

# Contributing Zone Plan for FRIEDRICH HILL PUD

PREPARED FOR:

FRIEDRICH HILL, LLC  
4007 McCullough Ave, Suite 231  
San Antonio, Texas 78212



April 2023

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TAB 1 - EAA COVER

# 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> Friedrich Hill PUD				<b>2. Regulated Entity No.:</b>			
<b>3. Customer Name:</b> Friedrich Hill, LLC				<b>4. Customer No.:</b>			
<b>5. Project Type:</b> (Please circle/check one)	<input checked="" type="radio"/> New	Modification		Extension		Exception	
<b>6. Plan Type:</b> (Please circle/check one)	<input type="radio"/> WPAI	<input checked="" type="radio"/> CZP	<input type="radio"/> SCS	<input type="radio"/> UST	<input type="radio"/> AST	<input type="radio"/> EXP	<input type="radio"/> EXT
<b>7. Land Use:</b> (Please circle/check one)	<input checked="" type="radio"/> Residential	Non-residential		<b>8. Site (acres):</b>		10.58 acres	
<b>9. Application Fee:</b>	\$ 6,500	<b>10. Permanent BMP(s):</b>			Batch detention basin		
<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>			Leon 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.

<b>Austin Region</b>			
<b>County:</b>	<b>Hays</b>	<b>Travis</b>	<b>Williamson</b>
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

<b>San Antonio Region</b>					
<b>County:</b>	<b>Bexar</b>	<b>Comal</b>	<b>Kinney</b>	<b>Medina</b>	<b>Uvalde</b>
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input 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 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.

Brian Crowell, P.E., LEED AP

Print Name of Customer/Authorized Agent

Signature of Customer/Authorized Agent Date

<b>**FOR TCEQ INTERNAL USE ONLY**</b>			
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):

TAB 2 - CZP APPLICATION



# Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), Effective June 1, 1999

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

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

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Brian Crowell, PE, LEED AP (of CDS Muery)

Date: 09/18/23

Signature of Customer/Agent:



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Regulated Entity Name: \_\_\_\_\_

## Project Information

1. County: Bexar
2. Stream Basin: Leon Creek
3. Groundwater Conservation District (if applicable): Trinity-Glen Rose GCD
4. Customer (Applicant):

Contact Person: Patrick Flanagin

Entity: Friedrich Hill, LLC

Mailing Address: 4007 McCullough Ave, Suite 231

City, State: San Antonio, TX

Telephone: 210-444-2040

Email Address: patrick.flanagin@rosehaven.us

Zip: 78212

Fax: \_\_\_\_\_

5. Agent/Representative (If any):

Contact Person: Brian Crowell, PE, LEED AP

Entity: CDS Muery

Mailing Address: 100 NE Loop 410, Ste 300

City, State: San Antonio

Zip: 78216

Telephone: 210-581-1111

Fax: \_\_\_\_\_

Email Address: brian.crowell@cdsmuery.com

6. 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.

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

Approx 920 feet southwest of Heuermann Rd and Milsa Dr intersection.

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

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

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

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

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

11. Existing project site conditions are noted below:

- Existing commercial site
- Existing industrial site
- Existing residential site

- Existing residential site
- Existing paved and/or unpaved roads
- Undeveloped (Cleared)
- Undeveloped (Undisturbed/Not cleared)
- Other: \_

12. The type of project is:

- Residential: # of Lots: 70
- Residential: # of Living Unit Equivalents: \_\_\_\_\_
- Commercial
- Industrial
- Other: \_\_\_\_\_

13. Total project area (size of site): 10.58 Acres

Total disturbed area: 10.06 Acres

14. Estimated projected population: 210

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

**Table 1 - Impervious Cover**

<i>Impervious Cover of Proposed Project</i>	<i>Sq. Ft.</i>	<i>Sq. Ft./Acre</i>	<i>Acres</i>
Structures/Rooftops	96,250	÷ 43,560 =	2.21
Parking	33,337	÷ 43,560 =	0.76
Other paved surfaces	93,130	÷ 43,560 =	2.14
Total Impervious Cover	222,717	÷ 43,560 =	5.11

**Total Impervious Cover 5.11 ÷ Total Acreage 10.58 X 100 = 48.3% Impervious Cover**

16.  **Attachment D - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

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

***For Road Projects Only***

***Complete questions 18 - 23 if this application is exclusively for a road project.***

N/A

18. Type of project:

- TXDOT road project.
- County road or roads built to county specifications.
- City thoroughfare or roads to be dedicated to a municipality.
- Street or road providing access to private driveways.

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

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

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

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

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

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

21. Pavement Area:

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

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

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

Pavement area \_\_\_\_\_ acres  $\div$  R.O.W. area \_\_\_\_\_ acres  $\times 100 = \text{_____}\%$  impervious cover.

22.  A rest stop will be included in this project.  
 A rest stop will not be included in this project.
23.  Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

### ***Stormwater to be generated by the Proposed Project***

24.  **Attachment E - Volume and Character of Stormwater.** A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

### ***Wastewater to be generated by the Proposed Project***

25.  Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.
- N/A

26. Wastewater will be disposed of by:

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

**Attachment F - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

Sewage Collection System (Sewer Lines):

The sewage collection system will convey the wastewater to the SAWS Leon Creek WRC (name) Treatment Plant. The treatment facility is:

Existing.

Proposed.

N/A

**Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons**

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

N/A

27. Tanks and substance stored:

**Table 2 - Tanks and Substance Storage**

<i>AST Number</i>	<i>Size (Gallons)</i>	<i>Substance to be Stored</i>	<i>Tank Material</i>
1			
2			
3			
4			
5			

Total x 1.5 = \_\_\_\_\_ Gallons

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

one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

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

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

**Table 3 - Secondary Containment**

<i>Length (L)(Ft.)</i>	<i>Width(W)(Ft.)</i>	<i>Height (H)(Ft.)</i>	<i>L x W x H = (Ft3)</i>	<i>Gallons</i>

**Total: \_\_\_\_\_ Gallons**

30. Piping:

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

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

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

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

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

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

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

## **Site Plan Requirements**

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

34.  The Site Plan must have a minimum scale of 1" = 400'.  
Site Plan Scale: 1" = 50'.
35. 100-year floodplain boundaries:
- Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
- No part of the project site is located within the 100-year floodplain.  
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA FIRMs 48029C0095F and 48029C0115F, REV. 9/29/2010.
36.  The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
- The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
37.  A drainage plan showing all paths of drainage from the site to surface streams.
38.  The drainage patterns and approximate slopes anticipated after major grading activities.
39.  Areas of soil disturbance and areas which will not be disturbed.
40.  Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
41.  Locations where soil stabilization practices are expected to occur.
42.  Surface waters (including wetlands).  
 N/A
43.  Locations where stormwater discharges to surface water.  
 There will be no discharges to surface water.
44.  Temporary aboveground storage tank facilities.  
 Temporary aboveground storage tank facilities will not be located on this site.

45.  Permanent aboveground storage tank facilities.  
 Permanent aboveground storage tank facilities will not be located on this site.
46.  Legal boundaries of the site are shown.

### ***Permanent Best Management Practices (BMPs)***

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

47.  Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.  
 N/A
48.  These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.  
 The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.  
 A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: \_\_\_\_\_.  
 N/A
49.  Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.  
 N/A
50. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.  
 The site will be used for low density single-family residential development and has 20% or less impervious cover.  
 The site will be used for low density single-family residential development but has more than 20% impervious cover.  
 The site will not be used for low density single-family residential development.



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

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

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

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

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

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

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

N/A

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

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

N/A

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

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

N/A

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

N/A

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

N/A

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

59.  The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
60.  A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development,

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

### ***Administrative Information***

61.  Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions.
62.  Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.
63.  The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.  
 The Temporary Stormwater Section (TCEQ-0602) is included with the application.

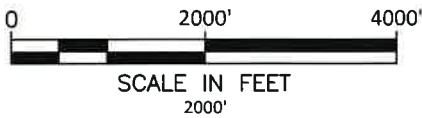
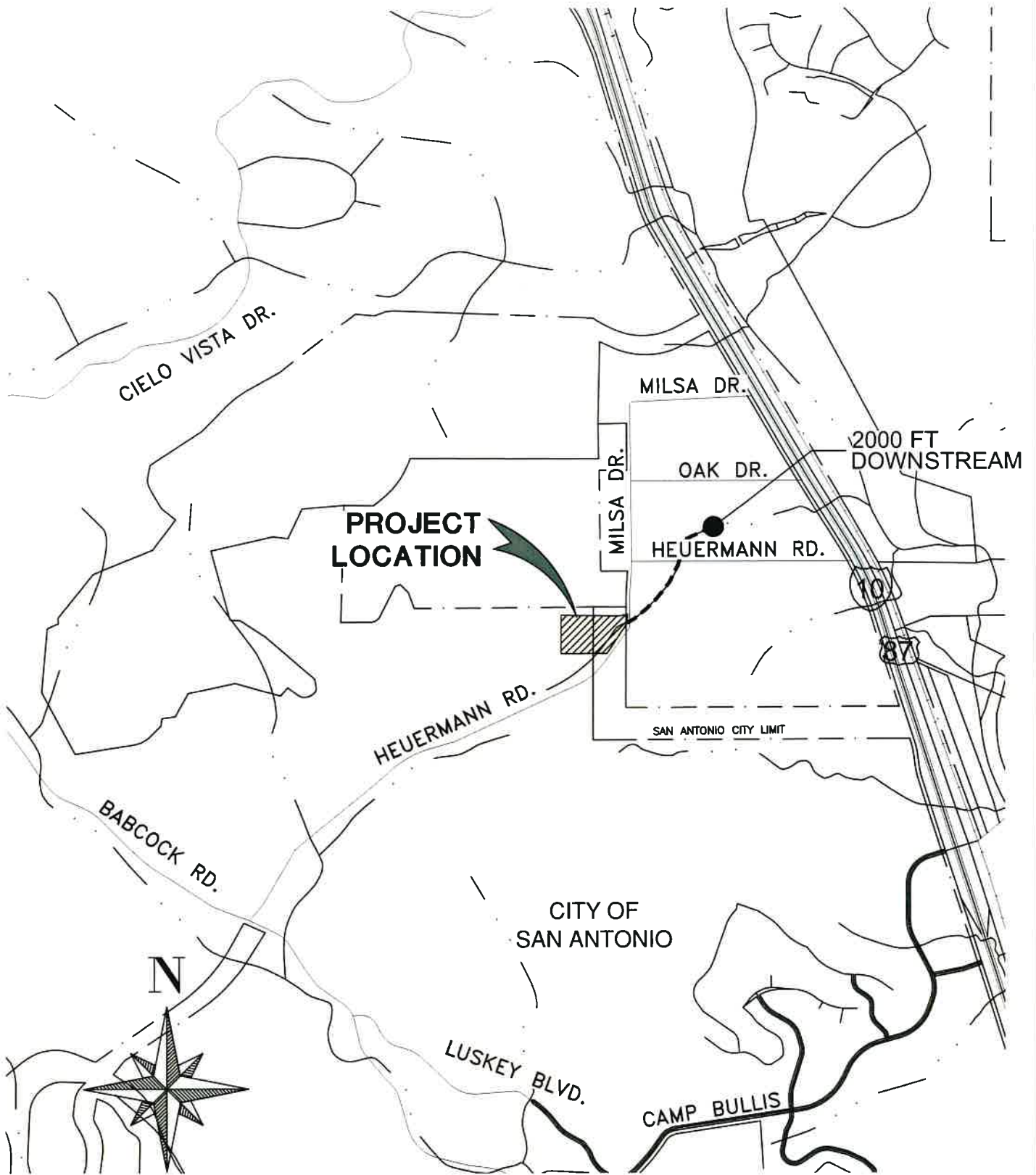
**Supplemental Attachments for**  
**TCEQ-10257 Contributing Zone Plan Application**  
**Friedrich Hill PUD**

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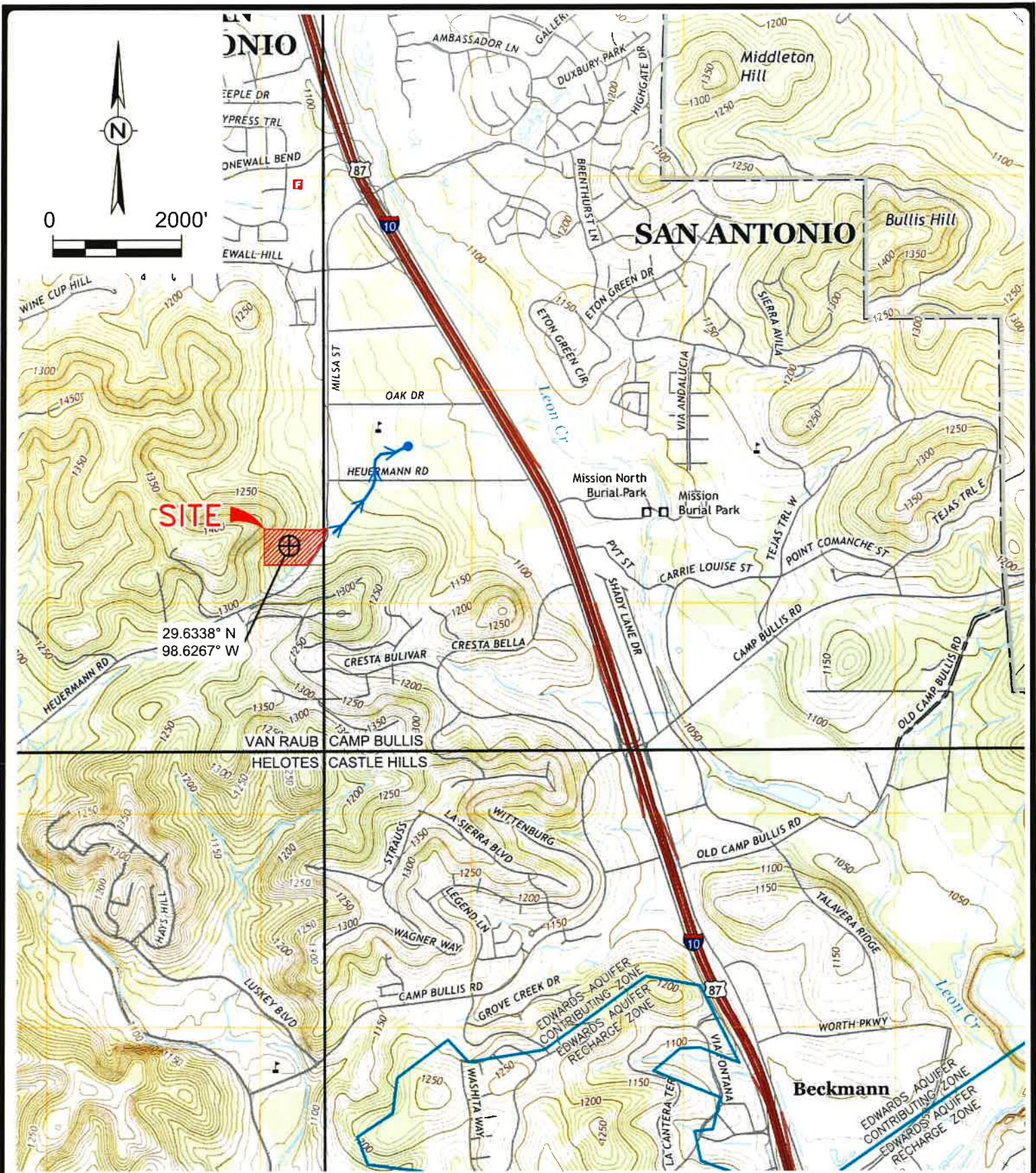
**Table of Attachments:**

Attachment A:	Road Map
Attachment B:	USGS Quadrangle Map
Attachment C:	Project Narrative
Attachment D:	Factors Affecting Surface Water Quality
Attachment E:	Volume and Character of Stormwater
Attachment J:	BMPs for Upgradient Stormwater
Attachment K:	BMPS for On-site Stormwater
Attachment L:	BMPs for Surface Streams
Attachment M:	Construction Plans
	C8.0 - EAPP AND BATCH DETENTION POND COVER SHEET
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	C8.3 - CONTRIBUTING ZONE SITE PLAN
	C8.4 - BATCH DETENTION POND PLAN
	C8.5 - BATCH DETENTION POND DETAILS (1)
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Attachment N:	Inspection, Maintenance, Repair and Retrofit Plan

## ATTACHMENT A | Road Map



## ATTACHMENT B | USGS Quadrangle Map



**SITE**

29.6338° N  
98.6267° W



2,000 FT DOWNSTREAM FLOW PATH  
EDWARDS AQUIFER BOUNDARY

## USGS MAP FRIEDRICH HILL PUD

**CDS** muery  
ENGINEERS | SURVEYORS  
100 NE LOOP 410, STE 300, SAN ANTONIO, TEXAS 78216  
210-481-1111 | TDD: 210-481-1133 | FAX: 210-481-1134

2019 QUADRANGLES  
(VAN RAUB, CAMP BULLIS  
HELOTES, CASTLE HILLS)  
USGS-CZP.DWG

SCALE: 1"=2000'  
DATE: 3/24/23  
DRAWN BY: JBG



## ATTACHMENT C | Project Narrative

### Area of Site:

The area of the site is 10.58 acres, proposed to be established as Friedrich Hill PUD by Bexar County subdivision plat no. 23-11800143. Approximately 0.28 acre of the 10.58 acres will be dedicated to the city of San Antonio by the subdivision plat.

### Offsite Areas:

The project is situated on the west side of Huermann Road, a public street. Approximately 0.04 acre of offsite area within the Huermann Road right-of-way will be disturbed to construct one street connection to the public road.

### Impervious Cover:

Proposed impervious cover is 5.11 acres, or 48.3% of the 10.58 acre site. Refer to the Contributing Zone Site Plan included in Attachment M – Construction Plans for a breakdown of proposed impervious cover.

### Permanent BMP

One proposed batch detention basin, located in the northeast corner of the site, will remove pollutants prior to release of stormwater to downstream drainage facilities. The batch detention basin features a storm water detention volume stored above the provided water quality volume to attenuate peak runoff rates and release downstream at pre-development rates. Construction Plans for the batch detention basin are included as Attachment M.

### Proposed site use

Friedrich Hill PUD is a residential duplex development designed as a Planned Unit Development (PUD). A townhome with two residential units will be constructed on each of the 70 proposed lots.

### Site history

The site has been used as a single family homestead since approximately 1993 with residential buildings constructed in 1993 and 1996 according to Bexar County appraisal district records.

### Previous development

Previous development included construction of a private drive, two residential buildings, and associated utilities. The two buildings were demolished.

### Areas to be Demolished:

The existing residential overhead electric service along the north property line will be removed. Perimeter fencing will be removed.

The project site will be cleared of existing trees and vegetation within the limits of the proposed lots and streets. A portion of trees within the areas of disturbance will be protected and preserved during construction activities. All existing trees and vegetation within the area designated as “undisturbed” on the Contributing Zone Site Plan will be preserved.

Existing building foundations will be selectively demolished, with plans to use the foundations for an amenity area where practical, safe, and compatible with the proposed use.

## **ATTACHMENT D | Factors Affecting Surface Water Quality**

Factors attributed to site development that may affect water quality may include, but are not limited to:

- The volume of storm water runoff from the site increases due to adding impervious area such as pavements and buildings.
- Contamination of soils from grading and site excavation activities during construction.
- Erosion and silt runoff from construction activities.
- Residential and service vehicle traffic after construction raises the potential for contamination of storm water runoff. Examples of potential contamination sources include trash and debris from waste collection trucks, fluids leaking from personal vehicles, and litter.

Temporary and Permanent Best Management Practices (BMPs) are provided to mitigate factors affecting surface water quality. Refer to subsequent attachments and the Temporary Stormwater Section for information regarding temporary and permanent BMPs proposed for this project.

## ATTACHMENT E | Volume and Character of Stormwater

### Volume of Runoff

The following table includes the pre-construction and post-construction conditions runoff calculations for the Project Site. The pre-construction and post-construction rational method “C” factors are 0.52 and 0.78, respectively. However, the proposed batch detention facility attenuates post-construction peak runoff rates from the site to less than pre-construction rates for the 1-, 5-, 25-, and 100-year recurrence interval events based on City of San Antonio design criteria.

DRAINAGE AREA	AREA (AC)	C	T.C.	I-1 (INCH)	Q-1 (CFS)	I-5 (INCH)	Q-5 (CFS)	I-25 (INCH)	Q-25 (CFS)	I-100 (INCH)	Q-100 (CFS)
<b>PRE-CONSTRUCTION CONDITIONS</b>											
TOTAL SITE	10.58	<b>0.52</b>	11.7	3.97	21.83	5.92	32.55	8.25	45.38	10.41	<b>57.25</b>
<b>POST-CONSTRUCTION CONDITIONS</b>											
A (POND CATCHMENT AREA)	7.61	0.84	9.3	4.41	28.31	6.60	42.43	9.23	59.29	11.68	75.06
POND OUTFLOW	7.61	(MODIFIED RATIONAL OUTPUT)			11.72		17.05		23.05		28.31
BYPASS AREA	2.97	0.60	7.5	4.79	8.52	7.17	12.75	10.03	17.84	12.69	22.57
TOTAL SITE (POND OUTFLOW + BYPASS AREA)	10.58	<b>0.78</b>			20.24		29.80		40.89		<b>50.88</b>

**Project Site Peak Stormwater Discharges (Rational and Modified Rational Methods)**

### Character of Runoff

Stormwater runoff from a 7.6 acre portion of the site will be captured and temporarily detained by a proposed batch detention pond located near the northeast corner of the property. The batch detention pond is designed in accordance with TGM criteria to remove at least 80% of the projected pollutant loading increase due to the proposed project. The batch detention pond also attenuates the peak discharge rate of storm water from the catchment area during less frequent storm events.

Stormwater runoff from the remaining 3.0 acres of the site (Bypass Area) will bypass the batch detention pond and discharge directly to the historical site outfall. The batch detention pond is oversized and designed to compensate for the increase in peak runoff rates and pollutant loading associated with increased impervious cover within the Bypass Area.

## **ATTACHMENT J | BMPs for Upgradient Stormwater**

A system of proposed interceptor channels and a driveway culvert will divert stormwater originating upgradient of the site around the proposed residential lots and batch detention facility. The system will discharge to the historical site outfall, existing culverts under Heuermann Road near the northeast corner of the site.

Temporary BMPs will treat storm water runoff from the interceptor channels prior to discharging from the site until disturbed areas are stabilized with concrete rip-rap, established vegetation, or other approved means.

## ATTACHMENT K | BMPs for On-Site Stormwater

Stormwater runoff from a 7.6 acre portion of the site will be captured and temporarily detained by a proposed batch detention pond, a permanent BMP, located near the northeast corner of the property. The batch detention pond is designed in accordance with TGM criteria to remove at least 80% of the projected pollutant loading increase due to the proposed project.

Designed as one pond for both water quality and detention, the batch detention pond features a settling and sediment storage volume (Total Capture Volume) in the lower portion of the basin and a stormwater detention volume in the upper portion of the basin.

Release of stormwater from the Total Capture Volume is managed by an automated control valve (Batch Control System). The Batch Control System allows the Total Capture Volume to partially or totally fill, detains the captured runoff for 12 hours after rain cessation, and then begins a 46-hour drawdown. The Batch Control System includes a rotary weir device with trash rack, outlet pipe, solar panel, and logic controller. The rotary weir releases clean water from the top of the captured volume first, then slowly lowers to release all captured runoff through the outlet pipe.

Incoming storm water runoff exceeding the provided Total Capture Volume is stored in the same basin and release is controlled by openings in a concrete wall that encloses the downstream side of the batch detention pond. Stormwater also flows over the rotary weir, fixed upright when the Total Capture Volume is exceeded, and discharges through the Batch Control System outfall pipe. The lowest opening in the concrete wall is at the top of the Total Capture Volume. An emergency spillway is provided at least 1 foot above the maximum 25-year water surface elevation.

The provided Total Capture Volume is considered full when a subsequent storm event arrives for purposes of the storm water detention (modified rational method) calculations. The Total Capture Volume full condition represents a worst case scenario, only occurring with two or more closely spaced events of ideal magnitude or in case of a Batch Control System failure. The following table summarizes Total Suspended Solids (TSS) removal and Total Capture Volume calculations.

Project Area	10.58 acres
Impervious Cover	5.11 acres (48.3%)
Required TSS Removal for Project	4,170 lbs.
Batch Detention Drainage Area	7.61 acres
Batch Detention Drainage Area IC	4.87 acres (64.0%)
Batch Detention Desired TSS Removal	4,170 lbs.
Total Capture Volume Required	25,423 CF
Total Capture Volume Provided	30,030 CF

**TSS Removal Calculation Summary**

Detailed TSS Removal Calculations are provided on the following pages.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: **Friedrich Hills PUD**  
 Date Prepared: **4/5/2023**

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

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

where:

$L_M$  TOTAL PROJECT = Required TSS removal resulting from the proposed development = 80% of increase  
 $A_N$  = 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 \* = **10.58** acres  
 Predevelopment impervious area within the limits of the plan \* = **0.00** acres  
 Total post-development impervious area within the limits of the plan \* = **5.11** acres  
 Total post-development impervious cover fraction \* = **0.48**  
 P = **30** inches

$L_M$  TOTAL PROJECT = **4170** lbs.

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

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

**Drainage Basin/Outfall Area No. = 1** **Batch Pond (Permanent BMP) Drainage Basin**

Total drainage basin/outfall area = **7.61** acres  
 Predevelopment impervious area within drainage basin/outfall area = **0.00** acres  
 Post-development impervious area within drainage basin/outfall area = **4.87** acres  
 Post-development impervious fraction within drainage basin/outfall area = **0.64**  
 $L_M$  THIS BASIN = **3974** lbs.  
*(Runoff from 0.24 acres proposed impervious cover bypasses the permanent bmp)*

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention**  
 Removal efficiency = **91** percent

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

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

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

$A_C$  = **7.61** acres  
 $A_i$  = **4.87** acres  
 $A_p$  = **2.74** acres  
 $L_R$  = **4640** lbs

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

Desired  $L_{M, \text{THIS BASIN}}$  = **4170** lbs.

F = **0.90**

**6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

Rainfall Depth = **1.70** inches  
 Post Development Runoff Coefficient = **0.45**  
 On-site Water Quality Volume = **21186** cubic feet  
  
 Off-site area draining to BMP = **0.00** acres  
 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 = **4237**  
**Total Capture Volume (required water quality volume(s) x 1.20) = 25423 cubic feet**

Calculations from RG-348 Pages 3-34 to 3-31



## **ATTACHMENT L | BMPs for Surface Streams**

No adverse impacts to nearby surface streams are expected. A proposed batch detention pond will protect downstream surface streams by removing pollutants from storm water and releasing the treated stormwater at less than pre-construction rates. Stormwater runoff from the developed site and upgradient areas will discharge to a culvert under Heuermann Road, as it has historically. A series of channels and pipes convey the runoff approximately 0.7 miles downstream to Leon Creek.

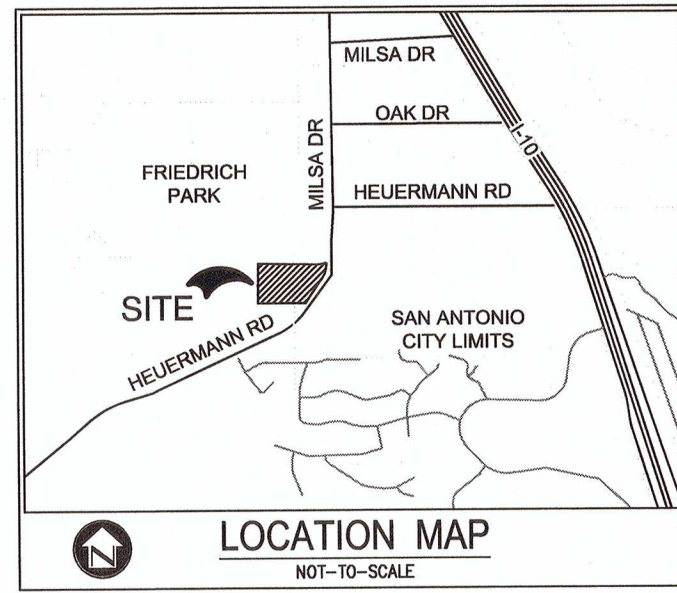


## **ATTACHMENT M | Construction Plans**

Construction Plans, related details and required system information for the batch detention facility and a Site Plan for the development are included herein.

### SHEET INDEX

- C8.0 - EAPP AND BATCH DETENTION POND COVER SHEET
- C8.1 - STORM WATER POLLUTION PREVENTION PLAN
- C8.2 - STORM WATER POLLUTION PREVENETION PLAN DETAILS
- C8.3 - CONTRIBUTING ZONE SITE PLAN
- C8.4 - BATCH DETENTION POND PLAN
- C8.5 - BATCH DETENTION POND DETAILS (1)
- C8.6 - BATCH DETENTION POND DETAILS (2)



# EDWARDS AQUIFER PROTECTION PLAN AND BATCH DETENTION PLAN

FOR

## FRIEDRICH HILL PUD

SAN ANTONIO, TEXAS

CIVIL SHEET INDEX	
Sht. No.	Sheet Title
C8.0	COVER SHEET
C8.1	STORM WATER POLLUTION PREVENTION PLAN
C8.2	STORM WATER POLLUTION PREVENTION PLAN DETAILS
C8.3	CONTRIBUTING ZONE SITE PLAN
C8.4	BATCH DETENTION POND PLAN
C8.5	BATCH DETENTION POND DETAILS (1)
C8.6	BATCH DETENTION POND DETAILS (2)

TCEQ CONTRIBUTING ZONE PLAN  
GENERAL CONSTRUCTION NOTES  
*(REV. 07/15/15)*

GENERAL NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITIES. THIS NOTICE MUST INCLUDE:
  - THE NAME OF THE APPROVED PROJECT;
  - THE ACTIVITY START DATE; AND
  - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN (CZP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTOR(S) SHOULD KEEP COPIES OF THE APPROVED PLAN AND APPROVAL LETTER ON-SITE.
3. NO HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
5. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
6. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
7. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
8. ALL EXCAVATED MATERIAL THAT WILL BE STORED ON-SITE MUST HAVE PROPER E&S CONTROLS.
9. IF PORTIONS OF THE SITE WILL HAVE A CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
10. THE FOLLOWING RECORDS SHOULD BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
  - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
  - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
  - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
11. THE HOLDER OF ANY APPROVED CZP MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
  - A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES (BMPS) OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
  - B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
  - C. ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER; OR
  - D. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE APPROVED CONTRIBUTING ZONE PLAN.

1. EXISTING UNDERGROUND UTILITIES ARE SHOWN FROM AVAILABLE UTILITY RECORDS AND OBSERVABLE SURFACE FEATURES. ACTUAL LOCATIONS MAY VARY AND UTILITIES NOT SHOWN ON THESE PLANS MAY EXIST. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES AND OWNER PERSONNEL FOR ASSISTANCE IN LOCATING ALL UNDERGROUND FACILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATION AND GRADE OF UNDERGROUND FACILITIES WELL AHEAD OF CONSTRUCTION OPERATIONS AND SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND REPLACEMENT OF ALL DAMAGED UTILITIES AND FOR DAMAGES CAUSED TO OWNER OR OTHER PARTIES ARISING FROM SERVICE INTERRUPTION OR LOSS OF USE.
2. THE SMARTBATCH SYSTEM AND ASSOCIATED LOGIC CONTROLLER SHOWN ON THESE PLANS SHALL FUNCTION ACCORDING TO THE TCEQ RG-348 DESIGN CRITERIA [SECTION 3.4.18 "ADDENDUM SHEET - COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)" JANUARY 20, 2017]
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES. NO SEPARATE PAYMENT SHALL BE MADE FOR REQUIRED RESTORATIONS, UNLESS OTHERWISE SHOWN.
4. WHENEVER POWER POLES ARE ADJACENT TO THE PROPOSED CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE PROPER SHORING, BRACING, AND/OR OTHER SUITABLE SUPPORT FOR THE POLES DURING CONSTRUCTION.
5. UNLESS OTHERWISE SPECIFIED BY THE ARCHITECT OR IN THE LANDSCAPE PLANS/SPECIFICATIONS THE FOLLOWING STATEMENT SHALL APPLY TO TOPSOIL SALVAGE, PLACEMENT AND SUPPLY: TOPSOIL SHALL BE STRIPPED AND STOCKPILED SEPARATELY FROM ALL OTHER MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS. STOCKPILED TOPSOIL MATERIAL SHALL BE SPREAD AND COMPACTED TO A DEPTH OF 6" TO ESTABLISH FINISHED GRADE IN ALL AREAS THAT ARE NOT TO BE PAVED. SHOULD STOCKPILED TOPSOIL FAIL TO COVER ALL AREAS TO A COMPACTED DEPTH OF 6", CONTRACTOR SHALL SUPPLY ADDITIONAL TOPSOIL FROM APPROVED OFF SITE SOURCES TO ESTABLISH FINISHED GRADE WITHOUT ADDITIONAL COMPENSATION.
6. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ROCK AND ALL OTHER MATERIALS ENCOUNTERED REGARDLESS OF THEIR NATURE OR THE MANNER IN WHICH THEY ARE REMOVED.
7. CONTRACTOR IS RESPONSIBLE FOR GRADING ALL DISTURBED AREAS TO PREVENT PONDING OR BLOCKAGE OF SURFACE DRAINAGE.
8. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT DAMAGE TO ADJACENT PROPERTIES AND TO CONFORM TO LOCAL JURISDICTIONAL AUTHORITY REQUIREMENTS.
9. WHERE FINISHED CONTOURS ARE SHOWN TO MATCH EXISTING CONTOURS ON THE GRADING PLANS, NO GRADE SEPARATION IS ALLOWABLE. CONTRACTOR SHALL ADJUST FINISHED CONTOURS AS NECESSARY TO ACCOMPLISH THIS REQUIREMENT.
10. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/ EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITY OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
11. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON COMPLETION.

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



**S CDS muary**  
**ENGINEERS | SURVEYORS**  
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216  
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 23-11800143  
JOB NO. 122090.02  
DATE JANUARY 2023  
DRAFTED AR  
CHECKED BC DESIGN JBG

**FRIEDRICH HILL PUD**  
**SAN ANTONIO, TEXAS**  
**EAPP AND BATCH DETENTION**  
**POND COVER SHEET**

Date: Aug 05, 2023, 9:47am, User: D:\shchickels\pntes  
 File: F:\JUDSON\2023\122090.02\_Friedrich Hill PUD\_No Tax\Civil\_3D\Drawg\Engineer\122090\_CZP\_CB\_0-EAPP and Batch Detention Pond Cover.dwg

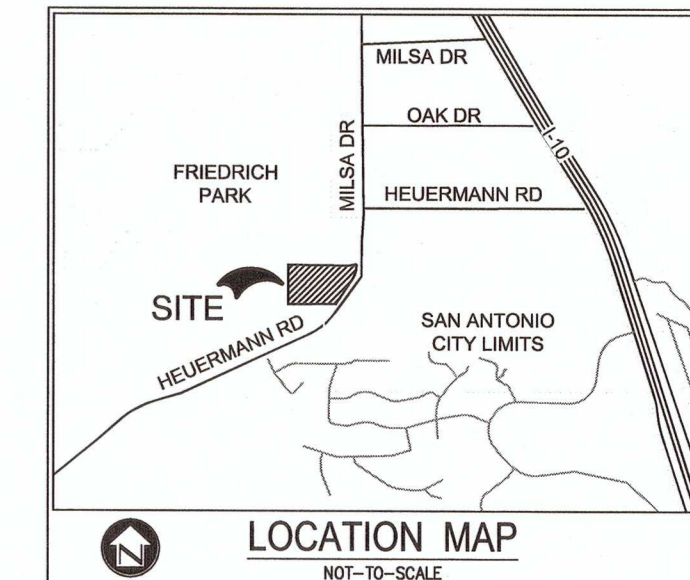
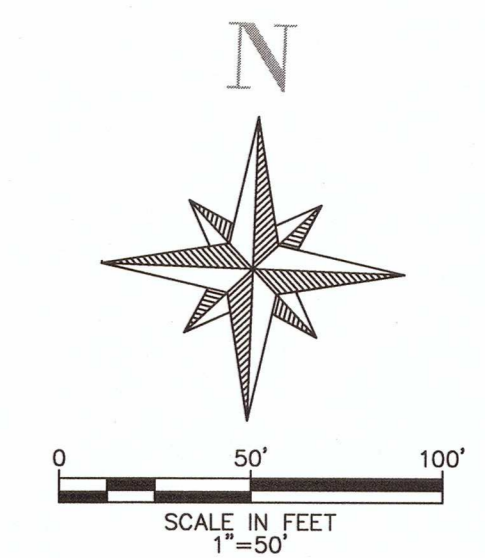
**TREE PROTECTION NOTE**  
 CONTRACTOR SHALL REFERENCE THE TREE PROTECTION PLAN AND LANDSCAPE PLAN FOR TREES TO BE SAVED OR REMOVED AND INSTALL PROTECTIVE MEASURES AS NECESSARY FOR TREES TO REMAIN. (SEE SHEETS C7.0 - C7.2)

**PRIVATE STREET DESIGNATION NOTE**  
 LOT 999, BLOCK 01, IS A PRIVATE STREET AND IS DESIGNATED AS AN UNDERGROUND AND AT-GRADE INFRASTRUCTURE AND SERVICE FACILITIES EASEMENT FOR GAS, ELECTRIC, STREET LIGHT, TELEPHONE CABLE TELEVISION, DRAINAGE, PEDESTRIAN, PUBLIC WATER AND PUBLIC WASTEWATER.

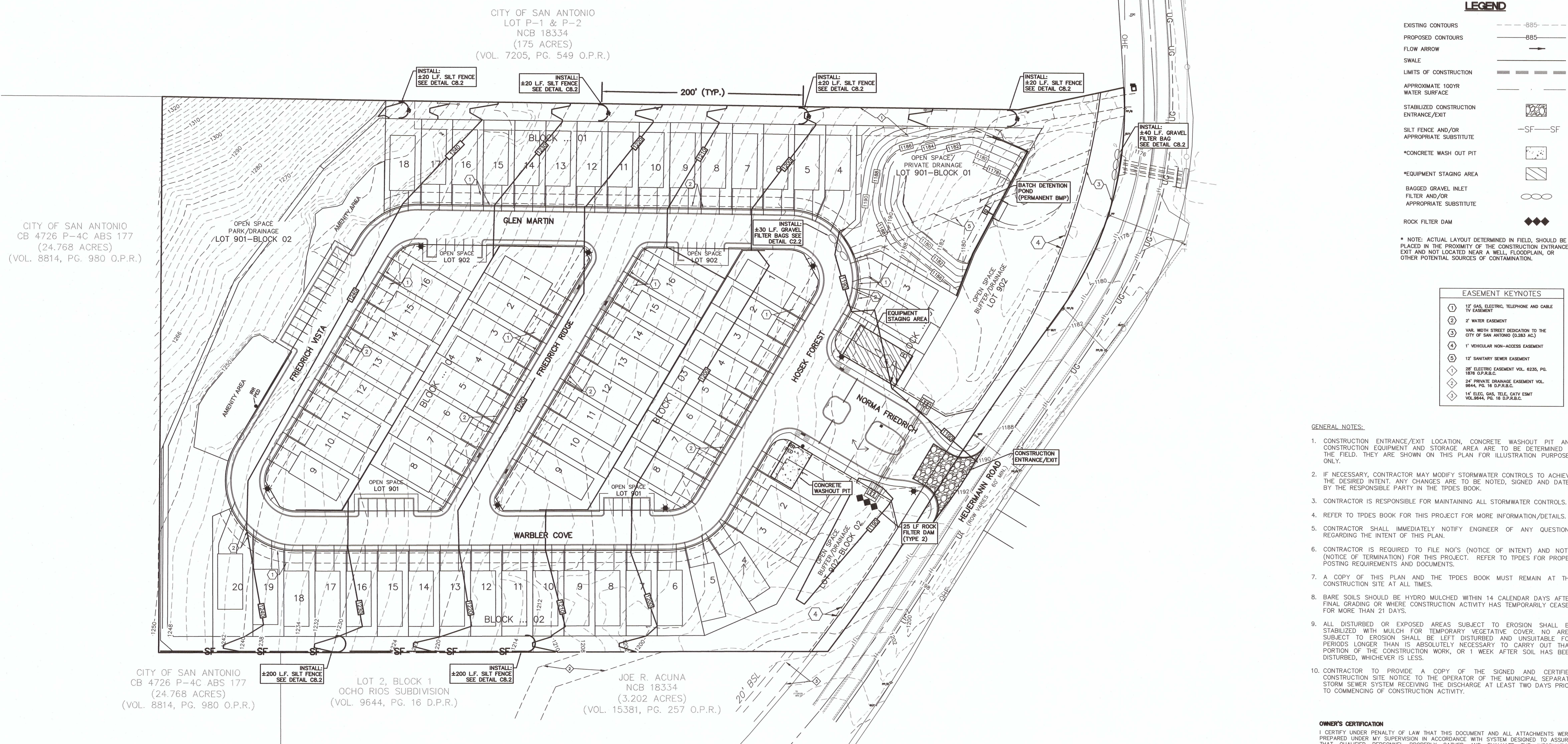
**TRENCH EXCAVATION SAFETY NOTE**  
 CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

**CAUTION**  
 THE LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO COMMENCING WORK AND IS RESPONSIBLE FOR ANY/DAMAGES RESULTING FROM THE FAILURE TO LOCATE AND PRESERVE UTILITIES.

**NOTE**  
 SEE SANITARY SEWER PLANS FOR DESIGN SPECIFIC DESIGN



NO.	REVISION	DATE



**LEGEND**

EXISTING CONTOURS	---
PROPOSED CONTOURS	---
FLOW ARROW	→
SWALE	---
LIMITS OF CONSTRUCTION	---
APPROXIMATE 100YR WATER SURFACE	---
STABILIZED CONSTRUCTION ENTRANCE/EXIT	▨
SILT FENCE AND/OR APPROPRIATE SUBSTITUTE	-SF-SF
*CONCRETE WASH OUT PIT	▨
*EQUIPMENT STAGING AREA	▨
BAGGED GRAVEL INLET FILTER AND/OR APPROPRIATE SUBSTITUTE	▨
ROCK FILTER DAM	◆◆◆

\* NOTE: ACTUAL LAYOUT DETERMINED IN FIELD, SHOULD BE PLACED IN THE PROXIMITY OF THE CONSTRUCTION ENTRANCE/EXIT AND NOT LOCATED NEAR A WELL, FLOODPLAIN, OR OTHER POTENTIAL SOURCES OF CONTAMINATION.

**EASEMENT KEYNOTES**

①	12' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT
②	2' WATER EASEMENT
③	VAR. WIDTH STREET DEDICATION TO THE CITY OF SAN ANTONIO (0.283 AC.)
④	1' VEHICULAR NON-EASEMENT
⑤	12' SANITARY SEWER EASEMENT
⑥	20' ELECTRIC EASEMENT VOL. 6235, PG. 1876 O.P.R.B.C.
⑦	14' PRIVATE DRAINAGE EASEMENT VOL. 9844, PG. 16 O.P.R.B.C.
⑧	14' ELEC. GAS, TELE. CABLE ESMT VOL. 9844, PG. 16 O.P.R.B.C.

CITY OF SAN ANTONIO  
 CB 4726 P-4C ABS 177  
 (24.768 ACRES)  
 (VOL. 8814, PG. 980 O.P.R.)

CITY OF SAN ANTONIO  
 LOT P-1 & P-2  
 NCB 18334  
 (175 ACRES)  
 (VOL. 7205, PG. 549 O.P.R.)

CITY OF SAN ANTONIO  
 CB 4726 P-4C ABS 177  
 (24.768 ACRES)  
 (VOL. 8814, PG. 980 O.P.R.)

LOT 2, BLOCK 1  
 OCHO RIOS SUBDIVISION  
 (VOL. 9644, PG. 16 D.P.R.)

JOE R. ACUNA  
 NCB 18334  
 (3.202 ACRES)  
 (VOL. 15381, PG. 257 O.P.R.)

- GENERAL NOTES:**
- CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASHOUT PIT AND CONSTRUCTION EQUIPMENT AND STORAGE AREA ARE TO BE DETERMINED IN THE FIELD. THEY ARE SHOWN ON THIS PLAN FOR ILLUSTRATION PURPOSES ONLY.
  - IF NECESSARY, CONTRACTOR MAY MODIFY STORMWATER CONTROLS TO ACHIEVE THE DESIRED INTENT. ANY CHANGES ARE TO BE NOTED, SIGNED AND DATED BY THE RESPONSIBLE PARTY IN THE TPDES BOOK.
  - CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORMWATER CONTROLS.
  - REFER TO TPDES BOOK FOR THIS PROJECT FOR MORE INFORMATION/DETAILS.
  - CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY QUESTIONS REGARDING THE INTENT OF THIS PLAN.
  - CONTRACTOR IS REQUIRED TO FILE NO'S (NOTICE OF INTENT) AND NOT'S (NOTICE OF TERMINATION) FOR THIS PROJECT. REFER TO TPDES FOR PROPER POSTING REQUIREMENTS AND DOCUMENTS.
  - A COPY OF THIS PLAN AND THE TPDES BOOK MUST REMAIN AT THE CONSTRUCTION SITE AT ALL TIMES.
  - BARE SOILS SHOULD BE HYDRO MULCHED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.
  - ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH FOR TEMPORARY VEGETATIVE COVER. NO AREA SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSUITABLE FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK, OR 1 WEEK AFTER SOIL HAS BEEN DISTURBED, WHICHEVER IS LESS.
  - CONTRACTOR TO PROVIDE A COPY OF THE SIGNED AND CERTIFIED CONSTRUCTION SITE NOTICE TO THE OPERATOR OF THE MUNICIPAL SEWER STORM SEWER SYSTEM RECEIVING THE DISCHARGE AT LEAST TWO DAYS PRIOR TO COMMENCING OF CONSTRUCTION ACTIVITY.

**OWNER'S CERTIFICATION**  
 I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH 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 SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNATURE (OWNER) \_\_\_\_\_ DATE \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION**  
 I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THAT AUTHORIZES THE STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION PLAN.

SIGNATURE (CONTRACTOR) \_\_\_\_\_ DATE \_\_\_\_\_

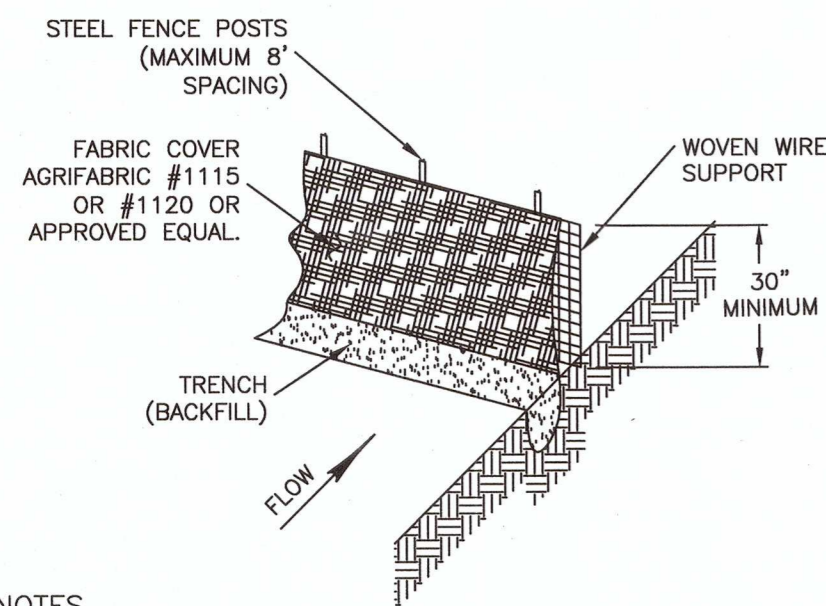


**S CDS muery**  
**ENGINEERS | SURVEYORS**  
 100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216  
 (210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

PLAT NO. 23-11800143  
 JOB NO. 122090.02  
 DATE JANUARY 2023  
 DRAFTED AR  
 CHECKED BC DESIGN JBG

**FRIEDRICH HILL PUD**  
**SAN ANTONIO, TEXAS**  
**STORM WATER POLLUTION**  
**PREVENTION PLAN**

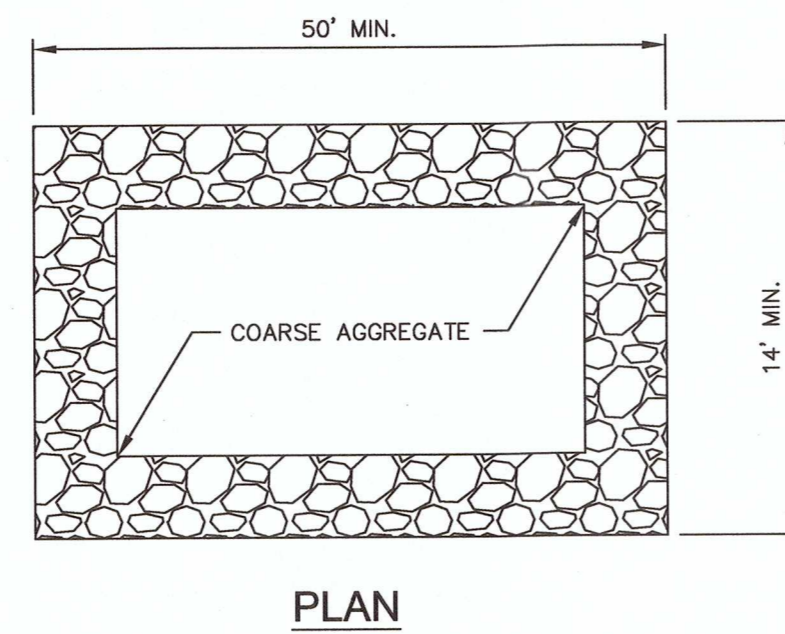
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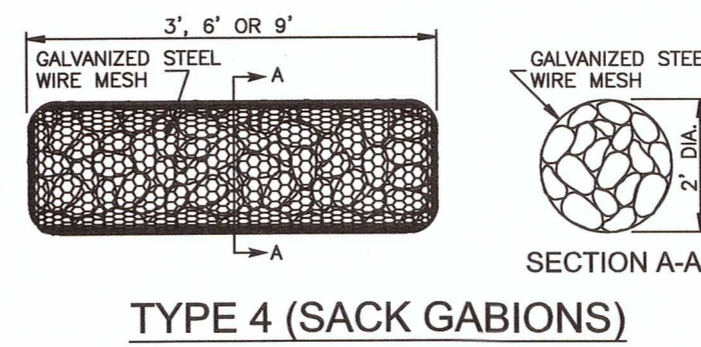
**GENERAL NOTES**

- STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
- THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
- THE TRENCH SHOULD BE A MINIMUM OF 6 INCHES DEEP AND 4-8 INCHES WIDE TO ALLOW FOR THE SILT FENCE TO BE LAID IN THE GROUND AND BACKFILLED.
- SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POSTS.
- INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- SEDIMENT TRAPPED BY THIS PRACTICE SHALL BE DISPOSED OF IN AN APPROVED SITE IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
- ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES AND DISPOSED OF IN AN APPROVED SPOIL SITE OR AS IN NO. 6 ABOVE.

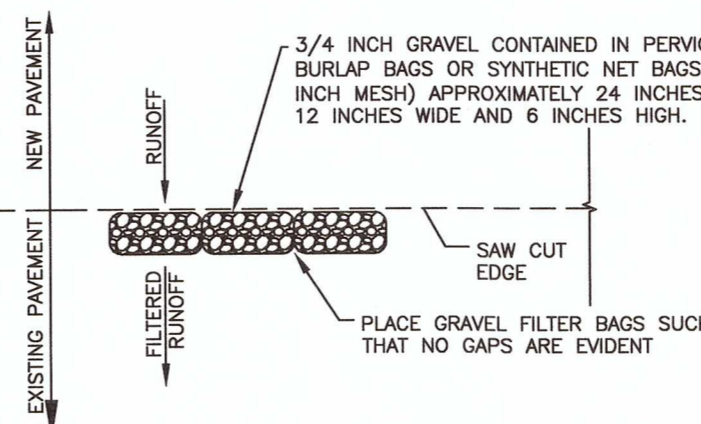
**SILT FENCE**  
NOT TO SCALE



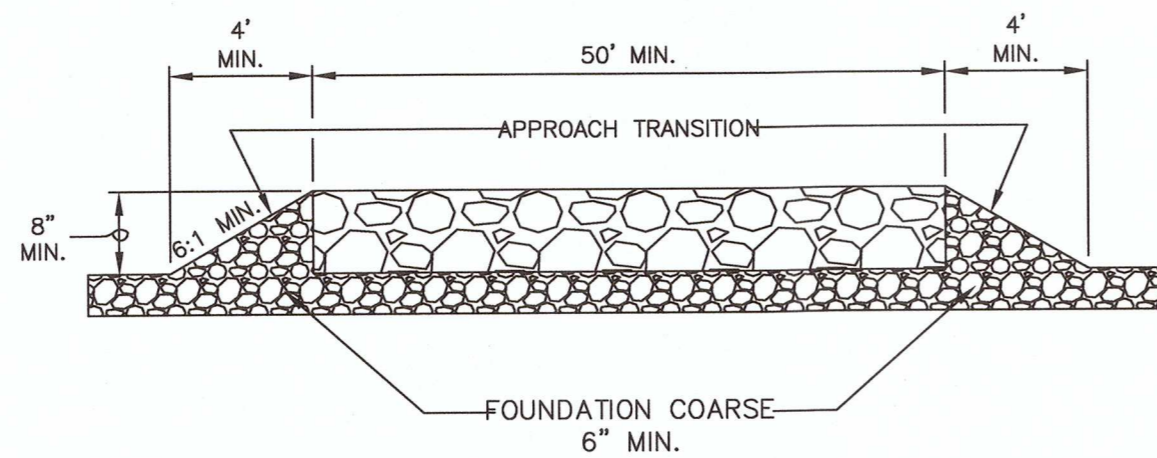
PLAN



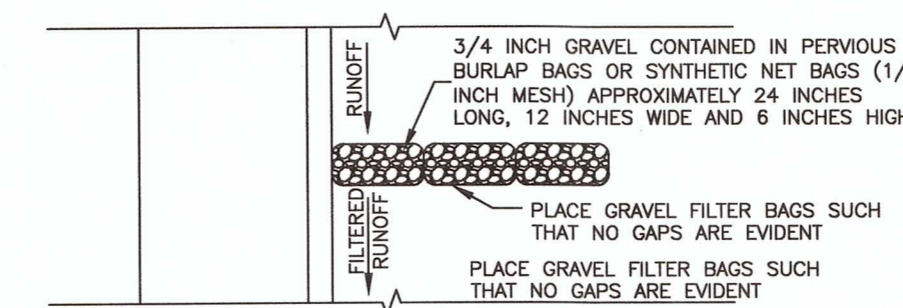
TYPE 4 (SACK GABIONS)



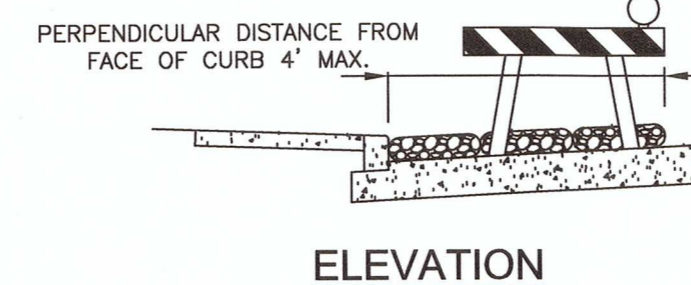
GRAVEL FILTER BAGS  
NOT TO SCALE



PROFILE



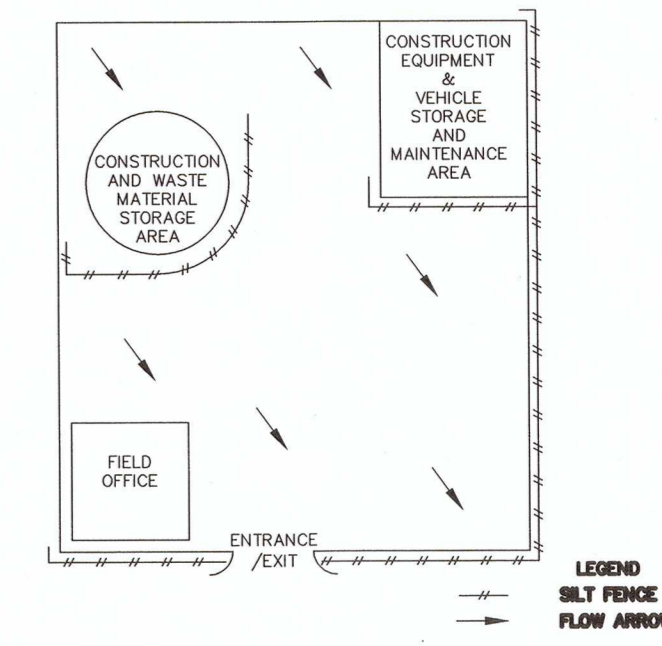
PLAN



ELEVATION

NOTE: STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE 1A FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS  
NOT TO SCALE



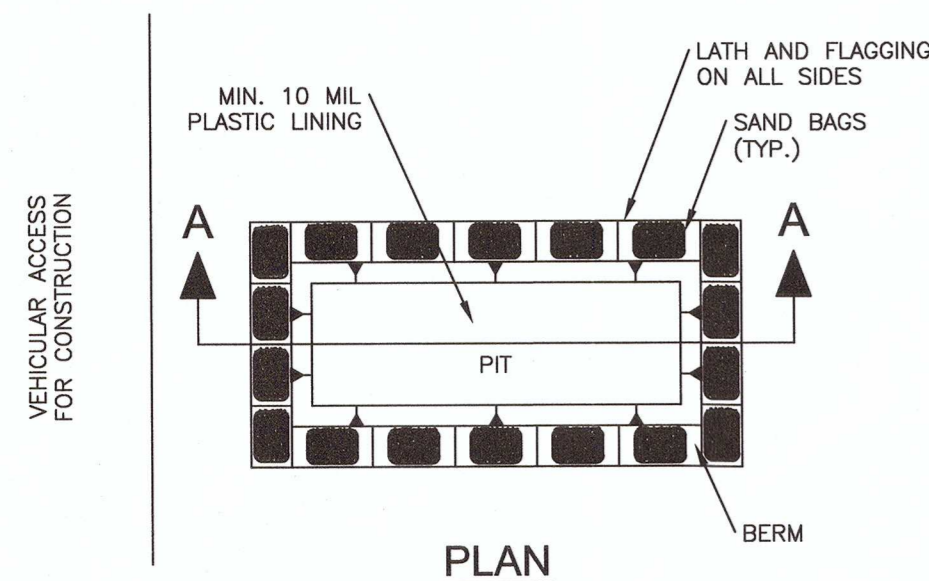
EQUIPMENT STAGING AREA  
NOT TO SCALE

**GENERAL NOTES**

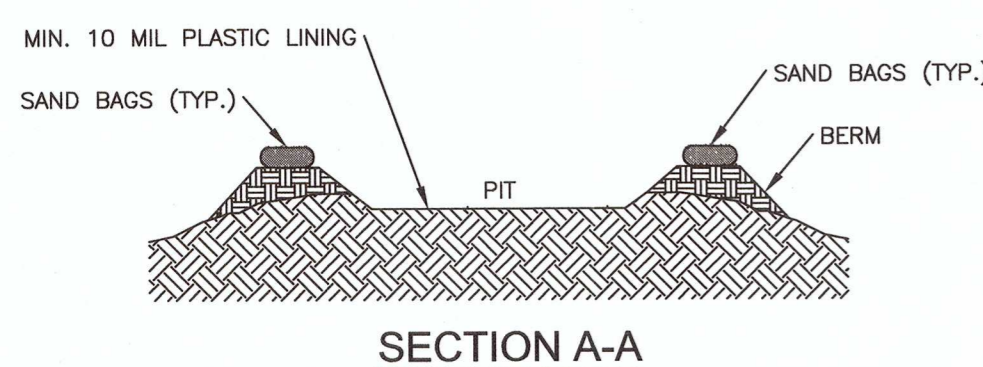
- IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND/OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
- MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
- THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE SW3P PLANS.
- SIDE SLOPES SHOULD BE 2:1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDESLOPES OF 6:1 OR FLATTER.
- MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
- FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4' INTO EXISTING GROUND.
- THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
- ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
- SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA. REBAR STAKES.
- FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
- DETAILS SHOWN ARE TYPICAL, SUBJECT TO CONTRACTOR'S SW3P PLAN REQUIREMENTS.
- SEE SHEET C5.7 FOR EROSION CONTROL MATTING DETAILS.

**MATERIAL NOTES**

- ALL AGGREGATE USED FOR THE CONSTRUCTION OF THE ROCK FILTER DAMS SHALL BE HARD, DURABLE, CLEAN, OPEN-GRADED, AND SHALL NATURALLY RESIST CRUMBLING, FLAKING AND ERODING. AGGREGATE GRADATION SHALL BE 3 TO 6 INCHES FOR ROCK FILTER DAMS TYPES 1, 2 AND 4 AND SHALL BE 4 TO 8 INCHES FOR TYPE 3.
- THE GALVANIZED STEEL WIRE MESH AND TIE WIRES FOR TYPES 2 AND 3 SHALL BE A MINIMUM 20 GAUGE UNLESS SPECIFIED ON THE PLANS.
- FOR TYPE 4; STEEL WIRE MESH SHALL UTILIZE A DOUBLE TWISTED HEXAGONAL WEAVE; MESH OPENING SHALL BE A NOMINAL 2.50 X 3.25 INCH. STEEL WIRE FOR NETTING SHALL BE 0.0866 INCH MINIMUM; STEEL WIRE FOR SELVEDGES AND CORNERS SHALL BE 0.1063 INCH (U.S. GAUGE NO. 11) MINIMUM; AND BINDING OR TIE WIRE SHALL BE 0.0866 INCH (U.S. GAUGE NO. 13) MINIMUM.
- UNLESS OTHERWISE SPECIFIED, THE SANDBAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT. THE SANDBAG SIZE SHALL BE 24 TO 30 INCHES IN LENGTH, 16 TO 18 INCHES IN WIDTH, 6 TO 8 INCHES THICK AND WEIGH 90 TO 125 POUNDS. THE SAND SHALL BE COARSE GRADE.



PLAN



SECTION A-A

**GENERAL NOTES**

- DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
- WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
- WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
- LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.
- 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**

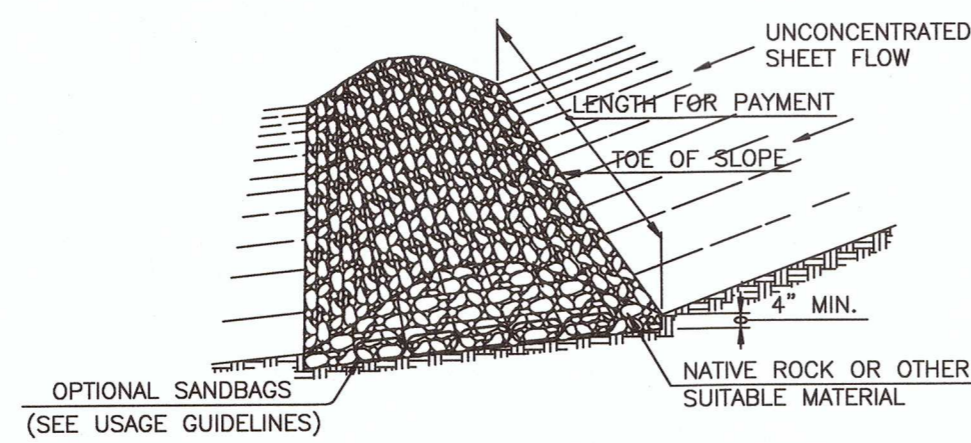
- WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.
- MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.
- HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT  
NOT TO SCALE

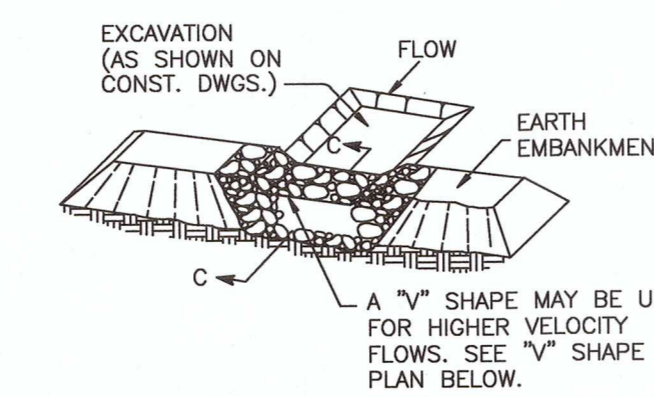
CONSTRUCTION EXIT (TYPE 1)  
NOT TO SCALE

**GENERAL NOTES**

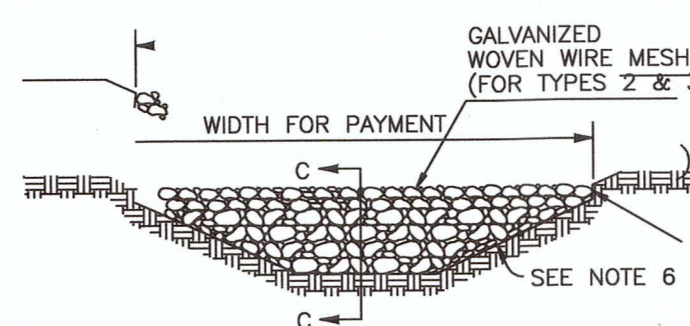
- THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
- THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
- THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
- THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
- THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
- THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.



FILTER DAM AT TOE OF SLOPE  
NOT TO SCALE



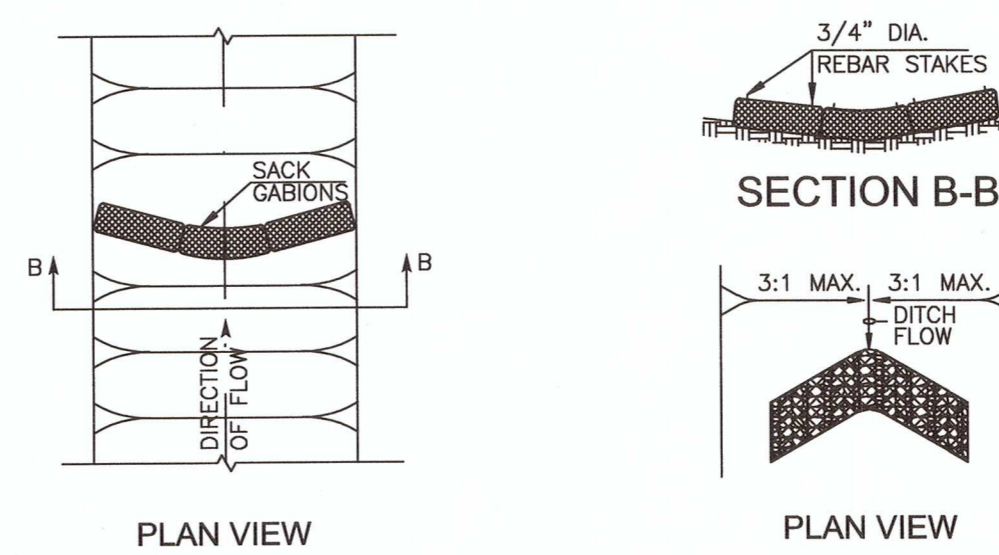
FILTER DAM AT SEDIMENT TRAP  
NOT TO SCALE



FILTER DAM AT CHANNEL SECTIONS  
NOT TO SCALE

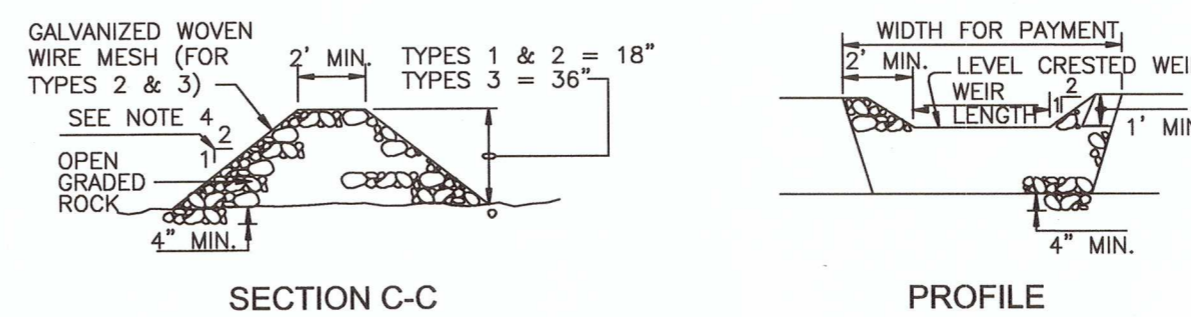
**ROCK FILTER DAM USAGE GUIDELINES**

- ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND/OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THROUGH RATE OF 60 GPM/FT OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.
- TYPE 1 (18" HIGH WITH NO WIRE MESH); TYPE 1 MAY BE USED AT THE TOE OF SLOPES, AROUND INLETS, IN SMALL DITCHES, AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (APPROX. 8 FT./SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR DIRECTED BY THE ENGINEER.
- TYPE 2 (18" HIGH WITH WIRE MESH); TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.
- TYPE 3 (36" HIGH WITH WIRE MESH); TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.
- TYPE 4 (SACK GABIONS); TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.



PLAN VIEW

PLAN VIEW "V" SHAPE



SECTION C-C

PROFILE

**PLANS SHEET LEGEND**

- TYPE 1 ROCK FILTER DAM (RFD1)
- TYPE 2 ROCK FILTER DAM (RFD2)
- TYPE 3 ROCK FILTER DAM (RFD3)

ROCK FILTER DAM  
NOT TO SCALE

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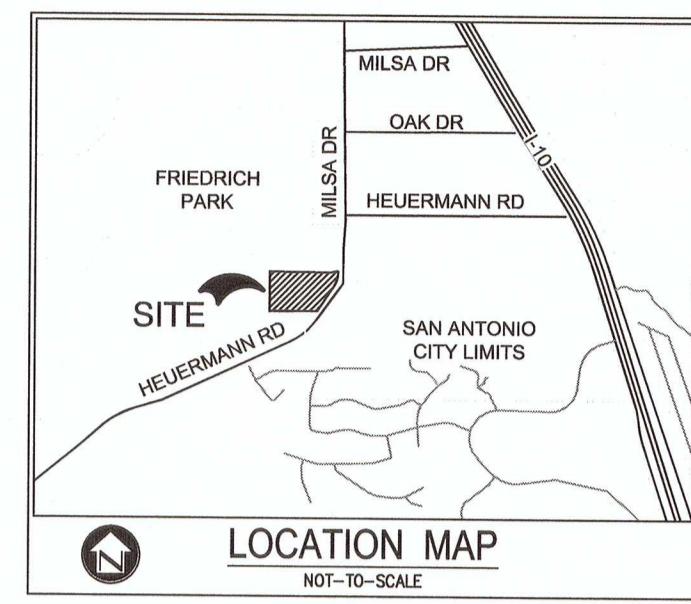
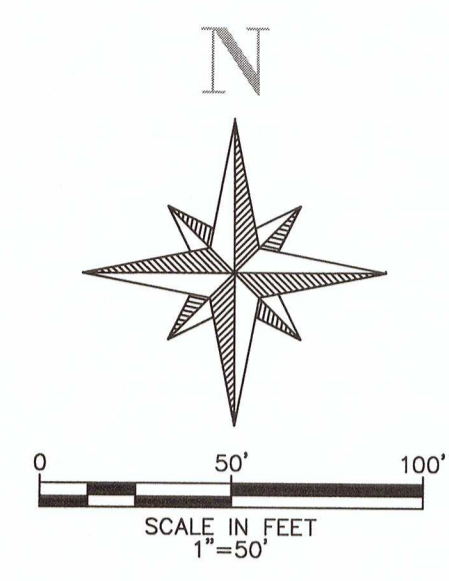
DATE	
NO.	
REVISION	



**CDS muary**  
ENGINEERS | SURVEYORS  
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216  
(210) 581-1111 | TBPE No. F-17331 | TBPLS No. 100495-00

PLAT NO.	23-11800143
JOB NO.	122090.02
DATE	JANUARY 2023
DRAFTED	AR
CHECKED	BC DESIGN JBG

**FRIEDRICH HILL PUD**  
SAN ANTONIO, TEXAS  
**STORM WATER POLLUTION PREVENTION PLAN DETAILS**



NO.	REVISION	DATE



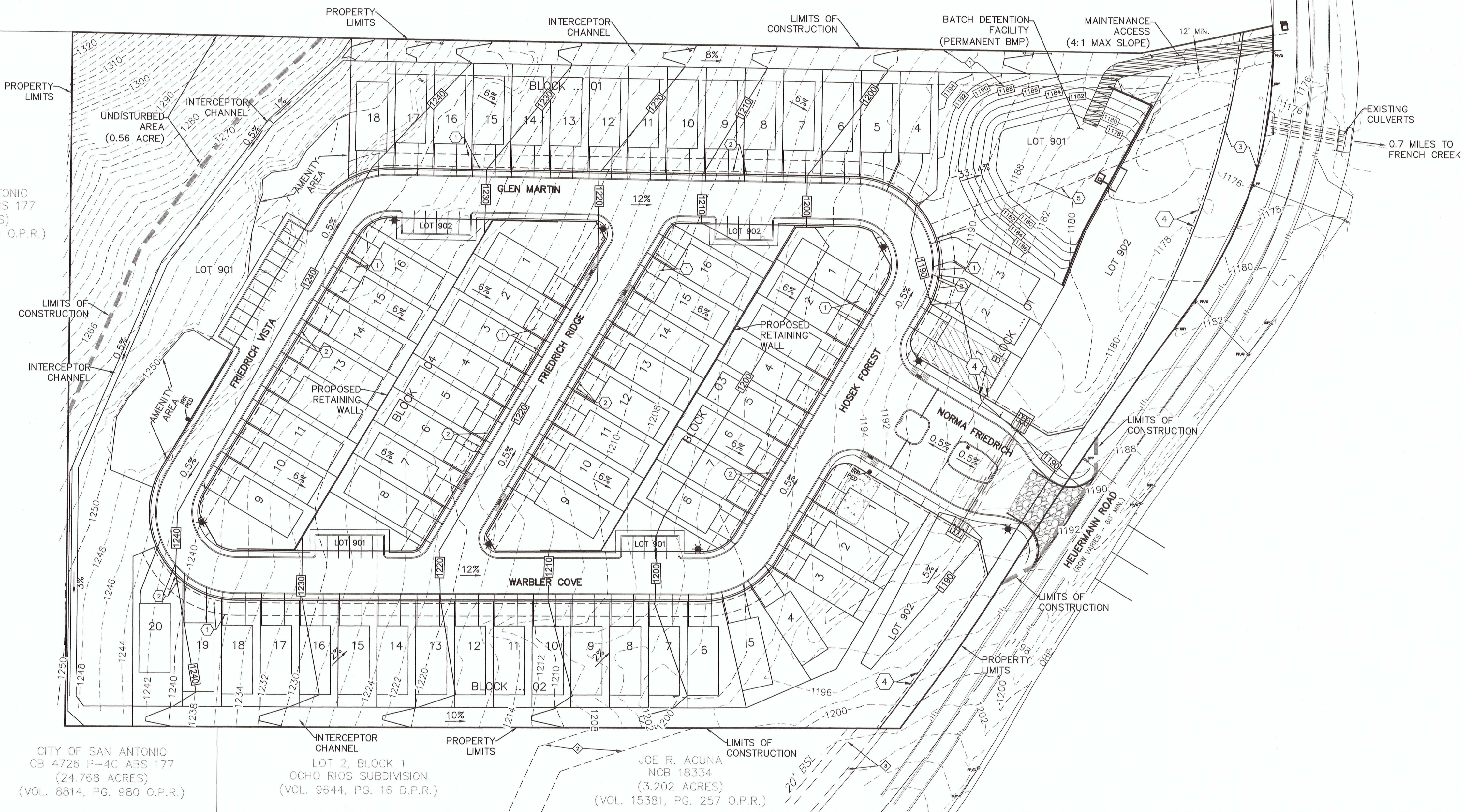
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**ENGINEERS | SURVEYORS**  
 100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216  
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PLAT NO.	23-11800143
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DATE	JANUARY 2023
DRAFTED	AR
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**FRIEDRICH HILL PUD**  
 SAN ANTONIO, TEXAS  
**CONTRIBUTING ZONE SITE**  
**PLAN**

CITY OF SAN ANTONIO  
 LOT P-1 & P-2  
 NCB 18334  
 (175 ACRES)  
 (VOL. 7205, PG. 549 O.P.R.)

CITY OF SAN ANTONIO  
 CB 4726 P-4C ABS 177  
 (24.768 ACRES)  
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CITY OF SAN ANTONIO  
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LOT 2, BLOCK 1  
 OCHO RIOS SUBDIVISION  
 (VOL. 9644, PG. 16 D.P.R.)

JOE R. ACUNA  
 NCB 18334  
 (3,202 ACRES)  
 (VOL. 15381, PG. 257 O.P.R.)

**LEGEND**

- EXISTING CONTOURS --- 885 ---
- PROPOSED CONTOURS --- 883 ---
- FLOW ARROW →
- PROPOSED SLOPE 0.5%
- LIMITS OF CONSTRUCTION\*\* - - - - -
- STABILIZED CONSTRUCTION ENTRANCE/EXIT [Symbol]
- SILT FENCE AND/OR APPROPRIATE SUBSTITUTE -SF-SF
- \*CONCRETE WASH OUT PIT [Symbol]
- \*EQUIPMENT STAGING AREA [Symbol]
- BAGGED GRAVEL INLET FILTER AND/OR APPROPRIATE SUBSTITUTE [Symbol]

\* NOTE: ACTUAL LAYOUT DETERMINED IN FIELD, SHOULD BE PLACED IN THE PROXIMITY OF THE CONSTRUCTION ENTRANCE/EXIT AND NOT LOCATED NEAR A WELL, FLOODPLAIN, OR OTHER POTENTIAL SOURCES OF CONTAMINATION.  
 \*\* NOTE: LIMITS OF CONSTRUCTION COINCIDE WITH PROPERTY LIMITS UNLESS SHOWN SEPARATELY.

**EASEMENT KEYNOTES**

- ① 12' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT
- ② 2' WATER EASEMENT
- ③ VAR. WIDTH STREET DEDICATION TO THE CITY OF SAN ANTONIO (0.283 AC.)
- ④ 1' VEHICULAR NON-ACCESS EASEMENT
- ⑤ 12' SANITARY SEWER EASEMENT
- ① 28' ELECTRIC EASEMENT VOL. 6235, PG. 1676 D.P.R.B.C.
- ② 24' PRIVATE DRAINAGE EASEMENT VOL. 9644, PG. 16 D.P.R.B.C.
- ③ 14' ELEC. GAS, TELE. CATV ESMT VOL. 9644, PG. 16 D.P.R.B.C.

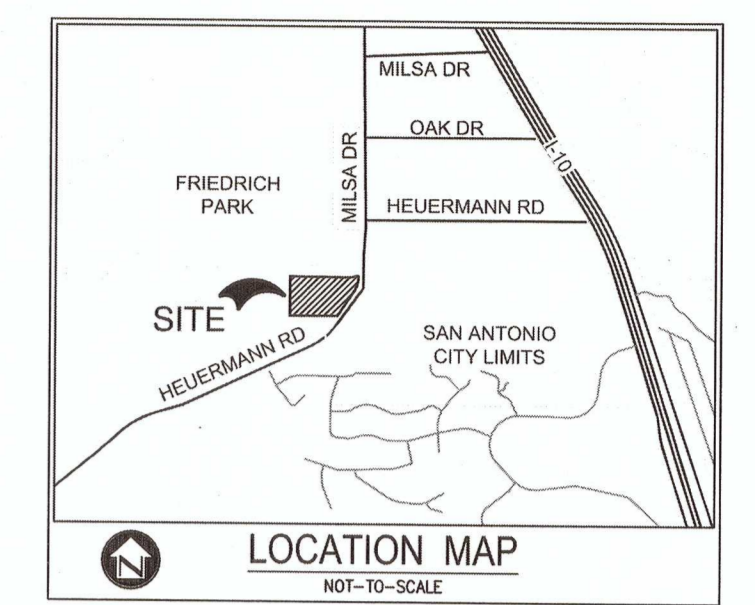
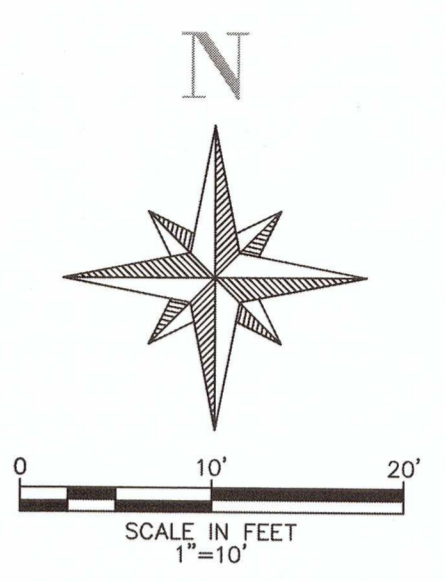
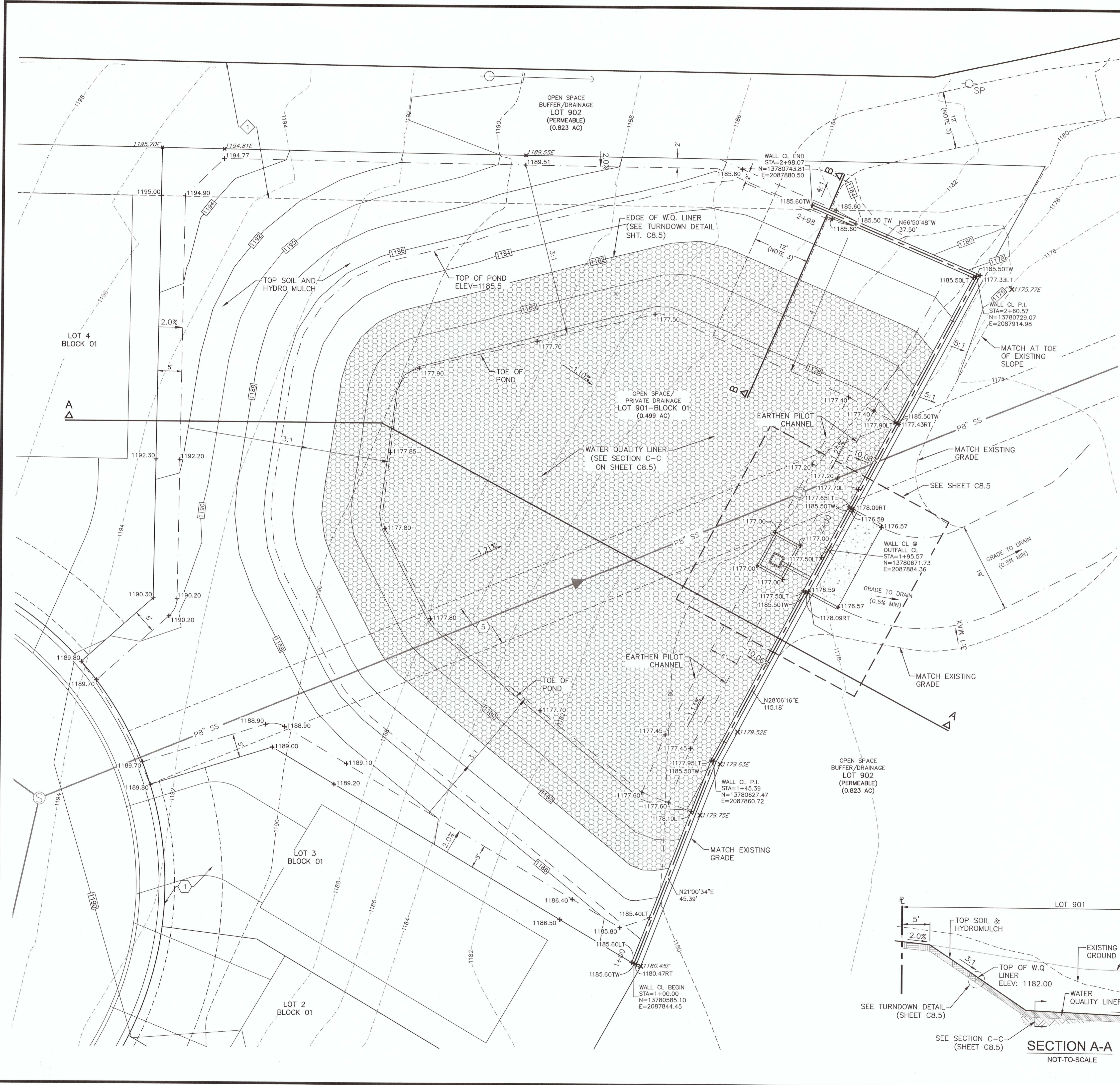
CZP SITE DATA		
SUBDIVISION NAME	FRIEDRICH HILL PUD	
PLATTED AREA	10.58 ACRES	
DISTURBED AREA		
DESCRIPTION	AREA (ACRES)	
PRIVATE STREETS/SIDEWALKS	± 2.05 AC	
BATCH DETENTION FACILITY	± 0.50 AC	
OPEN SPACE-BUFFER/DRAINAGE/ROW DEDICATION	± 1.55 AC	
PARK/AMENITY AREA	± 1.08 AC	
LOT GRADING	± 4.84 AC	
<b>SUBTOTAL (ON-SITE DISTURBED AREA)</b>	<b>± 10.02 AC</b>	
DRIVEWAY TIE-IN (OFF-SITE)	± 0.04 AC	
<b>TOTAL DISTURBED AREA</b>	<b>± 10.06 AC</b>	
PROPOSED IMPERVIOUS COVER		
DESCRIPTION	AREA BY DRAINAGE BASIN (SQ. FEET)	
	POND BMP	OTHER TOTAL
STRUCTURES/ROOFTOPS	93,148 SF	3,102 SF
PARKING	33,014 SF	323 SF
OTHER PAVED SURFACES	76,327 SF	7,112 SF
AMENITY AREA	9,691 SF	-
<b>TOTAL IC</b>	<b>212,180 SF</b>	<b>10,537 SF</b>
		<b>222,717 SF</b>

**NOTES:**

1. PROPOSED SLOPES AND GRADES REFLECT APPROXIMATE SLOPES AND GRADES AFTER MAJOR GRADING ACTIVITIES. PROPOSED ELEVATIONS ARE TOP OF CURB. STREETS WILL BE STANDARD CROWN WITH 7" CURB.
2. NO PART OF THE PROJECT SITE IS LOCATED WITHIN THE 100 YEAR FLOODPLAIN BOUNDARIES ACCORDING TO FEMA FIRM NOS. 48029C0095F AND 48029C0115F, DATED SEPTEMBER 29, 2010.
3. THERE ARE NO WELLS OR TEST HOLES OF ANY KIND KNOWN TO EXIST WITHIN THE PROJECT BOUNDARIES.
4. SOIL STABILIZATION WITHIN DISTURBED AREAS WILL BE IMPLEMENTED PRIMARILY BY THE FOLLOWING PRACTICES:
  - a. RE-ESTABLISHMENT OF VEGETATION, AROUND THE PERIMETER OF THE DISTURBED AREAS, TO BE MAINTAINED BY THE OWNER AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED TO ENSURE IT HAS BEEN ADEQUATELY ESTABLISHED.
  - b. INSTALLATION OF CONCRETE BUILDING SLAB AND SIDEWALKS.
  - c. ALL DISTURBED SOIL WILL BE STABILIZED AS PER PROJECT SPECIFICATIONS IN ACCORDANCE TCEQ'S TECHNICAL GUIDANCE MANUAL (TGM) RC-348.

Date: Apr 06, 2023, 2:57pm User ID: abelordromos  
 File: P:\095\2023\122090.02\_Friedrich\_Hill\_PUD\_No\_Tax\Civil\_3D\Civil\_3D\DWG\Engineer\122090\_CZP\_CB\_3-Contributing\_Zone\_Site\_Plan.dwg

Date: Apr 06, 2023, 2:56pm User ID: abelardo.camos  
 File: \\CD5F501\PUBLIC\DOBES\2022\122090.02 Friedrich Hills PUD\_No Tax\Civil 3D\Owa\Engineer\122090.02P\_C8.4- Batch Detention Pond Plan.dwg



**LEGEND**

---	900	EXISTING CONTOUR
---	900	PROPOSED CONTOUR
x	67.54	EXISTING SPOT ELEV
+	67.54	PROPOSED SPOT ELEV
TW		TOP OF WALL
RT		RIGHT SIDE OF WALL
LT		LEFT SIDE OF WALL
TB		TOP OF BERM

**EASEMENT KEYNOTES**

1	12' GAS, ELECTRIC, TELEPHONE AND CABLE TV EASEMENT
2	2' WATER EASEMENT
3	VAR. WIDTH STREET DEDICATION TO THE CITY OF SAN ANTONIO (0.283 AC.)
4	1' VEHICULAR NON-ACCESS EASEMENT
5	12' SANITARY SEWER EASEMENT
1	28' ELECTRIC EASEMENT VOL. 6235, PG. 1876 O.P.R.B.C.
2	24' PRIVATE DRAINAGE EASEMENT VOL. 9844, PG. 16 D.P.R.B.C.
3	14' ELEC. GAS, TELE. CATV ESMT VOL.9844, PG. 16 D.P.R.B.C.

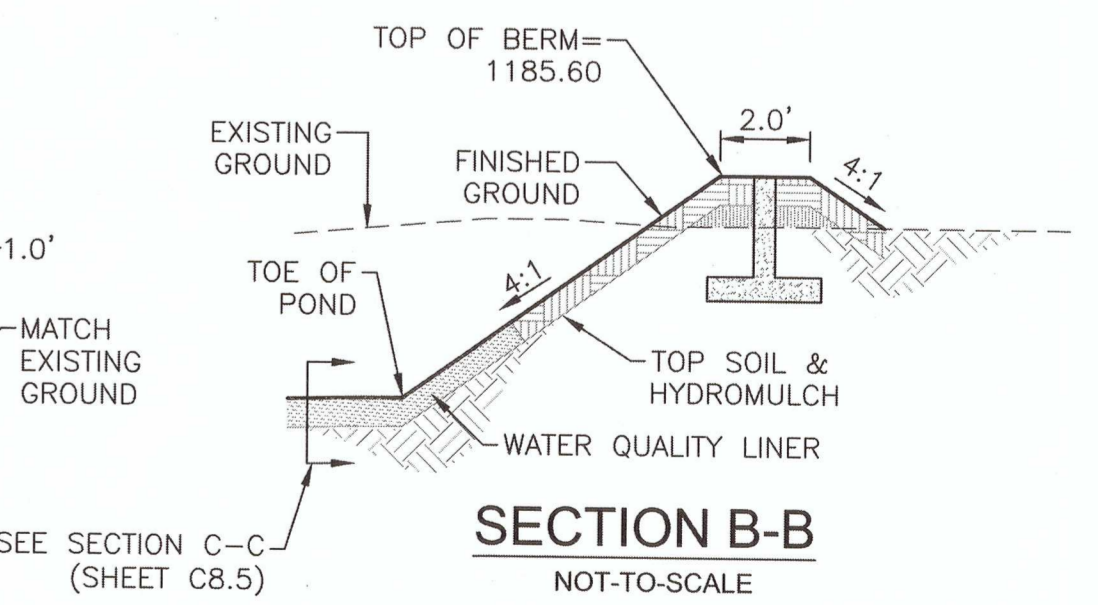
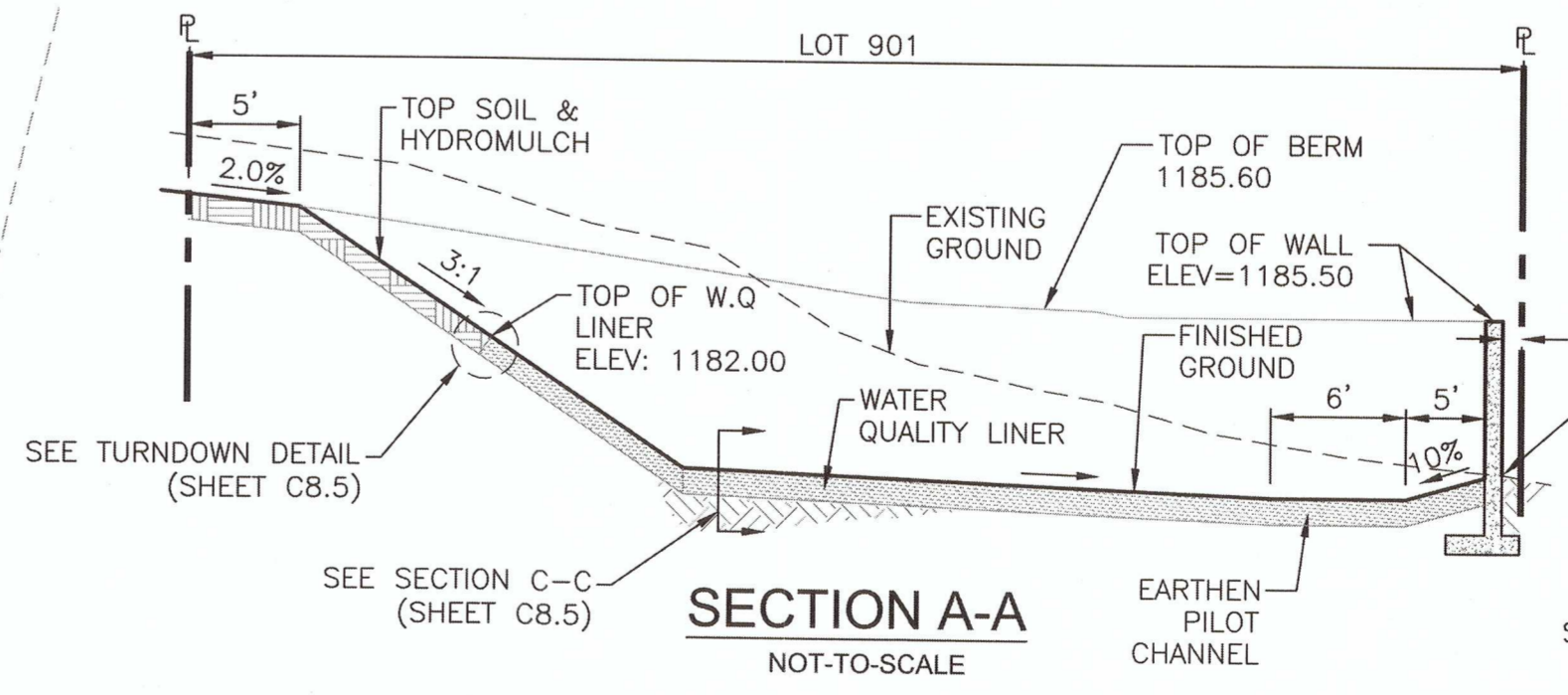
**BATCH DETENTION POND STAGE-STORAGE-DISCHARGE**

ELEV (FT)	AREA (SF)	VOLUME (CF)	8" PIPE INV=1177.00 (CFS)	WEIR INV=1181.25 (CFS)	SPILLWAY INV=1184.75 (CFS)	TOTAL DISCHARGE (CFS)
1177.00	48	-	0.00	0.00	0.00	0.00
1178.00	7,139	2,590	0.00	0.00	0.00	0.00
1179.00	7,926	10,120	0.00	0.00	0.00	0.00
1180.00	8,740	18,450	0.00	0.00	0.00	0.00
1181.00	9,586	27,610	0.00	0.00	0.00	0.00
1181.25	9,805	30,030	0.00	0.00	0.00	0.00
1182.00	10,463	37,630	4.18	3.71	0.00	7.89
1183.00	11,371	48,550	4.62	11.79	0.00	16.41
1184.00	12,312	60,380	5.02	20.41	0.00	25.43
1185.00	13,286	73,180	5.39	28.02	5.77	39.18
1185.50	14,087	80,020	5.56	31.10	29.78	66.44

NOTE: PROVIDED WATER QUALITY VOLUME IS 30,030 CUBIC FEET. THE BATCH CONTROLLER STORES ALL STORM WATER RUNOFF BELOW ELEVATION 1181.25 FOR A 12 HOUR POLLUTANT SETTLEMENT PERIOD AND THEN RELEASES THE TREATED WATER OVER A 46 HOUR PERIOD.

- NOTES:**
- CONTRACTOR TO PLACE TOP SOIL AND REVEGETATE DISTURBED AREAS IN ACCORDANCE WITH COSA STANDARD ITEM 515 (TOP SOIL) AND ITEM 520 (HYDROMULCHING).
  - THE SMARTBATCH SYSTEM AND ASSOCIATED LOGIC CONTROLLER SHOWN ON THESE PLANS SHALL FUNCTION ACCORDING TO THE TCEC RG-348 DESIGN CRITERIA [SECTION 3.4.18 "ADDENDUM SHEET" - COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005) JANUARY 20, 2017]
  - PROVIDE 12' MIN WIDTH MAINTENANCE ACCESS FROM PUBLIC STREET TO BOTTOM OF BASIN (4:1 MAX SLOPE)

**TRENCH EXCAVATION SAFETY PROTECTION**  
 CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



NO.	REVISION	DATE



**CDS muery**  
**ENGINEERS | SURVEYORS**  
 100 NE Loop 410, Ste. 3001 San Antonio, Texas 78216  
 (210) 581-1111 TBPE No. F-1733 TBPPLS No. 100495-00

PLAT NO.	23-11800143
JOB NO.	122090.02
DATE	JANUARY 2023
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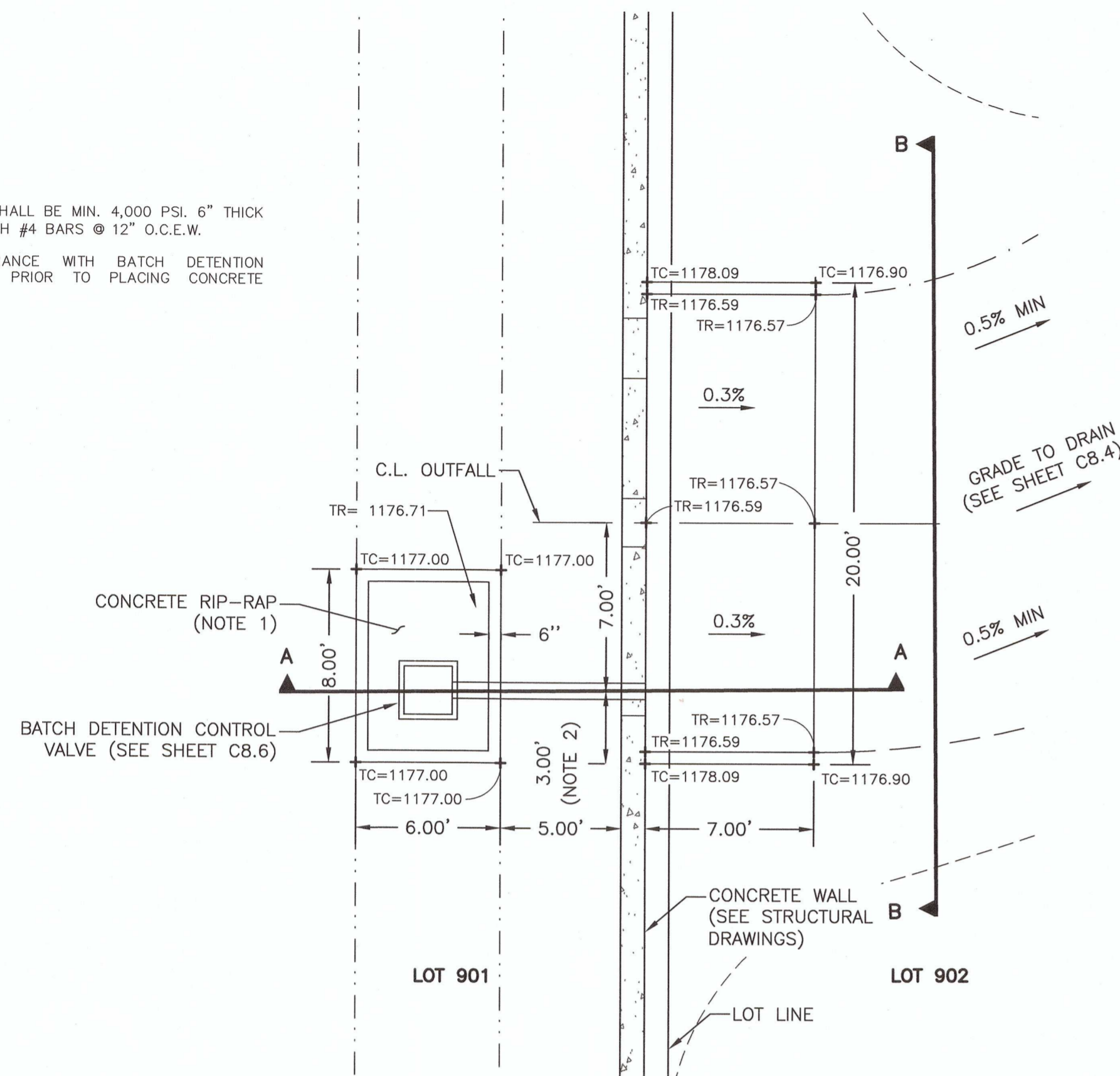
FRIEDRICH HILL PUD  
 SAN ANTONIO, TEXAS  
 BATCH DETENTION POND PLAN

**ABBREVIATIONS:**

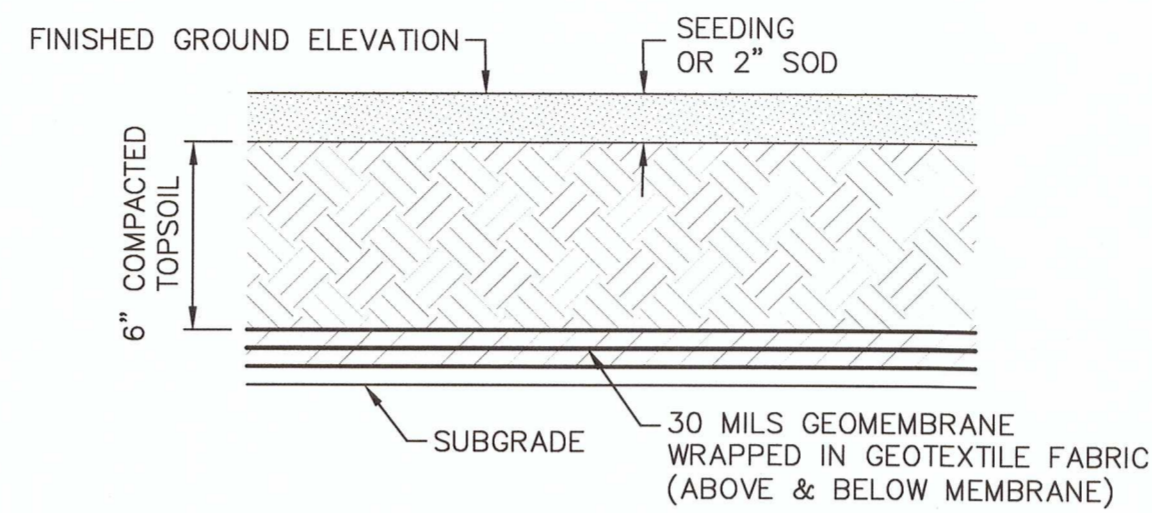
- TW= TOP OF WALL
- TC= TOP OF CURB
- TR= TOP OF RIP-RAP
- WQ= WATER QUALITY

**NOTES:**

1. ALL CONCRETE RIP-RAP SHALL BE MIN. 4,000 PSI. 6" THICK CONCRETE REINFORCED WITH #4 BARS @ 12" O.C.E.W.
2. VERIFY ADEQUATE CLEARANCE WITH BATCH DETENTION CONTROL VALVE VENDOR PRIOR TO PLACING CONCRETE RIP-RAP.

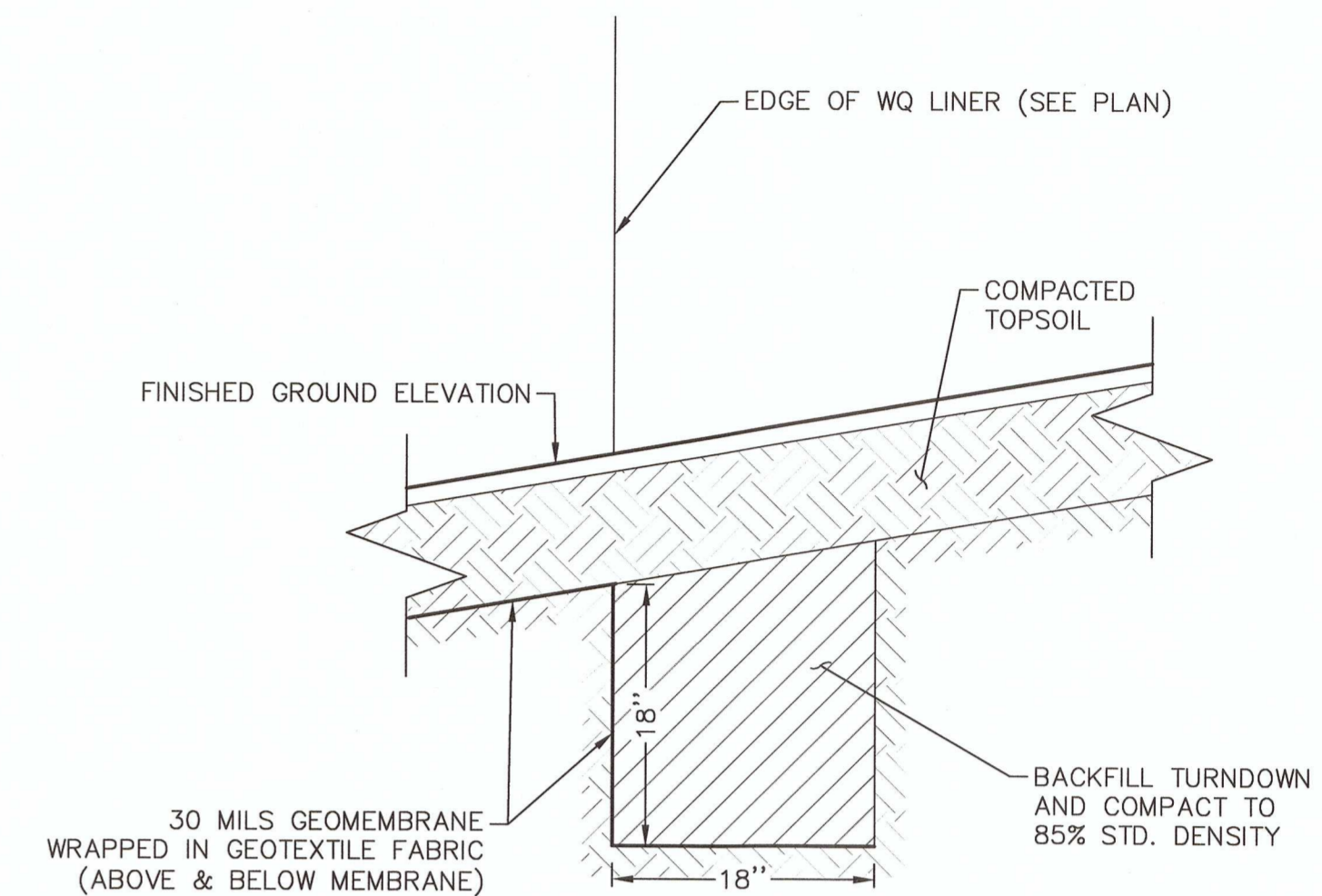


**OUTFALL PLAN VIEW**  
NOT-TO-SCALE

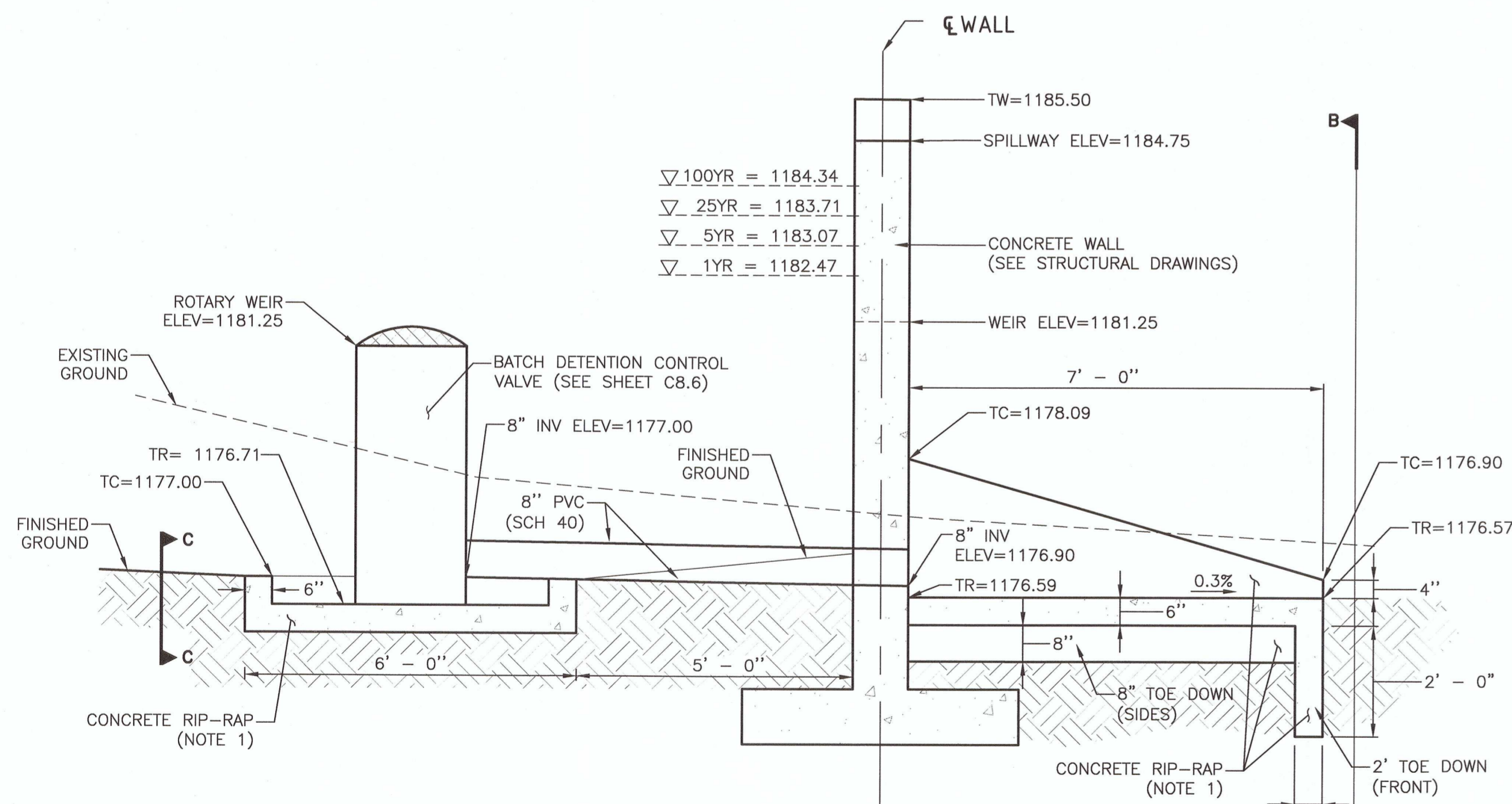


**SECTION C-C**  
**WATER QUALITY (WQ) LINER**  
N.T.S.

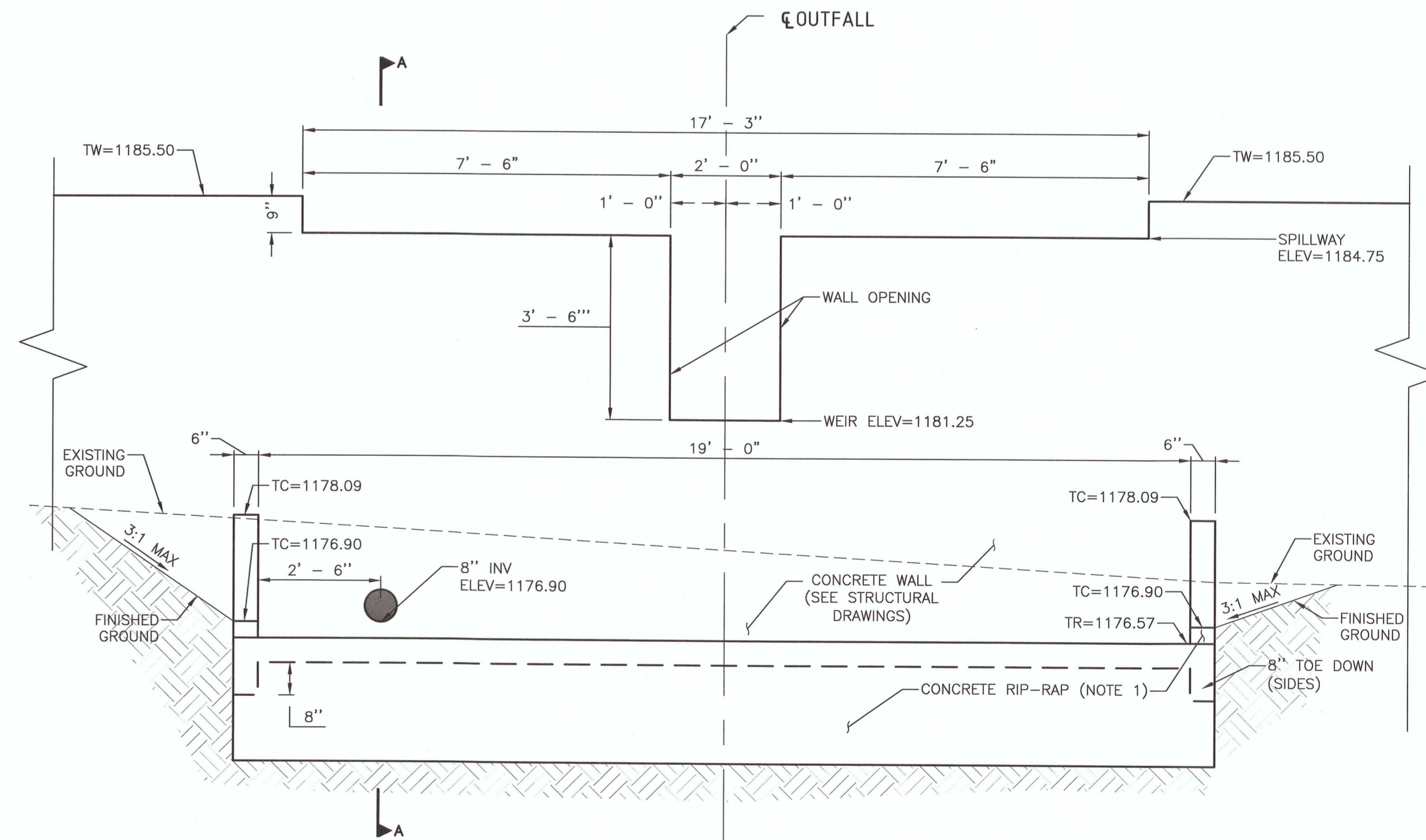
GEOTEXTILE FABRIC SPECIFICATION			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MINIMUM)
UNIT WEIGHT		oz/yd <sup>2</sup>	8
FILTRATION RATE		in/sec	0.08
PUNCTURE STRENGTH	ASTM D-751*	lb	125
MULLEN BURST STRENGTH	ASTM D-751	psi	400
TENSILE STRENGTH	ASTM D-1682	lb	200
EQUIVALENT OPENING SIZE	US STANDARD SIEVE	No.	80
* MODIFIED			



**TURNDOWN DETAIL FOR**  
**WATER QUALITY (WQ) LINER**  
N.T.S.



**SECTION A-A**  
NOT-TO-SCALE



**SECTION B-B**  
NOT-TO-SCALE

NO.	REVISION	DATE



**SCDS** muary  
ENGINEERS | SURVEYORS  
100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216  
(210) 581-1111 | TPBE No. F-1733 | TBPLS No. 100495-00

PLAT NO.	23-11800143
JOB NO.	122090.02
DATE	JANUARY 2023
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**FRIEDRICH HILL PUD**  
SAN ANTONIO, TEXAS  
**BATCH DETENTION POND**  
**DETAILS (1)**

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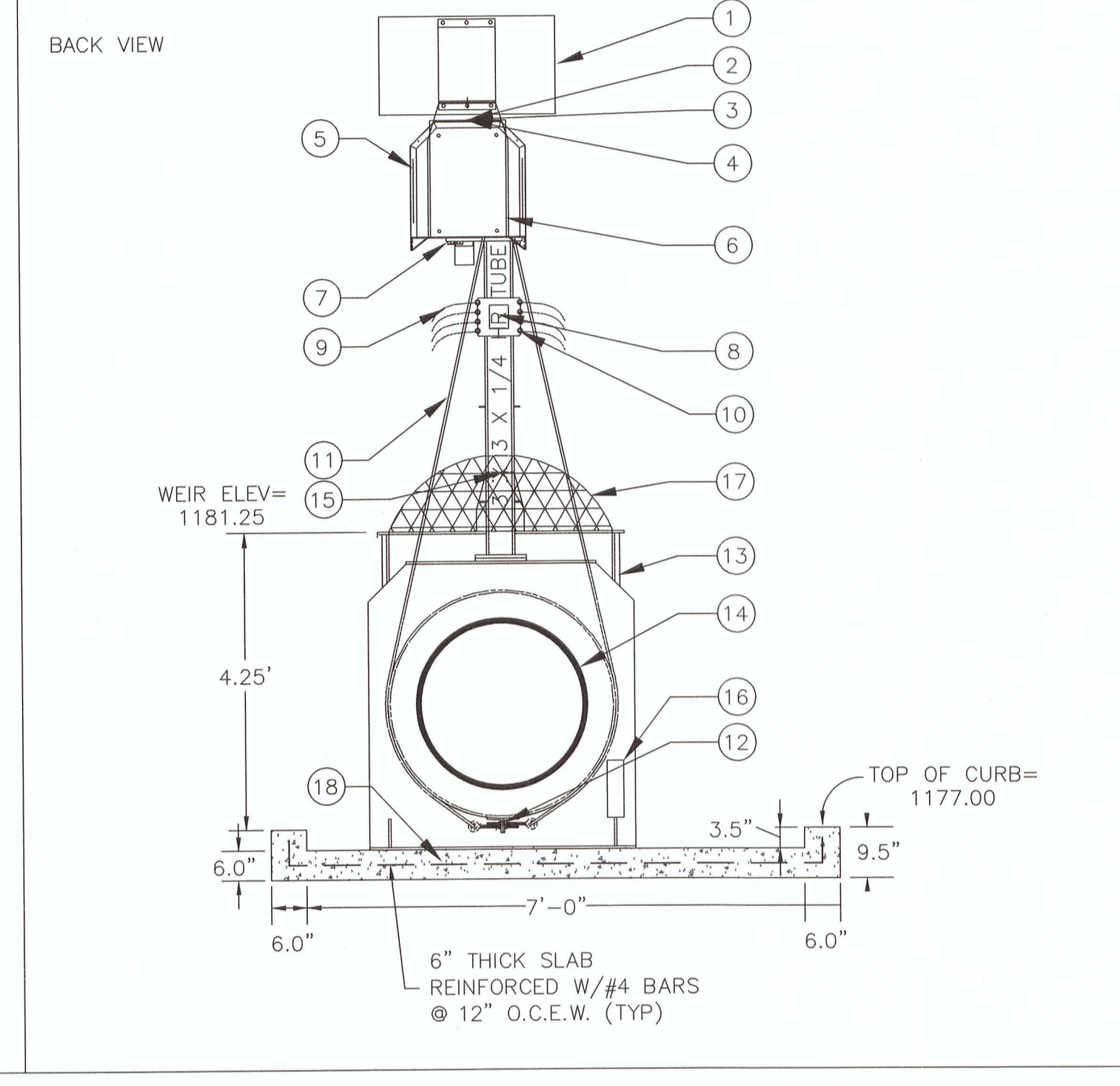
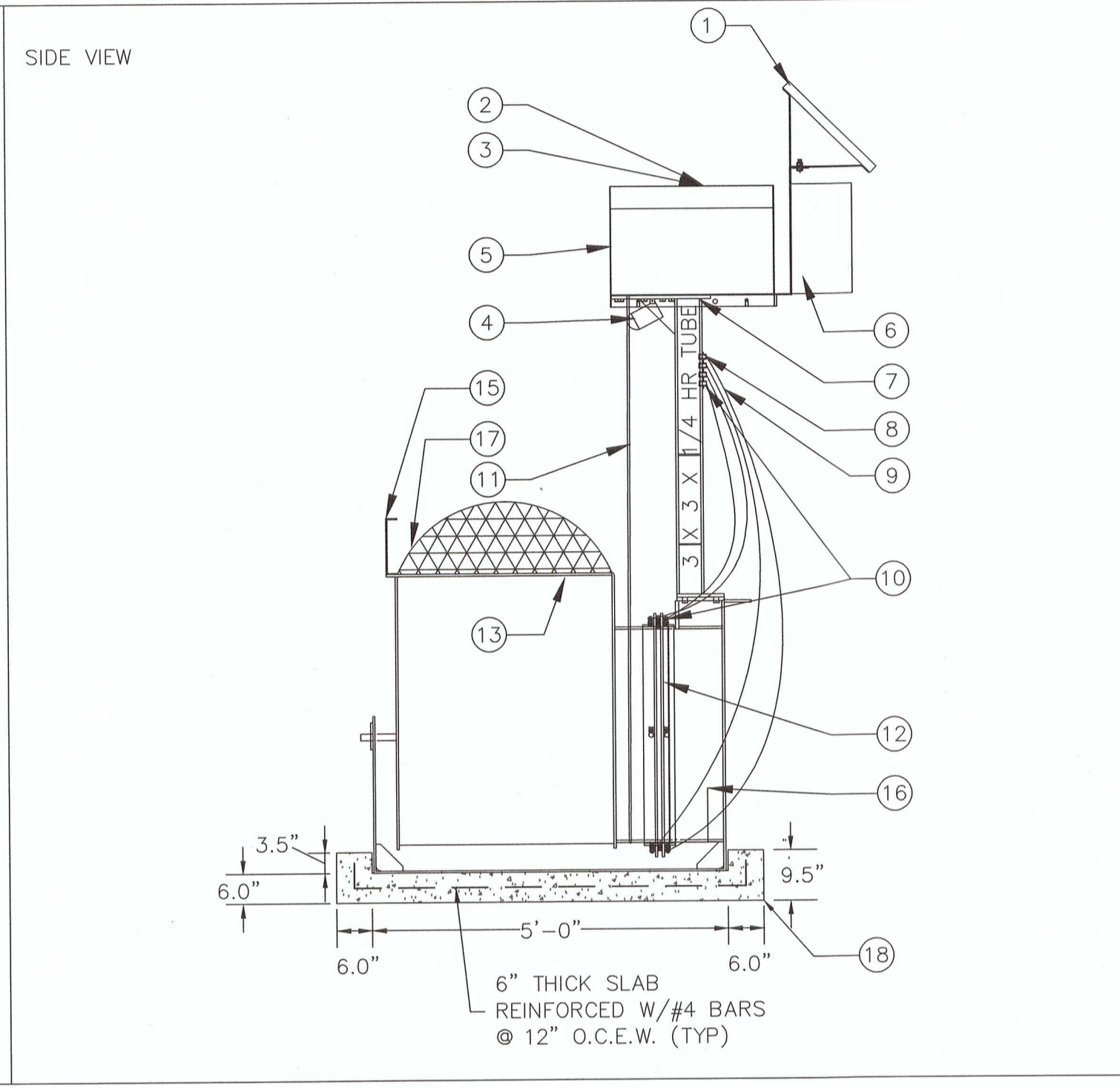
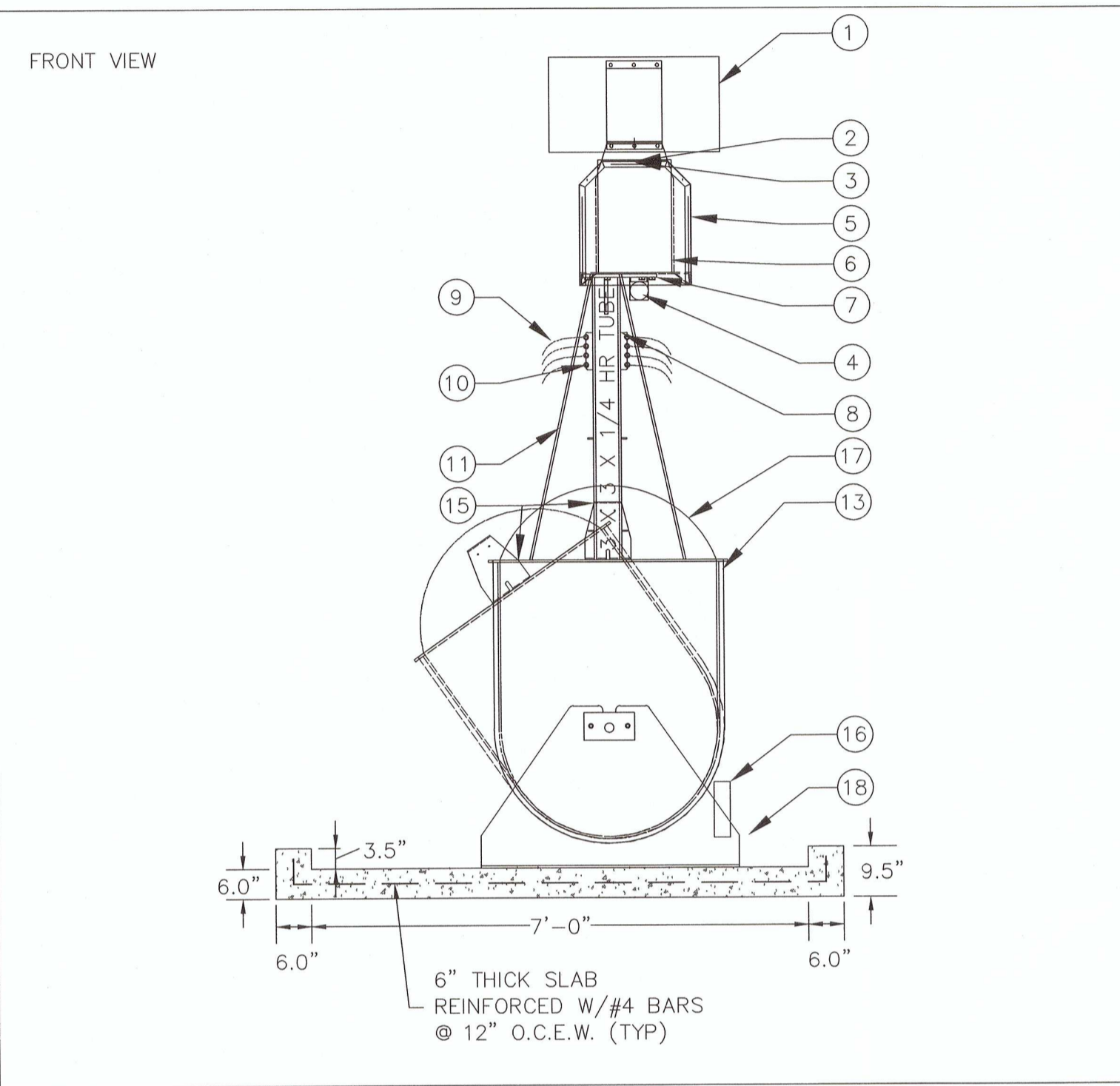
NO.	REVISION	DATE



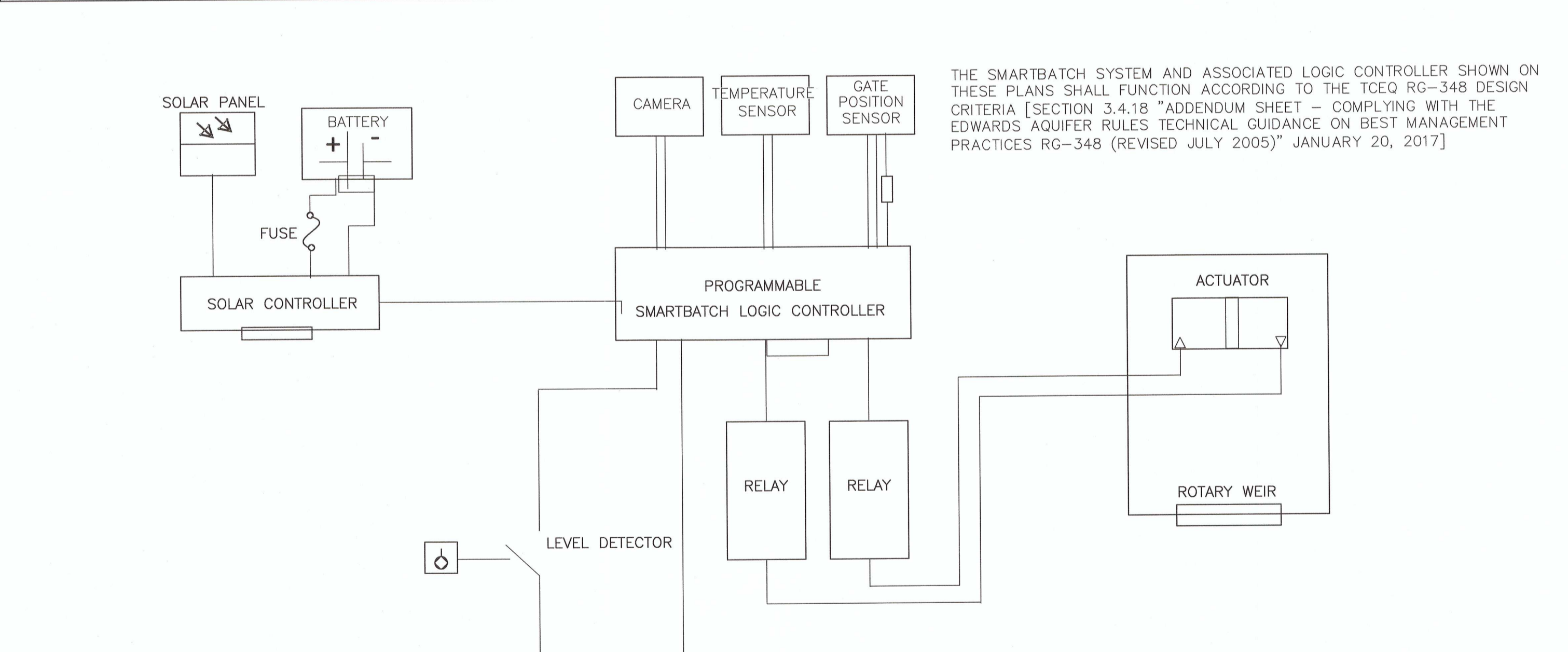
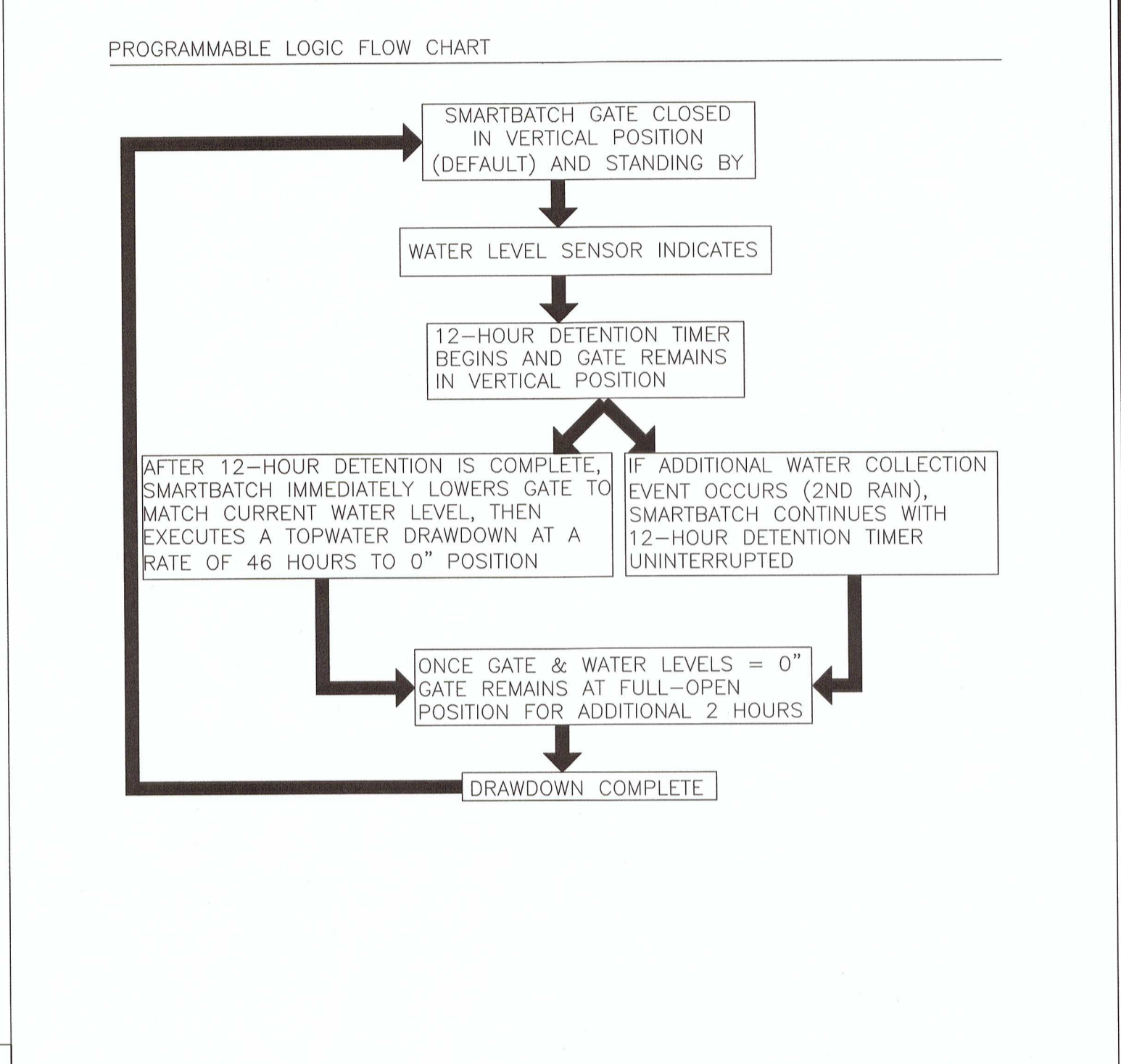
**SCDS muary**  
**ENGINEERS | SURVEYORS**  
 100 NE Loop 410, Ste. 300 | San Antonio, Texas 78216  
 (210) 581-1111 | TBPB No. F-1733 | TBPB No. 100495-00

PLAT NO. 23-11800143  
 JOB NO. 122090.02  
 DATE JANUARY 2023  
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**FRIEDRICH HILL PUD**  
 SAN ANTONIO, TEXAS  
**BATCH DETENTION POND**  
**DETAILS (2)**



BATCH DETENTION CONTROL VALVE DETAILS

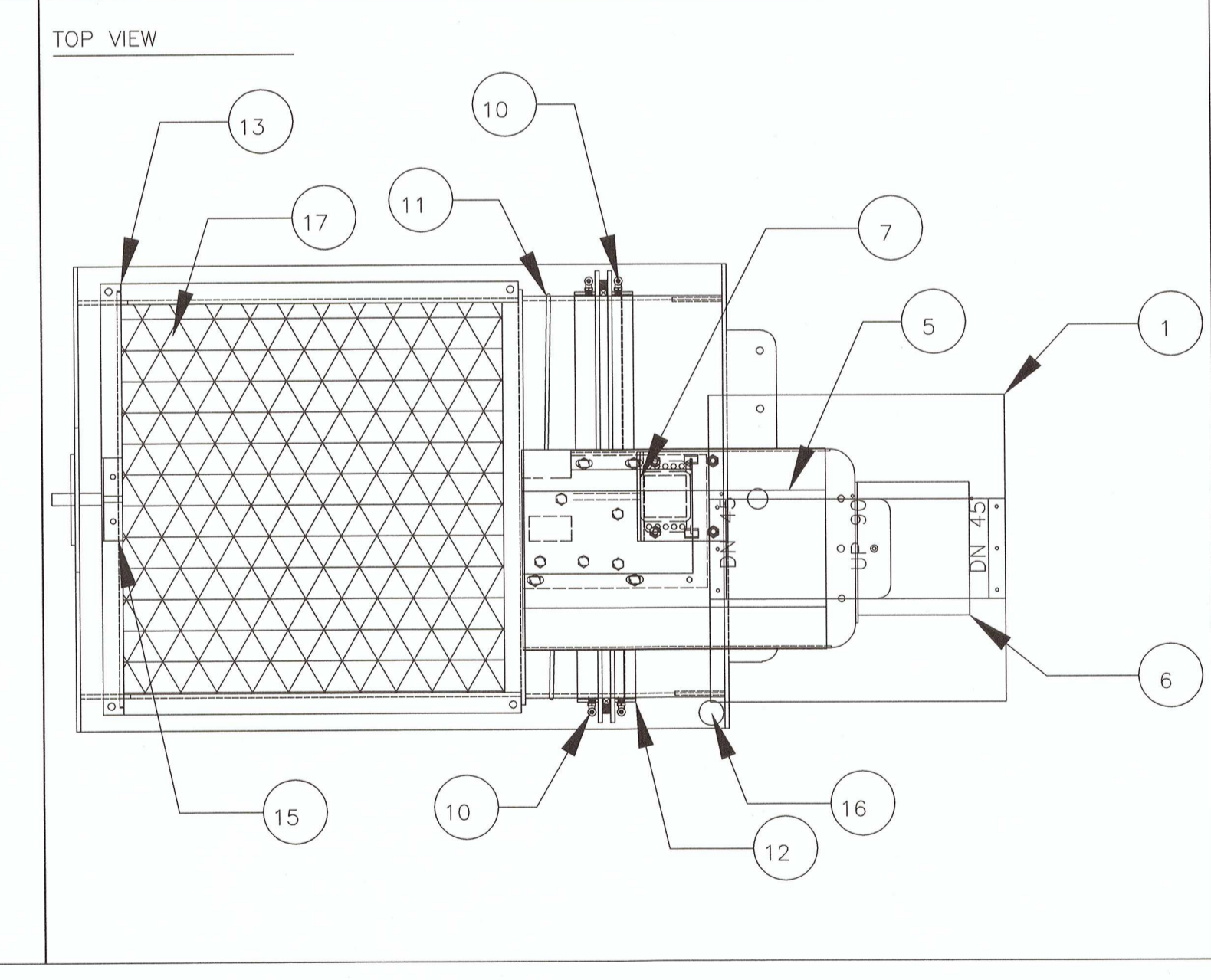


CIRCUIT BOARD CONFIGURATION

THE SMARTBATCH SYSTEM AND ASSOCIATED LOGIC CONTROLLER SHOWN ON THESE PLANS SHALL FUNCTION ACCORDING TO THE TCEQ RG-348 DESIGN CRITERIA [SECTION 3.4.18 "ADDENDUM SHEET - COMPLYING WITH THE EDWARDS AQUIFER RULES TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES RG-348 (REVISED JULY 2005)" JANUARY 20, 2017]

PARTS LIST	
SMARTBATCH COMPONENTS	
1	12 V SOLAR PANEL WITH 30 WATT CHARGING CAPACITY
2	ANTENNA (NOT DISPLAYED)
3	CELL DATA MODEM (NOT DISPLAYED)
4	CAMERA
5	WEATHERPROOF ELECTRONIC BOX
6	CONTROL BOX
7	PEDESTAL
8	REMOTE GREASE MANIFOLD
9	GREASE TUBES
10	GREASE FITTINGS
11	3/16" GALVANIZED CABLES
12	24" ROTARY VALVE
13	24" DRUM (30"-70" TALL)
*	14 8" PVC OUTLET PIPE (SCH 40 OR EQUAL APPROVED BY ENGINEER)
15	INCLINOMETER
16	LEVEL TRANSDUCER
17	BEEHIVE GRATE
*	18 CONCRETE PAD (BY OTHERS, SIZE VARIES)

\* GENERAL CONTRACTOR TO INSTALL OUTLET PIPE AND CONCRETE PAD. ALL OTHER PARTS PROVIDED BY SMARTBATCH VENDOR. GENERAL CONTRACTOR TO COORDINATE FINAL LOCATION OF CONCRETE PAD WITH VENDOR.



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## ATTACHMENT N | Inspection, Maintenance, Repair and Retrofit Plan

Below are the inspection and maintenance guidelines required for the batch detention system as regulated by this Contributing Zone Plan. The owner/responsible party shall be responsible for the required inspection, maintenance, and repair of the BMP as well as keep all records of such events. Records are to be retained, along with a copy of this approved plan, and should be made available upon request or inspection by the Texas Commission on Environmental Quality (TCEQ)

For a batch detention pond, routine maintenance includes the following, including each specific component of the system identified.

Generally:

- Periodic scheduled inspections, with a specified checklist, shall be completed twice every calendar year at a minimum, or as outlined below.
- Inspections should be conducted after major rainfall events, especially rain events over a 24-hour period. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified.
- The level sensor in the basin should be inspected and any debris or sediment in the area should be removed.
- Inspections shall be documented in a logbook kept with a copy of the approved WPAP application package and approval letter.
- Automated Rotary Batch Detention System (ARBDS) – the automatic actuator system:
  - Grease
    - The ARBDS features a remote grease terminal on the pedestal. There are eight terminals that connect with grease tubes to the inner and outer flanges of the rotary valve. Autoflow recommends the ARBDS be greased at least twice per year. It is also recommended that a thick, mildly heat-resistant grease be used to avoid grease melting through lines during the summer months.
    - To grease the ARBDS flanges, use a standard grease gun to pump grease through the fittings. By either logging into the autoflow app and using the command page (see autoflow app, section ii), or by pressing the intermittent switches (see in case of failure, section 2), cycle the ARBDS from the full closed position to the fully open position. While the ARBDS valve rotates, alternate greasing between all eight grease fittings. When the ARBDS completes the movement, cycle it again from the fully open position to the full closed position and repeat the greasing process.
    - Besides the eight grease terminals on the pedestal, the only other location where grease is needed is the worm gear on the cable drive winch. To access the winch, loosen the four jam screws on the control box hood. It is not necessary to completely remove the jam screws. With the screws loose, remove the hood. Apply grease to the vertically oriented worm gear.
  - Flange Bolts
    - There are 10 bolts connecting the two flanges which encircle the ARBDS 24" swivel. These bolts should be evenly tightened, allowing for a 1/16" gap between the flanges and the stainless-steel packing band inside. Do not over-tighten the flange bolts, as this will pinch the steel packing band and cause the swivel to bind.

- **Packing Band**
  - The stainless-steel packing band between the two flanges of the ARBDS swivel tightens with an Allen-head bolt to secure the packing material beneath in place. This band should be snug at all times but not over-tightened. Over time, the rotation of the ARBDS valve will wear on the packing material, so the packing band will need to be re-tightened on a semi-annual basis to ensure that the material is well seated against the swivel surface.
  
- **Digging Around Valve**
  - Silt, sediment, and debris can build up around the unit. An annual inspection of the unit is necessary to ensure that excess debris and sediment has not limited the rotation arc of the valve. If the ARBDS valve cannot rotate to the 0° or fully opened level, it will not be able to fully drain the impoundment area.
  
- **Solar Panel**
  - The solar panel is commonly utilized by birds and insects. It is important to keep the surface clean of bird litter, insect nests and debris in order to maintain optimal performance.
  
- **Cable Slack**
  - The drive cable of the ARBDS routes from the cable drive winch inside the control box to a tab at the bottom at the ARBDS valve. To test cable slack, move the valve of the ARBDS in either the closing or opening direction using the intermittent switches. Moving the valve will cause one side of the cable to tighten and the other side to loosen
  - The loose side should always have five inches of perpendicular slack. For slight adjustments, tighten or loosen the nut of the eye bolt on the loose cable side as needed. For major adjustments, loosen the cable clamps at the bottom of the ARBDS valve and adjust slack through the eye bolt. With the proper five inches of slack adjusted into the loose side cable, retighten the cable clamps. Clamps must be secured very tightly to avoid cable slippage.
  
- **Cable Connections**
  - The drive cable of the ARBDS is connected at the bottom of the ARBDS valve with eye bolts and cable clamps. Check annually for corrosion or broken parts. Make sure the cable clamps are secured tightly and the eye bolts are intact. Replace as needed.
  
- **Battery**
  - Over time, battery terminals may corrode. Check annually for corrosion and clean as needed. Camera is used to identify any issues with the system, including the battery system. If the battery system were to fail, this would be known by the data recorded and the ARBDS can be turned by hand. This is an extremely remote possibility given the ability to remotely monitor the system.
  
- **Camera**
  - Check the lens glass annually for insect nests or debris and clean as needed. One nut connects the camera frame to the control box and two small set screws secure the camera to the camera frame. These can be loosened in order to adjust the camera's aim and then retightened to secure it in place.
  
- **Important safety information and warnings**
  - Always keep hands clear of the ARBDS valve, swivel, and cable drive system when unit is in operation.

- Turn the power switch off when doing any electrical work
  - Do not enter the water when the ARBDS is actively draining water
  - Do not stand inside or on top of the ARBDS valve
  - Always wear gloves when doing any work on the cable drive system
- Other Items
    - Trees and root systems should be removed to prevent growth in the impermeable liner of the batch detention basin bottom and through the vegetated sides of the basin. Any degradation of a geomembrane or clay liner will be immediately repaired upon inspection.
    - Mowing: Basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.
    - The responsible party should limit the use of fertilizers and/or pesticides in and around the ponds. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.) due to potential standing water (2-3") because of basin slope or spring flow.
    - The outlet structure and the trash screen should be inspected for signs of clogging at every inspection.
    - Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

Transfer of Ownership/Responsibility:

The applicant (i.e. owner/operator) is the sole responsible party for maintaining the records for such inspections, maintenance, and repair once construction of the water quality pond is completed. Should the maintenance obligation supplant through either a change of ownership or control of the property (ie. an owner's association, new property owner, lessee, or a district/municipality) then maintenance of the water quality pond shall be transferred to the new responsible party. A copy of the transfer of responsibility must be filed with the executive director of the regional office of which the pond resides (San Antonio Regional Office) within 30 days of the transfer.

Responsible Party Acknowledgement:

Responsible Party: Friedrich Hill, LLC  
 By its Controller, Patrick Flanagin  
 4007 McCullough Ave, Suite 231  
 San Antonio, Texas 78212

Signature of Responsible Party:  Patrick Flanagin      4/20/23  
 Date

Signature of Engineer of Record:  Brian Crowell, P.E., LEED AP      04/20/23  
 Date

TAB 3 - TEMPORARY STORMWATER

# 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: Brian Crowell, PE, LEED AP (Agent)

Date: 09/18/23

Signature of Customer/Agent:

  
\_\_\_\_\_

Regulated Entity Name: Friedrich Hill PUD

## Project Information

### Potential Sources of Contamination

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

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

The following fuels and/or hazardous substances will be stored on the site: \_\_\_\_\_

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

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

- Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
- Fuels and hazardous substances will not be stored on the site.
- 2.  **Attachment A - Spill Response Actions.** A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
- 3.  Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- 4.  **Attachment B - Potential Sources of Contamination.** A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

### ***Sequence of Construction***

- 5.  **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
  - For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
  - For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6.  Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Leon 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.

## Supplemental Attachments for

### TCEQ 0602 Temporary Stormwater Section **Friedrich Hill PUD**

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#### Table of Attachments:

Attachment A:	Spill Response Actions
Attachment B:	Potential Sources of Contamination
Attachment C:	Sequence of Major Activities
Attachment D:	Temporary Best Management Practices and Measures
Attachment E:	Request to Temporarily Seal a Feature (Not Applicable)
Attachment F:	Structural Practices
Attachment G:	Drainage Area Map
Attachment H:	Temporary Sediment Pond Plan and Calculations
Attachment I:	Inspection and Maintenance for BMPs
Attachment J:	Schedule of Interim and Permanent Soil Stabilization Practices

## ATTACHMENT A | Spill Response Actions

### Responsible Party

During construction, the responsible party for cleaning up spill can be any combination of the following individuals:

1. The owner or operator, including contractor (while during construction) of a facility from which a spill occurs.
2. The owner, operator, including contractor, operating a vehicle from which the spill occurs.
3. Other individual who caused or allowed the spill or discharge to occur.

### Spill Classification

There are two main categories of spills that can be identified: Major Spills and Minor Spills. Spill response actions and notifications to municipal entities may differ depending on the type and degree of spill.

Major Spills can be classified as any spills where:

1. Material is considered a health or physical hazard based on its chemical or physical make up, or if the quantity of the spill exceeds the Reportable Quantity (RQ) as defined under Title 30 of the Texas Administrative Code (TAC) Chapter 327.4.
2. The spilled material has entered into the storm water drainage system, catchment basin, or adjoining creek or if it appears that discharge into the storm system will occur in the immediate future.
3. The spilled material has the ability to travel offsite.
4. The spilled material adversely affects the environment.
5. The spilled material cannot be controlled or contained by the responsible party.
6. The chemical or physical properties of the spilled material cannot be identified or is unknown.

Minor Spills are spills that do not meet the above criteria for major spills.

### Notification and Reporting Agencies

The following entities shall be contact during discovery of a spill:

1. State of Texas 24-Hour Spill-Reporting Hotline and the State Emergency Response Commission at **1-800-832-8224**
2. Texas Commission on Environmental Quality (San Antonio Regional Office), Monday-Friday, 8:00 a.m.– 5:00 p.m. at 14250 Judson Rd, San Antonio TX 78233-4480, Main Line: **210-490-3096**

### Reporting Items for Major Spills

When reporting a spill, the following information may be required to help identify, log, and track the spill:

1. The date/time of the spill.
2. The identity/name of material released or spilled, and if the substance is considered hazardous.
3. The source of the release or spill.
4. The quantity of material released or spilled.
5. The time or duration of which the spill occurred.
6. The location/address of the spill.
7. The name of creek or waters involved or threatened and the extent of potential water pollution.
8. The contact information of the responsible party.
9. The steps being taken or proposed to contain and clean up the released or spilled material and any additional precautions.
10. Any injuries resulting from the spill, any known or anticipated health risks associated with the spill, or if additional medical precautions are required.
11. The identities of any municipal or private-sector representatives responding at the scene of the spill.

12. Possible hazards to the environment (air, soil, water, wildlife, etc.). This assessment may include references to accepted chemical databases, material safety data sheets, and health advisories. The TCEQ may request estimated or measured concentrations of the contaminant for the state's hazard assessment.

#### Reporting Items for Minor Spills

For minor spills that occur, the notification sequence described above is not required and can be treated directly onsite by the responsible parties involved by:

1. The first observer of the spill shall notify his/her supervisor and the onsite safety officer.
2. The supervisor must notify the owner, tenant, or their primary contact.
3. The immediate spill response plan/clean up actions shall be conveyed, documented and the owner/tenant shall be notified once cleanup is completed.

#### Equipment Needed for Minor Spills

Equipment and materials used to contain and/or restrict spreading of a spill can consist of spill pans and various forms of absorbent materials; which include granular material, socks, rock and gravel berms, pillows or pads, and sheets. Spill pans or pads can be placed under a continuing drip-type leak. Surrounding a minor spill with berms or socks can contain a small spill area until proper removal procedures can occur.

## **ATTACHMENT B | Potential Sources of Contamination**

Potential sources of contamination for this project include:

- Drippings from vehicles, both construction and non-construction related.
- Grading and excavation activities: Stormwater runoff has the potential to be contaminated during the construction process with related excavation and site grading.
- Building materials: Materials include, but not limited to, concrete, wood, mortar, and paint among other materials.
- Trash and debris: These may include household trash items such as paper bags, cups, plastic ware, and food items.

## **ATTACHMENT C | Sequence of Major Activities**

The following is the general sequence of major activities and associated approximate disturbed areas for this project:

1. Install temporary erosion control measures and tree protection. ( $\pm$  1.0 Acre)
2. Site clearing and grubbing ( $\pm$  8.5 Acres)
3. Construct Batch Detention Facility ( $\pm$  0.5 Acre)
4. Install interceptor channels ( $\pm$  1.6 Acres)
5. Street and lot mass grading ( $\pm$  6.9 Acres)
6. Install on-site water and sewer mains. ( $\pm$  0.5 Acres)
7. Prepare subgrade and install base material for roadways and sidewalks. ( $\pm$  2.1 Acres)
8. Install concrete curbs and HMAC and PCC pavements ( $\pm$  3.8 Acres)

For each of the items above, the necessary Temporary BMPs (TBMPs) and erosion control measures will be in-place prior to major construction activities such as grading, utility installation, and roadway construction. Following construction activities, soil stabilization controls will be implemented and temporary measures will be removed as needed on an individual basis.

## ATTACHMENT D | Temporary Best Management Practices and Measures

a. Storm Water Up-gradient of the Project Site

Post-construction, proposed interceptor channels collect and convey storm water originating from up-gradient of the project site around the development and contain the flow within drainage easements along the subdivision boundaries.

Existing vegetation within the drainage easements will be disturbed to construct the interceptor channels. Appropriate temporary BMPs such as silt fences and rock berms will be installed to temporarily divert upgradient stormwater away from the exposed areas and/or remove sediment from stormwater running through exposed areas.

b. Storm Water Originating On-Site

Storm water runoff originating from disturbed site areas will be treated by temporary or permanent BMPs before discharging to the historical site outfall. During construction, dewatering operations will comply with the effective TPDES Construction General Permit to include observation and record keeping requirements.

The Stormwater Pollution Prevention Plan will be implemented, adjusted, and maintained to prevent sediment discharge from the site throughout construction operations.

c. Prevention of Pollutants from Entering Surface Streams, Sensitive Features, and Aquifer

No areas of the Project Site discharge directly to surface streams, sensitive features, or the aquifer. All runoff from disturbed areas will be treated by temporary or permanent BMPs before discharging to the historical site outfall.

d. Maintaining Flow During Construction

Temporary and permanent BMPs will be installed with respect to the Site Area drainage patterns. Temporary BMPs will be installed to control silt and sediment from leaving the site during permanent BMP installation.

## **ATTACHMENT E | Request to Temporarily Seal a Feature**

This section does not apply for this project. There will not be temporary sealing of naturally-occurring sensitive features on the site.



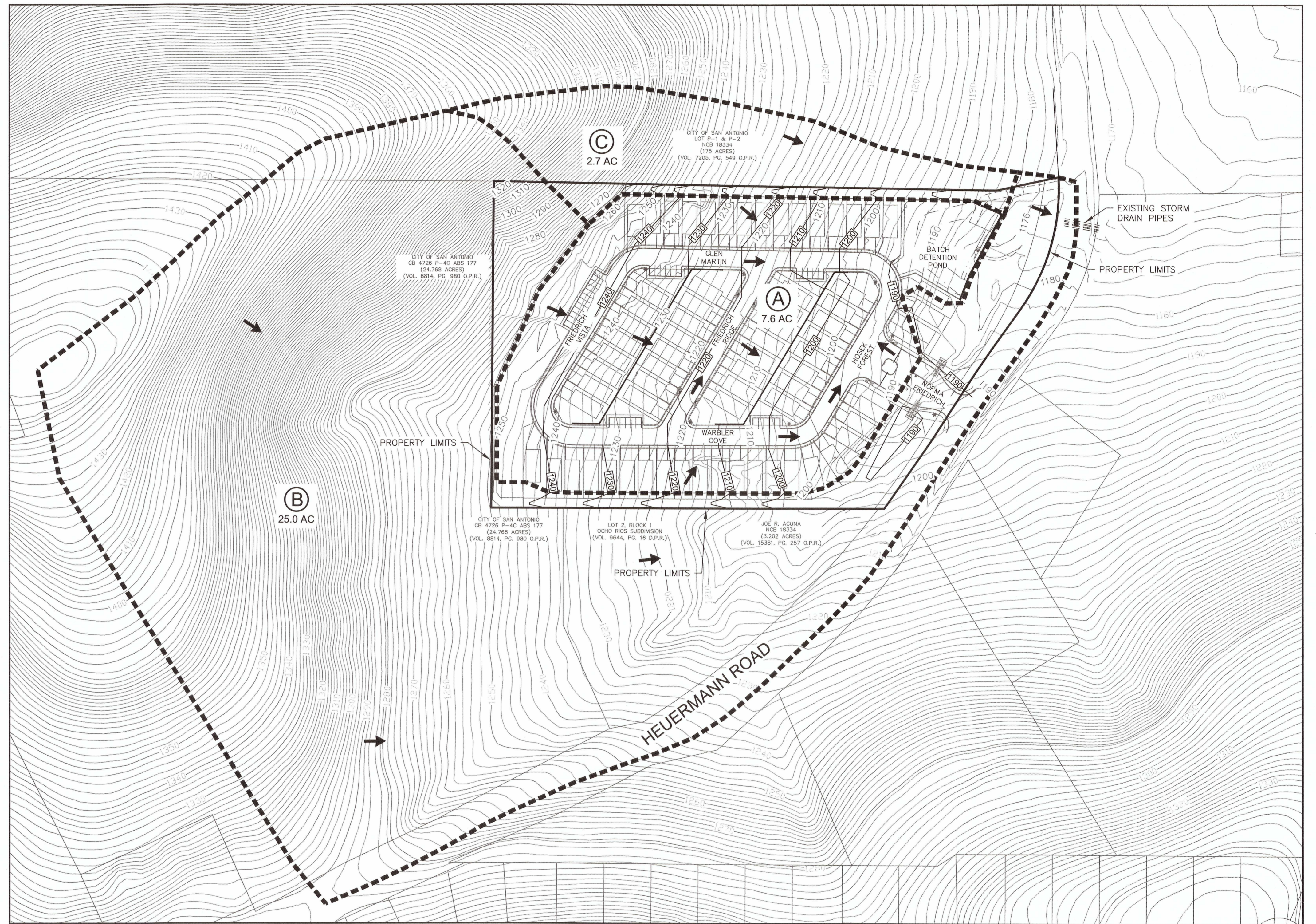
## ATTACHMENT F | Structural Practices

Temporary structural practices include:

- Silt Fencing: To be placed along the down gradient boundary of the limits of construction activities.
- Gravel Filter Bags: Shall be used at the entrance to curb openings, around inlets, etc. to minimize siltation of the storm drain system and/or batch detention basins.
- Rock Berms: To serve as a secondary barrier to silt fencing and is to be placed in areas of concentrated flows, where indicated on construction plans, such as proposed channels and drainage swales.
- Construction Entrance/Exit: Will be placed to limit migration of sediment from the jobsite as construction traffic enters and exits the construction site.
- Concrete Washout-Pits: To contain and control affected runoff from cement delivery trucks.

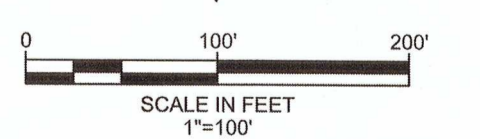
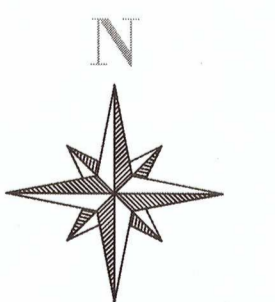
Please note that this site is not located within a studied floodplain and is not exposed to potential flooding that may occur during heavy rainfall periods. Therefore, site inundation is not expected to adversely impact proposed TBMP structures.

**ATTACHMENT G | Drainage Area Map**



**LEGEND**

- 885 — EXISTING CONTOURS
- 885 — PROPOSED CONTOURS
- - - - - DRAINAGE AREAS
- — — — — PROPERTY LIMITS
- ➔ FLOW ARROW
- ⊗ X.X AC DRAINAGE AREA MARKER AND ACREAGE



**NOTES:**

1. 22.4 ACRES AND 2.3 ACRES OF DRAINAGE AREAS B AND C, RESPECTIVELY, LIE UPGRADIENT OF THE PROPERTY LIMITS.
2. STORM WATER RUNOFF FROM UPGRADIENT AREAS WILL BE DIVERTED AROUND THE PERMANENT BMP CATCHMENT AREA (DRAINAGE AREA "A") DURING AND AFTER CONSTRUCTION ACTIVITIES.

**DRAINAGE AREA MAP - EDWARDS AQUIFER CONTRIBUTING ZONE PLAN**

**CDS** muary ENGINEERS | SURVEYORS  
 DRAWN BY: CDS DATE: MARCH 2023  
 SCALE: 1"=100' REV.  
 EXHIBIT-4-0\_DRAINAGE-AREA-MAP.DWG

## **ATTACHMENT H | Temporary Sediment Pond(s) Plans and Calculations**

This section does not apply for this project. There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time.

# ATTACHMENT I | Inspection and Maintenance for BMPs

## Silt Fence

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

## Gravel Filter Bags

1. Inspect all gravel filter bags weekly, and after any rainfall events.
2. Remove sediment when buildup reaches 4 inches.
3. Replace any torn bags or install a second line of bags parallel to the torn section.
4. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation.

## Rock Berm

1. Inspection should be made weekly and after each rainfall event by the responsible party. For installation 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.

## Temporary Construction Entrance/Exit

1. The entrance(s) should be maintained in a condition, which will prevent transfer 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. When necessary, wheels should be cleaned and sediment removed prior to entrance onto public right-of-way.
3. 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.
4. All sediment should be prevented from entering any storm, drain, ditch or water course by using approved methods.

### Concrete Washout Areas

1. To help reduce storm water pollution from concrete washes, ensure the following:
  - a. Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
  - b. Avoid mixing excess amounts of fresh concrete.
  - c. Perform washout of concrete trucks in designated areas only.
  - d. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
  - e. Do not allow excess concrete to be dumped onsite, except in designated areas.
2. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.
3. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
4. Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly.
5. When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of.
6. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

If any sediment escapes the site during construction activities, off-site accumulations must be removed to minimize offsite impacts to water quality. An inspection form has been attached.



**Friedrich Hill PUD**  
**Dewatering Controls Observation and Evaluation Form**

Project Name: \_\_\_\_\_ Date of Observations and Evaluation: \_\_\_\_\_

Inspector: \_\_\_\_\_ Inspector Qualifications: \_\_\_\_\_

Frequency

Observe and evaluate dewatering controls at a minimum of once per day on the days where dewatering discharges from the construction site occur. Complete report within 24-hours following each evaluation.

Time of Dewatering:

*Indicate approximate beginning and end times of dewatering operations on day completed. Indicate continuous if dewatering discharge is a continuous discharge that continues after normal business hours.*

Begin \_\_\_\_\_ End \_\_\_\_\_ OR Continuous

Rate of Discharge: \_\_\_\_\_ (gallons per day)

Pollutant discharge observed at point of discharge (e.g., foam, oil sheen, noticeable odor, floating solids, suspended sediments, etc.) Yes \_\_\_\_\_ No \_\_\_\_\_

Major Observations (locations of where erosion and discharges of sediment or other pollutants from the site have occurred; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed)

**This site is in compliance with Part III.C Dewatering of the Construction General Permit? Yes \_\_\_\_\_ No \_\_\_\_\_ (If not, please specify Actions Taken.)**

Actions Taken (describe actions taken as result of evaluations, including the date(s). Identify any incidents of non-compliance.)

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## **ATTACHMENT J | Schedule of Interim and Permanent Soil Stabilization Practices**

Interim on-site stabilization measures will be on-going. Soil disturbances should be limited to the smallest area and shortest duration of time practical. As soon as practical, all disturbed soil shall be stabilized as per project specifications in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348. Project stabilization practices include, but are not limited to the use of sod, erosion control blankets and seeding.

Stabilization measures are to be completed as soon as practicable at locations where construction activities have temporarily or permanently ceased. Bare soils are to be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

Newly planted vegetation will be protected from construction traffic.

The project is scheduled to begin August 2023 and complete August 2024. During construction, Temporary BMPs will be implemented. All disturbed areas will be permanently stabilized as indicated on the Contributing Zone Site Plan by pavements, building foundations, or vegetative cover. Temporary BMPs may only be removed after all upgradient disturbed soils are permanently stabilized and all upgradient Permanent BMPs indicated in this Contributing Zone Plan are installed.

TAB 4 - AGENT AUTHORIZATION

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

I Patrick Flanagin  
Print Name

Controller  
Title - Owner/President/Other

of Friedrich Hill, LLC  
Corporation/Partnership/Entity Name

have authorized Brian Crowell, P.E., LEED AP  
Print Name of Agent/Engineer

of CDS Muery  
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

4/6/23  
Date

THE STATE OF TEXAS §

County of Bexar §

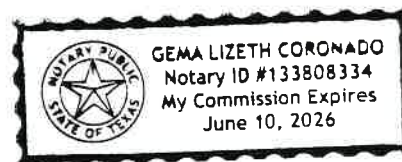
BEFORE ME, the undersigned authority, on this day personally appeared Patrick Flanagin, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 6<sup>th</sup> day of April, 2023

  
NOTARY PUBLIC

Gema Lizeth Coronado  
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: June 10, 2026



TAB 5 - FEE FORM

# Application Fee Form

**Texas Commission on Environmental Quality**

Name of Proposed Regulated Entity: Friedrich Hill, LLC

Regulated Entity Location: 29.6338° N, 98.6267° W

Name of Customer: Friedrich Hill, LLC

Contact Person: Brian Crowell, P.E., LEED AP

Phone: 210-581-1111

Customer Reference Number (if issued): CN \_\_\_\_\_

Regulated Entity Reference Number (if issued): RN \_\_\_\_\_

**Austin Regional Office (3373)**

Hays

Travis

Williamson

**San Antonio Regional Office (3362)**

Bexar

Medina

Uvalde

Comal

Kinney

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

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

12100 Park 35 Circle

Mail Code 214

Building A, 3rd Floor

P.O. Box 13088

Austin, TX 78753

Austin, TX 78711-3088

(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	10.58 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: 09/18/23

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

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

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

### **Exception Requests**

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

### **Extension of Time Requests**

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

TAB 6 - CORE DATA





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

## SECTION II: Customer Information

<b>4. General Customer Information</b>		<b>5. Effective Date for Customer Information Updates</b> (mm/dd/yyyy)	
<input checked="" 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> <i>(If an individual, print last name first: eg: Doe, John)</i>		<i>If new Customer, enter previous Customer below:</i>	
Friedrich Hill, 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> <i>(if applicable)</i>
0804772034	32086799791	92-0710947	
<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 checked="" 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 checked="" 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 checked="" 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>	4007 McCullough Ave, Suite 231		
	City	San Antonio	State TX    ZIP 78212    ZIP + 4
<b>16. Country Mailing Information</b> <i>(if outside USA)</i>		<b>17. E-Mail Address</b> <i>(if applicable)</i>	
<b>18. Telephone Number</b>	<b>19. Extension or Code</b>	<b>20. Fax Number</b> <i>(if applicable)</i>	

**SECTION III: Regulated Entity Information****21. General Regulated Entity Information** (If 'New Regulated Entity' is selected, a new permit application is also required.)
 New Regulated Entity     Update to Regulated Entity Name     Update to Regulated Entity Information

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

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

Friedrich Hill PUD

**23. Street Address of the Regulated Entity:***(No PO Boxes)*

City

State

ZIP

ZIP + 4

**24. County**

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

**25. Description to****Physical Location:**

Approx 920 feet southwest of Heuermann Rd and Milsa Dr intersection.

**26. Nearest City**

State

Nearest ZIP Code

San Antonio

TX

78256

*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).*

**27. Latitude (N) In Decimal:**

29.6338

**28. Longitude (W) In Decimal:**

98.6267

Degrees

Minutes

Seconds

Degrees

Minutes

Seconds

29

38

2

98

37

36

**29. Primary SIC Code****30. Secondary SIC Code****31. Primary NAICS Code****32. Secondary NAICS Code**

(4 digits)

(4 digits)

(5 or 6 digits)

(5 or 6 digits)

1522

1542

236116

531311

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

Developer-townhouse/duplex subdivision

**34. Mailing**

4007 McCullough Ave, Suite 231

**Address:**

City

San Antonio

State

TX

ZIP

78212

ZIP + 4

**35. E-Mail Address:**

patrick.flanagin@rosehaven.us

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

( 210 ) 444-2040

( ) -

**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 checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
		Contributing Zone Plan		
<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>	Brian Crowell, PE, Leed AP	<b>41. Title:</b>	Senior Project Manager
<b>42. Telephone Number</b>	<b>43. Ext./Code</b>	<b>44. Fax Number</b>	<b>45. E-Mail Address</b>
( 210 ) 581-1111		( 210 ) 581-5555	brian.crowell@cdsmuery.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>	CDS Muery	<b>Job Title:</b>	Senior Project Manager
<b>Name (In Print):</b>	Brian Crowell, PE, LEED AP	<b>Phone:</b>	( 210 ) 581- 1111
<b>Signature:</b>		<b>Date:</b>	04/18/23