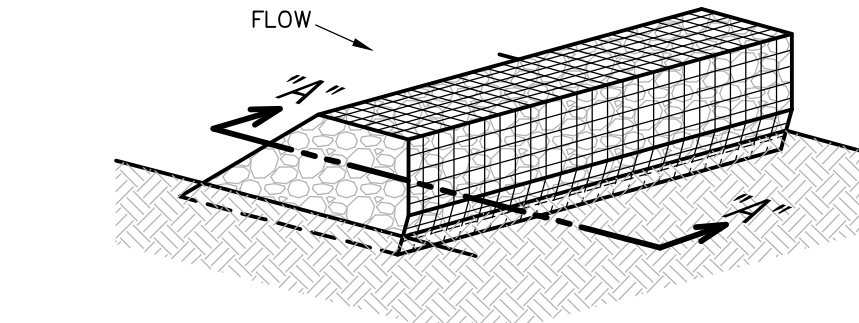
NOT-TO-SCALE

COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL-SEDIMENT WASHES ONTO PUBLIC ROAD.
2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.
3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC-EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.
4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.
5. UNSTABLE FOUNDATION - USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.



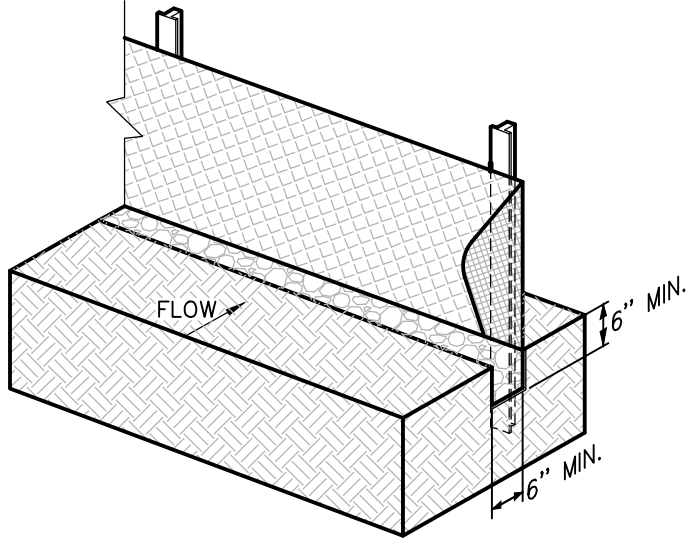
ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
3. REPAIR ANY LOOSE WIRE SHEATHING.
4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

NOT-TO-SCALE



SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

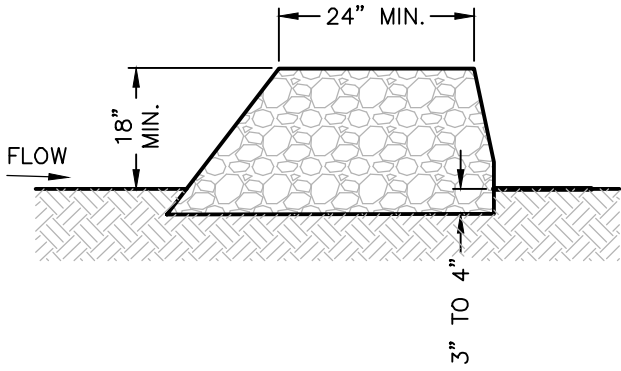
MATERIALS

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN<sup>2</sup>, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.
2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.
3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
2. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

NOT-TO-SCALE



MATERIALS

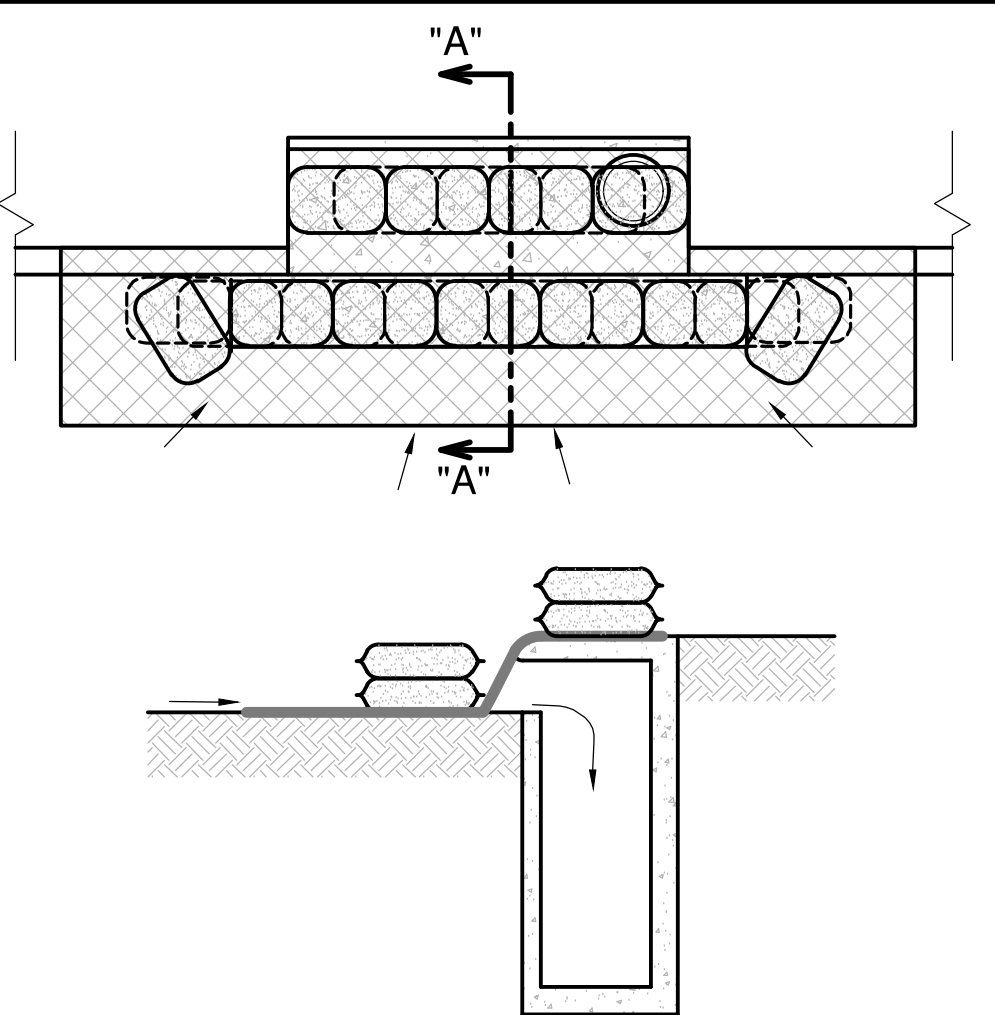
1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.
2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".
4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).
2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

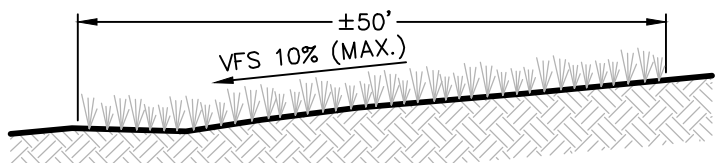


GENERAL NOTES

1. CONTRACTOR TO INSTALL 2"x4"-W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

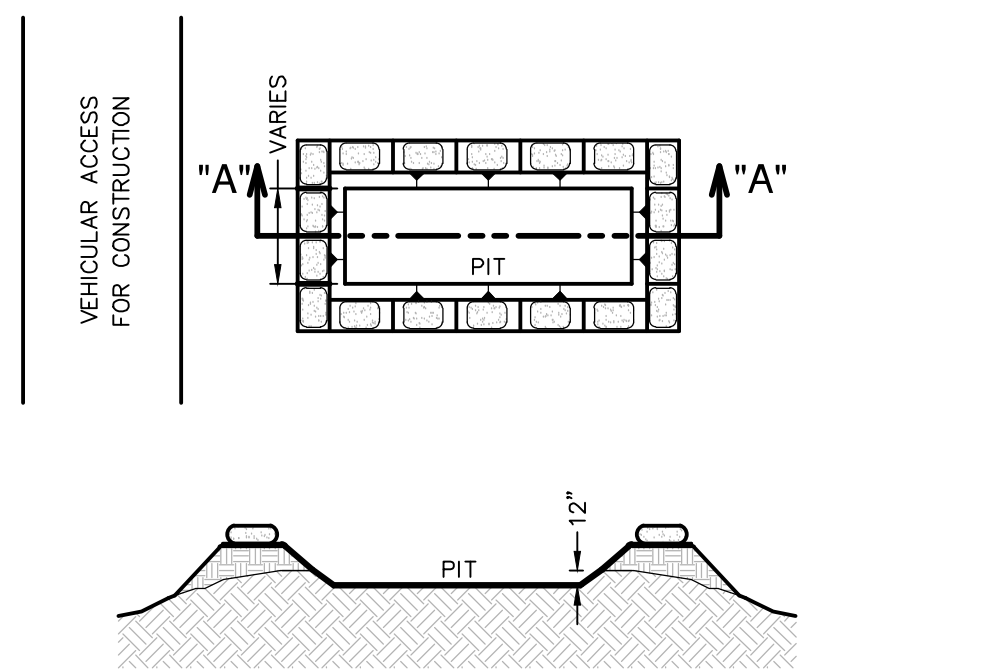
BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT-TO-SCALE



NATURAL VEGETATIVE BUFFER DETAIL

NOT-TO-SCALE



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

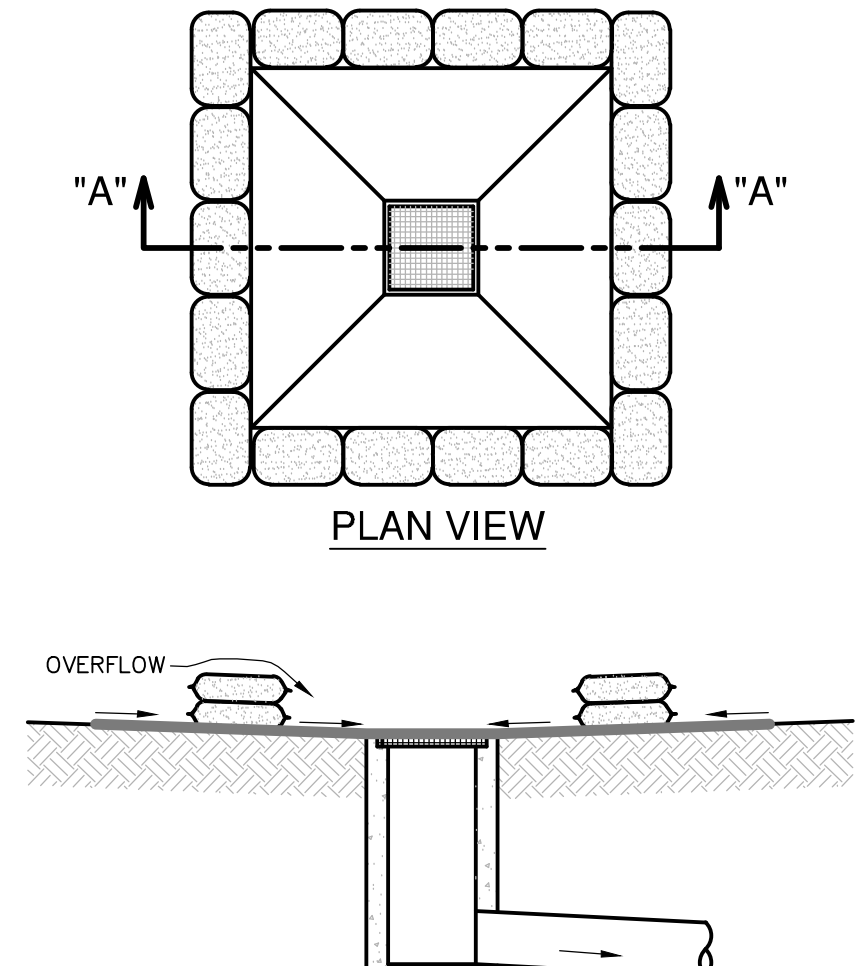
PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

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 REPAIRED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

NOT-TO-SCALE



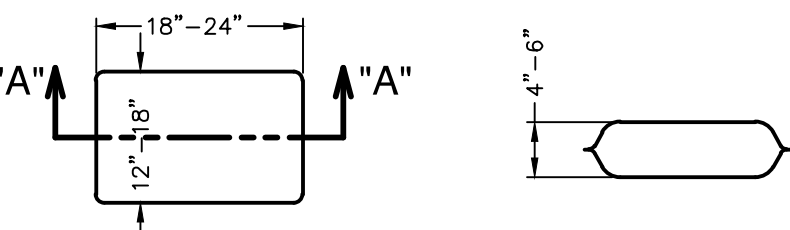
SECTION "A-A"

GENERAL NOTES

1. THE SANDBAGS SHOULD BE FILLED WITH WASHED PEA GRAVEL AND STACKED TO FORM A CONTINUOUS BARRIER ABOUT 1 FOOT HIGH AROUND INLETS.
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

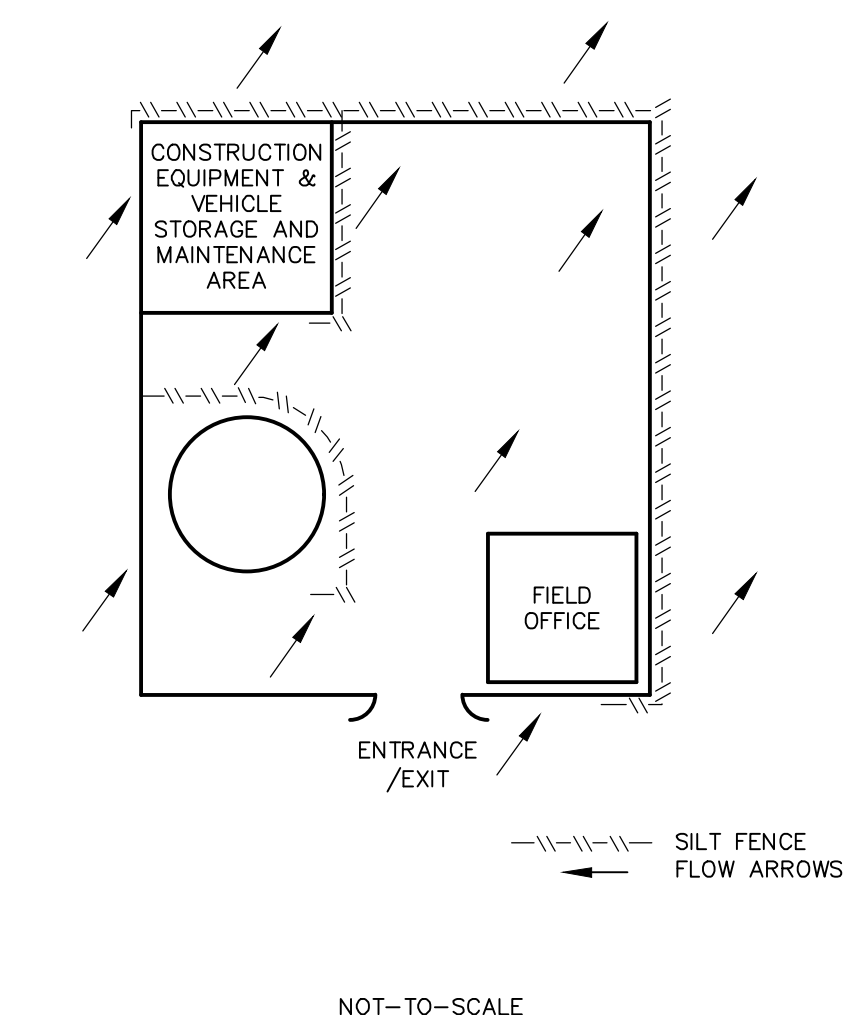
BAGGED GRAVEL GRATE INLET PROTECTION DETAIL

NOT-TO-SCALE



NOT-TO-SCALE

- NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.
  2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).
  3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.



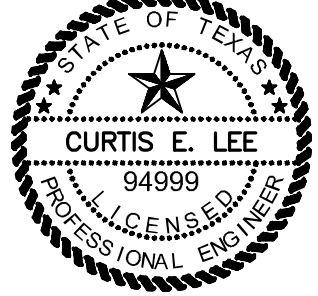
NOT-TO-SCALE

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.

EXHIBIT 2

DATE	
NO.	
REVISION	

10/15/24



**PAPE-DAWSON ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

**BULVERDE COMMERCIAL**  
SAN ANTONIO, TEXAS

TEMPORARY POLLUTION ABATEMENT PLAN  
DETAILS

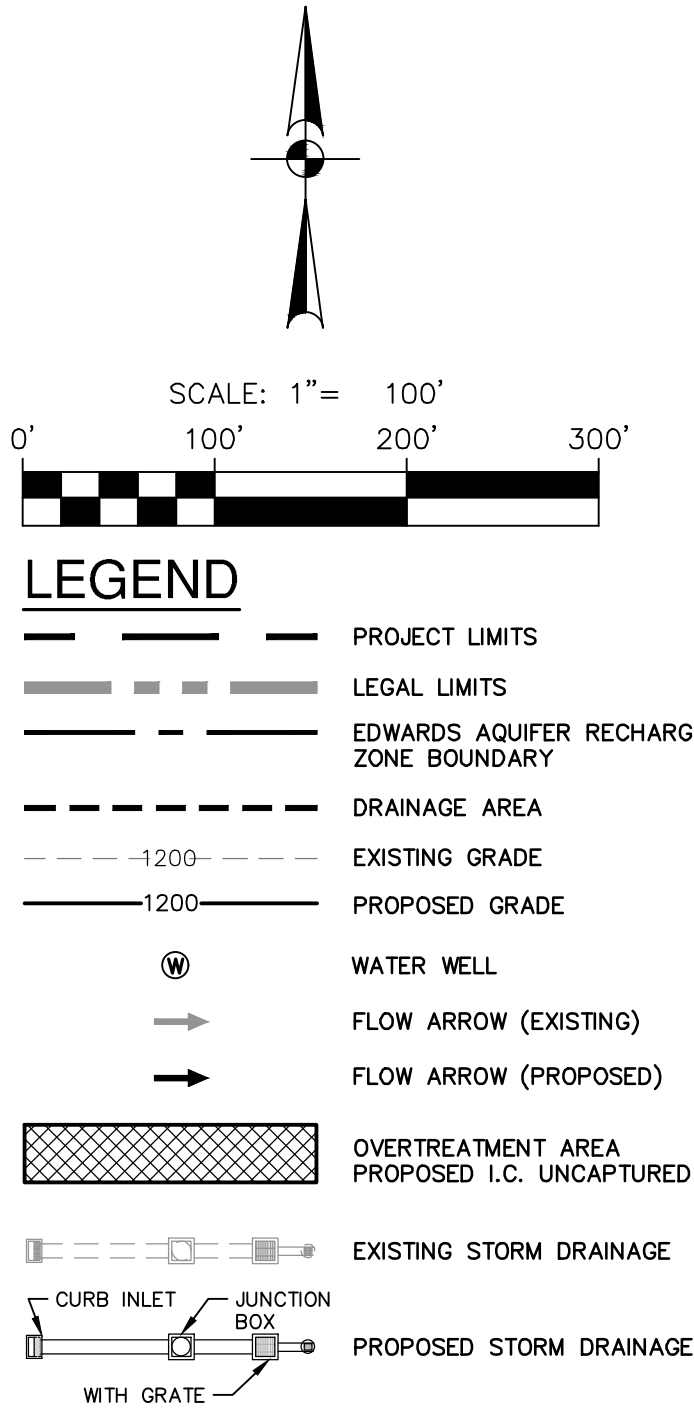
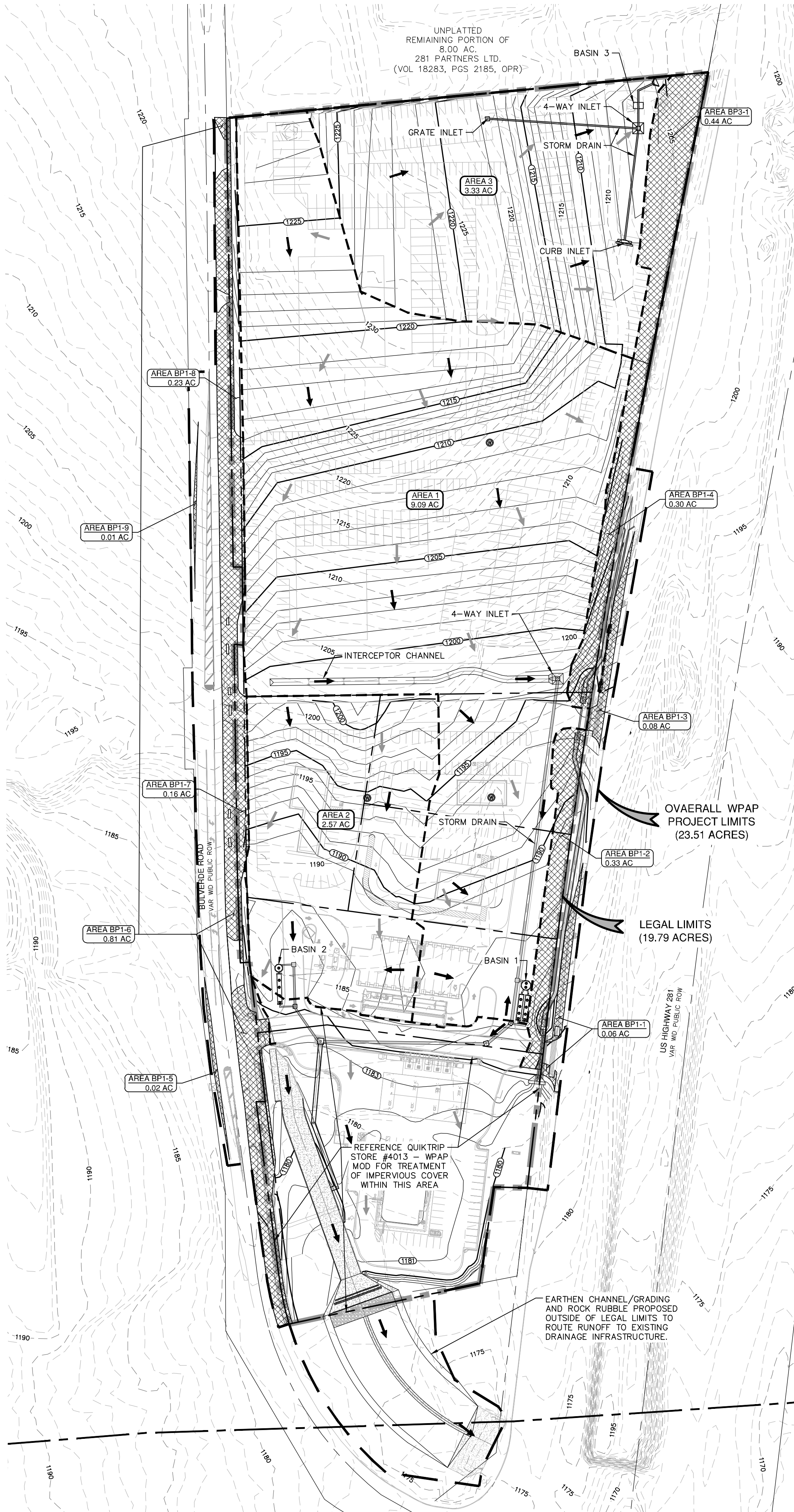
PLAT NO.	22-11800706
JOB NO.	12787-01
DATE	OCTOBER 2024
DRAWN	BB
CHECKED	BB
SHEET	-



BULVERDE COMMERCIAL

Treatment Summary by Watershed

Watershed	Total Watershed Area (ac.)	Existing Grandfathered Impervious Cover (ac.)	Proposed Impervious Cover (ac.)	PBMP	Required TSS Removal Annually (lbs)	TSS Removed Annually (lbs)
1	9.09	0.41	8.64	"Basin 1"	6,716	7,400
2	2.57	0.00	2.44	"Basin 2"	1,991	2,319
Uncaptured 1 & 2 (BP1-1 - BP1-9)	2.00	0.00	1.24	Overtreatment "Basins 1 & 2"	1,012	0
3	3.33	0.00	3.16	"Basin 3"	2,579	2,735
Uncaptured 3 (BP3-1)	0.44	0.00	0.19	Overtreatment "Basin 3"	155	0
TOTAL	17.43	0.41	15.67	---	12,453	12,454



SUMMARY OF PERMANENT POLLUTION ABATEMENT MEASURES:

- TEMPORARY BMP'S WILL BE MAINTAINED UNTIL THE SITE IMPROVEMENTS ARE COMPLETED AND THE SITE HAS BEEN STABILIZED, INCLUDING SUFFICIENT VEGETATION BEING ESTABLISHED.
- 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.
- FOR DISTURBED AREAS WHERE INSUFFICIENT SOIL EXISTS TO ESTABLISH VEGETATION, CONTRACTOR SHALL PLACE A MINIMUM OF 6" OF TOPSOIL PRIOR TO REVEGETATION.
- PERMANENT BMP'S FOR THIS SITE INCLUDE TWO (2) JELLYFISH FILTER UNITS. THESE PERMANENT BMP'S HAVE BEEN DESIGNED TO REMOVE AT LEAST 80% OF THE INCREASED TOTAL SUSPENDED SOLIDS (TSS) FOR THE INCREASED IMPERVIOUS COVER IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RG-348 (2005).
- TYPICAL SLOPES ON THIS PROJECT RANGE FROM APPROXIMATELY 1% TO 10%.

PERMANENT POLLUTION ABATEMENT MEASURES:

- SILT FENCING AND ROCK BERMS, WHERE APPROPRIATE, WILL BE MAINTAINED UNTIL THE ROADWAY, UTILITY, DRAINAGE IMPROVEMENTS, AND BUILDING CONSTRUCTION ARE COMPLETED.
- TWO (2) JELLYFISH FILTER UNITS WILL SERVE AS THE PERMANENT BEST MANAGEMENT PRACTICE (BMP) FOR DRAINAGE AREAS "1" AND "2".
- ENERGY DISSIPATORS (TO HELP REDUCE EROSION) WILL BE PROVIDED AT POINTS OF CONCENTRATED DISCHARGE WHERE EXCESSIVE VELOCITIES MAY BE ENCOUNTERED.

NOTES:

- CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION FOR SOIL STABILIZATION PRIOR TO SITE CLOSEOUT.
- 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 3

PAPE-DAWSON  
ENGINEERS  
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

BULVERDE COMMERCIAL  
SAN ANTONIO, TEXAS  
WATER POLLUTION ABATEMENT PLAN MODIFICATION I  
PERMANENT POLLUTION ABATEMENT PLAN

PLAT NO. 22-11800706  
JOB NO. 12787-01  
DATE OCTOBER 2024  
DESIGNER BB  
CHECKED BJB DRAWN JQ  
SHEET -

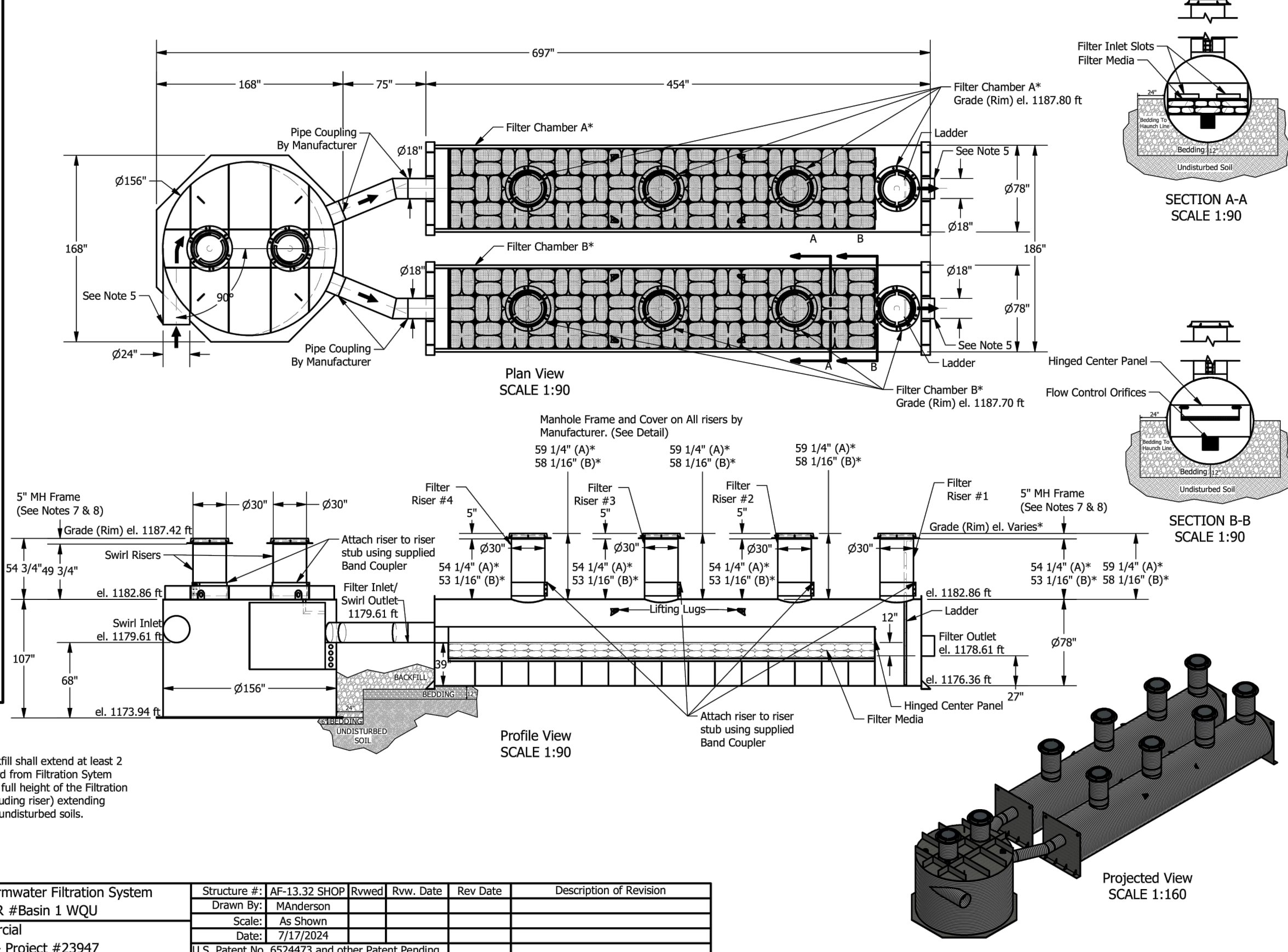


GENERAL NOTES:

1. Manufacturer shall be responsible for supplying watertight Filtration System, which includes one (1) Swirl Concentrator and one (1) Filter Chamber. Contractor shall be responsible for placing filter media within Filtration Chamber, when necessary.
2. Polymer Coated Steel (PCS) Filtration System shall be fabricated from polymer pre-coated steel sheet for corrugated steel pipe, and shall comply with ASTM A 760 and ASTM A 742.
3. Stub outs and internal components shall be supplied by manufacturer and MIG welded using accepted welding practices.
4. Manufacturer shall supply direct access to Filtration System via 30-inch ID riser(s) and two (2) 30-inch ID risers with access ladders. If necessary to accommodate field requirements, Contractor may cut riser(s) to match main grade. The exposed metal of the cut riser must be recoated using the touch up kit supplied with each PCS unit. If necessary to extend riser, Contractor should use adjusting rings to bring top of structure to grade.
5. Contractor shall supply pipe couplings to and from Filtration System, which shall be 16-inch, Fernco, or Hexion style flexible joint with stainless steel braided reinforcement and shear guard. Manufacturer shall supply minimum 12" long intermediate stub-outs (S10") that be smooth rolled and S12" shall be corrugated (with re-rolled ends).
6. Contractor shall prepare excavation and off-load Filtration System. Contractor is responsible for bedding and backfill around Filtration System as detailed on site plan (see notes 11 and 12). Any exposed metal (bolts/nuts or other damage to the polymer coating) must be recoated using the touch up kit supplied with each PCS unit prior to installation or placement of backfill.
7. Manufacturer shall supply standard manhole frame(s) and cover(s) (Traffic rated HS-25).
8. Where traffic loading (HS-25) is required or anticipated, a 4-foot diameter, 14-inch thick reinforced concrete pad must be placed over the Filtration System to support and level the manhole frame. The top of riser must be wrapped with compressible expansion joint material to a minimum 1/2-inch thickness to allow transfer of wheel loads from manhole cover to concrete slab. Manhole cover shall bear on concrete slab and not on riser pipe. The concrete slab shall have a minimum strength of 3,000 psi and be reinforced with #4 reinforcing steel (per attached drawing). Minimum cover over reinforcing steel shall be 1-inch. Top of manhole cover and concrete slab shall be level with main grade.
9. Where non-traffic loading is required or anticipated, bolsters or other traffic barriers shall be placed around access risers to prevent inadvertent loading by maintenance vehicles. Sample of typical bolsters and recommended locations of bolsters around the Filtration System can be provided upon request.
10. Where high groundwater elevations are present or anticipated, Contractor shall supply concrete anti-floatation pad underneath and pour over the octagonal base plate of the Swirl Concentrator (see Anti-Floatation Base Detail) and anti-floatation diaphragm along the base of the Filter Chamber to prevent buoyancy and base plate deflection (details, if necessary, available upon request).
11. Excavation and Bedding - The trench and trench bottom shall be constructed in accordance with ASTM A 798 Section 5, 6, and 7. The PCS Aqua-Sentis shall be installed on a stable base consisting of at least 2-inches of fine, readily compacted soil or granular fill material, and compacted to 95% proctor density. The PCS Filter Chamber shall be installed on a stable base consisting of at least 12-inches of fine, readily compacted soil or granular fill material, and compacted to 95% proctor density. Bedding shall not contain stones related to a 3-inch ring, from lumps, highly plastic clay, organic material, concrete material, or other deleterious foreign materials. All required safety procedures for Filtration System installation are the responsibility of the Contractor and shall be per OSHA approved methods.
12. Backfill Requirements - Backfill materials shall be fine, readily compacted soil or granular fill material, and compacted to 95% proctor density. Processed granular materials with excellent structural characteristics are preferred. Coarse granular soils of USCS Groups GW, GP, GM, GC, SW, and SP as described in ASTM D 2487 are generally acceptable materials when compacted to 95% proctor density. Backfill shall not contain stones related to a 3-inch ring, from lumps, highly plastic clay, organic material, concrete material, or other deleterious foreign materials. Backfilling shall conform to ASTM A 798, Section 10. Backfill shall be placed in 6 to 12 inch layers or "lifts" and compacted before adding the next lift. Backfill shall extend at least 2 feet outward from Filtration System and for the full height of the Filtration System (including riser(s)) extending laterally to undisturbed soils.

Groundwater el. < 1173.94 ft

Estimated Pick Weights  
Swirl Chamber 13700 lbs  
Filter Chamber 10100 lbs



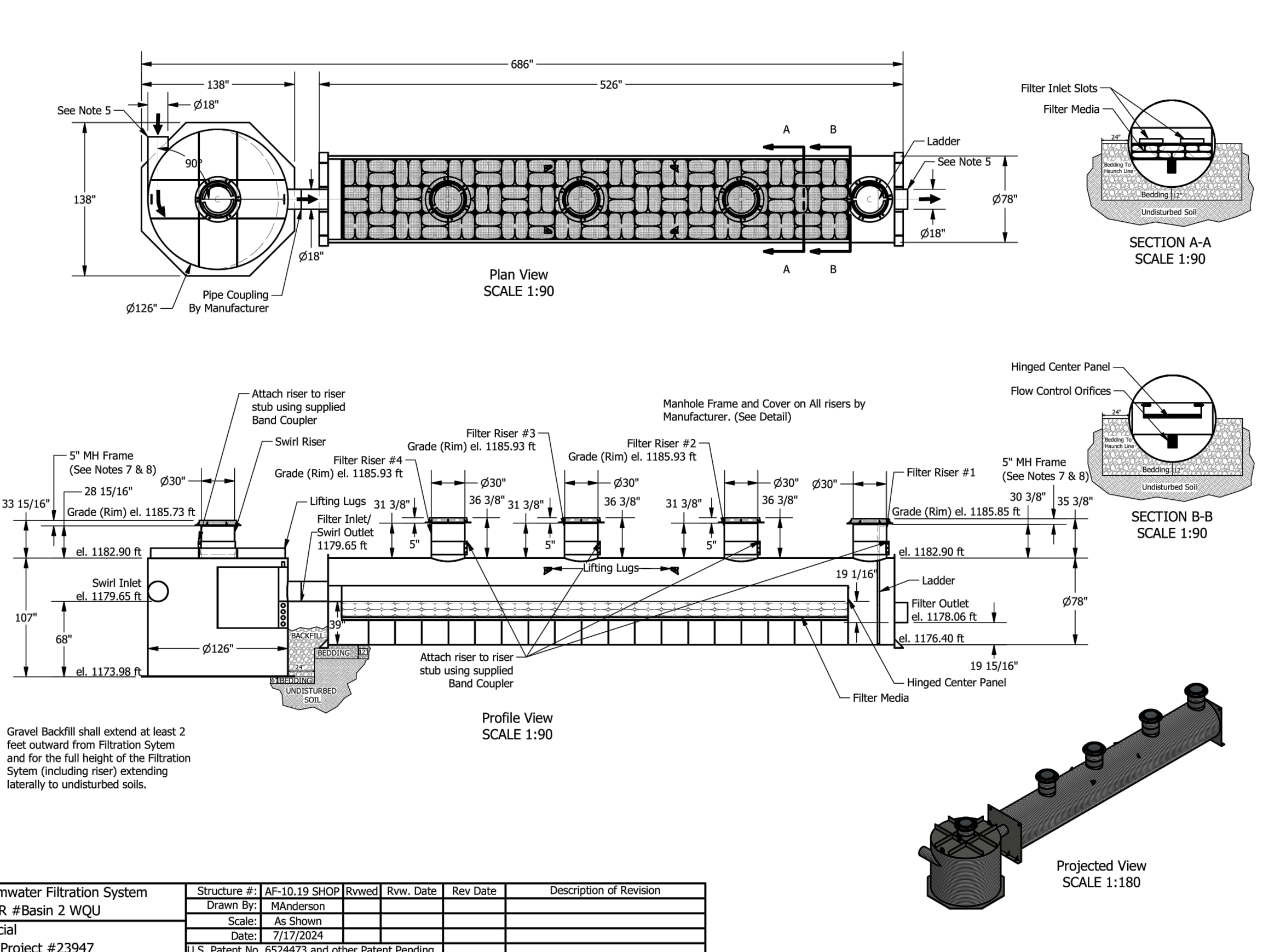
<b>AquaShield™</b> <small>STORMWATER TREATMENT SOLUTIONS LLC</small> 2733 Kennedy Drive, Suite 111, Chattanooga, TN 37424 Phone (888) 344-9044 Fax (423) 826-2112 <a href="http://www.aquashieldinc.com">www.aquashieldinc.com</a>	Aqua-Filter™ Stormwater Filtration System				
	AF-13.32 CW STR #Basin 1 WQU				
	Bulverde Commercial				
	San Antonio, TX - Project #23947				
	Structure #:	AF-13.32 SHOP	Rvw'd	Rvw. Date	Rev Date
	Drawn By:	Manderson			
	Scale:	As Shown			
	Date:	7/17/2024			
	U.S. Patent No. 6524473 and other Patent Pending				

GENERAL NOTES:

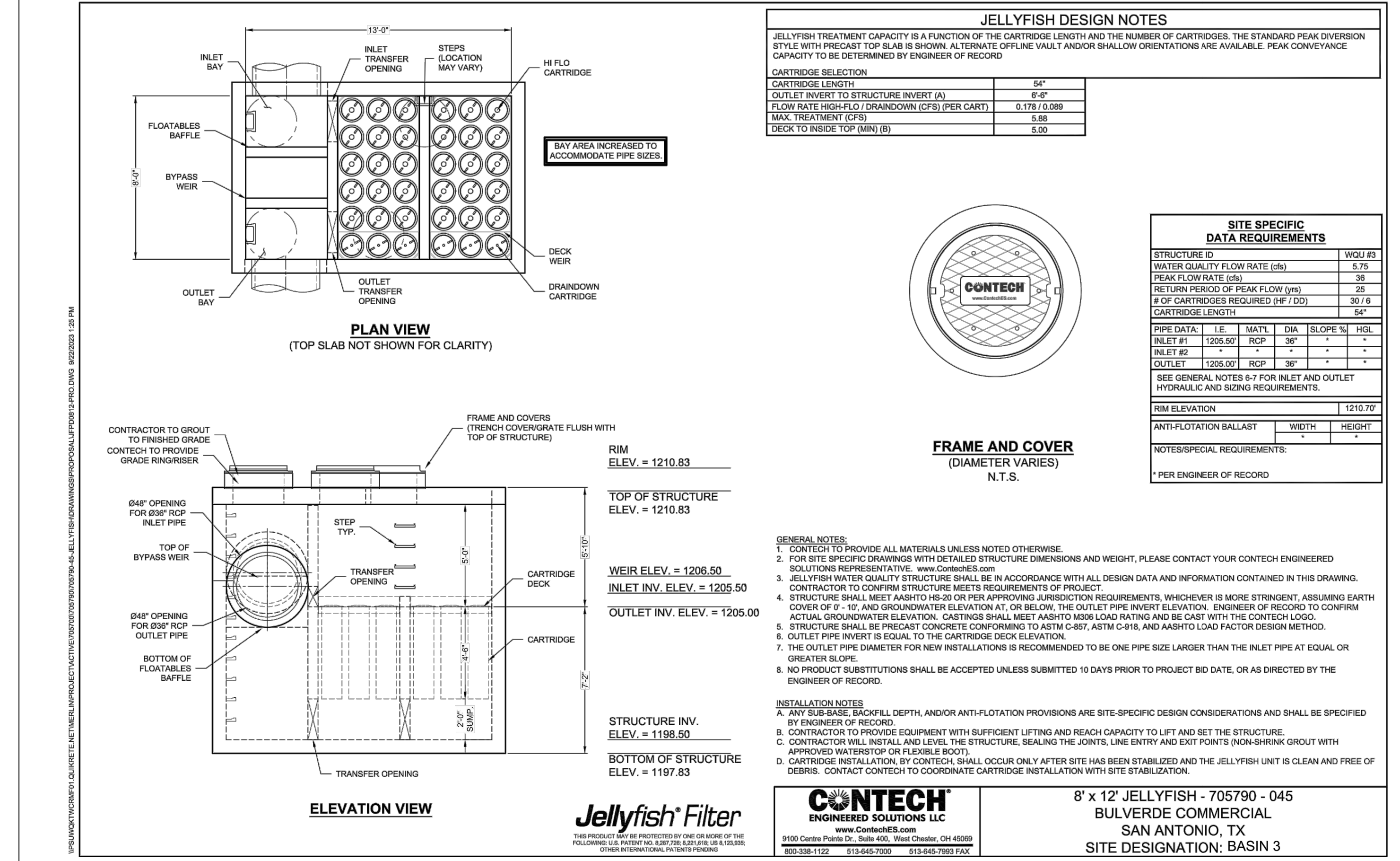
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Groundwater el. < 1173.98 ft

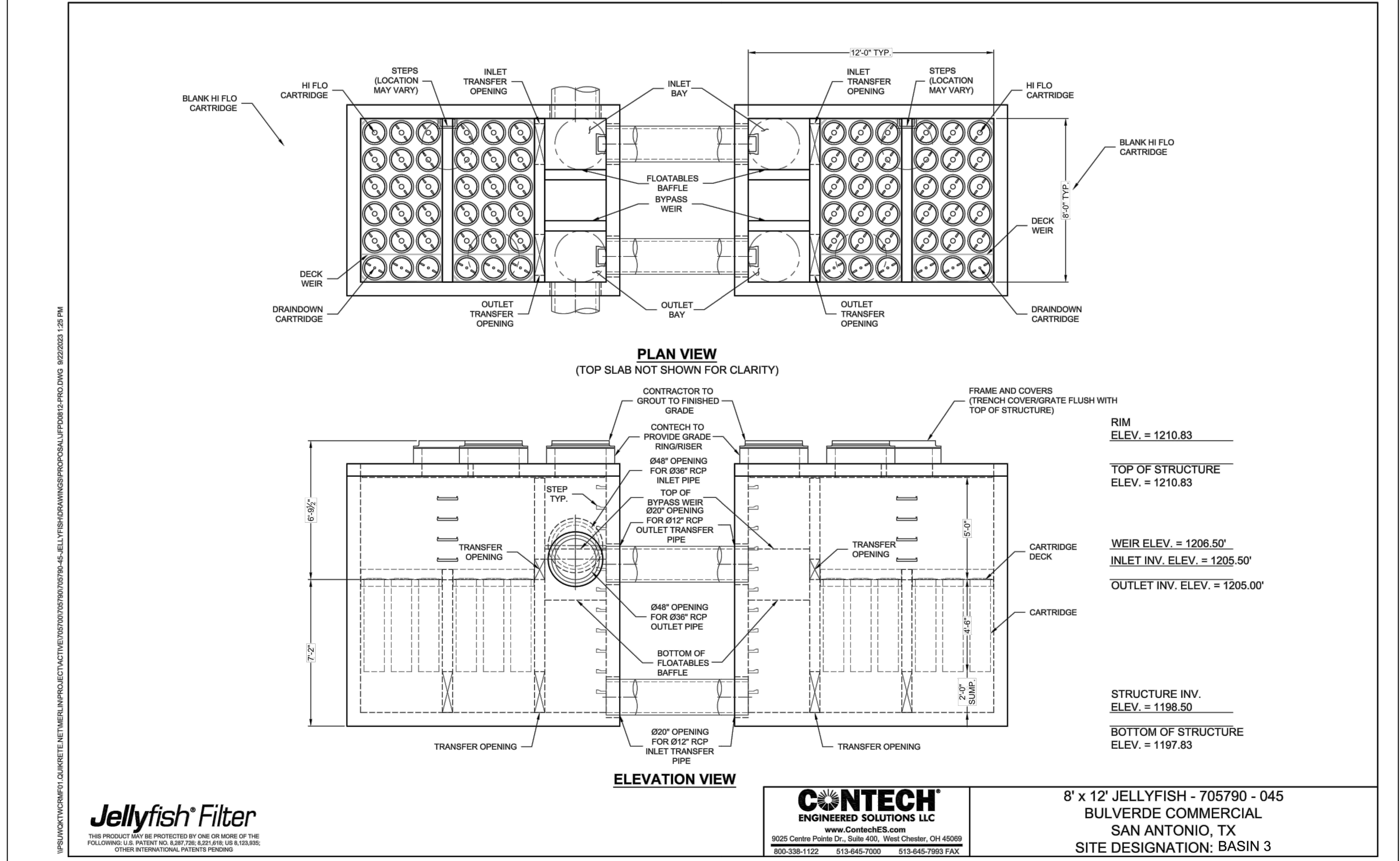
Estimated Pick Weights  
Swirl Chamber 7800 lbs  
Filter Chamber 11200 lbs



<b>AquaShield™</b> <small>STORMWATER TREATMENT SOLUTIONS LLC</small> 2733 Kennedy Drive, Suite 111, Chattanooga, TN 37424 Phone (888) 344-9044 Fax (423) 826-2112 <a href="http://www.aquashieldinc.com">www.aquashieldinc.com</a>	Aqua-Filter™ Stormwater Filtration System				
	AF-10.19 CCW STR #Basin 2 WQU				
	Bulverde Commercial				
	San Antonio, TX - Project #23947				
	Structure #:	AF-10.19 SHOP	Rvw'd	Rvw. Date	Rev Date
	Drawn By:	Manderson			
	Scale:	As Shown			
	Date:	7/17/2024			
	U.S. Patent No. 6524473 and other Patent Pending				



<b>Jellyfish® Filter</b> <small>CONTECH ENGINEERED SOLUTIONS LLC</small> 9100 Centex Pointe Dr., Suite 400, West Chester, OH 45069 800-338-1122 513-655-1000 513-655-7993 FAX <a href="http://www.contechES.com">www.contechES.com</a>	8' x 12' JELLYFISH - 705790 - 045				
	BULVERDE COMMERCIAL				
	SAN ANTONIO, TX				
	SITE DESIGNATION: BASIN 3				
	Structure ID	WQU #3			
	Water Quality Flow Rate (cfs)	5.75			
	Peak Flow Rate (cfs)	30			
	Return Period of Peak Flow (yr)	25			
	# of Cartridges Required (H' / DD)	30 / 8			
	Cartridge Length	54"			
	Pipe Data	I.E. MAT'L DIA SLOPE % HGL			
	Inlet #1	1205.00' RCP 36"	-	-	-
	Inlet #2	-	-	-	-
	Outlet	1205.00' RCP 36"	-	-	-
	SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.				
	Rim Elevation	1210.75'			
	Anti-Floation Ballast	Width Height			
	NOTES/SPECIAL REQUIREMENTS:				
	PER ENGINEER OF RECORD				



<b>Jellyfish® Filter</b> <small>CONTECH ENGINEERED SOLUTIONS LLC</small> 9100 Centex Pointe Dr., Suite 400, West Chester, OH 45069 800-338-1122 513-655-1000 513-655-7993 FAX <a href="http://www.contechES.com">www.contechES.com</a>	8' x 12' JELLYFISH - 705790 - 045				
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	Inlet #1	1205.00' RCP 36"	-	-	-
	Inlet #2	-	-	-	-
	Outlet	1205.00' RCP 36"	-	-	-
	SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.				
	Rim Elevation	1210.75'			
	Anti-Floation Ballast	Width Height			
	NOTES/SPECIAL REQUIREMENTS:				
	PER ENGINEER OF RECORD				

DATE

NO. REVISION

10/15/24

CURTIS E. LEE  
94999  
PROFESSIONAL ENGINEER

**PAPE-DAWSON ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #1008860

**BULVERDE COMMERCIAL**  
SAN ANTONIO, TEXAS

**BASIN DETAILS**

PLAT NO.	22-11800706
JOB NO.	12787-01
DATE	OCTOBER 2024
DESIGNER	BB
CHECKED	BB
DRAWN	JQ
SHEET	-

EXHIBIT 4

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.

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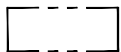
NOTE: 1995 AERIAL PHOTOGRAPH  
USED FOR EXISTING IMPERVIOUS  
COVER CALCULATIONS



**LEGEND**



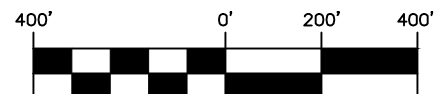
EXISTING GRANDFATHERED IMPERVIOUS  
COVER CLAIMED = 0.41 AC



PROJECT LIMITS



SCALE: 1" = 400'



JOB NO. 12787-01  
DATE NOVEMBER 2023  
DESIGNER BB  
CHECKED CK DRAWN BB  
SHEET EX 5.0

**BULVERDE COMMERCIAL**  
SAN ANTONIO, TEXAS  
EXISTING IMPERVIOUS COVER

**PAPE-DAWSON  
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS  
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000  
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10026800