O'Connor High School

Organized Sewage Collection System (OSCS) Plan

KCI Job # 762301481

Prepared for:

Northside Independent School District
5900 Evers Road
San Antonio, TX 78238

Prepared by:

KCI Technologies Inc.
Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
2806 W. Bitters Rd., Suite 218
San Antonio, TX 78248

September 2023

Texas Commission on Environmental Quality (TCEQ)

Organized Sewage Collection System (OSCS) Plan

O'Connor High School Agricultural Science and Technology

KCI Job # 762301481

Prepared by:

Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
Practice Leader \ Senior Associate

KCI Technologies, Inc.
2608 W. Bitters Road, Suite 218
San Antonio, TX 78248
Phone: (210) 641-9999
FAX: (210) 641-6440
Registration #F-10573 / #101943-65

Prepared for:

Northside Independent School District
5900 Evers Road
San Antonio, TX 38248

Table of Contents

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: O'Connor High School Agricultural Area					**2. Regulated Entity No.:** 104754304				
3. Customer Name: Leroy San Miguel, Assistant Superintendent for Facilities and Operations					**4. Customer No.:** 601104169				
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):**		26.940 out of 157.652		
9. Application Fee:	$650		**10. Permanent BMP(s):**		1				
11. SCS (Linear Ft.):	611		**12. AST/UST (No. Tanks):**		0				
13. County:	Bexar		**14. Watershed:**		Leon Creek				

Application Distribution

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

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

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

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

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

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

Paul Mathis, PE, PMP, LEED Green Associate, MBA (KCI)

Print Name of Customer/Authorized Agent

Paul A Mathis — September 21, 2023

Signature of Customer/Authorized Agent — Date

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

General Information Form (TCEQ-0587)

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA

Practice Leader | Senior Associate

Date: 9/22/2023

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: O'Connor High School Agricultural Science and Technology
2. County: Bexar
3. Stream Basin: Helotes Creek
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☐ WPAP ☒ SCS

☒ Modification
☐ AST
☐ UST
☐ Exception Request

7. Customer (Applicant):

Contact Person: Jacob Villarreal, Executive Director of Construction and Engineering
Entity: Northside Independent School District
Mailing Address: 5900 Evers Road
City, State: San Antonio, TX Zip: 78238
Telephone: (210) 397-8500 FAX: (210) 397-8500
Email Address: jacob.villarreal@nisd.net

8. Agent/Representative (If any):

Contact Person: Paul A. Mathis, P.E. LEED Green Assoc., MBA, Pratice Leader \ Senior Associate
Entity: KCI Technolgies, Inc.
Mailing Address: 2806 W. Bitters Rd., Ste. 218
City, State: San Antonio, TX Zip: 78248
Telephone: (210) 641-9000 FAX: (210) 41-6440
Email Address: paul.mathis@kci.com

9. Project Location:

☒ The project site is located inside the city limits of Helotes.
☐ 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.

O'Connor High School is located in southwest corner of intersection of Bandera Road and Leslie Road. The addition of the new buildings will be in the southwest corner of the school property.

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: _____

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: Existing O'Connor High School Campus

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)

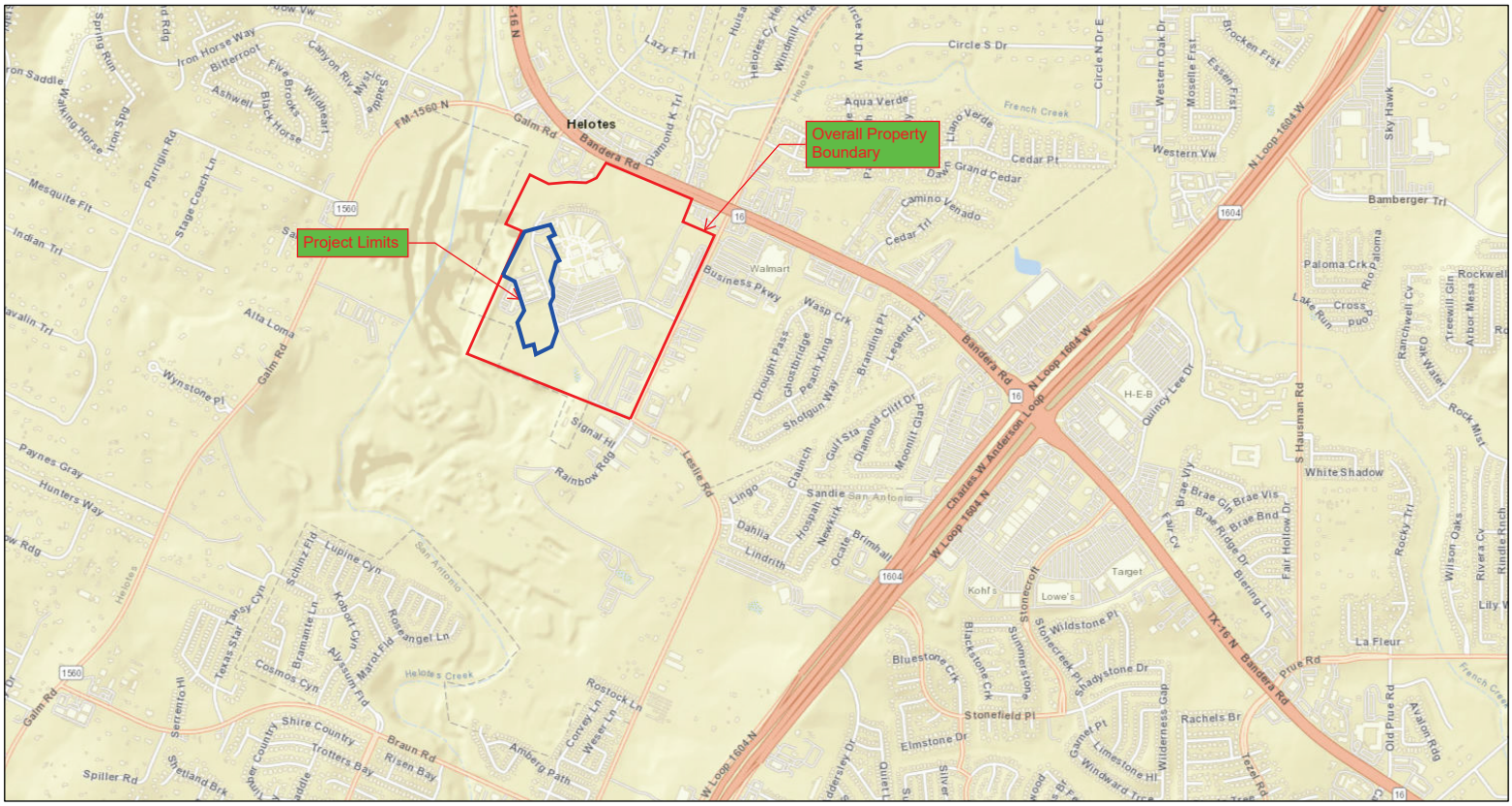
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies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

Road & Aerial Maps

Road Map



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1:18,056

0 0.2 0.4 0.8 mi

0 0.3 0.6 1.2 km

BCAD, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

USGS
2021 USGS

LEGEND

OVERALL PROPERTY BOUNDARY

PROPOSED WORK AREA

GRAPHIC SCALE

1 INCH = 200 FT

O'CONNOR HIGH SCHOOL AGRICULTURAL AREA
12221 LESLIE RD,
HELOTES, TX 78023
SITE LOCATION

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-5440
REGISTRATION #F-10073 / #10194345

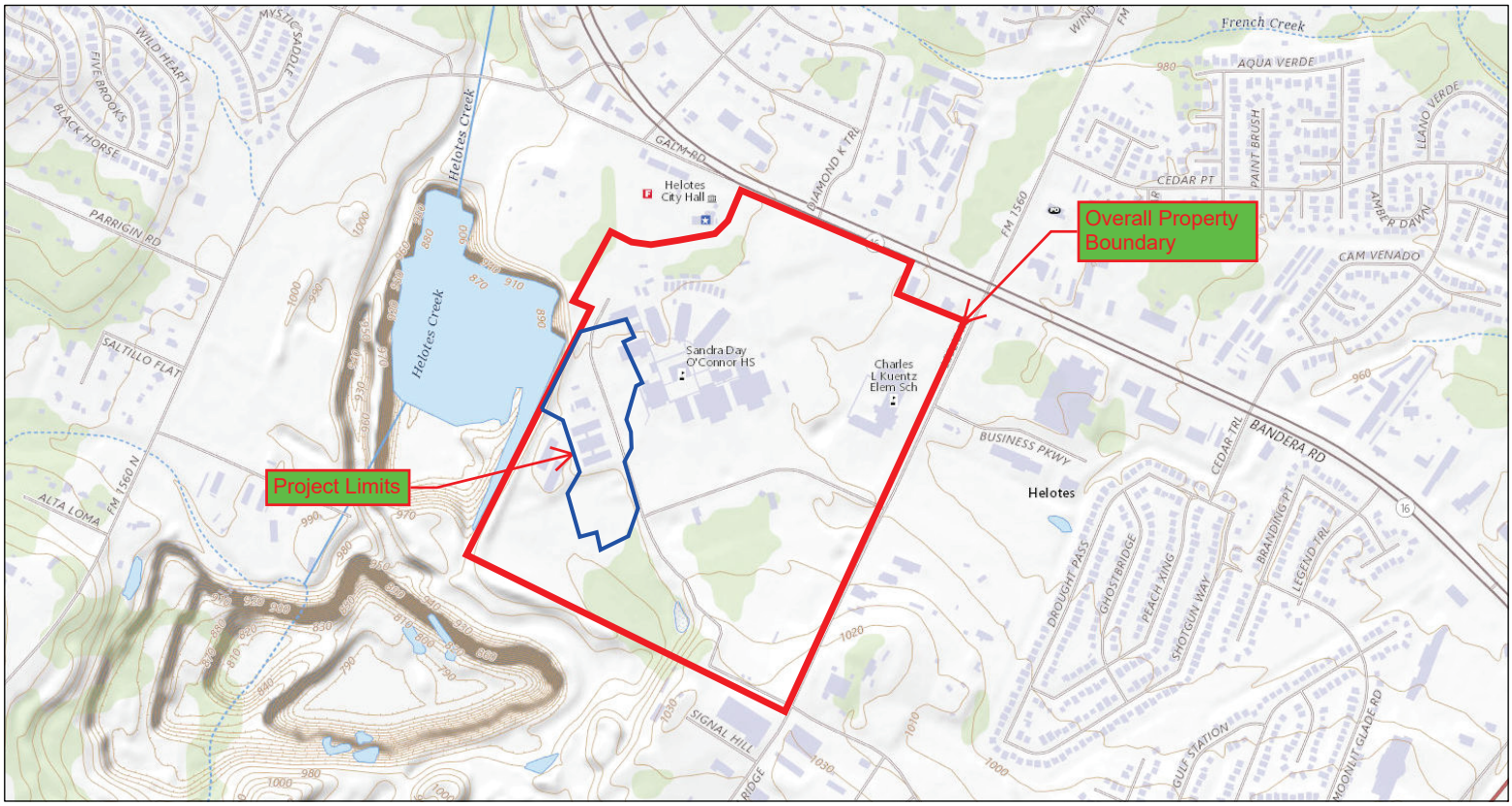
REV	DATE	DESCRIPTION

SHEET:
EXH A

Attachment B

USGS & Edwards Recharge Zone Maps

USGS Map



7/10/2023, 3:58:39 PM

1:9,028

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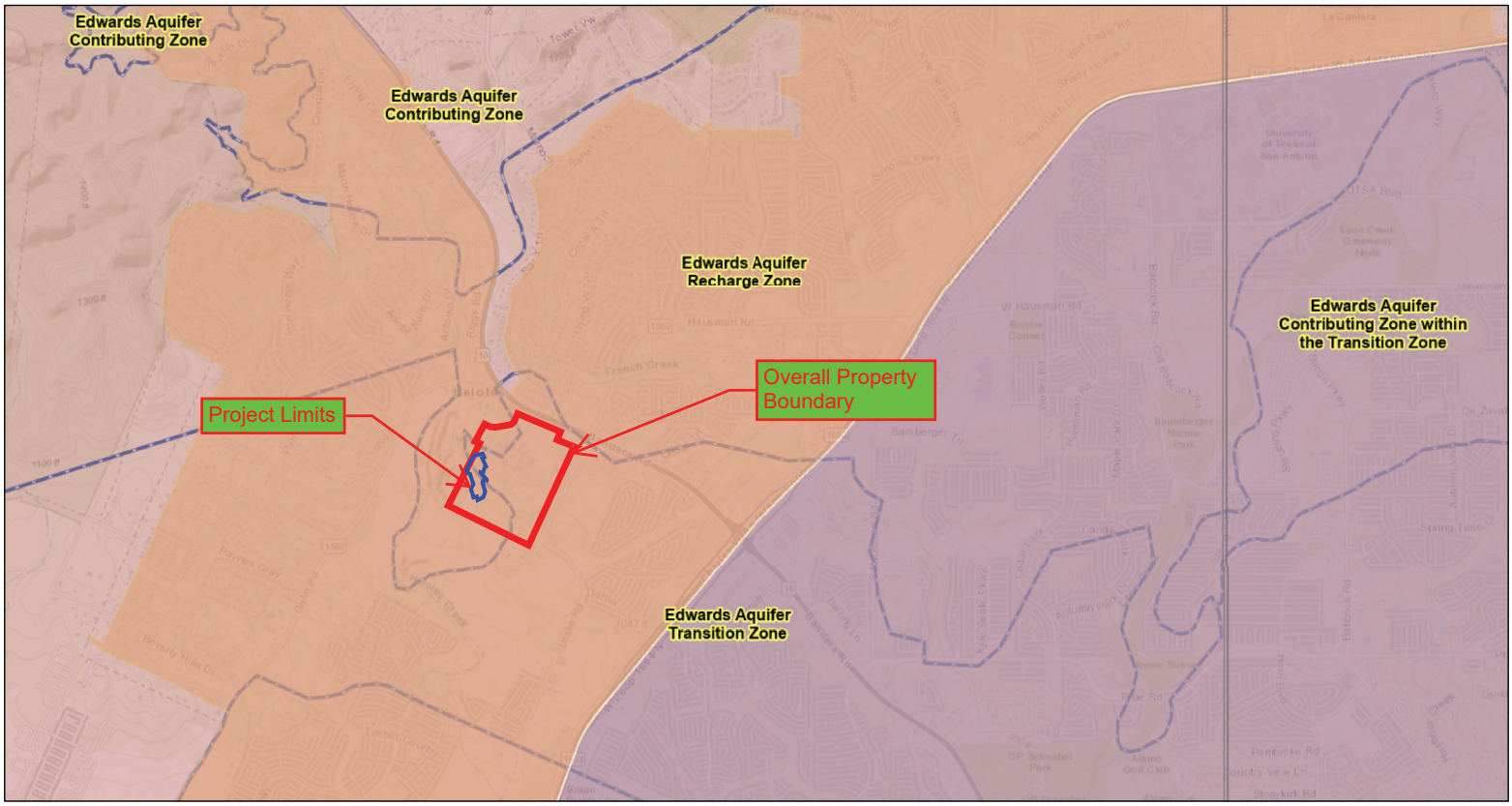
0 0.15 0.3 0.6 km

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

USGS
2021 USGS

Edwards Aquifer Map



9/21/2023, 8:23:39 AM

1:36,112

0 0.4 0.8 1.6 mi

0 0.5 1 2 km

- 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

TCEQ, BCAD, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

Web AppBuilder for ArcGIS

BCAD, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | TCEQ |

Attachment C

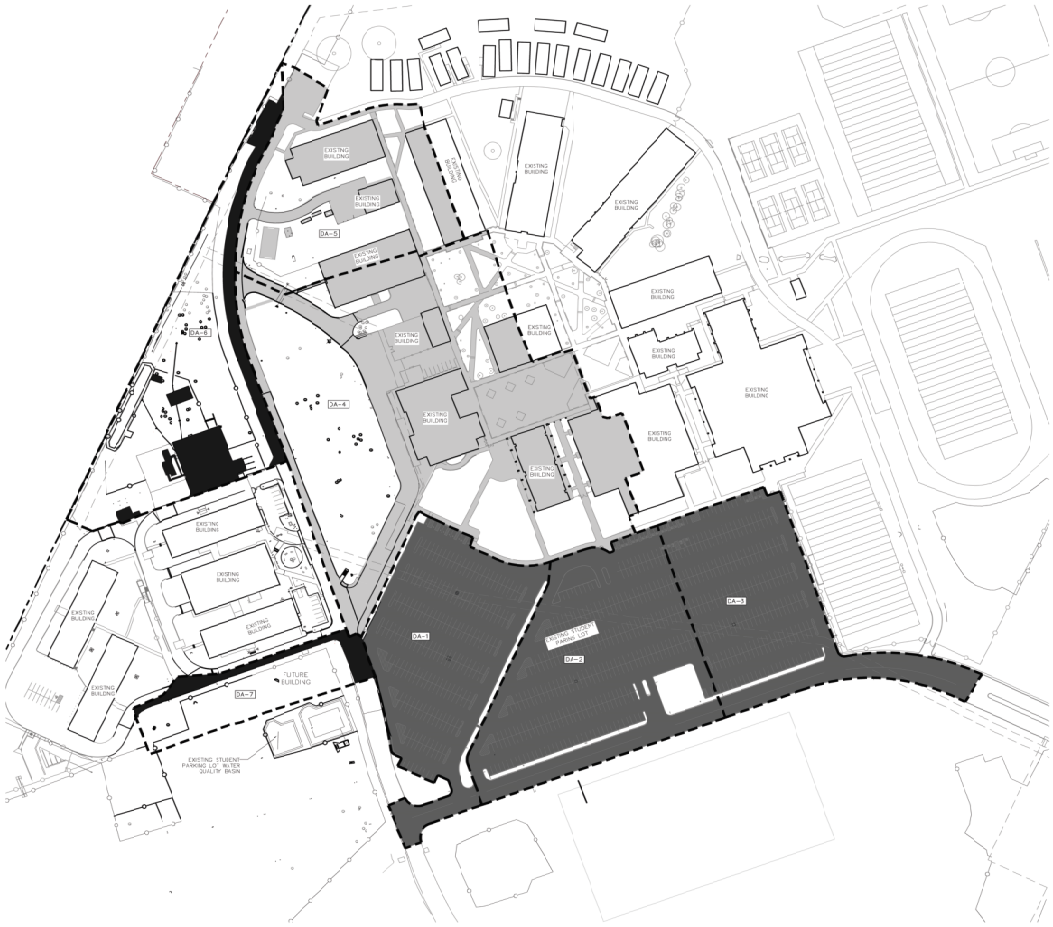
Project Description

Project Overview

The Project is located inside O'Connor High School at 12221 Leslie Rd, Helotes, TX 78023 (Southwest corner of High School Property which is located at southwest corner of intersection of Bandera Road and Leslie Road), refer to the enclosed aerial photo. The project is within the City limits of Helotes with the legal description CB 4480B BLK 1 LOT 4 EXC NE IRR 5FT HELOTES AREA HIGH SCHOOL, Bexar County, Texas. The site is entirely located within Leon Creek Watershed. A portion of this tract is within the 100-year FEMA floodplain, Firm Panel 48029C0220G effective September 29, 2010, as shown in Exhibits A of this report.

Proposed Sewer Line

The addition of new buildings, a food science building, a barn, a general warehouse, a greenhouse, a storge, and a shop building will require extension of sewer line and laterals to these proposed new buildings and addition of a small lift station. The total length of the proposed 8-inch PVC SDR 26 sewer gravity line is 611 linear feet, and 1208 linear feet of 6-inch PVC SDR 26 sewer laterals. 3 new manholes will be added to the site with one intercepting the existing SCS as shown in enclosed Utility and Drainage Plan North (C5.02) and Utility and Drainage Plan Mid (C5.03).



GRAPHIC SCALE

80 0 40 80 160

(IN FEET)
1 INCH = 80 FT
PAPER SIZE = 30" X 42"

LEGEND

▨	EXISTING IMPERVIOUS COVER (CURRENTLY TREATED BY STUDENT PARKING LOT BASIN)
▨	EXISTING IMPERVIOUS COVER (CURRENTLY TREATED BY VEGETATED FILTER STRIP)
■	EXISTING IMPERVIOUS COVER (NOT TREATED)
– – – –	DRAINAGE AREA BOUNDARY
DA–X	DRAINAGE AREA NUMBER & ACREAGE

PRE-DEVELOPMENT

EXISTING IMPERVIOUS COVER (IC) CALCULATIONS:

1 - IC TREATED BY STUDENT PARKING LOT WATER QUALITY BASIN (DA-1, DA-2, AND DA-3) = 9.582 AC

2 - IC TREATED VEGETATED FILTER STRIP (DA-4 AND DA-5) = 6.362 AC

3 - IC NOT TREATED (DA-6 AND DA-7) = 1.116 AC

TOTAL EXISTING IMPERVIOUS COVER = 17.059 AC

REV	DATE	DESCRIPTION

PAUL A. MATHIS
105075
9-21-2023

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230 1037
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

O'CONNOR HIGH SCHOOL
12221 LESLIE RD,
HELOTES, TX 78023
EXISTING IMPERVIOUS COVER

DRAFTING:	JKZ	CHECK:	FAM
DESIGN:	JKZ	CHECK:	FAM
SUBMITTAL PHASE			
DATE			06/2023
KCI JOB #:			762301481

SHEET:
EXH E

LEGEND

- EXISTING IMPERVIOUS COVER (TO BE TREATED BY UPSIZED STUDENT PARKING LOT BASIN)
- PROPOSED IMPERVIOUS COVER (TO BE TREATED BY UPSIZED STUDENT PARKING LOT)
- EXISTING IMPERVIOUS COVER (NOT TO BE TREATED)
- PROPOSED IMPERVIOUS COVER (NOT TO BE TREATED)
- EXISTING IMPERVIOUS COVER (TO BE TREATED BY VEGETATED FILTER STRIP)
- PROPOSED IMPERVIOUS COVER (TO BE TREATED BY VEGETATED FILTER STRIP)
- DRAINAGE AREA BOUNDARY
- DA-X — DRAINAGE AREA NUMBER & ACREAGE

GRAPHIC SCALE

1 INCH = 60 FT
PAPER SIZE = 30" X 42"

Post-Development Impervious Cover

To Be Treated By Upsized Student Parking Lot Water Quality Basin			
Drinage Area	Existing IC (SF)	Proposed IC (SF)	Total
DA-A	132,464.000		132,464.000
DA-B	160,657.000		160,657.000
DA-C	124,261.000		124,261.000
DA-D	202,850.000	45,307.622	248,157.622
DA-E	74,281.000	3,320.338	77,601.338
TOTAL (SF)	**694,513.000**	**48,627.960**	**743,140.960**
Total (AC)	**15.944**	**1.116**	**17.060**
NOT to be Treated			
Drinage Area	Existing IC (SF)	Proposed IC (SF)	Total
DA-F	36,757.000	61,835.975	98,592.975
TOTAL (SF)	**36,757.000**	**61,835.975**	98,592.975
Total (AC)	**0.844**	**1.420**	**2.263**
To be Treated Vegetated Filter Strip			
Drinage Area	Existing IC (SF)	Proposed IC (SF)	Total
DA-G	11,837.540	16,214.196	28,051.735
TOTAL (SF)	**11,837.540**	**16,214.196**	28,051.735
Total (AC)	**0.272**	**0.372**	**0.644**

GRAND TOTAL	Existing (AC)	Proposed (AC)	Total (AC)
	17.059	**2.908**	**19.968**

Difference in IC = IC Added	2.908	Acres
Total Project Area	26.936	Acres
% of Impervious Cover	74.130	

KCI TECHNOLOGIES, INC.
14101 HARDY ROAD
SAN ANTONIO, TEXAS 78253-5007
PHONE (210) 545-1122
FAX (210) 545-4464
REGISTRATION #F-0073 #P-0940-05

O'CONNOR HIGH SCHOOL
12221 LESLIE RD.
HELOTES, TX 78023

PROPOSED IMPERVIOUS COVER

EXH F

Geologic Assessment (TCEQ-0585)

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

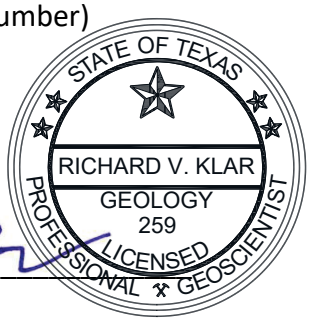
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Richard V. Klar, P.G. Telephone: 210-699-9090

Date: October 25, 2023 Fax: 210-699-6426

Representing: **Raba Kistner, Inc.**, TBPG Firm #50220 / TBPE Firm #3257 for KCI Technologies, Inc. on Behalf of Northside Independent School District (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



10/26/2023

Regulated Entity Name: O'Connor High School Water Pollution Abatement Plan (WPAP) Modification

Project Information

1. Date(s) of Geologic Assessment was performed: May 18, 2023
2. Type of Project:

☒ WPAP ☐ AST

☒ SCS ☐ 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)
Crawford Clay, 0 to 1 percent slopes (Ca)	D	~1 to 3
Crawford and Bexar stony soils, 0 to 5 percent slopes (Cb)	D	~1 to 3
Lewisville silty clay, 0 to 1 percent slopes (LvA)	B	~4+
Lewisville silty clay, 1 to 3 percent slopes (LvB)	B	~2 to 3
Patrick soils, 3 to 5 percent slopes (PaC)	B	~1 to 1.5

**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 thickness 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 – Project 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 – Project Geologic Map(s).** The Project 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" = 80'
   Project Geologic Map Scale: 1" = 80'
   Site Soils Map Scale (if more than 1 soil type): 1" = 200'

9. Method of collecting positional data:

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

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

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

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Project 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 15 (#) test holes present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☒ The test holes are not in use and have been properly abandoned.
    - ☐ The well is not in use and will be properly abandoned.
    - ☐ The well is in use and complies with 16 TAC Chapter 76.

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

Administrative Information

☒ 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.

ATTACHMENTS

ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE
(TCEQ-0585-TABLE)

COMMENTS TO GEOLOGIC ASSESSMENT TABLE

SOIL PROFILE

PROJECT SOILS MAP

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: *O' Connor High School Water Pollution Abatement Plan (WPAP) Modification*
Helotes, Bexar County, Texas (RKI Project No. ASF23-091-00)

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	<1.0	≥1.0	
S-1	29°33'33.77"N	98°41'15.54"W	MB (SS)	30	Qt/Kep	3,450.0	3.0-4.0	8.0-10.0					X	8	38	✓		✓		Hilltop
S-2	29°33'29.28"N	98°41'18.05"W	MB (SS)	30	Kep	222.0	3.0-4.0	8.0-10.0					X	8	38	✓		✓		Hilltop
S-3	29°33'34.40"N	98°41'17.62"W	MB (W)	30	Qt/Kep	2,655.0	2.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-4	29°33'34.52"N	98°41'16.40"W	MB (E)	30	Qt/Kep	3,394.0	2.0	2.0-3.0					X	6	36	✓		✓		Hilltop
S-5	29°33'32.66"N	98°41'20.17"W	MB (G)	30	Qt/Kep	2,208.0	2.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-6	29°33'37.98"N	98°41'18.71"W	MB (SD-A1)	30	Qt/Kep	830.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-7	29°33'27.90"N	98°41'14.84"W	MB (SD-A2)	30	Qt/Kep	1,146.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-8	29°33'25.94"N	98°41'13.79"W	MB (SD-A3)	30	Qt/Kep	681.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-9	29°33'26.38"N	98°41'17.33"W	MB (WQ Pond A)	30	Qt/Kep	174.0	75.0	8.0					X	8	38	✓			✓	Hilltop
S-10	29°33'27.40"N	98°41'22.13"W	MB (SD-B1)	30	Qt	670.0	2.0-3.0	3.0-4.0					X	6	36	✓		✓		Hilltop
S-11	29°33'26.11"N	98°41'24.36"W	MB (WQ Pond B)	30	Qt	70.0	48.0	4.0					X	8	38	✓			✓	Hilltop
S-12	29°33'27.17"N	98°41'20.02"W	MB (test hole B-1)	30	Kep	0.5	0.5	38.7					Z	6	36	✓		✓		Hilltop
S-13	29°33'26.75"N	98°41'21.81"W	MB (test hole B-2)	30	Kep	0.5	0.5	28.7					Z	6	36	✓		✓		Hilltop
S-14	29°33'32.38"N	98°41'19.75"W	MB (test hole B-3)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-15	29°33'33.82"N	98°41'20.40"W	MB (test hole B-4)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-16	29°33'36.66"N	98°41'18.07"W	MB (test hole B-5)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-17	29°33'33.43"N	98°41'17.11"W	MB (test hole B-6)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-18	29°33'32.25"N	98°41'16.64"W	MB (test hole B-7)	30	Kep	0.5	0.5	39.0					Z	6	36	✓		✓		Hilltop
S-19	29°33'33.15"N	98°41'17.99"W	MB (test hole B-8)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-20	29°33'32.12"N	98°41'17.31"W	MB (test hole B-9)	30	Kep	0.5	0.5	38.6					Z	6	36	✓		✓		Hilltop
S-21	29°33'30.99"N	98°41'22.89"W	MB (test hole P-1)	30	Kep	0.5	0.5	10.0					Z	6	36	✓		✓		Hilltop
S-22	29°33'34.29"N	98°41'21.18"W	MB (test hole P-2)	30	Kep	0.5	0.5	9.3					Z	6	36	✓		✓		Hilltop
S-23	29°33'33.96"N	98°41'18.30"W	MB (test hole P-3)	30	Kep	0.5	0.5	8.5					Z	6	36	✓		✓		Hilltop
S-24	29°33'31.10"N	98°41'17.01"W	MB (test hole P-4)	30	Kep	0.5	0.5	8.5					Z	6	36	✓		✓		Hilltop
S-25	29°33'26.52"N	98°41'20.54"W	MB (test hole RW-1)	30	Kep	0.5	0.5	19.4					Z	6	36	✓		✓		Hilltop
S-26	29°33'27.23"N	98°41'18.29"W	MB (test hole RW-2)	30	Kep	0.5	0.5	19.5					Z	6	36	✓		✓		Hilltop

*** DATUM:** ***NAD83***

Formations: Qt = Quaternary terrace deposits; Kep = Person Formation

Features: SS = sanitary sewer line; W = potable water line; E = underground electric; G = natural gas; SD = storm drain system; WQ Pond = water quality pond.

Note: Designations to distinguish the several storm drains and water quality ponds are for this reporting discussion purposes.

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: ***Granular bedding materials for utility lines (Features S-1 through S-5), sand filter media with impermeable liner (Features S-9 and S-11), and cuttings/bentonite (Features S-12 through S-26).***

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Natural Resource Conservation Commission'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 213.

STATE OF TEXAS
RICHARD V. KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOLOGIST

Date: *October 26, 2023*

Sheet 1 of 1

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

COMMENTS TO GEOLOGIC ASSESSMENT TABLE
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

The locations of the following features are indicated on the ***Project Geologic Map*** provided as ***Attachment D*** of this report. The following utility trenches (i.e., sanitary sewer, potable water, electric, and natural gas), in addition to an extensive storm drain system were identified within the WPAP assessment area and plotted based on field observations of manholes, valves, meters and fire hydrants, in addition to storm drain inlets and water quality basins. The utility locations and storm drain segments were also taken from the Overall Utility and Drainage Exhibit (i.e., PDF) provided by the project engineer, KCI Technologies, Inc. (KCI, 2023).

Manmade Features in Bedrock (MB)

Feature S-1

Feature S-1 consists of a trench for an existing 6 to 8-inch sanitary sewer line owned by San Antonio Water System (SAWS). The location of this utility was identified based on review of the referenced utility exhibit (KCI, 2023), in addition to field observations of manholes and cleanouts. On the basis of our observations and available utility information, it is inferred that the trench hosting the utility line is approximately 3-4 feet wide and installed to approximately 8-10 feet terminating in the underlying Quaternary terrace deposits (Qt) and Person Formation (Kep). The combined length of the utility trench segment within the Project area is estimated on the order of 3,450 linear feet.

Feature S-2

Feature S-2 consists of a trench for an existing sanitary sewer line. The location of this utility was based on review of the referenced utility exhibit (KCI, 2023). On the basis of available utility information, it is inferred that the trench hosting the utility line is approximately 3-4 feet wide and installed to approximately 8-10 feet terminating in the underlying Person Formation (Kep). The length of the utility trench within the Project area is estimated on the order of 222 linear feet.

Feature S-3

Feature S-3 consists of trenches for existing 6- and 8-inch polyvinyl chloride (PVC) potable water lines owned by SAWS. The utility trenches were plotted based on review of the referenced utility exhibit (KCI, 2023) and field observations of fire hydrants and water meters near Buildings D and P. On the basis of our observations, it is inferred that the trenches hosting the utility lines are approximately 2-feet wide and installed 3-4 feet or more, terminating in the Qt and Kep. The length of the combined utility trenches within the project area is estimated on the order of 2,655 linear feet.

Feature S-4

Feature S-4 consists of trenches for electric lines owned by City Public Service (CPS) Energy. The utility trenches were identified based on observations of ground-mounted transformers during reconnaissance activities and review of the referenced utility exhibit (KCI, 2023). On the basis of our observations and available utility information, it is inferred that the trenches hosting the utility lines are approximately 2 feet wide and installed to approximately 2-3 feet, terminating in the underlying Qt and Kep. The trenches extend: (i) east from the Central Plant (Building D) to the agriculture barns; and (ii) north and south Buildings F and C, respectively. The length of the combined utility trenches within the Project area is estimated on the order of 3,394 linear feet.

Feature S-5

Feature S-5 consists of trenches for 1-1/4- and 4-inch natural gas lines owned by CPS Energy. The location of these utilities were based on observations of gas meters during reconnaissance activities and review of the referenced utility exhibit (KCI, 2023). On the basis of our observations and available utility information, it is inferred that the trenches hosting the utility lines are approximately 2 feet wide and installed to approximately 3-4 feet, terminating in the underlying Kep. The trenches extend from Building D to the west and follows main campus roadway to the agricultural barns. The combined length of the utility trenches within the Project area is estimated on the order of 2,208 linear feet.

Features S-6 through S-11

Features S-6, S-7. S-8, and S-10 consist of trenches hosting individual segments of a storm drain system that services the O' Connor High School campus. This drainage system discharges to water quality ponds, which ultimately discharge to Helotes Creek that is located approximately 1,230 to the southwest of the Project area. These trenches are inferred to be approximately 3-4 feet in depth, terminating into the underlying Qt and Kep.

- ***Feature S-6*** consists of an 18 and 24 inch storm drain reinforced concrete pipes (RCP) in various locations that extend from Building F and follow drainage swales south to a 24-inch corrugated metal pipe and daylights to an open drainage field located north of Water Quality Pond A (***Feature S-8***). The length of the utility trench segment within the Project area is estimated on the order of 830 linear feet.
- ***Feature S-7*** consists of a storm drain pipe mapped from a manhole near Building L, extending through the parking lots to the southwest to a diversion structure and into a 48-inch inlet pipe to Water Quality Pond A (***Feature S-9***). The length of the utility trench segment within the Project area is estimated on the order of 1,146 linear feet.
- ***Feature S-8*** consists of a storm drain pipe mapped from a grassy area at the south edge of the student parking lot that extends to the southwest manhole in the student parking lot that further extends west to an outlet that opens to a drainage field south of the Water Quality Pond A (***Feature S-9***). The length of the utility trench within the Project area is estimated on the order of 681 linear feet.
- ***Feature S-10*** consists of a 21-inch storm drain pipe mapped from manholes surrounding the agricultural barns, which are located near the southwest corner of the assessment area. The stormwater drains to Water Quality Pond B (***Feature S-11***). The length of the utility trench segment within the Project area is estimated on the order of 670 linear feet.

Features S-9 and S-11 consist of stormwater basins (i.e., water quality ponds). After treatment through sand filter media via either Water Quality Pond A or Water Quality Pond B, stormwater is ultimately discharged to Helotes Creek, which is located approximately 1,230 feet to the southwest.

- ***Feature S-9*** consists of a sedimentation and filtration pond system (Pond A). The dimensions for this feature are approximately 174 feet long and 75 feet wide. The floor of the basin is approximately 8 feet below the top of the concrete headwall through which the detention pond connects to the concrete-lined stormwater collection system. This stormwater basin is underlain by the Kep.


- ***Feature S-11*** consists of a sand filtration basin and detention pond (Pond B). The dimensions for this feature are approximately 70 feet long and 48 feet wide. The floor of the basin is approximately 4 feet below the top of the concrete headwall through which the detention pond connects to the concrete lined stormwater collection system. This stormwater basin is underlain by the Qt.

<u>Features S-12 through S-26</u>

Features S-12 through S-26 consist of test holes installed in June 2023 to support various proposed improvements within the WPAP assessment area at O' Connor High School (i.e., additional buildings, paved areas, and a retaining wall) by **Raba Kistner, Inc.** *(i.e., Project No. ASA23-041-00)*. A total of fifteen borings were drilled using a straight flight auger and air rotary methods to depths ranging from approximately 8-1/2 to 39 feet below existing ground surface. In general, the majority of the borings encountered a surficial layer of dark brown clay approximately 1.25 to 4.5 feet in depth underlain by either a reddish-tan sandy silt, silty sand, or calcareous clay stratum to depths up to 16.5 feet. These strata are underlain by hard tan limestone comprising the top of the Limestone (Person Formation). Fill material consisting of brown clayey sand was encountered to depths ranging from 6 to 19.4 feet at several borings near the southwest portion of the WPAP assessment area, west and south of Buildings P and N, respectively. Shallow groundwater was not observed during drilling operations.

Based on the referenced geotechnical borings logs and observations in conjunction with field reconnaissance activities, the borings were effectively plugged and abandoned following completion of drilling activities using granular bentonite.

SOIL PROFILE
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

SOIL SERIES	THICKNESS ON SITE	DESCRIPTION
Crawford	**~1 to 3 feet**	***Crawford clay, 0 to 1 percent slopes (Ca):*** Crawford soil patches are scattered throughout the hard limestone area, mostly in the uplands with few in the valleys. The surface layer consists of dark brown or dark reddish-brown noncalcareous clay and is typically 8-10 inches thick. The subsurface layer is also noncalcareous and is redder than the surface layer. Limestone typically occurs at a depth of 24-36 inches.
	~1 to 3 feet	***Crawford and Bexar stony soils, 0 to 5 percent slopes (Cb):*** These soils occur as large areas and form a nearly continuous belt extending to the west from the northeast portion of Bexar County to south of Helotes. Crawford Soils comprise approximately 51% of the series. The surface layer of Crawford soils is comprised of dark gray to dark reddish-brown, non-calcareous clay and is typically 8-9 inches thick. The subsoil contains chert fragments and limestone flags. Hard limestone below depth of 24-36 inches. Bexar soils comprise approximately 36% of the series. The surface layer is comprised of cherty clay loam and is on the order of 14-22 inches in thickness. The subsoil is cherty clay and is approximately 6-14 inches thick.
Lewisville	**~4+ feet**	***Lewisville silty clay, 0 to 1 percent slopes (LvA):*** These soils occur as nearly level, broad terraces along rivers and creeks. The surface layer is approximately 24 inches thick and comprised of silty clay or light clay. The subsurface layer is a very firm but crumbly when moist brown silty clay, which is approximately 24 inches thick. This layer has a few worm casts and a few hard and soft lime concretions.
	~2 to 3 feet	***Lewisville silty clay, 1 to 3 percent slopes (LvB):*** Lewisville soils occur along long narrow sloping areas that separate nearly level terrace from soils on the uplands and also occurs on slopes along drainageways. The surface layer consists of dark grayish brown clay and is typically 20 inches thick. The subsoil consists of firm but crumbly limy brown clay and is approximately 17 inches thick.
Patrick	**~1 to 1.5 feet**	***Patrick soils, 3 to 5 percent slopes (PaC):*** Patrick soils occupy escarpments between terraces, above floodplains of streams that drain the limestone prairies. The slopes are moderate and complex. The surface layer is a grayish-brown to dark brown, calcareous clay loam approximately 12 inches thick. The subsurface layer is a brown, calcareous, granular clay loam approximately 5 inches thick. The layers are friable when moist.

The preceding table was prepared based on *Soil Survey of Bexar County, Texas (1962, reissued June 1991)* in addition to field observations. As presented on the attached ***Project Soils Map***, native soils mapped from east to west at the Project are the Lewisville silty clay, 1-3% slopes (LvB), Crawford clay (Ca) soils, Crawford and Bexar stony soils (Cb), Patrick soils, 3 to 5 percent slopes (PaC), and Lewisville silty clay, 0 to 1% slopes (LvA). The soil types are not readily observable owing to existing landscaping, pavements, hardscapes, and buildings that comprise the O' Connor High School. Below is a brief description of the mapped soil units within the WPAP assessment area.

- LvB soils are mapped at the southeast portion of the assessment area along the O Connor High school roadway entrance, which is located south of the band parade ground. This soil unit is associated with older terrace deposits along primary drainage features (i.e., river and creeks) in Bexar County. Lewisville soils are characterized as having a moderately slow permeability ranging on the order of 1.0 to 2.0 inches per hour.

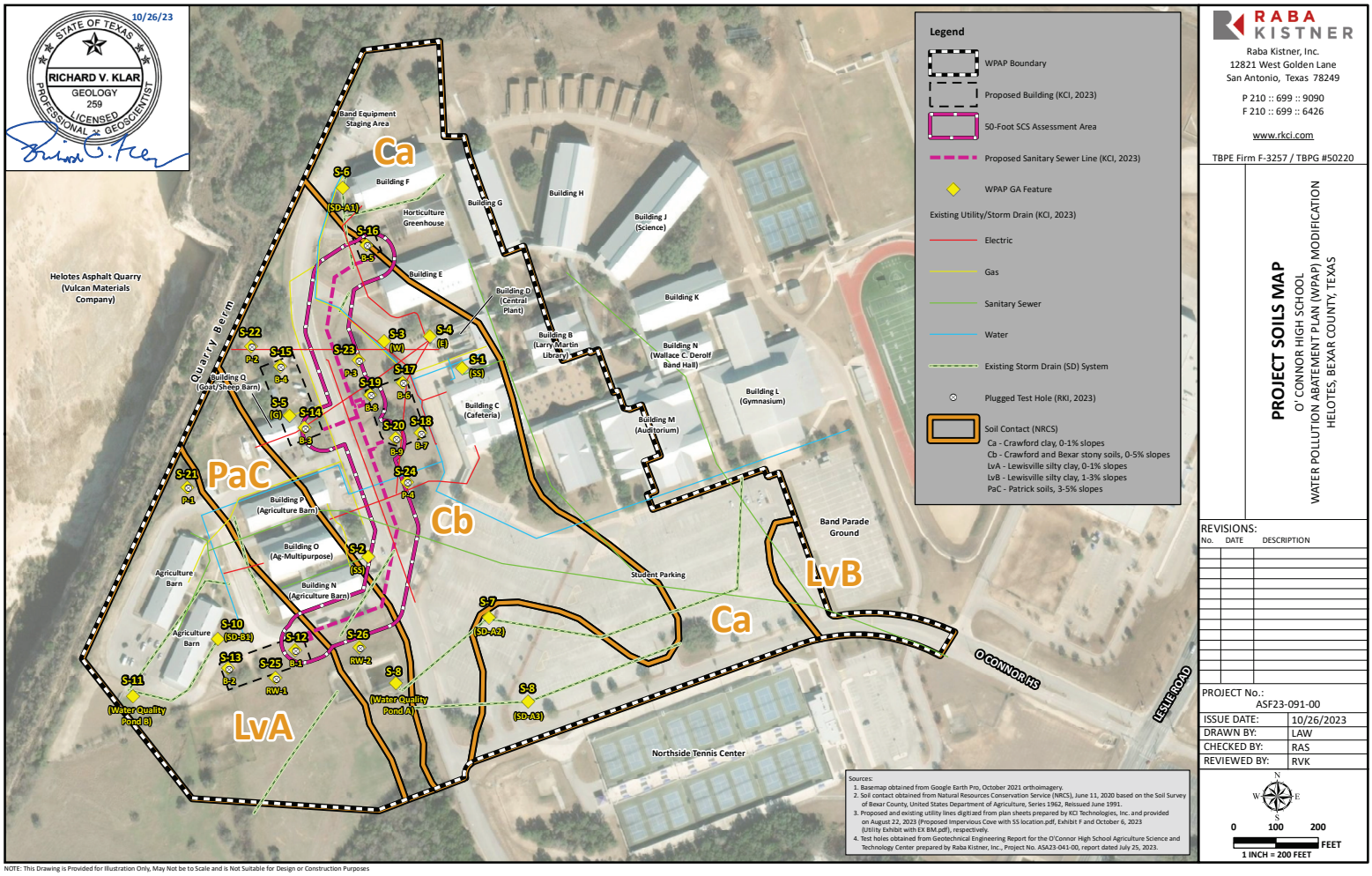
- Ca soils are mapped within the main portion of the high school campus extending from the north portion of the assessment to the southwest in the student parking lot. These soils are naturally well drained, water intake is slow, and water erosion is a hazard. In addition, Ca soils have a very slow permeability, ranging on the order of 0.2 to 0.5 inches per hour. This soil unit is also described as having a high shrink swell potential.

- Cb soils are mapped west of Ca soils within the assessment area that follows the main campus roadway. These soils are weakly-developed and relatively thin, occurring over weathered limestone units of the Person Formation (Kep). These soils have a measured permeability of 1.0 to 1.5 in./hr. and are described as slow. The Crawford Series is further described as having a high shrink-swell potential.

- PaC soils are mapped along Buildings N, O, and P. The parent material is calcareous clay loam. A typical vertical profile consists of a thin surface soil layer ranging from a veneer to a few feet in thickness, typically consisting of gravelly clay loam underlain at shallow depths by hard limestone. Patrick soils are characterized as having a moderate infiltration rate with permeability on the order of 2.0 to 3.0+ in./hr. These soils are more susceptible to erosion.

- LvA soils are mapped at the southwest portion of the WPAP assessment area. LvA soils are typically associated with terrace deposits along as rivers and creek. These soils are characterized as having slow to moderate permeability and infiltration capacity on the order of 1 to 1.2 inches per hour.

As native soils were not directly observable owing to existing improvements, the geotechnical report prepared by **Raba Kistner, Inc.** (2023) was reviewed to evaluate soil and rock conditions, which were generally consistent with the soil types and conditions described above.



Sources:
1. Basemap obtained from Google Earth Pro, October 2021 orthoimagery.
2. Soil contact obtained from Natural Resources Conservation Service (NRCS), June 11, 2020 based on the Soil Survey of Bexar County, United States Department of Agriculture, Series 1962, Reissued June 1991.
3. Proposed and existing utility lines digitized from plan sheets prepared by KCI Technologies, Inc. and provided on August 22, 2023 (Proposed Impervious Cove with SS location.pdf, Exhibit F and October 6, 2023 (Utility Exhibit with EX BM.pdf), respectively.
4. Test holes obtained from Geotechnical Engineering Report for the O'Connor High School Agriculture Science and Technology Center prepared by Raba Kistner, Inc., Project No. ASA23-041-00, report dated July 25, 2023.

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes

STATE OF TEXAS
RICHARD V. KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST
10/26/23

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TBPE Firm F-3257 / TBPG #50220

PROJECT SOILS MAP

O' CONNOR HIGH SCHOOL
WATER POLLUTION ABATEMENT PLAN (WPAP) MODIFICATION
HELOTES, BEXAR COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF23-091-00

ISSUE DATE:	10/26/2023
DRAWN BY:	LAW
CHECKED BY:	RAS
REVIEWED BY:	RVK

0 100 200
FEET
1 INCH = 200 FEET

ATTACHMENT B

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

STRATIGRAPHIC FORMATION	THICKNESS	DESCRIPTION
Fluviatile Terrace Deposits (Qt)	~4–8 feet	Unit consists of sand, silt, and clay sediments and gravels that contain limestone, dolomite, and chert. ***Not exposed in the WPAP assessment area owing to soil cover.***
Del Rio Clay (Kdr)	40-50 feet	Unit consists of blocky gray calcareous clay that weathers light gray to yellowish gray. Identified in the field by the presence of *Ilymatogyra arietina.* ***Not exposed in the WPAP assessment area owing to soil cover.***
Edwards Aquifer **Georgetown Formation (Kgt)**	<10 feet	Unit consists of gray to light tan marly limestone. Identified in the field by the presence of *Waconella wacoensis.* ***Not locally present in the WPAP assessment area.***
Edwards Limestone (Ked) **Person Formation (Kep)**	180-224 feet	
Cyclic and Marine Members, undivided	80-100 feet	Unit consists of massive mudstone to packstone; *miliolid* grainstone; and chert. Identified in the field by cycles of massive beds to relatively thin beds. ***The Kep is inferred to underlie the majority of the WPAP assessment area. Isolated exposures observed along the north side of Building Q. Kep was reported in the geotechnical boring logs (RKI, 2023)***
Leached and Collapsed Members, undivided	80-100 feet	Unit consists of crystalline limestone, mudstone to grainstone and chert. Identified in the field by bioturbated iron-stained beds separated by massive limestone beds. ***Reported to underlie the WPAP assessment area at depth.***
Regional Dense Member	20-24 feet	Unit consists of dense, argillaceous mudstone. Identified in the field by wispy iron-oxide stains. ***Reported to underlie the WPAP assessment area at depth.***

Note: Stratigraphic Column adapted from Collins (2000).

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ATTACHMENT C

NARRATIVE OF PROJECT SPECIFIC GEOLOGY

SITE GEOLOGY NARRATIVE
O' Connor High School Water Pollution Abatement Plan (WPAP) Modification
Helotes, Bexar County, Texas

Introduction

The following is a project-specific discussion of existing geological conditions and potential recharge features for the Edwards Aquifer identified within the west-central portion of the Sandra Day O' Connor High School campus that will host planned improvements (hereinafter referred to as Project or WPAP assessment area). The improvements will include a new greenhouse, shop, administrative and food science building, and animal pens. New pavement areas are proposed around the new shop and a retaining wall is proposed southeast of the new proposed animal pens. In addition, vegetation filter strip overlay in areas and the expansion of the student parking lot water quality basin is proposed for drainage improvements across the west side of the campus. This assessment was performed by **Raba Kistner, Inc. (RKI)** for KCI Technologies, Inc. (CLIENT) on behalf of Northside Independent School District (NISD) pursuant to applicable Edwards Aquifer Protection Program Rules as specified in *Title 30 of the Texas Administrative Code, Section 213 (30 TAC §213*, *effective April 24, 2008).*

This assessment report is in the format required by the Texas Commission on Environmental Quality (TCEQ) for the Geologic Assessment portion of the Water Pollution Abatement Plan and Sewage Collection System (SCS) plan submittal and was prepared in accordance with the revised *Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585)*, which are applicable to submittals received by the TCEQ after October 1, 2004. This geologic assessment report documents conditions observed by **RKI** within the Project boundaries on October 9, 2023. As further discussed herein, no naturally-occurring geologic features were identified as a result of assessment activities.

Project Description

Project Location. The Project comprises approximately 38.8 acres of land within the west-central portion of the existing NISD Sandra Day O'Connor High School campus, which is locally addressed at 12221 Leslie Road in Helotes (Bexar County). In accordance with TCEQ requirements, the full extent of the Project and, including the proposed SCS alignment and surrounding 50-foot buffer zone, was fully assessed in conjunction with Geologic Assessment activities. The Project area is fully developed and currently hosts existing classroom and agricultural buildings, asphalt parking lots, roadways, hardscape and landscaping improvements, in addition to existing utilities and drainage systems (i.e., storm drains and water quality basins). The Project is bounded to the north by Helotes City Hall and Police Department, west by the Vulcan Materials Helotes Asphalt quarry, NISD tennis center to the south, and existing school classroom buildings/portables and a band parade ground to the east.

Based on review of official maps prepared by TCEQ that are available from the Edwards Aquifer Protection Program website (http://www.tceq.texas.gov/field/eapp/program.html), the north and southwest portions of the Project are located within the Edwards Aquifer Recharge Zone (EARZ) and the central portion of the assessment area is within the Edwards Aquifer Transition Zone (EATZ) as depicted on the ***Project Geologic Map***. As such, the performance of a geologic assessment is required to facilitate planned

WPAP and SCS construction activities in accordance with applicable provisions set forth in the EAPP rules as specified in *Title 30 of the Texas Administrative Code, Section 213 (30 TAC 213, effective April 24, 2008).*

Topography and Drainage. Topographic information for the Project was obtained from the *Helotes, Texas Topographic Quadrangle Ma*p prepared by the United States Geological Survey (USGS, 2022) and 2-foot topographic contours obtained from the City of San Antonio (CoSA, 2015). These sources indicate that the natural surface topography may be characterized as gently sloping to the south and southwest. The 2-foot topographic contours obtained from CoSA are provided on the attached ***Project Geologic Map*** and indicate an approximate 10-12 foot drop in elevation (i.e., 1004 to 992 feet relative to mean sea level) from north to south across the Project. A review of U.S. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM, Map Nos. 48029C0215G and 48029C0220G) indicate that no part of the Project is located within the designated 100-year floodplain, although 100-year floodplain associated with Helotes Creek is located approximately to the west within the adjacent quarry property. Surface runoff across the Project generally occurs as sheetflow to the southwest with connection to existing storm water conveyances that discharge to existing water quality basins located within the Sandra Day O'Connor High School campus with ultimate discharge to Helotes Creek

Historical Property Use. Although research pertaining historical land use activities was beyond the scope of this assessment, historical aerial imagery was reviewed to evaluate past property conditions and the presence of lineations that could indicate the presence of normal faulting. The following aerial photographs from United Aerial Mapping and Google Earth™ were reviewed: 1981, 1995, 2002 through 2006, 2008, 2010, and 2012 through 2023. Below is a list of land development activities observed within the Project area in the aerial photographs.

- The high school property was undeveloped in the 1981 and 1995 aerial photographs.
- The high school facility was completely developed in the 2002 aerial photograph.
- The 2004 and 2008 aerial photographs indicate the addition of several structures near the southwest portion of the Project.
- The 2010 aerial photograph indicates a fenced-in asphalt parking area (i.e., band equipment staging) along the north extent of the Project

Classification of Recharge Features: As further described herein, 26 manmade recharge features were identified within Project boundaries, which include sanitary sewer lines, potable water lines, underground electric lines, gas lines, retention ponds, storm drain system, in addition to test holes. The significance of these features was assessed using definitions and guidance provided in *Instructions to Geologists (TCEQ-0585-Instructions, revised October 1, 2004)*. All features within the Project that met the criteria presented in this reference were mapped. The characteristics of all mapped features and the assessments of these features, as defined by the TCEQ, are presented in the attached ***Geologic Assessment Table (TCEQ-0585)***.

Stratigraphy

As presented in the attached ***Stratigraphic Column***, information pertaining to the lithologies and thickness of geologic units underlying the Project was adapted from Collins (2000). Published data referenced indicate

that the Project is underlain by the following geological formations (youngest to oldest): Quaternary Terrace Deposits (Qt), Del Rio Clay (Kdr) formation, Georgetown Formation (Kgt), and the Upper Edwards Limestone (Person Formation [Kep]) as presented on ***Project Geologic Map***. These formations are described below.

- Qt is mapped primarily within the southwest portion of the assessment area that is located adjacent (i.e., west of the Project limits) to the floodplain for Helotes Creek. Qt consists of varying proportions of gravel, sand, silt, and clay sediments, which are predominantly limestone, dolomite, and chert.
- Kdr overlies the Georgetown Formation and consists of calcareous, blocky, gray clay that weathers light gray to yellowish-gray. This unit is typically considered as an upper confining unit for the Edwards Aquifer in the San Antonio Area (Maclay, 1995).
- Kgt typically consists of thin exposures (i.e., erosional remnants) of gray to tan marly or shaley dense limestone sometimes exhibiting significant iron staining. The total thickness of the Kgt is typically on the order of 10 feet or less in Bexar County. No erosional remnants of the Kgt within Project boundaries and immediate surrounding area were identified or in the geotechnical boring logs.
- The Kep, which underlies the Kgt, is commonly divided into three distinct members: (i) Cyclic and Marine Member, undivided – mudstone to packstone, grainstone, and chert; (ii) Leached and Collapsed Member, undivided - unit includes crystalline limestone, mudstone to grainstone, and chert; and (iii) Regional Dense Member - unit consists of dense, carbonate mudstone. The total thickness of the Kep is on the order of 180 to 224 feet. The uppermost or Cyclic and Marine member of the Kep represents the portion of the Edwards Limestone directly underlying the west portion of the Project to depths on the order of 80 to 100 feet. Based upon the work of Maclay (1995), this unit contains many open fractures and possesses low matrix permeability with total porosity on the order of 5 to 10%. Patchy outcrops of the weathered Kep were observed north of sheep/goat barn (i.e., Building Q).

Structure

The Project is located within the Balcones Fault Zone and as such, limestone strata exposed within the vicinity possess a distinct structural trend. This zone consists of a northeast-southwest trending, *en echelon* normal fault system, which juxtaposes Upper Cretaceous lithologies in the southeast with Lower Cretaceous lithologies in the northwest. As a result of this larger-scale, regional faulting, minor internal fault sequences and fractures exist within this zone, which follow the same structural trend and accommodate localized displacement, particularly within the extent of the EARZ.

In order to evaluate the presence of normal fault zones that could transect property boundaries, **RKI** reviewed historical aerial photographs and published maps. No faults were mapped within the Project limits and no evidence of structural features (e.g., lineations in vegetation, changes in soil type, fractured rock exposures, etc.) were observed during reconnaissance activities. Field observations are consistent with most recently published geological information for the Project vicinity (Collins, 2000).

Karst

Although weathered exposures of the Kep were observed, north of the goat/sheep barn (i.e., Building Q), there were no potential recharge features identified within Project boundaries that may be attributed to karstification of the underlying limestone terrain. Owing to the presence of soil cover and existing improvements, limestone strata of the Kep, which are prone to karst forming processes, are not present within the near-surface interval at the Project. Reconnaissance efforts did not indicate the presence or indirect evidence of natural recharge features that may be attributed to karstification of the underlying limestone terrain.

Manmade Features

As presented on the ***Project Geologic Map***, 26 manmade features were identified that may potentially serve to enhance the transmission of surface runoff to the subsurface. The features consist of trenches for underground utilities including the following: sanitary sewer, potable water, electric, and natural gas. Additionally, manmade features include existing storm drain systems and stormwater basins, in addition to plugged geotechnical borings. All of these features meet the criteria for assessment as manmade features in bedrock. Information regarding the locations of the existing manmade features was taken from field observations, review of geotechnical borings logs (**RKI**, July 2023), and utility plans provided by KCI Technologies, Inc. (October 2023). The following features were identified:

- ***Feature S-1*** consists of interconnected trenches for a 6- to 8-inch existing sanitary sewer lines owned by San Antonio Water System (SAWS).
- ***Feature S-2*** consists of a trench for an existing sanitary sewer line.
- ***Feature S-3*** consists of interconnected trenches for existing 6- to 8-inch polyvinyl chloride (PVC) potable water lines owned by City Public Service (CPS) Energy.
- ***Feature S-4*** consists of interconnected trenches for an existing natural gas utility CPS Energy.
- ***Feature S-5*** consists of interconnected trenches for existing 1-1/4- to 4-inch electrical utility owned CPS Energy.
- ***Features S-6, S-7, S-8,*** *and* ***S-10*** consists of trenches for storm drain pipes that service O'Connor High School campus.

Although not directly observable, it is inferred that the subgrade trenches for these subgrade installations are backfilled in accordance with standard construction practices that include the use of structural fill soils (e.g., base course materials, limestone gravel, compacted clay soils, etc.) overlain by native or fill soils, depending upon location and surface improvements. The trenches were not observed in conjunction with any naturally-occurring recharge features. Although the backfilled trenches may exhibit somewhat greater relative infiltration rate than the surrounding soil/rock strata underlying the project boundaries, these manmade features are collectively classified as not sensitive, having a low potential of preferentially transmitting fluids into the Edwards Aquifer. This classification is based upon the point assignment criteria presented in the ***Geologic Assessment Table (TCEQ-0585)*** and professional judgment.

RKI identified two stormwater basins, ***Features S-9*** and ***S-11*** that treat stormwater originating within the high school campus (i.e., parking lot and agriculture barn area). The probability for rapid infiltration into the subsurface is considered low for these best management practices (BMPs) as basins are designed to capture, filter, and convey water downstream with typical detention times on the order of 24-72 hours. Additionally, a stormwater basin within the Edwards Aquifer Recharge Zone are typically required to have an impermeable liner. As such, these features are classified as not sensitive

Features S-12 *through* ***S-26*** consist of geotechnical borings installed as part of the recent geotechnical engineering study in support of proposed improvements (**RKI**, 2023). These were reportedly installed to depths ranging from 8-1/2 to 39 feet, terminating in limestone of the Kep. No shallow groundwater was observed during drilling operations. These borings were plugged with granular bentonite immediately following drilling activities. These features are collectively classified as not sensitive as they have been plugged and no longer exist.

Potential for Fluid Migration to the Edwards Aquifer

Based on a review of Project geology, topography and drainage conditions, and the results of our mapping efforts, the overall potential for direct fluid migration (i.e., surface-derived flow) to the Edwards Aquifer via infiltration is considered to be low to moderate. The following assessment findings support this conclusion:

- There were no naturally-occurring recharge features identified within the Project area that may be attributed to karstification of the underlying limestone terrain. The majority of the Project is overlain by clay soils approximately 2 feet or greater in thickness with reported slow to moderate infiltration rates (i.e., Group D and B soils, respectively). Owing to soil cover and improvements, limited exposures of the Kep were observed.
- Manmade features present at the Project are collectively classified as not sensitive based on consideration of typical construction details and application of point assignment criteria and professional judgment.
- The Project is almost completely developed with impervious cover and landscaping improvements, which is expected to promote runoff to established water quality basins and limit infiltration.

References

Barnes, V. L., 1974 Revised 1983, Geologic Atlas of Texas San Antonio Sheet; Bureau of Economic Geology, The University of Texas at Austin, Austin, Texas.

Collins, Edward W., 2000, Geologic Map of the New Braunfels, Texas, 30 X 60 Minute Quadrangle: Geologic Framework of an Urban-Growth Corridor along the Edwards Aquifer, South-Central Texas: Bureau of Economic Geology, The University of Texas at Austin, Austin, Texas.

Maclay, R. W., 1995, Geology and hydrogeology of the Edwards aquifer in the San Antonio area, Texas: U.S. Geological Survey Water Resources Investigations Report 95-4186, 64 p.

Google Earth Pro, Version 7.3.6.9345. Aerial images: January 1995, July 2002, December 2003, February 2004, October 2005, December 2006, May 2008, January 2010, April and November 2012, February 2013, February 2014, January and December 2015, May 2016, January 2017, December 2018, November 2019, April 2020, October 2021, and January 2022.

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Raba Kistner, Inc. (RKI), 2023, *Geotechnical Engineering Study For O'Connor High Schoo Agriculture Science and Technology Center. Project No.: ASA23-041-00.* Report dated July 25, 2023.

Stein, W. G., and G. B. Ozuna, 1996, Geologic framework and hydrogeologic characteristics of the Edwards aquifer recharge zone, Bexar County, Texas: U.S. Geological Survey Water Resources Investigations Report 95-4186.

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Texas Water Development Board (TWDB), Water Data Interactive (WDI) Groundwater Data Viewer, https://www2.twdb.texas.gov/apps/WaterDataInteractive/GroundwaterDataViewer/?map=sdr, accessed October 16, 2023.

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United States Department of Agriculture (USDA), 1962, Soil Survey of Bexar County, Texas; USDA / Soil Conservation Service / Texas Agricultural Experiment Station, Reissued June 1991

United States Department of Agriculture (USDA), 1986, Urban Hydrology for Small Watersheds; USDA / Natural Resource Conservation Service, Technical Release (TR-55), June 1986.

ATTACHMENT D

FEATURE POSITION TABLE (GPS COORDINATES)

PROJECT GEOLOGIC MAP

FEATURE POSITION TABLE

O' Connor High School Water Pollution Abatement Plan (WPAP) Modification

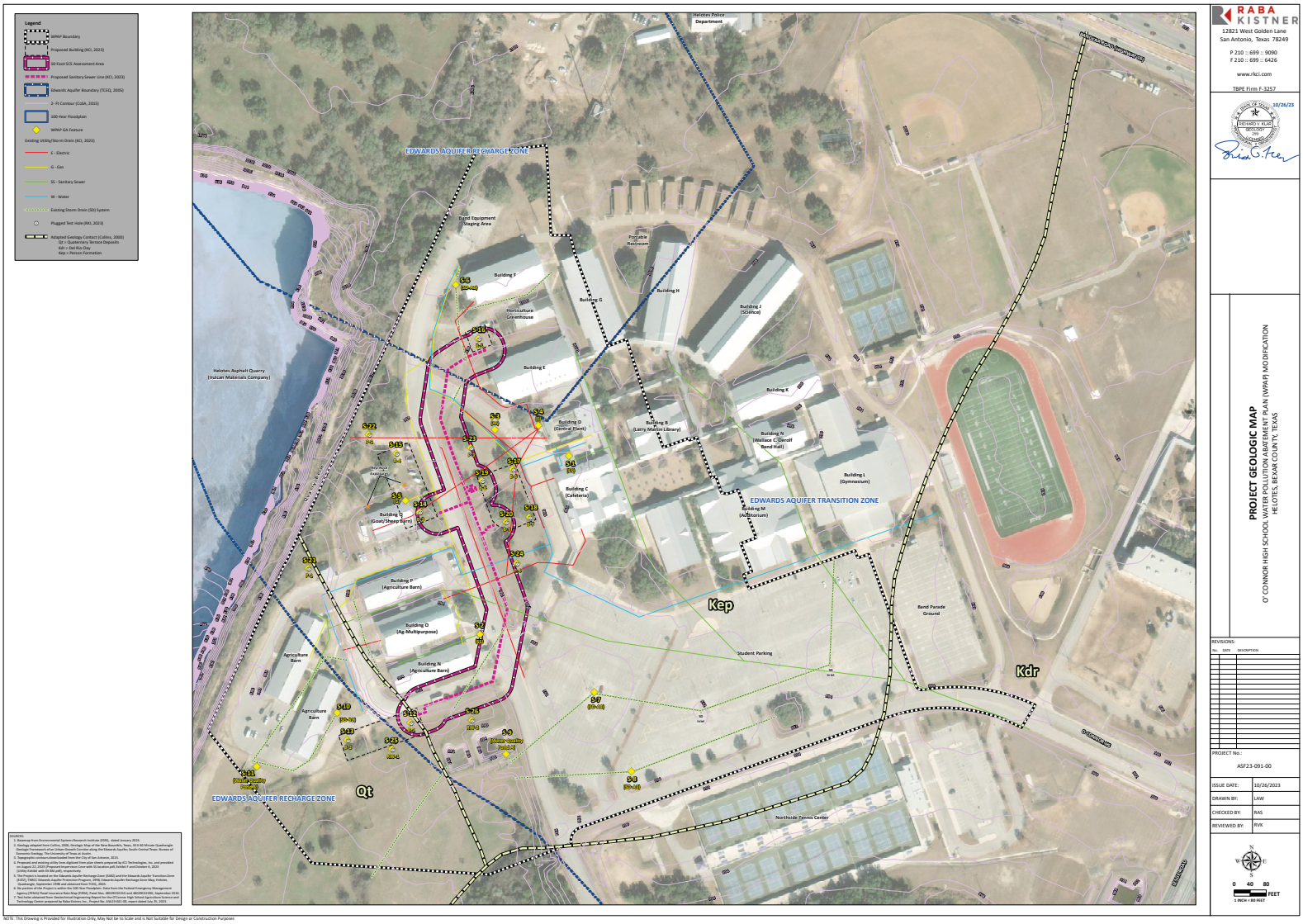
Helotes, Bexar County, Texas

RKI Project No. ASF23-091-00

Feature Designation	Feature Type	Date Collected	North Latitude	West Longitude	UTM Northing (meters)	UTM Easting (meters)
S-1	Manmade feature in bedrock (Sanitary Sewer Line)	10/9/2023	29°33'33.77"N	98°41'15.54"W	3270003	530258
S-2	Manmade feature in bedrock (Sanitary Sewer Line)	10/9/2023	29°33'29.28"N	98°41'18.05"W	3269865	530190
S-3	Manmade feature in bedrock (Water Line)	10/9/2023	29°33'34.40"N	98°41'17.62"W	3270023	530202
S-4	Manmade feature in bedrock (Electric Line)	10/9/2023	29°33'34.52"N	98°41'16.40"W	3270027	530234
S-5	Manmade feature in bedrock (Gas Line)	10/9/2023	29°33'32.66"N	98°41'20.17"W	3269969	530133
S-6	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'37.98"N	98°41'18.71"W	3270133	530172
S-7	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'27.90"N	98°41'14.84"W	3269823	530277
S-8	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'25.94"N	98°41'13.79"W	3269763	530305
S-9	Manmade feature in bedrock (Water Quality Pond A)	10/9/2023	29°33'26.38"N	98°41'17.33"W	3269976	530210
S-10	Manmade feature in bedrock (Storm Drain)	10/9/2023	29°33'27.40"N	98°41'22.13"W	3269807	530082
S-11	Manmade feature in bedrock (Water Quality Pond A)	10/9/2023	29°33'26.11"N	98°41'24.36"W	3269768	530022
S-12	MB (test hole B-1)	6/21/2023	29°33'27.17"N	98°41'20.02"W	3269800	530138
S-13	MB (test hole B-2)	6/21/2023	29°33'26.75"N	98°41'21.81"W	3269787	530090
S-14	MB (test hole B-3)	6/16/2023	29°33'32.38"N	98°41'19.75"W	3269960	530145
S-15	MB (test hole B-4)	6/16/2023	29°33'33.82"N	98°41'20.40"W	3270005	530127
S-16	MB (test hole B-5)	6/23/2023	29°33'36.66"N	98°41'18.07"W	3270092	530189
S-17	MB (test hole B-6)	6/22/2023	29°33'33.43"N	98°41'17.11"W	3269993	530215
S-18	MB (test hole B-7)	6/20/2023	29°33'32.25"N	98°41'16.64"W	3269957	530228
S-19	MB (test hole B-8)	6/16/2023	29°33'33.15"N	98°41'17.99"W	3269984	530192
S-20	MB (test hole B-9)	6/20/2023	29°33'32.12"N	98°41'17.31"W	3269953	530210
S-21	MB (test hole P-1)	6/21/2023	29°33'30.99"N	98°41'22.89"W	3269917	530060
S-22	MB (test hole P-2)	6/23/2023	29°33'34.29"N	98°41'21.18"W	3270019	530106
S-23	MB (test hole P-3)	6/20/2023	29°33'33.96"N	98°41'18.30"W	3270009	530184
S-24	MB (test hole P-4)	6/20/2023	29°33'31.10"N	98°41'17.01"W	3269921	530219
S-25	MB (test hole RW-1)	6/21/2023	29°33'26.52"N	98°41'20.54"W	3269780	530124
S-26	MB (test hole RW-2)	6/21/2023	29°33'27.23"N	98°41'18.29"W	3269802	530184

NOTES:

1. Geographic coordinates are presented Degrees, Minutes, Decimal Seconds
2. Reference Datum is NAD 83
3. Data were collected utilizing a Garmin GPS 60cx Global Positioning System.
4. Horizontal Accuracy: RMS Value < 3 meter ground resolution
5. GPS data was collected by Rick Sample (**RKI** Project Professional).
6. June 2023 GPS data was collected for the test holes by a **RKI** Geotechnical Professional.
7. GPS coordinates correlate to the points on the map for each feature.



SOURCES:
1. Basemap from Environmental Systems Research Institute (ESRI), dated January 2023.
2. Geology adapted from Collins, 2000, Geologic Map of the New Braunfels, Texas, 30 X 60 Minute Quadrangles: Geologic Framework of an Urban Growth Corridor along the Edwards Aquifer, South-Central Texas: Bureau of Economic Geology, The University of Texas at Austin.
3. Topographic contours downloaded from the City of San Antonio, 2015.
4. Proposed and existing utility lines digitized from plan sheets prepared by ICC Technologies, Inc. and provided to RKI Engineering in electronic format (.dwg) on January 2023 with 31 locations pull, Exhibit Y and October 6, 2023 (Utility Pull Out with ST-B&A.pdf), respectively.
5. The Project is located on the Edwards Aquifer Recharge Zone (EARZ) and the Edwards Aquifer Transition Zone (EATZ), TARCC Edwards Aquifer Protection Program, 1998, Edwards Aquifer Recharge Zone Map, Victoria Quadrangle, September 1998 and obtained from TCEQ, 2023.
6. Flood Zone Data: Flood Zone Data from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Panel Nos. 48029C0161J and 48029C0165J, September 2010.
7. Test holes obtained from Geotechnical Engineering Report for the O'Connor High School Agriculture Science and Technology Center prepared by Raba Kistner, Inc., Project No. 416119-002-00, report dated July 20, 2015.

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes

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10/26/23

PROJECT GEOLOGIC MAP

O' CONNOR HIGH SCHOOL WATER POLLUTION ABATEMENT PLAN (WPAP) MODIFICATION
HELOTES, BEXAR COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.:	ASF23-091-00
ISSUE DATE:	10/26/2023
DRAWN BY:	LAW
CHECKED BY:	RAS
REVIEWED BY:	RVK

0 40 80 FEET
1 INCH = 80 FEET

Sewage Collection System Application - Checklist (TCEQ-0582)

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), 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.

Regulated Entity Name: Northside Independent School District

1. ☒ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: Jacob Villarreal, Executive Director of Construction and Engineering
   Entity: Northside Independent School District
   Mailing Address: 5900 Evers Road
   City, State: San Antonio, TX Zip: 78238
   Telephone: (210) 397-8500 Fax: (210) 397-8500
   Email Address: jacob.villarreal@nisd.net
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

   Contact Person: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
   Practice Leader | Senior Associate
   Texas Licensed Professional Engineer's Number: 105075
   Entity: KCI Technolgies
   Mailing Address: 2806 W Bitters Rd Suite 218
   City, State:San Antonio, TX Zip: 78248
   Telephone:(210) 641-9999 Fax:(210) 641-6440

Email Address:paul.mathis@kci.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☐ Residential: Number of single-family lots: 0
   ☐ Multi-family: Number of residential units: 0
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☒ Other: Educational

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

100% Domestic	1500 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 1500

6. Existing and anticipated infiltration/inflow is 0 gallons/day. This will be addressed by: _____.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☐ The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on 9/22/2023, but has not been approved.
   ☒ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	611	PVC	SDR 26

Total Linear Feet: 611

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.

(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

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

☒ Existing
☐ Proposed

10. All components of this sewage collection system will comply with:

☒ The City of Helotes and SAWS standard specifications.
☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.

☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☐ There are no deviations from straight alignment in this sewage collection system without manholes.

☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
1	C5.03 Of Enclosed Construction Plans	0+00	MH-1
1	C5.02 Of Enclosed Construction Plans	4+92.80	MH-2
1	C5.02 Of Enclosed Construction Plans	6+11.49	MH-3

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	Of		
	Of		
	Of		
	Of		
	Of		
	Of		
	Of		

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	**Max. Manhole Spacing (feet)**
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

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

Site Plan Scale: 1" = 400'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten

feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☐ The location of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to

Line	*Sheet*	*Station*
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☐ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
1	5+20	Crossing	0'	4'
2	7+69	Crossing	0'	4'
3	9+64	Crossing	0'	4'
4	10+55.54	Crossing	0'	4'

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.

☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☐ The placement and markings of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.

☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.

☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.

☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	N/A of
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	C2.02 and C2.03 of Enclosed Construction Plans
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	C2.01 of Enclosed Construction Plans

Standard Details	*Shown on Sheet*
Typical trench cross-sections **[Required]**	C2.05 of Enclosed Construction Plans
Bolted manholes **[Required]**	C2.05 of Enclosed Construction Plans
Sewer Service lateral standard details **[Required]**	C2.05 of Enclosed Construction Plans
Clean-out at end of line **[Required, if used]**	N/A of
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	C2.08 of Enclosed Construction Plans
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	C2.05 of Enclosed Construction Plans
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☐ Survey staking was completed on this date: _____

38. ☒ 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.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Paul A. Mathis

Date: 9/22/2023

Place engineer's seal here:

Signature of Licensed Professional Engineer:

Paul A Mathis

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

Attachment A

SCS Engineering Report

APPENDIX A
SEWAGE COLLECTION SYSTEM
ENGINEERING REPORT FOR PVC SDR 26 PIPE
MAX DEPTH OF 20 FEET

FLEXIBLE PIPE COMPUTATIONS

The computations which follow validate 8-inch diameter PVC SDR 26 pipe design for direct burial of sewer gravity systems to a depth of 20 feet. Included in the computations are calculations for long term deflection, buckling, wall crushing, and strain. The Handbook of PVC Pipe, Design, and Construction by the Uni-Bell PVC Pipe Association, Formulae, Tables, and Constants were used in preparing this report.

Pipe Characteristics (SDR 26 Pipe):

1. Average Burial Depth (6-20')
2. Outside Pipe Diameter (8")
3. Pipe Wall Thickness (***0.332***")
4. Trench Width (2.5 to 2.7') (Approximate)
5. Modulus of Elasticity (400,000 psi)
6. Pipe Stiffness (115 psi)

W =135 lb/cf (dry unit weight) x 1.06 (moisture content)

= 143 lb/cf

Prism Load Calculation:

$W_c = H * W * B_c$ (Martson's Equation)

Where:	W_c	=	Load on Conduit (lb/lf)
	W	=	Unit Weight of Backfill (143 lb/cf)
	H	=	Depth at Which Pressure is Desired (20 ft)
	B_c	=	Horizontal Width of Conduit (varies)

8-inch Pipe: (up to 20 feet)

W_c = (20 ft) (143 lb/ft^3) (0.70 ft) = 2002 lb/ft

or in terms of soil pressure

$$P = W * H = \frac{W_c}{B_c} = \frac{(2002 lb/ft)}{(0.70 ft)} = \frac{(2974\ 1b/ft)}{(1.04\ ft)} = \frac{(44621b/ft)}{(1.56\ ft)} = 2{,}860\ \frac{lb}{sf}$$

$$P = \frac{2{,}860\ lb/sf}{144\ in^2/sf} = 19.9\ psi$$

Live Load:

From Table 6.6, and based on the H20 Highway Loading and the Holl Equation for Live Loads, at a 6 ft. depth,

Live Load= 1.39 psi (max)

Live Load = 0 psi at a depth of 20 ft.

Long Term Deflection Calculation:

Employing Spangler's Modified Deflection Formula, and incorporating a deflection lag factor of 1.0. Long Term Deflection is calculated as follows at a depth of 20 ft.

$$\frac{\Delta Y}{D} = \frac{DL*K*P+K*W_1}{[2E/3(DR-1)^3]+0.061E_1}$$

Where,

P = Prism Load, (19.9 psi at 20')

K = Bedding Constant, (0.096 for 90°) (See Table 7.2)

W_1 = Live Load, at 20 Foot Depth (0 psi)

DR = Dimension Ratio (SDR 26)

E = PVC Modulus of Elasticity (400,000 psi)

E1 = Modulus of Soil Reaction, (400 psi at 20') (See Table 7.3, Unibell Handbook of PVC Pipe Design and Construction" for slight <85% proctor, 40% relative density

DL = Deflection Lag Factor (1.0)

Up to 20'

$$\frac{\Delta Y}{D} = \frac{(1.0)(0.096)(19.9)+(0.096)(0)}{[2(400{,}000)/(3(26\text{-}1))^3]+0.061(400)}$$

$$\frac{\Delta Y}{D} = 4.61\% \text{ Long Term Deflection}$$

As compared to an allowable long term deflection of 5%.

4.61%<5.00%, Therefore O.K.

It should be noted that the effective modulus of soil reaction equates to the bedding reaction modulus since the natural soil (in this case rock) can sustain greater lateral loads than the bedding material can normally produce.

Buckling Calculation:

Employing the Timoshenko Equation below, the Critical Buckling Pressure (P_{cr}) for a circular ring subjected to a uniform external pressure or internal vacuum can be found as follows:

$$P_{cr} = \frac{2 * E}{(1—V^2)(DR—1)^3}$$

Where "v" is Poisson's ratio of unit lateral contraction to unit axial elongation, (0.38 for PVC conduits).

$$P_{cr} = \frac{2\ (400{,}000)}{(1—(0.38)^2)(26—1)^3}$$

And compensating for soil resistance to buckling, the True Buckling Pressure, (P_b), is

$$Pb = 1.15\sqrt{P_{cr} * E_1} = 1.15\sqrt{59.8 * 400} = 178 \text{ psi}$$

$H = P_b/W$ Calculated Depth of Buckling

$$H = P_b / W = \frac{178\text{psi} * 144\text{in}^2/\text{ft}^2}{143 \text{ lb/ft}} = 179'$$

for a failure soil pressure depth of approximately 179'.

20' < 179' Therefore O.K.

Wall Crushing Calculation:

In accordance with White and Layer's Ring Compression Theory for design of buried flexible pipe, and assuming a highly compacted backfill or minimal deflection, wall crushing can be defined as follows:

$$\oplus_c = \frac{P_y * D}{2 * A} = \frac{\text{Yield Strength}}{\text{Safety Factor}}$$

Where,

$\oplus_c$ = Compressive Stress (4,000 psi)

P_y = Prism Load (19.9 psi)

A = Cross Sectional Area of Conduit Wall Per Unit Length

D = Outside Pipe Diameter (varies)

Solve for Cross Sectional Area of Conduit Wall Per Unit Length:
8-inch:

A = 0.323in * 12in/ft

A = 3.876in^2/ft

Solving for the Allowable P_y,

8-inch:

$$\underline{P_y} = \frac{\oplus_c * 2 * A}{D} = \frac{(4{,}000 \text{ lb/in}^2)(2)(3.876 \text{ in}^2/\text{ft})(1 \text{ ft}/12\text{in})}{8.4 \text{ in}} = 307.6 \text{ psi}$$

H = $\underline{P_y}$ /W = Calculated Depth of Wall Crushing

$$H = \frac{(307.6 \text{ psi})(144 \text{ in}^2/\text{sf}^2)}{143 \text{ lb/cf}} = 310$$

for a crushing failure depth of approximately 310'.

20' ≤ 310', O.K.

Strain Calculation:

Strain is caused by the flexure of the pipe as it deforms and by hoop stress in the pipe wall. Strain is calculated as follows at a depth of 20 ft.:

$$\in_h = \frac{P*D}{2 * t * E}$$, Where $\in_h$ is the maximum hoop strain a 20 foot depth.

8-inch:

$$\in_h = \frac{(19.9)(8.4)}{2(0.323)(400{,}000)} = 0.00065 \text{ in/in}$$

$$\in_f = \frac{t}{D} = \frac{[3*\Delta Y/D]}{[1-2(\Delta Y/D)]}$$

Where $\in_f$ is the maximum strain a pipe wall due to ring deflection or flexture

8-inch:

$$\epsilon_f = \frac{t}{D} = \frac{[3(.0461)]}{[1-2(0.0461)]} = 0.0059 \text{ in/in}$$

In a buried pipeline, these strain components act simultaneously

$$\epsilon = \epsilon_f + \epsilon_h = 0.0066 \text{ in/in}$$

Deflection test samples have experienced a pipe wall strain of up to 0.025 in/in and have not “showed any cracks or failures”. Based on information from Uni-Bell PVC Pipe Association.

0.0066 in/in < 0.025 in/in Therefore O.K.

JOINTING MATERIAL

All polyvinyl chloride(PVC) sewer pipe and fittings shall be joined by a bell and spigot assembly and shall incorporate a rubber compression ring gasket at the pipe and pipe to manhole entrance interface.

All joints shall be in compliance with the requirements of ASTM D-3212. All gaskets shall be lock-in type meeting ASTM F-477. Solvent cement joints will not be permitted. Pipe and fittings shall conform to ASTM D-3034.

Pressure rated conduit specified for the project shall, at a minimum, conform to ASTM D2241 while fittings will meet or exceed ASTM D-3139.

PIPE AND MANHOLE TESTING

A low pressure air test and mandrel deflection test will be performed in accordance with TNRCC 317.2 (a) (4) and City of San Antonio Standard Specifications for Public Works Construction (1993 Rev.). Mandrel design and sizing information is contained within the standard detail sheet at the end of the submitted plans.

A manhole vacuum test specification has been included with this SCS submittal. (See SCS Exhibit Section for details.)

BEDDING AND BACKFILL

A minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe and the trench wall.

Bedding and initial backfill material selection and installation will be carried out in accordance with ASTM D-2321 and applicable governing procedures contained within the City of San Antonio Standard Specifications for Public Works Construction (1993 Rev.).

For pipes at depths greater than 20', backfill must comply with San Antonio Water System Specification 804.4.

Secondary backfill, from a point 1 foot above the pipe to the finished surface, will be comprised of suitable material removed during excavation which is smaller than 6-inches in diameter. Brush, debris, and deleterious materials shall not be utilized as a backfilling material.

Trench compaction will be carried out in accordance with the City of Helotes Standard Specifications for Public Work Construction (1993 rev.).

Typical trench and pipe scenarios are addressed within the standard detail sheet included at the end of the design plans.

Attachment E

Construction Plans

GENERAL NOTES:

1. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD BEFORE COMMENCING ANY WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO THE ARCHITECT IN A TIMELY MANNER. CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENT REQUIRE APPROVAL BY THE ENGINEER.
2. CONTRACTOR SHALL CONTACT THE BEXAR COUNTY INSPECTION DEPARTMENT AT LEAST 48 HOURS BEFORE BEGINNING ANY SITE WORK.
3. ANY WORK IN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED TO THE STANDARDS OF THE GOVERNING AUTHORITY.
4. THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES (2014) SHALL BE CONSIDERED PART OF THESE PLANS AND USED AS THE SPECIFICATIONS FOR ITEMS EXCEPT AS OTHERWISE SHOWN ON THE PLANS OR IN THE PROJECT SPECIFICATIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION SCHEDULE WITH THE OWNER PRIOR TO BEGINNING WORK.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL WASTE MATERIAL GENERATED DURING CONSTRUCTION. WASTE MATERIAL MUST BE REMOVED FROM THE WORK SITE AND DISPOSED OF IN SUCH A MANNER TO MEET ALL APPLICABLE REGULATIONS. (NO SEPARATE PAY ITEM.)
8. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD OR BETTER THAN PRIOR TO STARTING WORK.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SECURITY TO PROTECT HIS OWN PROPERTY, EQUIPMENT, AND WORK IN PROCESS.
10. TREES NOT NOTED FOR REMOVAL SHALL BE PROTECTED BY CONTRACTOR. CONTRACTOR SHALL PROVIDE TEMPORARY FENCE AROUND PROTECTED TREES TO DRIP LINE OF TREE CANOPY. THE ARCHITECT SHALL BE NOTIFIED IN ADVANCE OF ANY TRIMMING OR LANDSCAPE WORK TO BE DONE IN THE AREA OF PROTECTED TREES.
11. CONTRACTOR SHALL PROVIDE AND INSTALL PVC CONDUITS UNDER PAVEMENT/SIDEWALK AREAS FOR SITE IRRIGATION SYSTEM AND SITE LIGHTING PLANS AS SHOWN ON SITE UTILITY PLAN, MEP PLANS, AND LANDSCAPE IRRIGATION PLANS.
12. THE GRADING PLAN INDICATES FINISHED GRADES. FINISHED GRADING SHALL BE HAND SMOOTHED, READY FOR SOD AND THE INSTALLATION OF OTHER LANDSCAPING FOR THE ENTIRE SITE, WITHIN THE "LIMITS OF WORK".
13. THE TOP SOIL FINISH GRADE SHALL BE 2 INCHES BELOW THE TOP OF THE SIDEWALK. SOD, ONCE INSTALLED, SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK. WHERE AREAS ARE TO BE HYDROMULCHED THE TOP SOIL GRADE SHALL BE AT SIDEWALK GRADE.
14. SLABS SHALL TYPICALLY HAVE AT LEAST A 8" EXPOSURE UNLESS SHOWN OTHERWISE.
15. THE LIMITS FOR WORK ON THIS PROJECT ARE SHOWN ON THE PLANS.

TRAFFIC NOTES

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING TRAFFIC IN THE IMMEDIATE VICINITY OF CONSTRUCTION. ALL WORK SHALL BE PERFORMED IN SUCH A MANNER AND SEQUENCE AS TO PROVIDE MAXIMUM PROTECTION TO TRAFFIC AND PEDESTRIANS. CONTROLS SHALL BE CONSISTENT WITH THE TYPE OF WORK BEING PERFORMED.
17. CONSTRUCTION WHICH BLOCKS TRAFFIC OF ANY STREET, ALLEY, OR DRIVEWAY IS SUBJECT TO APPROVAL OF AND RESTRICTION IMPOSED BY BEXAR COUNTY.
18. INGRESS AND EGRESS SHALL BE PROVIDED AT ALL TIMES FOR THE PROPERTY OWNERS AND BUSINESSES OF THE ABUTTING PROPERTY AND THE CROSS STREETS WHICH ARE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
19. DURING THE ENTIRE CONSTRUCTION PERIOD, THE CONTRACTOR SHALL MAINTAIN CONSTRUCTION WARNING SIGNS AT EACH END OF THE PROJECT TO WARN MOTORING AND PEDESTRIAN TRAFFIC THAT CONSTRUCTION IS IN PROGRESS AND OF POSSIBLE HAZARDOUS CONDITION GENERATED BY THE CONSTRUCTION.
20. DELINEATORS SHALL BE INSTALLED ALONG THE PAVEMENT EDGE TO WARN TRAFFIC OF ANY ROADSIDE OBJECTS OR HAZARDS AND TO DELINEATE THE ROADWAY EDGE DURING HOURS OF DARKNESS.

UTILITIES

21. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK IN ANY RIGHT-OF-WAY OR EXISTING EASEMENT.

    SANITARY SEWER (SAWS) – 210-704-7297

    WATER (SAWS) – 210-704-7297

    ELECTRIC AND GAS (CPS ENERGY) – 210-353-3500

    TELEPHONE (A.T.&T.) – 210-288-5127

    GAS (GREY FOREST UTILITIES) – 210-695-8781

    CATV – SPECTRUM – 210-352-4672 (OR 4673)

    TEXAS STATE WIDE ONE CALL LOCATOR – 1-800-545-6005

22. OVERHEAD POWER LINES EXIST IN THE AREA OF THE PROJECT. CONTRACTOR SHALL MAINTAIN RECOMMENDED CLEARANCE REQUIREMENTS OF PROVIDER. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN SIX (6) FEET OF ENERGIZED OVERHEAD POWER LINES. FEDERAL REGULATIONS, TITLE 29, PART 1910.1800) AND PART (1926.550(A)(15) REQUIRE A MINIMUM OF TEN (10) FEET FROM THESE FACILITIES WHERE CONTRACTOR MUST WORK NEAR OVERHEAD POWER LINES. LINES WITHIN THESE LIMITS SHALL BE DE-ENERGIZED AND/OR MOVED AT CONTRACTOR'S EXPENSE.
23. IN THE EVENT OF DAMAGE TO UNDERGROUND UTILITIES OR FACILITIES, WHETHER SHOWN OR NOT ON THE DRAWINGS, THE CONTRACTOR SHALL MAKE THE NECESSARY REPAIRS TO REPLACE THE UTILITY OR FACILITY BACK IN SERVICE AT THE CONTRACTOR'S EXPENSE.
24. THE CONTRACTOR SHALL UNCOVER ALL EXISTING UTILITIES AND VERIFY EXISTING ELEVATION OF SAME AT ALL UTILITY CROSSINGS BEFORE COMMENCING ANY OTHER WORK. CONFLICTS SHALL BE REPORTED TO THE MANAGING ARCHITECT IMMEDIATELY.
25. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL PROPOSED UTILITIES EXITING BUILDING PRIOR TO COMMENCING WORK ON SITE UTILITIES. UPON DISCOVERY OF ANY DISCREPANCIES, THE MANAGING ARCHITECT SHALL BE NOTIFIED.
26. GAS AND ELECTRIC METER AND SERVICE LINE INSTALLATION TO BE COORDINATED WITH CITY PUBLIC SERVICE.
27. ON-SITE WATER AND SEWER SERVICES SHALL BE INSPECTED AS REQUIRED BY BEXAR COUNTY.
28. WATER SERVICE LINES LESS THAN 4" DIAMETER SHALL BE SCHEDULE 40 PVC. LINES GREATER THAN 4" IN DIAMETER SHALL BE C900 PVC DR18. LINE SHALL BE BEDDED IN AND BACKFILLED WITH A MINIMUM OF 6" OF WASHED SAND.
29. ALL SANITARY SEWER LINES PROPOSED ON THE SITE SHALL BE SDR 35 PVC. BEDDING AND INITIAL BACKFILL (12" ABOVE THE PIPE) SHALL BE GRAVEL (3/4" MAX TO DUST).
30. MISCELLANEOUS PVC FITTINGS REQUIRED TO ROUTE SANITARY SEWER OUTSIDE OF BUILDING ARE NOT CALLED FOR ON PLANS BUT SHALL BE FURNISHED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
31. TIE-INS TO EXISTING MANHOLES SHALL BE MADE SUCH THAT THE FINAL CONDITION UPON COMPLETION OF THE JOB SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING CODE.

EARTHWORK

32. THE CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS, LOCAL BUILDING CODE REQUIREMENTS AND STATE OF TEXAS LAW CONCERNING EXCAVATION, TRENCHING AND SHORING.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING AND RESTORING THE DRAINAGE SYSTEM TO ITS ORIGINAL CONDITION. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
34. THE CONTRACTOR MUST CLEAN MUD, DIRT OR DEBRIS TRACKED ONTO EXISTING STREETS BY ANY VEHICLE THAT EXITS OR ENTERS THE SITE.
35. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION TO MEET GEOTECHNICAL AND STRUCTURAL ENGINEER RECOMMENDATIONS.
36. ON-SITE SOILS UPON APPROVAL OF GEOTECH MAY BE PLACED UNDER PROPOSED PAVEMENT AREAS IF PLACED IN LOOSE LIFTS NOT EXCEEDING 6" IN THICKNESS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DENSITY AS DETERMINED BY TXDOT, TEX-114-E. THE MOISTURE CONTENT SHALL BE WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 3% ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED.
37. PLACE BACKFILL AS PROMPTLY AND AS PRACTICAL AFTER COMPLETION OF EACH STRUCTURE OR PORTION OF A STRUCTURE. DO NOT PLACE BACKFILL AGAINST CONCRETE WALLS OR SIMILAR STRUCTURES UNTIL CONCRETE HAS CURED AT LEAST SEVEN (7) DAYS.
38. ANY DRAINAGE STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.
39. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING FINAL GRADES TO ASSURE POSITIVE DRAINAGE.
40. GRAVEL SUBGRADE FILLER SHALL CONSIST OF A WELL GRADED, CRUSHED STONE OR GRAVEL, APPROVED BY THE ENGINEER, ONE HUNDRED PERCENT (100%) PASSING A 1 3/4" SIEVE, AT LEAST NINETY-FIVE PERCENT (95%) PASSING A 1 1/2" SIEVE AND AT LEAST NINETY PERCENT (90%) RETAINED ON A ONE QUARTER INCH (1/4") SIEVE. THE CRUSHED STONE OR GRAVEL SHALL HAVE AN ABRASION OF NOT MORE THAN FORTY (40) WHEN SUBJECTED TO THE LOS ANGELES ABRASION TEST.
41. INITIAL BACKFILL: INITIAL BACKFILL IS DEFINED AS BACKFILL HAVING A THICKNESS IN ITS COMPACTED STATE FROM THE SURFACE OF THE BEDDING TO A POINT ONE FOOT (1') ABOVE THE TOP OF THE PIPE. SELECT INITIAL BACKFILL MATERIAL SHALL CONFORM TO THE GRAVEL REQUIREMENTS OF BEDDING. FOR PIPES LESS THAN 24" IN DIAMETER, SELECT INITIAL BACKFILL SHALL BE PLACED IN TWO LIFTS. THE FIRST LIFT SHALL BE SPREAD UNIFORMLY AND SIMULTANEOUSLY ON EACH SIDE OF AND UNDER THE SHOULDERS OF THE PIPE TO ITS SPRING LINE. THE SECOND LIFT OF INITIAL BACKFILL SHALL EXTEND FROM THE SPRING LINE OF THE PIPE TO A DEPTH SUFFICIENT TO PRODUCE A COMPACTED DEPTH OF MATERIAL A MINIMUM OF ONE FOOT ABOVE MINIMUM OF ONE FOOT ABOVE THE TOP OF THE PIPE.
42. FOR PIPES 24" IN DIAMETER AND LARGER, SELECT INITIAL BACKFILL MATERIAL SHALL BE EVENLY AND SIMULTANEOUSLY SPREAD ALONGSIDE, UNDER THE SHOULDERS OR HAUNCHES OF THE PIPE AND OVER THE PIPE IN SIX INCH (6") LIFTS TO A POINT SUFFICIENT TO PRODUCE A COMPACTED DEPTH OF MATERIAL A THE TOP OF THE PIPE.
43. SECONDARY BACKFILL: SECONDARY BACKFILL IS DEFINED AS BACKFILL FROM ONE FOOT (1') ABOVE THE TOP OF THE PIPE TO THE TOP OF THE TRENCH. SECONDARY BACKFILL SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE OF BRUSH, DEBRIS AND JUNK. NO ROCK OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION SHALL BE USED IN THE SECONDARY BACKFILLING ZONE AND SHALL BE AT LEAST 1 FOOT BELOW FINISHED GRADE. SECONDARY BACKFILL MATERIAL SHALL BE COMPOSED OF PRIMARILY COMPACTIBLE SOIL MATERIALS.
44. WATER JETTING OR WATER FLOODING WILL NOT BE PERMITTED AS A METHOD OF COMPACTION. SECONDARY BACKFILL SHALL BE COMPACTED TO THE REQUIRED DENSITY OF NINETY-THREE PERCENT (93%) USING ANY SIZE AND TYPE OF EQUIPMENT WHICH WILL GIVE THE REQUIRED COMPACTION WITHOUT DAMAGING THE PIPE, BEDDING OR SIDE FILL. THE DEPTH OF LAYER, PRIOR TO COMPACTION, SHALL DEPEND UPON THE TYPE OF EQUIPMENT USED TO COMPACT THE LAYER, AND SHALL BE LIMITED TO THAT DEPTH WHICH WILL GIVE THE RESULTS THEREBY OBTAINED AND SHALL BE A MAXIMUM OF TWENTY-FOUR INCHES (24"). PRIOR TO AND IN CONJUNCTION WITH THE COMPACTION OPERATION, EACH LAYER SHALL BE BROUGHT TO THE MOISTURE CONTENT NECESSARY TO OBTAIN THE REQUIRED DENSITY AND SHALL BE KEPT LEVEL TO INSURE UNIFORM COMPACTION OVER THE ENTIRE LAYER. ESTABLISHMENT OF THE OPTIMUM MOISTURE AND DENSITY WILL BE IN ACCORDANCE WITH TXDOT TEST METHOD TEX-113-E. DENSITY SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENT OF ASTM D 2922. EACH LAYER OF BACKFILL MUST PROVIDE THE DENSITY AS REQUIRED HEREIN. IF THE MATERIAL FAILS TO MEET THE DENSITY INDICATED, THE COURSE SHALL BE REWORKED AS NECESSARY TO OBTAIN THE INDICATED COMPACTION.
45. ALL WORK WITHIN THE COUNTY STREET OR STATE HIGHWAY RIGHT OF WAY MUST MEET THE INDICATED REQUIREMENTS IN THIS SECTION AS A MINIMUM AND SHALL MEET THE REQUIREMENTS INDICATED IN THE PLANS OR THE PERMIT ISSUED BY THE COUNTY, CITY, OR STATE WHEN THEIR REQUIREMENTS ARE MORE STRINGENT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE OFFICIAL FOR THE PERMIT AND FOR COORDINATING HIS ACTIVITIES WITH HIS OPERATIONS AND PROCEDURES. BEXAR COUNTY CITY ROADS FOR PAVEMENT REPAIR UNDER THEIR JURISDICTION. APPROVAL FOR ALL COMPLETED WORK IN THE CITY, STATE OR COUNTY RIGHT OF WAY MUST BE OBTAINED FROM THE APPROPRIATE OFFICIAL PRIOR TO FINAL ACCEPTANCE.

FLATWORK

46. ALL FLATWORK WITHIN PUBLIC R.O.W. SHALL BE DONE IN ACCORDANCE WITH BEXAR COUNTY AND HELOTES COUNTY.
47. CONTRACTOR SHALL ENSURE THAT THE SLOPE ON THE FINISHED SURFACE OF THE CONCRETE IN THE FIRST FIVE FEET OUTSIDE DOORS DOES NOT EXCEED 2%.
48. SEE GRADING PLANS FOR DROPS AT DOORS.
49. THE SLOPE OF SITE SIDEWALKS SHALL NOT EXCEED A LONGITUDINAL SLOPE OF 5% OR A CROSS-SLOPE OF 2%
50. THE PORTLAND CEMENT CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 5" AND A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. A LIQUID MEMBRANE-FORMING CURING COMPOUND SHALL BE APPLIED AS SOON AS PRACTICAL AFTER BROOM FINISH IS APPLIED TO CONCRETE.
51. PRIOR TO BEGINNING PAVEMENT CONSTRUCTION, THE CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE TO ESTABLISH A JOINT PATTERN.
52. FLY ASH CONTENT OF CONCRETE FLATWORK OR PAVEMENT SHALL NOT EXCEED 20% OF CEMENT CONTENT.

PAVING NOTES

54. REFERENCE PAVEMENT DETAILS AND NOTES ON DETAIL SHEET C4.04..
55. NO RAP OR RAS SHALL BE USED IN ASPHALT SURFACE COURSE.

CPS ENERGY NOTES

WHAT TO DO BEFORE/DURING EXCAVATION

- WHITE LINING THE JOB SITE BEFORE YOU CALL 811 IS RECOMMENDED
- CALL 811 – 2 BUSINESS DAYS BEFORE YOU DIG. EACH EXCAVATOR MUST HAVE THEIR OWN LOCATE REQUEST
- THE EXCAVATOR IS RESPONSIBLE FOR WHERE YOU DIG. A POSITIVE RESPONSE INCLUDES MARKS ON GROUND, EMAIL NOTIFICATION, OR PHONE CALL.
- IF NO POSITIVE RESPONSE IS GIVEN, THE EXCAVATOR MUST MAKE A SECOND CALL TO 811 (THE EXCAVATOR MUST WAIT 4 HOURS AFTER THE SECOND CALL IS MADE PRIOR DIGGING
- THE EXCAVATOR IS ALSO RESPONSIBLE FOR MAKING A SECOND CALL TO 811 IF THERE ARE NO LOCATES BUT THERE IS VISUAL INDICATION OF GAS OR ELECTRIC FACILITIES
- THE EXCAVATOR SHALL PROTECT AND PRESERVE LOCATE MARKINGS THROUGHOUT THE LIFE OF THE TICKET
- THE LOCATE REQUEST IS VALID FOR 14 BUSINESS DAYS OR WHEN MARKS ARE NO LONGER VISIBLE. REFRESHING THE LOCATE TICKET ON THE TWELFTH DAY IS RECOMMENDED
- MECHANIZED EQUIPMENT IS NOT ALLOWED WITHIN THE EXCAVATION TOLERANCE ZONE. THIS AREA IS 18-INCHES ON EITHER OUTSIDE OF EDGE OF EITHER SIDE OF THE GAS OR ELECTRIC FACILITY
- SIGNING AN EXCAVATORS AGREEMENT IS ALSO RECOMMENDED FOR LARGE PROJECTS WHERE THE SCOPE OF WORK IS TOO LARGE TO WHITE-LINE. THE LOCATE TICKET STILL NEEDS TO BE UPDATED EVERY 14 BUSINESS DAYS

IN CASE OF PIPELINE DAMAGE

- CALL 811 IMMEDIATELY BUT NO LATER THAN 2 HRS FOLLOWING THE DAMAGE. FOR CPS ENERGY GAS OR ELECTRIC DAMAGES CALL IMMEDIATELY 210-353-HELP (4357)
- DAMAGE INCLUDES THE FOLLOWING: DEFACING, SCRAPING, DISPLACEMENT, PENETRATION, DESTRUCTION, PARTIAL OR COMPLETE SEVERANCE OF AN UNDERGROUND PIPELINE OR OF ANY PROTECTIVE COATING, HOUSE/CASING, OR OTHER PROTECTIVE DEVICE OF AN UNDERGROUND PIPELINE
- REPORT ANY BROKEN GAS TRACER WIRE TO CPS ENERGY AT 210-353-HELP (4357)
- DO NOT TRY AND FIX DAMAGED LINE OR STOP PRODUCT FROM LEAKING
- DO NOT BACKFILL THE IMMEDIATE AREA OF DAMAGE. UTILITY OWNER WILL GIVE THAT ORDER
- MAKE AREA SAFE FOR CREW AND PUBLIC. KEEP SOURCES OF IGNITION AWAY FROM INCIDENT AREA
- KEEP UPWIND FROM PLUME OR VAPOR CLOUD.
- MUST FILE A GAS DAMAGE REPORT WITHIN 10 BUSINESS DAYS OF INCIDENT ONLINE AT http://webapps.rrc.state.tx.us/PPD/publicHomeAction.do
- FOR CPS ENERGY RELATED EVENTS OR NATURAL GAS ODOR COMPLAINTS THE EMERGENCY NUMBER IS 210-353-HELP (4357)

Sheet List Table

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C6.01	OVERALL FIRE PROTECTION PLAN DETAILS
C7.00	OVERALL STRIPPING AND SIGNAGE PLAN
C7.01	TRAFFIC SIGNAGE DETAILS

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Checked By: PAM
Job No: 062301491

NORTH
NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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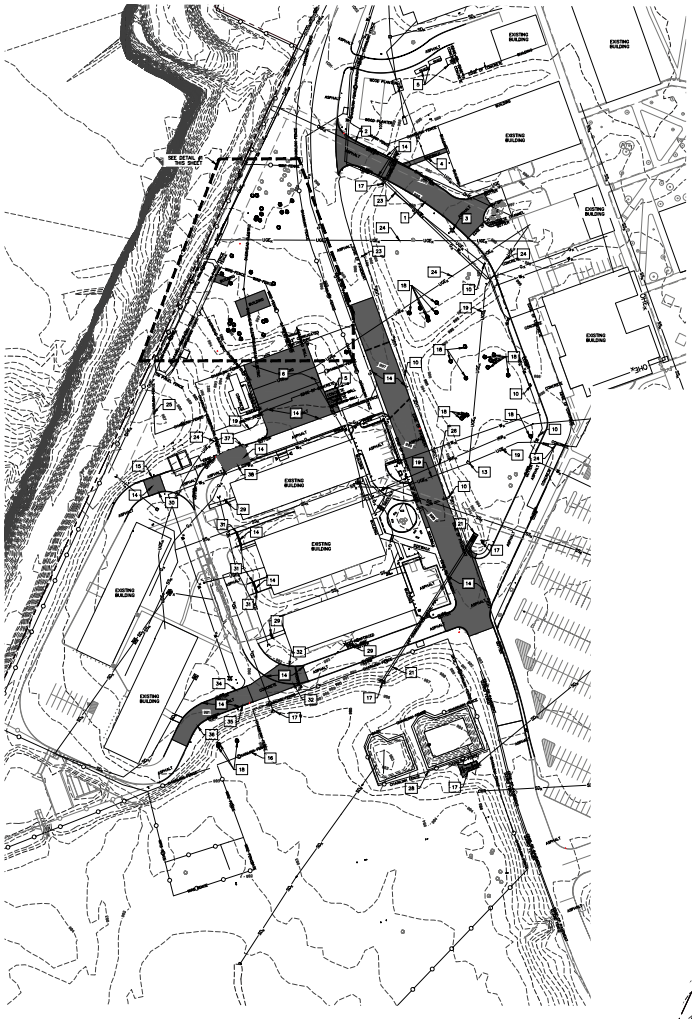
Drawn By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

GENERAL NOTES

C0.01



PLAN NOTES:

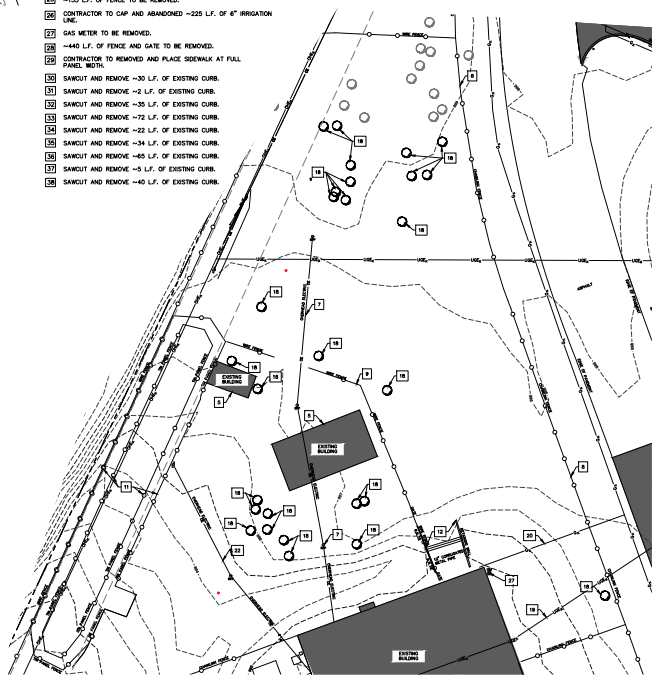
1. SAWCUT AND REMOVE ~350 L.F. OF EXISTING CURB.
2. SAWCUT AND REMOVE ~240 L.F. OF EXISTING CURB.
3. CONTRACTOR TO RELOCATE EXISTING FIRE HYDRANT. REFER TO CIVIL UTILITY PLANS FOR PROPOSED LOCATION OF NEW FIRE HYDRANT.
4. EXISTING SIDEWALK TO BE REMOVED.
5. EXISTING BUILDINGS TO BE REMOVED.
6. EXISTING BUILDING TO BE REMOVED, AFTER PHASE 1 OF NEW SHOP.
7. CONTRACTOR TO REMOVE EXISTING POWER POLES, DOWN WIRES, AND OVERHEAD LINES. REFERENCE MEP PLANS FOR DETAILS.
8. ~380 L.F. OF FENCE AND GATE TO BE REMOVED.
9. ~180 L.F. OF FENCE AND GATE TO BE REMOVED.
10. LIGHT POST TO REMAIN/BE PROTECTED.
11. ~860 L.F. OF FENCE AND GATES TO BE REMOVED.
12. EXISTING RETAINING WALL AND CORRUGATED METAL PIPES TO BE REMOVED.
13. EXISTING LOW AND HIGH VOLTAGE ELECTRICAL VAULT TO BE REMOVED. REFERENCE MEP DRAWINGS FOR NEW LOCATION.
14. EXISTING PAVEMENT TO BE REMOVED.
15. SAWCUT AND REMOVE ~53 L.F. OF EXISTING CURB.
16. ~650 L.F. OF FENCE AND GATES TO BE REMOVED.
17. EXISTING DRAINAGE STRUCTURE TO BE REMOVED.
18. TREES TO BE REMOVED. REFERENCE LANDSCAPING PLANS FOR PLANTING, INCLUDING NEW, REMOVED, AND SAVED TREES.
19. CONTRACTOR TO REMOVE EXISTING UNDERGROUND ELECTRICAL LINES.
20. CONTRACTOR TO REMOVE EXISTING UNDERGROUND GAS LINES.
21. CONTRACTOR TO REMOVE WINGWALL DRAINAGE STRUCTURE. CONTRACTOR TO REMOVE 24" CORRUGATED METAL PIPE HAS NECESSARY FOR THE INSTALLATION OF NEW STORM DRAIN SYSTEM. CONTRACTOR TO CAP AND LEAVE IN PLACE THE REST OF 24" CORRUGATED METAL PIPE.
22. CONTRACTOR TO REROUTE OVERHEAD ELECTRIC TO SERVE THE EXISTING SECURITY OFFICE. REFER TO MEP DRAWINGS.
23. LIGHT POST AND CONCRETE BASE TO BE DEMOLISHED. REMOVE EXISTING CIRCUIT BACK TO LIGHT POST THAT IS TO REMAIN.
24. EXISTING ELECTRIC LINES TO REMAIN AND BE REUSED.
25. ~155 L.F. OF FENCE TO BE REMOVED.
26. CONTRACTOR TO CAP AND ABANDONED ~225 L.F. OF 6" IRRIGATION LINE.
27. GAS METER TO BE REMOVED.
28. ~440 L.F. OF FENCE AND GATE TO BE REMOVED.
29. CONTRACTOR TO REMOVED AND PLACE SIDEWALK AT FULL PANEL WIDTH.
30. SAWCUT AND REMOVE ~30 L.F. OF EXISTING CURB.
31. SAWCUT AND REMOVE ~2 L.F. OF EXISTING CURB.
32. SAWCUT AND REMOVE ~35 L.F. OF EXISTING CURB.
33. SAWCUT AND REMOVE ~72 L.F. OF EXISTING CURB.
34. SAWCUT AND REMOVE ~22 L.F. OF EXISTING CURB.
35. SAWCUT AND REMOVE ~34 L.F. OF EXISTING CURB.
36. SAWCUT AND REMOVE ~65 L.F. OF EXISTING CURB.
37. SAWCUT AND REMOVE ~5 L.F. OF EXISTING CURB.
38. SAWCUT AND REMOVE ~40 L.F. OF EXISTING CURB.

GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING IRRIGATION SYSTEM IN AREAS WHERE IT IS REMOVED OR DAMAGED DURING CONSTRUCTION.
2. WHERE FENCES ARE REMOVED THEY SHALL BE REMOVED BACK TO THE FIRST COLUMN OR POST OUTSIDE OF DEMO AREA.
3. NO WORK SHALL BE DONE UNTIL BEXAR COUNTY HAS ISSUED A SWPPP PERMIT.
4. CONTRACTOR MAY SALVAGE AND REUSE EXISTING FENCE MATERIALS IF THEY ARE NOT DAMAGED.



DETAIL #1
SCALE: 1" = 20'

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Drawn by	LMO
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Job No.	7662301491

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KCI TECHNOLOGIES

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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KRG ARCH

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Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	09/06/23
Revisions:	

OVERALL EXISTING AND DEMOLITION PLAN AND NOTES

C1.00

SITE DESCRIPTION

PROJECT LOCATION: SOUTH/SOUTHWEST SIDE OF THE EXISTING CAMPUS OF O'CONNOR HIGH SCHOOL LOCATED AT 12221 LESLIE ROAD, HELOTES, TX 78023.

PROJECT DESCRIPTION: CONSTRUCTION OF ADDITIONAL SCHOOL BUILDINGS, PARKING, SIDEWALK, UTILITIES, AND DRAINAGE STRUCTURES. IN ADDITION, DEMOLITION OF AN EXISTING BUILDING, NEW DRIVE LANES, NEW PARKING LOTS, NEW WATER QUALITY BASIN.

MAJOR SOIL DISTURBING ACTIVITIES: SITE GRADING, UTILITY AND DRAINAGE CONSTRUCTION, PAVEMENTS AND FLATWORK, AND FOUNDATION CONSTRUCTION.

TOTAL PROJECT AREA: ~5.6 ACRES

TOTAL AREA TO BE DISTURBED: ~5.6 ACRES

WEIGHTED RUNOFF COEFFICIENT (PRE-CONSTRUCTION): 0.70

WEIGHTED RUNOFF COEFFICIENT (POST-CONSTRUCTION): 0.79

EXISTING CONDITION OF SOIL & VEGETATIVE COVER: NATIVE GRASS WITH TREES IN UNDEVELOPED AREAS AND SOME PREVIOUSLY DEVELOPED AREAS THAT ARE PAVED. ESTIMATED ABOUT 67% VEGETATED COVER WITH EARTHEN CHANNELS, WATER QUALITY BASINS, VEGETATED FILTER STRIPS, AND GRASS LANDSCAPE AREAS.

NAME OF RECEIVING WATERS: HELOTES CREEK

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ___ TEMPORARY SEEDING
- ✓ PERMANENT PLANTING, SODDING, OR SEEDING
- ✓ MULCHING
- ✓ SOIL RETENTION BLANKET
- ✓ BUFFER ZONES
- ___ PRESERVATION OF NATURAL RESOURCES

OTHER: ___

STRUCTURAL PRACTICES:

- ✓ SILT FENCES
- ___ HAY BALES
- ✓ ROCK BERMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ✓ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- ✓ ROCK SEEDING AT CONSTRUCTION EXIT
- ✓ TIMBER MATTING AT CONSTRUCTION EXIT
- ✓ CHANNEL LINERS
- ✓ SEDIMENT TRAPS
- ✓ SEDIMENT BASINS
- ✓ STORM INLET SEDIMENT TRAP
- ✓ STONE OUTLET STRUCTURES
- ✓ CURBS AND GUTTERS
- ✓ STORM SEWERS
- ___ VELOCITY CONTROL DEVICES
- ✓ GRAVEL FILTER BAGS

OTHER: ___

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

PHASE I:
1. INSTALLATION OF SWPPP MEASURES

PHASE II:
1. SITE CLEARING AND GRADING

PHASE III:
1.FOUNDATIONS, DRAINAGE AND UTILITIES

PHASE IV:
1. DRIVEWAY AND PARKING LOT CONSTRUCTION
2. BUILDING CONSTRUCTION

PHASE V:
1. VEGETATION

STORM WATER MANAGEMENT: TEMPORARY AND PERMANENT MEASURES TO PREVENT SEDIMENT TRANSPORT DOWNSTREAM.

NON-STORM WATER DISCHARGE: N/A

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: An inspection will be performed by the owner or contractor's representative every week as well as after every half inch or more of rain (as recorded on a non-freezing rain gauge to be located at the Project Site). An inspection and Maintenance Report will be made per each inspection. Based on the inspection results, the controls shall be revised per the inspection report.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all state and local city solid waste management regulations. All trash and construction debris form the site will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulations and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: paints, acids for cleaning, masonry surfaces, cleaning solvents, asphalt products, chemical additives for soil stabilization or concrete curing compounds & additives. In the event of a hazardous material spill, the spill coordinator shall be contacted immediately.

SANITARY WASTE: All sanitary waste will be collected from portable units as necessary, or as required by local regulations by a Licensed Sanitary Waste Management Contractor.

OFFSITE VEHICLE TRACKING:

- ✓ HAUL ROADS DAMPENED FOR DUST CONTROL
- ✓ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- ✓ EXCESS DIRT ON ROAD REMOVED DAILY
- ✓ STABILIZED CONSTRUCTION ENTRANCE

PERMITS: ___

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are are not a part of the finished work.

OWNERS CERTIFICATION

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

SIGNATURE _____ DATE _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general Texas Pollutant Discharge Elimination System (TPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification plan.

SIGNATURE (CONTRACTOR) _____ DATE _____

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Drwn. By: LNC
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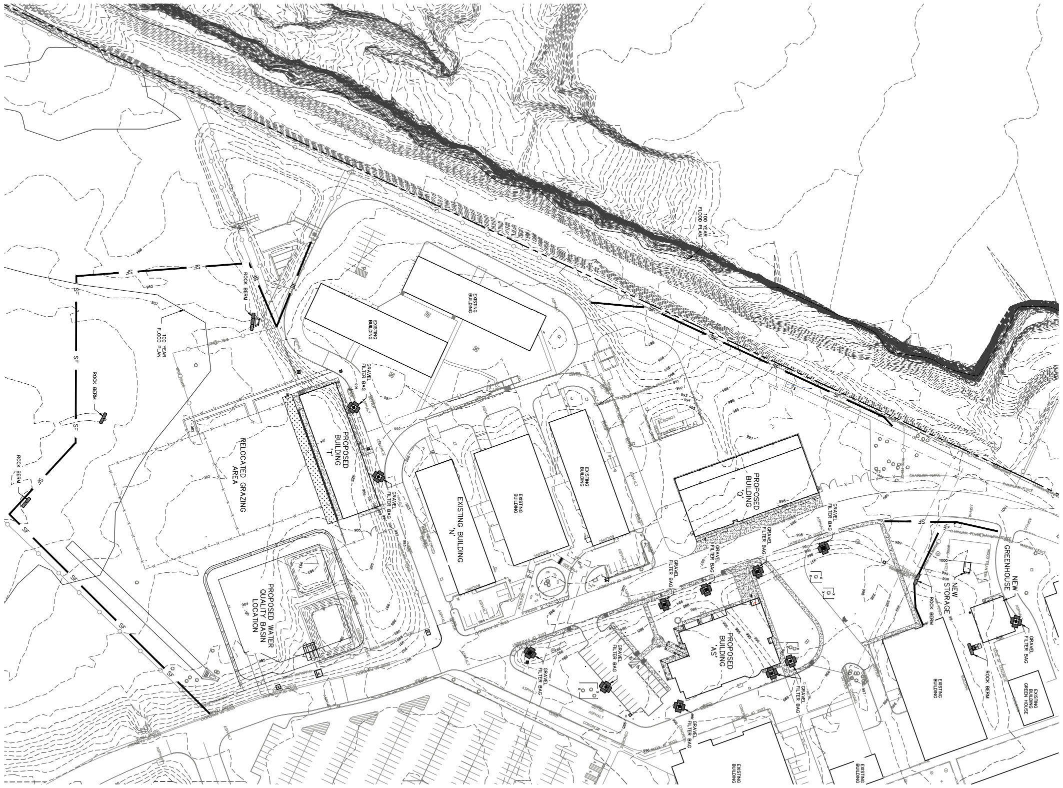
Date Issued: 09/06/23
Revisions:

SWPPP NOTES

C2.00



GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT

LEGEND:

— — —	EXISTING EASEMENTS
— — —	SITE PROPERTY LINE
—SF—	SILT FENCE
▬	GRAVEL FILTER BAGS
▨	CONSTRUCTION ENTRANCE/EXIT
▨	CONCRETE WASHOUT PIT
— 777 —	EXISTING CONTOUR
▨	GABION MATRESS
▬	ROCK BERM
—x—	TREE PROTECTION FENCE

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PAUL A. MATHIS
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9-6-2023

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PAUL A. MATHIS, P.E.
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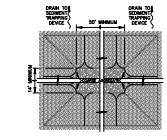
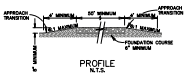
Revisions:

OVERALL SWPPP

C2.01



PLAN
N.T.S.

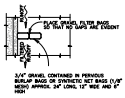


PROFILE
N.T.S.

GENERAL NOTES

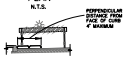
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION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

CONSTRUCTION EXIT – TYPE 1



3/4" GRAVEL CONTAINED IN PERVIOUS POLYPROPYLENE BAGS OR SYNTHETIC HAY BALES (1/4" MESH) APPROX. 24" LONG, 12" WIDE AND 6" HIGH

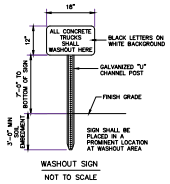
PLAN
N.T.S.



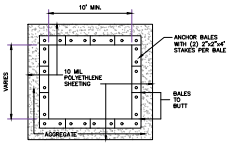
ELEVATION
N.T.S.

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

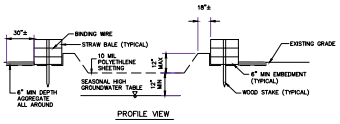
GRAVEL FILTER BAGS



WASHOUT SIGN
NOT TO SCALE

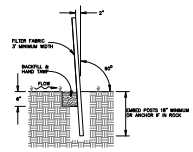


PLAN VIEW

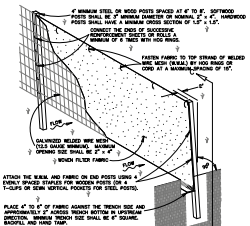


PROFILE VIEW

CONCRETE WASHOUT
NOT TO SCALE



SECTION C–C
N.T.S.



ISOMETRIC VIEW
N.T.S.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2' TO 3' HIGH SYNTHETIC FILTER FABRIC IS USED TO FILTER THE FLOW RATE TO BE EQUAL TO OR LESS THAN THE PERMISSIBLE VELOCITY OF THE FLOW. A MAXIMUM FLOW THRU RATE OF 120 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

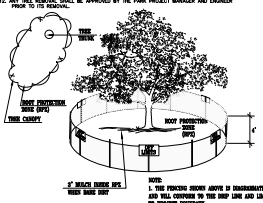
GENERAL NOTES

1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE

GENERAL TREE PROTECTION NOTES

1. ALL THE TREES WITH A DIAMETER GREATER THAN 3 INCHES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM No. 802, TREE PRUNING. SOIL AMENDING AND FERTILIZATION, UNLESS SPECIFIED. TREES SHALL RECEIVE LEVEL 2 PROTECTION AS PER ITEM No. 802. TREES TO RECEIVE LEVEL 1 PROTECTION AS PER ITEM No. 802 ARE SHOWN ON TREE PROTECTION TABLE ON THIS SHEET.
2. ALL TREES SHALL REMAIN UNLESS NOTED ON THE PLANS.
3. NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND PROTECTION IS REQUIRED UNTIL THE TREES ARE PROTECTED AS SPECIFIED.
4. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
5. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN THREE INCHES IN DIAMETER WHENEVER POSSIBLE. IF ROOTS LARGER THAN THREE INCHES IN DIAMETER MUST BE CUT, PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE PARK PROJECT MANAGER AND ENGINEER.
6. THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, WHERE ROOTS ARE LOCATED AND WHERE SOIL SHALL NOT BE DISTURBED OR BE STORED. THE REQUIRED RADIUS LENGTH IN 1 FOOT FOR DIAMETER INCH OF THE TREE. FOR EXAMPLE, A 10-INCH DIAMETER TREE WOULD HAVE A 5-FOOT RADIUS ROOT PROTECTION ZONE. IF ROOTS LARGER THAN THREE INCHES IN DIAMETER OR CONFLICT WITH CONSTRUCTION, ENGAGE A CUT CLEAN, ACCORDING TO STANDARD ARBORICULTURAL METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN 20 MINUTES TO PREVENT OAK WILT.
7. ACCESS TO FENCED AREAS WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE PROJECT MANAGER OR ENGINEER.
8. GRADING, IF REQUIRED, SHALL BE LIMITED TO A 3 INCH CUT OR FILL WITHIN THE FENCED ROOT ZONE AREAS.
9. TRUNKS, LIMBS AND BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND AS DIRECTED BY THE PROJECT MANAGER OR CITY INSPECTOR.
10. TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE ENGINEER'S SATISFACTION.
11. EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS BURLAP, WET SOIL OR MULCH TO KEEP ROOTS MOIST.
12. ANY TREE REMOVAL SHALL BE APPROVED BY THE PARK PROJECT MANAGER AND ENGINEER PRIOR TO ITS REMOVAL.



1.1.2 LEVEL 1 & FENCE PROTECTION
N.T.S.

KOI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
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FAX: (210) 641-9440
REGISTRATION #: F-10514-00
KCI TECHNOLOGIES

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. LAIRD, P.E. 100078 ON 09/06/23. IT MAY NOT BE USED FOR ANY OTHER WORK. THE ORIGINAL DOCUMENT IS STORED AT THE OFFICE OF KAARLSEN & KOCHMAN, PLLC.

Design Dr.	PAM
Design By	LMD
Approved	PAM
Job No.	76923014R1

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROCHMAN BERTHMANN GARCIA
8204 BROADWAY, STE 402
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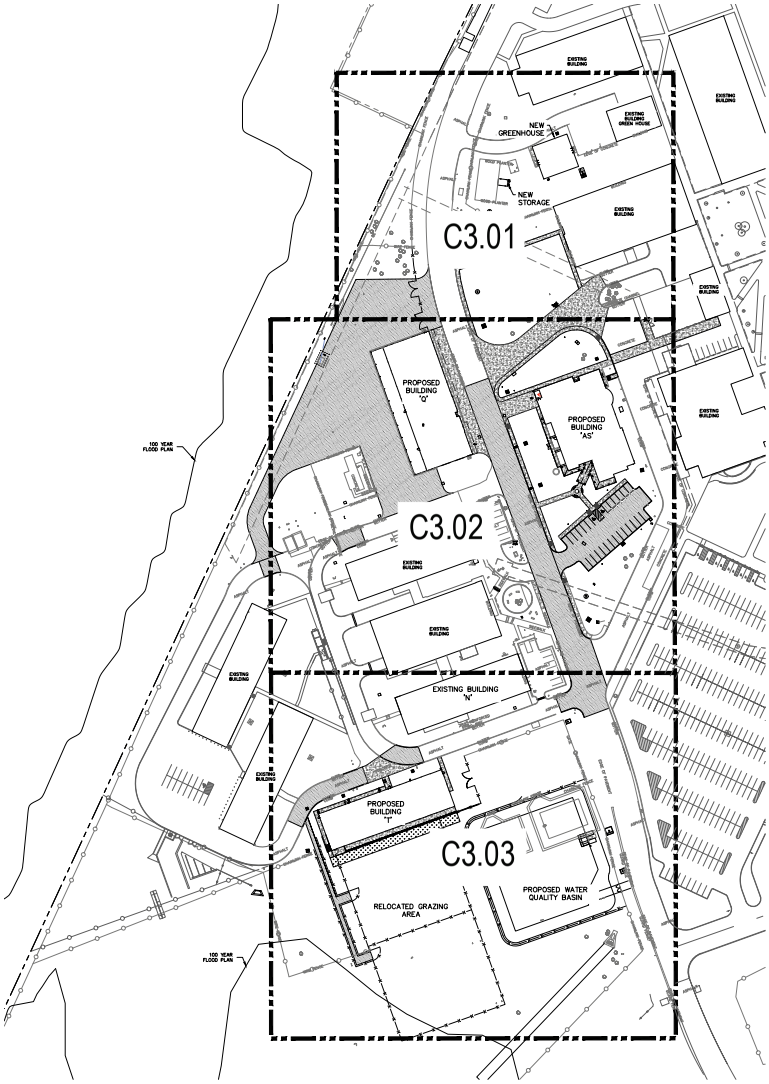
210.930.1515
TBPE F-3124

Project No.	76923014R1
Drawn By:	LNC
Chkd By:	PAM
Date Issued:	09/06/23
Revisions:	

SWPPP DETAILS

C2.02



GRAPHIC SCALE

0 30 60 120

(IN FEET)
1 INCH = 60 FT

SITE DIMENSION KEYED NOTES:
SHEETS C3.02 – C3.05

1	ASPHALTIC PAVEMENT. SEE DETAIL A-1 ON SHEET C4.04.
2	CONCRETE PAVEMENT. SEE DETAIL A-2 ON SHEET C4.04.
3	PAVEMENT JUNCTION. SEE DETAIL A-3 ON SHEET C4.04.
4	CONCRETE/ASPHALT PAVEMENT JUNCTION. SEE DETAIL A-4 ON SHEET C4.04.
5	CONCRETE FLATWORK. SEE DETAIL A-5 ON SHEET C4.04.
6	CONCRETE SIDEWALK. SEE DETAIL A-6 ON SHEET C4.04.
7	CONCRETE SIDEWALK ABUTTING CURB. SEE DETAIL A-7 ON SHEET C4.04.
8	SIDEWALK ADJACENT TO BUILDING. SEE DETAIL A-8 ON SHEET C4.04.
9	SIDEWALK ADJACENT TO COVERED WALK. SEE DETAIL A-9 ON SHEET C4.04.
10	CONCRETE PAVEMENT CONTROL JOINT. SEE DETAIL A-10 ON SHEET C4.04.
11	EDGE OF PAVEMENT/NO CURB. SEE DETAIL A-11 ON SHEET C4.04.
12	SIDEWALK AT ASPHALT. SEE DETAIL A-12 ON SHEET C4.04.
13	CONCRETE OR ASPHALT PAVEMENT/COVERED WALK DETAIL (CURB). SEE DETAIL A-13 ON SHEET C4.04.
14	CONCRETE OR ASPHALT PAVEMENT/COVERED WALK DETAIL (FLUSH CURB). SEE DETAIL A-14 ON SHEET C4.04.
15	PAVEMENT EXPANSION JOINT SMOOTH DOWEL. SEE DETAIL A-15 ON SHEET C4.04.
16	SIDEWALK DRAIN AND COVER – PRIVATE WORK. SEE DETAIL A-16 ON SHEET C4.04.
17	DOWNSPOUT BOOT. SEE DETAIL A-20 ON SHEET C4.04.
18	CONCRETE WHEEL STOP. SEE DETAIL A-22 ON SHEET C4.04.
19	PUBLIC WHEELCHAIR RAMPS. SEE DETAIL A-1 ON SHEET C4.05.
20	18" RIBBON CURB DETAIL. SEE DETAIL B-2 ON SHEET C4.05.
21	CONCRETE FLUME. SEE DETAIL B-3 ON SHEET C4.05.
22	CONCRETE PIPE BOLLARD. SEE DETAIL B-4 ON SHEET C4.05.
23	MACHINE LAID CURB—COMMERCIAL USE. SEE DETAIL B-5 ON SHEET C4.05.
24	HEADER CURB. SEE DETAIL B-6 ON SHEET C4.05.
25	MOUNTABLE CURB. SEE DETAIL B-7 ON SHEET C4.05.
26	CURB DETAIL FOR CONCRETE PAVEMENT. SEE DETAIL B-8 ON SHEET C4.05.
27	1:1 CURB TRANSITION DETAIL. SEE DETAIL B-9 ON SHEET C4.05.
28	TAPERED CURB TRANSITION DETAIL. SEE DETAIL B-10 ON SHEET C4.05.
29	TOECRWN DETAIL. SEE DETAIL B-11 ON SHEET C4.05.
30	GATE/CHAIN LINK FENCE. SEE DETAIL C-1 ON SHEET C4.05.
31	HANDICAP MARKINGS. SEE DETAIL E-1 ON SHEET C7.01.
32	HANDICAP SIGN AND PIPE SUPPORT. SEE DETAIL E-2 ON SHEET C7.01.
33	CONCRETE PAD TURN DOWN. SEE DETAIL B-12 SHEET C4.05

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. LANDIS, P.E. ON 09/06/2023

DATE OF ORIGINAL SEAL: 10/31/19

Dsgn. By: PAM
Drawn By: LAND
Chkd By: PAM
Job No. 7623014901

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FAX: (210) 641-9440
REGISTRATION NO: F-1058

KCI TECHNOLOGIES

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROONAN RUTHMANN GARCIA

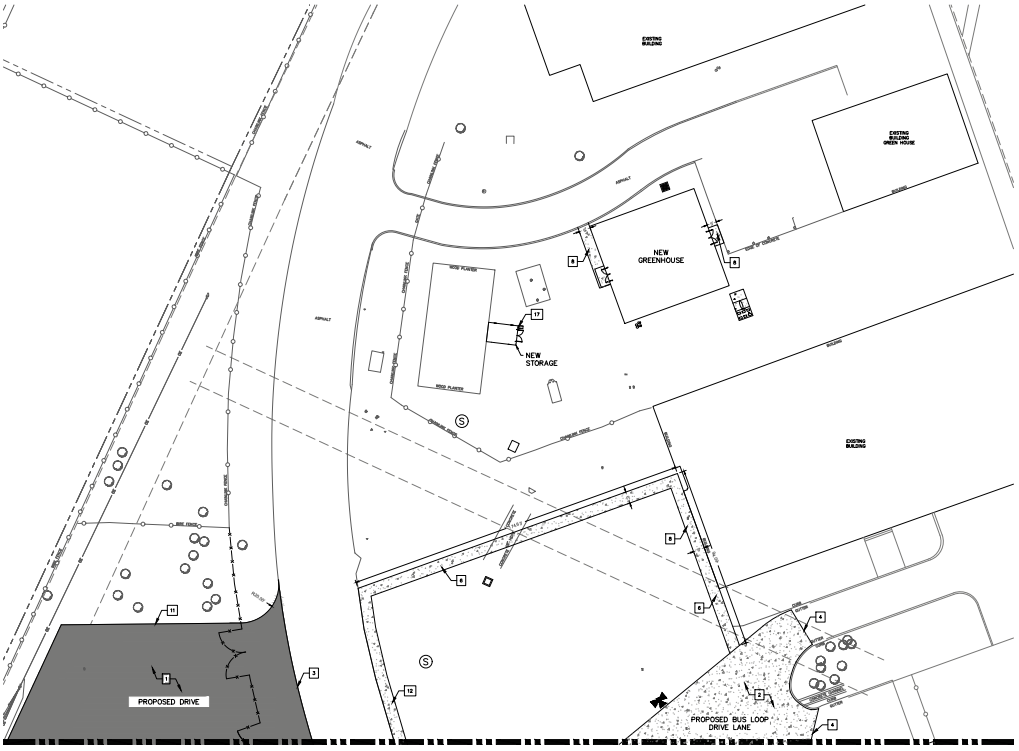
5219 RANCHO RD #202
AUSTIN, TEXAS 78633
512.772.1335
TX@KRRG.COM

KRRG ARCH

Project No: 7623014901
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

OVERALL SITE DIMENSION PLAN AND KEYED NOTES

C3.00



SEE MATCH LINE SHEET C3.02

GRAPHIC SCALE

(IN FEET)
1 INCH = 20 FT

LEGEND:

- CONCRETE PAVEMENT
- CONCRETE DRIVEWAY
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- # REFER TO SHEET C3.00 FOR GENERAL AND KEYED NOTES.

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

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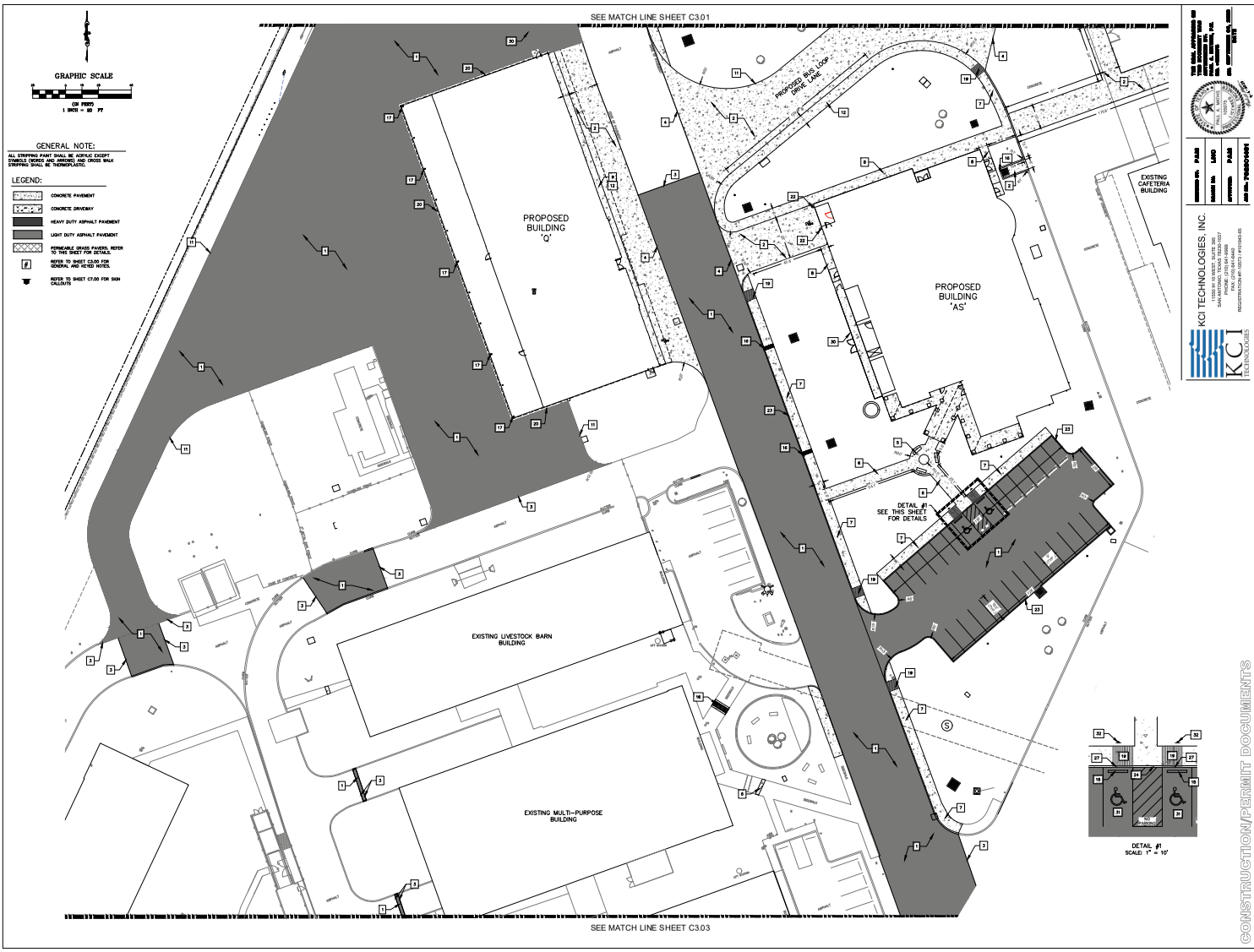
210.979.8284
TBPE/TBPLS Firm #F-3124

Project No: 7623014-001
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

SITE AND DIMENSION PLAN NORTH

C3.01



KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 541-9166
FAX: (210) 541-9401
REGISTRATION NO: F-1935

KCI TECHNOLOGIES

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

KAARLSEN ROONAN ROTHMANN GARCIA

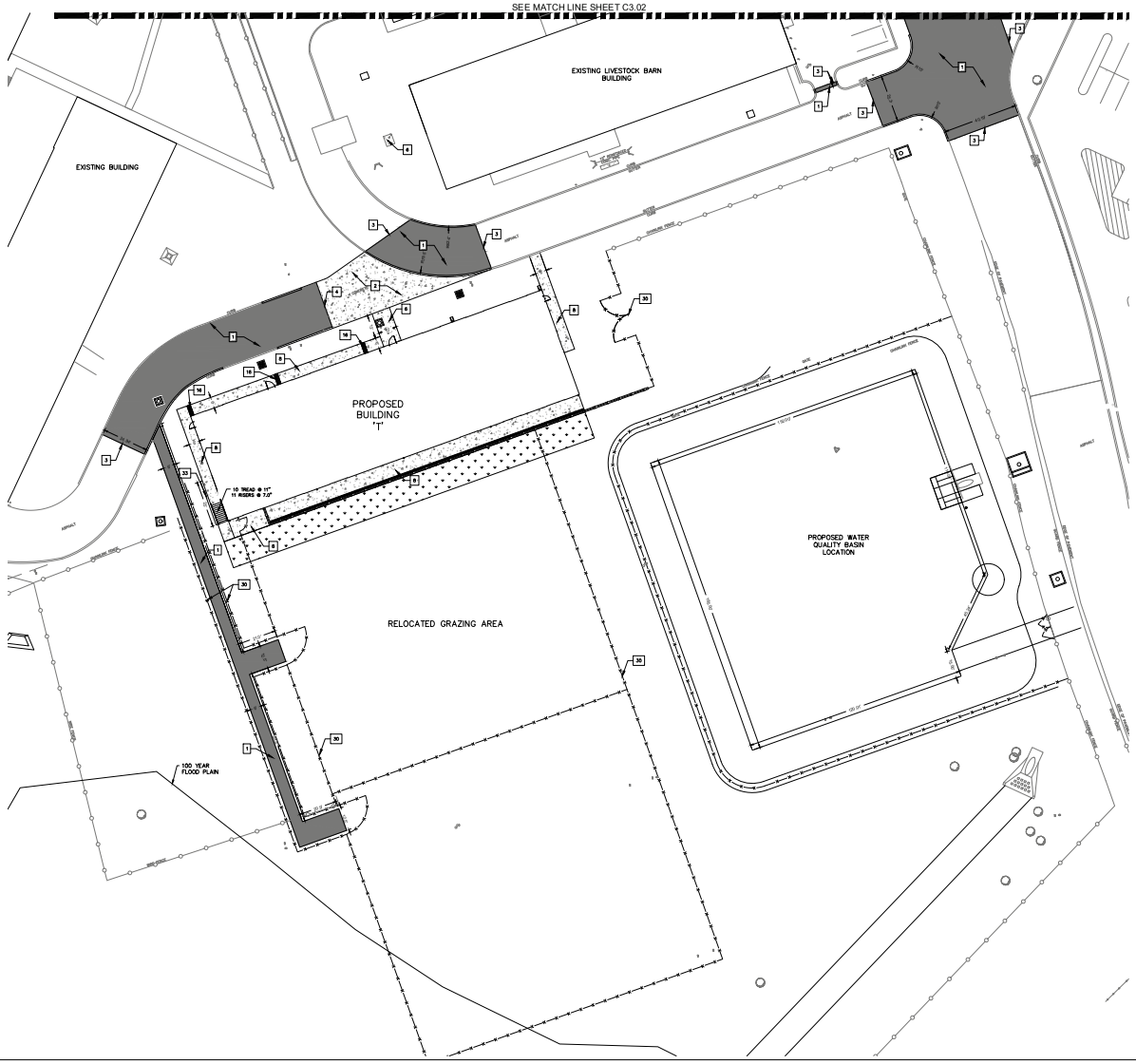
ARCHITECTS

Project No: 7623014R1
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

SITE AND DIMENSION PLAN/MD

CONSTRUCTION/PERMIT DOCUMENTS

C3.02



GRAPHIC SCALE

(IN FEET)
1 INCH = 20 FT

GENERAL NOTE:

ALL STRIPPING PAINT SHALL BE ACRYLIC EXCEPT SYMBOLS (NEWER AND ARROWS) AND CROSS WALK STRIPPING SHALL BE THERMOPLASTIC.

LEGEND:

- CONCRETE PAVEMENT
- CONCRETE DRIVEWAY
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- PERMEABLE GRASS PAVERS, REFER TO THIS SHEET FOR DETAIL
- REFER TO SHEET C3.00 FOR GENERAL AND KEYED NOTES.
- REFER TO SHEET C7.00 FOR SIGN CALLOUTS

THIS SEAL APPEARS ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. LANDIS, P.E. ON 09/06/2023

DESIGN BY: PAM
DRAWN BY: LMD
APPROVED: PAM
JOB NO. 7602301401

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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

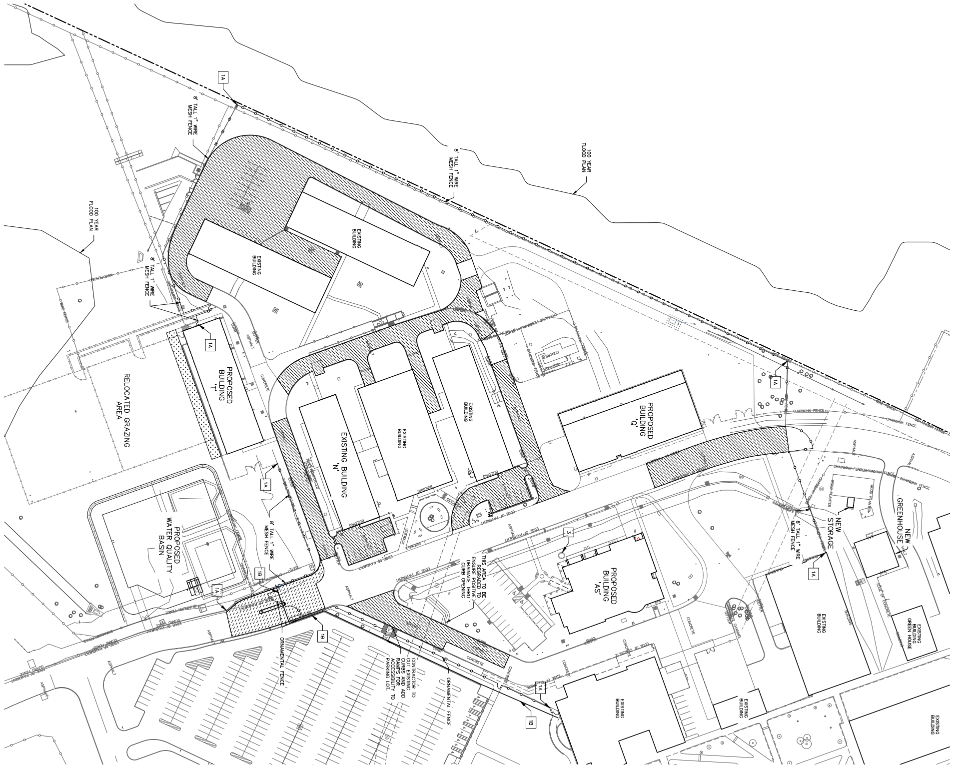
KAARLSEN ROONAN RUTHMANN GARCIA

ARCH

Project No: 7602301401
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

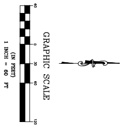
SITE AND DIMENSION PLAN SOUTH

C3.03



LEGEND

1A	-o-o-o-o-	FENCE ALTERNATE BID 1
1B	▨	EXTENDED DRIVEWAY PAVEMENT ALTERNATE BID 1 (CONTRACTOR TO INSTALL 3 – 2" CONDUITS FOR FUTURE SECURITY INSTALLATION.)
2	▨	SEAL COAT ASPHALT PAVEMENT ALTERNATE BID 2
3	—	NEW CISTERN ALTERNATE BID 3 (SEWER LINE COMING FROM THE CISTERN TO THE MAIN WILL ONLY BE INSTALLED WITH THIS BID ITEM.)



KCI TECHNOLOGIES, INC.
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FAX: (210) 641-6440
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DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

PAUL A. MATHIS
105075
9-6-2023

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:
PAUL A. MATHIS, P.E.
NO. #105075
ON: SEPTEMBER 06, 2023
DATE

CONSTRUCTION/PERMIT DOCUMENTS

C3.04

OVERALL
ALTERNATE PLAN

Revisions:
Date Issued: 09/06/23
Chkd By: PAM
Drwn. By: LNC
Project No.: 762301481

KAARLSEN
NOONAN
RITTIMANN
GARCIA
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HELOTES, TEXAS 78023
P: 210.695.5716
knrgarch,com

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

GRAPHIC SCALE

1" = 200'

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-0440
REGISTRATION #F-10573 / #10194-65

DESIGNED BY: PAM
DRAWN BY: LSO
APPROVED: PAM
JOB NO. 702201401

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL E. MATHIS, P.E. ON 9/30/2015

ON SEPTEMBER 30, 2015
DATE

CONSTRUCTION/PERMIT DOCUMENTS

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13438 BANDERA RD #202
HELOTES, TEXAS 78023
P: 210.(KRJT)19
krtgarch.com

No.	Revisions	Date Issued	Drwn. By	Chkd. By
		09/30/2015	PAM	PAM

Project No. 702201401

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

C4.00

0 (FULL GROUND) 1"-0"

LEGEND:

GRAPHIC SCALE

1 INCH = 60 FT

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
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FAX: (210) 641-9440
REGISTRATION #F-10573 / #10194365

DESIGNED BY: PAM
DRAWN BY: LSO
APPROVED: PAM
JOB NO. 702201401

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. ON 4/28/2023

DATE: SEPTEMBER 04, 2023

CONSTRUCTION/PERMIT DOCUMENTS

C4.01

GRADING PLAN/PATH

KAARLSEN NOONAN RITTIMANN GARCIA
13438 BANDERA RD #202
HELOTES, TEXAS 78023
P: 210.(KRJ)719
krjgarch.com

Project No: 702201401
Drwn. By: PAM
Date Issued: 09/06/23
Revisions:

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

CONSTRUCTION/PERMIT DOCUMENTS

KCI TECHNOLOGIES, INC.
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PHONE: (210) 641-9999
FAX: (210) 641-9440
REGISTRATION #F-10573 / #101943-65

DESIGNED BY:	P.A.M.
DRAWN BY:	L.S.D.
APPROVED:	P.A.M.
JOB NO.	062201401

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. 105075
DATE: SEPTEMBER 04, 2020

KAARLSEN NOONAN RITTIMANN GARCIA
13438 BANDERA RD #202
HELOTES, TEXAS 78023
P: 210.(KRJ)TR
krrgarch.com

Revisions	Date Issued	Drwn. By	Chkd. By
	09/09/20	P.A.M.	P.A.M.

GRADING PLAN MD

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

C4.02

CONSTRUCTION/PERMIT DOCUMENTS

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FAX: (210) 641-0440
REGISTRATION #F-10573 / #10194-65

DESIGNED BY: P.A.M.
DRAWN BY: L.S.D.
APPROVED: P.A.M.
JOB NO. 702201401

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. ON 9/30/2022

DATE: SEPTEMBER 30, 2022

KAARLSEN NOONAN RITTIMANN GARCIA
13438 BANDERA RD #282
HELOTES, TEXAS 78023
P: 210.(KRG)TTR
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No.	Revisions	Date Issued	Drwn. By	Chkd. By
		09/30/22	P.A.M.	

GRADING PLAN
NORTH

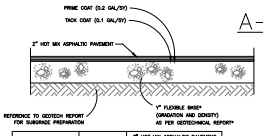
AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

C4.03

A-1

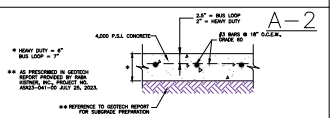


TRAFFIC TYPE	1" FLEXIBLE BASE	2" HOT MIX ASPHALTIC PAVEMENT TYPE "D"
LIGHT DUTY PAVEMENT	1"	2"
HEAVY DUTY PAVEMENT	1"	3"

* AS PRESCRIBED IN GEOTECH REPORT PROVIDED BY RABA KISTNER, INC., PROJECT NO. AS423-241-03 JULY 23, 2023.

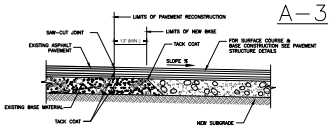
ASPHALTIC PAVEMENT SECTION
N.T.S.

A-2



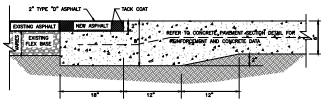
CONCRETE PAVEMENT SECTION
N.T.S.

A-3



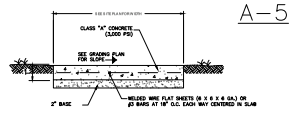
PAVEMENT JUNCTION DETAILS
N.T.S.

A-4



CONCRETE/ASPHALT PAVEMENT JUNCTION DETAIL
N.T.S.

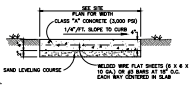
A-5



NOTES:
1. SEE SITE PLANS AND ARCHITECTURAL PLANS FOR JOINT PATTERNS. JOINT PATTERN TO BE CONFIRMED WITH ARCHITECT PRIOR TO PLACEMENT OF FLATWORK AREAS.
2. MAXIMUM JOINT SPACING SHALL BE EIGHT FEET IN ONE DIRECTION AND TWELVE FEET IN THE OTHER.
3. SIDEWALKS THAT ABUT BUILDINGS SHALL HAVE A 12" X 6" TOE DOWN ON THE SIDE OPPOSITE THE BUILDING.
4. "T" SHALL BE 4" FOR SIDEWALKS LESS THAN 5' WIDE AND 5" FOR PLAZAS AND AREAS GREATER THAN 5' WIDE.
5. AREAS WHERE PAVERS ARE LOCATED SHALL HAVE 3" THICK CONCRETE SET 3-1/2" (1" + PAVER THICKNESS) BELOW FINISH GRADE TO ACCOMMODATE PAVERS. LOWER SECTION SHALL EXTEND 12" BEYOND PAVERS.

CONCRETE FLATWORK
N.T.S.

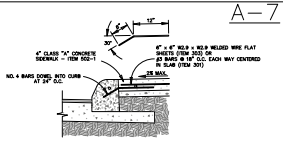
A-6



NOTES:
1. 1/2" EXPANSION JOINTS @ 30' INTERVALS.
2. ALL EXPANSION JOINTS SHALL USE SEALED REDWOOD (SEE DETAIL THIS SHEET).
3. GROOVE JOINTS @ 5' ON CENTER, JOINTS MAY BE SAWCUT.
4. CURBS MAY BE POURED MONOLITHIC WITH SIDEWALK.
5. DOWEL CONCRETE SIDEWALK TO BUILDING SLAB WITH #4 BARS @ 24" O.C. 1/2" ASPHALT IMPREGNATED FELT REQUIRED WHEN WALK IS ADJACENT TO STRUCTURE.

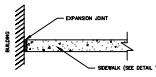
CONCRETE SIDEWALK
N.T.S.

A-7



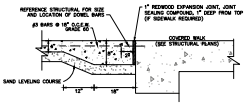
CONCRETE SIDEWALK ABUTTING CURB SECTION
N.T.S.

A-8



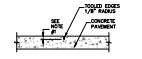
SIDEWALK ADJACENT TO BUILDING
N.T.S.

A-9



SIDEWALK ADJACENT TO COVERED WALK
N.T.S.

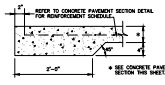
A-10



(CONCRETE PAVEMENT) CONTROL JOINT DETAIL
N.T.S.

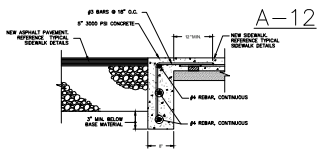
NOTE :-
1. PLACE SAWED JOINTS (1 5/8" DEEP FOR 6 1/2" CONCRETE AND 1 3/4" DEEP FOR 8" CONCRETE), 1/4" WIDE) @ 15' ON CENTER.
2. REINFORCED JOINT SPACINGS ARE 15 FT. LONGITUDINAL AND 15 FT. TRANSVERSE.
3. CONTINUE CONTROL JOINTS THROUGH CURB (TYPICAL).

A-11



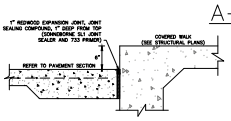
EDGE OF PAVEMENT (NO CURB)
N.T.S.

A-12



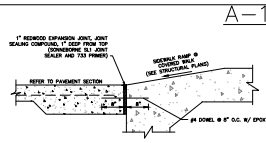
SIDEWALK AT ASPHALT
N.T.S.

A-13



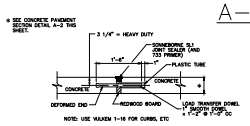
CONCRETE PAVEMENT/COVERED WALK DETAIL (6" CURB)
N.T.S.

A-14



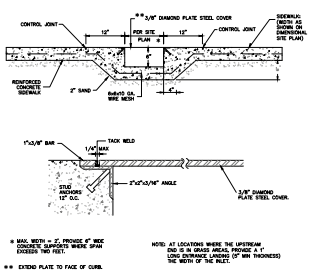
CONCRETE PAVEMENT/COVERED WALK DETAIL (FLUSH CURB)
N.T.S.

A-15



PAVEMENT EXPANSION JOINT SMOOTH DOWEL
N.T.S.

A-16



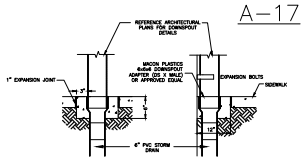
* MAX. WIDTH = 3', PROVIDE 6" WIDE CONCRETE SUPPORTS WHERE SPAN EXCEEDS TWO FEET.

** EXTEND PLATE TO FACE OF CURB.

NOTE: AT LOCATIONS WHERE THE UPSTREAM END IS IN GRASS AREAS, PROVIDE A 1' LONG ENTRANCE LANDING OF MIN THICKNESS) THE WIDTH OF THE INLET.

SIDEWALK DRAIN AND COVER – PRIVATE WORK
N.T.S.

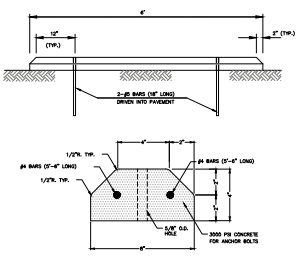
A-17



WHERE DOWNSPOUTS ARE LOCATED IN SIDEWALK AREAS AND THERE ARE NO STORM DRAINS THEN DOWNSPOUT SHALL BE CONNECTED TO TRENCH DRAINS. REFERENCE CIVIL PLANS FOR LOCATIONS.

DOWNSPOUT BOOT
N.T.S.

A-18



CONCRETE WHEEL STOP
N.T.S.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. MATHIS, P.E. 105678 ON: SEPTEMBER 06, 2023

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 7623014R1

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230
PHONE: (210) 541-9166
FAX: (210) 541-1481
REGISTRATION NO: 1057-F / 10104-05

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROONAN ROTHMANN GARCIA

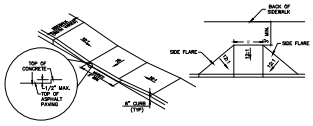
ENGINEERING

Project No.: 7623014R1
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

GRADING DETAILS
1

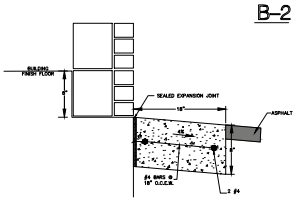
C4.04

B-1



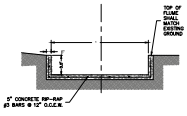
PUBLIC WHEEL CHAIR RAMPS
N.T.S.

B-2



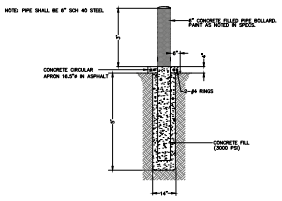
18" RIBBON CURB DETAIL
N.T.S.

B-3



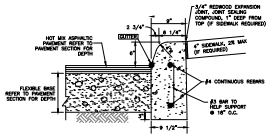
CONCRETE FLUME SECTION
N.T.S.

B-4



CONCRETE PIPE BOLLARD
N.T.S.

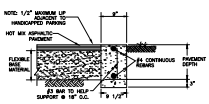
B-5



NOTE:
1. 1/2" DUMMY JOINTS @ 10' ON CENTER
2. 1/2" EXPANSION JOINT @ 40' ON CENTER (TYP) OR WHEN CURB ABUTS A CONCRETE STRUCTURE
3. CONCRETE SHALL BE f'c = 3,000 PSI, MAX 3" SLUMP
4. IF NO SIDEWALK REQUIRED AT BACK OF CURB BACKFILL/SLOPE AS SHOWN ON PLANS

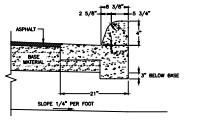
MACHINE LAID CURB COMMERCIAL USE
N.T.S.

B-6



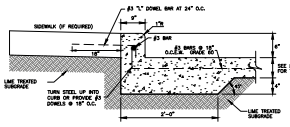
HEADER CURB
N.T.S.

B-7



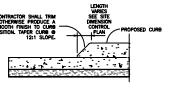
MOUNTABLE CURB
N.T.S.

B-8



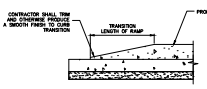
CURB DETAIL FOR CONCRETE PAVEMENT
N.T.S.

B-9



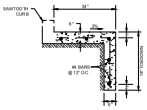
1:1 CURB TRANSITION DETAIL
N.T.S.

B-10



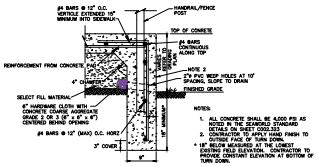
TAPERED CURB TRANSITION DETAIL
N.T.S.

B-11



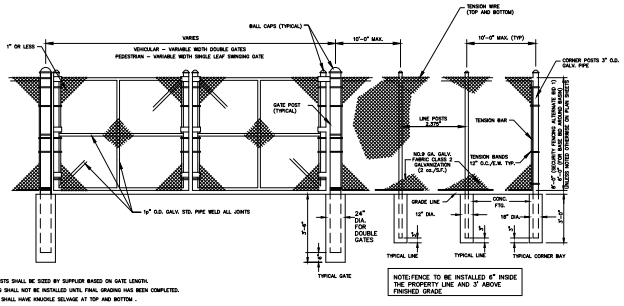
TOEDOWN DETAIL
SCALE: NTS

B-12



CONCRETE PAD TURN DOWN WHERE LANDSCAPE IS LOWER CONCRETE PAD WITH HANDRAIL/FENCE
SCALED: NTS

C-1



GATEPOSTS SHALL BE SIZED BY SUPPLIER BASED ON GATE LENGTH.
FENCING SHALL NOT BE INSTALLED UNTIL FINAL GRADING HAS BEEN COMPLETED.
FABRIC SHALL HAVE KNUCKLE SELVAGE AT TOP AND BOTTOM .

GATES/CHAIN LINK FENCE DETAIL
N.T.S.

KOI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-9440
REGISTRATION NO: F-10734-00

DESIGN BY:	PAM
DRAWN BY:	LMD
APPROVED:	PAM
JOB NO:	7502301491

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

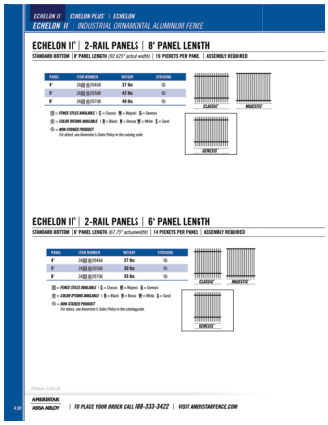
KAARLSEN ROONAN ROTHMANN GARCIA
ARCHITECTS

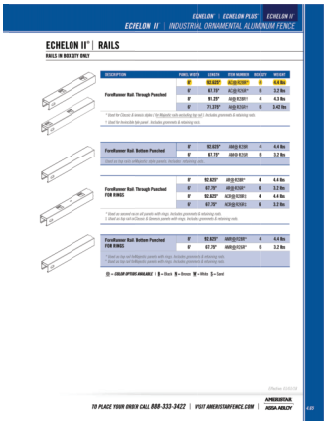
Project No:	7502301491
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	09/06/23
Revisions:	

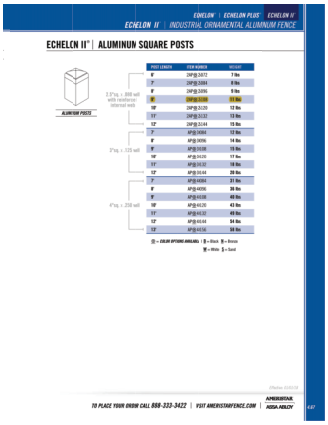
GRADING DETAILS 2

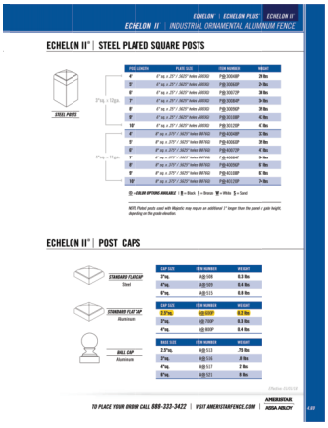
C4.05

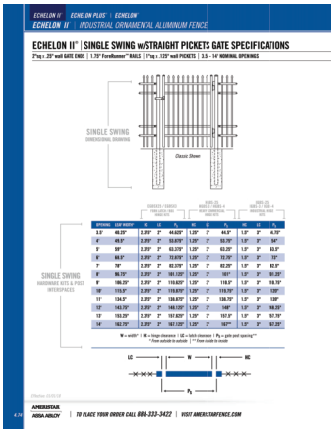
C–2

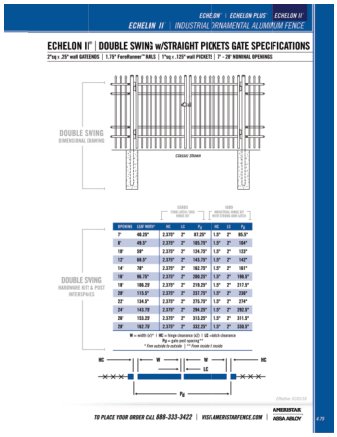












8' ORNAMENTAL FENCE DETAILS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. MICHEL, P.E. 108525 ON: SEPTEMBER 06, 2023 DATE

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO: 7623014R1

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 541-9166
FAX: (210) 541-1494
REGISTRATION NO: F-1105-00

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12251 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROONAN ROTHMANN GARCIA

5219 RANCHO RD #202
HOUSTON, TEXAS 77053
713.785.4500
www.krgarch.com

Project No: 7623014R1
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

GRADING DETAILS 3

C4.06

EXISTING STORM DRAIN PIPE KEYED NOTES

- (EXSD1) EXISTING 18" R.C.P. @ 0.48% TO REMAIN
- (EXSD2) EXISTING 12" R.C.P. @ 0.5% TO REMAIN
- (EXSD3) EXISTING STORM DRAIN STRUCTURE TO REMAIN.
- (EXSD4) EXISTING STORM DRAIN STRUCTURE TO REMAIN.
- (EXSD5) EXISTING STORM DRAIN TO REMAIN.
- (EXSD6) EXISTING 18" STORM DRAIN PIPE TO REMAIN.

STORM DRAIN PIPE KEYED NOTES
SHEETS C5.02 – C5.05

- (SD1) 172.82 L.F. – 36" PS46 @ 1.00%
- (SD2) 155.60 L.F. – 36" PS46 @ 1.00%
- (SD3) 125.00 L.F. – 24" PS46 @ 1.00%
- (SD4) 11.30 L.F. – 18" PS46 @ 4.00%
- (SD5) 216.8 L.F. – 36" PS46 @ 1.00%
- (SD6) 64.20 L.F. – 36" PS46 @ 1.00%
- (SD7) 80.30 L.F. – 36" PS46 @ 1.00%
- (SD8) 103.60 L.F. – 30" PS46 @ 1.00%
- (SD9) 143.80 L.F. – 24" PS46 @ 5.00%
- (SD10) 31.90 L.F. – 18" PS46 @ 5.00%
- (SD11) 63.00 L.F. – 24" PS46 @ 0.36%
- (SD12) 74.00 L.F. – 24" PS46 @ 1.00%
- (SD13) 56.30 L.F. – 24" PS46 @ 1.00%
- (SD14) 61.60 L.F. – 24" PS46 @ 1.00%
- (SD15) 93.50 L.F. – 24" PS46 @ 0.85%
- (SD16) 93.00 L.F. – 18" PS46 @ 2.00%
- (SD17) 64.70 L.F. – 24" PS46 @ 0.50%
- (SD18) 63.50 L.F. – 24" PS46 @ 1.00%
- (SD19) 68.38 L.F. – 15" SDR 35 @ 0.33%
- (SD20) 6.21 L.F. – 15" SDR 35 @ 0.33%
- (SD21) 10.35 L.F. – 15" SDR 35 @ 0.33%
- (SD22) 15" 1/8 BEND (PVC)
- (SD23) 79.47 L.F. – 12" SDR 35 @ 1.00%
- (SD24) 1 – 12"X6" WYE (PVC)
  1 – 6" 1/8 BEND (PVC)
- (SD25) TYPICAL CLEANOUT
- (SD26) 5.40 L.F. – 6" PVC PIPE @ 0.50%
- (SD27) 7 L.F. – 6" PVC PIPE @ 0.50%
- (SD28) 28.00 L.F. – 6" PVC PIPE @ 0.50%
- (SD29) 1 – 6" 1/8 BEND (PVC)
- (SD30) 19.00 L.F. – 12" PVC PIPE @ 1.00%
- (SD31) 5.50 L.F. – 6" PVC PIPE @ 0.50%
- (SD32) 4.41 L.F. – 6" PVC PIPE @ 0.50%
- (SD33) 26.83 L.F. – 6" PVC PIPE @ 0.50%
- (SD34) 28 L.F. – 12" PVC PIPE @ 1.00%
- (SD35) 1 – 12"X6" DOUBLE WYE (PVC)
- (SD36) 32.3 L.F. – 12" PVC PIPE @ 1.00%
- (SD37) 34.1 L.F. – 6" PVC PIPE @ 0.50%
- (SD38) 9.0 L.F. – 6" PVC PIPE @ 0.50%
- (SD39) 9.70 L.F. – 6" PVC PIPE @ 0.50%
- (SD40) 1 – 12" 1/8 BEND (PVC)
- (SD41) 1 – 12" WYE (PVC)
  1 – 12" 1/8 BEND (PVC)

STORM DRAIN PIPE KEYED NOTES
SHEETS C5.02 – C5.05

- (SD42) 1 – 12"X6" REDUCER (PVC)
- (SD43) 6.0 L.F. – 12" PVC PIPE @ 1.00%
- (SD44) 5.5 L.F. – 6" PVC PIPE @ 0.50%
- (SD45) 9.5 L.F. – 6" PVC PIPE @ 0.50%
- (SD46) 11.00 L.F. – 6" PVC PIPE @ 0.50%
- (SD47) 1 – 24"X6" WYE (PVC)
  1 – 6" 1/8 BEND (PVC)
- (SD48) 1 – 18"X6" WYE (PVC)
  1 – 6" 1/8 BEND (PVC)
- (SD49) 8.8 L.F. – 6" PVC PIPE @ 0.50%
- (SD50) 1.25 L.F. – 6" PVC PIPE @ 0.50%
  CONNECTED TO TRENCH DRAIN AND CONNECTED TO:
  DAYLIGHT PIPE ABOVE GRADE BY 3"
  INV OUT = 895.25'
- (SD51) 1.25 L.F. – 6" PVC PIPE @ 0.50%
  CONNECTED TO TRENCH DRAIN AND CONNECTED TO:
  DAYLIGHT PIPE ABOVE GRADE BY 3"
  INV OUT = 895.25'
- (SD52) 30 L.F. – 4' WIDE TRENCH DRAIN
  RNG. PER GRADING PLAN/SLOPES TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM WEST END TO EAST END
  OUTFALL LOCATION:
  INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
- (SD53) 50 L.F. – 4' WIDE TRENCH DRAIN
  RNG. PER GRADING PLAN/SLOPES TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END
  OUTFALL LOCATION:
  INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
- (SD54) 50 L.F. – 4' WIDE TRENCH DRAIN
  RNG. PER GRADING PLAN/SLOPES TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END
  OUTFALL LOCATION:
  INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
- (SD55) 50 L.F. – 4' WIDE TRENCH DRAIN
  RNG. PER GRADING PLAN/SLOPES TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END
  OUTFALL LOCATION:
  INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
- (SD56) DAYLIGHT FRENCH DRAIN THROUGH THE WALL 30 L.F. – 4" PERFORATED PIPE @ 0.50% SLOPE TO THE EAST AND BENDS AS REQUIRED
- (SD57) DAYLIGHT FRENCH DRAIN THROUGH THE WALL 80 L.F. – 4" PERFORATED PIPE @ 0.50% SLOPE TO THE WEST AND BENDS AS REQUIRED
- (SD58) CONNECT TO DOWNSPOUT AND INSTALL A VERTICAL DROP PIPE AND BENDS AS REQUIRED:
  DAYLIGHT FRENCH DRAIN THROUGH THE WALL
  W.S.L.F. – 6" PVC PIPE @ 0.50%
  DAYLIGHT PIPE THROUGH THE WALL ABOVE GRADE BY 3"
- (SD59) 3 L.F. – 6" PVC PIPE @ 0.50%
- (SD60) 4 L.F. – 6" PVC PIPE @ 0.50%
- (SD61) 1 – 6" WYE (PVC)
  1 – 6" 1/8 BEND (PVC)
- (SD62) 1 – 12"X6" WYE (PVC)
- (SD63) 10.3 L.F. – 6" PVC PIPE @ 0.50%
- (SD64) 1 – 12"X12" DOUBLE WYE (PVC)
- (SD65) 7 L.F. – 12" PVC PIPE @ 0.50%
- (SD66) 4.7 L.F. – 12" PVC PIPE @ 0.50%
- (SD67) DAYLIGHT FRENCH DRAIN THROUGH THE WALL
  37 L.F. – 4" PERFORATED PIPE @ 0.50% SLOPE TO THE WEST AND BENDS AS REQUIRED
- (SD68) 57.65 L.F. – 36" PS46 @ 0.50%
- (SD69) 27.84 L.F. – 42" PS46 @ 0.50%
  1– 42" 1/8 BEND PVC
  74.71 L.F. – 42" PS46 @ 0.50%
- (SD70) CONTRACTOR TO CONNECT EXISTING 4" STORM DRAIN TO NEW STORM SYSTEM
  12.0 L.F. – 4" PVC PIPE
  1– 4" 1/8 BEND PVC

EXISTING SANITARY SEWER KEYED NOTES

- (EXSS1) EXISTING SANITARY SEWER MANHOLE TO REMAIN.
- (EXSS2) EXISTING 8" SANITARY SEWER.
- (EXSS3) EXISTING 4" SANITARY SEWER.

SANITARY SEWER KEYED NOTES
SHEETS C5.02 – C5.05

- (S1) PR MH #1
  196.74 L.F. – 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S2) 84.39 L.F. – 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S3) 20.68 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S4) 10.23 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S5) 182.25 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S6) PR MH #2
  126.18 L.F. – 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S7) PR MH #3
  59 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 4.48% SLOPE
- (S8) 18.7 L.F. – 3" PVC SANITARY SEWER LATERAL @ 0.50% SLOPE
- (S9) 12.8 L.F. – 4" SDR 26 PVC SANITARY SEWER LATERAL @ 0.50% SLOPE
  2,000 GALLON GREASE WASTE INTERCEPTOR REFERENCE MEP PLANS
- (S10) 25.11 L.F. – 4" SCH40 40 PVC SANITARY SEWER LATERAL @ 8.30% SLOPE
- (S11) 83.1 L.F. – 4" SCH40 40 PVC SANITARY SEWER LATERAL @ 0.50% SLOPE
  CONTRACTOR TO INSTALL A VERTICAL STACK AS NECESSARY TO CONNECT TO PROPOSE KNORT FROM MEP ENGINEERING PLANS.
- (S12) 374.5 L.F. – 3" SCH40 40 PVC SANITARY SEWER LINE
  REFERENCE MEP ENGINEERING PLANS FOR LIFT STATION
- (S13) 1– 8" 1/32 BEND SDR 26 40 PVC
- (S14) 43 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
- (S15) 1– 8" 1/8 BEND SDR 26 40 PVC
- (S16) 5.5 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
  DOUBLE CLEAN OUTS
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
- (S17) LIFT STATION
  INV = 882.40'
  REFERENCE MEP ENGINEERING PLANS FOR LIFT STATION
- (S18) 370 L.F. – 4" SCH40 40 PVC SANITARY SEWER LATERAL
  1 – DOUBLE CLEANOUT TYPICAL
  1 – 4"X4" WYE REDUCER, N.A.
  1 – PVC CAP FOR FUTURE SERVICE
  ADD BENDS AS NECESSARY
  REFERENCE MEP PLANS FOR INVERTS AND CONTINUATION INTO BUILDING

EXISTING WATER KEYED NOTES

- (EXW1) EXISTING 8" P.V.C. WATER MAIN TO REMAIN.
- (EXW2) EXISTING 6" P.V.C. WATER MAIN TO REMAIN.
- (EXW3) EXISTING FIRE HYDRANT TO REMAIN.

WATER KEYED NOTES
SHEETS C5.02 – C5.05

- (W1) CONTRACTOR TO TIE NEW 6" FIRE LINE SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
  1 – 8"X6" DJ=-in TEE
  10.5 L.F. – 6" C900 PVC DR 18 FIRE LINE
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
- (W2) CONTRACTOR TO TIE NEW 2 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
  1 – 8"X2 1/2" DJ=-in TEE
  1 L.F. – 2 1/2" SCH40 40 PVC WATER SERVICE
  1 – 2 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
  1 – 2 1/2"X 1/4 BEND
  30 L.F. – 2 1/2" SCH40 40 PVC WATER SERVICE
  1 – 2 1/2" SCH40 40 PVC WATER SERVICE
  3 L.F. – 2 1/2" SCH40 40 PVC WATER SERVICE
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
- (W3) CONTRACTOR TO TIE NEW 2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
  1 – 8"X2" DJ=-in TEE
  7.8 L.F. – 2" SCH40 40 PVC WATER SERVICE
  1 – 2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
  253.5 L.F. – 2" SCH40 40 PVC WATER SERVICE
  1 – 2" 1/16 BEND
  187 L.F. – 2" SCH40 40 PVC WATER SERVICE
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
- (W4) CONTRACTOR TO TIE NEW 1 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
  1 – 8"X1 1/2" DJ=-in TEE
  6.48 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
  1 – 1 1/2" 1/4 BEND
  67.80 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
- (W5) PROPOSED FIRE HYDRANT COMPLETE
- (W6) CONTRACTOR TO TIE NEW 6" FIRE LINE SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
  1 – 8"X6" DJ=-in TEE
  7.75 L.F. – 6" C900 PVC DR 18 FIRE LINE
  1 – 6" DOUBLE CHECK DETECTOR
  20.75 L.F. – 6" C900 PVC DR 18 FIRE LINE
  1 – 6" 1/8 BEND
  169 L.F. – 6" C900 PVC DR 18 FIRE LINE
  1 – 6"X4" REDUCER, N.A.
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
- (W7) CONTRACTOR TO TIE NEW 1 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
  1 – 8"X 1 1/2" DJ=-in TEE
  57 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
  1 – 1 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
  57 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
  1 – 1 1/2" 1/2 BEND
  33 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
  REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

EXISTING IRRIGATION KEYED NOTES

- (IR1) EXISTING 4" IRRIGATION PIPE TO REMAIN.
- (IR2) EXISTING 4" IRRIGATION PIPE TO BE REMOVED.

IRRIGATION KEYED NOTES
SHEETS C5.02 – C5.05

- (IR1) CONTRACTOR TO TIE NEW 6" IRRIGATION MAIN LINE INTO EXISTING 4" IRRIGATION MAIN INSTALL:
  1 – 4" 1/8 BEND
  4 L.F. – 4" C900 PVC DR
  1 – 4" SHUT OFF VALVE
  3 L.F. – 4" C900 PVC DR
  1 – 6" 1/16 BEND
  3 L.F. – 6" C900 PVC DR
  1 – 6" 1/32 BEND
  53.3 L.F. – 6" C900 PVC DR
  1 – 6"X6"X2" TEE
  CAP FOR FUTURE CONNECTION
  45 L.F. – 6" C900 PVC DR
  1 – 6" 1/8 BEND
  35.5 L.F. – 6" C900 PVC DR
  1 – 6" 1/16 BEND
  101.5 L.F. – 6" C900 PVC DR
  1 – 6" 1/16 BEND
  24.75 L.F. – 6" C900 PVC DR
  1 – 6" 1/8 BEND
  23.5 L.F. – 6" C900 PVC DR

EXISTING GAS KEYED NOTES

- (GS1) EXISTING 4" GAS MAIN TO REMAIN.
- (GS2) EXISTING 2" GAS TO REMAIN.
- (GS3) EXISTING 1 1/4" GAS TO REMAIN.

GAS KEYED NOTES
SHEETS C5.02 – C5.05

- (G1) PROPOSED GAS. REFERENCE MEP DRAWING FOR DETAILS

EXISTING AND ELECTRIC KEYED NOTES

- (XE1) EXISTING UNDERGROUND ELECTRIC FEEDER TO REMAIN.
- (XE2) EXISTING OVERHEAD ELECTRIC TO REMAIN.
- (XE3) EXISTING UNDERGROUND ELECTRIC TO REMAIN.

ELECTRIC KEYED NOTES
SHEETS C5.02 – C5.05

- (E1) PROPOSED ELECTRIC LINES AND FEEDERS. REFERENCE MEP DRAWING FOR DETAILS

GENERAL DRAINAGE NOTES:

1. INLET AND JUNCTION BOX BOTTOMS SHALL BE GROUTED TO OUTLET
2. LIFTING HOLES INLET TOPS SHALL BE GROUTED.
3. PRECAST GRATE INLETS SHALL HAVE A TOP SECTION THAT ALLOWS GROUND TO BE LOWER THAN SUBGRADE WITH BASE OR PAVEMENT IS INSTALLED OR INLET SHALL HAVE HOLES IN SIDES TO ALLOW FOR DRAINAGE. HOLES TO BE GROUTED AFTER FINAL GRADES ARE ESTABLISHED.
4. CURB INLETS SHALL HAVE A NOTCHED OPENING TO ALL FOR DRAINAGE PRIOR TO FINAL PAVEMENT PLACEMENT. OPENING TO BE GROUTED AFTER FINAL PAVEMENT PLACEMENT.
5. ALL INLETS MUST BE ADA COMPLIANT AND HS–20 LOADING WHERE INLETS ARE IN PAVEMENT AREAS SUBJECT TO VEHICULAR TRAFFIC.

GENERAL WATER NOTES:

1. FDC CAPS SHALL BE STORZ.
2. GRADES OF FIRE AND DOMESTIC WATER TO BE ADJUSTED TO AVOID CONFLICTS WITH STORM DRAIN AND SEWER.
3. FIRE LINE SHALL HAVE RESTRAINED JOINTS AT ALL FITTINGS LENGTH SHALL BE IN ACCORDANCE WITH TABLE ON C5.08
4. CONTRACTOR TO APPLY FOR COUNTER PERMIT FOR SERVICES.

SEWER GENERAL NOTES:

1. CONTRACTOR TO APPLY FOR COUNTER PERMIT FOR SEWER CONNECTION.

GAS AND ELECTRIC GENERAL NOTES:

1. CONTRACTOR TO APPLY FOR GAS AND ELECTRIC SERVICES.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. MICHEL P.E. 115025 ON: SEPTEMBER 19, 2023 DATE

DESIGNED BY: PAM
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APPROVED: PAM
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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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ENRG PLAN

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Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

Δ	ADDENDUM #	9/19/23

UTILITY AND DRAINAGE KEYED NOTES

C5.00

EXISTING STORM DRAIN PIPE KEYED NOTES

EXD1 EXISTING 18" R.C.P. @ 0.68% TO REMAIN
EXD2 EXISTING 12" R.C.P. @ 0.68% TO REMAIN
EXD3 EXISTING STORM DRAIN STRUCTURE TO REMAIN.
EXD4 EXISTING STORM DRAIN STRUCTURE TO REMAIN.
EXD5 EXISTING STORM DRAIN TO REMAIN.
EXD6 EXISTING 18" STORM DRAIN PIPE TO REMAIN.

STORM DRAIN PIPE KEYED NOTES
SHEETS C5.02 – C5.05

SD1 172.82 L.F. – 36" PS46 @ 1.00%
SD2 155.60 L.F. – 36" PS46 @ 1.00%
SD3 125.00 L.F. – 24" PS46 @ 1.00%
SD4 11.30 L.F. – 18" PS46 @ 4.00%
SD5 216.8 L.F. – 36" PS46 @ 1.00%
SD6 64.20 L.F. – 36" PS46 @ 1.00%
SD7 80.30 L.F. – 36" PS46 @ 1.00%
SD8 103.60 L.F. – 30" PS46 @ 1.00%
SD9 143.80 L.F. – 24" PS46 @ 0.50%
SD10 31.90 L.F. – 18" PS46 @ 0.50%
SD11 54.00 L.F. – 24" PS46 @ 1.00%
SD12 74.00 L.F. – 24" PS46 @ 1.00%
SD13 56.30 L.F. – 24" PS46 @ 1.00%
SD14 61.60 L.F. – 24" PS46 @ 1.00%
SD15 93.50 L.F. – 24" PS46 @ 0.85%
SD16 93.00 L.F. – 18" PS46 @ 2.00%
SD17 64.70 L.F. – 24" PS46 @ 0.50%
SD18 45.00 L.F. – 24" PS46 @ 1.00%
SD19 48.38 L.F. – 15" SDR 35 @ 0.33%
SD20 6.21 L.F. – 15" SDR 35 @ 0.33%
SD21 10.35 L.F. – 15" SDR 35 @ 0.33%
SD22 15" 1/8 BEND (PVC)
SD23 79.47 L.F. – 12" SDR 35 @ 1.00%
SD24 1 – 12"36° WYE (PVC)
1 – 6" 1/8 BEND (PVC)
SD25 TYPICAL CLEANOUT
SD26 5.40 L.F. – 6" PVC PIPE @ 0.50%
SD27 7 L.F. – 6" PVC PIPE @ 0.50%
SD28 28.00 L.F. – 6" PVC PIPE @ 0.50%
SD29 1 – 6" 1/8 BEND (PVC)
SD30 19.00 L.F. – 12" PVC PIPE @ 1.00%
SD31 5.50 L.F. – 6" PVC PIPE @ 0.50%
SD32 4.41 L.F. – 6" PVC PIPE @ 0.50%
SD33 26.83 L.F. – 6" PVC PIPE @ 0.50%
SD34 28 L.F. – 12" PVC PIPE @ 1.00%
SD35 1 – 12"36° DOUBLE WYE (PVC)
SD36 32.3 L.F. – 12" PVC PIPE @ 1.00%
SD37 34.1 L.F. – 6" PVC PIPE @ 0.50%
SD38 9.0 L.F. – 6" PVC PIPE @ 0.50%
SD39 9.70 L.F. – 6" PVC PIPE @ 0.50%
SD40 1 – 12" 1/8 BEND (PVC)
SD41 1 – 12" WYE (PVC)
1 – 12" 1/8 BEND (PVC)

STORM DRAIN PIPE KEYED NOTES
SHEETS C5.02 – C5.05

SD42 1 – 12"66° REDUCER (PVC)
SD43 6.0 L.F. – 12" PVC PIPE @ 1.00%
SD44 5.5 L.F. – 6" PVC PIPE @ 0.50%
SD45 9.5 L.F. – 6" PVC PIPE @ 0.50%
SD46 11.00 L.F. – 6" PVC PIPE @ 0.50%
SD47 1 – 24"36° WYE (PVC)
1 – 6" 1/8 BEND (PVC)
SD48 1 – 18"36° WYE (PVC)
1 – 6" 1/8 BEND (PVC)
SD49 8.8 L.F. – 6" PVC PIPE @ 0.50%
SD50 1.25 L.F. – 6" PVC PIPE @ 0.50% CONNECTED TO TRENCH DRAIN AND CONNECTED TO DAYLIGHT PIPE ABOVE GRADE BY 3" INV OUT = 894.20'
SD51 1.25 L.F. – 6" PVC PIPE @ 0.50% CONNECTED TO TRENCH DRAIN AND CONNECTED TO DAYLIGHT PIPE ABOVE GRADE BY 3" INV OUT = 895.20'
SD52 30 L.F. – 4' WIDE TRENCH DRAIN PER PER DRAINAGE PLAN/SLOPED TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM WEST END TO EAST END OUTFALL LOCATION: INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
SD53 50 L.F. – 4' WIDE TRENCH DRAIN PER PER DRAINAGE PLAN/SLOPED TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END OUTFALL LOCATION: INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
SD54 50 L.F. – 4' WIDE TRENCH DRAIN PER PER DRAINAGE PLAN/SLOPED TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM WEST END TO EAST END OUTFALL LOCATION: INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
SD55 50 L.F. – 4' WIDE TRENCH DRAIN PER PER DRAINAGE PLAN/SLOPED TOP TRENCH BODY SHALL HAVE A MINIMUM OF 2% SLOPE FROM EAST END TO WEST END OUTFALL LOCATION: INSTALL A VERTICAL DROP PIPE AND CONNECT TO SD50.
SD56 DAYLIGHT FRENCH DRAIN THROUGH THE WALL 40 L.F. = 4" PERFORATED PIPE @ 0.50% SLOPE TO THE EAST AND BENDS AS REQUIRED
SD57 DAYLIGHT FRENCH DRAIN THROUGH THE WALL 60 L.F. = 4" PERFORATED PIPE @ 0.50% SLOPE TO THE WEST AND BENDS AS REQUIRED
SD58 CONNECT TO DOWNSPOUT AND INSTALL A VERTICAL DROP PIPE AND BENDS AS REQUIRED: DAYLIGHT FRENCH DRAIN THROUGH THE WALL @ 0.50% = 6" PVC PIPE @ 0.50% DAYLIGHT PIPE THROUGH THE WALL ABOVE GRADE BY 3"
SD59 3 L.F. – 6" PVC PIPE @ 0.50%
SD60 4 L.F. – 6" PVC PIPE @ 0.50%
SD61 1 – 6" WYE (PVC)
1 – 6" 1/8 BEND (PVC)
SD62 1 – 12"36° WYE (PVC)
SD63 10.3 L.F. – 6" PVC PIPE @ 0.50%
SD64 1 – 12"612° DOUBLE WYE (PVC)
SD65 7 L.F. – 12" PVC PIPE @ 0.50%
SD66 4.7 L.F. – 12" PVC PIPE @ 0.50%
SD67 DAYLIGHT FRENCH DRAIN THROUGH THE WALL 37 L.F. = 4" PERFORATED PIPE @ 0.50% SLOPE TO THE WEST AND BENDS AS REQUIRED
SD68 57.65 L.F. – 36" PS46 @ 0.50%
SD69 27.84 L.F. – 42" PS46 @ 0.50%
1– 42" 1/8 BEND PVC
74.71 L.F. – 42" PS46 @ 0.50%
SD70 CONTRACTOR TO CONNECT EXISTING 6" STORM DRAIN TO STORM DRAIN SYSTEM
12.0 L.F. – 6" PVC PIPE
1– 6" 1/8 BEND PVC

EXISTING SANITARY SEWER KEYED NOTES

SS1 EXISTING SANITARY SEWER MANHOLE TO REMAIN.
SS2 EXISTING 8" SANITARY SEWER.
SS3 EXISTING 4" SANITARY SEWER.

SANITARY SEWER KEYED NOTES
SHEETS C5.02 – C5.05

S1 PR MH #1
196.74 L.F. – 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S2 84.39 L.F. – 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S3 20.68 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S4 10.23 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S5 182.25 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S6 PR MH #2
126.18 L.F. – 8" SDR 26 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S7 PR MH #3
59 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 4.48% SLOPE
S8 16.7 L.F. – 8" PVC SANITARY SEWER LATERAL @ 0.50% SLOPE
S9 12.8 L.F. – 4" SDR 26 PVC SANITARY SEWER LATERAL @ 0.00% SLOPE
2,000 GALLON GREASE WASTE INTERCEPTOR REFERENCE MEP PLANS
S10 25.11 L.F. – 4" SCH40 40 PVC SANITARY SEWER LATERAL @ 8.30% SLOPE
S11 60.1 L.F. – 4" SCH40 40 PVC SANITARY SEWER LATERAL @ 0.50% SLOPE
CONTRACTOR TO INSTALL A VERTICAL STACK AS NECESSARY TO CONNECT TO PROPOSE INVERT FROM MEP ENGINEERING PLANS.
S12 374.5 L.F. – 3" SCH40 40 PVC SANITARY SEWER LINE
REFERENCE MEP ENGINEERING PLANS FOR LIFT STATION
S13 1– 8" 1/32 BEND SDR 26 40 PVC
S14 43 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
S15 1– 8" 1/8 BEND SDR 26 40 PVC
S16 5.5 L.F. – 8" SDR 26 40 PVC SANITARY SEWER MAIN @ 0.50% SLOPE
DOUBLE CLEAN OUTS
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
S17 LIFT STATION
INV = 882.40'
REFERENCE MEP ENGINEERING PLANS FOR LIFT STATION
S18 37.0 L.F. – 4" SCH40 40 PVC SANITARY SEWER LATERAL
1 – DOUBLE CLEANOUT TYPICAL
1 – 4" SCH40 90° ELBOW
1 – PVC CAP FOR FUTURE SERVICE
ADD BENDS AS NECESSARY
REFERENCE MEP PLANS FOR INVERTS AND CONTINUATION INTO BUILDING

EXISTING WATER KEYED NOTES

XW1 EXISTING 8" P.V.C. WATER MAIN TO REMAIN.
XW2 EXISTING 6" P.V.C. WATER MAIN TO REMAIN.
XW3 EXISTING FIRE HYDRANT TO REMAIN.

WATER KEYED NOTES
SHEETS C5.02 – C5.05

W1 CONTRACTOR TO TIE NEW 6" FIRE LINE SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X6" DJ1=1A TEE
10.5 L.F. – 6" C900 PVC DR 18 FIRE LINE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
W2 CONTRACTOR TO TIE NEW 2 1/2" WATER SERVICE INTO EXISTING 6" WATER MAIN INSTALL:
1 – 6"X2 1/2" DJ1=1A TEE
1 L.F. – 2 1/2" SCH40 40 PVC WATER SERVICE
1 – 2 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
1 – 2 1/2" 1/4 BEND
36 L.F. – 2 1/2" SCH40 40 PVC WATER SERVICE
3 L.F. – 2 1/2" SCH40 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
W3 CONTRACTOR TO TIE NEW 2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X6" DJ1=1A TEE
7.8 L.F. – 2" SCH40 40 PVC WATER SERVICE
1 – 2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
253.5 L.F. – 2" SCH40 40 PVC WATER SERVICE
1 – 2" 1/4 BEND
187 L.F. – 2" SCH40 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
W4 CONTRACTOR TO TIE NEW 1 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X1 1/2" DJ1=1A TEE
5.48 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
1 – 1 1/2" 1/4 BEND
67.80 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
W5 PROPOSED FIRE HYDRANT COMPLETE
W6 CONTRACTOR TO TIE NEW 6" FIRE LINE SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X6" DJ1=1A TEE
7.75 L.F. – 6" C900 PVC DR 18 FIRE LINE
1 – 6" DOUBLE CHECK DETECTOR
20.75 L.F. – 6" C900 PVC DR 18 FIRE LINE
1 – 6" 1/8 BEND
169 L.F. – 6" C900 PVC DR 18 FIRE LINE
1 – 6"X4" REDUCER, N.L.
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.
W7 CONTRACTOR TO TIE NEW 1 1/2" WATER SERVICE INTO EXISTING 8" WATER MAIN INSTALL:
1 – 8"X 1 1/2" DJ1=1A TEE
57 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
1 – 1 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (ABOVE GROUND, INSULATED)
57 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
1 – 1 1/2" 1/8 BEND
33 L.F. – 1 1/2" SCH40 40 PVC WATER SERVICE
REFERENCE TO MEP PLANS FOR CONTINUATION INTO BUILDING.

EXISTING IRRIGATION KEYED NOTES

XIR1 EXISTING 4" IRRIGATION PIPE TO REMAIN.
XIR2 EXISTING 4" IRRIGATION PIPE TO BE REMOVED.

IRRIGATION KEYED NOTES
SHEETS C5.02 – C5.05

IR1 CONTRACTOR TO TIE NEW 6" IRRIGATION MAIN LINE INTO EXISTING 6" IRRIGATION MAIN INSTALL:
1 – 6" 1/8 BEND
4 L.F. – 6" C900 PVC DR
1 – 6" SHUT OFF VALVE
4.8 L.F. – 6" C900 PVC DR
1 – 6" 1/16 BEND
8.8 L.F. – 6" C900 PVC DR
1 – 6" 1/32 BEND
21.7 L.F. – 6" C900 PVC DR
1 – 6" 1/32 BEND
23.7 L.F. – 6" C900 PVC DR
1 – 6"X6"X2" TEE
CAP FOR FUTURE CONNECTION
93 L.F. – 6" C900 PVC DR
1 – 6" 1/8 BEND
85 L.F. – 6" C900 PVC DR
1 – 6" 1/32 BEND
19 L.F. – 6" C900 PVC DR
1 – 6" 1/8 BEND
23.2 L.F. – 6" C900 PVC DR

EXISTING GAS KEYED NOTES

XG1 EXISTING 4" GAS MAIN TO REMAIN.
XG2 EXISTING 2" GAS TO REMAIN.
XG3 EXISTING 1 1/4" GAS TO REMAIN.

GAS KEYED NOTES
SHEETS C5.02 – C5.05

G1 PROPOSED GAS. REFERENCE MEP DRAWING FOR DETAILS

EXISTING AND ELECTRIC KEYED NOTES

XE1 EXISTING UNDERGROUND ELECTRIC FEEDER TO REMAIN.
XE2 EXISTING OVERHEAD ELECTRIC TO REMAIN.
XE3 EXISTING UNDERGROUND ELECTRIC TO REMAIN.

ELECTRIC KEYED NOTES
SHEETS C5.02 – C5.05

E1 PROPOSED ELECTRIC LINES AND FEEDERS. REFERENCE MEP DRAWING FOR DETAILS

GENERAL DRAINAGE NOTES:

1. INLET AND JUNCTION BOX BOTTOMS SHALL BE GROUTED TO OUTLET
2. LIFTING HOLES INLET TOPS SHALL BE GROUTED.
3. PRECAST GRATE INLETS SHALL HAVE A TOP SECTION THAT ALLOWS GROUND TO BE LOWER THAN SUBGRADE WITH BASE OR PAVEMENT IS INSTALLED OR INLET SHALL HAVE HOLES IN SIDES TO ALLOW FOR DRAINAGE. HOLES TO BE GROUTED AFTER FINAL GRADES ARE ESTABLISHED.
4. CURB INLETS SHALL HAVE A NOTCHED OPENING TO ALL FOR DRAINAGE PRIOR TO FINAL PAVEMENT PLACEMENT. OPENING TO BE GROUTED AFTER FINAL PAVEMENT PLACEMENT.
5. ALL INLETS MUST BE ADA COMPLIANT AND HS–20 LOADING WHERE INLETS ARE IN PAVEMENT AREAS SUBJECT TO VEHICULAR TRAFFIC.

GENERAL WATER NOTES:

1. FDC CAPS SHALL BE STORZ.
2. GRADES OF FIRE AND DOMESTIC WATER TO BE ADJUSTED TO AVOID CONFLICTS WITH STORM DRAIN AND SEWER.
3. FIRE LINE SHALL HAVE RESTRAINED JOINTS AT ALL FITTINGS LENGTH SHALL BE IN ACCORDANCE WITH TABLE ON C5.08
4. CONTRACTOR TO APPLY FOR COUNTER PERMIT FOR SERVICES.

SEWER GENERAL NOTES:

1. CONTRACTOR TO APPLY FOR COUNTER PERMIT FOR SEWER CONNECTION.

GAS AND ELECTRIC GENERAL NOTES:

1. CONTRACTOR TO APPLY FOR GAS AND ELECTRIC SERVICES.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY KEVIN C. KOTIK, P.E. ON 09/06/23
NO. OF SHEETS COVERED BY THIS SEAL: ALL

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REGISTRATION NO. F-3272

ISSUED BY:	PAM
ISSUED ON:	9/6/2023
CHECKED BY:	PAM
JOB NO.	7023014181

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12251 LEslie Road, Helotes, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

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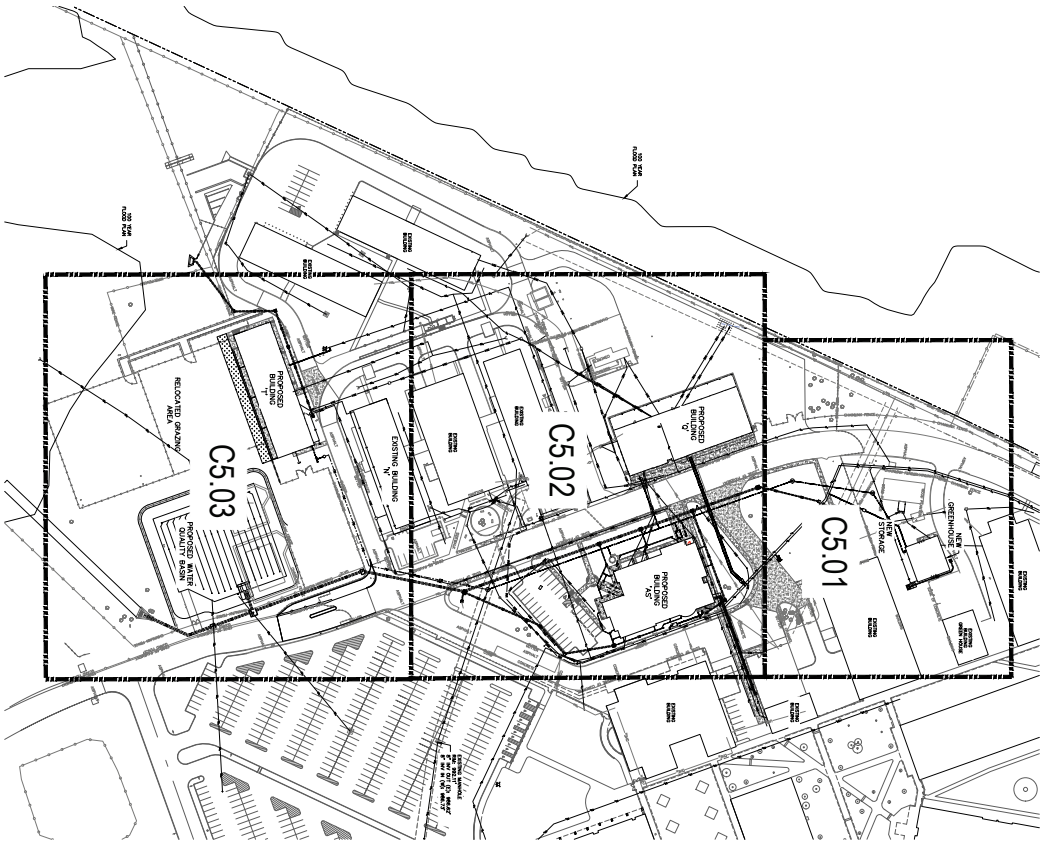
Project No: 7023014181
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

UTILITY AND DRAINAGE KEYED NOTES

C5.00



GRAPHIC SCALE

1 INCH = 200 FEET

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THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. ON 4/28/2023

DATE: SEPTEMBER 04, 2020

CONSTRUCTION/PERMIT DOCUMENTS

C5.01

OVERALL TPDES DRAINAGE PLAN

No.	Revisions	Date Issued	Drwn. By	Chkd. By
		09/04/23	PAM	

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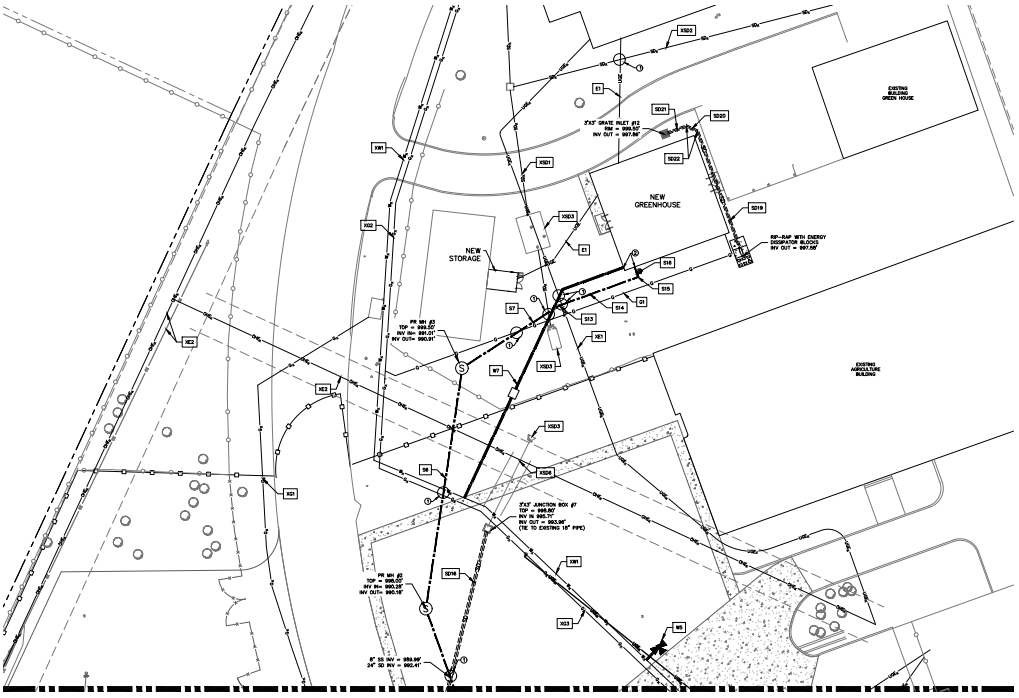
NORTHSIDE INDEPENDENT SCHOOL DISTRICT



GRAPHIC SCALE

(IN FEET)
1 INCH = 20 FT

LEGEND

- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAIN LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GAS LINE
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED IRRIGATION LINE
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- REFER TO SHEET C5.00 FOR CORRESPONDING KEYED NOTES

PLAN NOTES

1. CAUTION: UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

THIS SEAL APPEARS ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. LANDIS, P.E. 105975 ON 09/06/2023. IT IS NOT TO BE USED FOR BIDDING, REGULATORY APPROVAL, OR CONSTRUCTION PURPOSES.

DESIGNED BY: PAM
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NORTH
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12221 LESLIE ROAD, HELOTES, TX 78023

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Project No: 7552301481
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Chkd By: PAM
Date Issued: 09/06/23
Revisions:

UTILITY AND DRAINAGE PLAN NORTH

C5.02

PLAN NOTES

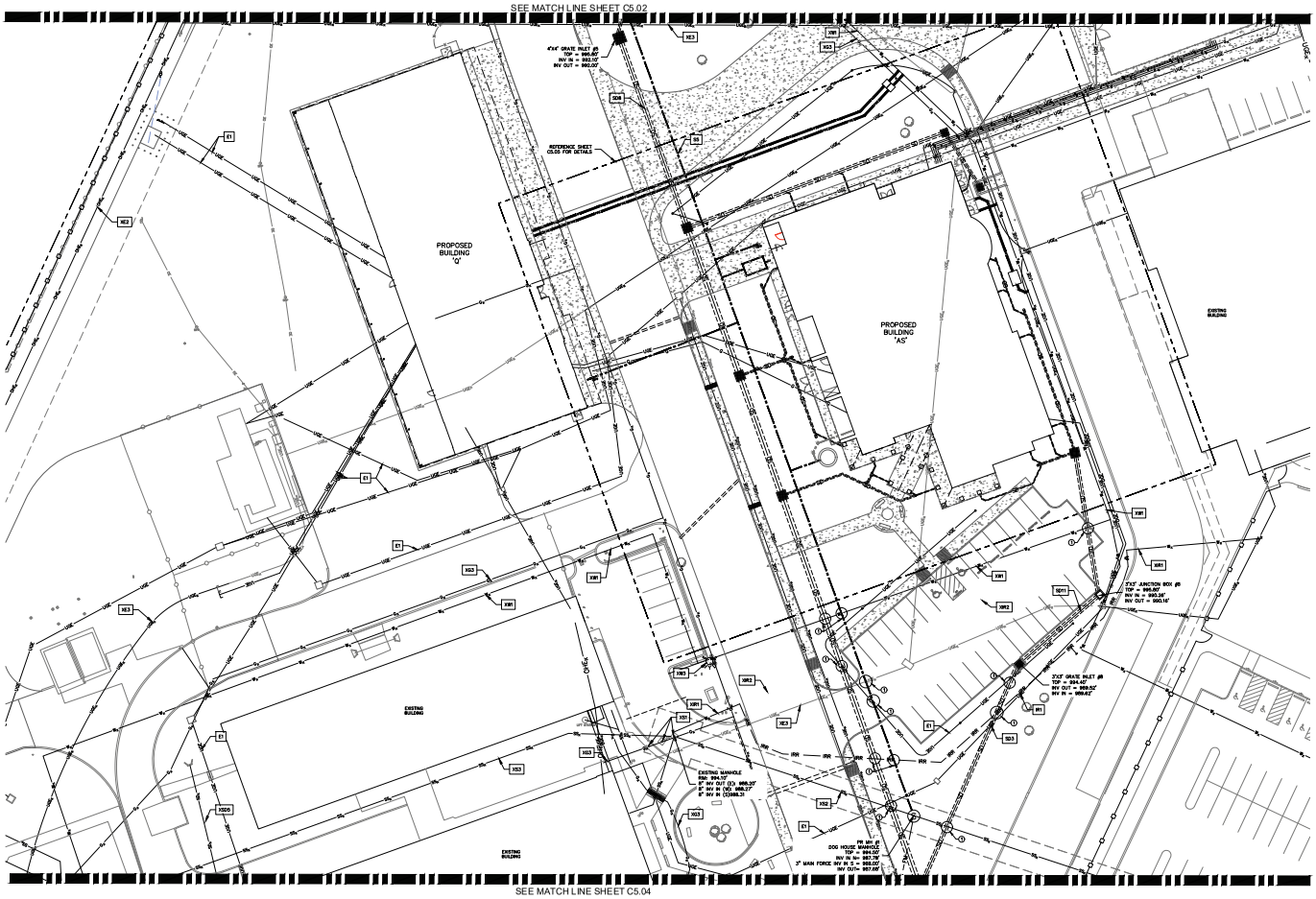
1. CAUTION: UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

LEGEND

- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAIN LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GAS LINE
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED IRRIGATION LINE
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- REFER TO SHEET C5.03 FOR CORRESPONDING KEYED NOTES

GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT



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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

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ARCHITECTS

Project No: 7562301491
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

UTILITY AND DRAINAGE PLAN MID

C5.03

PLAN NOTES

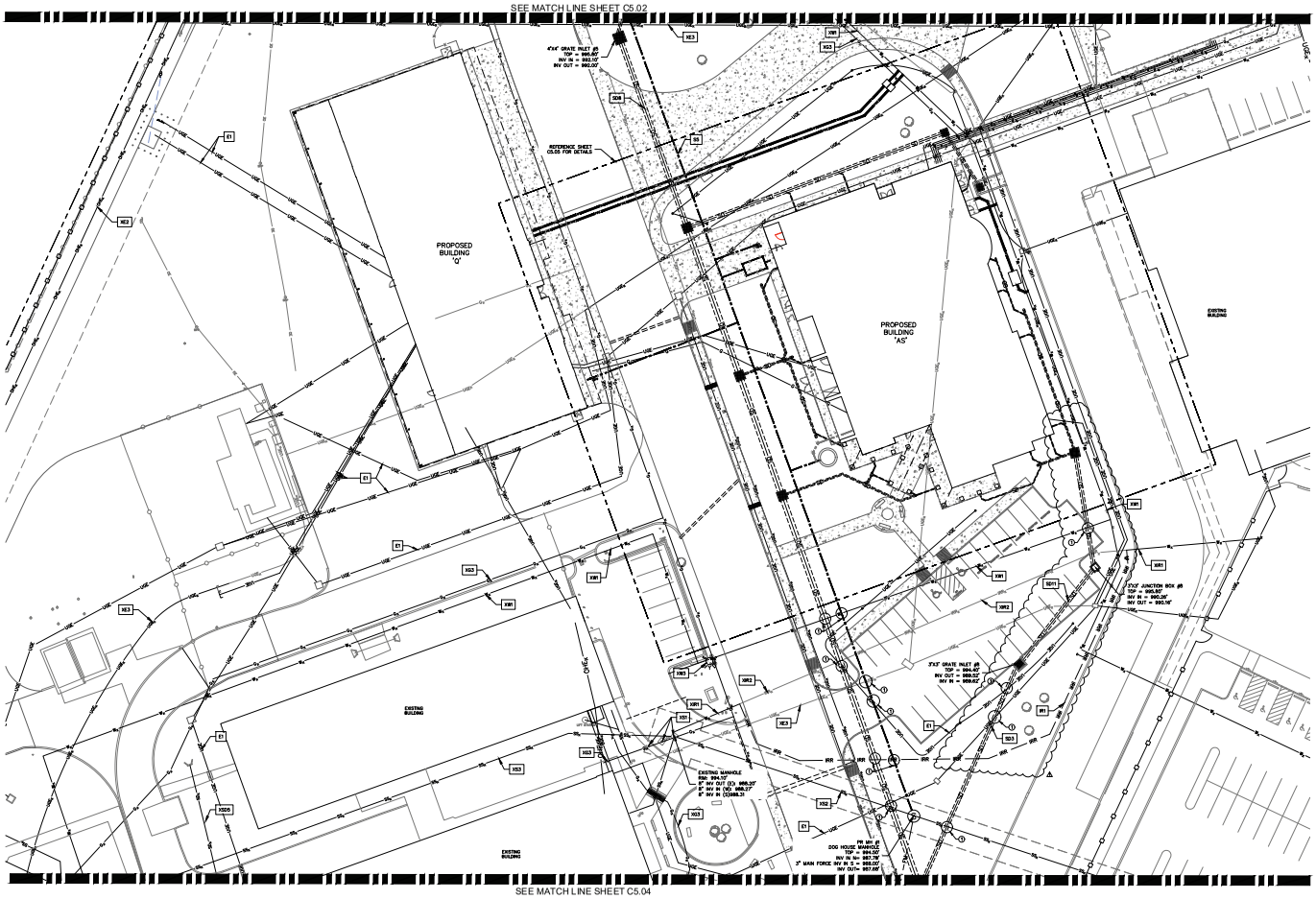
1. CAUTION: UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

LEGEND

- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAIN LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GAS LINE
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED IRRIGATION LINE
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- REFER TO SHEET C5.03 FOR CORRESPONDING KEYED NOTES

GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. MICHEL, P.E. 103525 ON SEPTEMBER 19, 2023
DATE

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APPROVED: PAM
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NORTHSIDE INDEPENDENT SCHOOL DISTRICT

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CONSTRUCTION/PERMIT DOCUMENTS

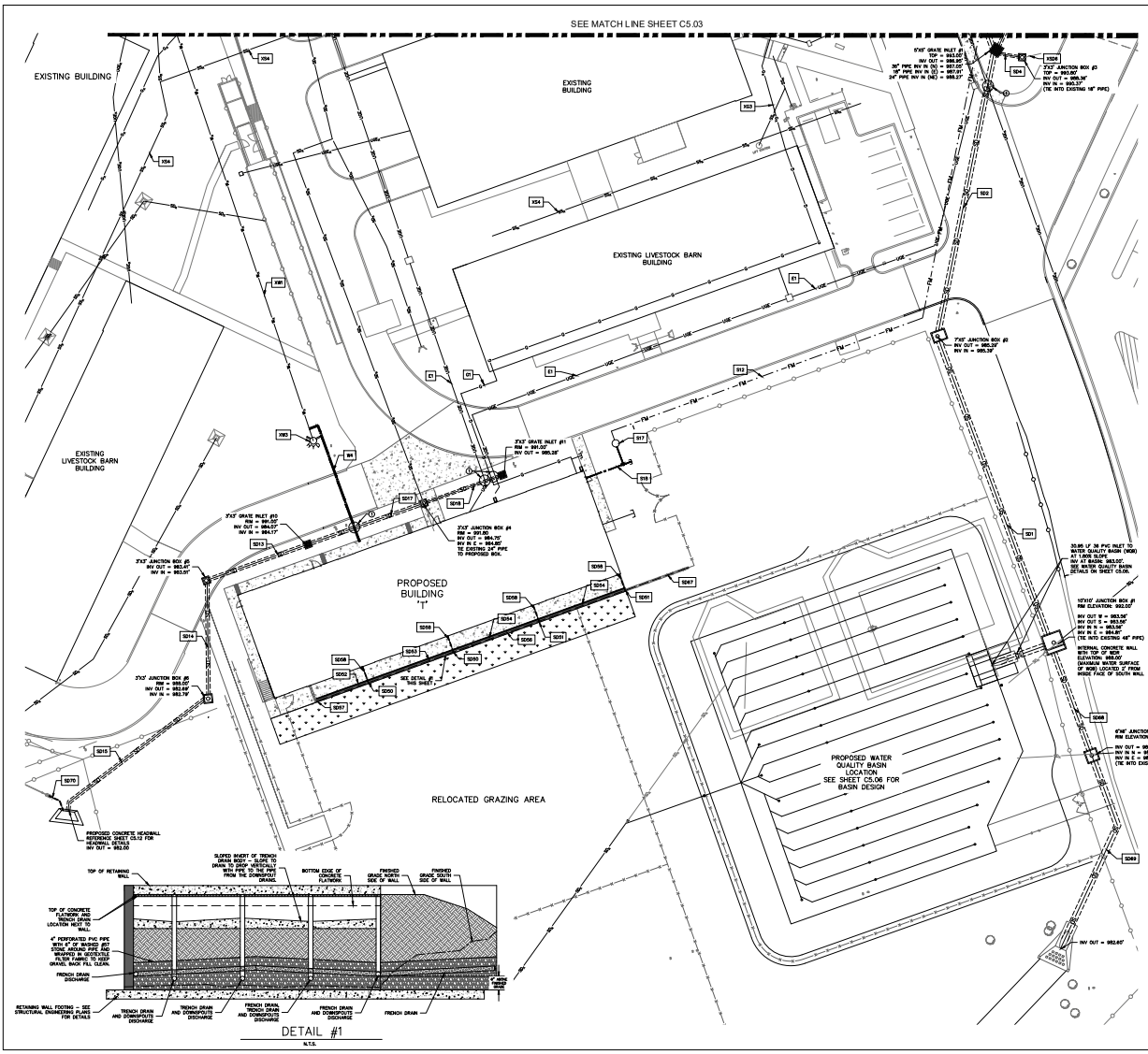
KAARLSEN ROONAN ROTHMANN GARCIA

Project No: 762301481
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

ADDENDUM #1	9/19/23

UTILITY AND DRAINAGE PLAN MID

C5.03



GRAPHIC SCALE
(IN FEET)
1 INCH = 60 FT

LEGEND

W	EXISTING WATER LINE
SS	EXISTING SANITARY SEWER LINE
SDL	EXISTING STORM DRAIN LINE
UGE	EXISTING UNDERGROUND ELECTRIC LINE
OHE	EXISTING OVERHEAD ELECTRIC LINE
G	EXISTING GAS LINE
W	PROPOSED WATER LINE
SS	PROPOSED SANITARY SEWER LINE
	PROPOSED STORM DRAIN
G	PROPOSED GAS LINE
UGE	PROPOSED UNDERGROUND ELECTRIC LINE
IRR	PROPOSED IRRIGATION LINE
	EXISTING WATER VALVE
	PROPOSED WATER VALVE
	EXISTING SANITARY SEWER MANHOLE
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
	PROPOSED SANITARY SEWER MANHOLE
000	REFER TO SHEET C5.00 FOR CORRESPONDING KEYED NOTES

PLAN NOTES
1. CAUTION: UTILITY CROSSING.
2. REFERENCE TO MEP PLANS FOR CONTINUATION.

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. LAND, P.E. 105975 ON 09/06/23. IT IS NOT TO BE USED FOR BIDDING, REGULATORY APPROVAL, OR CONSTRUCTION PURPOSES.

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Reviewed By:	LAND
Approved By:	PAM
Job No. 7662301491	

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Chkd By: PAM
Date Issued: 09/06/23
Revisions:

UTILITIES AND DRAINAGE PLAN SOUTH

C5.04

LEGEND

PLAN NOTES

1. CAUTION: UTILITY CROSSING.
2. REFERENCE TO MEP PLANT BY CONTRACTOR.

CONSTRUCTION/PERMIT DOCUMENTS

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DRAWN BY:	LSO
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JOB NO.	76201401

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MATHIS, P.E. NO. 105076
DATE: SEPTEMBER 04, 2015

C5.05

ADMIN BLDG UTILITIES

No.	Revisions	Date	Dsgn. By	Dwn. By	Chkd. By
1	ADDENDUM 1	09/04/15	PAM	PAM	PAM

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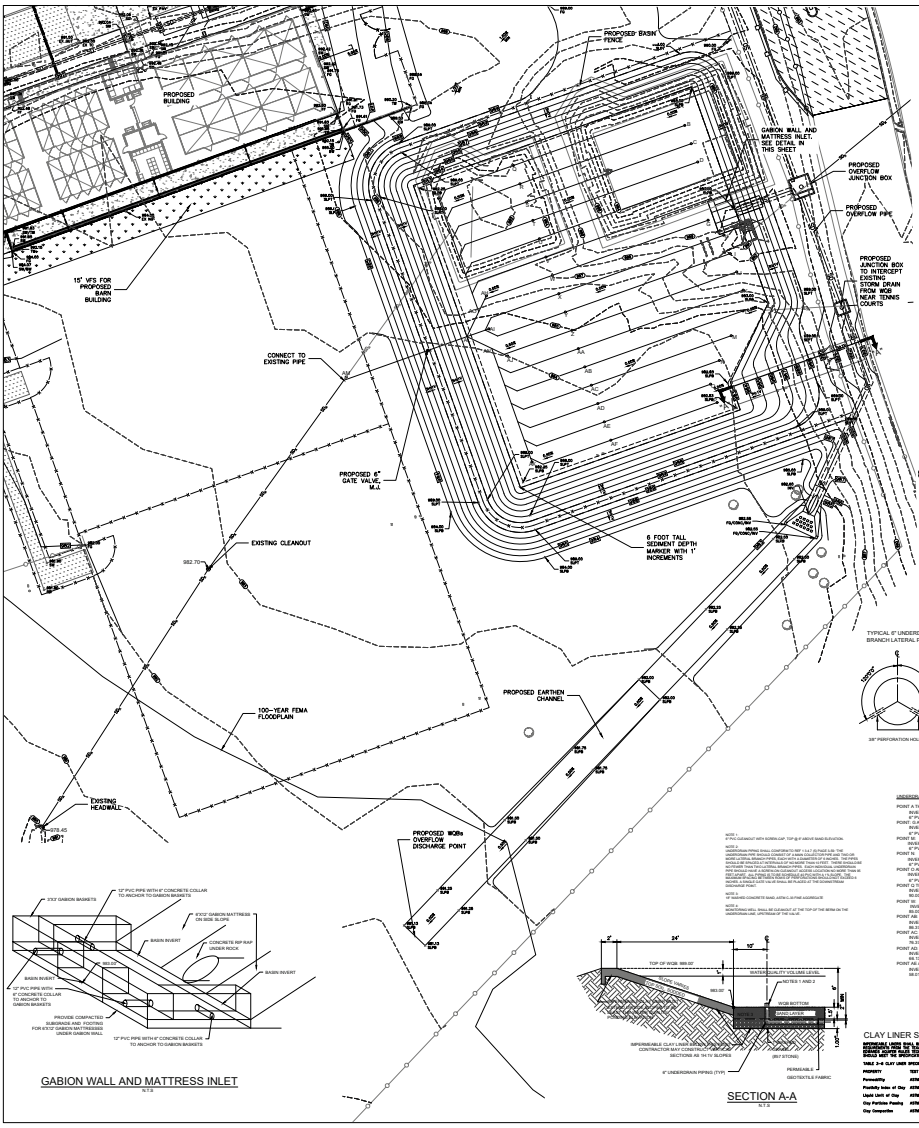
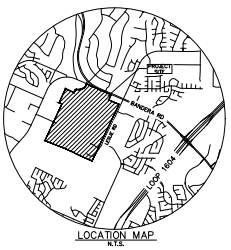




LOCATION MAP
N.T.S.

GRAPHIC SCALE
(IN FEET)
1 INCH = 30 FT

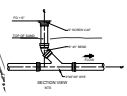
LEGEND

PROPOSED STORM DRAIN PVC PIPE
PROPOSED EARTHEN CHANNEL
EXISTING UNDERGROUND STORM DRAIN PIPE
PROPOSED MAJOR CONTOURS
PROPOSED MINOR CONTOURS
EXISTING MAJOR CONTOURS
EXISTING MINOR CONTOURS
EXISTING TREE

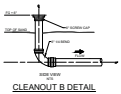
TABLE 3-7 GEOTEXTILE FABRIC SPECIFICATIONS - CITY OF AUSTIN 2004			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION MIN
UNIT WEIGHT		OZ/SY	8
FILTRATION RATE		IN/SEC	0.08
PUNCTURE STRENGTH	ASTM D-751*	LBS	125
MULLEN BURST STRENGTH	ASTM D-751*	PSI	400
TENSILE STRENGTH	ASTM D-1682	LBS	200
EQUIVALENT OPENING SIZE	US STANDARD SIEVE	NO	80

PERMEABLE GEOTEXTILE FABRIC SHALL BE NONWOVEN GEOTEXTILE FABRIC AND MEET SPECIFICATIONS IN TABLE 3-7. GEOTEXTILE FABRIC SHALL BE INSTALLED BETWEEN THE SAND LAYER AND THE 1" WASHED GRAVEL LAYER AS SHOWN IN DETAIL 1 SECTION IN B-BELOW.

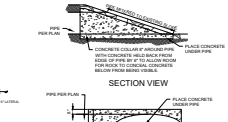
NOTE:
1. VOLUME REQUIRED:146,670 CF
2. VOLUME PROVIDED:146,670 CF
3. SAND AREA REQUIRED: 12,215 SF
4. SAND AREA PROVIDED: 24,111 SF



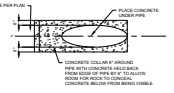
CLEANOUT A DETAIL



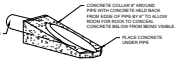
CLEANOUT B DETAIL
CLEANOUT AT END OF UNDERDRAIN



SECTION VIEW



PLAN VIEW



ISOMETRIC VIEW

OUTLETS FOR BASIN PIPING DETAIL
N.T.S.

TYPICAL 6" UNDERDRAIN BRANCH LATERAL PIPE

3/8" PERFORATION HOLES (TYP)

GABION WALL AND MATTRESS INLET
N.T.S.

SECTION A-A
N.T.S.

WQB LATERAL PROFILE DATA

UNDERDRAIN PIPING

POINT A THROUGH H (EXCEPT G)
INVERT ELEVATION AT CLEANOUTS: 980.83'
6" PVC @ 0.5% SLOPE
POINT G (UNDER)
INVERT ELEVATION AT CLEANOUTS: 980.81'
6" PVC @ 0.5% SLOPE
POINT G (OVER)
INVERT ELEVATION AT CLEANOUT: 980.76'
6" PVC @ 0.5% SLOPE
POINT H
INVERT ELEVATION AT CLEANOUT: 980.71'
6" PVC @ 0.5% SLOPE
POINT O (UNDER)
INVERT ELEVATION AT CLEANOUTS: 980.63'
6" PVC @ 0.5% SLOPE
POINT O (OVER) AND P (EXCEPT W)
INVERT ELEVATION AT CLEANOUTS: 980.28'
60.00 LF 6" PVC @ 0.5% SLOPE
POINT W
INVERT ELEVATION AT CLEANOUT: 980.28'
69.00 LF 6" PVC @ 0.5% SLOPE
POINT AB
INVERT ELEVATION AT CLEANOUT: 980.28'
60.00 LF 6" PVC @ 0.5% SLOPE
POINT AC
INVERT ELEVATION AT CLEANOUT: 980.33'
60.00 LF 6" PVC @ 0.5% SLOPE
POINT AD
INVERT ELEVATION AT CLEANOUT: 980.38'
60.00 LF 6" PVC @ 0.5% SLOPE
POINT AE AND AF
INVERT ELEVATION AT CLEANOUTS: 980.38'
60.01 LF 6" PVC @ 0.5% SLOPE

POINT AG
INVERT ELEVATION AT CLEANOUT: 980.17'
60.07 LF 6" PVC @ 0.5% SLOPE
POINT AH
INVERT ELEVATION AT CLEANOUT: 980.21'
60.07 LF 6" PVC @ 0.5% SLOPE
POINT AJ
INVERT ELEVATION AT CLEANOUTS: 980.20'
37.00 LF 6" PVC @ 0.5% SLOPE
POINT AK
INVERT ELEVATION AT CLEANOUT: 980.16'
60.07 LF 6" PVC @ 0.5% SLOPE
POINT AL
INVERT ELEVATION AT CLEANOUT: 980.16'
60.07 LF 6" PVC @ 0.5% SLOPE
POINT AM
INVERT ELEVATION OF 6" PVC PIPE: 980.10'
60.07 LF 6" PVC @ 0.5% SLOPE
POINT AN
INVERT ELEVATION AT CLEANOUT: 979.76'
60.07 LF 6" PVC @ 0.5% SLOPE
POINT AO
INVERT ELEVATION AT 6" PIPE: 979.67'
60.07 LF 6" PVC @ 0.5% SLOPE (FROM CLEANOUT AN)
POINT AP
INVERT ELEVATION AT 6" PIPE: 979.58'
60.07 LF 6" PVC @ 0.5% SLOPE (FROM CLEANOUT AO)
POINT AQ
INVERT ELEVATION AT 6" PIPE: 979.67'
60.07 LF 6" PVC @ 0.5% SLOPE (FROM CLEANOUT AJ)

CLAY LINER SPECIFICATIONS

MATERIALS USED TO BE CONSISTENT OF ON THE ONLY 3-4 LAYER WATER X-12 RAPID SOIL CONSTRUCTION CLAY LINER. THE CONTRACTOR SHALL SUBMIT A SAMPLE OF THE MATERIAL TO BE USED FOR CLAY LINER TO GEOMEST SOILTEK TECHNICAL SERVICES TO VERIFY REQUIREMENTS PRACTICES MANUAL. CLAY LINERS SHOULD MEET THE SPECIFICATION NOTED BELOW AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

TABLE 3-6 CLAY LINER SPECIFICATIONS (CITY OF AUSTIN, 2004)

PROPERTY	TEST METHOD	UNIT	SPECIFICATION
Permeability	ASTM D-2434	cm/sec	1 x 10^{-7}
Plasticity Index of Clay	ASTM D-4318 & D-4564	%	Not less than 15
Liquid Limits of Clay	ASTM D-4318	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Composition	ASTM D-2216	%	95% of Standard Proctor Density

FENCE/ BARRIER NOTE
REFERENCE SHEET C4.05

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTORS' INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL REPORTS AND PERFORM SUCH ADDITIONAL INVESTIGATIONS AS ARE NECESSARY IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION, SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION, SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTORS' INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT SHALL DEVELOP AND IMPLEMENT A TRENCH EXCAVATION SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. MICHEL, P.E. 92681 ON SEPTEMBER 19, 2023

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DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 7623014B1

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11100 I-10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230
PHONE: (210) 641-5999
REGISTRATION #: F-1577 | BT-0104-0145

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

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12221 LESLIE ROAD, HELOTES, TX 78023

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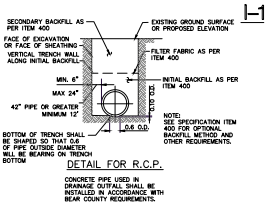
Project No.: 7623014B1
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

WATER QUALITY BASIN PLAN

CONSTRUCTION/PERMIT DOCUMENTS

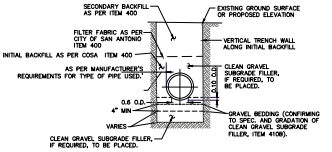
C5.06

I-1



DETAIL FOR R.C.P.

CONCRETE PIPE USED IN DRAINAGE OUTFALL SHALL BE INSTALLED IN ACCORDANCE WITH BEAR COUNTY REQUIREMENTS.



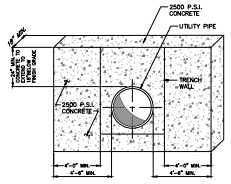
DETAIL FOR CMP, HDPE AND P.V.C. PIPE.

PIPE BEDDING AND BACKFILL DETAILS

N.T.S.

NOTICE TRENCHLESS MAY NOT BE FEASIBLE
ALTHOUGH TRENCHLESS IS THE PREFERRED METHOD, THE USE OF TRENCHLESS METHODS MAY NOT BE FEASIBLE DUE TO SOIL CONDITIONS, PIPE SIZE, OR OTHER CONSTRAINTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SELECTION AND IMPLEMENTATION OF THE METHOD USED TO INSTALL THE UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES OR OTHER FACILITIES RESULTING FROM THE METHOD USED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS OR DELAYS DIRECTLY OR INDIRECTLY RESULTING FROM THE USE OF TRENCHLESS METHODS.

I-2

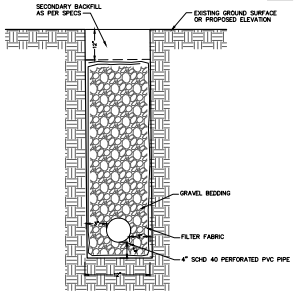


CONCRETE TRENCH CUTOFF WALL

NTS

NOTE: CONCRETE TRENCH CUT OFF WALLS SHALL BE USED WHERE SHOWN ON THE PLANS AND ON ALL PIPES ENTERING THE UNDERFLOOR AREA.

I-3

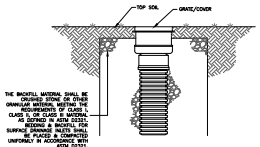


FRENCH DRAIN DETAIL

N.T.S.

SEE UTILITY PLAN FOR INVERT ELEVATIONS

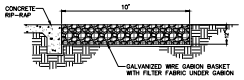
I-4



INLINE GRATE DRAIN

N.T.S.

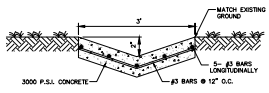
I-6



GABION MATTRESS DETAIL

N.T.S.

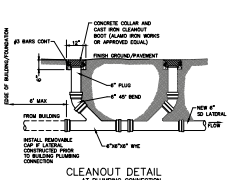
I-7



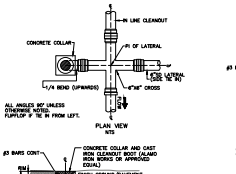
CONCRETE FLUME DETAIL

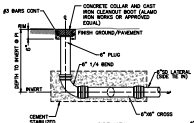
N.T.S.

I-5

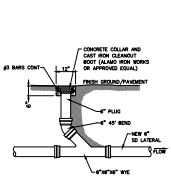


CLEANOUT DETAIL
AT PLUMBING CONNECTION
NTS

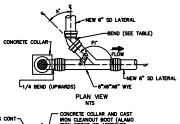


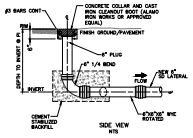


CLEANOUT DETAIL
CLEANOUT AT 90° TIE IN



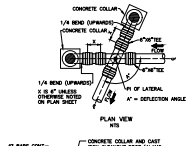
CLEANOUT DETAIL
AT 180° DEFLECTION (STRAIGHT)
NTS

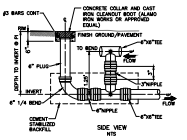




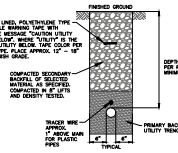
CLEANOUT DETAIL
CLEANOUT AT LINE PI

DEFLECTION TABLE		
PI (DEFLECTION)	BEND	A (DEFLECTION)
135°	NONE	0°
112.5°	1/16	22.5°
90°	1/8	45°





CLEANOUT DETAIL
CLEANOUT AT VARIABLE PI



UTILITY TRENCH DETAIL

NTS

KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 541-9166
FAX: (210) 541-1401
REGISTERED ENGINEERING FIRM F-3924
REGISTERED LAND SURVEYING FIRM LS10194455

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DESIGNED BY:	PAM
DRAWN BY:	LMD
APPROVED BY:	PAM
JOB NO. 7062301491	

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

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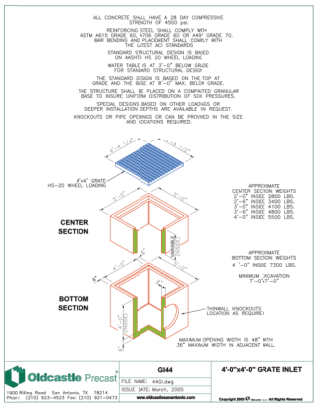
Project No.: 7062301491
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

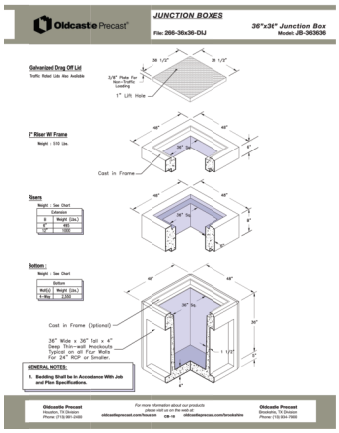
UTILITY AND DRAINAGE DETAILS I

C5.07

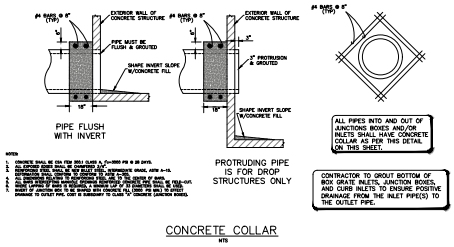
I-9



I-10

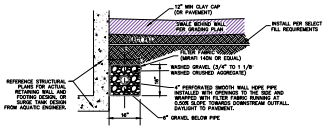


I-11



CONCRETE COLLAR
NTS

I-13



FOR RETAINING WALLS
FRENCH DRAIN DETAILS
NTS

I-12

LIFT STATION CONFIGURATION SHOWN BELOW IS GENERAL INTENT. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. MODELS/BRANDS SHOWN ARE FOR REFERENCE AS AN "APPROVED EQUAL" BASIS.

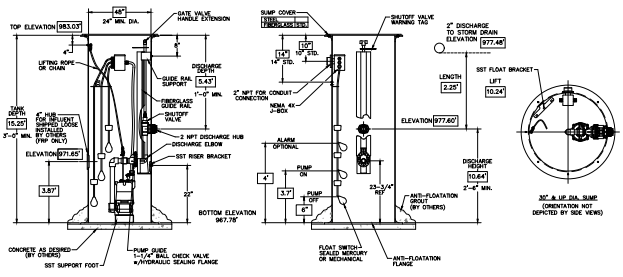
PUMP DATA:

Hydromatic Pump Model:	SPD50 (MH1)
Computed Maximum Inflow GPM	5
TDH Computed VF	20
Pump Flow GPM	120
Pump TDH VF	2
Pump Impeller	12
Pump HP	1.0
Pump RPM	3450
Electrical Power	115/208v – Single Phase 14 A 60 Hz

WET WELL MUST BE BACKFILLED AS OUTLINED BELOW:

1. THE CONTRACTOR MAY BEGIN BACKFILLING AROUND THE WETWELL ONCE THE CONCRETE AND GROUT ACHIEVE 70% OF THEIR SPECIFIED STRENGTHS AND THE FORMS HAVE BEEN REMOVED.
2. SAND OR CRUSHED STONE SHALL BE USED FOR BACKFILL AROUND THE WETWELL FOR A DISTANCE OF TWELVE INCHES (12") FROM THE OUTSIDE SURFACE AND EXTENDING FROM THE BOTTOM OF THE EXCAVATION TO 6" BELOW THE BOTTOM OF THE TOP FIBERGLASS LIP (FIBERGLASS WET WELL) OR BOTTOM OF THE TOP CONCRETE SLAB (CONCRETE WET WELL).
3. SUITABLE MATERIAL CHOSEN FROM THE EXCAVATION MAY BE USED FOR THE REMAINDER OF THE BACKFILL. THE MATERIAL CHOSEN SHALL BE FREE OF LARGE LUMPS OR CLODS, WHICH WILL NOT READILY BREAK DOWN UNDER COMPACTION. BACKFILL MATERIAL SHALL BE FREE OF VEGETATION OR OTHER EXTRANEOUS MATERIAL. THIS MATERIAL WILL BE SUBJECT TO APPROVAL BY THE ENGINEER.
4. BACKFILL SHALL BE PLACED IN LAYERS OF NOT MORE THAN 12 INCHES (LOOSE MEASURE) MECHANICALLY TAMPED TO AT LEAST 95% STANDARD PROCTOR DENSITY; TEX 113-E AND MOISTURE CONTENT AT ± 3%.
5. EXCAVATED MATERIALS WHICH ARE TO BE USED FOR FILL OR BACKFILL MAY BE STOCKPILED ON THE SITE. TOP SOIL SHOULD BE STOCKPILED SEPARATELY AND USED FOR FINISH GRADING AROUND THE STRUCTURE.

CAUTION: INFLUENT HUB CANNOT OVERLAP EXTRUDED RAIL/ OR DISCHARGE FLANGES

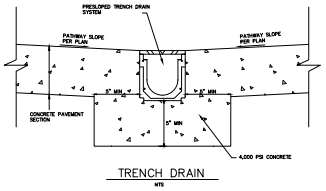


② LIFT STATION AND WET WELL DETAIL
NTS

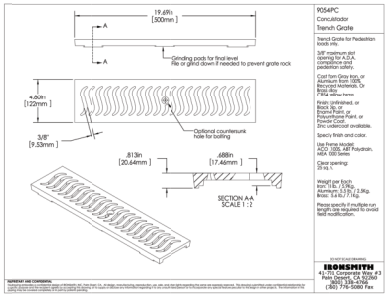
I-14

TRENCH DRAIN NOTES

1. TRENCH DRAINS SHALL BE INSTALLED WHERE SHOWN ON THE PLANS.
2. DRAIN MAY BE MANUFACTURED OR CAST IN PLACE WITH GRATE AND FRAME. MANUFACTURED TRENCH DRAINS SHALL BE AS NOTED ON THIS SHEET WITH A MINIMUM SIZE AS NOTES WITHIN THE CDA PLAN SHEET SERIES.
3. THE GRATES ON THE DRAINS SHALL BE ADA COMPLIANT.
4. THE DRAIN COVER SHALL BE CAPABLE OF REMOVAL BUT SHALL HAVE A MECHANICAL FASTENER TO SECURE IT TO THE BODY OF THE DRAIN. FASTENERS SHALL BE STAINLESS STEEL.
5. A SAMPLE (MINIMUM FOUR FOOT LENGTH) OF THE TRENCH DRAIN SHALL BE SUBMITTED FOR APPROVAL.
5. REINFORCING SHALL EXTEND UNDER THE TRENCH DRAIN
6. TRENCH DRAINS SHALL BE SECURELY SUPPORTED DURING PLACEMENT OF THE CONCRETE.



TRENCH DRAIN
NTS



TRENCH DRAIN GRATES
NTS

TRENCH DRAIN GRATE NOTES:
CAST ALUMINUM WITH MANUFACTURER STANDARD POWDER COATING, COLOR TO BE RAL 1001-BEIGE WITH ZINC UNDERCOAT.
MANUFACTURER: IRONSMITH, 1-800-258-4700
PATTERN: CONCALIBRATOR, 9" AND 18" (WIDE NOTED IN THE MAIN PLANT PAVING) WITH 3/8" SLOTS WITH ADJUSTABLE DRAIN, GALVANIZED STEEL EDGE RAIL CHANNEL SYSTEM.

KOI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-9441
REGISTRATION NO. F-11795
KCI TECHNOLOGIES

DESIGNED BY:	PAM
DRAWN BY:	LMD
APPROVED BY:	PAM
JOB NO. 7062301491	

NORTHERN INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

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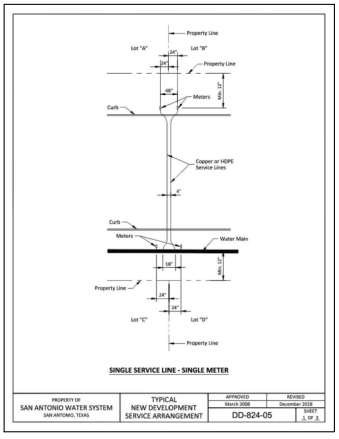
CONSTRUCTION/PERMIT DOCUMENTS

Project No:	7062301491
Drwn. By:	LNC
Chkd By:	PAM
Date Issued:	09/06/23
Revisions:	

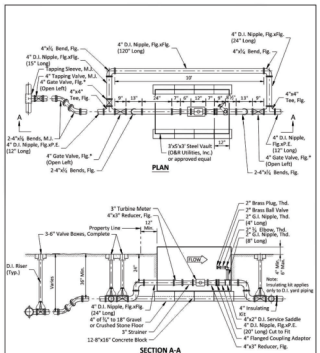
UTILITY AND DRAINAGE DETAILS 2

C5.08



SINGLE SERVICE LINE - SINGLE METER

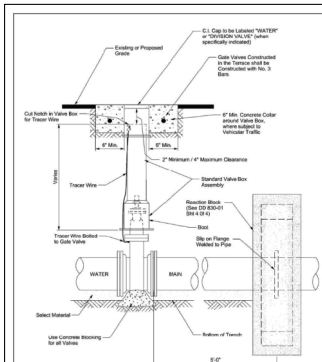
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL NEW DEVELOPMENT SERVICE ARRANGEMENT	APPROVED March 2008	REVISED December 2018
		DD-824-05	SHEET 1 OF 3



3'x5'x3' STEEL VAULT (NON-TRAFFIC BEARING LOCATION)

*Resilient Seat

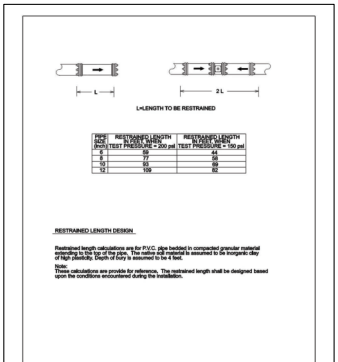
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	3" TURBINE METER INSTALLATION	APPROVED March 2008	REVISED December 2018
		DD-824-06	SHEET 2 OF 3



NOTE: Tracer Wire for PVC (Typ. for PVC & HDPE)
NOTE: All Concrete to be 3,000 psi

Note: For all work associated with Recycled Water Valves, refer to DD 110-10, Sht. 1 of 1

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION	APPROVED MARCH 2008	REVISED AUG 2019
		DD 828-01	SHEET 1 OF 1



L=LENGTH TO BE RESTRAINED

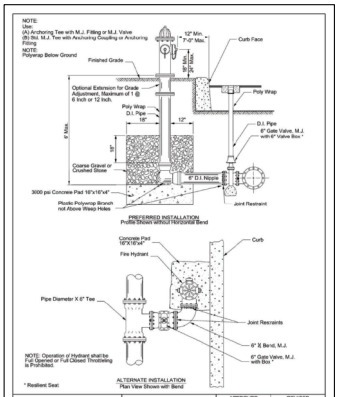
PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150 psi
6	55	44
8	77	59
10	93	69
12	109	82

RESTRAINED LENGTH DESIGN

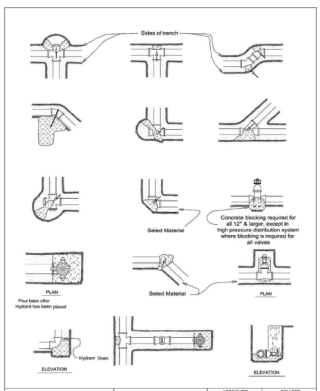
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

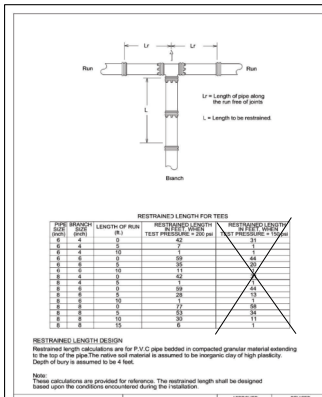
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES	APPROVED MARCH 2008	REVISED APRIL 2014
		DD-839-05	SHEET 1 OF 1



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	FIRE HYDRANT INSTALLATION (JOINT RESTRAINT)	APPROVED MAY 2013	REVISED AUG 2019
		DD-834-01	SHEET 1 OF 3



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	THRUST BLOCKS FOR FITTINGS (WATER ONLY)	APPROVED March 2008	REVISED AUG 2019
		DD-839-01	SHEET 1 OF 2



RESTRAINED LENGTH FOR TEES

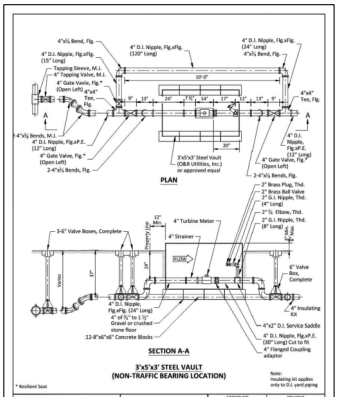
PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (ft.)	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET WHEN TEST PRESSURE = 150psi
6	4	0	42	31
6	4	5	7	1
6	4	10	1	
6	6	0	66	49
6	6	5	35	26
6	6	10	10	7
6	4	0	42	31
6	4	5	1	
6	6	0	59	44
6	6	5	28	21
6	6	10	1	
8	8	0	77	58
8	8	5	39	29
8	8	10	10	11
8	8	15	6	1

RESTRAINED LENGTH DESIGN

Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe.The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS FOR TEES	APPROVED March 2008	REVISED AUG 2019
		DD-839-04	SHEET 1 OF 2



3'x5'x3' STEEL VAULT (NON-TRAFFIC BEARING LOCATION)

* Resilient Seat

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	3" TURBINE METER INSTALLATION	APPROVED March 2008	REVISED December 2018
		DD-824-07	SHEET 2 OF 3

KOI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
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PHONE: (210) 641-9999
FAX: (210) 641-3441
REGISTRATION NO: F-13734

KCI TECHNOLOGIES

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM A. GARCIA, P.E. 109378 ON 09/06/23

Design By:	PAM
Drawn By:	LMO
Checked By:	PAM
Job No.	7623014901

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

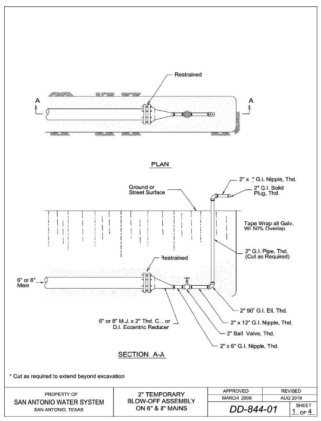
CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROCHMAN HOFFMANN GARCIA
5219 RANCHO RD #202 AUSTIN, TEXAS 78633 512.766.9923 TBPE#F-13927

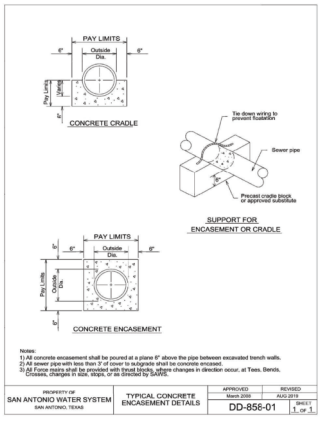
Project No:	7623014901
Drn. By:	LNC
Chkd By:	PAM
Date Issued:	09/06/23
Revisions:	

SAWS WATER DETAILS1

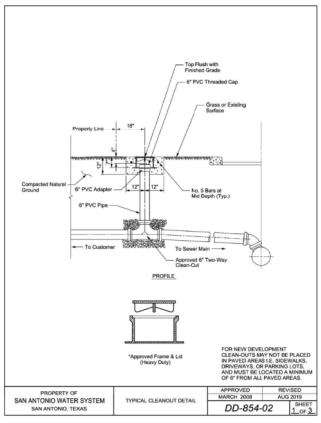
C5.09



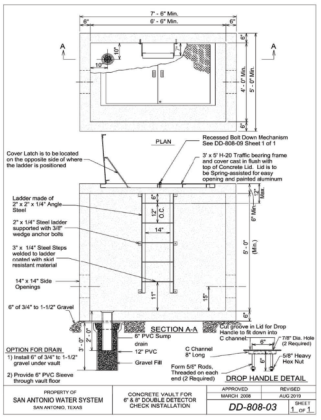
PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	2" TEMPORARY BLOW-OFF ASSEMBLY ON 6" & 8" MAINS	MARCH 2008	AUG 2019
		DD-844-01	SHEET 1 of 4



PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CONCRETE ENCASEMENT DETAILS	March 2008	AUG 2019
		DD-858-01	SHEET 1_ or 1

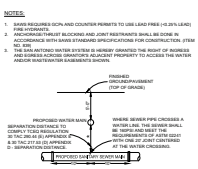


PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CLEANOUT DETAIL	MARCH 2008	AUG 2019
		DD-854-02	SHEET 1_ or 3_



PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	CONCRETE VAULT FOR 6" & 8" DOUBLE DETECTOR CHECK INSTALLATION	MARCH 2008	AUG 2019
		DD-808-03	SHEET 1_ OF 1_

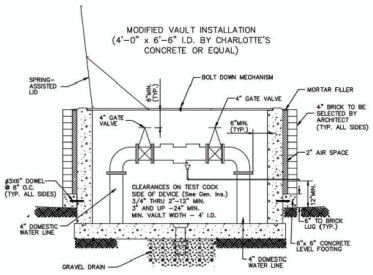
NOTES:
1. SAWS REQUIRES DCPs AND COUNTER PERMITS TO USE LEAD FREE (<0.25% LEAD) FIRE HYDRANTS.
2. ANCHORAGE/THRUST BLOCKING AND JOINT RESTRAINTS SHALL BE DONE IN ACCORDANCE WITH SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION. (ITEM 40 & 41)
3. THE SAN ANTONIO WATER SYSTEM IS HEREBY GRANTED THE RIGHT OF INGRESS AND EGRESS ACROSS GRANTOR'S ADJACENT PROPERTY TO ACCESS THE WATER AND/OR WASTEWATER EASEMENTS SHOWN.



TYPICAL SANITARY SEWER/
WATER CROSSING DETAIL

NOT TO SCALE

*SEPARATION DISTANCE AND PROTECTION REQUIREMENTS TO COMPLY WITH 30 TAC 290.44 (e) AND 30 TAC 217.53 (d) (FORMERLY 30 TAC 317.13 APPENDIX E)



REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER

NOTES:
1. CONCRETE SHALL BE 4500 PSI.
2. REINFORCEMENT SHALL BE GRADE 60
3. WALLS SHALL BE 6" MIN. THICKNESS

VAULT ENCLOSURE FOR RPZ BACKFLOW PREVENTOR

KCI TECHNOLOGIES, INC.
11100 I-10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 541-9999
FAX: (210) 541-9998
REGISTRATION/LMPE/SBPLS #P01945-00

DESIGNED BY: PAM
DRAWN BY: LMD
APPROVED: PAM
JOB NO. 7623001491

NORTHERN INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROONAN ROTHMANN GARCIA
6134 BANDERA RD #202
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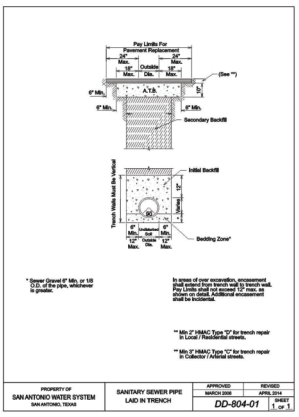
210.979.7900
TBPE F-3121

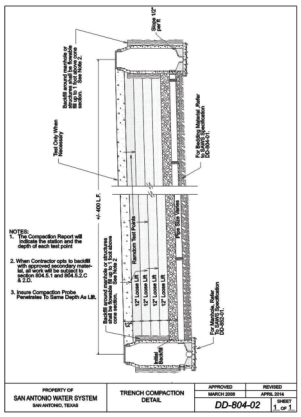
Project No: 7623001491
Drn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

SAWS WATER DETAILS 2

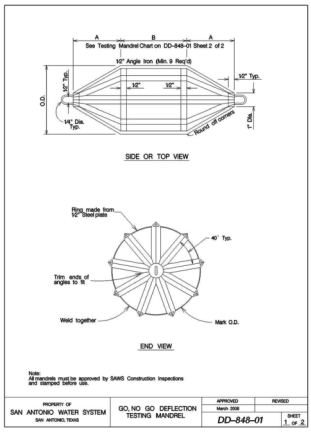
C5.10



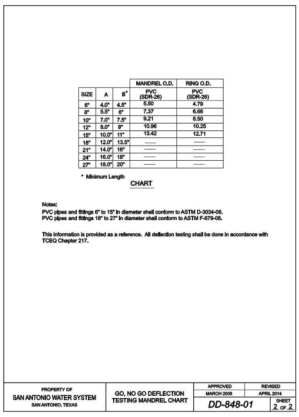
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE LAID IN TRENCH	APPROVED MARCH 2006	REVISED APRIL 2014
		DD-804-01	SHEET 1 of 1



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	APPROVED MARCH 2006	REVISED APRIL 2014
		DD-804-02	SHEET 1 of 1



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL	APPROVED March 2008	REVISED
		DD-848-01	SHEET 1 of 2



SIZE	A	B*	MANDREL O.D. PVC (SDR-26)	RING O.D. PVC (SDR-26)
6"	4.0"	4.5"	5.50	4.79
8"	5.0"	6"	7.37	6.66
10"	7.0"	7.5"	9.21	8.50
12"	8.0"	9"	10.96	10.35
15"	10.0"	11"	13.42	12.71
18"	12.0"	13.5"	———	———
21"	14.0"	16"	———	———
24"	16.0"	18"	———	———
27"	18.0"	20"	———	———

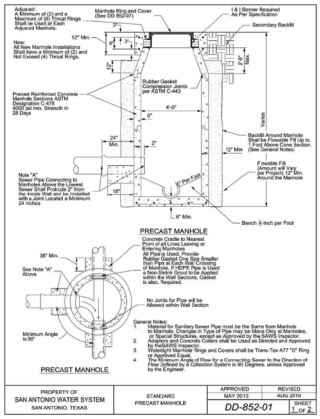
* Minimum Length

CHART

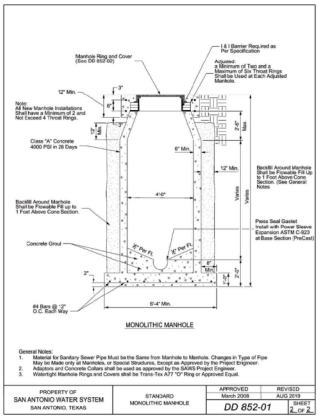
Notes:
PVC pipes and fittings 6" to 15" in diameter shall conform to ASTM D-3034-06.
PVC pipes and fittings 18" to 27" in diameter shall conform to ASTM F-679-06.

This information is provided as a reference. All deflection testing shall be done in accordance with TCEQ Chapter 217.

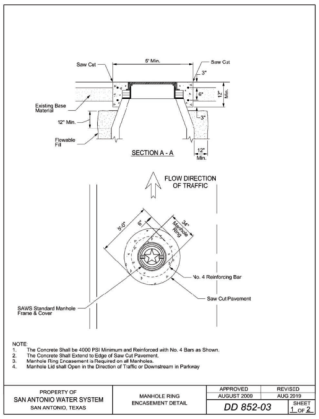
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL CHART	APPROVED MARCH 2006	REVISED APRIL 2014
		DD-848-01	SHEET 2 of 2



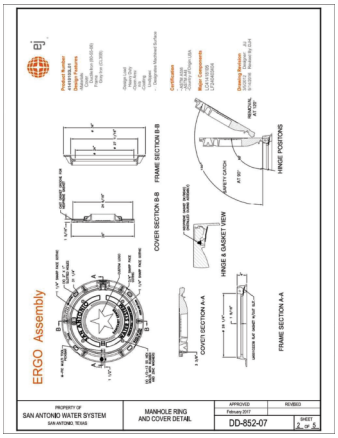
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD PRECAST MANHOLE	APPROVED MAY 2013	REVISED AUG 2019
		DD-852-01	SHEET 1 OF 2



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD MONOLITHIC MANHOLE	APPROVED March 2008	REVISED AUG 2019
		DD 852-01	SHEET 2 OF 2



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING ENCASEMENT DETAIL	APPROVED AUGUST 2008	REVISED AUG 2019
		DD 852-03	SHEET 1 OF 2



PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING AND COVER DETAIL	APPROVED February 2017	REVISED
		DD-852-07	SHEET 2 of 2

KOI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
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REGISTRATION NO: F-13134-0-05
KCI TECHNOLOGIES

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAM GARCIA, P.E. 105015 ON 09/06/23

Drawn By: PAM	Checked By: LMD	Approved By: PAM	Job No. 762301401

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTH

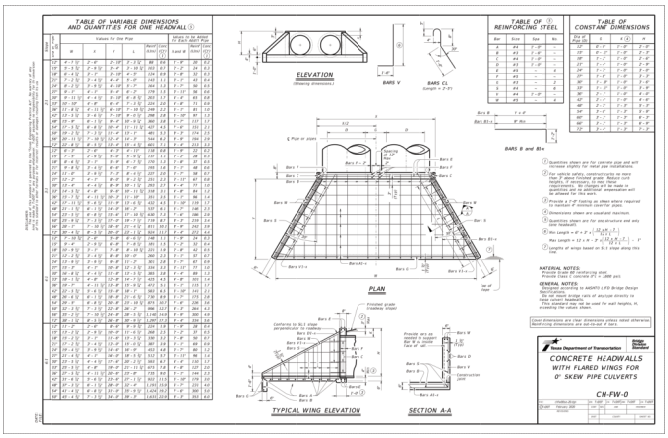
KAARLSEN ROONAN ROTHMANN GARCIA
ENGINEERING

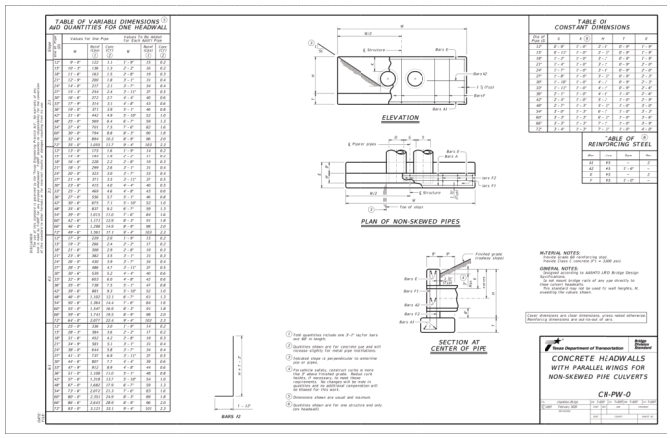
CONSTRUCTION/PERMIT DOCUMENTS

Project No: 762301401
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

SAWS SANITARY SEWER DETAILS

C5.11





KCI TECHNOLOGIES, INC.
11550 IH 10 WEST, SUITE 395
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PHONE: (210) 541-9166
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REGISTRATION NO. F-3937
KCI TECHNOLOGIES

THIS SEAL APPEARS ON THE DOCUMENT WHICH WAS PREPARED UNDER 22 TAC 137.33 BY THE ENGINEER, PG, OR GEOSCIENTIST, PG, NAMED HEREIN

Design By:	PAM
Drawn By:	LMO
Checked By:	PAM
Job No. 762301491	

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

CONSTRUCTION/PERMIT DOCUMENTS

KAARLSEN ROONAN KUHLMANN GARCIA
COBA RANCHO PLAZA #202
HOUSTON, TEXAS 77023
713.973.9001
COBAgroup.com

Project No: 762301491
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

COBA DRAINAGE DETAILS

C5.12

Temporary Stormwater Section (TCEQ-0602)

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA

Practice Leader | Senior Associate

Date: 9/22/2023

Signature of Customer/Agent:

Regulated Entity Name: O'C onnor High School Agricultural 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: Helotes Creek

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Attachment A

Spill Response Actions

The spill response actions are to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees. *Adapted from RG-348, Section 1.4.16.*

Education

- 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.
- Educate employees and subcontractors on potential dangers from spills and leaks.
- Incorporate into regular safety meetings the proper disposal procedures.
- Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- To the extent that the work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spills should be covered and protected from storm water during rainfall to the extent that it doesn't compromise cleanup activities.
- Do not bury or wash spills with water.
- 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.
- 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. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- 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.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup
- Supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

- Clean up leaks and spills immediately.

Minor Spills

- 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. Use absorbent materials on small spills rather than hosing down or burying the spill. Absorbent materials should be promptly removed and disposed of properly.

- Follow the practice below for a minor spill:
  Contain the spread of the spill.
  Recover spilled materials.
  Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc.
- Spills should be cleaned up immediately:
  - Contain spread of the spill.
  - Notify the project foreman immediately.
  - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags).
  - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
  - 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:
- Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
- Notification should first be made by telephone and followed up with a written report.
- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of storm water and the runoff of spills. Regularly inspect onsite vehicles and equipment for leaks and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under paving equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute storm water. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal.
- Store cracked batteries in a non- leaking secondary container.

Vehicle and Equipment Fueling

- If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runoff of storm water and the runoff of spills.
- Discourage "topping off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills / leaks.

Product Specific Practices

- Petroleum Products: All on site vehicles will be monitored for leaks and will receive regular preventive maintenance to reduce the chance of leakage. If petroleum products will be present at the site, they will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used on site will be applied according to the manufacturer's recommendations.
- Concrete trucks: Ready/Transit Mix Trucks will not be allowed to wash out or discharge surplus concrete or drum wash water except in the designated location on site as shown on the SW3P site plan.
- Paints: All containers will be tightly sealed and stored when not required for use. Excess paint will not be poured into the storm sewer system or drainage channels, but will be properly disposed of according to manufacturers' instructions or state/local regulations.
- Fertilizers: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. The fertilizer will be stored in a covered area, and any partially used bags will be transferred to a sealable plastic bin to avoid spills.

Attachment B

Potential Sources of Contamination

Potential Sources of Contamination

Potential sources not described in Attachment A.

Potential Source: Stock piled top soil, and fill material.
Preventive Measure: Stock piles shall be placed away from any steep slopes, sensitive features, surface or groundwater. The down gradient side shall be protected with silt fencing.

Potential Source: Miscellaneous litter and debris from construction workers and construction materials.
Preventive Measure: Trash receptacles will be placed on site for proper disposal. Receptacles will be emptied or replaced by a registered trash hauler as necessary.

Potential Source: Petroleum Products (diesel, oil, hydraulic fluid, gun grease).
Preventive Measure: All on site vehicles will be monitored for leaks and will receive regular preventive maintenance to reduce the chance of leakage. No petroleum products will be stored onsite. Service vehicles will come on site to fuel all equipment. All oil, hydraulic fluid, and gun grease will be stored on work or service vehicles in original sealed containers.

Potential Source: Concrete.
Preventive Measure: Concrete trucks: Ready/Transit Mix Trucks will not be allowed to wash out or discharge surplus concrete or drum wash water except in the designated concrete washout area as shown on the SW3P site plan.

Potential Source: Paint.
Preventive Measure: All containers will be tightly sealed and stored when not required for use. Excess paint will not be poured into the storm sewer system or drainage channels, but will be properly disposed of according to manufacturers' instructions or state/local regulations.

Potential Source: Asphalt & Asphaltic Products.
Preventive Measure: All asphalt paving, roofing, and sealers may be brought onsite only as it is being applied. Application will be in accordance to the manufacturer's recommendations and City of San Antonio specifications.

Potential Source: Fertilizer.
Preventive Measure: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Revegetated areas that are seeded and fertilized will be protected by a hydraulic mulch, hay and tackifier or binder, or erosion control mat. Fertilizer will not be stored onsite.

Potential Source: Sewage from Portable Toilets and / or Collection Tanks on Construction Trailer.
Preventive Measure: Sewage from the units will be properly removed on a regular basis, will be inspected on a regular basis, and will be disposed of by a licensed waste collection service. Note that any spills should be contained within the respective BMP installed and any spill outside the containment area will be cleaned up in accordance with current state / local regulations as well as reported to TCEQ.

Attachment C

Sequence of Major Activities

Sequence of Major Activities

Construction Sequencing:

A. Installation of Temporary BMPs as shown on the “Storm Water Pollution Prevention Plan (SWPPP) / Erosion and Sediment Control Plan, Storm Water Pollution Prevention Plan (SWPPP) Details / Erosion and Sediment Control Details, the Tree Protection Details and the “Water Pollution Abatement Plan sheets.
B. Site clearing including the removal of select trees / trimming of trees and rough grading of the entire proposed site.
C. Excavation and preparation of basins.
D. Demolition of some of the existing areas (sidewalks, curbs, and pavement) and trenching activities for utility and drainage work associated with this project.
E. Excavation and preparation of subgrade.
F. Trenching for services on-site / extension of utilities to the site.
    a. Installation of electric, communication, data, and other dry utility services to the new parking lots.
    b. Installation of water main for domestic and fire protection of the site.
    c. Installation of the on-site sewer facility (OSSF).
    d. Reestablishment of vegetation in areas beyond the parking lot and office building within the construction envelope(s).
G. Excavation and construction of structural footings and foundations for ramps and buildings respectively.
H. Installation of drainage infrastructure.
I. Installation of base material / construction of parking lots and roadway.
J. Erection and construction of building, including finish out while site work is on-going.
K. Installation of concrete curbs.
L. Drill and pour concrete footings for structures such as light standards, cameras, bollards, etc.
M. Application of prime and tack coats.
N. Construction of sidewalks.
O. Installation of asphalt pavement and installation of ADA truncated domes.
P. Finish out items such as erecting light standards and cameras.
Q. Finish grading as indicated on plans.
R. Landscaping / sodding / seeding to reestablish vegetation on all remaining disturbed areas.
S. Removal of temporary BMPs once area is established or when the particular temporary BMP measure is no longer required (i.e. Construction Exit and Concrete Washout Pit)

Attachment D

Temporary Best Management Practices and Measures

Temporary Best Management Practices and Measures

There are no significant recharge features identified by the Geologic Assessment that will be adversely affected by the construction of this project as it is identified on the geological report. Please reference the Geological Assessment attached. Refer to the "Storm Water Pollution Prevention Plan (SWPPP) / Erosion and Sediment Control Plan, Storm Water Pollution Prevention Plan (SWPPP) Details / Erosion and Sediment Control Details, the Tree Protection Details and the "Water Pollution Abatement Plan (WPAP) sheets for BMPs to protect the general site areas, including tree protection measures, during construction activities and after.

Temporary BMPs, such as sediment control rolls, sediment control / silt fencing, gravel filter bags, inlet protection with filter fabric placed around the on-site and adjacent curb inlets, and high service rock berms will be implemented to control the runoff and prevent sediment transport downstream onto the existing roadways, swales, storm drains, and channels until vegetation is reestablished for the area. Silt fencing will be placed downstream in a manner not to exceed 1 acre of contributing area to also trap sediment before reaching the roadway and channels where feasible. Triangular filter dikes will also be used at existing paved areas, such as roadways and sidewalks where silt fence post cannot be installed.

Any upgradient runoff that will enter the site and downstream conditions will be addressed.

Attachment F

Structural Practices

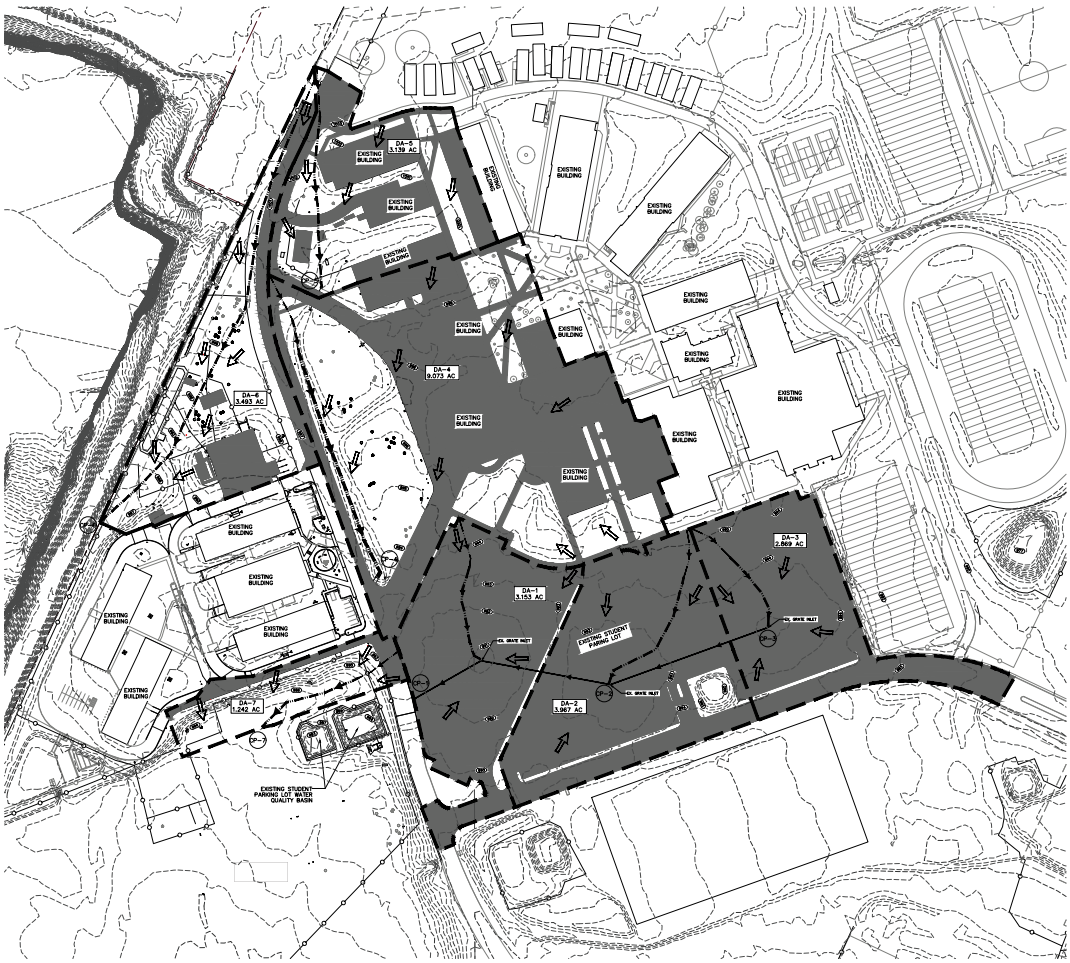
Structural Practices

Refer to Water Pollution Abatement Plan (WPAP), Stormwater Pollution Prevention Plan (SWPPP) / Erosion and Sedimentation Control Plan, Stormwater Pollution Prevention Plan (SWPPP) / Erosion and Sedimentation Control Plan Details.

The permanent BMPs will be excavated and used to trap sediment construction as well as those other details noted above.

Attachment G

Drainage Area Maps



GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT

LEGEND

- DA-X X.XXX AC — PROPOSED SUB BASIN NAME
- CP-# — PROPOSED COLLECTION POINT
- PROPOSED DRAINAGE FLOW
- PROPOSED SUBBASIN LIMITS
- PRE-DEVELOPMENT IMPERVIOUS COVER
- EXISTING CONTOURS
- SHEET FLOW TIME OF CONCENTRATION
- SHALLOW CONCENTRATED TIME OF CONCENTRATION
- CHANNEL TIME OF CONCENTRATION
- PIPE TIME OF CONCENTRATION

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MAYHS, P.E. 108863 ON SEPTEMBER 19, 2023
DATE

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DRAWN BY: LNC
APPROVED: PAM
JOB NO: 762301481

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Chkd By: PAM
Date Issued: 09/06/23
Revisions:

EXISTING HYDROLOGY PLAN

HYD 1.0

GRAPHIC SCALE

0 30 60 120

(IN FEET)
1 INCH = 60 FT

LEGEND

- DA-X / X.XXX AC — PROPOSED SUB BASIN NAME
- P-# — PROPOSED COLLECTION POINT
- PROPOSED DRAINAGE FLOW
- PROPOSED SUBBASIN LIMITS
- POST-DEVELOPMENT IMPERVIOUS COVER
- EXISTING CONTOURS
- SHEET FLOW TIME OF CONCENTRATION
- SHALLOW CONCENTRATED TIME OF CONCENTRATION
- PIPE TIME OF CONCENTRATION

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY PAUL A. MAYHS, P.E. 108647 ON SEPTEMBER 19, 2023
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Date Issued: 09/06/23
Revisions:

PROPOSED HYDROLOGY PLAN

HYD 2.0

Attachment I

Inspection and Maintenance for temporary BMPs

Inspection and Maintenance for Temporary BMP's

There will be several types of Temporary BMPs used for this project: Silt Fencing, Rock Berms, Area Inlet Protection, Gravel Filter Bags, Triangular Dikes, Temporary Construction Entrance/Exit, and a Concrete Washout Pit. Items listed below must be inspected every 7 days and within 24 hours of a rainfall event of 0.5 inches or more. These inspections and if any maintenance is performed on such BMPs, it must be documented within the inspection and maintenance report form and kept on site. The forms can be found at the end of this section.

Silt Fencing, Rock Berms, Area Inlet Protection, Gravel Filter Bags, & Triangular Filter Dikes

Refer to TCEQ "Edwards Aquifer Technical Guidance Manual" RevJul05, pages 1-66 to 1-68 (Silt Fencing), pages 1-72 to 1-74 (Rock Berms), pages 1-89 to 1-92 (Area Inlet Protection), pages 1-98 to 1-100 (Gravel Filter Bags), pages 1-69 to 1-71 (Triangular Filter Dikes), pages 1-63 to 1-65 (Construction Entrance/Exit), pages 1-124 to 1-125 (Concrete Washout) for standards, and also refer to Sheets C01B and C05 through C05D.1 for the Erosion Control Plan and Sheets C05E through C05G for the Erosion Control Details of the construction plans for locations/details/guidance.

Contractor shall maintain log and document following items for silt fencing, rock berms, gravel filter bags, inlet protection, triangular dikes and any other approved temporary BMP:

1) Inspection of all fencing/berms/bags/dikes weekly, and after any rainfall event.
2) Removal of sediment when buildup reaches 6" on any temporary BMP, or the installation of a second line of fencing parallel to the old fence. Dispose of the accumulated silt of in an approved manner.
3) Replacement of any torn fabric or installation of a second line of fencing parallel to the old fence.
4) Replacement/repair of any sections crushed, torn, or collapsed temporary BMPs in the course of construction activity. If a section of fence/berm is obstructing vehicular access, document the relocation to a spot where it will provide equal protection, but will not obstruct vehicles.
5) The contractor may use Triangular Filter Dikes in areas where fencing is impractical due to existing pavement or concrete flatwork.
6) For installations of rock berms in streambeds, additional daily inspections should be made.
7) For rock berms, any lose wire sheathing shall be repaired or replaced as needed and the berm reshaped as needed during inspection.
8) Any rock berms are to be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
9) Any rock berm shall be left in place until all upstream areas are stabilized, and accumulated silt removed.
10) Any gravel filter bags torn allowing gravel to come out of the constraints of the bag shall be replaced immediately.

These temporary BMPs as shown on the “Storm Water Pollution Prevention Plan (SWPPP) / Erosion and Sediment Control Plan / Details” (Sheets C01B and C05 through C05G) and “Water Pollution Abatement Plan (WPAP)” (Sheets WPAP 1, WPAP 2, WPAP 3, and WPAP 4) will intercept any storm water borne pollutants originating onsite, including upstream offsite runoff, therefore preventing them from entering Geological Features, roadways, drainage features, and other drainage structures such as the existing WQBs.

Temporary Construction Entrance/Exit

Contractor shall establish and maintain a Temporary Construction Entrance/Exit throughout the construction period to protect the site from pollutants brought onto the site from other sources or leaving the site. Contractor to insure rocks are maintained free of trash and sediment.

Concrete Washout Pit

Contractor shall insure concrete washout pit is maintained at all times during construction and removed appropriately at the end of construction.

The concrete washout pit will be inspected on a weekly basis and after any rainfall event. The sediment build up will be removed when it reaches 6”. Upon removal the area of the washout pit shall be revegetated to prevent erosion of the area.

Construction Lay Down Area

Contractor shall insure silt fencing, rock berms, area inlet protection, gravel filter bags, triangular dikes, temporary construction entrance/exit, and concrete washout pit are maintained as stated above. This construction lay down area shall be used for construction trailers, supplies storage, machinery, temporary parking, etc. needed for construction. The lay down areas will need to be shown on sheets C05 through C05G or other applicable exhibit by the contractor and these areas will be revegetated upon completion of construction. This includes any off-site laydown area within an existing paved area, it shall be cleaned of any debris or sediment prior to removal of any temporary BMP surrounding it.

Tree Protection

All trees that will remain shall be protected in accordance with the details as shown on Sheet C05F. In addition to the drip line of the trees being fenced as shown within the details, other measures to protect the existing trees and to minimize disturbance are specifically noted in the plans.

Attachment J

Inspection and Maintenance for temporary BMPs

Schedule of Interim and Permanent Soil Stabilization Practices

Interim Practices

All temporary BMPs as described in Attachment I. This also includes the construction of the WQBs to act as the temporary basins during construction.

Permanent Practices

Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. 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 the 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.

Refer to “Water Pollution Abatement Plan (WPAP) for all areas to be sodded within the project limits that are designated as VFS or earthen channels or at the back of curbs. All other areas are to be landscaped or hydromulched at a minimum, which includes all other offsite disturbed areas associated with this project (utility installation) beyond the parking areas, walkways, and other paved areas. Landscaping plans also accompany the construction plans for this project for reestablishment of vegetation.

Attachment K

SWPPP

SITE DESCRIPTION

PROJECT LOCATION: SOUTH/SOUTHWEST SIDE OF THE EXISTING CAMPUS OF O'CONNOR HIGH SCHOOL LOCATED AT 12221 LESLIE ROAD, HELOTES, TX 78023.

PROJECT DESCRIPTION: CONSTRUCTION OF ADDITIONAL SCHOOL BUILDINGS, PARKING, SIDEWALK, UTILITIES, AND DRAINAGE STRUCTURES. IN ADDITION, DEMOLITION OF AN EXISTING BUILDING, NEW DRIVE LANES, NEW PARKING LOTS, NEW WATER QUALITY BASIN.

MAJOR SOIL DISTURBING ACTIVITIES: SITE GRADING, UTILITY AND DRAINAGE CONSTRUCTION, PAVEMENTS AND FLATWORK, AND FOUNDATION CONSTRUCTION.

TOTAL PROJECT AREA: ~5.6 ACRES

TOTAL AREA TO BE DISTURBED: ~5.6 ACRES

WEIGHTED RUNOFF COEFFICIENT (PRE-CONSTRUCTION): 0.70

WEIGHTED RUNOFF COEFFICIENT (POST-CONSTRUCTION): 0.79

EXISTING CONDITION OF SOIL & VEGETATIVE COVER: NATIVE GRASS WITH TREES IN UNDEVELOPED AREAS AND SOME PREVIOUSLY DEVELOPED AREAS THAT ARE PAVED. ESTIMATED ABOUT 67% VEGETATED COVER WITH EARTHEN CHANNELS, WATER QUALITY BASINS, VEGETATED FILTER STRIPS, AND GRASS LANDSCAPE AREAS.

NAME OF RECEIVING WATERS: HELOTES CREEK

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ✓ TEMPORARY SEEDING
- ✓ PERMANENT PLANTING, SODDING, OR SEEDING
- ✓ MULCHING
- ✓ SOIL RETENTION BLANKET
- ✓ BUFFER ZONES
- ___ PRESERVATION OF NATURAL RESOURCES

OTHER: ___

STRUCTURAL PRACTICES:

- ✓ SILT FENCES
- ___ HAY BALES
- ✓ ROCK BERMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ✓ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- ✓ ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- ✓ CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ✓ SEDIMENT BASINS
- ✓ STORM INLET SEDIMENT TRAP
- ✓ STONE OUTLET STRUCTURES
- ✓ CURBS AND GUTTERS
- ✓ STORM SEWERS
- ___ VELOCITY CONTROL DEVICES
- ✓ GRAVEL FILTER BAGS

OTHER: ___

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

PHASE I:
1. INSTALLATION OF SWPPP MEASURES

PHASE II:
1. SITE CLEARING AND GRADING

PHASE III:
1.FOUNDATIONS, DRAINAGE AND UTILITIES

PHASE IV:
1. DRIVEWAY AND PARKING LOT CONSTRUCTION
2. BUILDING CONSTRUCTION

PHASE V:
1. VEGETATION

STORM WATER MANAGEMENT: TEMPORARY AND PERMANENT MEASURES TO PREVENT SEDIMENT TRANSPORT DOWNSTREAM.

NON-STORM WATER DISCHARGE: N/A

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: An inspection will be performed by the owner or contractor's representative every week as well as after every half inch or more of rain (as recorded on a non-freezing rain gauge to be located at the Project Site). An inspection and Maintenance Report will be made per each inspection. Based on the inspection results, the controls shall be revised per the inspection report.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all state and local city solid waste management regulations. All trash and construction debris form the site will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulations and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: paints, acids for cleaning, masonry surfaces, cleaning solvents, asphalt products, chemical additives for soil stabilization or concrete curing compounds & additives. In the event of a hazardous material spill, the spill coordinator shall be contacted immediately.

SANITARY WASTE: All sanitary waste will be collected from portable units as necessary, or as required by local regulations by a Licensed Sanitary Waste Management Contractor.

OFFSITE VEHICLE TRACKING:

- ✓ HAUL ROADS DAMPENED FOR DUST CONTROL
- ✓ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- ✓ EXCESS DIRT ON ROAD REMOVED DAILY
- ✓ STABILIZED CONSTRUCTION ENTRANCE

PERMITS: ___

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are are not a part of the finished work.

OWNERS CERTIFICATION

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

SIGNATURE _____ DATE _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general Texas Pollutant Discharge Elimination System (TPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification plan.

SIGNATURE (CONTRACTOR) _____ DATE _____

KCI TECHNOLOGIES, INC.
11550 I-10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-6999
FAX: (210) 641-6990
REGISTRATION NUMBER: F-1935

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

KAARLSEN ROONAN RUTHMANN GARCIA
5219 RANCHO RD #202
AUSTIN, TEXAS 78823
512.371.3001
TX@KRRG.COM

KRRG ARCHITECTURE

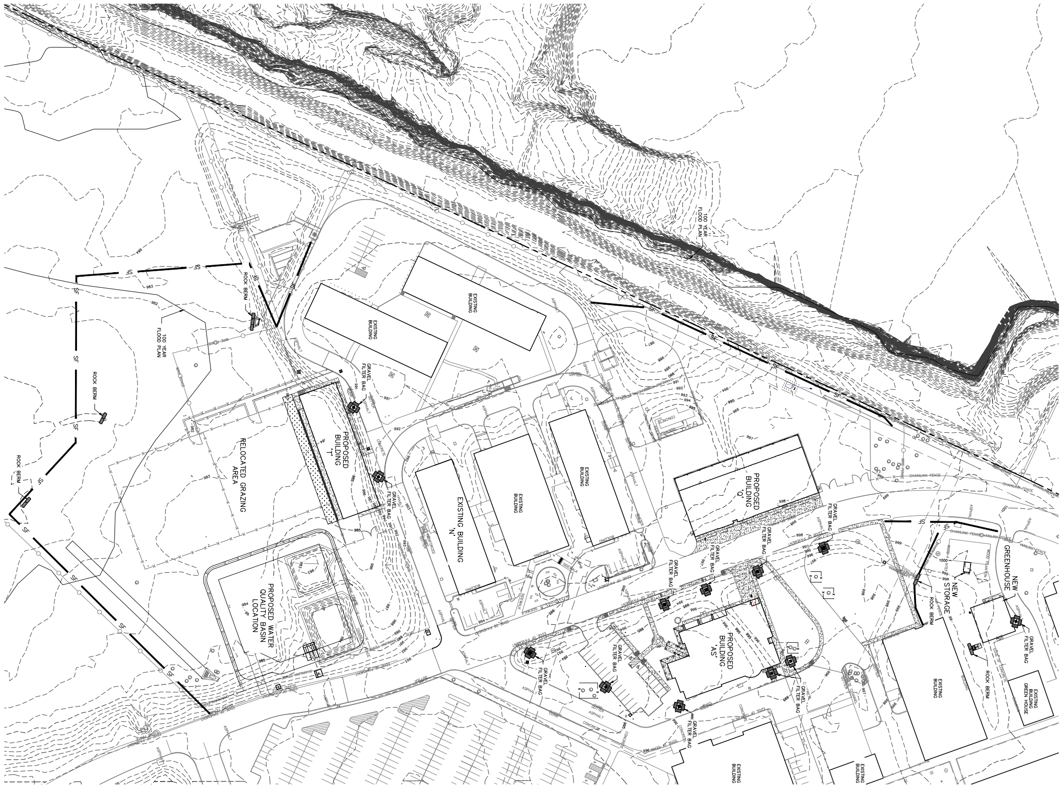
KRRG PROJECT NO. 21-0

Project No.: 7623014R1
Drwn. By: LNC
Chkd By: PAM
Date Issued: 09/06/23
Revisions:

SWPPP NOTES

CONSTRUCTION/PERMIT DOCUMENTS

C2.00



GRAPHIC SCALE

0 30 60 120

(IN FEET)

1 INCH = 60 FT

LEGEND:

EXISTING EASEMENTS
SITE PROPERTY LINE
SILT FENCE
GRAVEL FILTER BAGS
CONSTRUCTION ENTRANCE/EXIT
CONCRETE WASHOUT PIT
EXISTING CONTOUR
GABION MATRESS
ROCK BERM
TREE PROTECTION FENCE

[redacted]

KCI TECHNOLOGIES, INC.

11550 IH 10 WEST, SUITE 395
SAN ANTONIO, TEXAS 78230-1037
PHONE: (210) 641-9999
FAX: (210) 641-6440
REGISTRATION #F-10573 / #101943-65

DESIGNED BY: PAM
DRAWN BY: LNC
APPROVED: PAM
JOB NO.: 762301481

[redacted]

9-6-2023

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY:
PAUL A. MATHIS, P.E.
NO. #105075

ON: SEPTEMBER 06, 2023
DATE

CONSTRUCTION/PERMIT DOCUMENTS

C2.01

OVERALL SWPPP

Revisions:
Date Issued: 09/06/23
Chkd By: PAM
Drwn. By: LNC
Project No.: 762301481

KAARLSEN
NOONAN
RITTIMANN
GARCIA

KNRG ARCH

13438 BANDERA RD #202
HELOTES, TEXAS 78023
P: 210.695.5716
knrgarch.com

AGRICULTURE SCIENCE & TECHNOLOGY ACADEMY AT SANDRA DAY O'CONNOR HS UPGRADES

12221 LESLIE ROAD, HELOTES, TX 78023

NORTHSIDE INDEPENDENT SCHOOL DISTRICT

Agent Authorization Form (TCEQ-0599)

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

I Jacob Villarreal, P.E.,
Print Name

Executive Director of Construction and Engineering,
Title - Owner/President/Other

of Northside Independent School District,
Corporation/Partnership/Entity Name

have authorized Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA
Practice Leader | Senior Associate
Print Name of Agent/Engineer

Of KCI Technolgies
Print Name of Firm

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

I also understand that:

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

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

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

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

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

SIGNATURE PAGE:

Applicant's Signature

8/16/23
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Jacob Villarreal 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 16 day of August, 2023.

Yvonne M. Carter
NOTARY PUBLIC

Yvonne M. Carter
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/08/2026

Application Fee Form (TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: O'connor High School agricultural science and technology
Regulated Entity Location: 12221 Leslie Rd, Helotes, TX 78023
Name of Customer: Northside Independent School District
Contact Person: Paul A. Mathis, P.E., PMP Phone: (210) 641-9999
Customer Reference Number (if issued):CN 601104169
Regulated Entity Reference Number (if issued):RN 104754304

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	Acres	$
Sewage Collection System	611 L.F.	$ 650
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: Paul A Mathis

Date: 9/22/2023

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

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

Core Data Form (TCEQ-10400)

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions 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 601104169		RN 104754304

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:*

Northside Independent School District

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

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☒ 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:	Northside Independent School District						
	5900 Evers Road						
	City	San Antonio	**State**	TX	**ZIP**	78238	**ZIP + 4**

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

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

( ) -		(210) 397-8500

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.)*

O'Connor High School

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	O'Connor High School							
	12221 Leslie Road							
	City	Helotes	**State**	TX	**ZIP**	78023	**ZIP + 4**	
24. County	Bexar							

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

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**

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:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
1623		611110	

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

Education

34. Mailing Address:	**Northsdie ISD**							
	5900 Evers Road							
	City	**San Antonio**	**State**		**ZIP**	**78238**	**ZIP + 4**	
35. E-Mail Address:	**info@nisd.net**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(210) 397-8500		( ) -

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
		13-90071601B		
☐ 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:	Paul A. Mathis, P.E., PMP, LEED Green Assoc., MBA	**41. Title:**	Practice Leader / Senior Associat

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(210 **)** 641-9999		**(** 210 **)** 641-6440	paul.mathis@kci.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:	KCI Technolgies, Inc.	**Job Title:**	Practice Leader / Senior Associate		
Name *(In Print):*	Paul A. Mathis (Submitted on behalf of Northside ISD)			**Phone:**	**(** 210 **)** 641- **9999**
Signature:				**Date:**	9/22/2023