Water Pollution Abatement Plan Modification

School of Science and Technology

1819 E Sonterra Blvd, San Antonio, Texas 78259

Prepared For: *Texas Commission on Environmental Quality (TCEQ)*

Applicant: Richard Underwood, P.E.

Kimley»Horn
10101 Reunion Place, Suite 400
San Antonio, TX 78216
(210) 541-9166

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

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

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

2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.

3. If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.

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

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

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

7. Sediment must be removed from the sediment traps or sedimentation basins not later than

when it occupies 50% of the basin's design capacity.

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

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.

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

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

12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

    B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;

    C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

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

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

Water Pollution Abatement Plan Checklist

X **Edwards Aquifer Application Cover Page (TCEQ-20705)**

X **General Information Form (TCEQ-0587)**

Attachment A - Road Map
Attachment B - USGS / Edwards Recharge Zone Map
Attachment C - Project Description

X **Geologic Assessment Form (TCEQ-0585)**

Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
Attachment B - Stratigraphic Column
Attachment C - Site Geology
Attachment D - Site Geologic Map(s)

X **Water Pollution Abatement Plan Application Form (TCEQ-0584)**

Attachment A - Factors Affecting Surface Water Quality
Attachment B - Volume and Character of Stormwater
Attachment C - Suitability Letter from Authorized Agent (if OSSF is proposed)
Attachment D - Exception to the Required Geologic Assessment (if requested)
Site Plan

X **Temporary Stormwater Section (TCEQ-0602)**

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 (if requested)
Attachment F - Structural Practices
Attachment G - Drainage Area Map
Attachment H - Temporary Sediment Pond(s) Plans and Calculations
Attachment I - Inspection and Maintenance for BMPs
Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

X **Permanent Stormwater Section (TCEQ-0600)**

Attachment A - 20% or Less Impervious Cover Waiver (if requested for multi-family, school, or small business site)
Attachment B - BMPs for Upgradient Stormwater
Attachment C - BMPs for On-site Stormwater
Attachment D - BMPs for Surface Streams
Attachment E - Request to Seal Features (if sealing a feature)
Attachment F - Construction Plans
Attachment G - Inspection, Maintenance, Repair and Retrofit Plan
Attachment H - Pilot-Scale Field Testing Plan (if proposed)
Attachment I -Measures for Minimizing Surface Stream Contamination

- [x] **Agent Authorization Form (TCEQ-0599), if application submitted by agent**
- [x] **Application Fee Form (TCEQ-0574)**
- [x] **Check Payable to the "Texas Commission on Environmental Quality"**
- [x] **Core Data Form (TCEQ-10400)**

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

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

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

Technical Review

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

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

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

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: School of Science and Technology						**2. Regulated Entity No.: RN110865094**			
3. Customer Name: Riverwalk Education Foundation						**4. Customer No.:**			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**		5.62	
9. Application Fee:	$6,500		**10. Permanent BMP(s):**			Proprietary Media Cartridge Filter			
11. SCS (Linear Ft.):			**12. AST/UST (No. Tanks):**			N/A			
13. County:	Bexar		**14. Watershed:**			Salado			

Application Distribution

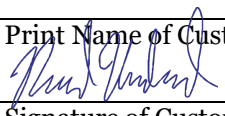
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which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

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

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

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	___
Region (1 req.)	___	___	___
County(ies)	___	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Richard Underwood, P.E.
Print Name of Customer/Authorized Agent  05/23/2024
Signature of Customer/Authorized Agent Date

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

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

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

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

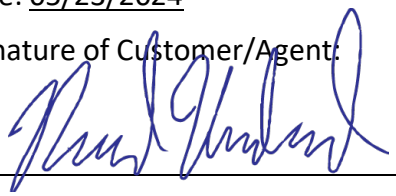
Signature

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

Print Name of Customer/Agent: Richard Underwood, P.E.

Date: 05/23/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: School of Science and Technology
2. County: Bexar
3. Stream Basin: Salado Creek
4. Groundwater Conservation District (If applicable): Edwards Aquifer
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: Brady Hutchins
   Entity: Riverwalk Education Foudation
   Mailing Address: 5300 Wurzbach Rd
   City, State: San Antonio, TX Zip: 78238
   Telephone: 208-562-7819 FAX:
   Email Address: bhutchins@bhope.org

8. Agent/Representative (If any):

   Contact Person: Richard Underwood, P.E.
   Entity: Kimley-Horn & Associates Inc.
   Mailing Address: 10101 Reunion Place, Suite 400
   City, State: San Antonio, TX Zip: 78216
   Telephone: 210-321-3415 FAX:
   Email Address: richard.underwood@kimley-horn.com

9. Project Location:

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

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

    The site is located at 1819 E Sonterra Blvd, San Antonio, TX 78259. From the TCEQ regional office, turn right on Judson road and proceed approximately 2.6 miles to N Loop 1604 E and turn left. Continue on N Loop 1604 W for approximately 1.8 miles to exit to TX-1604 Loop W. Continue approximately 0.3 miles to exit Redland Rd/Gold Canyon Dr. Continue straigt for 1 mile and then turn right on E Sonterra Blvd. The site is located at the intersection of E Sonterra Blvd and Ridgewood Pkwy.

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

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

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

    ☒ Survey staking will be completed by this date: once advised by TCEQ staff of site inspection.

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

15. Existing project site conditions are noted below:

    ☐ Existing commercial site
    ☐ Existing industrial site
    ☐ Existing residential site
    ☐ Existing paved and/or unpaved roads
    ☐ Undeveloped (Cleared)
    ☒ Undeveloped (Undisturbed/Uncleared)
    ☐ Other: _____

Prohibited Activities

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

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

    (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

    (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

    (4) The use of sewage holding tanks as parts of organized collection systems; and

    (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

    (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

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

(1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

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

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

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

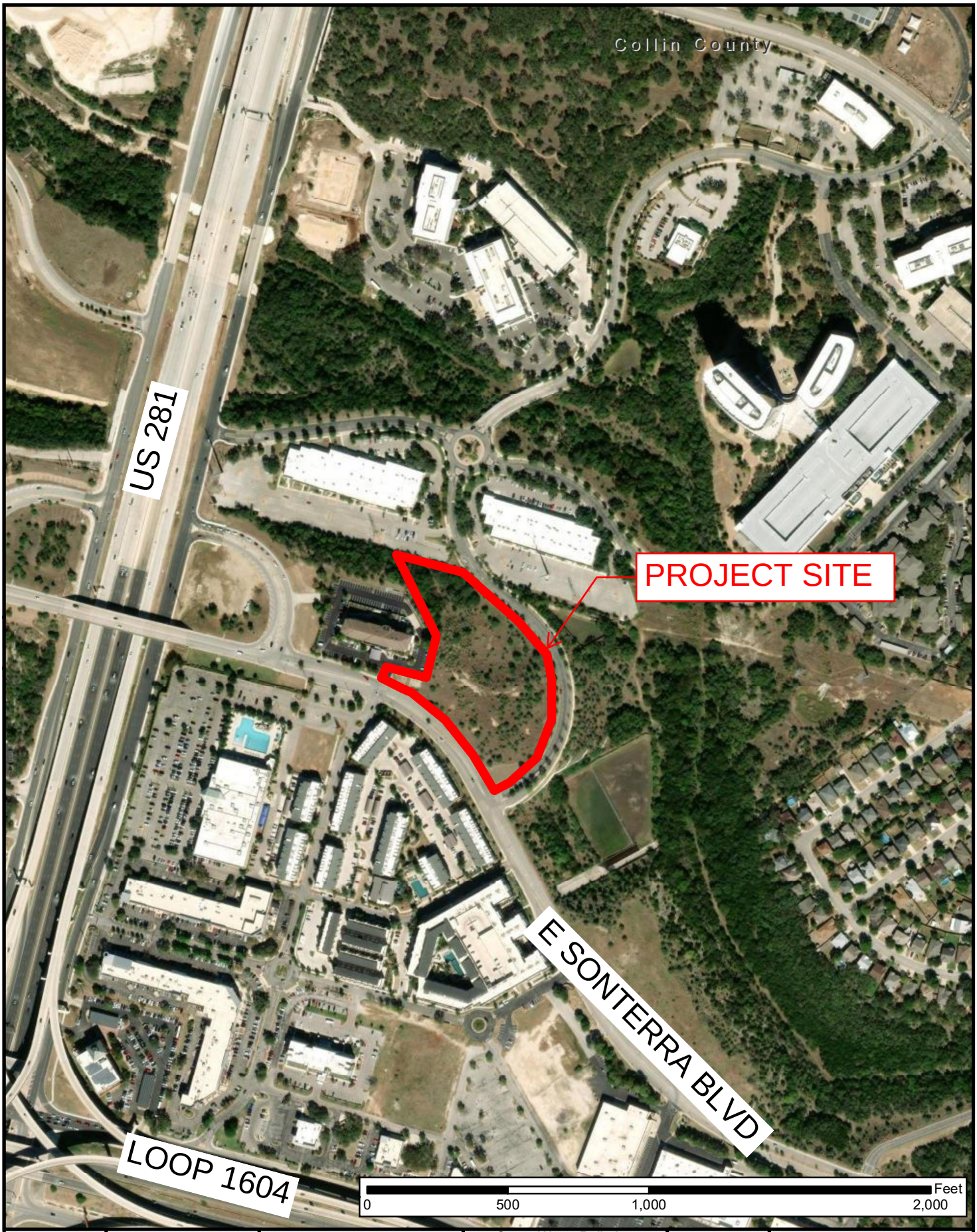
☐ TCEQ cashier
☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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

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

Attachment A

Kimley»Horn

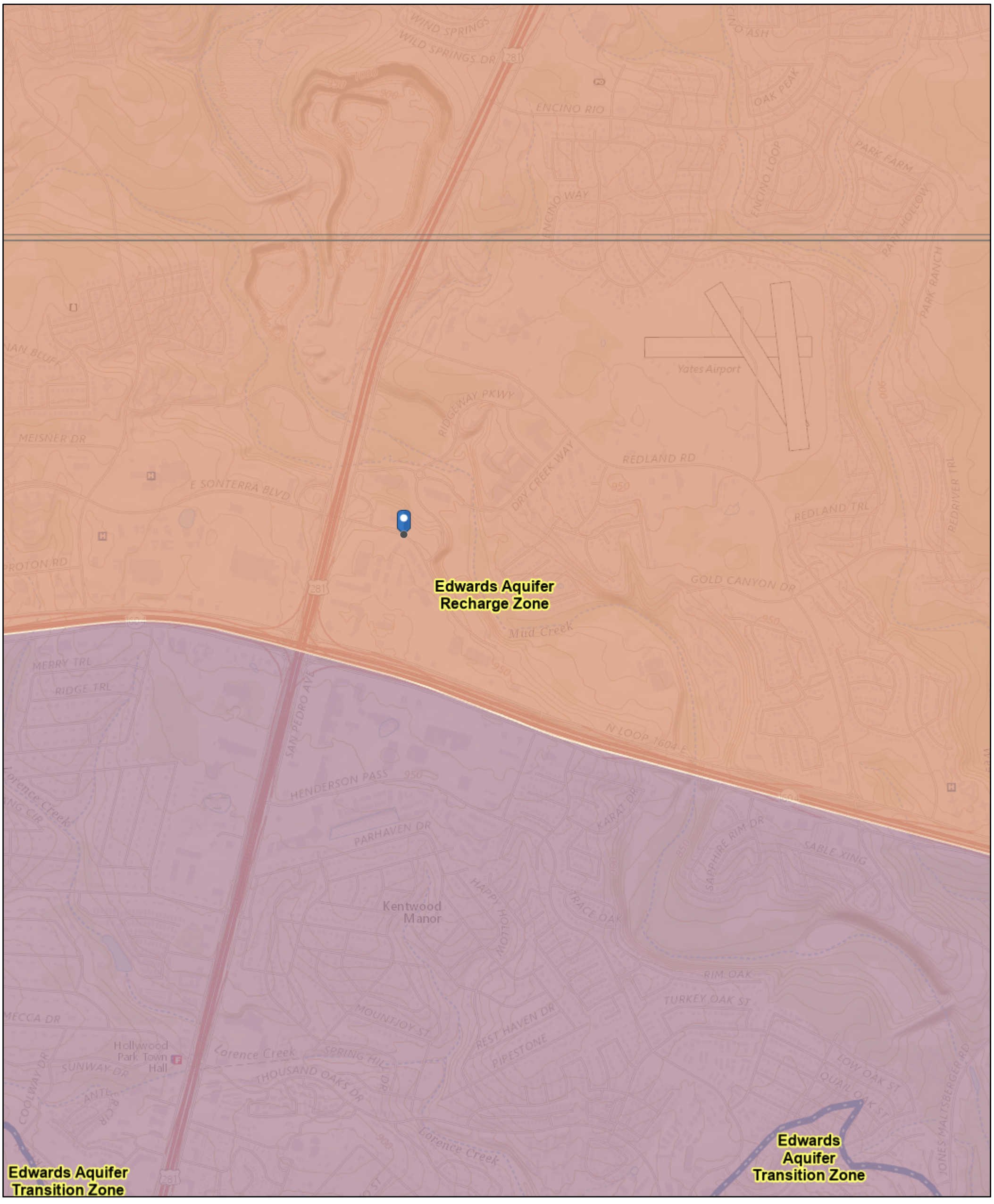


SHEET 1 OF 2 SHEETS	DATE: 01/15/2024 DESIGN: WHH DRAWN: WHH CHECKED: BE KHA NO.: 068691611	Vicinity Map	Storm Water Pollution Prevention Plan School of Science and Technology San Antonio, Texas	N	Kimley»Horn

Attachment B

Kimley»Horn

Edwards Aquifer Viewer USGS Quad Map



4/22/2024, 9:39:25 AM

- Edwards Aquifer Label
- Edwards Aquifer Boundary
- Edwards Aquifer Boundary central line
- City/Place

Groundwater Conservation Districts

- Edwards Aquifer Authority
- Trinity Glen Rose GCD
- TX Counties
- 7.5 Minute Quad Grid
- TCEQ_EDWARDS_OFFICIAL_MAPS

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

TCEQ, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global

Web AppBuilder for ArcGIS

TCEQ | USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures

Attachment C

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment C

Project Description

School of Science and Technology is a new Water Pollution Abatement Plan application for a 5.62-acre project site located at 1819 E Sonterra Blvd and is within City of San Antonio limits. The entire site is in the Edwards Aquifer Recharge Zone. The site is currently undeveloped.

Stormwater runoff previously sheet flowed across the site into an existing grate inlet. This proposed improvements to the site capture stormwater through an on-site storm sewer system that will be treated by a proprietary media cartridge filter before being detained in an underground detention system and will ultimately discharge to a proposed outfall structure. The water leaving the pond will connect to an existing storm system on site. The underground detention system has been sized to account for the existing runoff and impervious cover from the proposed improvements and to decrease existing flow to the existing storm system. Refer to the included TSS Summary Table and Calculations for details.

Additional Regulated activities include clearing, grading, excavation, installation of utilities and drainage improvements, construction of a charter school with associated parking and drives, hardscapes, landscape, and site clean-up. Approximately 3.19 acres of impervious cover, or 56.65% of the 5.62-acre project site, are proposed for construction in this WPAP. All PBMPs have been designed in accordance with the TCEQ's Technical Guidance manual (TGM) RG-348 (2005).

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

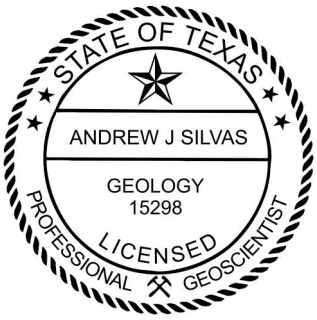
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Andrew Silvas Telephone: 830-816-5434

Date: 02.07.24 Fax: 830-816-5436

Representing: Broadbent & Associates, Inc. TBPG Firm Resgistration No.50007 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: School of Science and Technology

Project Information

1. Date(s) Geologic Assessment was performed: 01/30/2024
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Eckrant	D	10
Anhalt	D	5

** Soil Group Definitions (Abbreviated)*

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

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

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

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

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

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

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

   Applicant's Site Plan Scale: 1" = 30'
   Site Geologic Map Scale: 1" = 30'
   Site Soils Map Scale (if more than 1 soil type): 1" = 30'

9. Method of collecting positional data:

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

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

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

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

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

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

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

    ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☐ The wells are not in use and have been properly abandoned.
    - ☐ The wells are not in use and will be properly abandoned.
    - ☐ The wells are in use and comply with 16 TAC Chapter 76.

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

Administrative Information

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

Site Specific Geology and Soil Characteristics

Approximately 5.616-Acre Tract

School of Science and Technology

San Antonio, Texas 78259

Area Geologic Setting

The approximate 5.616-acre tract located at 1819 East Sonterra Boulevard, San Antonio, Texas 78259 (Site) is located within the Edwards Group. They were deposited in a sheltered open ocean environment sometime in the early Cretaceous approximately 100 million years ago.

The Edwards Aquifer is the primary source of drinking water for San Antonio and other communities in Central Texas. The aquifer is comprised of the Georgetown Limestone Formation within the Washita Group and the Person and Kainer Formations within the Edwards Group. These Formations consist of porous and permeable limestone deposits, which are conducive to groundwater flow and storage.

The Site is located within the Balcones Fault Zone, which separates the Edwards Plateau from the Gulf Coastal Plain physiographic province. The Balcones Fault Zone is comprised of a series of steep angle, normal faults that generally strike northeast-southwest. Active movement in the Balcones Fault Zone ceased during the Miocene Epoch. The faulting combined with the exposed lithology of the upper Cretaceous, causes abrupt changes in rock and soil units within the Balcones Fault Zone.

Field observations coincide with descriptions of the Person Formation found in Geologic Framework and Hydrostratigraphy of the Edwards and Trinity Aquifers Within Northern Bexar and Comal Counties, Texas: U.S. Geological Survey Scientific Investigations Map 3510, 1 sheet, scale 1:24,000, pamphlet, https://doi.org/10.3133/sim3510 by Clark, A.K., Golab, J.A., Morris, R.R., Pedraza, D.E., 2023, indicate the Site is located within the Edwards Group. The Edwards Group is between 410 and 600 feet thick according to the Carbonate Geology and Hydrology of the Edwards Aquifer in the San Antonio Area, Texas by R.W. Maclay and T.A. Small of the U.S. Geological Survey, Austin, Texas 1984. The Edwards lithology consists of mudstone to grainstone, dolomitic mudstone, and chert (Clark et al., 2023). The Edwards is divided into the Person Formation and the Kainer Formation.

The intense faulting and fracturing of the limestone in the Balcones Fault Zone, and the varying ability of minerals to be dissolved by groundwater, lead to the formation of the geologic features that are mapped within the Edwards Aquifer Recharge Zone. The combination of faulting, fracturing, rock dissolution, mineral deposition, erosion, and geologic time produce caves, non-karst closed depressions, fractured rock outcrops, Fault Zones, solution cavities, and vugular rock features which are mapped during a Geologic Assessment. The characteristics and physical settings of these geologic features are described to assign a relative infiltration rate and potential recharge ranking to assist in managing the resource of the Edwards Aquifer.

The Site is located within the Edwards Aquifer Recharge Zone according to the information provided by the Edwards Aquifer Map Viewer by the Texas Commission on Environmental Quality, and Edwards Aquifer Recharge Zone and Contributing Zone Map, Edwards Aquifer Authority Rule Chapter 713 by Sarah Eason, Texas Water Development Board, 2014. Therefore, a Geologic Assessment was conducted in accordance with Title 30 of the Texas Administration Code (TAC) Chapter 213.5(b)(3).

Site Geology

The Site is located within the Person Formation of the Edwards Group (Clark et al., 2023). The lithology of the Person Formation observed at the Site, as described, and depicted by Clark et al. (2023), is of the leached and collapsed member generally consisting of recrystallized limestone, mudstone, wackstone, packestone, grainstone, and/or chert.

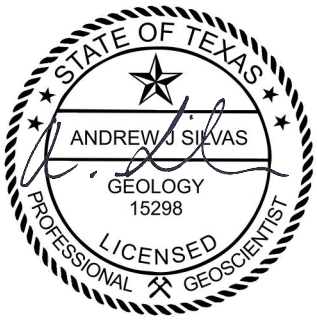
During the field survey, eight manmade features in (MB-1 through MB-8) and one non-karst closed depression (CD-1) were observed on-Site. MB-1 through MB-3, MB-5, and MB-6 are entry points to the San Antonio Public Works sanitary sewer. MB-1 through MB-3 and MB-5 are located in the southwest portion of the Site. MB-6 is located along the southern property line of the site. MB-4 is a concrete stormwater drainage ditch extending approximately 57-feet onto the Site from the western neighboring property. MB-7 is a fire hydrant located along the southern property line of the Site. MB-8 is a metal drainage grate along the northwestern property line of the Site. CD-1 is a non-natural topographic depression which originates at feature MB-4 and continues downhill towards the northern property line of the Site for approximately 211-feet. Based on field observations, feature CD-1 appears to have originated from denudational processes exacerbated by feature MB-4. Stormwater surface runoff from the western neighboring property migrates onto the Site via feature MB-4 and onto native soil. The native soil is then exposed to a higher rate of denudation, forming feature CD-1. Geologic and Soil Maps, and photograph documentation of the described features are presented at the end of this section.

Site Soil Characteristics

The Site soil is comprised of Eckrant very cobbly clay (TaC) which ranges in thickness between 0 to 10-feet, and the Anhalt Clay (Ca) ranging in thickness between 0 to 5-feet according to the Web Soil Survey of Bexar County, Texas, by the United States Department of Agriculture (USDA), 2023. The major soil units of TaC and Ca are class D soils as defined in Appendix B, Urban Hydrology for Small Watersheds, by the USDA, Natural Resources Conservation Service, Conservation Engineering Division, Technical Release 55, June, 1986.

Assessment

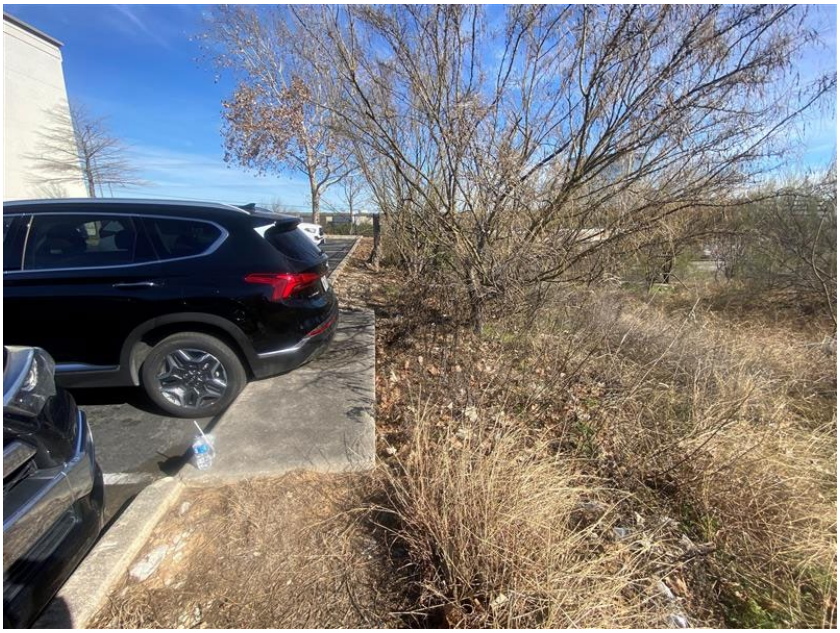
In general, there is a low potential for fluid movement from the surface of the Site to the Edwards Aquifer due to the low percentage of rock outcroppings, the slow to very slow characteristic of fine textured Group D soil, the lack of connection between the features and the subsurface, and a general lack of sensitive features observed relative to the approximate 5.616-acre assessment.



GEOLOGIC ASSESSMENT PHOTOGRAPHS
Approximately 5.616-Acre Tract

School of Science and Technology

San Antonio, Texas 78259



Photograph 1: North facing view of the entry point into the San Antonio Public Works sanitary sewer, feature MB-1.

Photograph 2: Northwest facing view of the entry point into the San Antonio Public Works sanitary sewer, feature MB-2.

Photograph 3: West facing view of the entry point into the San Antonio Public Works sanitary sewer, feature MB-3.

Photograph 4: East facing view of the 57-foot concrete drainage, feature MB-4.

Photograph 5: Northeast facing view of the entry point into the San Antonio Public Works sanitary sewer, feature MB-5.

Photograph 6: West facing view of the entry point into the San Antonio Public Works sanitary sewer, feature MB-6.

Photograph 7: West facing view of a fire hydrant, feature MB-7.

Photograph 8: Southwest facing view of metal drainage grate, feature MB-8.

Photograph 9: Northeast facing view of the non-natural topographic depression originating from denudational processes exacerbated by the concrete stormwater drainage (MB-4), feature CD-1.

Photograph 10: Southwest facing view of the non-natural topographic depression originating from denudational processes exacerbated by the concrete stormwater drainage (MB-4), feature CD-1.

Photograph 11: Southwest facing view of the end of the non-natural topographic depression originating from denudational processes exacerbated by the concrete stormwater drainage (MB-4), feature CD-1.

Attachment A

Geologic Assessment Table

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME:																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
MB-1	29° 36' 50.04"	98° 27' 48.6354"	MB	30	Ked	3	10	1					C,O	5	35	X		X		Hilltop
MB-2	29° 36' 49.4994"9	98° 27' 48.2754"	MB	30	Ked	2.5	2.5	1					O	5	35	X		X		Hilltop
MB-3	29° 36' 49.356"	98° 27' 49.5"	MB	30	Ked	2.5	2.5	1					O	5	35	X		X		Hilltop
MB-4	29° 36' 50.652"	98° 27' 48.204"	MB	30	Ked	3.0	57	1.5					O	5	35	X			X	Drainage
MB-5	29° 36' 50.724"	98° 27' 47.88"	MB	30	Ked	2.5	2.5	1					C,O	5	35	X		X		Hillside
MB-6	29° 36' 47.8434"	98° 27' 47.844"	MB	30	Ked	5	5	1					O	5	35	X		X		Hilltop
MB-7	29° 36' 47.7"	98° 27' 47.8074"	MB	30	Ked	1	1	3					O	5	35	X		X		Hilltop
MB-8	29° 36' 51.8754"	98° 27' 46.08"	MB	30	Ked	3	3	1					O,V	5	35	X			X	Drainage
CD-1	29° 36' 50.2194"	98° 27' 48.0954"	CD	5	Ked	3	211	3					C,O	30	35	X			X	Streambed

* DATUM:_____

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

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

12 TOPOGRAPHY

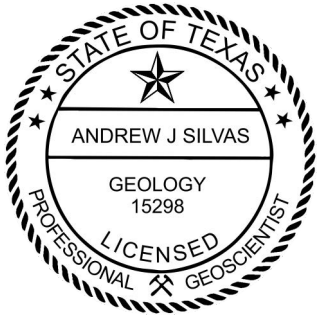
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date 2/7/2024

Sheet 1 of 1



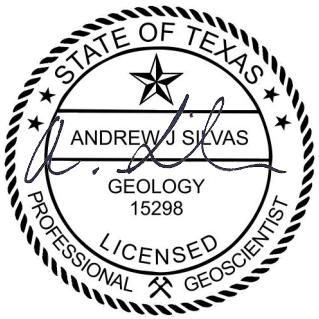
TCEQ-0585-Table (Rev. 10-01-04)

Attachment B

Stratigraphic Column

SITE SPECIFIC
STRATIGRAPHIC COLUMN

System	Group	Formation	Function	Member or Informal Unit	Function	Thickness Feet	Lithology	Hydrostratigraphy
Cretaceous	Edwards	Person	Aquifer	Cyclic and marine, undivided	AQ	80-90	Pelletal limestone, chalk to mudstone, miliolid grainstone, packestone, chert (bedded and large nodules); caprinids, crossbedded	Reefal limestone and carbonates deposited under normal open marine conditions. Some zones with significant porosity and permeability are laterally extensive. Karstified unit. Hydrostratigraphic Unit II: contains less than 15 percent porosity in the form of fabric-selective fractures.
			Aquifer	Leached and collapsed, undivided	AQ	70-90	Recrystallized limestone, mudstone, wackestone, packstone, grainstone; chert (bedded and large nodules); iron stained, stromatolitic, Toucasia sp., Montasrea roemeriana, oysters	Tidal and supratidal deposits, conforming porous beds of collapsed breccias and burrowed biomicrites. Zones of honeycombed porosity are laterally extensive. Hydrostratigraphic Unit III: reported 20 percent porosity
			Aquifer	Regional dense	CB	20-24	Dense, shaly, mudstone, wackestone, oyster-shell mudstone and wackestone, iron staining, chert	Deep water limestone. Negligible permeability and porosity. Laterally extensive bed that is a barrier vertical flow in the Edwards aquifer. Hydrostratigraphic Unit IV: has less than 5 percent porosity and yields no water.



AQ - Aquifer

CB - Confining Bed

(Modified from U.S. Geological Survey Open-File Report 83-537, R. W. Maclay and T. A. Small)

Attachment C

Site Geologic Maps

Legend

Ked	Edwards Limestone
MB-1	Manmade Feature in Bedrock
CD-1	Non-karst Closed Depression
	Non-karst Closed Depression Extent
	MB-4 Extent

Ked

MB-8

MB-5

MB-4

CD-1

MB-1

MB-2

MB-6

MB-7

MB-3

REMAINDER OF LOT 10, BLOCK 5 PROJECT VISION, ENCLAVE N.C.B. 15671 VOL. 9577, PG. 24 DPRBC

LOT 1, BLOCK 5 THE LEGACY N.C.B. 15671 VOL. 9564, PG. 150 DPRBC

16' SANITARY SEWER EASEMENT VOL. 9606, PG. 70 DPRBC

VARIABLE WIDTH SANITARY SEWER EASEMENT VOL. 9577, PG. 24 DPRBC

PROPOSED WASTER QUALITY AND DETENTION POND (REF. SHEET C8.4)

PROPOSED CONCRETE DRAINAGE FLUME

PROPOSED 20' ELECTRIC EASEMENT

PROPOSED BUILDING
FLOOR 1 FFE = 933.00
FLOOR 2 FFE = 949.00

PROPOSED SECTION OF 6" RISERS WITH 12" TREAD SEE DETAIL ON SHEET C11.2

TURF PLAY AREA

OUTDOOR DINING AREA

PROPOSED BIKE RACKS SEE DETAIL ON SHEET C11.0

REF. ARCH PLANS FOR PLAZA DESIGN DETAILS

PROPOSED CONCRETE BENCH SEATS, REF. ARCH PLANS FOR DETAILS

RIDGEWOOD PKWY.

SONTERRA BLVD.

16" SANITARY SEWER VOL. 9564, PG. 150 DPRBC

Δ=18°22'40"
R=435.01'
L=139.53'
CB=S43°55'59"E
C=138.93'

S53°04'41"E 100.22'

S73°41'28"E 184.65'

N29°02'17"W 202.33'

N15°05'46"E 236.62'

S74°56'53"E 122.84'

N27°27'51"E 59.63'

C=474.78'
CB=N47°25'09"W
L=483.25'
R=743.50'
Δ=37°15'57"

Δ=70°09'59"
R=365.00'
L=446.99'
CB=S18°00'48"E
C=419.58'

Δ=32°03'04"
R=260.00'
L=145.44'
CB=S33°05'01"W
C=143.55'

Δ=12°04'21"
R=349.00'
L=73.54'
CB=S55°06'57"W
C=73.40'

Δ=90°19'52"
R=15.00'
L=23.65'
CB=N74°03'22"W
C=21.27'

BM #100
ELEV. = 950.88'

30' 15' 0' 30'
Approximate Scale: 1 inch = 30 feet

REV	DATE	BY	DESCRIPTION

SCHOOL OF SCIENCE AND TECHNOLOGY
5300 WURZBACH RD, STE 800
SAN ANTONIO, TX 78238

BROADBENT
113 FALLS COURT, SUITE 700
BOERNE, TEXAS, 78006
(830) 816-5434 (P) • (830) 816-5436 (F)
TBPG FIRM REGISTRATION NO. 50007

PROJECT NUMBER:
24-07-112-107

SCALE:
1"=30'

DRAWN BY:
TGF

CHECKED BY:
AJS

GEOLOGIC MAP

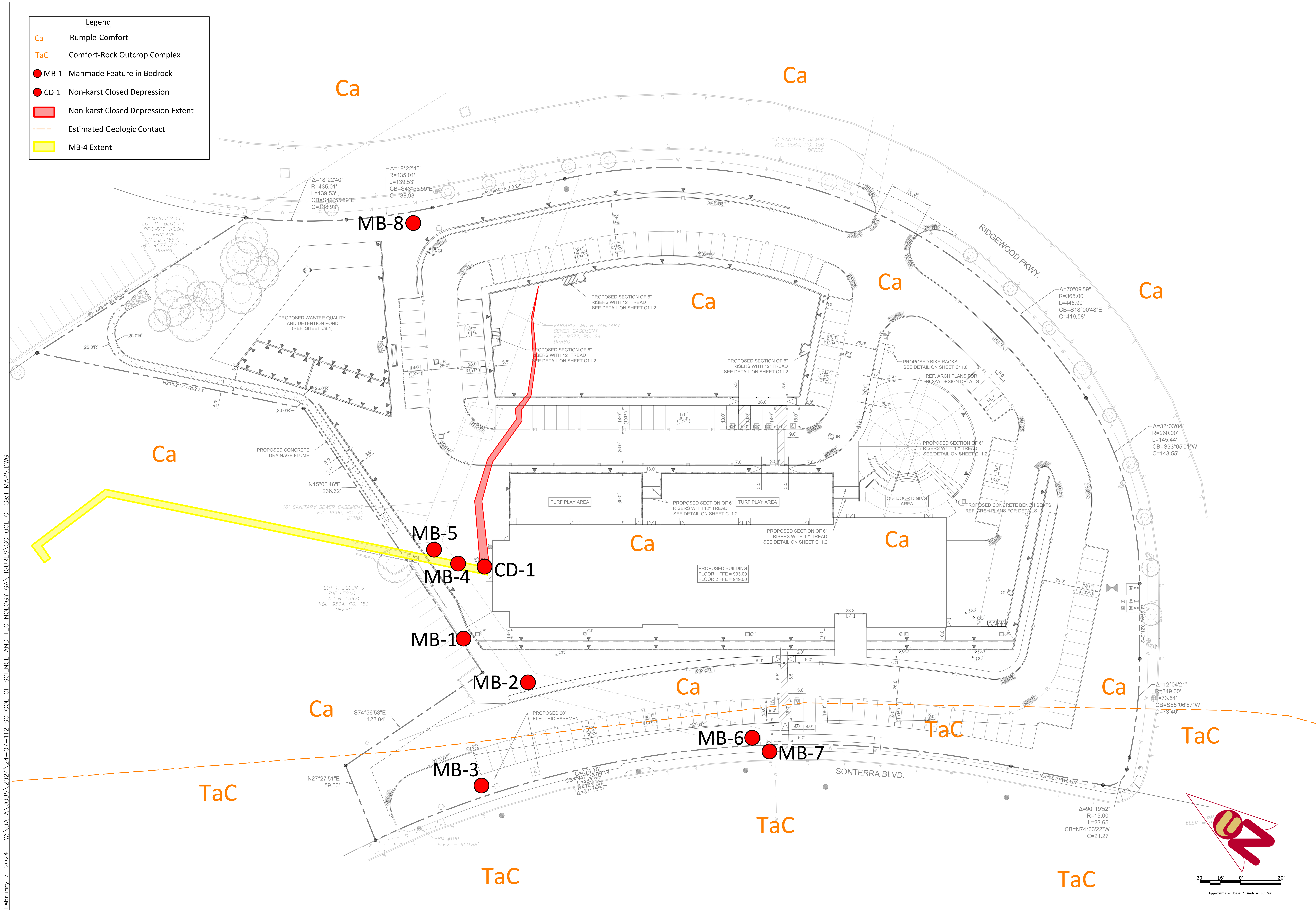
GEOLOGIC ASSESSMENT
1819 E SONTERRA BLVD
SAN ANTONIO, TX 78259

SEAL

STATE OF TEXAS
ANDREW J. SILVAS
GEOLOGY
15298
LICENSED
PROFESSIONAL GEOSCIENTIST

FIGURE
1

February 7, 2024 W:\DATA\JOBS\2024\24-07-112 SCHOOL OF SCIENCE AND TECHNOLOGY GA\FIGURES\SCHOOL OF S&T MAPS.DWG



SCHOOL OF SCIENCE AND TECHNOLOGY
5300 WURZBACH RD, STE 800
SAN ANTONIO, TX 78238

BROADBENT
113 FALLS COURT, SUITE 700
BOERNE, TEXAS 78006
(830) 816-5434 (P) • (830) 816-5436 (F)
TBPG FIRM REGISTRATION NO. 50007

REV | DATE | BY | DESCRIPTION

PROJECT NUMBER: 24-07-112-107
SCALE: 1"=30'
DRAWN BY: TGF
CHECKED BY: AJS

SOIL MAP

GEOLOGIC ASSESSMENT
1819 E SONTERRA BLVD
SAN ANTONIO, TX 78259

SEAL
STATE OF TEXAS
ANDREW J. SILVAS
GEOLOGY
15298
LICENSED
PROFESSIONAL GEOSCIENTIST

FIGURE
2

February 7, 2024 W:\DATA\JOBS\2024\24-07-112 SCHOOL OF SCIENCE AND TECHNOLOGY GA\FIGURES\SCHOOL OF S&T MAPS.DWG

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

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

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

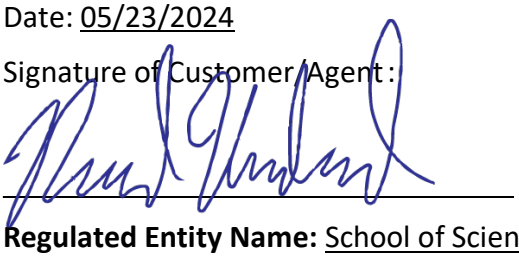
Signature

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

Print Name of Customer/Agent: Richard Underwood, P.E.

Date: 05/23/2024

Signature of Customer/Agent:



Regulated Entity Name: School of Science and Technology

Regulated Entity Information

1. The type of project is:

   ☐ Residential: Number of Lots:_____
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☒ Other:Charter School

2. Total site acreage (size of property):5.62

3. Estimated projected population:N/A

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	24,566	÷ 43,560 =	0.57
Parking	24,043	÷ 43,560 =	0.55
Other paved surfaces	90,157	÷ 43,560 =	2.07
Total Impervious Cover	138,766	÷ 43,560 =	3.19

Total Impervious Cover 3.19 **÷ Total Acreage** 5.62 **X 100 =** 56.65**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

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

7. Type of project:

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

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

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

   Width of R.O.W.: _____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

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

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

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

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day _____	

15. Wastewater will be disposed of by:

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

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

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

☒ Sewage Collection System (Sewer Lines):

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

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

☐ The SCS was previously submitted on_____.

☐ The SCS was submitted with this application.

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

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

☒ Existing.
☐ Proposed.

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 30'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA: 48029C0255G Dated: 09/29/2010

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

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

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

☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

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

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

☒ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☒ No sensitive geologic or manmade features were identified in the Geologic Assessment.
☐ **Attachment D - Exception to the Required Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

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

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

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

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

26. ☐ Surface waters (including wetlands).

    ☒ N/A

27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

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

Attachment A

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment A

Factors Affecting Surface Water Quality

Factors that could affect the quality of the water discharges for the ultimate land use are:

- Oil, grease, and fuel from vehicle drippings;
- Dirt from vehicles;
- Trash and litter;
- Hydrocarbons from asphalt paving operations.

Attachment B

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment B

Volume and Character of Stormwater

The development of this site will result in an increase in stormwater run-off. To minimize the increase in stormwater run-off, a proposed underground detention system and two (2) proprietary media cartridge filters (Jellyfish) will be utilized. Both filters will treat stormwater prior to entering the detention system. The detention system has been designed to reduce the peak stormwater runoff to existing conditions and handle the volume of all the necessary storm events.

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.

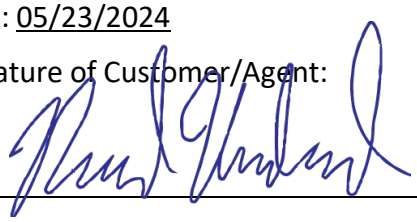
Signature

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: Richard Underwood, P.E.

Date: 05/23/2024

Signature of Customer/Agent:



Regulated Entity Name: School of Science and Technology

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: Salado

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Attachment A

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School of Science and Technology
Water Pollution Abatement Plan
Attachment A

Spill Report Actions

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of the materials and substances described above to storm water runoff.

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.

(2) Educate employees and subcontractors on potential danger to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater run-on during rainfall to the extent that it doesn't compromise cleanup activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, cover, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(5) Contain the spread of the spill.

(6) Recover spilled materials.

(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills – can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities. Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements on 40 CFR parts 110, 119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

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

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

Attachment B

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment B

Potential Sources of Contamination

Sources of contamination during construction that could potentially affect surface and groundwater quality are as follows:

Potential Source	Preventative Measure
Asphalt Products Used on this Project	After placement of Asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The Contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain event.
Oil, Grease, Fuel, and Hydraulic Fluid Drippings	Vehicle maintenance when possible will be performed within the construction staging area.
Miscellaneous Trash and Litter	Trash containers will be placed throughout the site to encourage proper trash disposal.
Construction Debris	Construction debris will be monitored daily by the contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis.

Attachment C

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment C

Sequence of Major Events

The installation of erosion and sedimentation controls shall occur prior to any excavation of materials or major disturbances of the site.

The sequence of major construction activities will be as follows. Approximate acreage to be disturbed is listed in parenthesis next to each activity.

1. Install all temporary erosion controls. (6.19 acres)
2. Clear and grub strip topsoil. (6.19 acres)
3. Grading (5.701 acres)
4. Rough Cut Drive Aisles and Building Pads. (1.789 acres)
5. Install Wet/Dry Utilities (0.372 acres)
6. Install paving improvements. (2.618 acres)
7. Complete Restoration of Site Vegetation. (2.04 acres)
8. Remove and dispose of temporary erosion controls when restoration has been accepted.

Maximum total construction time is not expected to exceed 24 months.

Attachment D

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment D

Temporary Best Management Practices and Measures

Also refer to the TCEQ Site Plan for details of TBMP's.

Silt fencing will be installed prior to the commencement of construction to prohibit runoff of sediment. The silt fence shall be placed perpendicular to direction of flow, where feasible, to maximize efficiency. If there are any, potentially sensitive features, a silt fence will surround the site as specified by TCEQ Guidance Manual Chapter 5.

Bagged gravel inlet filters will be used and maintained in a condition to prevent runoff of sediment from flowing into drains during construction.

Stabilized construction entrance will be installed prior to the commencement of construction and will be used and maintained in a condition that will prevent tracking or flowing of sediment onto public roadway.

a.) Silt fence will not be placed on the upstream side of the site because there will be no stormwater that originates upgradient of the site. All upgradient stormwater is captured in onsite storm water system that discharges to an existing batch detention pond.

b.) Silt fencing and bagged gravel inlet filters will be used on-site to filter out pollutants and restrict sediment from leaving the site. Silt fencing will be placed in existing and proposed channels and downstream of flow on site. Bagged gravel inlet filters will be placed around proposed inlets to capture any suspended solids.

c.) Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. Silt Fencing, bagged gravel inlet filters and construction entrance measures prevent sediment and pollution by filtering and routing water. These filtered pollutants are then removed and prevented from entering surface streams, sensitive features, or the aquifer.

d.) BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMP's. Silt fencing and bagged gravel inlet filters will be placed to intercept and detain water with sediment or pollution from entering or leaving the site to any unprotected areas. The BMP's will filter out sediment and pollution while allowing filtered water to flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

e.) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

Attachment F

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment F

Structural Practices

The structural practices that will be used to divert and store flows and limit runoff discharge or pollutants will be the use of silt fences, inlet protection, and construction entrance stabilization.

Attachment G

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment G

Drainage Area Map

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. All TBMPs utilized are adequate for the drainage areas served. A Phase One Erosion Control Plan showing the proposed sediment traps and drainage areas has been provided as part of the Water Pollution Abatement Plan.

NOTES

1. AREAS CONTAINED WITHIN THE PROPERTY BOUNDARIES WILL BE AREAS OF DISTURBANCE AND SOIL STABILIZATION. ALL SOILS WITHIN THESE LIMITS SHALL BE STABILIZED BY VEGETATION OR STRUCTURE.
2. REFERENCE LANDSCAPE PLANS, BY OTHERS, FOR THE TREE PRESERVATION AND MITIGATION PLAN.

LEGEND

- PROPERTY BOUNDARY
- 900 EXISTING CONTOUR
- 900 PROPOSED CONTOUR
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RETAINING WALL (TRIANGLE INDICATES FACE OF WALL)
- DIRECTION OF OVERLAND FLOW W/GRADE
- SF SILT FENCE (SEE DETAIL SHEET C3.2)
- SF / JH SILT FENCE WITH J HOOK (SEE DETAIL SHEET C3.2)
- TP TREE PROTECTION (SEE DETAIL SHEET C3.3)
- IS INTERCEPTOR SWALE (SEE DETAIL SHEET C3.3)
- CE CONSTRUCTION EXIT (SEE DETAIL SHEET C3.2)
- PERMANENT STABILIZATION
- CD CHECK DAM (SEE DETAIL SHEET C3.3)
- TREE TO REMAIN
- NAME / X.XX / Y.YY — NAME, DISTURBED AREA, DRAINAGE BASIN AREA

SITE DATA

TOTAL LOT AREA	7.012 AC	305,443 SF
TOTAL AREA DISTURBED *	6.648 AC	289,605 SF
PAVED AREA	3.248 AC	141,510 SF
ROOFED AREA	1.825 AC	79,484 SF
NEW LANDSCAPED AREA	1.575 AC	68,611 SF

* DOES NOT INCLUDE ANY OFF-SITE DISPOSAL OR BORROW AREAS - CONTRACTOR TO UPDATE AS NECESSARY DURING CONSTRUCTION.

* NO SINGLE DRAINAGE AREA EXCEEDS 10 ACRES, THEREFORE SEDIMENTATION BASIN IS NOT REQUIRED.

EROSION CONTROL IMPLEMENTATION SEQUENCE

1. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, MASON'S AREA, FUEL AND MATERIAL STORAGE AREAS/CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS. IN ADDITION, NOTE ALL AREAS WHERE FILL IS IMPORTED FROM OR SOIL IS EXPORTED TO ON THE SITE MAPS.
2. DOWN SLOPE PROTECTIVE MEASURES MUST ALWAYS BE IN PLACE BEFORE SOIL IS DISTURBED. ACTIVITIES ARE PRESENTED IN THE ORDER OR SEQUENCE IN WHICH THEY ARE REQUIRED TO BE COMPLETED.

PHASE 1

1. CONTRACTOR SHALL FILE THE NOTICE OF INTENT ("NOI") AS PRIMARY OPERATOR AND SIGN ALL REQUIRED STATE CERTIFICATIONS AND DOCUMENTATION AND OBTAIN LOCAL PERMITS FROM THE CITY. CONTRACTOR SHALL INSTALL THE SWPPP INFORMATION SIGN AND POST REQUIRED DOCUMENTS NEAR THE PLANNED CONSTRUCTION EXIT AND WITHIN EASY ACCESS TO THE GENERAL PUBLIC WITHOUT ENTERING THE SITE.
2. STAKE/FLAG THE LIMITS OF DISTURBANCE ("LOD") AND TREE SAVE AREAS (WHERE STAKING IS NOT POSSIBLE/PRACTICAL, THE LOD MUST BE CONSPICUOUSLY, AND PROMINENTLY, MARKED TO DENOTE THE BOUNDARY). CONSTRUCTION FENCING MAY BE USED TO MARK THE LOD WHERE THE CONSTRUCTION FENCING IS IMMEDIATELY ADJACENT TO THE LOD. LOD MUST REMAIN CONSPICUOUSLY MARKED THROUGHOUT THE ENTIRE CONSTRUCTION PROJECT.

EROSION CONTROL IMPLEMENTATION SEQUENCE

3. CONTRACTOR SHALL SCHEDULE AND CONDUCT, AS NEEDED, AN ON-SITE MEETING WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.
4. INSTALL PERIMETER SEDIMENT CONTROL BMPS IN THE VICINITY OF, AND DOWN GRADIENT FROM, THE LOCATION OF THE PLANNED CONSTRUCTION EXIT, CONSTRUCTION OFFICE TRAILER, AND TEMPORARY PARKING AND STORAGE AREAS. CLEAR ONLY THE MINIMUM AREA ABSOLUTELY NECESSARY TO INSTALL THESE PERIMETER CONTROL BMPS.
5. INSTALL STABILIZED CONSTRUCTION EXIT AND SET THE PROJECT OFFICE TRAILER.
6. INSTALL REMAINING PERIMETER SEDIMENT CONTROL BMPS INCLUDING CONSTRUCTION FENCING, PERIMETER SILT FENCE, STONE OVERFLOWS, INLET PROTECTION, ETC., AS SHOWN ON THE SITE MAPS. CLEAR ONLY THE MINIMUM AREA NECESSARY TO INSTALL PERIMETER CONTROL BMPS.
7. PREPARE TEMPORARY PARKING AND STORAGE AREA.
8. GENERAL CONTRACTOR, AS REQUIRED, SHALL SCHEDULE AND CONDUCT THE STORMWATER PRE-CONSTRUCTION MEETING WITH THE CEC, OWNER'S CONSTRUCTION MANAGER, AGENCY(IES) AND SUBCONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.

EROSION CONTROL IMPLEMENTATION SEQUENCE

9. CLEAR ONLY THE MINIMUM AREA ABSOLUTELY NECESSARY TO INSTALL SEDIMENT TRAPS, INCLUDING STOCKPILE AREAS NECESSARY FOR SPOIL FROM THESE REQUIRED STRUCTURAL SEDIMENT CONTROL BMPS.
10. CONTRACTOR SHALL FOLLOW THE BUILDING PAD FOUNDATION PREPARATION, PER THE GEOTECHNICAL REPORT, AS IT PERTAINS TO THE EARTHWORK FOR THE BUILDING PAD.
11. STABILIZE SIDE SLOPES, BOTTOM AND ALL SIDES OF EMBANKMENTS OR SLOPES OF THE SEDIMENT TRAPS IMMEDIATELY UPON COMPLETION, AS SPECIFIED IN THE SWPPP.
12. INSTALL HYDRAULIC CONTROL STRUCTURES (DIVERSION DIKES, DIVERSION SWALES, CHECK DAMS, ETC.), AS SPECIFIED ON THE SITE MAPS.
13. STABILIZE SIDE SLOPES AND FLOW LINE OF HYDRAULIC CONTROL STRUCTURES (DIVERSION DIKES AND SWALES) WITH SEED, FERTILIZER AND ROLLED EROSION CONTROL PRODUCTS OR OTHER EROSION RESISTANT LINING, AS SPECIFIED IN THE SWPPP.

NOTE: THE SEQUENCE OF CONSTRUCTION SHOWN ABOVE IS A GENERAL OVERVIEW AND IS INTENDED TO CONVEY THE GENERAL CONCEPTS OF THE EROSION CONTROL DESIGN AND SHOULD NOT BE RELIED UPON FOR CONSTRUCTION PURPOSES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETAILED PHASING AND CONSTRUCTION SEQUENCING NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS INCLUDED IN THESE PLANS. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY, PRIOR TO AND/OR DURING CONSTRUCTION IF ANY ADDITIONAL INFORMATION ON THE CONSTRUCTION SEQUENCE IS NECESSARY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND ALL OTHER APPLICABLE LAWS.

PHASE 2 SEQUENCE CONTINUED ON SHEET C3.1

REFER TO THE SURVEY PREPARED BY KIMLEY-HORN FOR THE LOCATION OF THESE BENCHMARKS. ACCORDING TO THE SURVEY, THE ELEVATIONS WERE ESTABLISHED UTILIZING NAVD88.

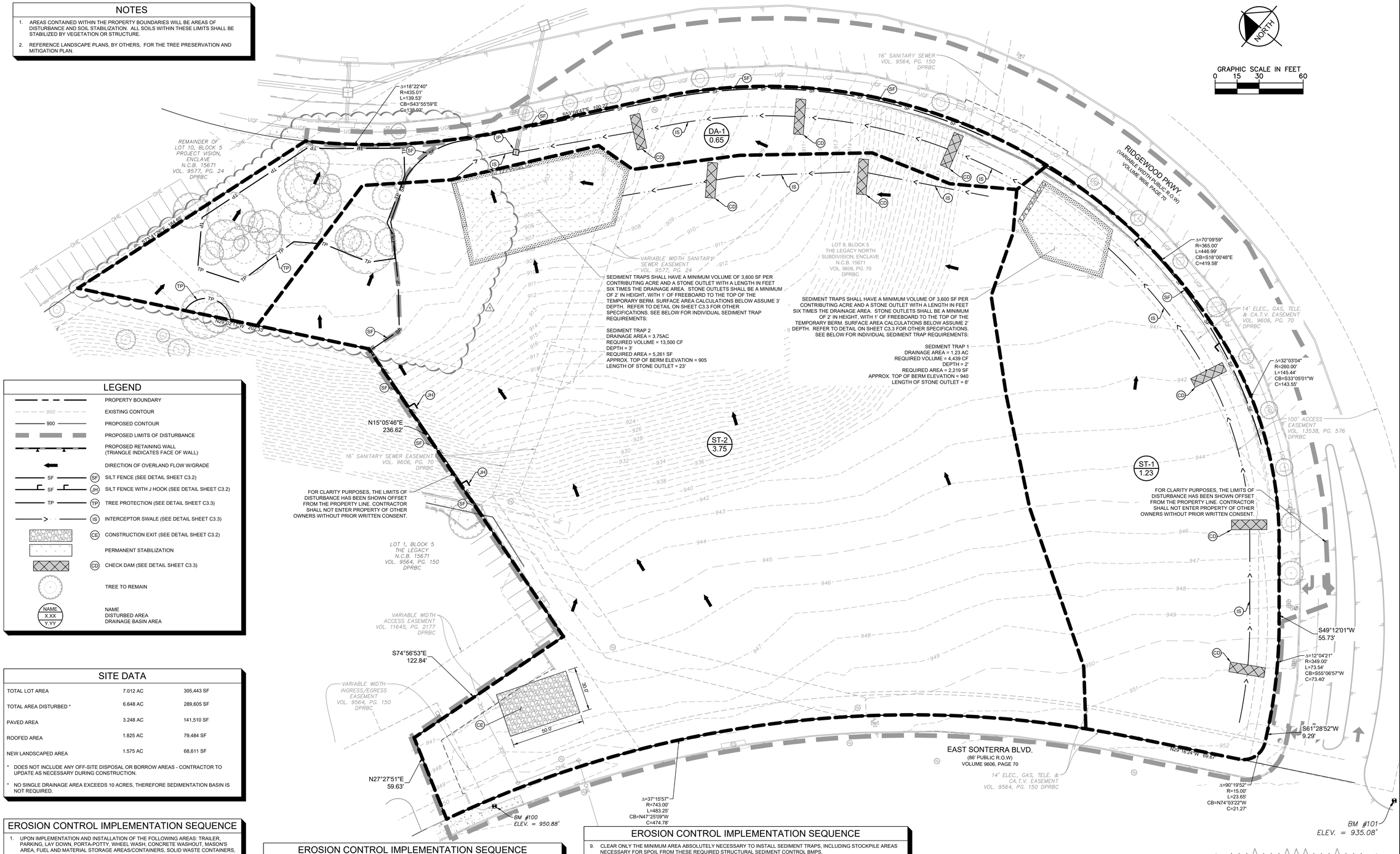
BENCHMARK LIST

BM #100 - A MAG NAIL SET IN CONCRETE SIDEWALK ON THE NORTHEAST SIDE OF E. SONTERRA BOULEVARD BEING APPROXIMATELY 530± FEET NORTHWEST FROM THE INTERSECTION OF THE NORTHEAST RIGHT-OF-WAY LINE OF E. SONTERRA BOULEVARD AND NORTHWEST RIGHT-OF-WAY LINE OF RIDGEWOOD PARKWAY AND BEING APPROXIMATELY 135± FEET WEST OF A SANITARY SEWER MANHOLE.
ELEV. = 950.88'

BM #101 - A MAG NAIL SET IN CONCRETE SIDEWALK ON THE NORTHEAST SIDE OF E. SONTERRA BOULEVARD BEING APPROXIMATELY 20± FEET SOUTH FROM THE INTERSECTION OF THE NORTHEAST RIGHT-OF-WAY LINE OF E. SONTERRA BOULEVARD AND SOUTHEAST RIGHT-OF-WAY LINE OF RIDGEWOOD PARKWAY AND BEING APPROXIMATELY 175± FEET SOUTHEAST FROM A SANITARY SEWER MANHOLE.
ELEV. = 953.08'

CAUTION!!
EXISTING UNDERGROUND UTILITIES IN THE AREA CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS TO EXISTING UTILITIES DUE TO DAMAGE INCURRED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES ON THE PLANS.

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



No.	DATE	BY
1	04/22/2024	CITY OF SAN ANTONIO COMMENTS

REVISIONS

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
10101 REUNION PLACE, SUITE 400, SAN ANTONIO, TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
RICHARD J. UNDERWOOD
117843
REGISTERED PROFESSIONAL ENGINEER
04/23/2024

KHA PROJECT	068969161l
DATE	4/30/2024
SCALE	AS SHOWN
DESIGNED BY	BE
DRAWN BY	BE
CHECKED BY	RU

EROSION CONTROL PLAN PHASE 1

SCHOOL OF SCIENCE AND TECHNOLOGY

PREPARED FOR
ALAMO ARCHITECTS
SAN ANTONIO, TEXAS

SHEET NUMBER
C3.0

NOTES

1. AREAS CONTAINED WITHIN THE PROPERTY BOUNDARIES WILL BE AREAS OF DISTURBANCE AND SOIL STABILIZATION. ALL SOILS WITHIN THESE LIMITS SHALL BE STABILIZED BY VEGETATION OR STRUCTURE.
2. REFERENCE LANDSCAPE PLANS, BY OTHERS, FOR THE TREE PRESERVATION AND MITIGATION PLAN.

LEGEND

- PROPERTY BOUNDARY
- 950 — EXISTING CONTOUR
- 950 — PROPOSED CONTOUR
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RETAINING WALL (TRIANGLE INDICATES FACE OF WALL)
- SF — SILT FENCE (SEE DETAIL SHEET C3.2)
- JH — SILT FENCE WITH J HOOK (SEE DETAIL SHEET C3.2)
- TP — TREE PROTECTION (SEE DETAIL SHEET C3.3)
- DIRECTION OF OVERLAND FLOW W/GRADE
- PERMANENT STABILIZATION
- CONCRETE RIP RAP
- IP — GRATE INLET PROTECTION
- IP2 — CURB INLET PROTECTION
- TREE TO REMAIN
- NAME / X.XX / Y.YY — NAME, DISTURBED AREA, DRAINAGE BASIN AREA

SITE DATA

TOTAL LOT AREA	7.012 AC	305,443 SF
TOTAL AREA DISTURBED *	6.648 AC	289,605 SF
PAVED AREA	3.248 AC	141,510 SF
ROOFED AREA	1.825 AC	79,484 SF
NEW LANDSCAPED AREA	1.575 AC	68,611 SF

* DOES NOT INCLUDE ANY OFF-SITE DISPOSAL OR BORROW AREAS - CONTRACTOR TO UPDATE AS NECESSARY DURING CONSTRUCTION.

* NO SINGLE DRAINAGE AREA EXCEEDS 10 ACRES, THEREFORE SEDIMENTATION BASIN IS NOT REQUIRED.

EROSION CONTROL IMPLEMENTATION SEQUENCE

PHASE 2

1. BEGIN CLEARING, GRUBBING, AND STRIPPING THE SITE. (PHASE CLEARING, GRUBBING, AND STRIPPING TO THE EXTENT PRACTICAL TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ANY POINT IN TIME)
2. BEGIN GRADING THE SITE AND BEGIN RETAINING WALL CONSTRUCTION.
3. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. AT ANY POINT, INSTALL OFF-SITE BMPS AND BEGIN THE UTILITY SERVICE AND CITY RIGHT TURN LANE CONSTRUCTION, AFTER CONTACTING SAWS AND THE CITY THAT WORK HAS COMMENCED.
4. TEMPORARILY STABILIZE, THROUGHOUT CONSTRUCTION IMMEDIATELY FOLLOWING THE COMPLETION OF THE MOST RECENT LAND DISTURBING/GRADING ACTIVITY, ANY DISTURBED AREAS, INCLUDING MATERIAL STOCKPILES THAT ARE SCHEDULED OR LIKELY TO REMAIN INACTIVE FOR 14 DAYS OR MORE.
5. IMMEDIATELY PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.
6. BEGIN INSTALLING UTILITIES, UNDERDRAINS, STORM SEWERS, CURBS AND GUTTERS.
7. INSTALL RIP RAP AROUND OUTLET STRUCTURES AS EACH OUTLET STRUCTURE IS INSTALLED.
8. INSTALL INLET PROTECTION AT ALL STORM SEWER STRUCTURES AS EACH INLET STRUCTURE IS INSTALLED.
9. PREPARE SITE FOR PAVING.

EROSION CONTROL IMPLEMENTATION SEQUENCE

PHASE 2

10. BEGIN PAVING SITE.
11. WHEN THE AREAS UP-GRADIENT OF THE SEDIMENTATION TRAPS HAVE BEEN STABILIZED WITH STONE BASE, THE CONTRACTOR MUST OBTAIN CONCURRENCE FROM THE ENGINEER, OWNER, AND LOCAL SITE EROSION AND SEDIMENT CONTROL INSPECTOR THAT THE MEASURES CAN BE REMOVED. PRIOR TO BACKFILLING, SEDIMENT IN THE TRAPS MUST BE REMOVED AND LEGALLY DISPOSED OF.
12. FINALIZE CONSTRUCTION, LANDSCAPING, AND SITE STABILIZATION. OBTAIN CONCURRENCE FROM THE OWNER, ENGINEER, AND LOCAL INSPECTOR, THAT ALL SITE AREAS HAVE BEEN FULLY STABILIZED AND ALL CONSTRUCTION HAS BEEN COMPLETED, THEN:

A. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPS),

B. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF TEMPORARY BMPS, AND

C. FILE THE NOTICE OF TERMINATION WITH TCEQ AND FOLLOW CLOSE-OUT PROCEDURES WITH THE CITY.

NOTE: THE SEQUENCE OF CONSTRUCTION SHOWN ABOVE IS A GENERAL OVERVIEW AND IS INTENDED TO CONVEY THE GENERAL CONCEPTS OF THE EROSION CONTROL DESIGN AND SHOULD NOT BE RELIED UPON FOR CONSTRUCTION PURPOSES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETAILED PHASING AND CONSTRUCTION SEQUENCING NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS INCLUDED IN THESE PLANS. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY, PRIOR TO AND/OR DURING CONSTRUCTION IF ANY ADDITIONAL INFORMATION ON THE CONSTRUCTION SEQUENCE IS NECESSARY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND ALL OTHER APPLICABLE LAWS.

REFER TO THE SURVEY PREPARED BY KIMLEY-HORN FOR THE LOCATION OF THESE BENCHMARKS. ACCORDING TO THE SURVEY, THE ELEVATIONS WERE ESTABLISHED UTILIZING NAVD88.

BENCHMARK LIST

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

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

No.	REVISIONS	DATE	BY
1	CITY OF SAN ANTONIO COMMENTS	04/22/2024	

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
10101 REUNION PLACE, SUITE 400, SAN ANTONIO, TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
RICHARD J. UNDERWOOD
117843
REGISTERED PROFESSIONAL ENGINEER
04/22/2024

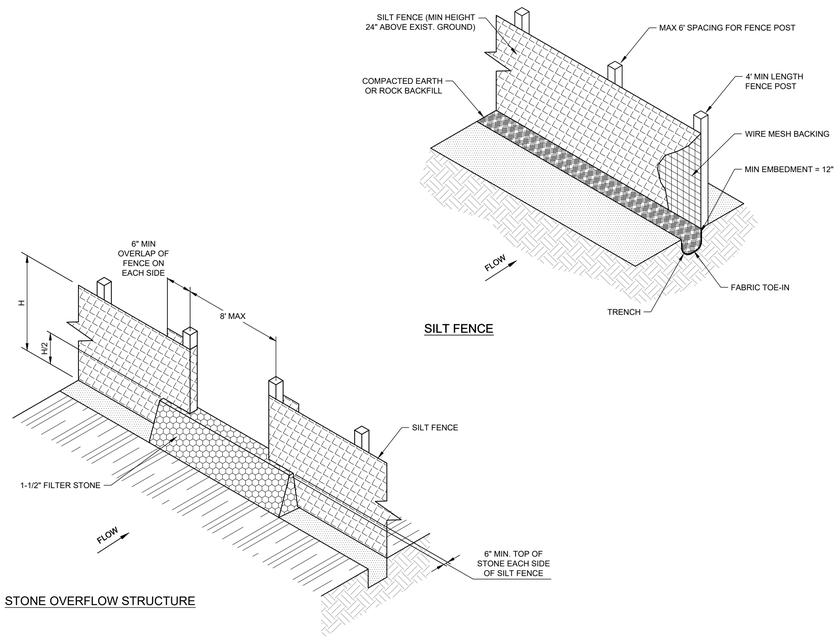
KHA PROJECT 068961611
DATE 4/30/2024
SCALE AS SHOWN
DESIGNED BY BE
DRAWN BY BE
CHECKED BY RU

EROSION CONTROL PLAN PHASE 2

SCHOOL OF SCIENCE AND TECHNOLOGY

PREPARED FOR
ALAMO ARCHITECTS
SAN ANTONIO, TEXAS

SHEET NUMBER
C3.1



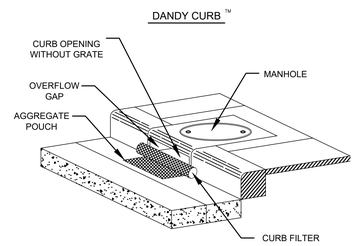
SILT FENCE

STONE OVERFLOW STRUCTURE

NOTES:
1. INSTALL STONE OVERFLOW STRUCTURES AT ALL LOW POINTS AND EVERY 300 FEET WHERE NO LOW POINT IS APPARENT.
2. UPSLOPE LENGTHS OF SILT FENCE SHALL BE A MINIMUM OF 10 FEET.

SF

C1 SILT FENCE / STONE OVERFLOW STRUCTURE DETAIL
N.T.S.



CURB INLET
SEDIMENT CONTROL DEVICE

"DANDY CURB"- OR APPROVED EQUAL

DANDY CURB™
SPECIFICATIONS

NOTE: THE DANDY CURB™ WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:
DANDY CURB™ (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m² (gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec⁻¹	2.1

*Note: All Dandy Curbs™ can be ordered with our optional oil absorbents

IP2

C3 CURB INLET PROTECTION
N.T.S.

SITE MAPS - SITE SPECIFIC NOTES

1. CONSTRUCTION ENTRANCE SHALL BE LOCATED SO AS TO PROVIDE THE LEAST AMOUNT OF DISTURBANCE TO THE FLOW OF TRAFFIC IN AND OUT OF THE SITE. ADDITIONALLY, CONSTRUCTION ENTRANCE SHALL BE LOCATED TO COINCIDE WITH THE PHASING OF THE PAVEMENT REPLACEMENT.
2. THE NATURE OF THIS SITE'S CONSTRUCTION CONSISTS OF:
   A. CLEARING AND GRUBBING
   B. PRELIMINARY GRADING
   C. UTILITY INSTALLATION
   D. PAVEMENT CONSTRUCTION
   E. BUILDING CONSTRUCTION
   F. FINAL GRADING AND STABILIZATION
3. THE SUBSURFACE CONDITIONS ON-SITE CONSIST GENERALLY OF CLAYEY GRAVEL, SAND WITH GRAVEL FILL, SILTY CLAYEY SAND, CLAYEY SAND FILL, RANGING FROM HARD TO VERY HARD LIMESTONE, PER RINER PROJECT NO. 23-0608, PREPARED BY RINER ENGINEERING, INC. ON JANUARY 9, 2024.
4. STORM WATER ON-SITE WILL LEAVE THE SITE VIA SURFACE FLOW AND UNDERGROUND PIPE.
5. POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURES INCLUDE STABILIZATION BY PERMANENT PAVING, OR LANDSCAPING.
6. VELOCITY DISSIPATION DEVICES (RIP-RAP) WILL BE USED.
7. DISTURBED PORTIONS OF SITE MUST BE STABILIZED. STABILIZATION PRACTICES MUST BE INITIATED WITHIN 14 DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION HAS BEEN EITHER TEMPORARILY OR PERMANENTLY CEASED, UNLESS EXCEPTED WITHIN THE TPDES PERMIT. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF STABILIZATION OR PERMANENT DRAINAGE FACILITIES.

   ACCORDING TO COMMUNITY PANEL NO. 48029C0255G, DATED 9/29/2010 OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM), A PORTION OF THE SUBJECT TRACT IS LOCATED WITHIN AN EFFECTIVE LOMR STUDY (17-06-2000P, EFF. 03/30/2018). THE ENTIRETY OF THE SUBJECT TRACT SITS OUTSIDE OF THE ZONE "AE" WHICH IS DEFINED BY FEMA AS "1% ANNUAL FLOOD CHANCE AREA WITH BASE FLOOD ELEVATIONS DETERMINED".
8. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP/SITE MAP TO INCLUDE BMP'S FOR ANY OFF-SITE MATERIAL WASTE, BORROW OR EQUIPMENT STORAGE AREAS.
9. CONTRACTOR SHALL INSPECT DISTURBED AREAS, MATERIAL STORAGE AREAS EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND VEHICLE ENTRY AND EXIT AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER.

TEMPORARY EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.
4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.
5. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST, OR ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY THE PLANNING AND DEVELOPMENT DEPARTMENT AND THE DRAINAGE UTILITY DEPARTMENT. MINOR CHANGES OR ADDITIONAL CONTROL MEASURES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.

PERMANENT EROSION CONTROL NOTES

ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW.

A. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL SHALL BE PLACED IN ALL DRAINAGE CHANNELS (EXCEPT ROCK) AND BETWEEN THE CURB AND THE RIGHT-OF-WAY LINE.

B. THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS:

BROADCAST SEEDING:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 2 POUNDS PER 1000 SQUARE FEET OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SQUARE FOOT OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET WITH A PURITY OF 95% WITH 85% GERMINATION.
   A. FERTILIZER SHALL BE A PELLETED OR GRANULAR SLOW RELEASE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT THE RATE OF 1 POUND PER 1000 SQUARE FEET.
   B. MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SQUARE FEET.

HYDRAULIC SEEDING:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 1 POUND PER 1000 SQUARE FEET OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SQUARE FOOT OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SQUARE FEET WITH A PURITY OF 95% WITH 85% GERMINATION.
   A. FERTILIZER SHALL BE A WATER SOLUBLE FERTILIZER WITH AN ANALYSIS OF 15-15-15 AT THE RATE OF 1.5 POUNDS PER 1000 SQUARE FEET.
   B. MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SQUARE FEET, WITH SOIL TACKIFIER AT A RATE OF 1.4 POUNDS PER 1000 SQUARE FEET.
   C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX (6) INCHES. THE IRRIGATION SHALL OCCUR AT TEN-DAY INTERVALS DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF 1/2 INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.
   D. RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1-1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.
   E. WHEN REQUIRED, NATIVE GRASS SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE ENVIRONMENTAL CRITERIA MANUAL.

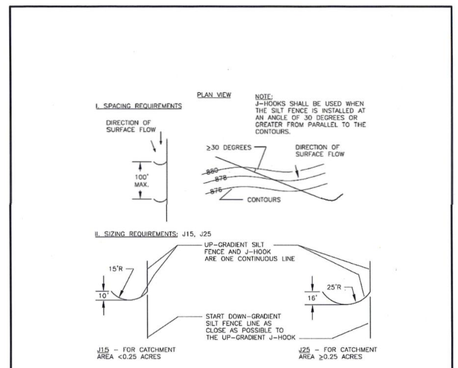
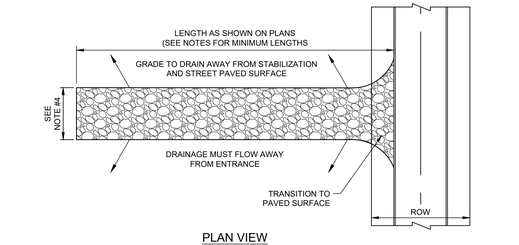


Figure B-17: Schematic J-hook Placement

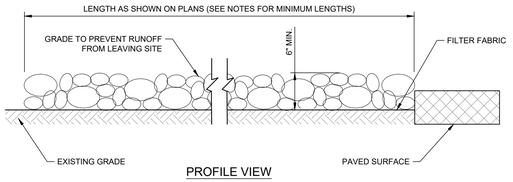
J-HOOK PLACEMENT
CONSTRUCTION STANDARDS AND DETAILS
PC-17
SCALE: N.T.S.
ISSUE DATE: 07-24-12

SITE MAP - GENERAL NOTES

1. CONTRACTOR IS SOLELY RESPONSIBLE FOR SELECTION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL SWPPP CONTROLS - CONTROLS SHOWN ON THIS SITE MAP ARE SUGGESTED CONTROLS ONLY.
2. CONTRACTOR SHALL RECORD INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL DATES FOR EACH BMP EMPLOYED (WHETHER CALLED OUT ON ORIGINAL SWPPP OR NOT) DIRECTLY ON THE SITE MAP.
3. DRAINAGE PATTERNS ARE SHOWN ON THIS PLAN BY PROPOSED AND EXISTING CONTOURS, FLOW ARROWS, AND SLOPES.
4. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AT THE EARLIEST POSSIBLE TIME DURING THE CONSTRUCTION SEQUENCE. AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED BEFORE COMMENCEMENT OF ANY GRADING ACTIVITIES. OTHER BMP'S SHALL BE INSTALLED AS SOON AS PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S), AND SITE PAVING.
5. BMP'S HAVE BEEN LOCATED AS INDICATED ON THIS PLAN IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER. FOR EXAMPLE: SILT FENCES LOCATED AT TOE OF SLOPE AND INLET PROTECTION FOR INLETS RECEIVING SEDIMENT FROM SITE RUN-OFF.
6. SANITARY SEWER EFFLUENT IS DISPOSED OF VIA AN ONSITE SEWER SYSTEM CONNECTED TO A MUNICIPAL SEWER SYSTEM.



PLAN VIEW



PROFILE VIEW

NOTES:
1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.
2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 20 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.
3. STONE LAYER THICKNESS SHALL NOT BE LESS THAN 6
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS. INCHES.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

TABLE 3.9 MINIMUM EXIT DIMENSIONS

DISTURBED AREA	MIN. WIDTH OF EXIT	MIN. LENGTH OF EXIT
< 1 ACRE	15 FT	20 FT
≥ 1 ACRE BUT < 5 ACREAS	25 FT	50 T
≥ 5 ACRES	30 FT	50 FT

CE

A1 STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.

REFER TO THE SURVEY PREPARED BY KIMLEY-HORN FOR THE LOCATION OF THESE BENCHMARKS. ACCORDING TO THE SURVEY, THE ELEVATIONS WERE ESTABLISHED UTILIZING NAVD88.

BENCHMARK LIST

BM #100 - A MAG NAIL SET IN CONCRETE SIDEWALK ON THE NORTHEAST SIDE OF E. SONTERRA BOULEVARD BEING APPROXIMATELY 530± FEET NORTHWEST FROM THE INTERSECTION OF THE NORTHEAST RIGHT-OF-WAY LINE OF E. SONTERRA BOULEVARD AND NORTHWEST RIGHT-OF-WAY LINE OF RIDGEWOOD PARKWAY AND BEING APPROXIMATELY 135± FEET WEST OF A SANITARY SEWER MANHOLE.
ELEV. = 950.88'

BM #101 - A MAG NAIL SET IN CONCRETE SIDEWALK ON THE NORTHEAST SIDE OF E. SONTERRA BOULEVARD BEING APPROXIMATELY 20± FEET SOUTH FROM THE INTERSECTION OF THE NORTHEAST RIGHT-OF-WAY LINE OF E. SONTERRA BOULEVARD AND SOUTHEAST RIGHT-OF-WAY LINE OF RIDGEWOOD PARKWAY AND BEING APPROXIMATELY 175± FEET SOUTHEAST FROM A SANITARY SEWER MANHOLE.
ELEV. = 953.08'

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

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1	CITY OF SAN ANTONIO COMMENTS	04/22/2024	

Kimley»Horn
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10101 REUNION PLACE, SUITE 400, SAN ANTONIO, TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
RICHARD J. UNDERWOOD
117843
REGISTERED PROFESSIONAL ENGINEER
4/23/2024

KHA PROJECT 069691611
DATE 4/30/2024
SCALE AS SHOWN
DESIGNED BY BE
DRAWN BY BE
CHECKED BY RU

EROSION CONTROL DETAILS (1 OF 2)

SCHOOL OF SCIENCE AND TECHNOLOGY
PREPARED FOR
ALAMO ARCHITECTS
SAN ANTONIO TEXAS

SHEET NUMBER
C3.2

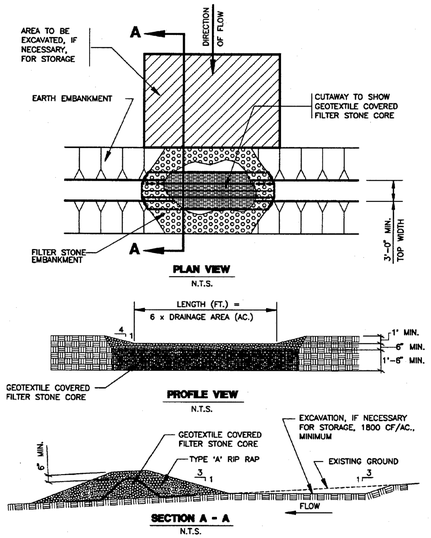
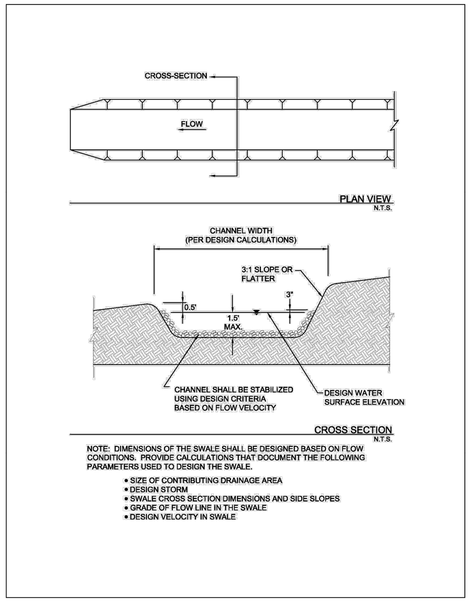


Figure 1-40 Schematic Diagram of a Sediment Trap (NCTCOG, 1993)



NOTE: DIMENSIONS OF THE SWALE SHALL BE DESIGNED BASED ON FLOW CONDITIONS. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE SWALE.

- SIZE OF CONTRIBUTING DRAINAGE AREA
- DESIGN STORM
- SWALE CROSS SECTION DIMENSIONS AND SIDE SLOPES
- GRADE OF FLOW LINE IN THE SWALE
- DESIGN VELOCITY IN SWALE

Figure 2.11 Schematics of Interceptor Swale

(IP)

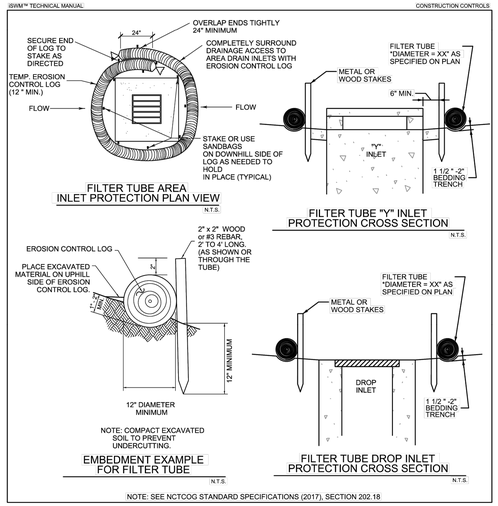
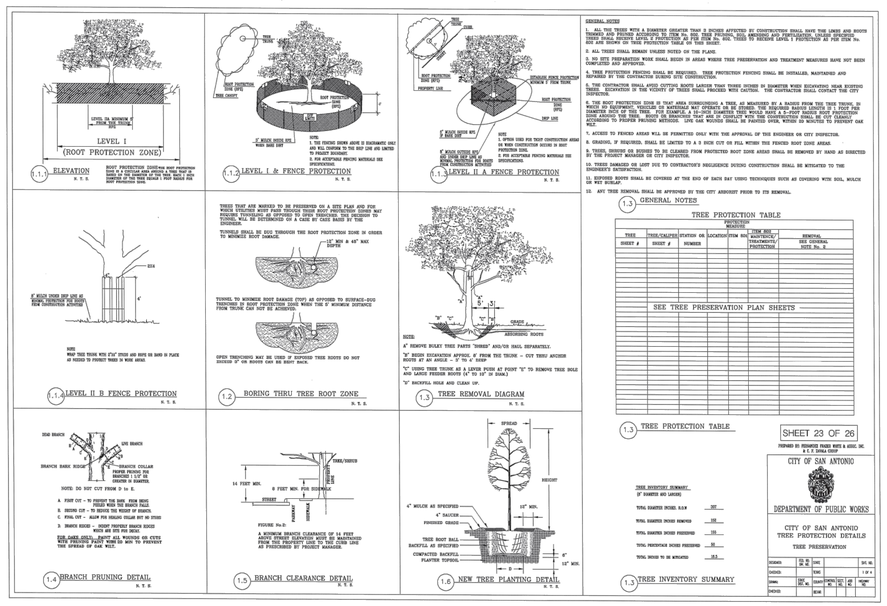


FIGURE 3.13 STANDARD CONSTRUCTION DETAIL - FILTER TUBE AREA INLET PROTECTION

INLET PROTECTION REVISED

(TP)



(CD)

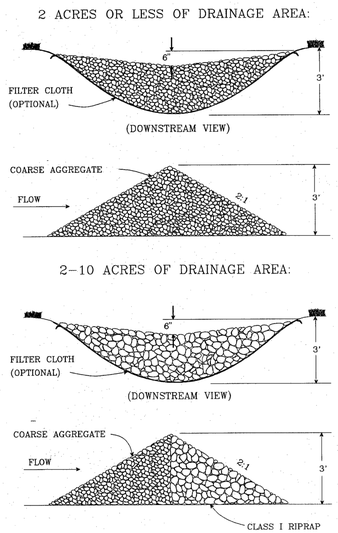


Figure 1-31 Diagram of a Rock Check Dam (VA Dept. of Conservation, 1992)

REFER TO THE SURVEY PREPARED BY KIMLEY-HORN FOR THE LOCATION OF THESE BENCHMARKS. ACCORDING TO THE SURVEY, THE ELEVATIONS WERE ESTABLISHED UTILIZING NAVD88.

BENCHMARK LIST

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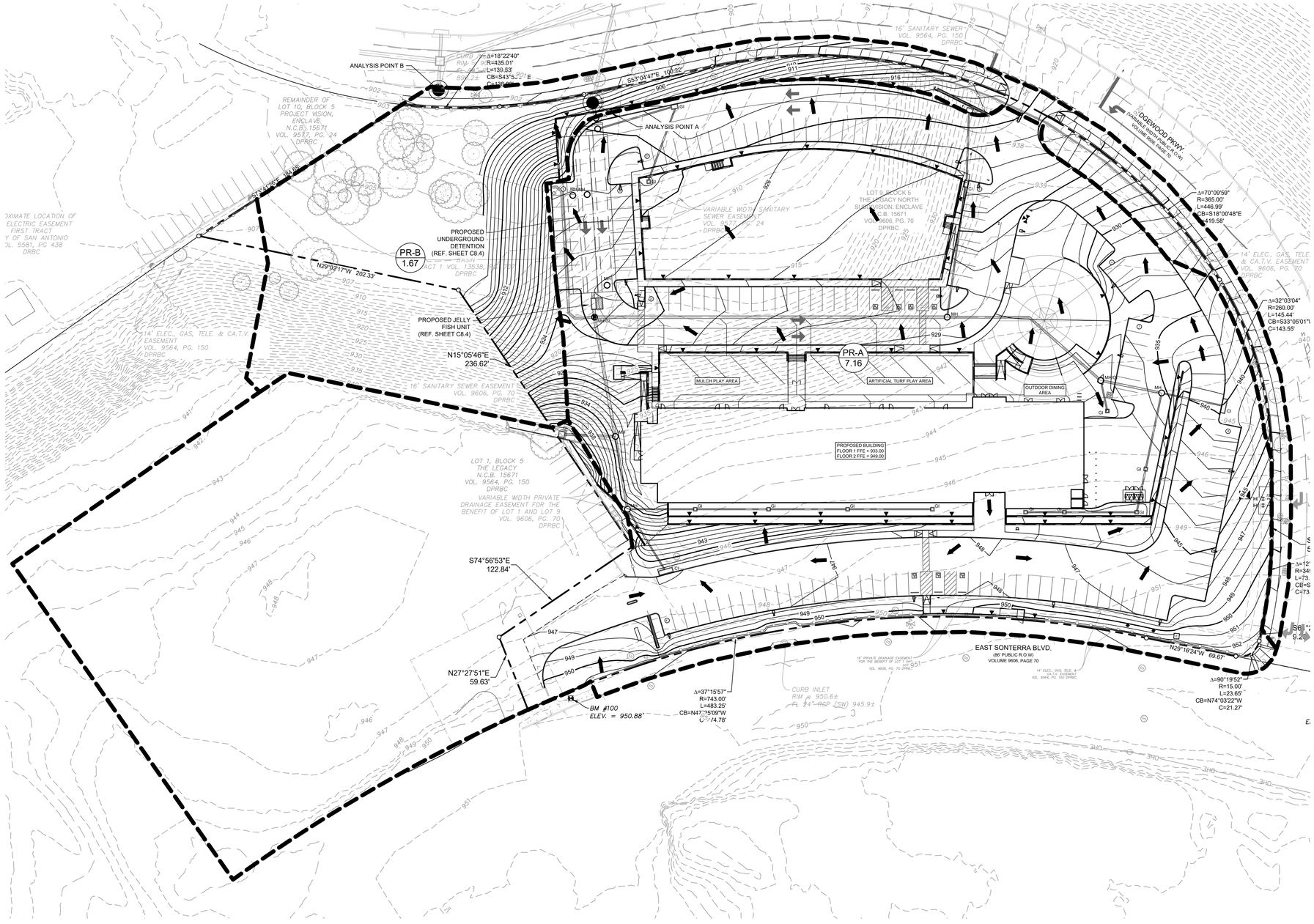
EROSION CONTROL DETAILS (2 OF 2)

SHEET NUMBER
C3.3



NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

950	EXISTING CONTOURS
950	PROPOSED CONTOURS
	DRAINAGE BOUNDARY
NAME X.XX	DRAINAGE AREA NAME / DRAINAGE AREA ACREAGE
	FLOW PATH
	SHEET FLOW LIMITS
	DISCHARGE POINT
	FLOW DIRECTION

PEAK FLOW CALCULATIONS

Basin	Tc (min)	A (ac)	C	I-1 (in/hr)	I-5 (in/hr)	I-25 (in/hr)	I-100 (in/hr)	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)	Collection Point
EX-A	15.4	7.67	0.66	3.56	5.24	7.29	9.13	18.07	26.62	37.03	46.35	A
EX-B	5.0	1.16	0.52	5.35	7.94	11.14	14.01	3.24	4.81	6.74	8.49	B
PR-A	5.00	7.16	0.84	5.35	7.94	11.14	14.01	32.13	47.69	66.85	84.13	A
PR-B	5.0	1.67	0.53	5.35	7.94	11.14	14.01	4.74	7.03	9.86	12.40	B

Basin Comparison Table

Basin	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)
EX-A	18.07	26.62	37.03	46.35
PR-A	32.13	47.69	66.85	84.13
POND OUTFALL	17.43	26.00	33.58	46.29
Δ	**-0.64**	**-0.62**	**-3.45**	**-0.06**

Basin Comparison Table

Basin	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)
EX-B	3.24	4.81	6.74	8.49
PR-B	4.74	7.03	9.86	12.40
Δ	1.50	2.22	3.11	3.92

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KHA PROJECT 068691611
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SCALE AS SHOWN
DESIGNED BY BE
DRAWN BY BE
CHECKED BY RU

OVERALL DRAINAGE AREA MAP

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SAN ANTONIO, TEXAS

SHEET NUMBER
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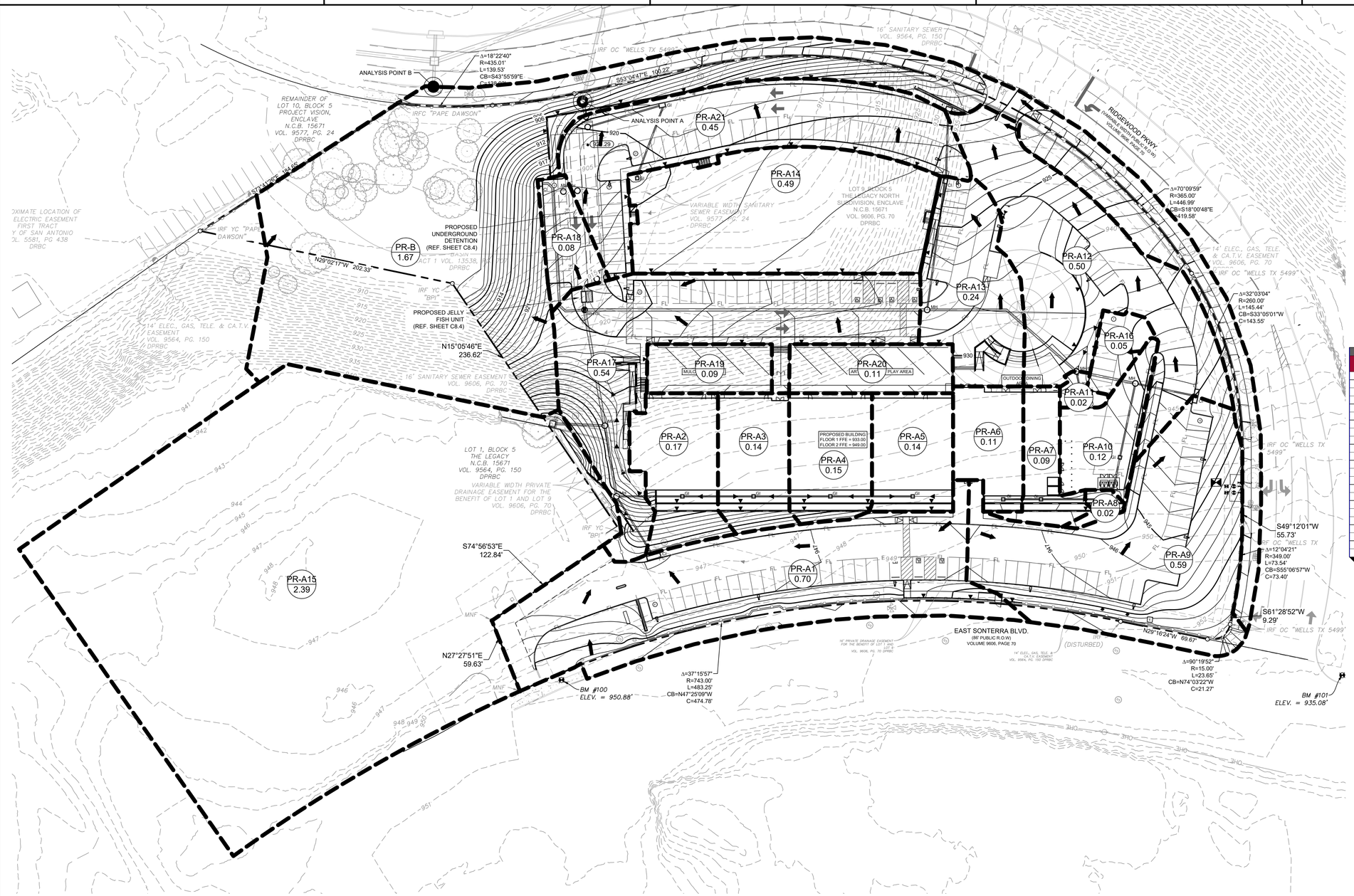

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE BOUNDARY
- DRAINAGE AREA NAME (NAME / X.XX)
- DRAINAGE AREA ACREAGE
- FLOW PATH
- SHEET FLOW LIMITS
- DISCHARGE POINT
- FLOW DIRECTION

PEAK FLOW CALCULATIONS

Basin	Tc (min)	A (ac)	C	I-1 (in/hr)	I-5 (in/hr)	I-25 (in/hr)	I-100 (in/hr)	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)	Collection Point
PR-A1	5.0	0.70	0.83	5.35	7.94	11.14	14.01	3.10	4.60	6.45	8.12	A
PR-A2	5.0	0.17	0.86	5.35	7.94	11.14	14.01	0.77	1.14	1.59	2.01	A
PR-A3	5.0	0.14	0.89	5.35	7.94	11.14	14.01	0.65	0.96	1.35	1.70	A
PR-A4	5.0	0.15	0.91	5.35	7.94	11.14	14.01	0.72	1.07	1.50	1.89	A
PR-A5	5.0	0.14	0.93	5.35	7.94	11.14	14.01	0.69	1.02	1.43	1.79	A
PR-A6	5.0	0.11	0.94	5.35	7.94	11.14	14.01	0.55	0.81	1.14	1.43	A
PR-A7	5.0	0.09	0.86	5.35	7.94	11.14	14.01	0.40	0.60	0.84	1.05	A
PR-A8	5.0	0.02	0.72	5.35	7.94	11.14	14.01	0.06	0.09	0.13	0.16	A
PR-A9	5.0	0.59	0.75	5.35	7.94	11.14	14.01	2.36	3.50	4.90	6.17	A
PR-A10	5.0	0.12	0.96	5.35	7.94	11.14	14.01	0.62	0.92	1.28	1.61	A
PR-A11	5.0	0.02	0.53	5.35	7.94	11.14	14.01	0.05	0.07	0.10	0.12	A
PR-A12	5.0	0.50	0.54	5.35	7.94	11.14	14.01	1.48	2.16	3.03	3.81	A
PR-A13	5.0	0.24	0.95	5.35	7.94	11.14	14.01	1.22	1.81	2.54	3.19	A
PR-A14	5.0	0.49	0.53	5.35	7.94	11.14	14.01	1.40	2.08	2.92	3.67	A
PR-A15	5.0	2.39	0.96	5.35	7.94	11.14	14.01	12.23	18.15	25.45	32.02	A
PR-A16	5.0	0.05	0.96	5.35	7.94	11.14	14.01	0.26	0.38	0.53	0.67	A
PR-A17	5.0	0.54	0.67	5.35	7.94	11.14	14.01	1.92	2.85	4.00	5.04	A
PR-A18	5.0	0.08	0.00	5.35	7.94	11.14	14.01	0.00	0.00	0.00	0.00	A
PR-A19	5.00	0.09	0.96	5.35	7.94	11.14	14.01	0.46	0.69	0.96	1.21	A
PR-A20	5.00	0.11	0.96	5.35	7.94	11.14	14.01	0.57	0.84	1.18	1.48	A
PR-A21	5.00	0.45	0.96	5.35	7.94	11.14	14.01	2.31	3.43	4.80	6.05	A
PR-A	5.00	7.17	0.84	5.35	7.94	11.14	14.01	32.16	47.73	66.91	84.21	A
PR-B	5.0	1.71	0.53	5.35	7.94	11.14	14.01	4.85	7.20	10.09	12.70	B

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STATE OF TEXAS
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117843
REGISTERED PROFESSIONAL ENGINEER
04/29/2024

KHA PROJECT 068691611
DATE 4/30/2024
SCALE AS SHOWN
DESIGNED BY BE
DRAWN BY BE
CHECKED BY RU

PROPOSED DRAINAGE AREA MAP

SCHOOL OF SCIENCE AND TECHNOLOGY

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SHEET NUMBER
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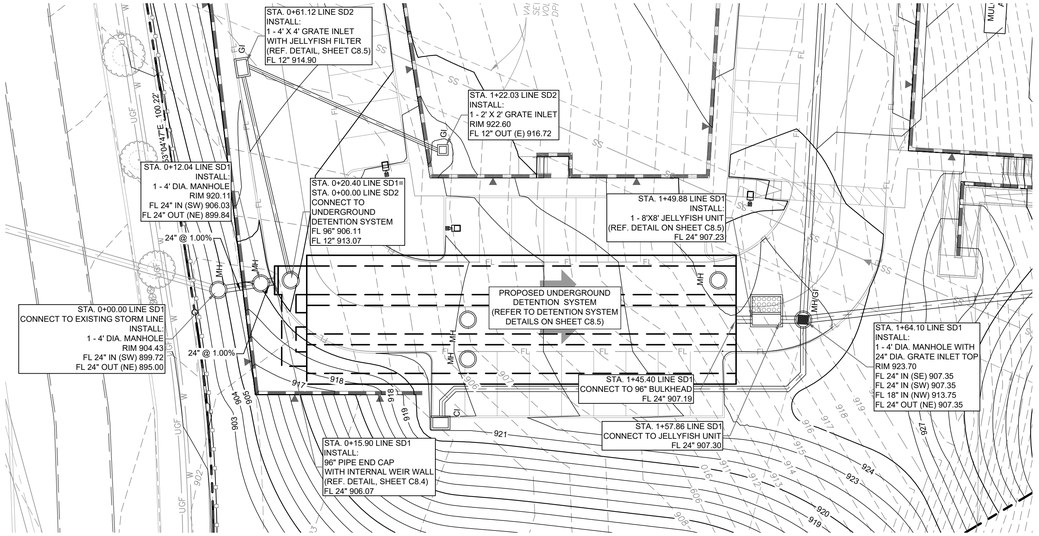
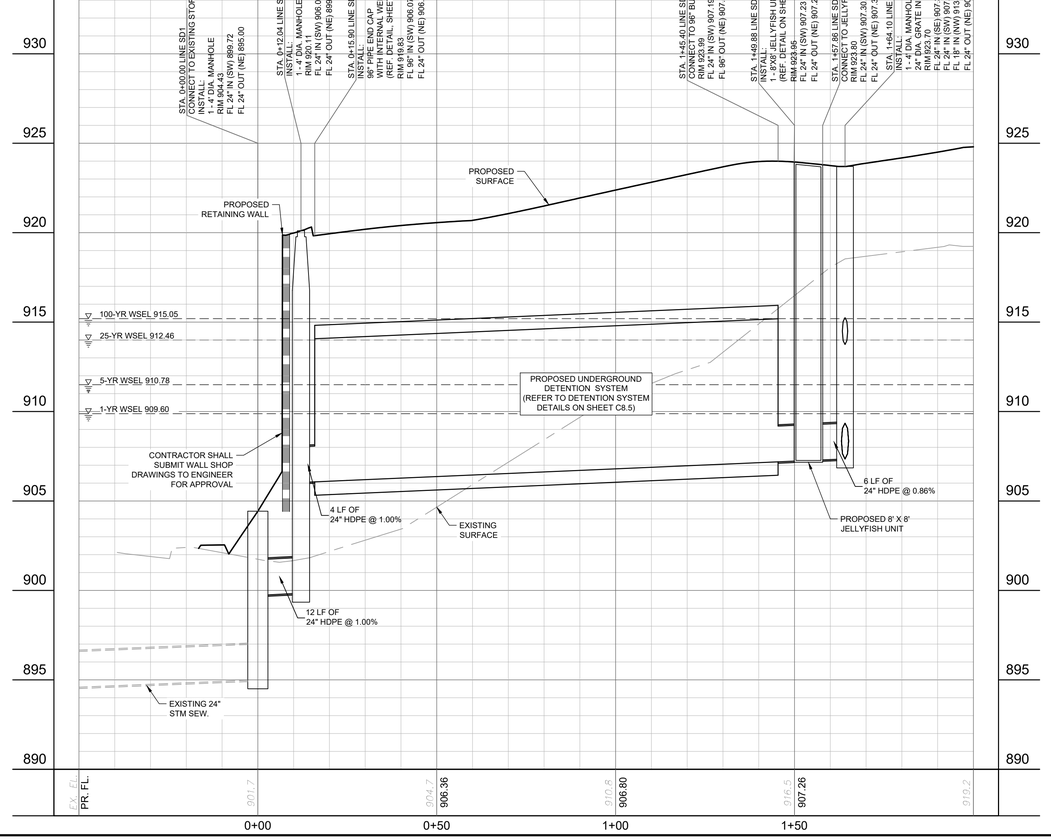


DETENTION POND PLAN
SCALE 1" = 20'



DETENTION POND STAGE STORAGE TABLE	
STAGE ELEVATION, FT.)	CUM. VOL (CU. FT.)
906.07	0.00
907.07	437.00
908.07	2154.00
909.07	4572.00
910.07	7319.00
911.07	10180.00
912.07	12967.00
913.07	15475.00
914.07	17397.00
915.07	18087.00
915.28	18096.00

DETENTION POND INFORMATION			
Storm Event Year	Elevation (FT.)	Flow (FT3/s)	Storage Volume (FT3)
1	909.60	17.43	6,038.00
5	910.78	26.00	9,357.00
25	912.46	33.58	13,948.00
100	915.05	46.20	18,081.00

GRAPHIC SCALE IN FEET
0 10 20 40

LEGEND

- PROPOSED PROPERTY BOUNDARY
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED RETAINING WALL
- PROPOSED FENCE
- PROPOSED STORM DRAIN
- W — EXISTING WATERLINE
- SS — EXISTING SANITARY SEWER LINE
- PROPOSED CONCRETE RIPRAP
- PROPOSED ROCK RIPRAP
- CI — PROPOSED CURB INLET
- MH JB — PROPOSED MANHOLE/JUNCTION BOX
- PROPOSED HEADWALL
- EXISTING TREE

STORM NOTES

1. ALL DIMENSIONS ARE TO CENTERLINE OF PIPE UNLESS NOTED OTHERWISE.
2. REFERENCE STORM SEWER NOTES ON SHEET C1.0 FOR PIPE MATERIAL REQUIREMENTS.
3. REFERENCE SHEET C12.2 FOR STORM SEWER DETAILS.
4. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTACT ENGINEER IF FIELD CONDITIONS VARY.
5. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF 8'x4'x3' JUNCTION BOX AND ACCESS MANHOLE TO OWNER/ENGINEER FOR APPROVAL.

WEIR PLATE STRUCTURE DETAIL
(N.T.S.)

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WATER QUALITY AND DETENTION POND PLAN

SCHOOL OF SCIENCE AND TECHNOLOGY
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ALAMO ARCHITECTS
SAN ANTONIO TEXAS

SHEET NUMBER
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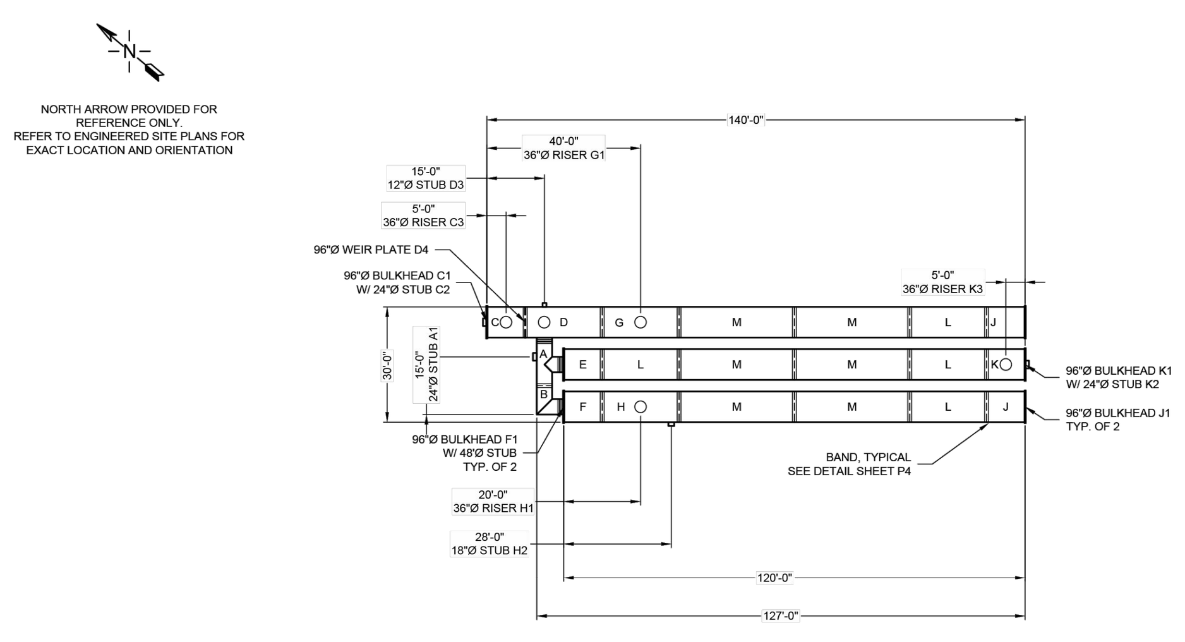
P1 – ASSEMBLY



STUB INFORMATION		
PIECE	STUB INVERT	SYSTEM INVERT
24"Ø STUB A1	906.07	906.07
24"Ø STUB C2	906.07	906.07
48"Ø STUB D2	906.07	906.07
12"Ø STUB D3	913.07	906.07
48"Ø STUB E2	906.07	906.07
48"Ø STUB F2	906.07	906.07
18"Ø STUB H2	911.27	906.07
24"Ø STUB K2	907.28	906.07

RISER INFORMATION		
PIECE	RIM ELEV.	SYSTEM INVERT
36"Ø RISER C3	919.83	906.07
36"Ø RISER D1	919.95	906.07
36"Ø RISER G1	921.05	906.07
36"Ø RISER H1	921.13	906.07
36"Ø RISER K3	923.98	906.07

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (5) PAGES INCLUDING THE FOLLOWING:

- **PIPE STORAGE = 19,390 CF**
- **MAINLINE PIPE GAGE = 16**
- **WALL TYPE = SOLID W/ XFILTRATION**
- **DIAMETER = 96, 48"**
- **FINISH = ALT2**
- **CORRUGATION = 5x1**

CUSTOMER DATE

ASSEMBLY
SCALE: 1" = 30'
STRUCTURAL BACKFILL STORAGE: 10,320 CF
TOTAL STORAGE PROVIDED: 29,710 CF
LOADING: H20
PIPE INV. = 906.07'±

ASSUMES NO PERIMETER STONE

ASSUMES 36" STONE STORAGE ABOVE PIPE AND 24" BELOW PIPE W/ 40% VOIDS

STONE STORAGE VOLUME OF SYSTEM WILL BE ACHIEVED THROUGH THE USE OF CONTECH'S X-FILTRATION JOINTS

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD (EOR) PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE AS REQUIRED, BY CONTRACTOR.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ACCESS CASTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE NOT SUPPLIED BY CONTECH.

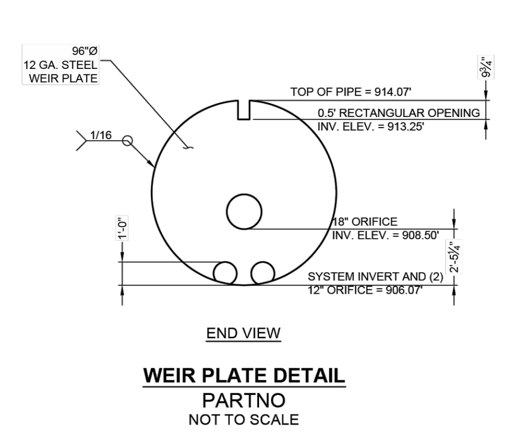
MARK | DATE | REVISION DESCRIPTION | BY

CONTECH ENGINEERED SOLUTIONS LLC www.ContechES.com 9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069 800-338-1122 513-645-7000 513-645-7993 FAX
CONTECH CMP DETENTION SYSTEMS — CONTECH PROPOSAL DRAWING

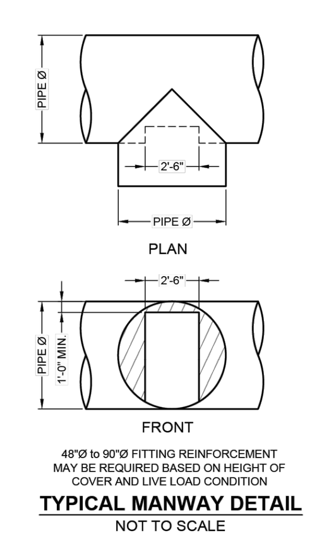
96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: UDS

PROJECT No.: 793285 | SEQ. No.: 015 | DATE: 4/18/2024 | DESIGNED: RKD | DRAWN: RKD | CHECKED: RKD | APPROVED: RKD | SHEET NO.: P1 OF 5

P2 – WEIR PLATE, MANWAY, CONSTRUCTION LOADING, MATERIAL SPECIFICATION

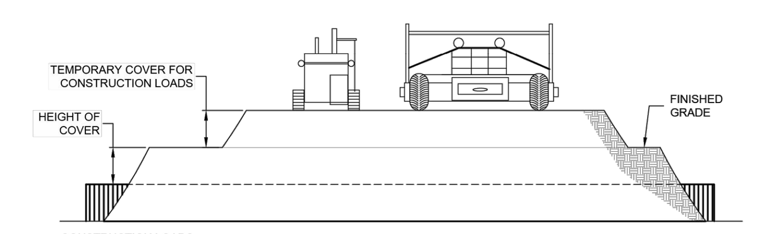


WEIR PLATE DETAIL
PARTNO
NOT TO SCALE



48"Ø to 90"Ø FITTING REINFORCEMENT MAY BE REQUIRED BASED ON HEIGHT OF COVER AND LIVE LOAD CONDITION

TYPICAL MANWAY DETAIL
NOT TO SCALE



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM
NOT TO SCALE

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

ANTI-FLOTATION PROVISIONS DUE TO HIGH GROUNDWATER OR OTHER FLOTATION CONCERNS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.

MATERIAL SPECIFICATION
NOT TO SCALE

96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: UDS

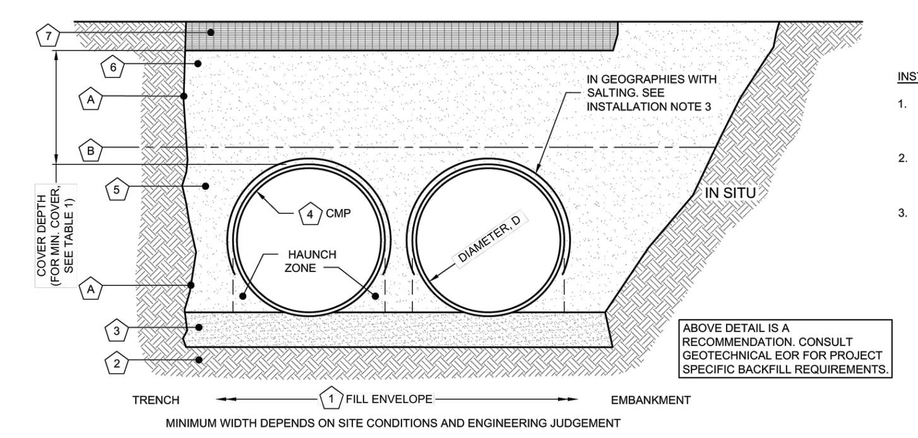
PROJECT No.: 793285 | SEQ. No.: 015 | DATE: 4/18/2024 | DESIGNED: RKD | DRAWN: RKD | CHECKED: RKD | APPROVED: RKD | SHEET NO.: P2 OF 5

P3 – MANUFACTURER RECOMMENDED BACKFILL

TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
>48"-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.



INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED OVER THE UPPER HALF OF THE PIPE. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

TABLE 2:

	XFILTRATION™ JOINT STANDARD BACKFILL SPECIFICATIONS		
	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16" PIPE > 12": 1.5D + 12" — MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	AASHTO 26.5.2 - PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.
3	BEDDING	AASHTO M 43: 3, 357, 4, 467, 5, 56, 57	ENGINEER OF RECORD TO DETERMINE IF BEDDING IS REQUIRED. PIPE MAY BE PLACED ON THE TRENCH BOTTOM OF A RELATIVELY LOOSE, NATIVE SUITABLE WELL GRADED GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH. THE BEDDING MATERIAL MAY BE SUITABLE OPEN GRADED GRANULAR BEDDING CONFORMING TO AASHTO SOIL CLASSIFICATIONS A1, A2, OR A3 WITH MAXIMUM PARTICLE SIZE OF 3" PER AASHTO 26.3.8.1
4	CORRUGATED METAL PIPE		
5	BACKFILL	FREE-DRAINING, ANGULAR, WASHED-STONE PER AASHTO M 43: 3, 357, 4, 467, 5, 56, 57 OR APPROVED EQUAL *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING. WHERE CONVENTIONAL COMPACTION TESTING IS NOT PRACTICAL, THE MATERIAL SHALL BE MECHANICALLY COMPACTED UNTIL NO FURTHER YIELDING OF MATERIAL IS OBSERVED UNDER THE COMPACTOR. **IN AREAS WITH HIGH WATER TABLE FLUCTUATIONS THAT INTERACT WITH THE PIPE ZONE, CONSIDER INSTALLING A GEOTEXTILE SEPARATION LAYER TO PREVENT SOIL MIGRATION.
6	COVER MATERIAL	UP TO MIN. COVER - AASHTO M 145: A-1, A-2, A-3 ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROADBASE MATERIAL WITHIN MIN COVER LIMITS
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.
A	SIDE GEOTEXTILE	NONE	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION WHEN STONE BEDDING IS USED. IF NO STONE BEDDING IS USED, THEN SIDE GEOTEXTILE IS REQUIRED.
B	GEOTEXTILE BETWEEN LAYERS	NONE	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.

NOTES:
- FOR MULTIPLE BARREL INSTALLATIONS, THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE THE PIPE DIAMETER /2 BUT NO LESS THAN 12" FOR DIAMETERS <72". FOR 72" AND LARGER DIAMETERS, THE MINIMUM SPACING IS 36". CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- * APPROVED REGIONAL EQUIVALENTS FOR SECTION 5 INCLUDE CA-7, MIDOT 6AA, 6A, OR 5G, PROVIDED THEY MEET THE PARTICLE SIZES INDICATED.

MANUFACTURER RECOMMENDED BACKFILL
NOT TO SCALE

96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
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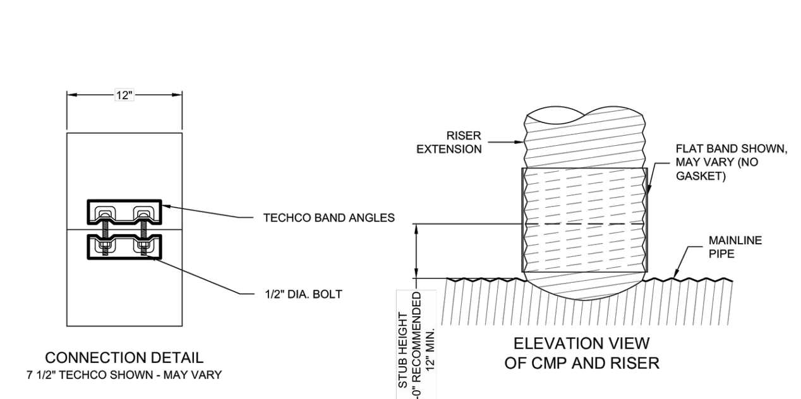
P4 – RISER BAND AND HUGGER BAND DETAILS

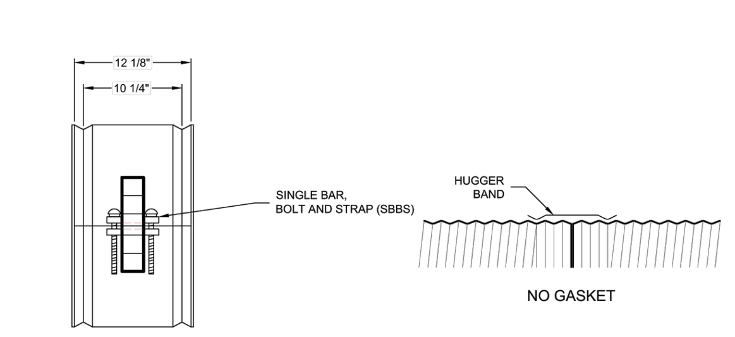


PLAIN END CMP RISER PIPE

GENERAL NOTES:

1. **DELIVERED BAND STYLE AND FASTENER TYPE MAY VARY BY FABRICATION PLANT.**
2. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
3. BAND MATERIAL AND GAGE TO BE SAME AS RISER MATERIAL.
4. IF RISER HAS A HEIGHT OF COVER OF 10' OR MORE, USE A SLIP JOINT.
5. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" 2-PIECES
6. ALL RISER JOINT COMPONENTS WILL BE FIELD ASSEMBLED.
7. MANHOLE RISERS IN APPLICATIONS WHERE TRAFFIC LOADS ARE IMPOSED REQUIRE SPECIAL DESIGN CONSIDERATIONS.
8. DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.

12" RISER BAND DETAIL
NOT TO SCALE



2 2/3"x1/2" RE-ROLLED END HEL-COR PIPE

GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. ALL CMP IS REROLLED TO HAVE ANNULAR END CORRUGATIONS OF 2 2/3"x1/2"
7. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
8. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

H-12 HUGGER BAND DETAIL
NOT TO SCALE

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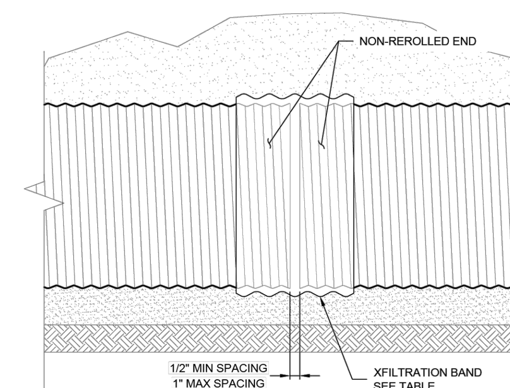
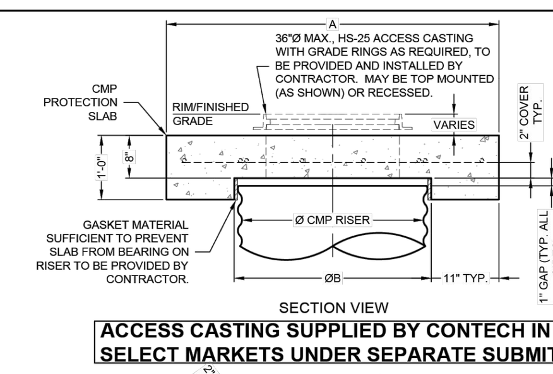
P5 – XFILTRATION JOINT AND MANHOLE CAP DETAILS



XFILTRATION BAND		
DIAMETER	BAND	FASTENER
UP TO 84"Ø	5-C OR H-12	STD. PLANT FASTENER WITH NO GASKET
84"Ø +	10-C	STD. PLANT FASTENER WITH NO GASKET

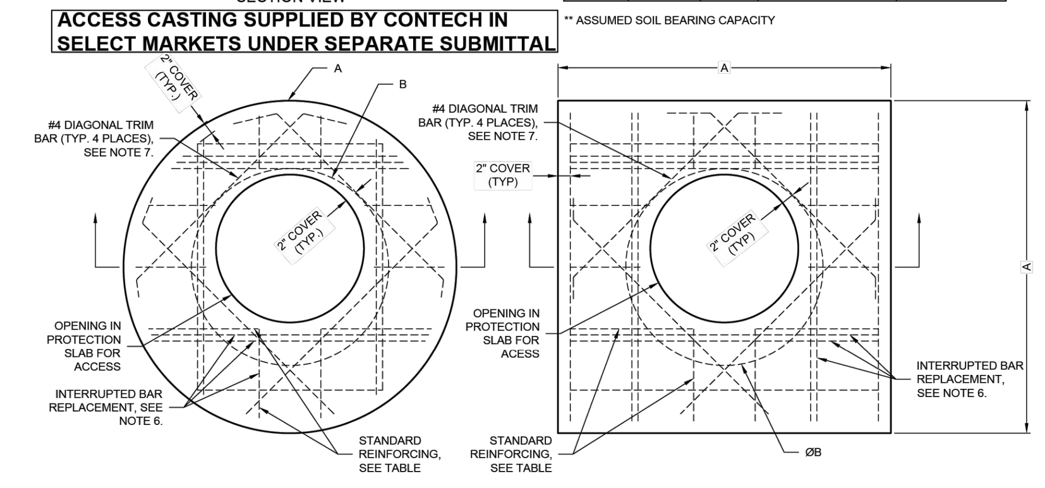
XFILTRATION JOINT DETAIL
NOT TO SCALE



ACCESS CASTING SUPPLIED BY CONTECH IN SELECT MARKETS UNDER SEPARATE SUBMITTAL

REINFORCING TABLE				
Ø CMP RISER	A	B Ø	REINFORCING	**BEARING PRESSURE (PSF)
24"	4'Ø 4'x4'	26"	#5 @ 10" OCEW #5 @ 10" OCEW	2,540 1,900
30"	4'-6"Ø 4'-6" x 4'-6"	32"	#5 @ 10" OCEW #5 @ 9" OCEW	2,260 1,670
36"	5'Ø 5' x 5'	38"	#5 @ 9" OCEW #5 @ 8" OCEW	2,060 1,500
42"	5'-6"Ø 5'-6" x 5'-6"	44"	#5 @ 8" OCEW #5 @ 8" OCEW	1,490 1,370
48"	6'Ø 6' x 6'	50"	#5 @ 7" OCEW #5 @ 7" OCEW	1,210 1,270

** ASSUMED SOIL BEARING CAPACITY



NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION AND ACI 350.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 4,000 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERS, ARCHITECTS AND LAND SURVEYORS, ENDWELL, NY.

MANHOLE CAP DETAIL
NOT TO SCALE

96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
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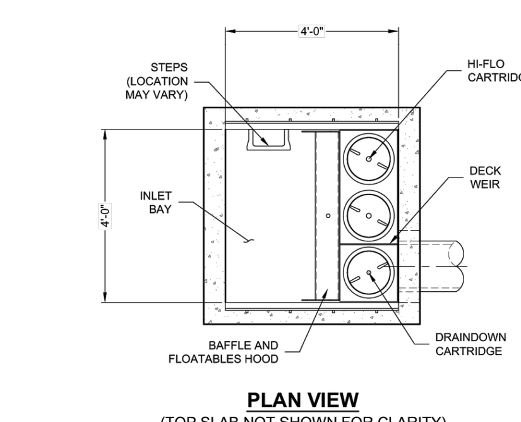
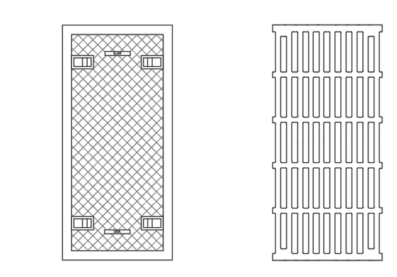
4' x 4' JELLYFISH – SOUTHWEST AREA

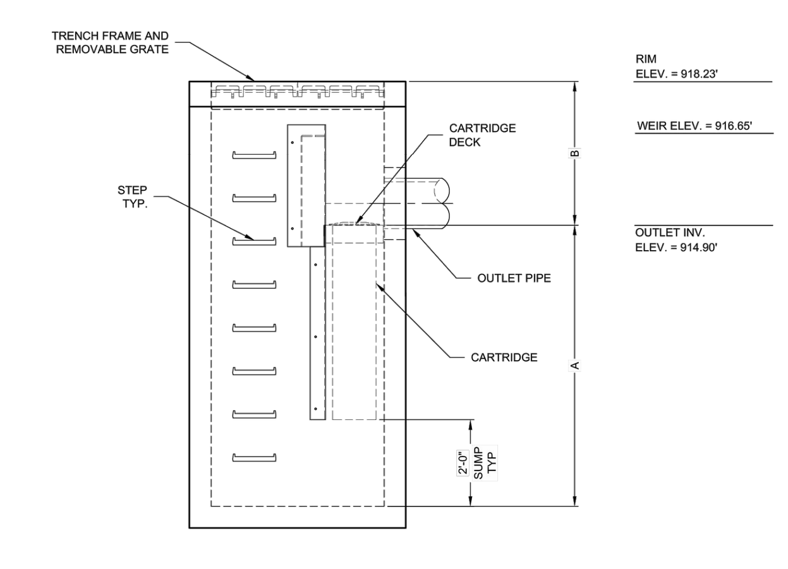


PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



24" TRENCH COVER
N.T.S.

24" TRENCH GRATE
N.T.S.



ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION	
CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	0.45
OUTLET INVERT TO RIM (MIN) (B)	3'-4"

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	WQU #2
WATER QUALITY FLOW RATE (cfs)	0.44
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	2 / 1
CARTRIDGE LENGTH	54"

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	914.90'	HDPE	12"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION: 820.68'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

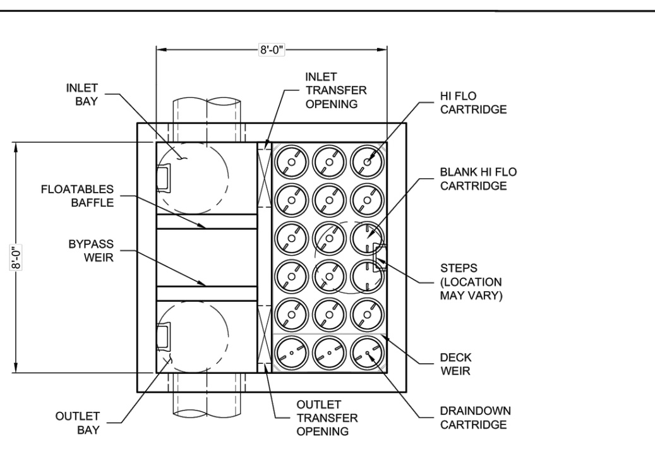
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter — THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

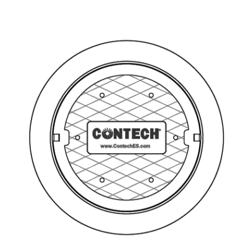
CONTECH ENGINEERED SOLUTIONS LLC www.ContechES.com 9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069 800-338-1122 513-645-7000 513-645-7993 FAX

4' x 4' JELLYFISH - 793285 - 20 SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: SOUTHWEST AREA

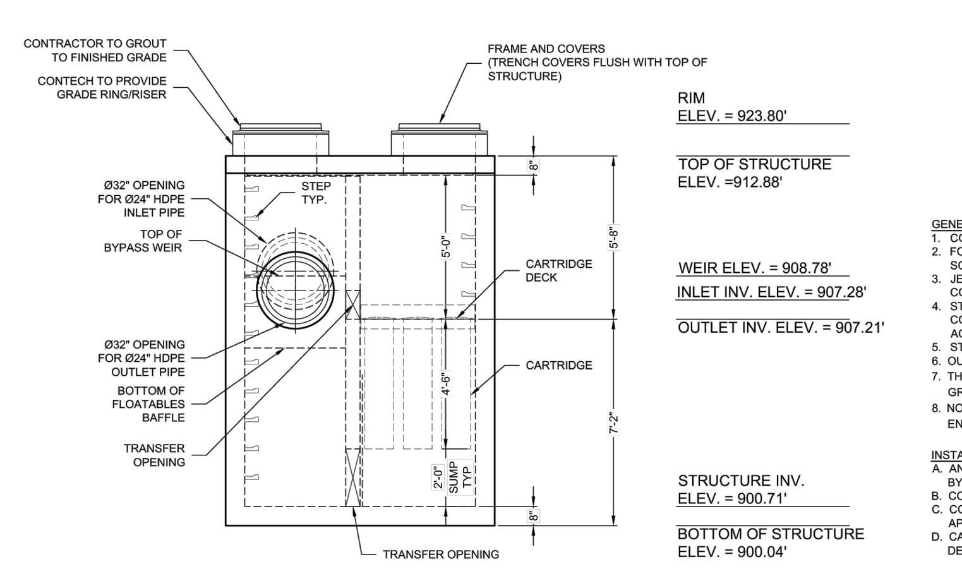
JELLYFISH JFPD0808 – WQU



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION	
CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	2.94
DECK TO INSIDE TOP (MIN) (B)	5.00

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	WQU
WATER QUALITY FLOW RATE (cfs)	2.49
PEAK FLOW RATE (cfs)	32.25
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	13 / 3
CARTRIDGE LENGTH	54"

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	907.28'	HDPE	24"	*	*
INLET #2	*	*	*	*	*
OUTLET	907.21'	HDPE	24"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION: 923.80'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter — THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC www.ContechES.com 9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069 800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFPD0808 - 793285 - 010
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: WQU

No.	REVISIONS	DATE	BY
1	CITY OF SAN ANTONIO COMMENTS	04/22/2024	

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
10101 REUNION PLACE, SUITE 400, SAN ANTONIO, TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

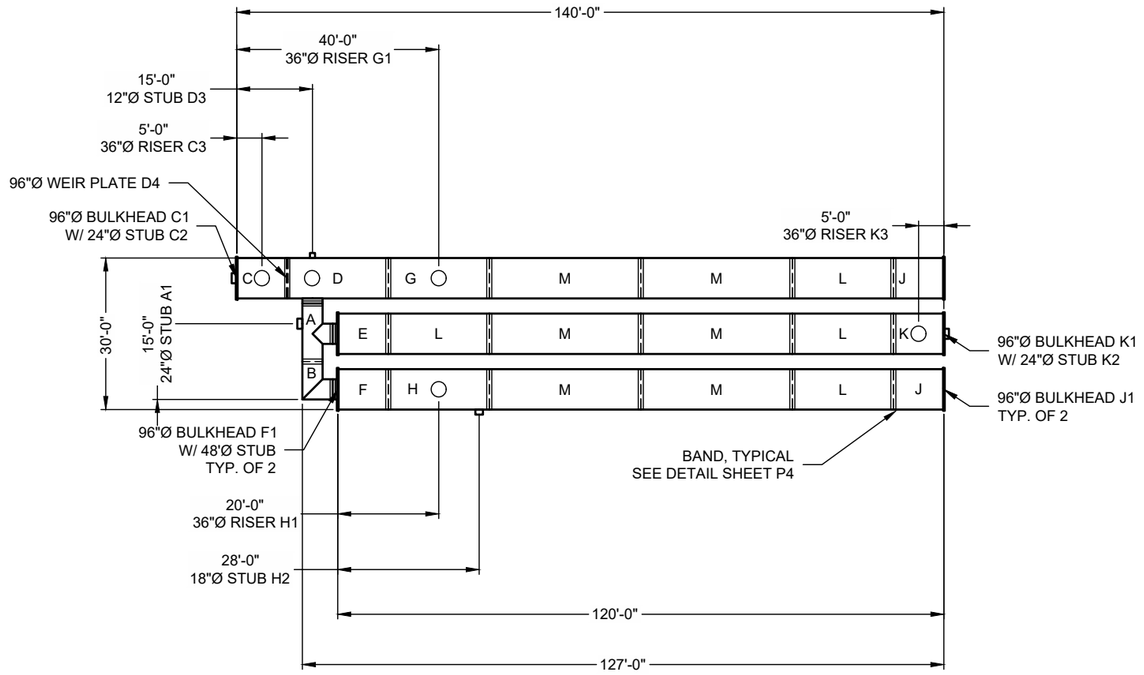
KHA PROJECT 0689691611
DATE 4/30/2024
SCALE AS SHOWN
DESIGNED BY BE
DRAWN BY BE
CHECKED BY RU

DETENTION AND WATER QUALITY POND DETAILS

SCHOOL OF SCIENCE AND TECHNOLOGY
PREPARED FOR
ALAMO ARCHITECTS
SAN ANTONIO TEXAS

SHEET NUMBER
C8.5

NORTH ARROW PROVIDED FOR
REFERENCE ONLY.
REFER TO ENGINEERED SITE PLANS FOR
EXACT LOCATION AND ORIENTATION



STUB INFORMATION

PIECE	STUB INVERT	SYSTEM INVERT
24"Ø STUB A1	906.07	906.07
24"Ø STUB C2	906.07	906.07
48"Ø STUB D2	906.07	906.07
12"Ø STUB D3	913.07	906.07
48"Ø STUB E2	906.07	906.07
48"Ø STUB F2	906.07	906.07
18"Ø STUB H2	911.27	906.07
24"Ø STUB K2	907.28	906.07

RISER INFORMATION

PIECE	RIM ELEV.	SYSTEM INVERT
36"Ø RISER C3	919.83	906.07
36"Ø RISER D1	919.95	906.07
36"Ø RISER G1	921.05	906.07
36"Ø RISER H1	921.13	906.07
36"Ø RISER K3	923.98	906.07

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (5) PAGES INCLUDING THE FOLLOWING:

- **PIPE STORAGE = 19,390 CF**
- **MAINLINE PIPE GAGE = 16**
- **WALL TYPE = SOLID W/ XFILTRATION**
- **DIAMETER = 96, 48"**
- **FINISH = ALT2**
- **CORRUGATION = 5x1**

CUSTOMER _____ DATE _____

ASSEMBLY

SCALE: 1" = 30'
STRUCTURAL BACKFILL STORAGE: 10,320 CF
TOTAL STORAGE PROVIDED: 29,710 CF
LOADING: H20
PIPE INV. = 906.07'±

ASSUMES NO PERIMETER STONE

ASSUMES 36" STONE STORAGE
ABOVE PIPE AND 24" BELOW PIPE W/
40% VOIDS

STONE STORAGE VOLUME OF SYSTEM
WILL BE ACHIEVED THROUGH THE
USE OF CONTECH'S X-FILTRATION
JOINTS

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD (EOR) PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE AS REQUIRED, BY CONTRACTOR.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ACCESS CASTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE NOT SUPPLIED BY CONTECH.

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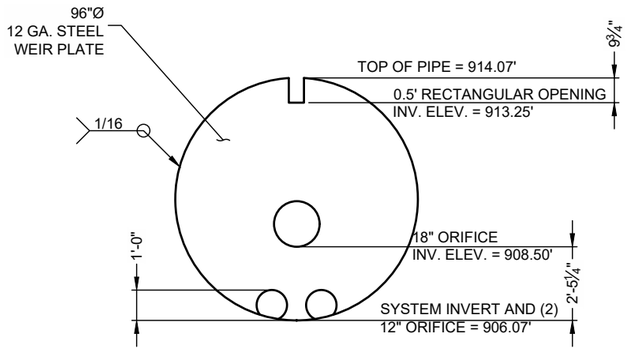
CONTECH CMP DETENTION SYSTEMS
CONTECH **PROPOSAL** DRAWING

96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: UDS

PROJECT No.:	SEQ. No.:	DATE:
793285	015	4/18/2024
DESIGNED: RKD	DRAWN: RKD	
CHECKED: RKD	APPROVED: RKD	
SHEET NO.: P1 OF 5		

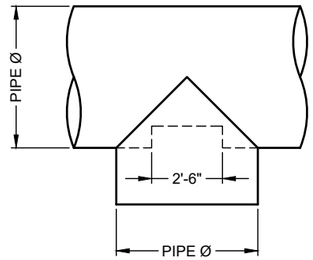
I:\MERLIN\PROJECT\ACT\VE\793200\793285\793285-15-CMP DETENTION - XFILTRATION\DRAWINGS\793285-015-CMP CONFAB.DWG 4/30/2024 10:28 AM



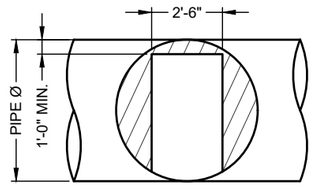
END VIEW

WEIR PLATE DETAIL

PARTNO
NOT TO SCALE



PLAN

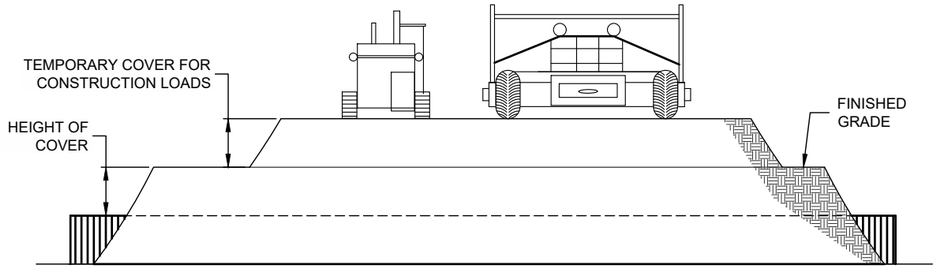


FRONT

48"Ø to 90"Ø FITTING REINFORCEMENT MAY BE REQUIRED BASED ON HEIGHT OF COVER AND LIVE LOAD CONDITION

TYPICAL MANWAY DETAIL

NOT TO SCALE



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

NOT TO SCALE

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

ANTI-FLOTATION PROVISIONS DUE TO HIGH GROUNDWATER OR OTHER FLOTATION CONCERNS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.

MATERIAL SPECIFICATION

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CONTECH CMP DETENTION SYSTEMS
CONTECH **PROPOSAL** DRAWING

96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: UDS

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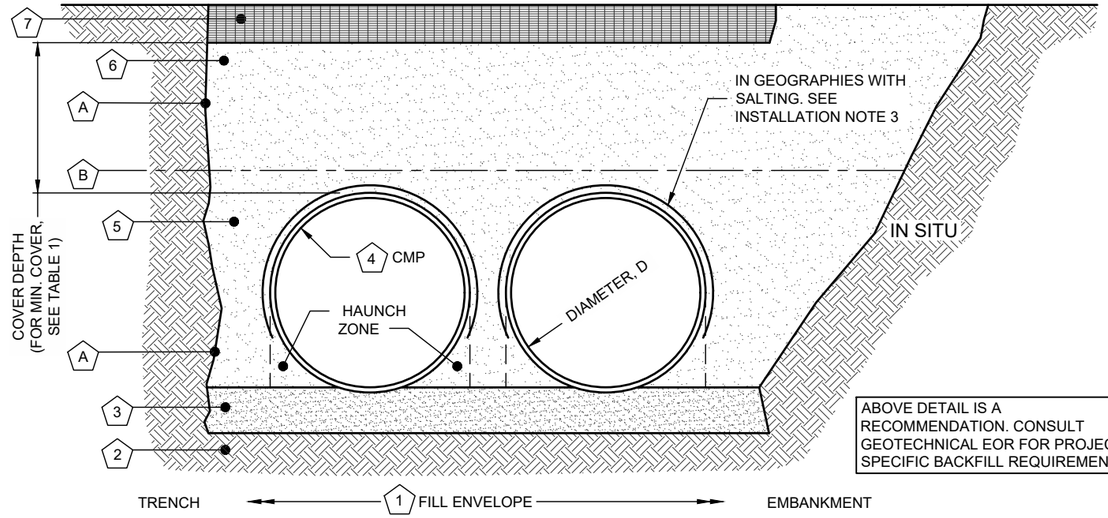
SHEET NO.: P2	OF 5	

TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
>48"-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.



MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED OVER THE UPPER HALF OF THE PIPE. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

TABLE 2:

XFILTRATION© JOINT STANDARD BACKFILL SPECIFICATIONS

	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION	
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16" PIPE > 12": 1.5D + 12"	MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	**AASHTO 26.5.2** - PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.	
3	BEDDING	**AASHTO M 43: 3, 357, 4, 467, 5, 56, 57**	ENGINEER OF RECORD TO DETERMINE IF BEDDING IS REQUIRED. PIPE MAY BE PLACED ON THE TRENCH BOTTOM OF A RELATIVELY LOOSE, NATIVE SUITABLE WELL GRADED GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH. THE BEDDING MATERIAL MAY BE SUITABLE OPEN GRADED GRANULAR BEDDING CONFORMING TO AASHTO SOIL CLASSIFICATIONS A1, A2, OR A3 WITH MAXIMUM PARTICLE SIZE OF 3" PER AASHTO 26.3.8.1	
4	CORRUGATED METAL PIPE			
5	BACKFILL	FREE-DRAINING, ANGULAR, WASHED-STONE PER **AASHTO M 43: 3, 357, 4, 467, 5, 56, 57** OR APPROVED EQUAL *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING. WHERE CONVENTIONAL COMPACTION TESTING IS NOT PRACTICAL, THE MATERIAL SHALL BE MECHANICALLY COMPACTED UNTIL NO FURTHER YIELDING OF MATERIAL IS OBSERVED UNDER THE COMPACTOR. **IN AREAS WITH HIGH WATER TABLE FLUCTUATIONS THAT INTERACT WITH THE PIPE ZONE, CONSIDER INSTALLING A GEOTEXTILE SEPARATION LAYER TO PREVENT SOIL MIGRATION.	
6	COVER MATERIAL	UP TO MIN. COVER - **AASHTO M 145: A-1, A-2, A-3** ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROADBASE MATERIAL WITHIN MIN COVER LIMITS	
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.	
A	SIDE GEOTEXTILE	NONE	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION WHEN STONE BEDDING IS USED. IF NO STONE BEDDING IS USED, THEN SIDE GEOTEXTILE IS REQUIRED.	
B	GEOTEXTILE BETWEEN LAYERS	NONE	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.	

NOTES:

- FOR MULTIPLE BARREL INSTALLATIONS, THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE THE PIPE DIAMETER /2 BUT NO LESS THAN 12" FOR DIAMETERS <72". FOR 72" AND LARGER DIAMETERS, THE MINIMUM SPACING IS 36". CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.

* APPROVED REGIONAL EQUIVALENTS FOR SECTION 5 INCLUDE CA-7, MIDOT 6AA, 6A, OR 5G, PROVIDED THEY MEET THE PARTICLE SIZES INDICATED.

MANUFACTURER RECOMMENDED BACKFILL

NOT TO SCALE

MARK	DATE	REVISION DESCRIPTION	BY

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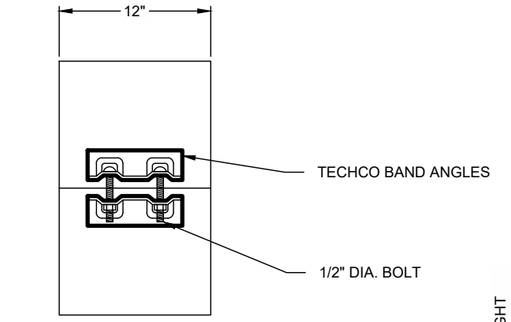
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

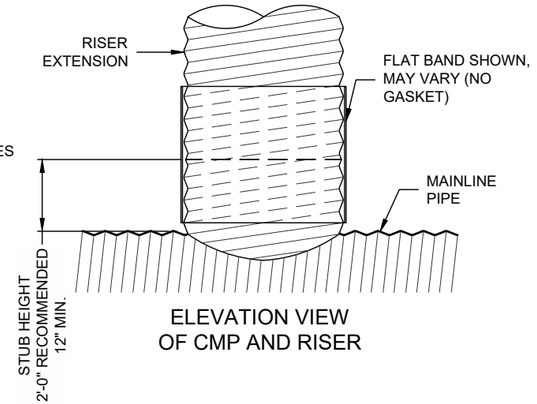
CONTECH CMP DETENTION SYSTEMS
CONTECH **PROPOSAL** DRAWING

96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: UDS

PROJECT No.:	SEQ. No.:	DATE:
793285	015	4/18/2024
DESIGNED: RKD	DRAWN: RKD	
CHECKED: RKD	APPROVED: RKD	
SHEET NO.: P3	OF 5	



CONNECTION DETAIL
7 1/2" TECHCO SHOWN - MAY VARY



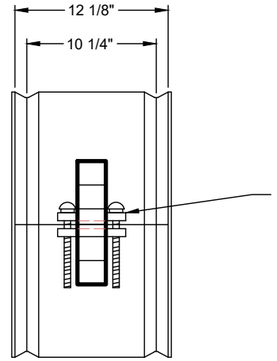
ELEVATION VIEW
OF CMP AND RISER

PLAIN END CMP RISER PIPE

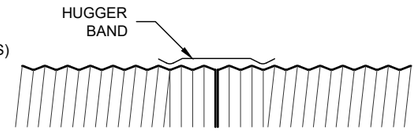
GENERAL NOTES:

1. **DELIVERED BAND STYLE AND FASTENER TYPE MAY VARY BY FABRICATION PLANT.**
2. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
3. BAND MATERIAL AND GAGE TO BE SAME AS RISER MATERIAL.
4. IF RISER HAS A HEIGHT OF COVER OF 10' OR MORE, USE A SLIP JOINT.
5. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" 2-PIECES
6. ALL RISER JOINT COMPONENTS WILL BE FIELD ASSEMBLED.
7. MANHOLE RISERS IN APPLICATIONS WHERE TRAFFIC LOADS ARE IMPOSED REQUIRE SPECIAL DESIGN CONSIDERATIONS.
8. DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.

12" RISER BAND DETAIL
NOT TO SCALE



CONNECTION DETAIL
(SBBS)



NO GASKET

2 2/3"x1/2" RE-ROLLED END HEL-COR PIPE

GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. ALL CMP IS REROLLED TO HAVE ANNULAR END CORRUGATIONS OF 2 2/3"x1/2"
7. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
8. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

H-12 HUGGER BAND DETAIL
NOT TO SCALE

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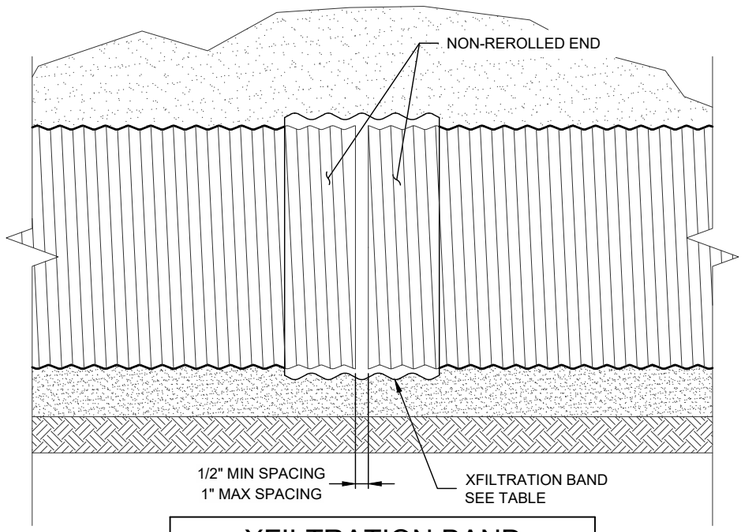
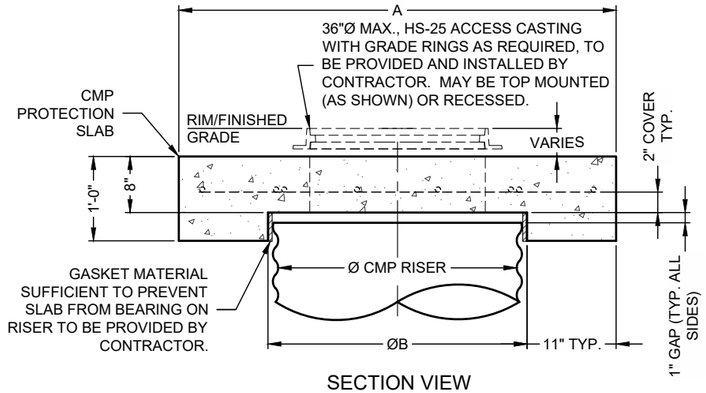
CHECKED: RKD	APPROVED: RKD	
SHEET NO.: P4	OF 5	



XFILTRATION BAND		
DIAMETER	BAND	FASTENER
UP TO 84"Ø	5-C OR H-12	STD. PLANT FASTENER WITH NO GASKET
84"Ø +	10-C	STD. PLANT FASTENER WITH NO GASKET

XFILTRATION JOINT DETAIL

NOT TO SCALE

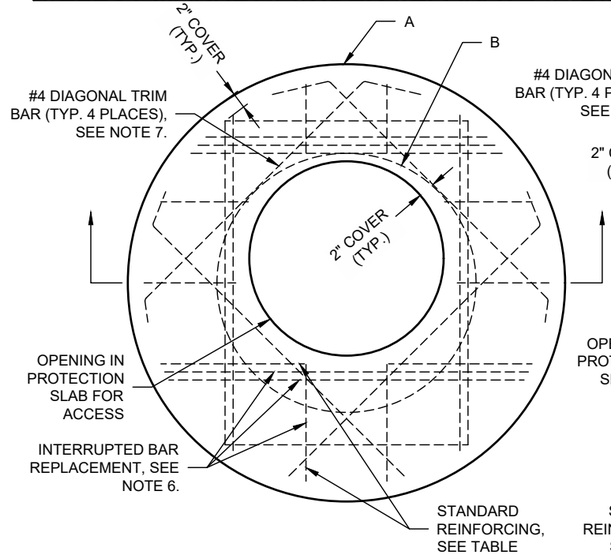


SECTION VIEW

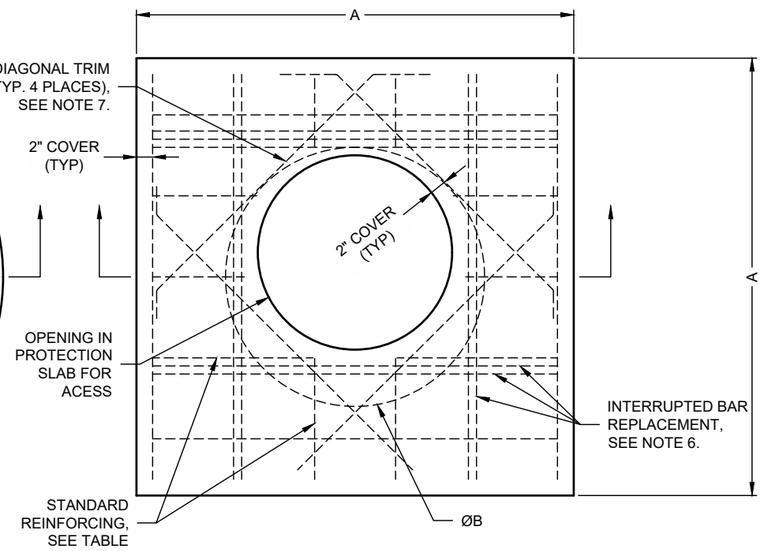
REINFORCING TABLE				
Ø CMP RISER	A	B Ø	REINFORCING	**BEARING PRESSURE (PSF)
24"	4'Ø 4'x4'	26"	#5 @ 10" OCEW #5 @ 10" OCEW	2,540 1,900
30"	4'-6"Ø 4'-6" x 4'-6"	32"	#5 @ 10" OCEW #5 @ 9" OCEW	2,260 1,670
36"	5'Ø 5' x 5'	38"	#5 @ 9" OCEW #5 @ 8" OCEW	2,060 1,500
42"	5'-6"Ø 5'-6" x 5'-6"	44"	#5 @ 8" OCEW #5 @ 8" OCEW	1,490 1,370
48"	6'Ø 6' x 6'	50"	#5 @ 7" OCEW #5 @ 7" OCEW	1,210 1,270

ACCESS CASTING SUPPLIED BY CONTECH IN SELECT MARKETS UNDER SEPARATE SUBMITTAL

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION AND ACI 350.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 4,000 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERS, ARCHITECTS AND LAND SURVEYORS, ENDWELL, NY.

MANHOLE CAP DETAIL

NOT TO SCALE

MARK	DATE	REVISION DESCRIPTION	BY

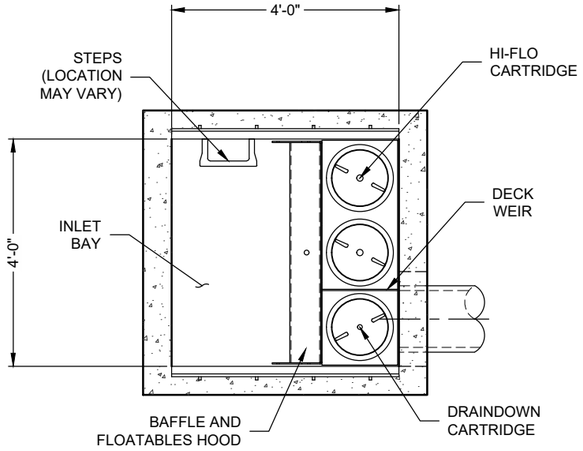
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH CMP DETENTION SYSTEMS

CONTECH **PROPOSAL** DRAWING

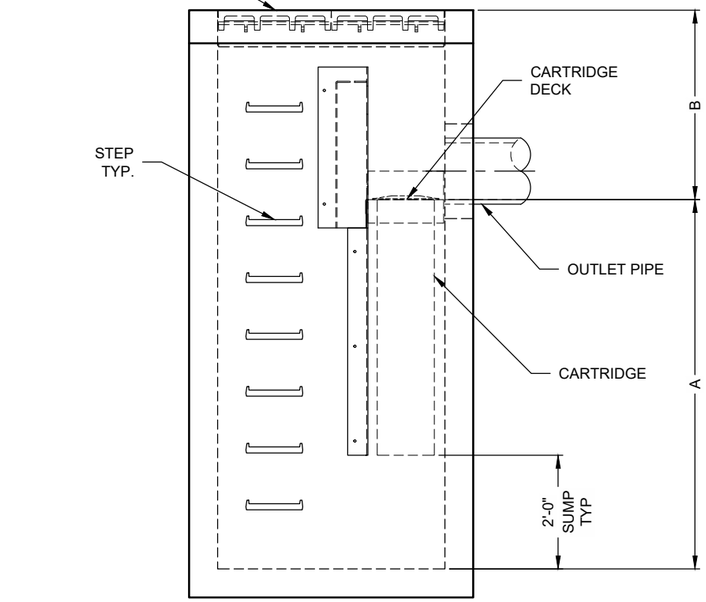
96"Ø UNDERGROUND RETENTION SYSTEM - 793285-015
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: UDS

PROJECT No.:	SEQ. No.:	DATE:
793285	015	4/18/2024
DESIGNED: RKD	DRAWN: RKD	
CHECKED: RKD	APPROVED: RKD	
SHEET NO.: P5 OF 5		



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



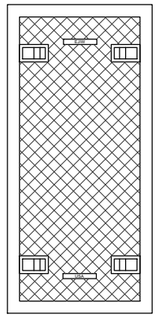
ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

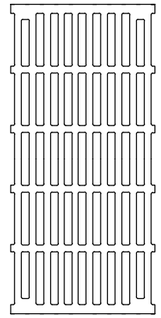
CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	0.45
OUTLET INVERT TO RIM (MIN) (B)	3'-4"



24" TRENCH COVER

N.T.S.



24" TRENCH GRATE

N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	WQU #2
WATER QUALITY FLOW RATE (cfs)	0.44
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	2 / 1
CARTRIDGE LENGTH	54"

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	914.90'	HDPE	12"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	820.68'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

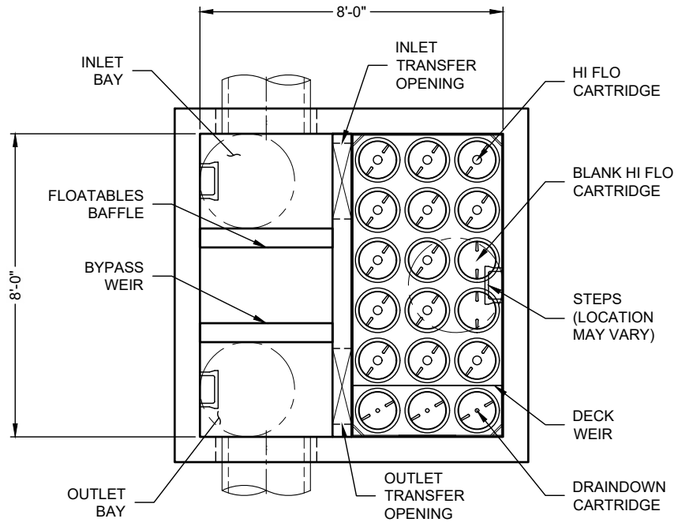
INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish Filter

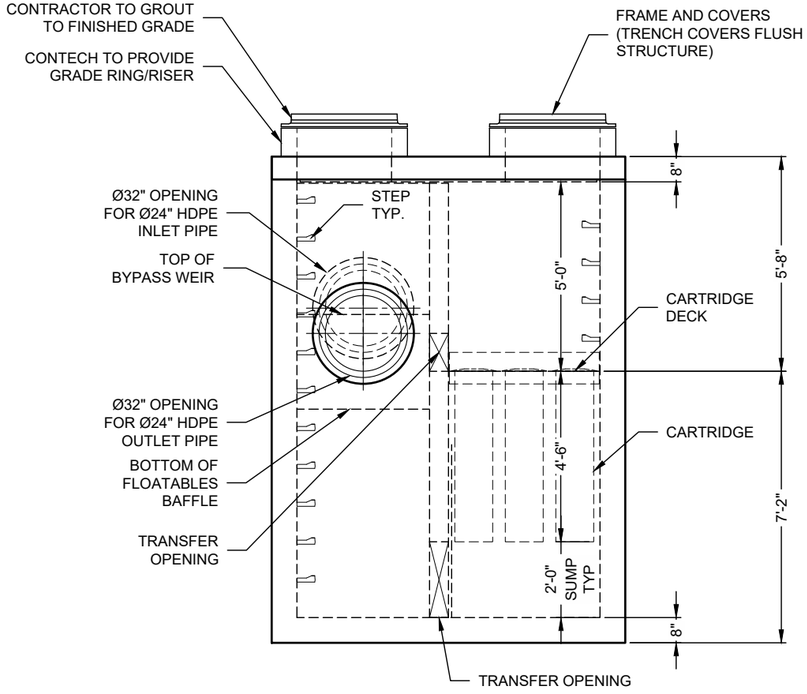
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

4' x 4' JELLYFISH - 793285 - 20 SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: SOUTHWEST AREA



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



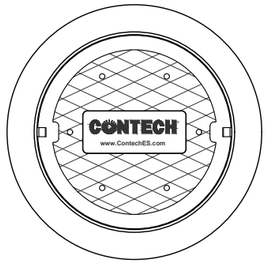
ELEVATION VIEW

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	2.94
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER

(DIAMETER VARIES)

N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	WQU
WATER QUALITY FLOW RATE (cfs)	2.49
PEAK FLOW RATE (cfs)	32.25
RETURN PERIOD OF PEAK FLOW (yrs)	25
# OF CARTRIDGES REQUIRED (HF / DD)	13 / 3
CARTRIDGE LENGTH	54"

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	907.28'	HDPE	24"	*	*
INLET #2	*	*	*	*	*
OUTLET	907.21'	HDPE	24"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	923.80'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish Filter

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFPD0808 - 793285 - 010
SCHOOL OF SCIENCE & TECHNOLOGY
SAN ANTONIO, TX
SITE DESIGNATION: WQU

Attachment I

Kimley»Horn

ATTACHMENT I – Inspection and Maintenance for BMP's

PROJECT NAME: School of Science and Technology - Sonterra
ADDRESS: 1819 E. Sonterra Blvd.
CITY, STATE: San Antonio, TX

TEMPORARY BMP'S

SILT FENCE

- Inspections: Inspect all fencing weekly, and after any rainfall.
- Sediment Removal: Remove sediment when buildup reaches 6 inches.
- Replace any torn fabric or install a second line of fencing parallel to the torn section.
- Replace or repair any section 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.

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 revegetated. The fence itself should be disposed of in an approved landfill.

BAGGED GRAVEL INLET FILTER

- Inspections: Should be made weekly, and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
- Sediment Removal: Remove sediment when buildup reaches 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
- Check placement of device to prevent gaps between device and curb.
- Inspect filter fabric and patch or replace if torn or missing.
- Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized

STABILIZED CONSTRUCTION ENTRANCE

- The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public roadways. This may require periodic top dressing with additional stone as conditions demand, as well as repair and clean out of any measure devices used to trap sediment.
- All sediment that is spilled, dropped, washed or tracked onto public roadway must be removed immediately by contractor.

The stabilized construction entrance will be removed once the driveway to the proposed site is complete. Disposal of accumulated silt shall be accomplished following Texas Commission on Environmental Quality guidelines and specifications.

Maintenance records shall be kept on the installation, maintenance, or removal of items necessary for the proper operation of the facilities.
All inspections shall be documented.

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

EDWARDS AQUIFER CONTRIBUTING ZONE
STORMWATER QUALITY MAINTENANCE PLAN

INSTALLATION		MAINTENANCE		REMOVAL	
DATE	**CONTROL TYPE**	**DATE**	**CONTROL TYPE**	**DATE**	**CONTROL TYPE**

Note: Reference Contributing Zone Application Attachment N Maintenance Plan and Schedule for BMP's

Attachment J

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment J

Schedule of Interim and Permanent Soil Stabilization Practices

Stabilization measures shall be initiated as soon as possible in portions of the site where construction activities have ceased, temporarily or permanently, but in no case more than 14 days after the construction activity in that portion of the site concluded. Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

SOIL STABILIZATION PRACTICES:

_____HYDROMULCHING
__X___TEMPORARY SEEDING
__X___PERMANENT PLANTING, SODDING, OR SEEDING
__X___MULCHING
_____SOIL RETENTION BLANKET
_____ BUFFER ZONES
__X___PRESERVATION OF NATURAL RESOURCES

OTHER: Disturbed areas, in which construction activity has ceased temporarily or permanently, shall be stabilized within 14 days unless activities are scheduled to resume and done within 21 days.

Permanent Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

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

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

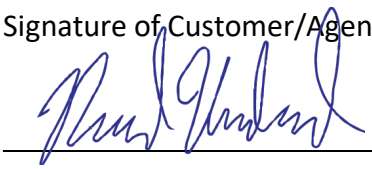
Signature

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

Print Name of Customer/Agent: Richard Underwood, P.E.

Date: 05/23/2024

Signature of Customer/Agent



Regulated Entity Name: School of Science and Technology

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

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

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

6. ☒ **Attachment B - BMPs for Upgradient Stormwater**.

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

☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

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

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

8. ☐ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☒ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☒ Design calculations (TSS removal calculations)
☒ TCEQ construction notes
☒ All geologic features
☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

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

    ☐ N/A

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

    ☒ N/A

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

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

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

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

    ☐ N/A

15. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☐ N/A

Attachment B

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment B

BMPs for Upgradient Stormwater

Due to the surrounding topography, upgradient water will cross the project limits from the developed adjacent property. This water will pass through the BMP systems. The BMP has been designed to only treat the on-site newly proposed on-site impervious cover.

Two (2) proprietary media cartridge filters (Jellyfish) are proposed as the Permanent Best Management Practices (PBMP) for this project. The PBMPs were designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS form the site.

Attachment C

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment C

BMPs for On-Site Stormwater

Two (2) proposed proprietary media cartridge filters will be utilized as the Permanent Best Management Practices (PBMP) for this project. Both filters will be utilized to treat stormwater prior to the detention system. The PBMPs were designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in TSS from the site.

Attachment F

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment F

Construction Plans

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

Attachment G

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment G

Inspection, Maintenance, Repair, and Retrofit Plan

The inspection and maintenance plan outlines the procedures necessary to maintain the performance of the Permanent Best Management Practices for this project. It should be noted that the plan provides guidelines that may have to be adjusted dependent on site-specific and weather-related conditions.

The underground detention system and proprietary media cartridge filter is private and in turn, the property owner is responsible for providing the inspections and maintenance to the pond as needed.

Attachment I

Kimley»Horn

School of Science and Technology
Water Pollution Abatement Plan
Attachment I

Measures for Minimizing Surface Stream Contamination

There are no surface streams on the project site. The closest creek is located approximately 100 feet to the northeast of the project site. Runoff from the project site is channeled through the proposed batch detention basin on the northwest corner of the site before reaching the proximity of the creek.

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

I FAWZY SHEMSHACK,
Print Name

CEO,
Title - Owner/President/Other

of RIVERWALK EDUCATION FOUNDATION,
Corporation/Partnership/Entity Name

have authorized Richard Underwood, P.E.
Print Name of Agent/Engineer

of Kimley-Horn & Associates
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

01/30/2024
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Fawzy Shemsbeck 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 30 day of January, 2024.

NOTARY PUBLIC

MEHMET JOSEPH OGUZ
My Notary ID # 129638930
Expires November 27, 2025

Mehmet Joseph Oguz
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: November 27, 2025

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: School of Science and Technology
Regulated Entity Location: 1819 E Sonterra Blvd, San Antonio, TX 78259
Name of Customer: Riverwalk Education Foundation
Contact Person: Richard Underwood, P.E. Phone: 210-321-3415
Customer Reference Number (if issued):CN _____
Regulated Entity Reference Number (if issued):RN 110865094

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☒ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

☐ Austin Regional Office
☒ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	5.61 Acres	$ 5,000
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: 05/23/2024

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

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

TCEQ Use Only

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

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN		**RN** 110865094

SECTION II: Customer Information

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

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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

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

Riverwalk Education Foundation

7 . TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
	1-01-0758906-0		

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

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

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

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

☐ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☒ Other:

15. Mailing Address:	5300 Wurzbach Rd						
	City	Texas	**State**	TX	**ZIP**	78238	**ZIP + 4**

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

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

(208) 562-7819		( ) -

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.)*

School of Science & Technology

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	1819 E Sonterra Blvd							
	City	San Antonio	**State**	TX	**ZIP**	78259	**ZIP + 4**	
24. County	Bexar							

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

25. Description to Physical Location:	The project is located at the intersection of E Sonterra Blvd and Ridgewood Pkwy in San Antonio, TX.				
26. Nearest City			**State**	**Nearest ZIP Code**	
San Antonio			TX	78259	

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:	29.61351111		**28. Longitude (W) In Decimal:**	98.46272778	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	36	48.64	98	27	45.82

29. Primary SIC Code (4 digits) 8211	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits) 6111	**32. Secondary NAICS Code** (5 or 6 digits)

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

Charter School

34. Mailing Address:	**5300 Wurzbach Rd**							
	City	**San Antonio**	**State**	**TX**	**ZIP**	**78238**	**ZIP + 4**	
35. E-Mail Address:								

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

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

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

SECTION IV: Preparer Information

40. Name:	Richard Underwood	**41. Title:**	Authorized Agent

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(210 **)** 321-3415		**( ) -**	richard.underwood@kimley-horn.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Kimley-Horn	**Job Title:**	Project Manager	
Name *(In Print):*	Richard Underwood		**Phone:**	**(** 210 **)** 321- **3415**
Signature:			**Date:**	05/23/2024