ST. ANDREW'S ATHLETICS AND FITNESS COMPLEX

± 73.456 Acres

5901 Southwest Parkway
Austin, Travis County, Texas 78735

WATER POLLUTION ABATEMENT PLAN MODIFICATION (WPAP-MOD) AND SEWAGE COLLECTION SYSTEM MODIFICATION (SCS-MOD) REPORT

Prepared by:

GARZA EMC, LLC.
9442 Capital of Texas Highway North, Plaza One, Suite 340
Austin, Texas 78759
TBPE Registration No. F-146

3/22/2024
F-14629

March 2024

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: St Andrews Episcopal High School						**2. Regulated Entity No.:** RN102763232			
3. Customer Name: St Andrews Episcopal School						**4. Customer No.:** CN603847088			
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):**			73.456
9. Application Fee:	**$8,650**		**10. Permanent BMP(s):**					Retention/Irrigation	
11. SCS (Linear Ft.):	0 FT		**12. AST/UST (No. Tanks):**						
13. County:	Travis		**14. Watershed:**					Barton 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.)	___	_X_	___
Region (1 req.)	___	_X_	___
County(ies)	___	_X_	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	_X_Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	_X_Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Jonah Mankovsky, P.E.
Print Name of Customer/Authorized Agent 02/14/2024
Signature of Customer/Authorized Agent Date

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

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 **WPAP and SCS Modification**

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 603847088		**RN 102763232**

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:*

St Andrews Episcopal School

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0011107601	17460036266	746003626	N/A

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:	1112 West 31st Street						
	City	Austin	**State**	TX	**ZIP**	78705	**ZIP + 4**

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

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

( ) -		( ) -

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.)*

ST ANDREWS EPISCOPAL HIGH SCHOOL

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	5901 SOUTHWEST PKWY							
	City	AUSTIN	**State**	TX	**ZIP**	78735	**ZIP + 4**	6220
24. County	TRAVIS							

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

25. Description to Physical Location:	Southeast of the intersection of southwest parkway and vega avenue.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Austin			Tx	78735	

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:	30.243611		**28. Longitude (W) In Decimal:**	-97.851111	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	14	37	-97	51	4

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
8211	1542	611110	611710

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

Elementary and Secondary Schools

34. Mailing Address:	**1112 West 31st Street**							
	City	**Austin**	**State**	**TX**	**ZIP**	**78705**	**ZIP + 4**	

35. E-Mail Address:	

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

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

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

SECTION IV: Preparer Information

40. Name:	Mario Guajardo Clark	**41. Title:**	Engineer Associate I

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512)298-3284		( ) -	mguajardoclark@garzaemc.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:	GarzaEMC	**Job Title:**	Senior Project Manager	
Name *(In Print):*	Jonah Mankovsky, P.E.		**Phone:**	**(** 512 **)** 298- **3284**
Signature:			**Date:**	2/14/2024

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: St. Andrew's Episcopal Upper School
Regulated Entity Location: 5901 Southwest Parkway
Name of Customer: St Andrews Episcopal School
Contact Person: _____ Phone: _____
Customer Reference Number (if issued):CN CN603847088
Regulated Entity Reference Number (if issued):RN RN102763232
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	73.456 Acres	$ 8,000
Sewage Collection System	0 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: 

Date: 11/29/2023

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

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

I Brandon Armbruster,
Print Name

Chief Operating Officer,
Title - Owner/President/Other

of St. Andrew's Episcopal School,
Corporation/Partnership/Entity Name

have authorized Jonah Mankovsky, P.E.
Print Name of Agent/Engineer

of GarzaEMC
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

2/12/2024
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Brandon Armbruster 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 12th day of February, 2024

NOTARY PUBLIC

JESSICA NICHOLE LIND
Notary ID #133222706
My Commission Expires
July 20, 2025

Jessica Lind
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: July 20, 2025

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.

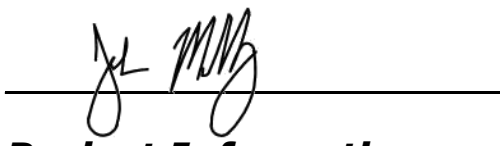
Signature

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: Jonah Mankovsky, P.E.

Date: 2/14/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: ST ANDREWS EPISCOPAL HIGH SCHOOL
2. County: Travis
3. Stream Basin: Barton Creek
4. Groundwater Conservation District (If applicable): Barton Springs/Edwards Aquifer CD
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

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

7. Customer (Applicant):

   Contact Person: _____
   Entity: St. Andrew's Episcopal School
   Mailing Address: 5901 Southwest Parkway
   City, State: Austin, Texas Zip: 78735
   Telephone: (512) 299-9700 FAX: _____
   Email Address: _____

8. Agent/Representative (If any):

   Contact Person: Jonah Mankovsky, P.E.
   Entity: GarzaEMC
   Mailing Address: 9442 North Capital of Texas Highway. Plaza 1, Ste. 340
   City, State: Austin, Texas Zip: 78759
   Telephone: (512) 298-3284 FAX: _____
   Email Address: jmankovsky@garzaemc.com

9. Project Location:

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

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

    The site is located at St. Andrew's Episcopal School. The address is 5901 Southwest Parkway, Austin, Texas, 78735.

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: Private School buildings, recreational facilities, and associated parking

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:

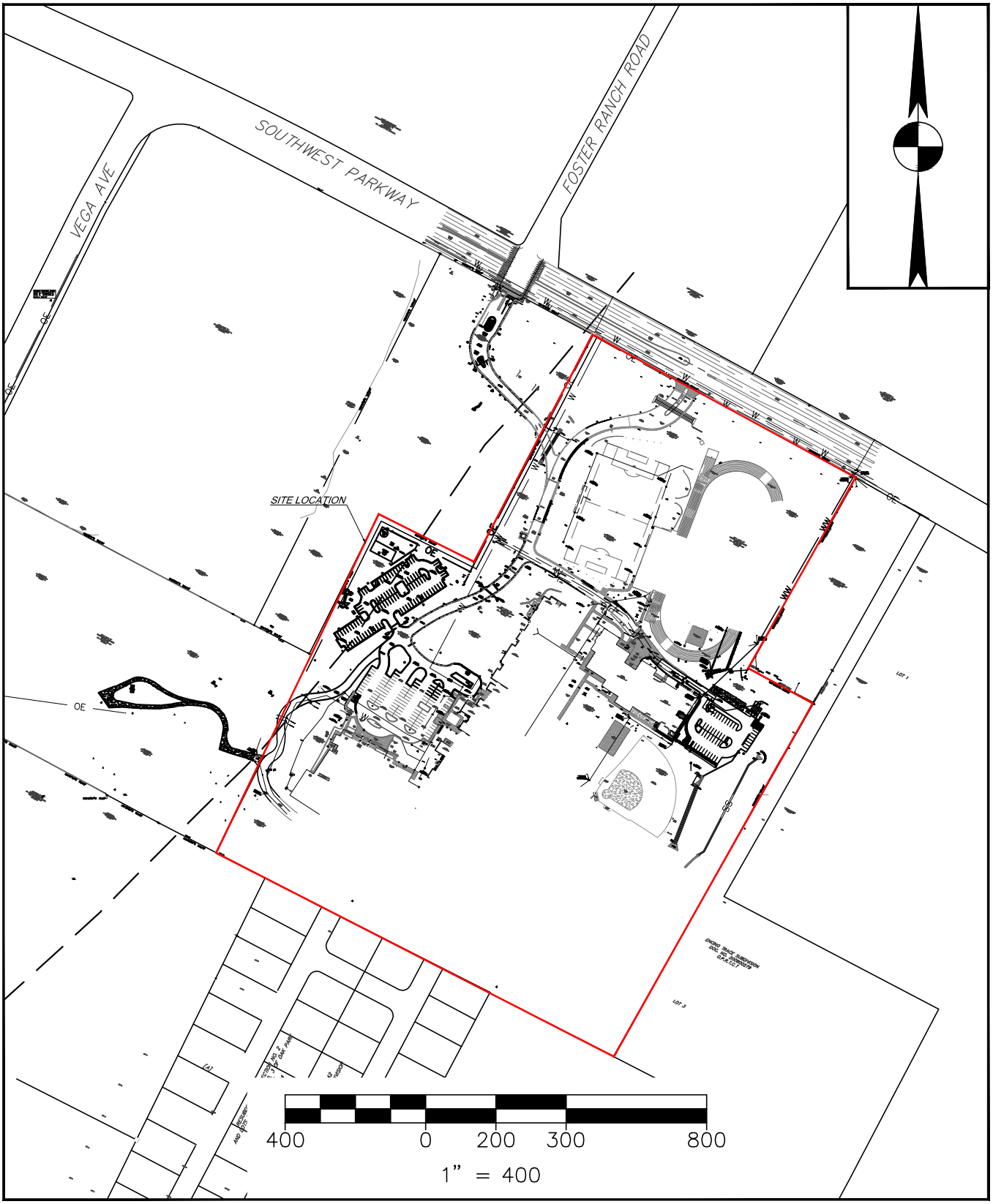
☒ TCEQ cashier
☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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.

General Information Form – Attachment A

ROAD MAP



garza
7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

ST ANDREWS ATHLETICS & FITNESS COMPLEX

ST. ANDREWS EPISCOPAL SCHOOL

SITE LOCATION MAP

DATE: 28/11/2023	SCALE: 1:400	DRAWN BY: MGC	FILE: V:\113595-00006\Civil\00-CAD\EXHIBITS\Site Location\Site Location Map	PROJECT No. 113595-00006

V:\113595-00006\Civil\00-CAD\EXHIBITS\Site Location\Site Location Map.dwg modified by mguajardoclark on Feb 14, 24 4:00 PM

General Information Form – Attachment B

USGS Edwards Recharge Zone Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

OAK HILL QUADRANGLE
TEXAS
7.5-MINUTE SERIES

SITE LOCATION

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, September 2016 - November 2016
Roads.....U.S. Census Bureau, 2015 - 2019
Names.....GNIS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2002 - 2018
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021

Wetlands.....FWS National Wetlands Inventory Not Available

MN
GN
3°46′
67 MILS
0°36′
11 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
PU
Grid Zone Designation
14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

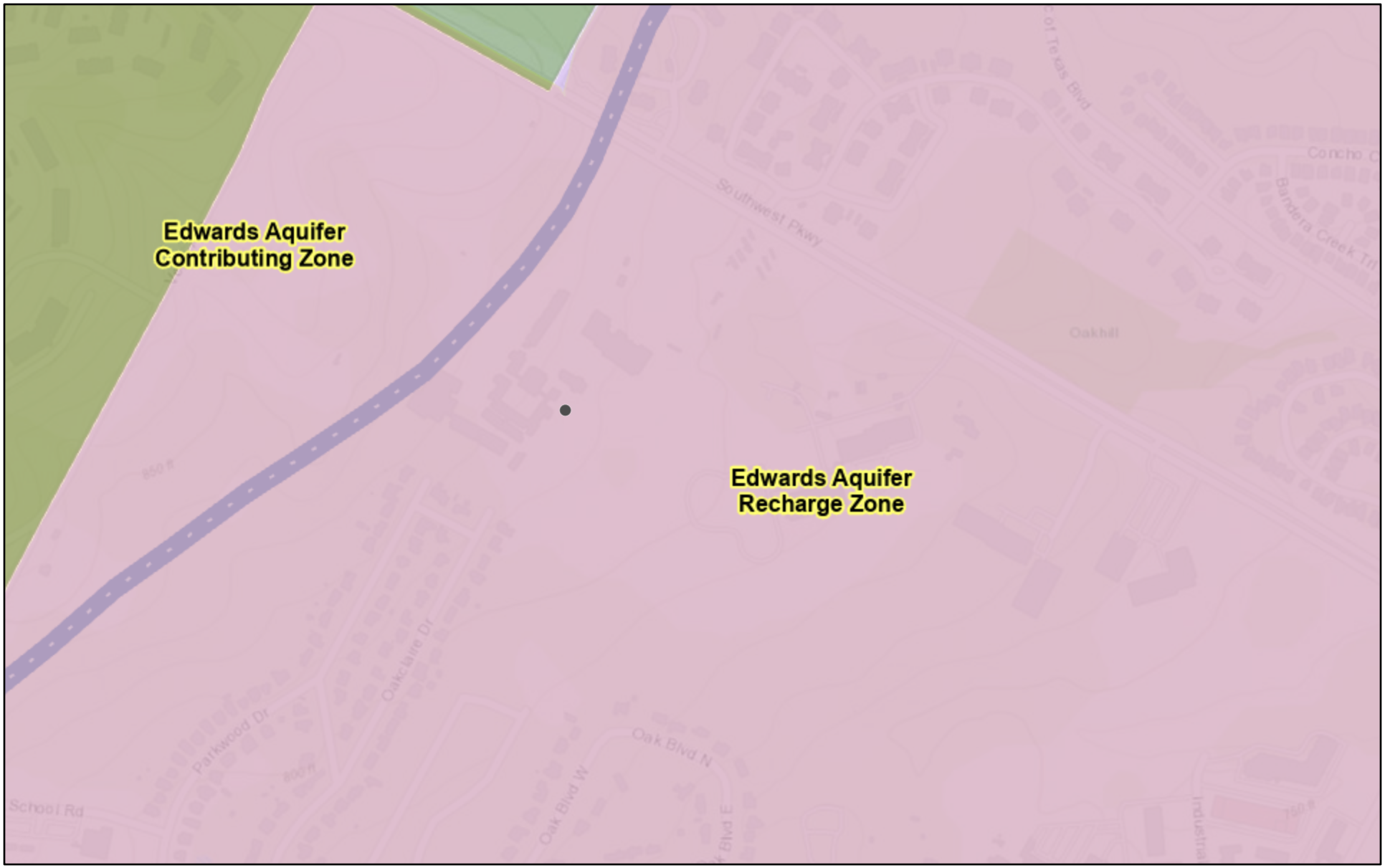
ADJOINING QUADRANGLES
1 Bee Cave
2 Austin West
3 Austin East
4 Signal Hill
5 Montopolis
6 Mountain City
7 Buda
8 Creedmoor

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

OAK HILL, TX
2022

NSN, 7643016399749
NGA REF NO. USGSX24K32740

Edwards Aquifer Viewer Custom Print



11/29/2023, 10:59:55 AM

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

Edwards Aquifer Label

Edwards Aquifer Boundary

Edwards Aquifer Boundary central line

City/Place

Groundwater Conservation Districts

Barton Springs/Edwards Aquifer CD

Southwestern Travis County GCD

TX Counties

7.5 Minute Quad Grid

TCEQ_EDWARDS_OFFICIAL_MAPS

TCEQ, Austin Community College, City of Austin, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA,

Web AppBuilder for ArcGIS

Austin Community College, City of Austin, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA | TCEQ |

General Information Form – Attachment C

Project Description

ST. ANDREWS EPISCOPAL SCHOOL
5901 SOUTHWEST PARKWAY

ATTACHMENT C – PROJECT DESCRIPTION

The 73.456-acre site, owned by St. Andrew's Episcopal School, is located at 5901 Southwest Parkway. This project consists of a site plan revision to the original St. Andrew's Episcopal School Plan Set, permitted under SPC-97-0320C, which is allowed per the site plan extension SPC-97-0320C(XT4). The property is currently developed with school buildings, parking, recreational facilities, and drainage improvements. The project scope includes the demolition of an existing parking lot and the addition of a new wellness center building and parking spaces with a square footage of approximately 60,548 SF. This will produce an overall increase in impervious cover of approximately 1.39 acre, for a total of 15.16 Acre. Approximately 222 LF of 6" PVC will be removed and replaced approximately 9 LF east of its original location. A new 4' manhole will connect the proposed relocated line to existing. Two cleanouts proposed for the new wellness center will connect to the new 6" wastewater line.

The site is located within the Full Purpose Jurisdiction of the City of Austin, Travis County, Texas. The site is also located within the Barton Creek Watershed, which is located within the drinking water protection zone. In addition to the increased regulations associated with drinking water supply zones, there is a specific regulatory category for Barton Springs called the Barton Springs Zone. The Barton Springs Zone limits the impervious cover to 15-25% for all uses. Per Restrictive Covenant vol. 12930, page 28, the maximum impervious cover on site is limited to 700,000 SF, approximately 21.8% of the site area.

The tract is located within the Edwards Aquifer Recharge Zone. Per TCEQ, a proposed site plan must be reviewed, approved, and continually monitored for compliance by the TCEQ Edwards Aquifer Protection Program.

Because the site is located within the Edwards Aquifer Recharge Zone, permanent Best Management Practices will continue to be employed through the existing detention pond to mitigate the impacts of the developments above the recharge zone.

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

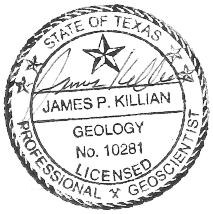
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: James Killian Telephone: 512-328-2430

Date: 11 April 2024 Fax: 512-328-1804

Representing: Horizon Environmental Services and TBPG Form Registration No. 50679 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Approximately 33-Acre St. Andrews School Tract; 5901 Southwest Parkway, Austin, Travis County, Texas

Project Information

1. Date(s) Geologic Assessment was performed: 28 March and 16 April 2024
2. Type of Project:
   - ☒ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

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

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Brackett-Rock Outcrop complex, 1-12% slopes (BlD)	D	1.5
Eckrant and Speck soils, 0-2% slopes (TcA)	D	0.67
Volente silty clay loam, 1-8% slopes (VoD)	C	4.9

Soil Name	Group*	Thickness(feet)

** Soil Group Definitions (Abbreviated)*

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

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

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

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

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

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

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

   Applicant's Site Plan Scale: 1" = 300'
   Site Geologic Map Scale: 1" = 300'
   Site Soils Map Scale (if more than 1 soil type): 1" = 300'

9. Method of collecting positional data:

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

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

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

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

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

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

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

    ☒ There are 3 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    ☐ The wells are not in use and have been properly abandoned.
    ☐ The wells are not in use and will be properly abandoned.
    ☒ The wells are in use and comply with 16 TAC Chapter 76.
    ☐ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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

Geologic Assessment Form – Attachment A

Geologic Assessment

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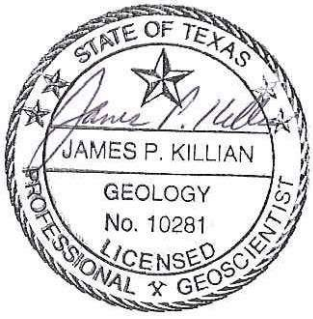
GEOLOGIC ASSESSMENT
APPROXIMATELY 33-ACRE ST ANDREW'S SCHOOL TRACT
5901 SOUTHWEST PARKWAY
AUSTIN, TRAVIS COUNTY, TEXAS
HJN 22354.002 GA

PREPARED FOR:

ST. ANDREW'S EPISCOPAL SCHOOL
AUSTIN, TEXAS

PREPARED BY:

HORIZON ENVIRONMENTAL SERVICES
A BRANCH OF LJA ENVIRONMENTAL SERVICES, LLC
TBPG FIRM REGISTRATION NO. 50679



APRIL 2024

1507 S Interstate 35 • Austin, Texas 78741-2502 • 512.328.2430 • www.horizon-esi.com
A Branch of LJA Environmental Services, LLC • TBPG Firm No. 50679

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TABLE OF CONTENTS

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ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: St. Andrew's School Tract, 5901 Southwest Parkway, Austin, Texas

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)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
M-1	30.24459	-97.851362	MB	30	Kkg	2.5	2.5	--					N	5	35	X		X		Hillside
M-2	30.245278	-97.851112	MB	30	Kkg	1	1	840					X	5	35	X		X		Hillside
M-3	30.2452778	-97.8513889	MB	30	Kkg	0.7	0.7	621					X	5	35	X		X		Hillside
M-4	30.2459	-97.851	MB	30	Kkg	0.4	0.4	1000					X	5	35	X		X		Hillside
F-1	30.245082	-97.853106	F	20	Kgru/Kkg	75	75	650	N45E	10			C,F,O	5	35	X		X		Hillside

* DATUM:_____

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

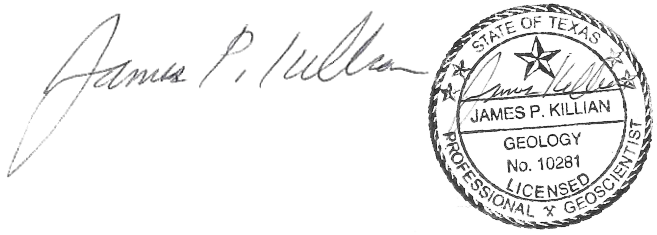
8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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



Date: 4/3/2024

Sheet ___1___ of ___1___

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

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ATTACHMENT B

STRATIGRAPHIC COLUMN

Geologic Unit	Hydrologic Unit	Approx. Thickness at Project Site (ft)	Elevation (ft msl)	Depth (ft)
			872	0
Grainstone member (Kkg)	Edwards Aquifer	60		
			812	60
Kirschberg Evaporite member (Kkke)		60		
			752	120
Upper Glen Rose Formation (Kgru)		220		
			532	340

Note: Unit elevation and thickness given with respect to a ground surface elevation of 872 feet near the west central (mapped fault) portion of the subject site.

Horizon™ Environmental Services

Date:	04/03/2024
Drawn:	TED
HJN NO:	22354.002 GA

Attachment B
Stratigraphic Column
St. Andrew's School
5901 Southwest Parkway
Austin, Travis County, Texas

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10291
LICENSED
PROFESSIONAL GEOSCIENTIST

22354--SASA_Fitness_Center\Graphics\22354-001GA_05A_Strat.mxd

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Environmental Services

ATTACHMENT C

DESCRIPTION OF SITE GEOLOGY

Geologic information for the subject site obtained via literature review is provided in Attachment E, Supporting Information.

A geologic assessment of approximately 33 acres located at 5901 Southwest Parkway, Austin, Travis County, Texas, was conducted pursuant to Texas rules for regulated activities in the Edwards Aquifer Recharge Zone (EARZ) (30 TAC 213). The subject site consists of developed land with mixed rangeland and woodlands to the northwest. Assessment findings were used to develop recommendations for site construction measures intended to be protective of water resources at the subject site and adjacent areas.

Most of the subject site (~29 acres) is located within the Edwards Aquifer Contributing Zone (EACZ). The EACZ includes all watersheds that feed runoff into rivers and streams that flow over the Recharge Zone (TCEQ, 2005). These areas are generally north and west of the Recharge Zone. Approximately 4 acres located within the far eastern portion of the subject site are located within the Edwards Aquifer Recharge Zone (EARZ) as defined by the Texas Commission on Environmental Quality (TCEQ). The EARZ occurs where surface water enters the subsurface through exposed limestone bedrock containing faults, fractures, sinkholes, and caves.

The eastern portion of the subject site is underlain by 2 geologic members of the Edwards Group-Kainer Formation (the Grainstone member [Kkg] and Kirschberg evaporite member [Kkke]) (Blome et al., 2005). The maximum thickness of the Edwards Group (Kainer Formation) is about 120 feet at higher elevations located near the center of the subject site. The western portion of the subject site is underlain by the upper member of the Glen Rose Formation (Kgru) (Blome et al., 2005), which has an estimated maximum thickness of about 220 feet. In general, the rock strata beneath the site dip to the southeast at about 10 to 30 feet per mile.

A total of 1 geologic feature (F-1, inactive mapped fault) and 4 man-made features (M-1 to M-4) were identified at this site. Further information pertaining to the geologic and man-made features is presented in the following Attachments D, E, and F. Photographs of the subject site and the geologic and man-made features are presented in Attachment G.

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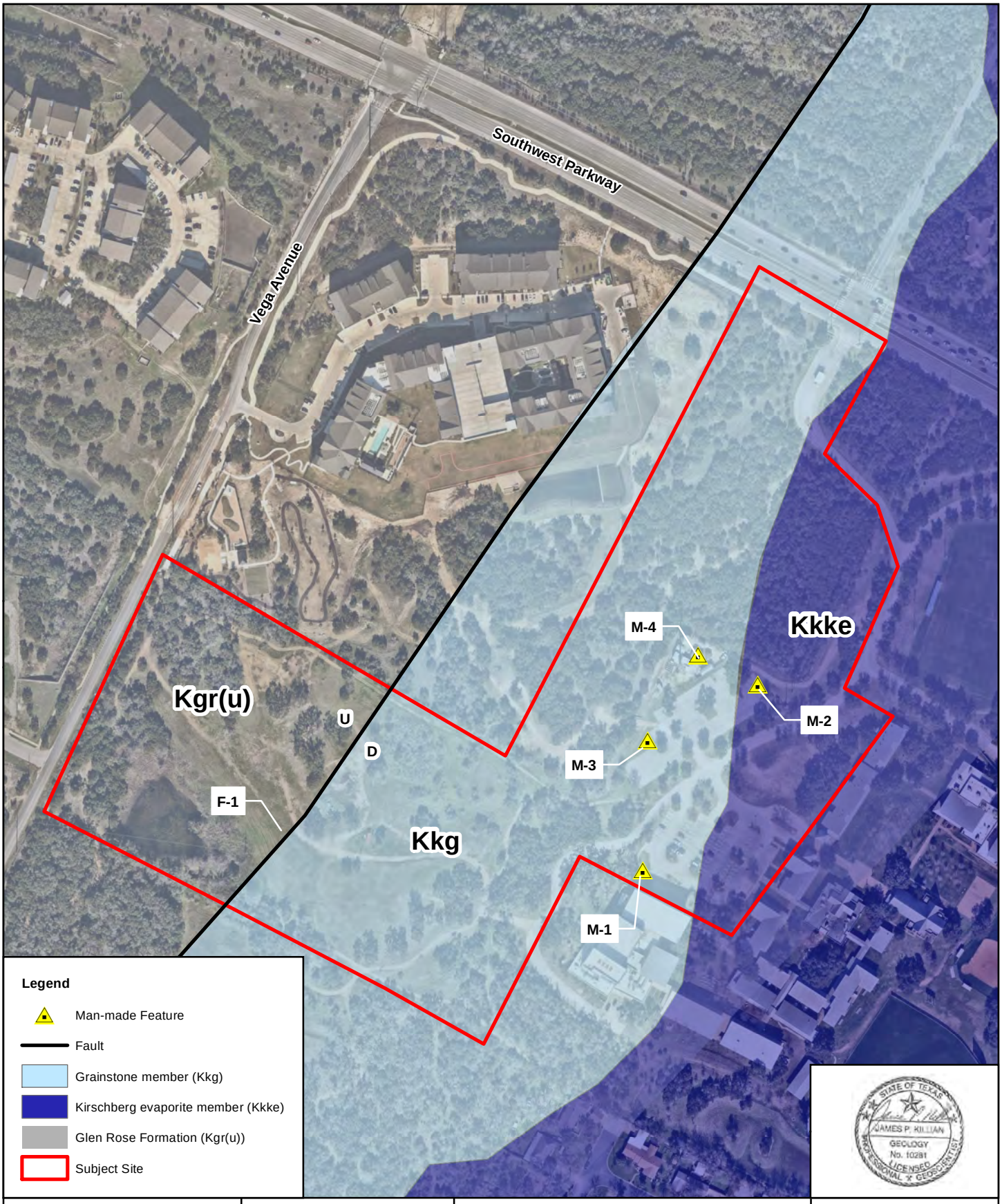
ATTACHMENT D

SITE GEOLOGIC MAP



STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon™ Environmental Services

Date:	04/03/2024
Drawn:	TED
HJN NO:	22354.002GA
Source:	Nearmap, 2024; Blome, 2005

Attachment D

Site Geologic Map
St. Andrew's School
5901 Southwest Parkway
Austin, Travis County, Texas

N

0 150 300
Feet

22354--SASA_Fitness_Center\Graphics\22354-001GA_06A_SGCM.mxd

Horizon
Environmental Services

ATTACHMENT E

SUPPORTING INFORMATION

1.0 INTRODUCTION AND METHODOLOGY

This report and any proposed abatement measures are intended to fulfill Texas Commission on Environmental Quality (TCEQ) reporting requirements (TCEQ, 2005). This geologic assessment includes a review of the subject site for potential aquifer recharge and documentation of general geologic characteristics for the subject site. Horizon Environmental Services (Horizon) conducted the necessary field and literature studies according to TCEQ *Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones* (TCEQ, 2004).

Horizon walked transects spaced 50 feet apart, mapped the locations of features using a sub-foot accurate Trimble Geo HX handheld GPS, and posted processed data utilizing GPS Pathfinder Office software, topographic maps, and aerial photographs. Horizon also searched the area around any potential recharge features encountered to look for additional features. When necessary, Horizon removed loose rocks and soil (by hand) to preliminarily assess each feature's subsurface extent while walking transects. However, labor-intensive excavation was not conducted during this assessment. Features that did not meet the TCEQ definition of a potential recharge feature (per TCEQ, 2004), such as surface weathering, karren, or animal burrows, were evaluated in the field and omitted from this report.

The results of this survey do not preclude the possibility of encountering subsurface voids or abandoned test or water wells during the clearing or construction phases of the proposed project. If a subsurface void is encountered during any phase of the project, work should be halted until the TCEQ (or appropriate agency) is contacted and a geologist can investigate the feature.

2.0 ENVIRONMENTAL SETTING

2.1 LOCATION AND GENERAL DESCRIPTION

The subject site consists of approximately 33 acres of mixed rangeland and woodlands and developed land located at 5901 Southwest Parkway in Travis County, Texas (Appendix F, Figure 1).

2.2 LAND USE

The subject site is reportedly used for educational facilities. Multiple habitable structures were observed on the site. Southwest Parkway borders the site to the east and Foster Ranch Road runs through the interior of the site. Surrounding lands are generally used for rural residences, farming, raising livestock, suburban residences, and commercial businesses.

2.3 TOPOGRAPHY AND SURFACE WATER

The subject site is situated on flat to slightly sloping terrain within the Lake Austin-Town Lake watershed (Appendix F, Figures 2 and 3). Surface elevations on the subject site vary from a minimum of approximately 816 feet above mean sea level (amsl) near the eastern property

boundary to a maximum of approximately 886 feet amsl near the northwestern property corner (USGS, 1988). Drainage on the site occurs primarily by overland sheet flow occurring from northwest to southeast toward unnamed tributaries of Lake Austin-Town Lake.

2.4 EDWARDS AQUIFER ZONE

The far eastern portion (~ 4 acres) of the subject site is found within the Edwards Aquifer Recharge Zone and the remaining portion (~29 acres) is within the Edwards Aquifer Contributing Zone (TCEQ, 2024) (Attachment F, Figure 2).

2.5 SURFACE SOILS

Three soil units are mapped within the subject site (NRCS, 2024) (Appendix F, Figure 4). Generally, the soil series are similar in their physical, chemical, and engineering properties, with the principal exception being rock fragment content and thickness. The soil units are described in further detail below.

Brackett-Rock Outcrop complex, 1 to 12% slopes (BID), is on steep breaks along creeks and rivers. In a representative profile, about 75% of the surface is covered with coarse fragments of limestone or chalk. The surface layer is light brownish-gray gravelly clay loam about 6 inches thick. The next layer is very pale brown clay loam about 12 inches thick. It contains scattered pieces of soft limestone or chalk. The underlying material is interbedded limestone and marl. In most areas about 75% of the surface is covered by 2- to 4-inch limestone fragments. The composition of this mapping unit is variable, but it consists of about 35% Brackett soils, 21% Rock outcrop, and 40% soils similar to the Brackett soils. The underlying material is interbedded limestone and marl. The percentage of Rock outcrop and very shallow soils increases as the slope increases. This soil is well-drained. Permeability is moderately slow, and the available water capacity is low (Werchan et al., 1974).

Eckrant and Speck soils, 0 to 2% slopes (TcA) is an undifferentiated group occupying long and narrow and broad and irregular areas on ridges. It consists of about 63% Eckrant soils, 32% Speck soils, 4% dark gray clay that is 18 inches thick, and a small amount of Crawford clay and rock outcrop. Areas range from 50 to 750 acres in size. Eckrant soils have a surface layer, 10 inches thick, of dark grayish-brown clay overlying limestone. It contains about 45% flaggy limestone fragments, and about 70% of the ground surface is covered with large limestone fragments. About 19% of the acreage of Eckrant soils has a gravelly surface layer. Speck soils have a surface layer of reddish-brown clay loam about 14 inches thick. The next lower layer is dark reddish-brown gravelly clay about 4 inches thick. The underlying material is hard limestone. Some of these Speck soils are stony.

Volente silty clay loam, 1 to 8% slopes (VoD) consists of deep, well-drained soils that developed in slope alluvium. In a representative profile, the surface layer is dark grayish-brown silty clay loam about 22 inches thick over dark-brown silty clay about 14 inches thick. The next layer is brown silty clay that extends to a depth of about 46 inches. The underlying material, to a depth of 54 inches, is reddish-yellow clay loam. The soil is calcareous and moderately alkaline. This soil is mainly in long valleys, where it occupies areas several hundred acres in size. The

Volente soils dominate in the valleys. They cover about 40% of the narrow valleys to about 80% of the wider valleys. The underlying material is reddish-yellow clay loam. This soil is moderately slowly permeable, and the available water capacity is high. Most of this complex is used for rangeland, but parts of it are used for crops. The soils are easy to work, but the erosion hazard is severe. This complex is marginally suitable for crops. It is better suited to improved pasture, hay, or rangeland (Werchan et al., 1974).

2.6 WATER WELLS

A review of TCEQ and Texas Water Development Board (TWDB) records revealed 3 water wells on the subject site and 6 wells within 0.5 miles of the subject site (TCEQ, 2024; TWDB, 2024). According to the TWDB records, all the off-site wells are reportedly completed within the Edwards Aquifer and Trinity Aquifer at total depths ranging from 50 to 1000 feet below surface. According to TWDB records, the on-site private wells (ID No. 283319 [M-2], No. 5850131 [M-3], and No. 55630 [M-4]) are reportedly competed within the Trinity Aquifer at total depths ranging from 621 to 1000 feet below surface grade. Horizon did not have physical access to these wells, as they were locked and fenced. No other wells were observed on the subject site.

If the on-site wells are not intended for future use, they should be capped or properly abandoned according to the Administrative Rules of the Texas Department of Licensing and Regulation (TDLR), 16 Texas Administrative Code (TAC), Chapter 76. TCEQ publication RG-347, “Landowner’s Guide to Plugging Abandoned Water Wells,” provides specific guidance. If a well is intended for use, it must comply with 16 TAC §76.

The results of this assessment do not preclude the existence of additional undocumented/abandoned wells on the site. If a water well or casing is encountered during construction, work should be halted near the feature until the TCEQ is contacted.

2.7 GEOLOGY

Literature Review

The eastern portion of the subject site is underlain by 2 geologic members of the Edwards Group-Kainer Formation (Grainstone member [Kkg] and Kirschberg evaporite member [Kkke]) (Blome et al., 2005). The maximum thickness of the Edwards Group (Kainer Formation) is about 120 feet at higher elevations located near the center of the subject site. The western portion of the subject site is underlain by the Upper Glen Rose Limestone (Kgru) (Blome et al., 2005), which has an estimated maximum thickness of about 220 feet.

The Grainstone member (Kkg) comprises white, chert-bearing, miliolid grainstone and mudstone to wackestone. Crossbedding and ripple marks occur in grainstone; cavern development is rare to nonexistent throughout. The unit is classified as having nonfabric-selective porosity and low permeability due to recrystallization. The thickness is 50 to 60 feet.

The Kirschberg evaporite member (Kkke) comprises highly altered crystalline limestone, chalky mudstone, and chert. Fossils are uncommon. It is dentified by boxwork voids

with neospar and travertine framing. Extensive cavern development throughout unit makes the Kirschberg one of the most porous (majority fabric-selective) and permeable members of the Edwards Aquifer. Average thickness is 50 to 60 feet.

The upper member of the Glen Rose Formation (Kgr(u)) consists of limestone, dolomite, and marl subdivided into two units by *Corbula* bed *C* with alternating resistant and recessive beds forming stairstep topography. The limestone is aphanitic to fine grained, hard to soft, marly, and light gray to yellowish gray. The dolomite is fine grained, porous, and yellowish brown. Marine megafossils include molluscan steinkerns, rudistids, oysters, and echinoids. The upper part is relatively thinner bedded, more dolomitic, and less fossiliferous than the lower part. The thickness is about 220 feet. The lower part is more massive and about 160 feet thick, and includes at the top *Corbula* bed, *C*, with abundant steinkerns of *Corbula harveyi* (Hill) in an interval up to 5 feet thick. The thickness of the Glen Rose Formation is 380± feet (UT-BEG, 1995).

The site Stratigraphic Column is provided as Attachment B, and the Site Geologic Map is Attachment D.

The subject site is located within the Balcones Fault Zone. Available geologic reports indicate the nearest mapped inactive fault is located on-site (F-1), trending from southwest to northeast (TWSC, 2014).

Field Assessment

A field survey was conducted under the supervision of a licensed Horizon geologist with support staff on 28 March and 16 April 2024. Horizon observed 1 geologic feature (F-1) and 4 man-made features (M-1 to M-4) on the subject site that meet the TCEQ definition of a potential recharge feature. No springs were observed at the site. Man-made feature M-1 is a storm sewer manhole located near in the southern portion of the subject site. This manhole and its associated underground sewer line(s) appeared to be in good working condition with no apparent breaks or surficial leakage. Man-made features M-2 to M-4 are private water wells (previously described) located near the east-central portion of the subject site. Water infiltration of these man-made features is considered very low due to proper well construction using piping and steel casing.

Geologic features on the subject site are described as follows:

Geologic feature F-1 is a (mapped) buried fault found through the central portion of the subject site, trending southwest to northeast. No open drainage portals and/or voids were observed along the mapped location of this feature. The fault has a clay-lined floor, making infiltration very low.

3.0 CONCLUSIONS AND RECOMMENDATIONS

No geologic or man-made features were identified at the subject site that would require protection or mitigation pursuant to TCEQ rules for protection of the Edwards Aquifer (30 TAC 213). One geologic feature (F-1) and 4 man-made features (M-1 to M-4) have been evaluated as

non-sensitive for groundwater recharge capability and would therefore not require TCEQ protective setback buffers. No further action is recommended for these non-sensitive features.

The site generally appears well-suited to development prospectuses. It should be noted that soil and drainage erosion would increase with ground disturbance. Native grasses and the cobbly content of the soil aid to prevent erosion. Soil and sedimentation fencing should be placed in all appropriate areas prior to any site disturbing activities.

Because a portion of the subject site is located over the Edwards Aquifer Recharge Zone, it is possible that subsurface voids underlie the site. If any subsurface voids are encountered during site development, work should halt immediately so that a geologist may assess the potential for the void(s) to provide meaningful contribution to the Edwards Aquifer.

4.0 REFERENCES

Blome, C.D., J.R. Faith, D.E. Pedraza, G.B. Ozuna, J.C. Cole, A.K. Clark, T.A. Small, and R.R. Morris. Geologic map of the Edwards Aquifer Recharge Zone, South-central Texas: US Geological Survey, Scientific Investigations Map SIM-2873, scale 1:200,000. Published 2005.

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(Nearmap) Nearmap US, Inc. Nearmap Vertical™ digital orthographic photograph, <https://go.nearmap.com>. Imagery date 6 January 2024.

(NRCS) Natural Resources Conservation Service (formerly Soil Conservation Service), US Department of Agriculture. Web Soil Survey, <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Soil map data layer updated 12 September 2019. Accessed 26 March 2024.

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_____. RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices. Revised July 2005.

_____. Optional Enhanced Measures for the Protection of Water Quality in the Edwards Aquifer (Revised). Appendix A to RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices. September 2007.

_____. Edwards Aquifer Protection Program. Edwards Aquifer Viewer, <http://www.tceq.state.tx.us/field/eapp/viewer.html>. Accessed 1 April 2024.

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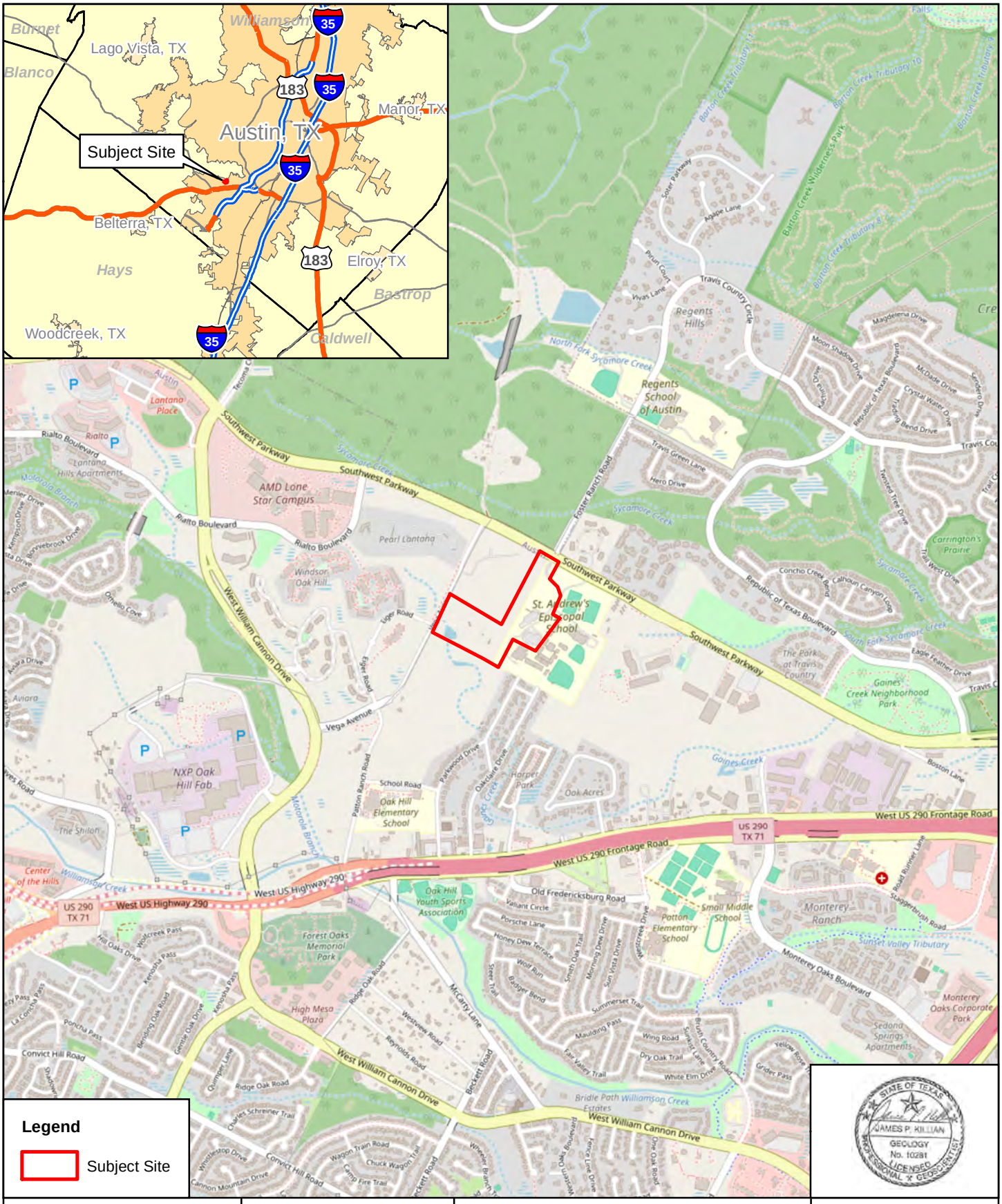
(UT-BEG) The University of Texas at Austin Bureau of Economic Geology; C.V. Proctor, Jr., T.E. Brown, J.H. McGowen, N.B. Waechter, and V.E. Barnes. *Geologic Atlas of Texas*, Austin Sheet. Francis Luther Whitney Memorial Edition. 1974; reprinted 1995.

Werchan L. E., A. C. Lowther, and Robert N. Ramsey. Soil survey of Travis County, Texas. US Department of Agriculture, Natural Resources Conservation Service (formerly Soil Conservation Service), in cooperation with the Texas Agricultural Experiment Station. 1974.

ATTACHMENT F

ADDITIONAL SITE MAPS



Date:	03/27/2024
Drawn:	TED
HJN NO:	22354.002GA
Source:	OSM, 2024

Attachment F, Figure 1

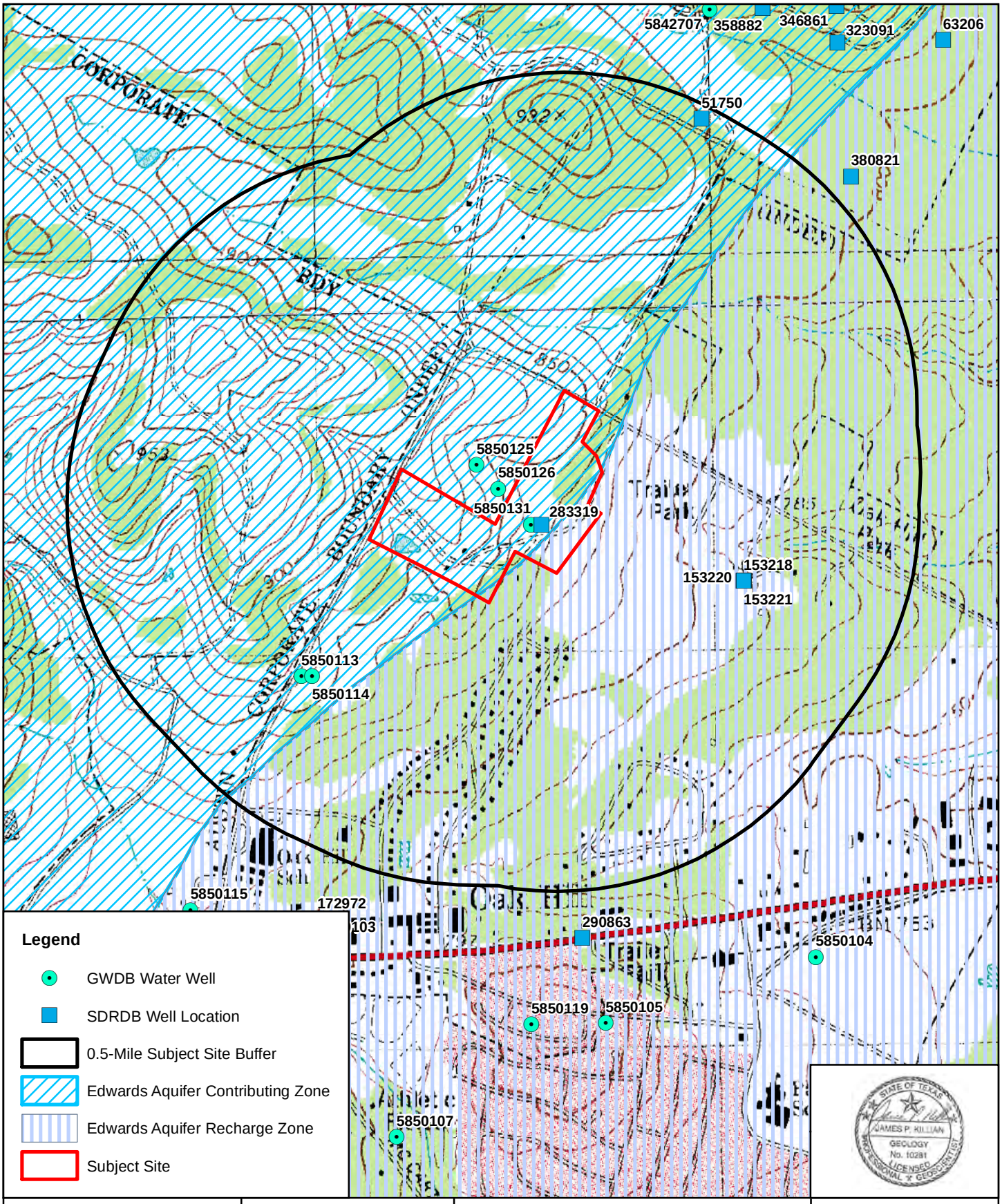
Vicinity Map
St. Andrew's School
5901 Southwest Parkway
Austin, Travis County, Texas

0 1,000 2,000
Feet

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon Environmental Services

22354--SASA_Fitness_Center\Graphics\22354-001GA_01A_Vicinity.mxd



STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon™ Environmental Services

Date:	03/27/2024
Drawn:	TED
HJN NO:	22354.002GA
Source:	TCEQ, 2024; TWDB, 2024; USGS, 1988

Attachment F, Figure 2

Topographic and Hydrogeologic Map
St. Andrew's School
5901 Southwest Parkway
Austin, Travis County, Texas

N

0 550 1,100
Feet

22354--SASA_Fitness_Center\Graphics\22354-001GA_02A_TopoHydro.mxd

JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST
STATE OF TEXAS

Horizon™
Environmental Services

Date:	03/27/2024
Drawn:	TED
HJN NO:	22354.002GA
Source:	COA, 2019; Nearmap, 2024

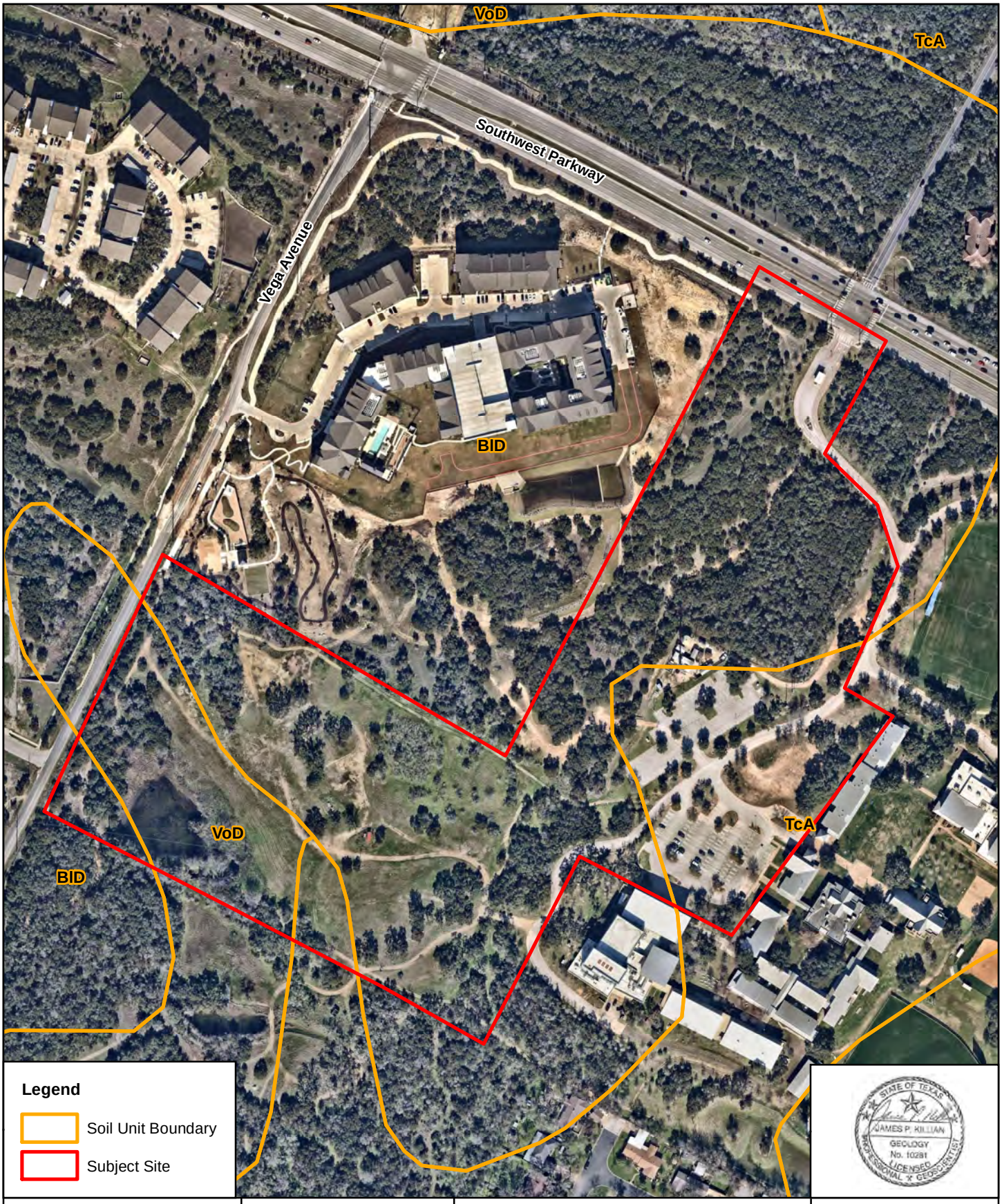
Attachment F, Figure 3

Topographic Map
St. Andrew's School
5901 Southwest Parkway
Austin, Travis County, Texas

N

0 150 300
Feet

22354--SASA_Fitness_Center\Graphics\22354-001GA_03A_Topo.mxd



Legend

Soil Unit Boundary

Subject Site

STATE OF TEXAS
JAMES P. KILLIAN
GEOLOGY
No. 10281
LICENSED
PROFESSIONAL GEOSCIENTIST

Horizon™ Environmental Services

Date:	03/27/2024
Drawn:	TED
HJN NO:	22354.002GA
Source:	Nearmap, 2024; NRCS, 2019

Attachment F, Figure 4

Site Soil Map
St. Andrew's School
5901 Southwest Parkway
Austin, Travis County, Texas

N

0 150 300

Feet

22354--SASA_Fitness_Center\Graphics\22354-001GA_04A_Soil.mxd

Horizon
Environmental Services

ATTACHMENT G

SITE PHOTOGRAPHS

Horizon
Environmental Services

PHOTO 1
Man-made feature M-1 (storm sewer manhole), facing northeast

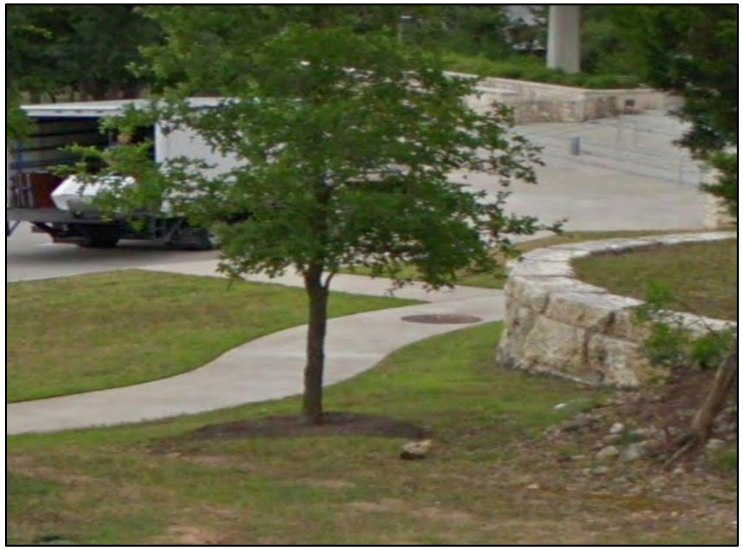


PHOTO 2
Man-made feature M-1 (storm sewer manhole), facing southwest

PHOTO 3
View of general site conditions

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

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

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

Signature

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

Print Name of Customer/Agent: Jonah Mankovsky, P.E.

Date: 2/14/2024

Signature of Customer/Agent:

Project Information

1. Current Regulated Entity Name: ST ANDREWS EPISCOPAL HIGH SCHOOL
   Original Regulated Entity Name: ST ANDREWS EPISCOPAL HIGH SCHOOL
   Regulated Entity Number(s) (RN): RN102763232
   Edwards Aquifer Protection Program ID Number(s): 11-10121501
   ☒ The applicant has not changed and the Customer Number (CN) is: CN601585078
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters**. A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☒ Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
   - ☒ Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
   - ☐ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☐ Physical modification of the approved organized sewage collection system;
   - ☐ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	73.456	73.456
Type of Development	Private School	Private School
Number of Residential Lots	0	0
Impervious Cover (acres)	13.77	15.16
Impervious Cover (%	18.74	20.63
Permanent BMPs	RETENTION/IRRIGATION	RETENTION/IRRIGATION
Other	_____	_____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	793 FT	0 FT
Pipe Diameter	6"	_____
Other	_____	Manholes/Cleanouts

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☒ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☐ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☒ Acreage has not been added to or removed from the approved plan.

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

Modification to Previously Approved Plan – Attachment A

Approved Original and Modification Letters

COPY

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 9, 2011

Mr. Silver Garza
St. Andrew's Episcopal School
1112 West 31st
Austin, Texas 78705

Re: Edwards Aquifer, Travis County
NAME OF PROJECT: St. Andrew's Episcopal High School; 5901 Southwest Parkway; Austin, Texas
TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAPMOD)
30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 11-10121501; Investigation No. 894478; Regulated Entity No. RN102763232

Dear Mr. Garza:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAPMOD application for the referenced project submitted to the Austin Regional Office by Bury+ Partners, Inc. on behalf of St. Andrew's Episcopal School on December 15, 2010. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The approved school project has an area of approximately 73.456 acres. The first phase of the master plan approved approximately 700,000 square feet including classrooms buildings, a chapel, gymnasium, and associated paved surfaces. This project included the construction of a retention/re-irrigation pond. The impervious cover is 16.07 acres (22 percent of the site).

The proposed modification for this school project has an area of approximately 73.456 acres. Approximately 1.054 acres will be disturbed for additional structures/rooftops and 1.327 acres will be disturbed for additional paved surfaces. This will include the construction of an additional retention/re-irrigation pond and expanding the existing retention/re-irrigation pond. The impervious cover will be 18.451 acres (25.24 percent of the site).

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, two retention/re-irrigation ponds designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be utilized to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 15,202 pounds of TSS generated from the 18.451 acres of impervious cover.

The individual treatment measures of the existing pond to be expanded Pond D-1 will consist of a total capture volume of 128,137 cubic feet of water and an irrigation area of 274,428 square feet.

The individual treatment measures of Pond D-2 will consist of a total capture volume of 103,825 cubic feet of water and an irrigation area of 170,314 square feet.

The approved measures meet the required 80 percent removal of the increased load in total suspended solids caused by the project.

GEOLOGY

According to the geologic assessment included with the application, the geologic unit is identified as the Edwards Formation. It consists of massive to thin bedded limestone and dolostones. It is characterized by honeycomb textures, collapse breccias and cavern systems, which account for most of the significant porosity within the strata that compose most of the aquifer. The Austin Regional Office site investigation of January 4,

2011, revealed that the site is generally as described by the geologic assessment. The site was accessed by the existing parking lot. Most of the site is covered by an existing school and the rest of the site is covered with cedar trees, oak trees, and grasses. There were no reported sensitive features on this site and none were observed during the investigation. One in use water well (S-7) and two abandoned in-ground cisterns (S-6 and S-8) were identified in the geologic assessment and are not proposed to be sealed.

SPECIAL CONDITIONS

I. The holder of the approved Edwards Aquifer WPAP must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the application.

II. Intentional discharges of sediment laden stormwater during construction are not allowed. If dewatering excavated areas and/or areas of accumulated stormwater becomes necessary, the discharge shall be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

III. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment.

IV. The wastewater service line from the proposed building to the existing wastewater line in Ramsay Street is considered to be a private service lateral. However, if there are any plans for the private service lateral from the future development of the area to the southwest of this site to be connected to this service line, the portion of this service line from the connection to the street will become a sewage collection system. Therefore, an organized sewage collection system application should be submitted to the TCEQ for executive director review and approval prior to commencing installation of the lateral.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

Prior to Commencement of Construction:

2. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.

3. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

4. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

5. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

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

<u>During Construction:</u>

7. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions

of this approval until such responsibility is legally transferred to another person or entity.

8. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

9. There is one known well on the site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.

10. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.

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

12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

<u>After Completion of Construction:</u>

13. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a

district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through the Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

14. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

15. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

16. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Mr. Jerrett Kramer of the Edwards Aquifer Protection Program of the Austin Regional Office at (512) 339-2929.

Sincerely,

Mark R. Vickery, P.G.
Executive Director
Texas Commission on Environmental Quality

MRV/wjk

Enclosures: Deed Recordation Affidavit, TCEQ-0625
Change in Responsibility for Maintenance on Permanent BMPs, TCEQ

cc: Ms. Kristi M. English, P.E., Bury+ Partners, Inc.
The Honorable Samuel T. Biscoe, County Judge, Travis County
Mr. Tom Ennis, Division Manager, Environmental Resources Management, City of Austin
Mr. Kirk Holland, P.G., General Manager, Barton Springs/Edwards Aquifer Conservation District
TCEQ Central Records

Change in Responsibility for Maintenance on Permanent Best Management Practices and Measures

The applicant is no longer responsible for maintaining the permanent best management practice (BMP) and other measures. The project information and the new entity responsible for maintenance is listed below.

Customer: _____

Regulated Entity Name: _____

Site Address: _____

City, Texas, Zip: _____

County: _____

Approval Letter Date: _____

BMPs for the project: _____

New Responsible Party: _____

Name of contact: _____

Mailing Address: _____

City, State: _____ Zip: _____

Telephone: _____ FAX: _____

_____ _____

Signature of New Responsible Party Date

I acknowledge and understand that I am assuming full responsibility for maintaining all permanent best management practices and measures approved by the TCEQ for the site, until another entity assumes such obligations in writing or ownership is transferred.

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

COPY

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 9, 2011

Mr. Silver Garza
St. Andrew's Episcopal School
1112 West 31st
Austin, Texas 78705

Re: Edwards Aquifer, Travis County
NAME OF PROJECT: St. Andrew's Episcopal High School; 5901 Southwest Parkway; Austin, Texas
TYPE OF PLAN: Request for Approval of a Sewage Collection System (SCS)
30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 11-10121502; Investigation No. 894478; Regulated Entity No. RN102763232

Dear Mr. Garza:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the SCS plans and specifications for the referenced project submitted to this office by Bury+ Partners, Inc. on behalf of St. Andrew's Episcopal School on December 15, 2010. As presented to the TCEQ, the construction documents were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213 and Chapter 317. Therefore, based on the Texas Licensed Professional Engineer's concurrence of compliance, the planning materials for construction of the proposed sewage collection system and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires (2) two years from the date of this letter unless, prior to the expiration date, more than 10 percent of construction has commenced, or an extension of time has been requested.*

A site investigation was conducted by Mr. Jerrett Kramer of the Austin Regional Office on January 4, 2011, to document the conditions at the site.

PROJECT DESCRIPTION

The proposed SCS consists of 793 linear feet of 8-inch diameter SDR 26 PVC pipe, six manholes, and appropriate appurtenances. The proposed SCS will provide disposal service for this school development. The system will be connected to the City of Austin wastewater line for conveyance to the existing South Austin Regional Wastewater Treatment Plant for treatment and disposal. The project is located within the City of Austin and will conform to all applicable codes, ordinances, and requirements of the City of Austin.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the project location shall be provided a copy of this notice of approval. At least one complete copy of the approved SCS plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.

5. Modification to the activities described in the referenced SCS application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

6. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48

hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved application, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

During Construction:

8. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213 and Chapter 317. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.

9. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.

10. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

11. The following records shall be maintained by the applicant and made available to the executive director upon request: the dates trenching 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 and completed.

12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

13. Intentional discharges of sediment laden stormwater during construction are not allowed. If dewatering of excavated areas becomes necessary, the discharge will be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, sit fence rings, etc.

14. No part of the system shall be used as a holding tank for a pump-and-haul operation.

After Completion of Construction:

15. Certification by a Texas Licensed Professional Engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 317 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines that were tested and are being certified as complying with the appropriate regulations.

16. Every five years after the initial certification, the sewage collection system shall be retested. Any lines that fail the test must be repaired and retested. Certification that the system continues to meet the requirements of 30 TAC Chapter 213 and Chapter 317 shall be submitted to the Austin Regional Office. The certification should include the project name as it appeared on the approved application, the program ID number and two copies of a site plan sheet(s) indicating the wastewater lines that were tested and are being certified as complying with the appropriate regulations.

17. If ownership of this organized sewage collection system is legally transferred (e.g., developer to city or Municipal Utility District), the new owner(s) is required

to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

18. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

If you have any questions or require additional information, please contact Mr. Jerrett Kramer of the Edwards Aquifer Protection Program of the Austin Regional Office at (512) 339-2929.

Sincerely,

Mark R. Vickery, P.G.
Executive Director
Texas Commission on Environmental Quality

MRV/wjk

cc: Ms. Kristi M. English, P.E., Bury+ Partners, Inc.
The Honorable Samuel T. Biscoe, County Judge, Travis County
Mr. Tom Ennis, Division Manager, Environmental Resources Management, City of Austin
Mr. Kirk Holland, P.G., General Manager, Barton Springs/Edwards Aquifer Conservation District
TCEQ Central Records

EXHIBIT A

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 18, 1998

Mr. John Works
St. Andrew's Episcopal School
1112 W. 31st Street
Austin, TX 78705

Re: Edwards Aquifer, Travis County
PROJECT NAME: ***St. Andrew's Episcopal High School***; Located on the South Side of Southwest Parkway Approximately 1370 Feet East of the Intersection of Vega Lane and Southwest Parkway; Austin, Texas.
TYPE OF PLAN: Request for Approval of Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213; Edwards Aquifer Protection Program; File No. 97102801

Dear Mr. Works:

The Texas Natural Resource Conservation Commission (TNRCC) has completed its review of the WPAP application for the referenced project that was submitted by Bury & Pittman, Inc. on behalf of St. Andrew's Episcopal High School to the Austin regional office on October 28, 1997. Final review of the WPAP submittal was completed after additional material was received on February 6, 1998. The water pollution abatement plan proposed in the application is in general compliance with 30 TAC Chapter 213; therefore, approval of the plan is hereby granted subject to applicable state rules and the conditions in this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed project consists of a private secondary school designed to accommodate 450 students on a 73.456 acre tract. The total impervious cover for the development will be 700,000 sq. ft., or approximately 22% of the gross site area. Project wastewater will be disposed of by conveyance to the existing South Austin Regional Wastewater Treatment Plant.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent pollution of stormwater originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, a reirrigation system will be constructed in accordance with the City of Austin's Environmental Criteria Manual.

GEOLOGY

According to the geologic assessment included with the submittal, several sensitive features are present on the project site. A site inspection was conducted by a representative of the Austin regional office on December 3, 1997, to document the conditions at the site. The inspection revealed the site to be generally as described in the geologic assessment.

STANDARD CONDITIONS

1. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.

2. Any modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a WPAP to amend this approval, including the payment of appropriate fees and all information necessary for its review and approval.

3. Prior to commencing any regulated activity, the applicant or his agent must notify the Austin regional office in writing of the date on which the regulated activity will begin.

4. The applicant or his agent shall record this WPAP approval in the county deed records within 30 days of receiving this notice of approval and prior to commencing any regulated activity at the project location. Proof of deed recordation shall be submitted to the Austin regional office. A suggested format that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.

6. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

7. If any sensitive feature is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin

regional office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potential adverse impacts to water quality.

8. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

9. Approval of the design of the sewage collection system for this proposed project shall be obtained from the TNRCC prior to commencement of construction of any sewage collection system.

10. Three (3) water wells exist on the site. Any abandoned wells shall be plugged in accordance with 30 TAC Chapter 238 or an equivalent method, as approved by the Executive Director.

    Any drill holes resulting from core sampling on-site or down-gradient of the site shall be plugged with native soil, from the bottom of the hole to the top of the hole, so as to not allow water or contaminants to enter the subsurface environment.

11. Pursuant to §26.136 of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

If you have any questions or require additional information, please contact Mr. Pat Hudson of the Edwards Aquifer Protection Program at the Austin regional office at (512) 339-2929.

Sincerely,

Dan Pearson
Executive Director
Texas Natural Resource Conservation Commission

DP/pgh

Enclosure: Deed Recordation Affidavit

cc: Mr. Paul J. Bury, III, P.E., Bury & Pittman, Inc.
Mr. Bill Couch, Barton Springs/Edwards Aquifer Conservation Dist.
Mr. Michael Heitz, Drainage Utilities Division, City of Austin
The Honorable Bill Aleshire, County Judge, Travis County
Ms. Rosalinda Escalón, Field Operations Division, TNRCC

REAL PROPERTY RECORDS
TRAVIS COUNTY, TEXAS

13139 0439

ATTACHMENT B

NARRATIVE OF PROPOSED MODIFICATION

St. Andrew's Episcopal High School is located at 5901 Southwest Parkway within the full purpose jurisdiction of Austin, Travis County, Texas. The site was originally developed in 1998 with the construction of classrooms, a chapel, gymnasium, sports fields and associated parking and drive aisles. With the original development, Bury+Partners, Inc. completed a WPAP and SCS reports which were approved.

The proposed improvements are located within the original 73.456 acre tract which lies within the Barton Creek Watershed and the Edwards Aquifer Recharge Zone. The proposed improvements consist of three (3) buildings including 31,655 square feet (SF) of a Performing Arts Building and 12,345 SF of classrooms with associated drive aisles. A modification to the original WPAP is required because the configuration of the proposed buildings (that were not constructed with the original site) have changed since the original application/approval. A new SCS application is included for the new wastewater service line that will be construction with this development. The wastewater improvements for this site include a new connection to an existing City of Austin system and therefore a new SCS application is required.

Water Pollution Abatement Plan Modification

The original WPAP for St. Andrew's Episcopal High School was approved for a drainage area of 73.456 acres at 22% impervious cover. The existing onsite retention/re-irrigation pond provides 128,137 cubic feet of treatment and currently treats 29.73 acres at 28.52% impervious cover. The second retention/re-irrigation pond was approved with the original WPAP permit however was never constructed due to the portion of the site that would drain to it not being constructed with the original site improvements. The second retention/re-irrigation pond (proposed with this modification) provides 99,588 cubic feet of treatment and will treat 23.18 acres at 32.00% impervious cover. This second pond is oversized for the impervious cover currently proposed within this WPAP Modification; however it will treat the remaining 93,524 square feet of impervious cover that can be built out on the site in the future.

The existing onsite detention pond will be expanded to provide the required detention for the full 73.456 acres at 22% impervious cover.

Modification to Previously Approved Plan – Attachment B

Narrative of Proposed Modification

ATTACHMENT B – NARRATIVE OF PROPOSED MODIFICATION

St. Andrew's Episcopal High School is located at 5901 Southwest Parkway within the full purpose jurisdiction of Austin, Travis County, Texas. The proposed improvements are located within the original 73.456 acre tract which lies within the Barton Creek Watershed and the Edwards Aquifer Recharge Zone. The site was originally developed in 1998 with the construction of classrooms, a chapel, gymnasium, sports fields and associated parking and drive aisles. With the original development, Bury+Partners, Inc. completed WPAP and SCS reports, both of which were approved.

The original WPAP for St. Andrew's Episcopal High School was approved for a drainage area of 73.456 acres at 22% impervious cover. The existing onsite retention/re-irrigation pond provided 128,137 cubic feet of treatment and treated 29.73 acres at 28.52% impervious cover. The second retention/re-irrigation pond which was approved with the 2011 modification provided 99,588 cubic feet of treatment and can treat 23.18 acres at 32.00% impervious cover. A WPAP modification was approved in 2011. The improvements consisted of three (3) buildings including 31,655 square feet (SF) of a Performing Arts Building and 12,345 SF of classrooms with associated drive aisles. The detention pond was expanded in 2011 to provide the required detention for the full 73.456 acres at 22% impervious cover.

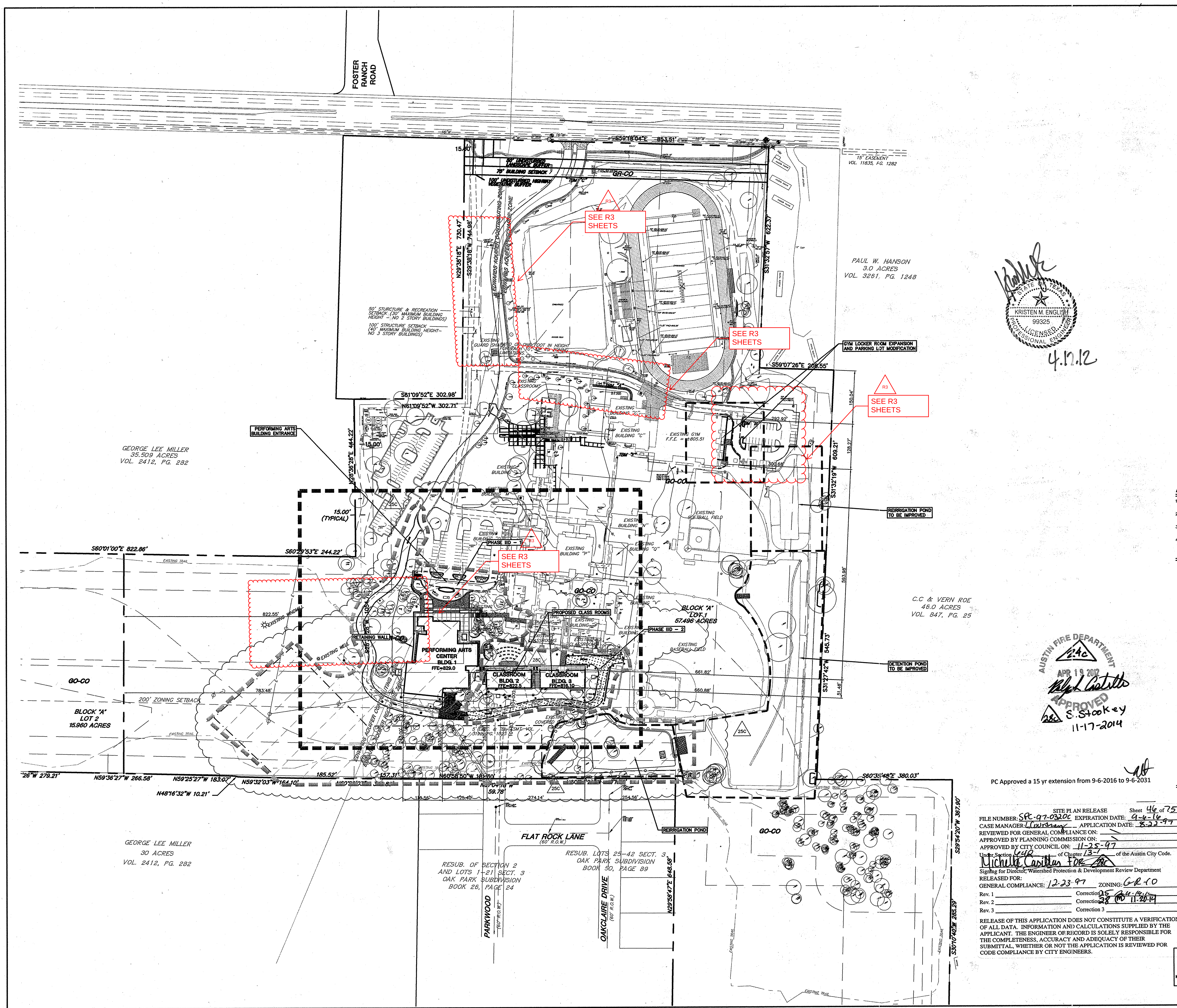
The SCS was approved in 2011. According to the approval letter, the SCS consisted of 793 linear feet of 8inch diameter SDR 26 PVC pipe, six manholes, and appropriate appurtenances. The SCS provide disposal service for the school development. The system connects to the City of Austin wastewater line for conveyance to the existing South Austin Regional Wastewater Treatment plan for treatment and disposal.

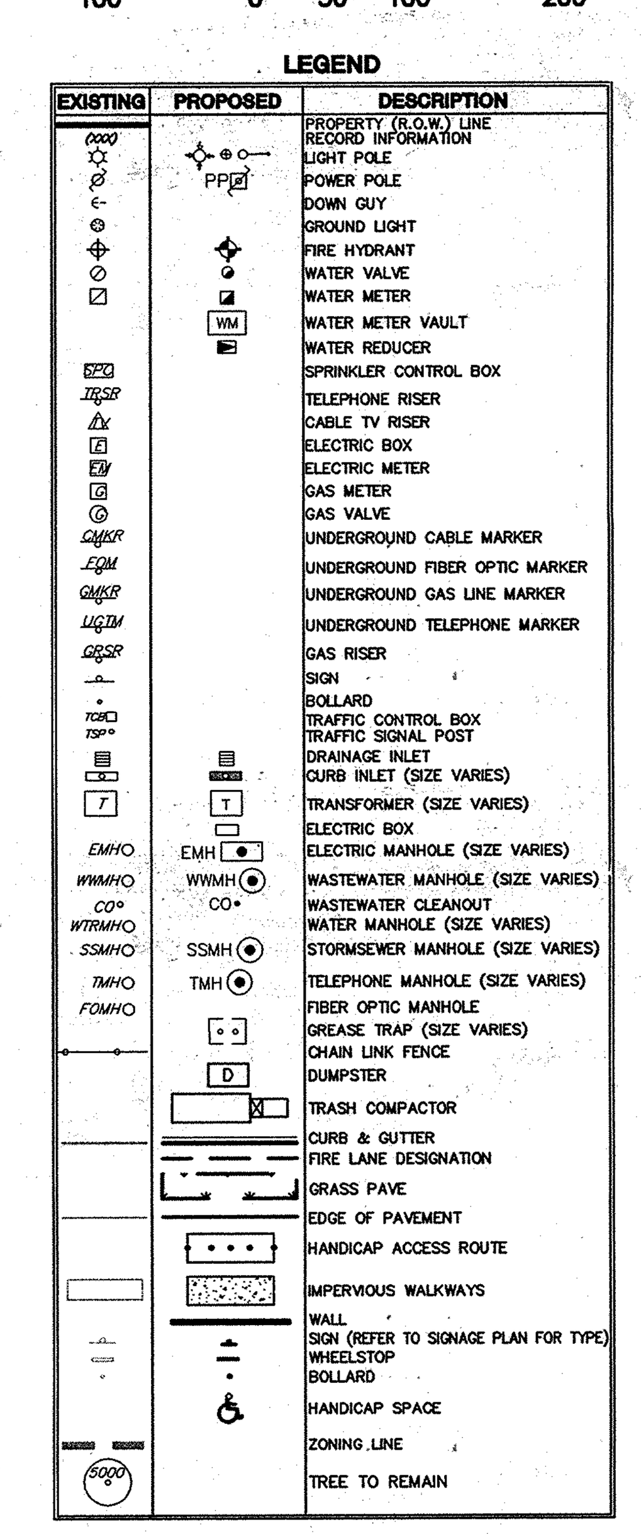
The project scope includes the demolition of an existing parking lot and the addition of a new wellness center building and associated parking, for a total square footage of approximately 60,548 SF. This will produce an overall increase in impervious cover of approximately 1.39 acre, for a total of 15.16 Acre. A modification to the original WPAP is required to account for the addition of a new wellness center. Based on our calculations, the existing detention pond is sufficient to accommodate the increase in impervious cover.

A modified SCS application is also included. Per the revised plans, approximately 225 LF of existing 6” wastewater line will be removed and replaced. A new wastewater manhole will be added to the configuration, connecting the existing line to proposed. Two cleanouts will connect the proposed wellness center to the existing 6” line.

Modification to Previously Approved Plan – Attachment C

Approved Site Plan





ACCESSIBILITY NOTES

1. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP. [TAS 4.3.7]
2. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30 IN. [TAS 4.8.2]
3. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50. [TAS 4.3.7]
4. GROUND SURFACES ALONG ACCESSIBLE ROUTES MUST BE STABLE, FIRM, AND SLIP RESISTANT. [TAS 4.5.1]

NOTES

1. ALL RADII PARKING DIMENSIONS ARE 2.50' TO THE BACK OF THE CURB UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS TO CURBS ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.
3. ALL DRIVEWAYS ARE CITY OF AUSTIN TYPE II COMMERCIAL DRIVEWAYS.
4. CONTRACTOR TO SEE LANDSCAPE ARCHITECT AND BUILDING ARCHITECT PLANS FOR DETAILS AND SPECIFICATIONS FOR SITE SIDEWALKS AND SIDEWALKS ADJACENT TO BUILDINGS.
5. WATER AND WASTEWATER SERVICE WILL BE PROVIDED BY AUSTIN WATER UTILITY.
6. FOR CONSTRUCTION WITHIN THE RIGHT-OF-WAY, A RIGHT-OF-WAY EXCAVATION PERMIT IS REQUIRED.
7. ALL PAVEMENT MARKINGS SHALL MEET CITY OF AUSTIN SPECIFICATION 860S.
8. ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE RELEASED SITE PLAN. ANY ADDITIONAL IMPROVEMENTS WILL REQUIRE SITE PLAN AMENDMENT AND APPROVAL OF THE PLANNING AND DEVELOPMENT REVIEW DEPARTMENT.
9. APPROVAL OF THIS SITE PLAN DOES NOT INCLUDE BUILDING AND FIRE CODE APPROVAL NOR BUILDING PERMIT APPROVAL.
10. ALL SIGNS MUST COMPLY WITH REQUIREMENTS OF THE LAND DEVELOPMENT CODE (CHAPTER 25-10).
11. ALL EXISTING STRUCTURES SHOWN TO BE REMOVED WILL REQUIRE A DEMOLITION PERMIT FROM THE CITY OF AUSTIN PLANNING AND DEVELOPMENT REVIEW DEPARTMENT.
12. A DEVELOPMENT PERMIT MUST BE ISSUED PRIOR TO AN APPLICATION FOR BUILDING PERMIT FOR NON-CONSOLIDATED OR PLANNING COMMISSION APPROVED SITE PLANS.
13. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, SUCH AS A 6" CONCRETE CURB ARE REQUIRED. IF A STANDARD 6" CURB AND GUTTER ARE NOT PROVIDED FOR ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, COMPLY WITH ECM, SECTION 2.4.7, "PROTECTION OF LANDSCAPE AREAS".
14. ALL EXTERIOR LIGHTING WILL BE FULL CUT-OFF AND FULLY SHIELDED IN COMPLIANCE WITH SUBCHAPTER E 2.5. ALL SITE LIGHTING TO BE LOCATED ON THE BUIDING WILL BE IN COMPLIANCE WITH SUBCHPATER E 2.5, AND WILL BE REVIEWED DURING BUILDING PLAN REVIEW. ANY CHANGE OR SUBSTITUTION OF LAMP/LIGHT FIXTURES SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL IN ACCORDANCE WITH SECTION 2.5.2.E.
15. SCREENING FOR SOLID WASTE COLLECTION AND LOADING AREAS SHALL BE THE SAME AS, OR OF EQUAL QUALITY TO, PRINCIPAL BUILDING MATERIALS.

PAVING NOTES

1. CONTRACTOR TO REFER TO GEOTECHNICAL RECOMMENDATIONS FOR PAVING DESIGN. TERRACON PROJECT #96105107 DATED AUGUST 31, 2010. CONTRACTOR IS ALSO RESPONSIBLE TO VERIFY THAT THE REPORT HAS NOT BEEN MODIFIED PRIOR TO CONSTRUCTION.

PC Approved a 15 yr extension from 9-6-2016 to 9-6-2031

SITE PLAN RELEASE Sheet 46 of 75
FILE NUMBER: SPC-97-0320C EXPIRATION DATE: 9-6-16
CASE MANAGER: L. Courtney APPLICATION DATE: 8-22-97
REVIEWED FOR GENERAL COMPLIANCE ON: —
APPROVED BY PLANNING COMMISSION ON: —
APPROVED BY CITY COUNCIL ON: 11-25-97
Under Section 64R of Chapter 13-1 of the Austin City Code.
Michelle Casillas FOR
Signing for Director, Watershed Protection & Development Review Department
RELEASED FOR:
GENERAL COMPLIANCE: 12-23-97 ZONING: GR-CO
Rev. 1 ______ Correction 25 4.19.12
Rev. 2 ______ Correction 28 11.20.14
Rev. 3 ______ Correction 3 ______

RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA. INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF THEIR SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY CITY ENGINEERS.

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

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

DATE	NO.	REVISION	APPROVAL
10/23/14	28C	ADDED AMPHITHEATER AND DG FOOTPATH	
04/17/12	25C	ADDED PHASE IIID-1 AND IIID-2 LINES	

Bury+Partners
ENGINEERING SOLUTIONS
221 West Sixth Street, Suite 600
Austin, Texas 78701
Tel. (512)328-0011 Fax (512)328-0325
TBPE Registration Number F-1048

PHASE IIID - MASTER SITE PLAN

ST ANDREWS EPISCOPAL HIGH SCHOOL
5901 SOUTHWEST PARKWAY, AUSTIN, TX.
ST. ANDREW'S EPISCOPAL SCHOOL

DRAWN BY: ML, LC, SE
DESIGNED BY: KME
REVIEWED BY: KME
PROJECT NO.: ----

SHEET 46 OF 75

REPLACEMENT SHEET SPC-97-0320C

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

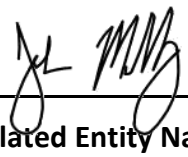
Signature

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

Print Name of Customer/Agent: Jonah Mankovsky, P.E.

Date: 02/14/2024

Signature of Customer/Agent:



Regulated Entity Name: ST ANDREWS EPISCOPAL HIGH SCHOOL

Regulated Entity Information

1. The type of project is:

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

2. Total site acreage (size of property):73.456

3. Estimated projected population:_____

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	35626	÷ 43,560 =	0.71
Parking	21466	÷ 43,560 =	0.47
Other paved surfaces	10973	÷ 43,560 =	0.21
Total Impervious Cover	57092	÷ 43,560 =	1.39

Total Impervious Cover 1.39 **÷ Total Acreage** 73.456 **X 100 =** 1.8**% Impervious Cover**

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

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

For Road Projects Only

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

7. Type of project:

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

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

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

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

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	613087 Gallons/day
_____% Industrial	_____ Gallons/day
_____% Commingled	_____ Gallons/day

TOTAL gallons/day 613087

15. Wastewater will be disposed of by:

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

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

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

☒ Sewage Collection System (Sewer Lines):

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

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

☒ The SCS was previously submitted on 12/15/2010.

☒ The SCS was submitted with this application.

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

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

☒ Existing.
☐ Proposed.

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 30'.

18. 100-year floodplain boundaries:

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

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

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

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

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

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

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

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

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

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

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

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

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

26. ☐ Surface waters (including wetlands).

    ☒ N/A

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

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

28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

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

WPAP Application – Attachment A

Factors Affecting Surface Water Quality

ATTACHMENT A – FACTORS AFFECTING SURFACE WATER QUALITY

Factors affecting surface water quality include oils, grease, and other substances typically associated with driving areas. The surface runoff will be treated as required by City of Austin Environmental regulations, in addition to TCEQ regulations for projects located over the Edwards Aquifer Recharge Zone.

The proposed development consists of a proposed building totaling approximately 35,626 square feet and an expansion on associated surface parking. The development will increase the impervious cover of the site, therefore, increasing the peak flow runoff on the site. The existing detention and irrigation ponds will be used to accommodate the increase in runoff without increasing the overall flow rate for the drainage basin.

The water quality pond proposed meets requirements for TCEQ water quality measures over the Edwards Aquifer Recharge Zone and the requirements of the City of Austin's Environmental Criteria Manual.

WPAP Application – Attachment B

Volume and Character of Stormwater

ATTACHMENT B – VOLUME AND CHARACTER OF STORMWATER

Water quality for this site is accounted for the sedimentation filtration pond existing on site. The pond meets TCEQ's current requirements for BMPs located within the Edward's Aquifer Recharge Zone.

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: _____

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: _____
   Entity: St. Andrew's Episcopal School
   Mailing Address: 5901 Southwest Parkway
   City, State: Austin, Texas Zip: 78735
   Telephone: (512) 299-9700 Fax: _____
   Email Address: _____
   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: Jonah Mankovsky
   Texas Licensed Professional Engineer's Number: 110095
   Entity: GarzaEMC
   Mailing Address: 9442 North Capital of Texas Highway. Plaza 1, Ste. 340
   City, State:Austin, Texas Zip: 78759
   Telephone:(512) 298-3284 Fax:_____
   Email Address:jmankovsky@garzaemc.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: _____
   ☐ Multi-family: Number of residential units: _____
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☒ Other: Private School

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

   100% Domestic — 613087 gallons/day
   _____% Industrial — _____ gallons/day
   _____% Commingled — _____ gallons/day

   Total gallons/day: 613087

6. Existing and anticipated infiltration/inflow is 3744 gallons/day. This will be addressed by: pipe sizing adjustments.

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 _____, 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)*
6"	222	PVC	Pipe to replace existing, no new pipe to be added.

Total Linear Feet: 222 LF to replace existing

(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 South Austin Regional WWTP (name) Treatment Plant. The treatment facility is:

☒ Existing
☐ Proposed

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

☒ The City of Austin 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?*
6" PVC	95 Of 107	0+00	Manhole
6" PVC	95 Of 107	0+00	Cleanout
	Of		
	Of		
	Of		
	Of		

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	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" = 20'.

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***
DNA	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***
DNA	of	to
	of	to
	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*
DNA				

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*
DNA			

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*
DNA			

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]**	97 of 107
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	97 of 107
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	97 of 107
Typical trench cross-sections **[Required]**	97 of 107
Bolted manholes **[Required]**	97 of 107
Sewer Service lateral standard details **[Required]**	97 of 107
Clean-out at end of line **[Required, if used]**	97 of 107
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	of
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	of
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	of

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	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: Jonah Mankovsky, P.E.

Date: 3/22/2024

Place engineer's seal here:

Signature of Licensed Professional Engineer:

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
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)

SCS Application – Attachment A

Engineering Report

Engineering Design Report

For

St Andrew's Episcopal School
Organized Sewage Collection System

February 19, 2024

Prepared By:
Garza EMC
7708 Rialto Blvd, Suite 125
Austin, Texas 78735
TBPE Registration Number F14629

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ATTACHMENTS

PVC PIPE STANDARDS

The American Society for Testing and Materials (ASTM) also known as ASTM International (Reference: www.astm.org) governs the manufacturing specifications for Polyvinyl Chloride (PVC) pipes, including the dimension ratio and water pressure allowable for use of each pipe, through its D-3034 standard. ASTM D-3034 lists its pipe dimensions and pipe classes using the "SDR" mark up, such as SDR-13.5, SDR-21, SDR-26 and SDR-41. The SDR refers to the standard dimension ratio (SDR) of the outside pipe diameter and the wall thickness. This project specifies the use of SDR-26 PVC pipe, which are to meet the ASTM pressure rating of 160 psi and fall in the size category listed below. ASTM D-3034 standards must be meticulously adhered to by all PVC pipe manufacturers and is recognized as the standard during PVC pressure pipe testing and quality checks. Other in-depth information can be found published in Thermoplastic Pressure Pipe Design and Selection UNI-TR-7, by the Uni-Bell PVC Pipe Association.

SDR 26 Pipe Size Matrix (Per ASTM D-3034)			
Size (in)	**O.D. (in)**	**Avg I.D. (in)**	**Thickness (in)**
4	4.125	3.891	0.162
6	6.275	5.793	0.241
8	8.4	7.754	0.323
10	10.5	9.692	0.404
12	12.5	11.538	0.481
15	15.3	14.124	0.588

PROPOSED TYPE OF PIPE (6")

Type I, Grade I, Polyvinyl Chloride (PVC) Specifications:
Size of Pipe: 6.00 in.

SDR 26 Properties	
Pipe Compliance:	ASTM D-3034
Joint Compliance:	ASTM D-3139
Cell Classification:	12454
Minimum Tensile Strength (psi):	7,000
Minimum Modulus of Elasticity (psi):	400,000
Average Inner Diameter (inch):	7.921
Average Outer Diameter inch):	8.625
Wall Thickness (inch):	0.332
Approximate Trenching Width (feet):	2.25
Minimum Pipe Depth (Cover) used (feet):	6.50
Maximum Pipe Depth (Cover) used (feet):	14.40

FLOW/CAPACITY ANALYSIS

For the Proposed Project:

Proposed Wastewater Usage: 613087 GPD

Q_{max} (As determined in Attachment A) = 0.92 CFS

$$Q_{full} = \frac{1.486}{n} \times A \times R^{\frac{2}{3}} \times \sqrt{S}$$

For the Specified Pipe at the Minimum Design Slope, the full flow is

Q_{full} = 4.91 CFS

0.92 < 4.91 cfs
Design meets TCEQ Guidelines

MINIMUM AND MAXIMUM GRADES FOR PIPES (30 TAC §217.53(l)(2)(A))
(6")

Minimum and Maximum Pipe Slopes		
Size of Pipe	Minimum Slope (%)	Maximum Slope (%)
6	0.5	12.35
8	0.33	8.4
10	0.25	6.23
12	0.2	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.3
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 pipes larger than 39 inches in diameter, the slope is determined by Manning's formula to maintain a velocity greater than 2.0 feet per second and less than 10.0 feet per second when flowing full.		

MINIMUM AND MAXIMUM VELOCITY FOR THE PROPOSED SYSTEM:
(6")

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

So, using 6.00 inch PVC Pipe:

V = velocity (ft/sec) = (solve)

n = Manning's coefficient = 0.013

R_h = hydraulic radius = 0.127

S = slope (ft/ft)

Minimum Slope Used (%): 1.85

Maximum Slope Used (%): 7.50

V_{min} = 3.91 ft/sec

V_{max} = 7.87 ft/sec

3.91 > 2.00 ft/sec

7.87 < 10.00 ft/sec

Design meets TCEQ Guidelines

Design meets TCEQ Guidelines

AVERAGE VALUES OF MODULUS OF SOIL REACTION, E'

Soil type-pipe bedding material (Unified Classification System)	E' for Degree of Compaction of Bedding, in pounds per square inch			
	Dumped	Slight <85% Proctor, <40% relative density	Moderate 85%-95% Proctor, 40%-70% relative density	High, >95% Proctor, >70% relative density
(1)	(2)	(3)	(4)	(5)
Fine-grained Soils (LL>50[b]) Soils with medium to high plasticity CH, MH, CH-MH	No data available; consult a competent soils engineer; Otherwise use E'=0			
Fine-grained Soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL,with less than 25% coarse-grained particles	50	200	400	1000
Fine-grained Soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL,with more than 25% coarse-grained particles	100	400	1000	2000
Coarse-grained Soils with Fines GM, GC, SM, SC[c] contains more than 12% fines				
Coarse-grained Soils with Little or no Fines GW, GP, SW, SP[c] contains less than 12% fines	200	1000	2000	3000
Crushed Rock	1000	3000	3000	3000
Accuracy in Terms of Percentage Deflection	± 2	± 2	± 1	± 0.5

Taken from: Howard, Amster K. "Soil Reaction for Buried Flexible Pipe"
U.S. Bureau of Reclamation, Denver, CO and the American Society of Civil Engineers.

Modulus of Soil Reaction for the in-situ soil is determined to be = 2000 psi

PIPE BEDDING CLASS

Taken from the American Society for Testing and Material (ASTM) D 2321 and American Association of State Highway and Transportation Officials (AASHTO) M43, and as published on Table 7, in Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pg 24.

Pipe Embedment Material						E', psi (kPa) for Degree of Embedment Compaction				
ASTM D 2321*		ASTM D 2487		AASHTO M43 Notation	Min. Std. Proctor Density (%)	Lift Placement Depth	Dumped	Slightly < 85%	Moderate 85% - 95%	High > 95%
Class	Description	Notation	Description							
IA	Open-graded, clean manufactured aggregates	N/A	Angular crushed stone or rock, crushed gravel, crushed slag; large voids with little or no fines	5 56	Dumped	18" (0.45 m)	1000 (6,900)	3000 (20,700)	3000 (20,700)	3000 (20,700)
IB	Dense-graded, clean manufactured, processed aggregates	N/A	Angular crushed stone or other Class IA material and stone/sand mixtures; little or no fines							
II	Clean, coarse-grained soils	GW	Well-graded gravel, gravel/sand mixtures; little or no fines	57 6 67	85%	12" (0.30 m)	N/R	1000 (6,900)	2000 (13,800)	3000 (20,700)
		GP	Poorly graded gravel, gravel/sand mixtures; little or no fines							
		SW	Well-graded sands, gravelly sands; little or no fines							
		SP	Poorly graded sands, gravelly sands; little or no fines							
III	Coarse-grained soils with fines	GM	Silty gravels, gravel/sand/silt mixtures	Gravel and sand with <10% fines	90%	9" (0.20 m)	N/R	N/R	1000 (6,900)	2000 (13,800)
		GC	Clayey gravels, gravel/sand/clay mixtures							
		SM	Silty sands, sand/silt mixtures							
		SC	Clayey sands, sand/clay mixtures							

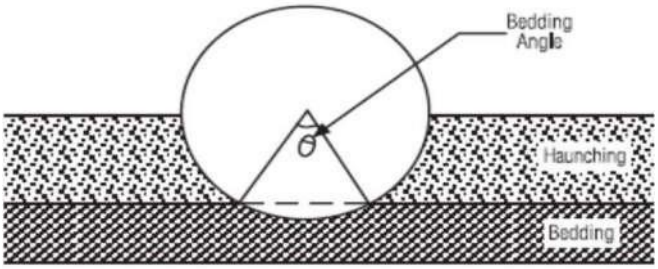
NOTE:

Per TCEQ guidelines, a contractor is allowed to use ASTM D 2321 Bedding Class 1A, 1B, II, or III at no less than 85% percent compaction. To grant the contractor its ability to make the proper judgment of which bedding class to use, the calculations provided in this Engineering Design Report reflect the use of Bedding Class III, at 85%-95% compaction, with an E' value of 1000 psi. This provides the "worst case" scenario for the SCS line. All other Bedding Class options will provide an improved value for the zeta factor as well as pipe deflection.

For Bedding Class III, 85%-95% Compaction, E_b = 1000 psi

PIPE BEDDING ANGLE

As Published on Figure 8 and Table 5, in Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pgs 18-19.



Bedding Constant Values

Bedding Angle, degrees	Bedding Constant
0	0.110
30	0.108
45	0.105
60	0.102
90	0.096
120	0.090
180	0.083

LIVE LOAD DETERMINATION

Source: AASHTO H20 and E80 Loads and as Published on Table 4, in Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pg 14.

Height of Cover (ft)	Live Load Transferred to Pipe, lb/in²			Height of Cover (ft)	Live Load Transferred to Pipe, lb/in²		
	Highway H20[1]	Railway E80[2]	Airport [3]		Highway H20[1]	Railway E80[2]	Airport [3]
1	12.50			14	*	4.17	3.06
2	5.56	26.39	13.14	16	*	3.47	2.29
3	4.17	23.61	12.28	18	*	2.78	1.91
4	2.78	18.40	11.27	20	*	2.08	1.53
5	1.74	16.67	10.09	22	*	1.91	1.14
6	1.39	15.63	8.79	24	*	1.74	1.05
7	1.22	12.15	7.85	26	*	1.39	*
8	0.69	11.11	6.93	28	*	1.04	*
10	*	7.64	6.09	30	*	0.69	*
12	*	5.56	4.76	35	*	*	*
				40	*	*	*

[1] Simulates 20 ton truck + impact
[2] Simulates 80,000 lb/ft railway load + impact
[3] 180,000 lbs. dual tandem gear assembly. 26 inch spacing between tires and 66 inch center-to-center spacing between fore and aft tires under a rigid pavement 12 inches thick + impact.
* Negligible live load influence

PRISM LOAD DETERMINATION

Also referred to as the 'dead' load, the prism load is the pressure acting on the pipe by the weight of the soil column above a given section of the pipe. The following prism load columns are industry standards as referenced from Table 3, Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association, Pg 13.

Table 3
Prism Load Soil Pressure (lbs/in²)

Height of Cover (ft)	Soil Unit Weight (lb/ft³)				
	100	110	120	125	130
1	0.69	0.76	0.83	0.87	0.90
2	1.39	1.53	1.67	1.74	1.81
3	2.08	2.29	2.50	2.60	2.71
4	2.78	3.06	3.33	3.47	3.61
5	3.47	3.82	4.17	4.34	4.51
6	4.17	4.58	5.00	5.21	5.42
7	4.86	5.35	5.83	6.08	6.32
8	5.56	6.11	6.67	6.94	7.22
9	6.25	6.88	7.50	7.81	8.13
10	6.94	7.64	8.33	8.68	9.03
11	7.64	8.40	9.17	9.55	9.93
12	8.33	9.17	10.00	10.42	10.83
13	9.03	9.93	10.83	11.28	11.74
14	9.72	10.69	11.67	12.15	12.64
15	10.42	11.46	12.50	13.02	13.54
16	11.11	12.22	13.33	13.89	14.44
17	11.81	12.99	14.17	14.76	15.35
18	12.50	13.75	15.00	15.63	16.25
19	13.19	14.51	15.83	16.49	17.15
20	13.89	15.28	16.67	17.36	18.06
21	14.58	16.04	17.50	18.23	18.96
22	15.28	16.81	18.33	19.10	19.86
23	15.97	17.57	19.17	19.97	20.76
24	16.67	18.33	20.00	20.83	21.67
25	17.36	19.10	20.83	21.70	22.57
26	18.06	19.86	21.67	22.57	23.47
27	18.75	20.63	22.50	23.44	24.38
28	19.44	21.39	23.33	24.31	25.28
29	20.14	22.15	24.17	25.17	26.18
30	20.83	22.92	25.00	26.04	27.08
31	21.53	23.68	25.83	26.91	27.99
32	22.22	24.44	26.67	27.78	28.89
33	22.92	25.21	27.50	28.65	29.79
34	23.61	25.97	28.33	29.51	30.69
35	24.31	26.74	29.17	30.38	31.60
36	25.00	27.50	30.00	31.25	32.50
37	25.69	28.26	30.83	32.12	33.40
38	26.39	29.03	31.67	32.99	34.31
39	27.08	29.79	32.50	33.85	35.21
40	27.78	30.56	33.33	34.72	36.11
41	28.47	31.32	34.17	35.59	37.01
42	29.17	32.08	35.00	36.46	37.92
43	29.86	32.85	35.83	37.33	38.82
44	30.56	33.61	36.67	38.19	39.72
45	31.25	34.38	37.50	39.06	40.63
46	31.94	35.14	38.33	39.93	41.53
47	32.64	35.90	39.17	40.80	42.43
48	33.33	36.67	40.00	41.67	43.33
49	34.03	37.43	40.83	42.53	44.24
50	34.72	38.19	41.67	43.40	45.14

Note that the Prism Loads are calculated based upon the Marston Theory of Loads, developed by Professor Anson Marston, circa 1913, and is calculated using the formula:

$$P = \frac{\gamma_s * H}{144}$$

This formula determines the earth load on a flexible pipe and is regarded as a conservative approach to determining the dead load placed upon a buried flexible pipe.

BUCKLING PRESSURE (ALLOWABLE)

(6")

Where:	q_a	=	Allowable buckling pressure (psi)		
	h	=	Height of soil surface above top of pipe (in)		
	H	=	Depth of burial, feet, from ground surface to top of pipe		
	B'	=	Empirical coefficient of elastic support		
	E_b	=	Modulus of soil reaction for the bedding material (psi)		
	E	=	Modulus of elasticity of the pipe material (psi)		
	I	=	Moment of inertia of the pipe, per linear inch of pipe (in^3)		
	t	=	Pipe wall thickness (in)		
	D	=	Mean pipe diameter, inner (in)	D =	6.084

Solving for the Empirical coefficient of elastic support, given by Luscher in 1966, as referenced on Pg 113 of Moser, A.P., Buried Pipe Design. 2nd Ed., McGraw-Hill:

$$B' = \frac{4(h^2 + Dh)}{1.5(2h + D)^2}$$

$$B' = \frac{800.74}{1256.63} = 0.637$$

Using the Allowable Buckling Pressure Equation as shown in Moser, A.P., Buried Pipe Design. 2nd Ed., McGraw-Hill, Pg 112, and an initial factor of safety (SF) of 2.5, the Allowable Buckling Pressure is then:

$$q_a = \frac{1}{FS} * \sqrt{32 * R_w * B' * E_b * \left(E * \frac{I}{D^3} \right)}$$

$$q_a = \frac{1}{2.5} \sqrt{\left[32 \right]\left[1 \right]\left[0.637 \right]\left[1000 \right]\left[400000 \ \frac{0.001}{225.20} \right]}$$

$$q_a = \mathbf{89.48} \quad \mathbf{psi}$$

BUCKLING PRESSURE (INSTALLED CONDITION)

(6")

Where:	q_P	=	Pressure applied to pipe under installed conditions (psi)
	γ_W	=	Specific Weight of Water = 0.0361 (pci)
	γ_S	=	Specific Weight of Soil (pcf)
	W_c	=	Vertical Soil Load on the pipe per unit length (lb/in)
	L_L	=	Live load as determined from chart

Standard industry vertical soil load (W_c) calculation (lb/in) developed from empirical data:

$$W_c = \gamma_s * H * \left(\frac{D + t}{144} \right)$$

Where: γ_S = 130 D = 6.084 t = 0.255

$$W_C = \left[130 \right] \left[11.43 \right] \left[\frac{6.084 + 0.255}{144} \right]$$

$$W_C = 65.41 \text{ lb/in}$$

Using the Equation on Pg 114 of Moser, A.P., Buried Pipe Design. 2nd Ed., McGraw-Hill, Pressure Applied to Pipe under installed conditions at its deepest installed depth (Note, hw = 0, therefore Rw = 1) is calculated to be:

$$q_p = \gamma_w h_w + R_w \left(\frac{W_c + L_L}{D} \right)$$

$$q_P = 62.4 \times 0 + 1 \times \left[\frac{65.41}{6.084} \right]$$

$$q_P = 10.75 \text{ psi}$$

Note: The Buckling pressure under installed conditions is less than the Allowable Buckling Pressure of the specified pipe, (i.e.. $q_a > q_p$) therefore the design is acceptable for installation.

WALL CRUSHING CALCULATION

(6")

Where:	D_o	=	outside pipe diameter, in. =	6.625 in
	P_c	=	Compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.	
	A	=	surface area of the pipe wall, in. /ft =	0.255 in. /ft
	γ_s	=	specific weight of soil, pcf, =	130 pcf
	H	=	Depth of burial (ft) from ground surface to crown of pipe	

Using the Wall Crushing and Wall Thrust equations, as referenced in Plastic Pipe Design Manual published by Vylon Pipe, Pg 14 the Wall Crushing due to compressive stress can be found using the following:

$$P_c = \frac{T}{A} \quad \text{where T, Thrust, is calculated as} \quad T = \frac{P_y D}{2}$$

Substituting the Thrust equation into the Wall Crushing equation:

$$P_c = \frac{\frac{P_y D}{2}}{A} = \frac{P_y D}{2A}$$

From the Marston Equation determining the Prism Load Calculation (See previous section on Prism Load), substitute the equation for P_y:

$$P_c = \frac{\frac{\gamma_s * H}{144} D}{2A} \quad \text{Rearranging this equation, it becomes:} \quad 2AP_c = \frac{\gamma_s * H}{144} D$$

$$\text{And simplifies to:} \quad 288 AP_c = \gamma_s HD$$

Note that the Surface Area of the Pipe Wall, A, is per unit length in inches^2 per foot, a conversion factor (from feet to inches) of 12 must be applied, therefore,

$$24 AP_c = \gamma_s HD$$

Solving for H, the equation becomes:

$$H = \frac{24 * P_c * A}{\gamma_s * D_o}$$

(Continued on next page)

Using this equation, and converting all units, solve for "height" of the soil column, or in other words, the depth of burial of the PVC pipe:

$$H = \frac{\left[24\right]\left[4000\right]\left[0.255 \times 12\right]}{130 \times 6.625} = \mathbf{341.09}$$

H = 341.09 feet

Note: The resulting Wall Crushing will occur at a greater depth than the deepest burial depth of the proposed SCS lines, therefore pipe design is acceptable.

DEFLECTION ANALYSIS: LEONHARDT'S ZETA FACTOR

(6")

The Leonhardt's Zeta Factor Equation can be calculated using Equation 9 of Buczala and Cassady in Buried Plastic Pipe Technology, Pgs 196-197

Where:	D	=	Pipe Outer Diameter, in	=	6.625
B		=	Trench Width, in,	=	24
E_b		=	Modulus of soil reaction for the bedding material (psi)		
E'_n		=	Modulus of soil reaction for the in-situ soil (psi)		

$$zeta = \frac{1.662 + 0.639\left(\frac{B}{D-1}\right)}{\frac{B}{D-1} + \left[1.662 + 0.361\left(\frac{B}{D}\right) - 1\right]\left[\frac{E_b}{E'_n}\right]}$$

The Leonhardt Zeta factor is then determined as:

$$zeta = \frac{1.662 + 0.639 \times \left(\frac{24}{5.625}\right)}{\frac{24}{5.625}\left[1.662 + 0.361 \times \left(\frac{24}{6.625}\right) - 1\right]\left[\frac{1000}{2000}\right]}$$

Leonhardt's zeta factor = 0.836

PIPE STIFFNESS (Figure: 30 TAC §217.53(k)(3))
(6")
Using Equation B.1, as directed in 30 TAC §217.53(k)(3), to Calculate the Pipe Stiffness:

$$PS = C \times RSC \times \left(\frac{8.337}{D}\right)$$

Where: PS = Pipe Stiffness in pounds per square inch (psi)
C = Conversion factor = 0.8
RSC = Ring Stiffness Constant
D = Mean Pipe Diameter, Inner = 6.084 in

The RSC can be supplied by the manufacturer or otherwise calculated using Equation 4 of Resistance to Ring Bending – Pipe Stiffness (PS), Ring Stiffness Constant (RSC) and Flexibility Factor (FF) for Buried Gravity Flow Pipes TN-19/2005, Pg 6 published by the Plastics Pipe Institute:

$$RSC = 6.44 \times \frac{EI}{D^2}$$

And E = 400,000 psi
Solving for the Moment of Inertia:

$$I = \left(\frac{t^3}{12}\right) * \left(\frac{inches^3}{in_{linear}}\right) = 0.001$$

$$RSC = 6.44 \times \frac{552.713}{37.015} = 96.1627$$

$$PS = 0.8 \times 96.163 \times \frac{8.337}{6.084}$$

PS = 105.42 psi

PIPE STIFFNESS TO SOIL STIFFNESS FACTOR

(6")

Where:	PS	=	Pipe Stiffness (psi) = 105.42 psi
	E_b	=	Modulus of soil reaction for the bedding material (psi)
	zeta	=	Leonhardt's Zeta factor = 0.836
	SSF	=	Soil stiffness factor ($0.061 \times zeta \times E_b$)

The Soil Stiffness Factor is calculated using Equation 10 referenced by Buczala and Cassady, Buried Plastic Pipe Technology, Pg 198, where:

$SSF = 0.6 * zeta * E_b$

Therefore,

$$\frac{PS}{SSF} = \frac{PS}{0.6 * zeta * E_b}$$

$$\frac{PS}{SSF} = \frac{105.42}{501.38} = 0.21$$

PREDICTED PIPE DEFLECTION

(6")

Using the Modified Iowa Equation, referenced and published by the Uni-Bell PVC Pipe association and found at http://www.uni-bell.org/faq.html, and Equation 14 of Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, Uni-Bell PVC Pipe Association Pgs 17, the predicted pipe deflection can be calculated.

Where:	%ΔY/D	=	Predicted % vertical deflection under load Prism
	P	=	Load, psi
	K	=	Bedding angle constant, Assumed to = 0.083
	W'	=	Live Load, psi, = 0
	DR	=	Dimension Ratio= 26
	E	=	Modulus of tensile elasticity of the pipe material, psi
	E'	=	Modulus of Soil Reaction, psi
	D_L	=	Deflection Lag Factor = 1.5

And using the Modified Iowa Equation

$$(\%)\frac{\Delta Y}{D} = \frac{(D_L KP + KW')\times 100}{[2E/(3(DR-1)^3)] + 0.061E'}$$

Where, Prism Load,

$$P = \frac{\gamma_s * H}{144}$$

and/or from previous chart, prism load = 10.32 psi

The Predicted Deflection is determined as:

$$(\%)\frac{\Delta Y}{D} = \frac{\left[\left[1.5 \times 0.85646\right] + 0\right] \times 100}{\left[\frac{800000}{46875}\right] + \left[0.061 \times 1000\right]} = 1.65\%$$

NOTE: 1.65% < 5%, therefore pipe design is acceptable

PIPE STRAIN

(6")

Pipe strain is also known as the elongation of the pipe over the original length of the pipe. Under normal loading conditions of the PVC pipe, the variable that affects the elongation or straining of the pipe stems from the either the flexure or deflection (i.e.. bending) of the pipe within the bedding material (i.e. increased or excessive pipe deflection causing the pipe to elongate) or hoop stress within the pipe wall. Please note that pipe strain is not generally known to be the limiting performance factor during pipe failure. For this system, pipe deflection is limited to 5% for a SDR 26 pipe. This 5% deflection value is the industry accepted value placing the pipe within its straining limits. Therefore, as the calculated deflection above is shown to be less than 5%, the pipe and bedding class used in this system is within the acceptable straining limits for this pipe.

However, total Pipe strain is calculated as the combination of the before mentioned hoop stress and the maximum strain due to deflection. Both items are calculated below using Equations 15 and 16 found in Deflection: the Pipe/Soil Mechanism, UNI-TR-1-97, Published by the Uni-Bell PVC Pipe Association (Pgs 28-30):

Where:	S_h	=	Maximum Pipe Strain due to Hoop Stress, in/in
	P	=	Pressure on the pipe (Live + Prism Loads), psi
	E	=	Modulus of Elasticity of the Pipe, psi
	t	=	Pipe Wall thickness, in
	D	=	Pipe Diameter, Average Outer, in

$$\in_h = \frac{PD}{2tE}$$

Using the maximum cover for both live loads and prism loads as well as the previous unit weight of the soil:

$$\in_h = \frac{[\ 0.00\ +\ 10.32\ ] \times\ 6.625}{2\ \times\ 0.255\ \times\ 400{,}000} = \mathbf{3.351E\text{-}04}\ \frac{\text{in}}{\text{in}}$$

(Continued on following page)

Where:	$\in_f$	=	Maximum Pipe Strain due to Ring Deflection, in/in
	ΔY	=	Change in vertical pipe diameter under load, in, (numerator in the deflection equation, but in decimal form)
	t	=	Pipe Wall thickness, in
	D	=	Pipe Diameter, Average Outer, in
	DR	=	Dimension Ratio= 26

$$\in_f = \frac{t}{D}\left[\frac{3\Delta Y / D}{1 - 2\Delta Y / D}\right] = \frac{1}{DR}\left[\frac{3\Delta Y}{D - 2\Delta Y}\right]$$

$$\in_f = 0.038 \times \frac{3.854}{6.625 - 2.569} = 0.0365 \ \frac{\text{in}}{\text{in}}$$

$$\in_{total} = \textbf{3.6885E-02} \ \frac{\text{in}}{\text{in}}$$

TCEQ PIPE BEDDING AND TRENCHING REQUIREMENTS (30 TAC 217.54)

a. Pipe Embedment
    1. A rigid pipe must be laid with the adequate bedding, haunching, and initial backfill to support the anticipated load. The bedding classes that are allowed are A, B, or C, as described in American Society for Testing and Materials (ASTM) C 12, American National Standards Institute (ANSI) A 106.2,Water Environment Federation Manual of Practice No. 9 or American Society of Civil Engineers (ASCE) MOP 37.
    2. A flexible pipe must be laid with the adequate bedding, haunching, and initial backfill to support the anticipated load. The bedding classes that are allowed are IA, IB, II, or III, as described in ASTM D-2321 or ANSI K65.171.
    3. Debris, large clods, or stones that are greater than six inches in diameter, organic matter, or other unstable materials are prohibited as bedding, haunching, or initial backfill.
    4. Backfill must not disturb the alignment of a collection system pipe.
    5. If trenching encounters significant fracture, fault zones, caves, or solutional modification to the rock strata, an owner must halt construction until an engineer prepares a written report detailing how construction will accommodate these site conditions.

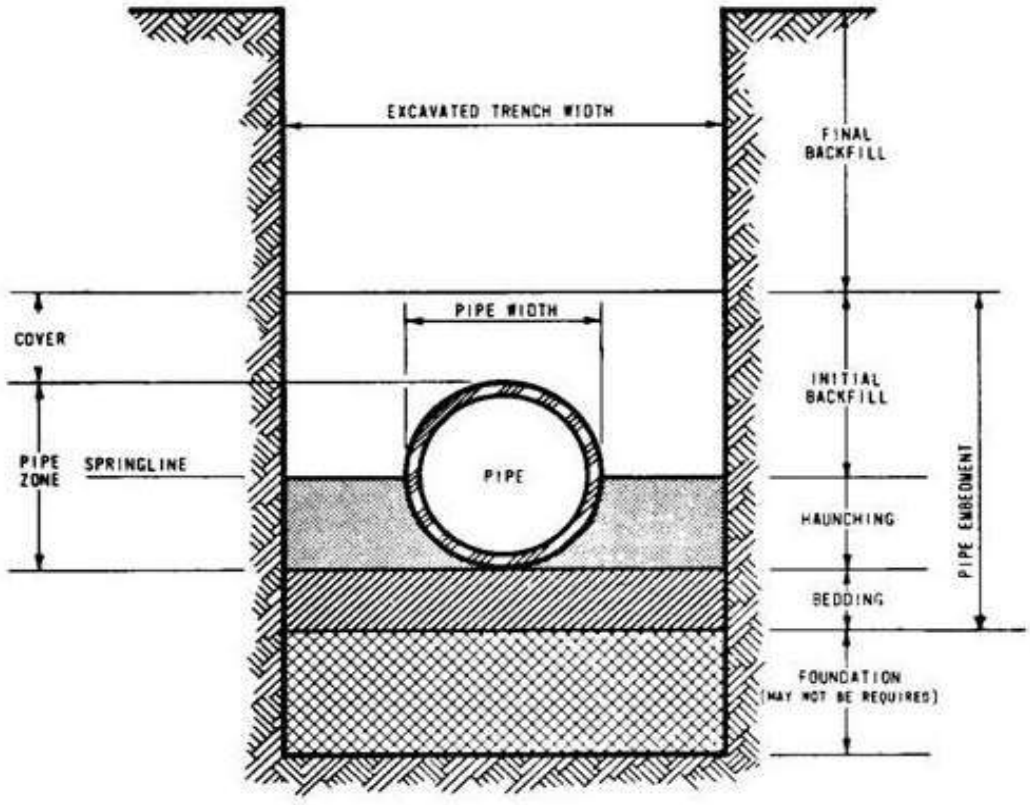
b. Compaction.
    1. Compaction of an embedment envelope must meet the manufacturer's recommendations for the collection system pipe used in a project.
    2. Compaction of an embedment envelope must provide the modulus of soil reaction for the bedding material necessary to ensure a wastewater collection system pipe's structural integrity as required by §217.53 of this title (relating to Pipe Design).
    3. The placement of the backfill above a pipe must not affect the structural integrity of a pipe.

c. Envelope Size.
    1. A minimum clearance of 6.0 inches below and on each side of the bell of all pipes to the trench walls and floor is required.
    2. The embedment material used for haunching and initial backfill must be installed to a minimum depth of 12 inches above the crown of a pipe.

d. Trench Width.

1. The width of a trench must allow a pipe to be laid and jointed properly and must allow the backfill to be placed and compacted as needed.
2. The maximum and minimum trench width needed for safety and a pipe's structural integrity must be included in the report.
3. The width of a trench must be sufficient to properly and safely place and compact haunching materials.
4. The space between a pipe and a trench wall must be wider than the compaction equipment used in the pipe zone.

TRENCH CROSS-SECTION (30 TAC 217.54)



NOTE:

Trenching Details along with 30 TAC 217.54 are annotated in the Construction Documents/Plan Sheets on Sheet 97

MANHOLE SPECIFICATIONS

30 TAC 217.55 Requirements with design comments:

a. An owner must include manholes in a wastewater collection system at:
   1. All points of change in alignment, grade, or size;
   2. At the intersection of all pipes; and
   3. At the end of all pipes that may be extended at a future date. **(Self explanatory, the SCS line will not be extended therefore no stub-outs)**

b. Manholes placed at the end of a wastewater collection system pipe that may be extended in the future must include pipe stub outs with plugs. **(Self explanatory, see item a above)**

c. A clean-out with watertight plugs may be installed in lieu of a manhole at the end of a wastewater collection system pipe if no extensions are anticipated. **(Self explanatory, clean outs not used in-lieu of manholes)**

d. Cleanout installations must pass all applicable testing requirements outlined for gravity collection pipes in §217.57 of this title (relating to Testing Requirements for Installation of Gravity Collection System Pipes). **(Self explanatory, see Item d above)**

e. A manhole must be made of monolithic, cast-in-place concrete, fiberglass, pre-cast concrete, high-density polyethylene, or equivalent material that provides adequate structural integrity. **See the Pre-Cast Manhole Details following these construction notes)**

f. The use of bricks to adjust a manhole cover to grade or construct a manhole is prohibited. **(Self explanatory, See Details following these notes)**

g. Manholes may be spaced no further apart than the distances specified in the following table for a wastewater collection system with straight alignment and uniform grades, unless a variance based on the availability of cleaning equipment that is capable of servicing greater distances is granted by the executive director. **(Self explanatory and maintained throughout the design of the SCS)**

Table C.2. - Maximum Manhole Spacing

Pipe Diameter	Maximum Manhole
6-15	500
18-30	800
36-48	1000
54 or larger	2000

h. Tunnels are exempt from manhole spacing requirements because of construction constraints. **(not applicable)**

i. An intersection of three or more collection pipes must have a manhole. **(Self explanatory and maintained throughout the design of the SCS)**

j. A manhole must not be located in the flow path of a watercourse, or in an area where ponding of surface water is probable. **(Self explanatory and maintained throughout the design of the SCS)**

k. The inside diameter of a manhole must be no less than 48 inches. A manhole diameter must be sufficient to allow personnel and equipment to enter, exit, and work in the manhole and to allow proper joining of the collection system pipes in the manhole wall. **(See Manhole Details following these notes)**

l. Manholes must meet the following requirements for covers, inlets, and bases.

1. Manhole Covers

A. A manhole where personnel entry is anticipated requires at least a 30 inch diameter clear opening. (**Covers to have 32" Openings see Manhole Details)**

B. A manhole located within a 100-year flood plain must have a means of preventing inflow. **(Self explanatory and maintained throughout the design of the SCS)**

C. A manhole cover construction must be constructed of impervious material. **(Self explanatory, See Manhole Details following these construction notes)**

D. A manhole cover that is located in a roadway must meet or exceed the American Association of State Highways and Transportation Officials standard M-306 for load bearing. **(Self explanatory, See Manhole Details)**

2. Manhole Inverts

A. The bottom of a manhole must contain a U-shaped channel that is a smooth continuation of the inlet and outlet pipes. **(Self explanatory, see Manhole Details)**

B. A manhole connected to a pipe less than 15 inches in diameter must have a channel depth equal to at least half the largest pipe's diameter **(Self explanatory, see Manhole Details)**

C. A manhole connected to a pipe at least 15 inches in diameter but not more than 24 inches in diameter must have a channel depth equal to at least three-fourths of the largest pipe's diameter **(Self explanatory, but not applicable for this project)**

D. A manhole connected to a pipe greater than 24 inches in diameter must have a channel depth equal to at least the largest pipe's diameter **(Self explanatory, but not applicable for this project)**.

E. A manhole with pipes of different sizes must have the tops of the pipes at the same elevation and flow channels in the invert sloped on an even slope from pipe to pipe. **(Self explanatory and maintained throughout the design of the SCS)**

F. A bench provided above a channel must slope at a minimum of 0.5 inch per foot. **(Self Explanatory)**

G. An invert must be filleted to prevent solids from being deposited if a wastewater collection system pipe enters a manhole higher than 24 inches above a manhole invert. **(Self Explanatory, see manhole details for a drop manhole)**

H. A wastewater collection system pipe entering a manhole more than 24 inches above an invert must have a drop pipe. **(Self Explanatory, see Manhole Details)**

m. The inclusion of steps in a manhole is prohibited. **(Self Explanatory, see Manhole Details)**

n. Connections. A manhole-pipe connection must use watertight, size-on-size resilient connectors that allow for differential settlement and must conform to American Society for Testing and Materials C-923. **(Self Explanatory, see Manhole Details)**

o. Venting. An owner must use an alternate means of venting if manholes are at more than 1,500 foot intervals and gasketed manhole covers are required for more than three manholes in sequence. Vents must meet the following requirements: **(Self Explanatory, but not applicable for this project)**

1. Vent design must minimize inflow;
2. Vents must be located above a 100-year flood event elevation; and
3. Tunnels must be vented in compliance with this subsection.

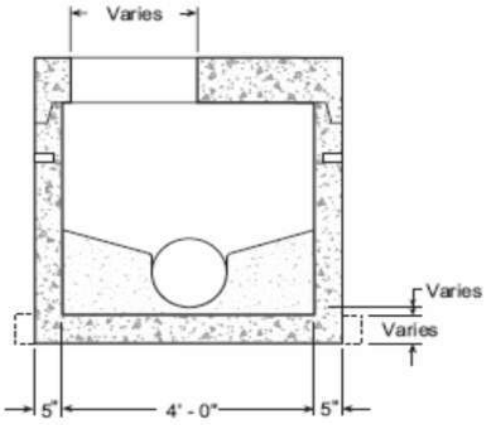
p. Cleanouts. The size of a cleanout must be equal to the size of the wastewater collection system main. **(Self Explanatory)**

Precast Manhole Information:

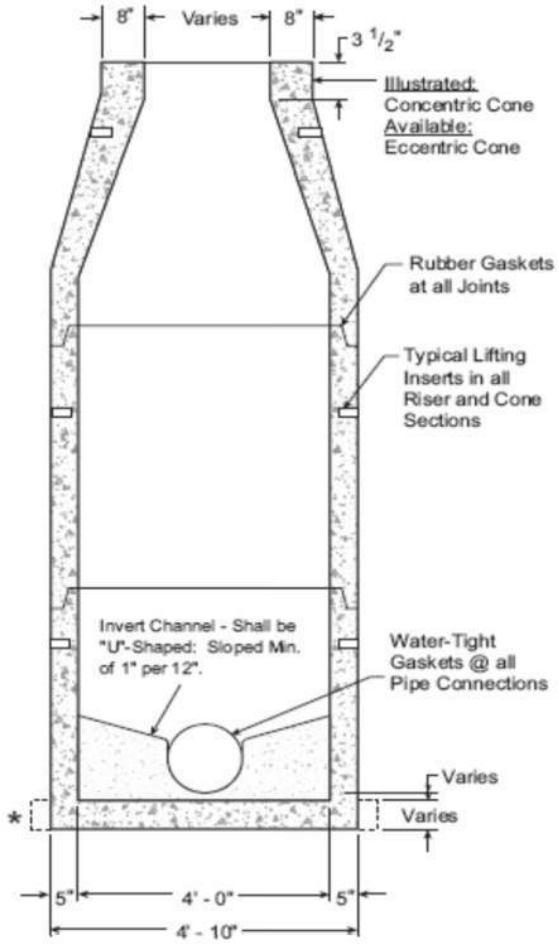
Hanson Pipe and Precast
Hanson Building Products West
300 E John Carpenter Freeway
11th floor
Irving, TX 75062
972.653.5500

San Antonio Metro Area Contact:
210.661.2351
866.426.7661

Precast Manholes



Flattop Illustration
for Shallow Manhole



Section View
4' I.D. Manhole - Regular Base
with Reducing Cone

Materials & Features

HOLES AS SPECIFIED: Max diameter = 32"
CONCRETE: 5,000 PSI, 28 day strength.
REINFORCING: Meets or exceeds ASTM C478 requirements.
Average weight of 24" depth base w/8" invert = 4,500 lbs.
Estimated weight of riser and cone sections = 870 lbs. / vt. ft.

* - Extended base is available to meet local requirements.

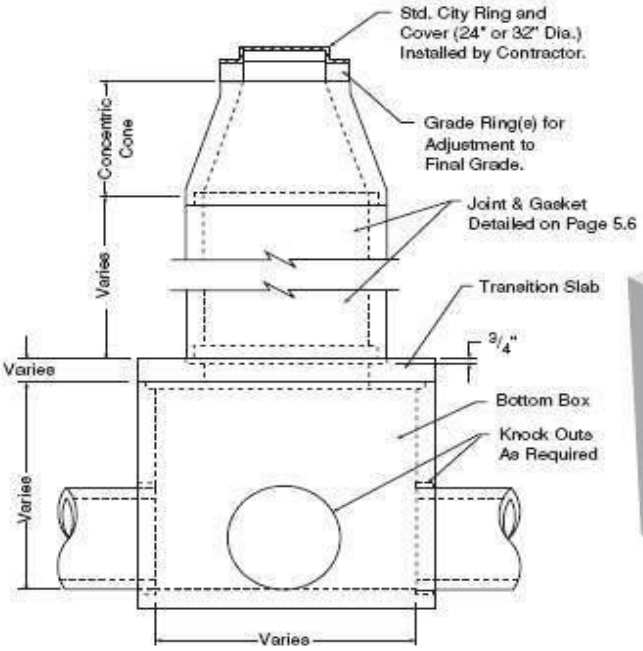
In the event a boot is loose contact your Hanson representative to resolve.

"Manufactured to your specifications."

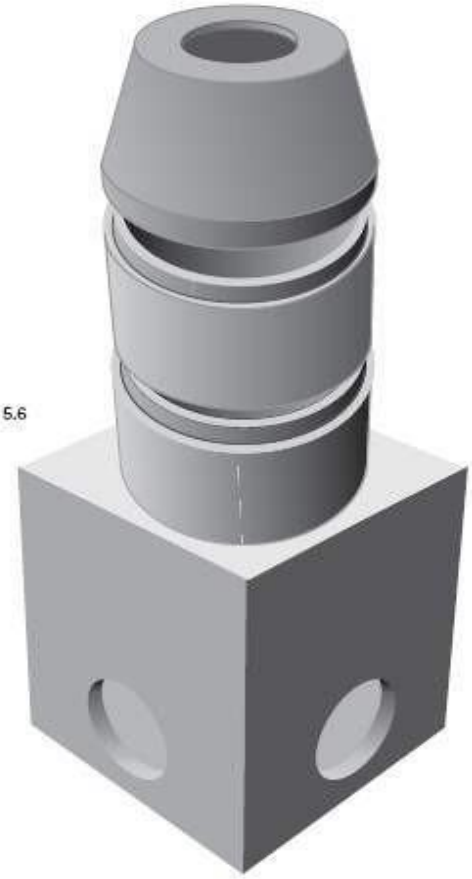
-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
4' I.D. Manhole **Regular Base w / Reducing Cone**	All Plants	TX	5.5	07-01-06	Hanson

Precast Manholes



Side View



Isometric View

Materials & Features

CONCRETE: 5,000 PSI in 28 days.

REINFORCING STEEL: per ASTM A-615 / A-185

REINFORCING to meet AASHTO HS 20-44 Loading.

BASE DESIGN EQUAL TO OR EXCEEDS ASTM C-357

RISER DESIGN EQUAL TO OR EXCEEDS ASTM C-478

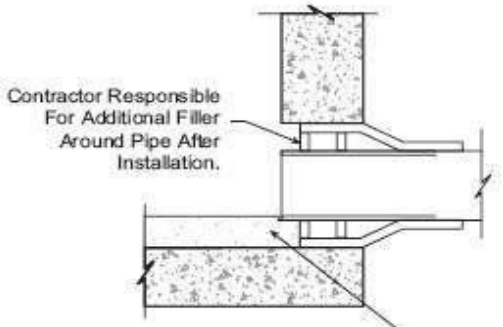
In the event a boot is loose contact your Hanson representative to resolve.

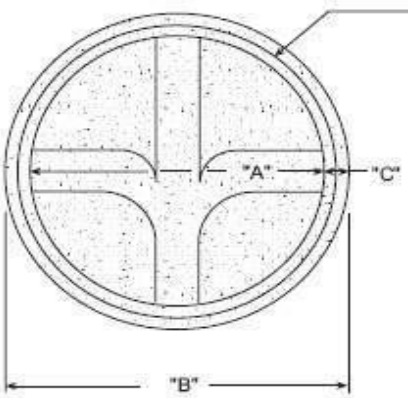
-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
Type "C" Manhole	Houston San Antonio	TX	5.11	07-01-06	Hanson

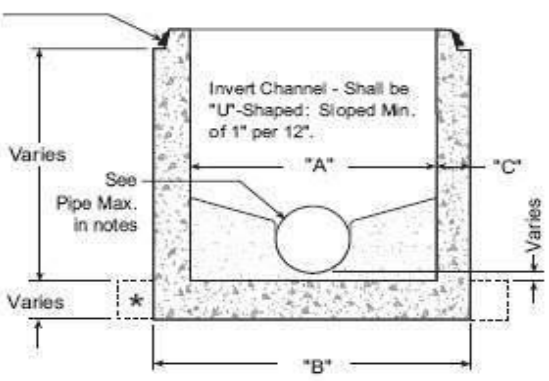
Precast Manholes

For Pipe Entering the Manhole at Excessive Depths Above the Flow Line Out, the Contractor May be Responsible for Grout Work Necessary to Bring Channel up to Flow Line on Inlet Pipe.





Plan View



Section View

Pipe Size	I.D. "A"	O.D. "B"	Wall Thk. "C"
4'	4' - 0"	4' - 10"	5"
5'	5' - 0"	6' - 0"	6"
6'	6' - 0"	7' - 2"	7"

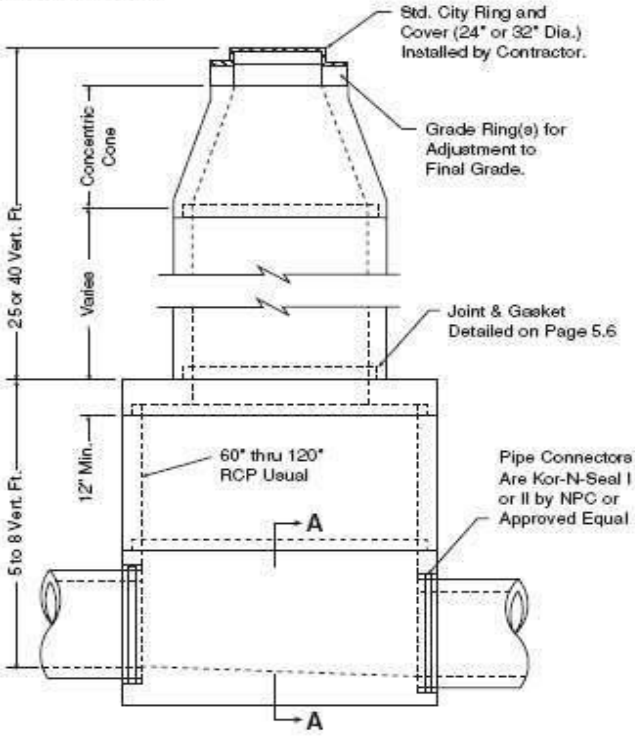
Materials & Features

HOLES AS SPECIFIED:
For 4' I.D. max. diameter = 32"
For 5' I.D. max. diameter = 40"
For 6' I.D. max. diameter = 54"
CONCRETE: 5,000 PSI, 28 day strength.
REINFORCING: Meets or exceeds ASTM C478 requirements.
Average weight of 24" depth base w/8" invert = 4,500 lbs.
Water-tight gaskets at all pipe connections.
* - Regular base shown: Extended base also available.
In the event a boot is loose contact your Hanson representative to resolve.

-No Scale-
All dimensions subject to allowable specification tolerances.

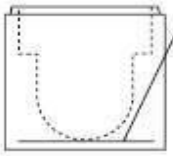
TITLE	PLANT	STATE	SECTION.PAGE	DATE	
Details: 4', 5' & 6' I.D. Precast Regular Manhole Base	All Plants	TX	5.7	07-01-06	Hanson

Precast Manholes



w/ Precast Base

Isometric View



Section A-A

Base Slab Reinforcing

30' Deep Structure
60"ø - 6" Thick Slab min. - #5 @ 8" ea.way
72"ø - 8" Thick Slab min. - #5 @ 8" ea.way
84"ø - 8" Thick Slab min. - #5 @ 6" ea.way
96"ø - 10" Thick Slab min. - #5 @ 6" ea.way

45' Deep Structure
60"ø - 8" Thick Slab min. - #5 @ 8" ea.way
72"ø - 8" Thick Slab min. - #5 @ 8" ea.way
84"ø - 10" Thick Slab min. - #5 @ 6" ea.way
96"ø - 12" Thick Slab min. - #5 @ 6" ea.way

All Reinforcing has $1\frac{1}{2}$" cover from top of slab.

Materials & Features

CONCRETE: 5,000 PSI in 28 days.

REINFORCING STEEL: per ASTM A-615, Grade 60.

REINFORCING to meet AASHTO HS 20-44 Loading.

DESIGN EQUAL TO OR EXCEEDS ASTM C-478

In the event a boot is loose contact your Hanson representative to resolve.

Note:
- Inverts shall be specifically sized for connecting pipes; and shall be U-Shaped with the min. depth 3/4 of the largest pipe diameter.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
30 & 45 Ft. Depth 60" thru 96"Large Base Manhole	Houston San Antonio	TX	5.10	07-01-06	Hanson

ATTACHMENT A

WASTEWATER / SEWAGE CALCULATIONS

St Andrews Episcopal School

Project: ST ANDREWS EPISCOPAL SCHOOL
Date: 12/21/2023
Area: 73.45 acres

Proposed Building Use	# Units	Unit	LUE Conversion	LUE
School		Student	1 LUE/13 Students	700
			Total LUEs	700

Wastewater Design

Population = LUEs X 3.5/LUE

= 700 X 3.5 persons/LUE
= 2450 persons

Average Dry Weather Flow (F) = 70gpd/persons/day X population / 1440
= 119.1 gpm

PFF = [18+(0.0206 X F)^0.5]/[4+(0.0206 X F)^0.5] , Maximum = 4
= 3.52

Peak Dry Weather Flow = Average Dry Weather Flow X PFF
= 418.64 gpm

Peak Wet Flow = Peak Dry Flow + Inflow/Infiltration
= 418.64 + 750 gpd/acre X acres/1440
= 425.76 gpm

3/22/2024
F-14629

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.

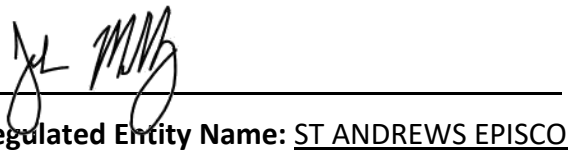
Signature

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: Jonah Mankovsky, P.E.

Date: 2/14/2024

Signature of Customer/Agent:



Regulated Entity Name: ST ANDREWS EPISCOPAL HIGH SCHOOL

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: Barton 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.

Temporary Stormwater Section – Attachment A

Spill Response Actions

ATTACHMENT A – SPILL RESPONSE ACTIONS

The owner shall be responsible for the adequate cleanup of any chemical spills during construction. The cleanup will be performed to TCEQ standards, RG-348, July 2005. The contractor will notify TCEQ of any chemical spills as required and outlined in these standards at the phone numbers listed below.

1.4.16 Spill Prevention and Control

The objective of this section is to describe measures 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. The following steps will help reduce the stormwater impacts of leaks and spills:

Education

1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees shall also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.
2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
4) Establish a continuing education program to indoctrinate new employees.
5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes shall be contained and cleaned up immediately.
2) Store hazardous materials and wastes in covered containers and protect from vandalism.
3) Place a stockpile of spill cleanup materials where it will be readily accessible.
4) Train employees in spill prevention and cleanup.
5) Designate responsible individuals to oversee and enforce control measures.
6) Spills shall be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
7) Do not bury or wash spills with water. 1-118
8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.

9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.

Cleanup

1) Clean up leaks and spills immediately.
2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
2) Use absorbent materials on small spills rather than hosing down or burying the spill.
3) Absorbent materials shall be promptly removed and disposed of properly.
4) Follow the practice below for a minor spill:
5) Contain the spread of the spill.
6) Recover spilled materials.
7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

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. This response may require the cessation of all other activities.

Spills shall be cleaned up immediately:

1) Contain spread of the spill.
2) Notify the project foreman immediately.
3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen

dike. Dig up and properly dispose of contaminated soil.

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512- 339-2929 between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor shall notify the National Response Center at (800) 424-8802.
3) Notification shall first be made by telephone and followed up with a written report.
4) The services of a spills contractor or a Haz-Mat team shall be obtained immediately. Construction personnel shall not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html

Temporary Stormwater Section – Attachment B

Potential Sources of Contamination

ATTACHMENT B – POTENTIAL SOURCES OF CONTAMINATION

Asphalt products will be used on this project. After placement of asphalt, emulsion, or coatings, the applicant will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor should maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur.

Sediment and soil from disturbed areas are another potential source of contamination. During activities causing soil disturbance, temporary best management practices outlined in **ATTACHMENT D**.

Other potential sources of contamination include hydraulic fluid and diesel fuel from mechanical equipment, as well as paints and chemicals used on site. Any spills shall be handled according to the Spill Response Actions in **ATTACHMENT A.**

Temporary Stormwater Section – Attachment C

Sequence of Major Activities

ATTACHMENT C – SEQUENCE OF MAJOR ACTIVITIES

1. Install erosion controls and tree protection per approved plans (5.15 acres).
2. Hold pre-construction meeting.
3. Begin trenching and installing utilities for the site (5.15 acres).
4. Begin grading and rough excavation for surface parking and building foundations (5.15 acres).
5. Begin construction of buildings and parking (5.15 acres).
6. Begin construction of hardscape and landscape areas (5.15 acres).
7. The contractor shall obtain Engineer's concurrence letter prior to step 9.
8. Restore disturbed areas (5.15 acres).
9. Remove temporary erosion/sedimentation controls only after the Engineer has accepted the permanent erosion/sedimentation controls (5.15 acres).

Temporary Stormwater Section – Attachment D

TBMPs

ATTACHMENT D – TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

Before construction begins, silt fences will be installed around the perimeter of the limits of construction, including "J Hooks" as needed, and on the downgradient side of the contractor staging and materials storage area. The existing detention and water quality ponds will accommodate the new development of the site, per the drainage plan included. The silt fencing and detention/water quality area will be inspected weekly during construction, and after any rainfall. There will be one stabilized construction entrance onto this site.

The proposed BMP and measures will prevent pollution of surface water or groundwater that originates on-site, by directing and filtering the runoff through the silt fence, and maintaining natural drainage patterns on the site, which direct runoff towards the proposed detention pond.

Proposed BMPs and measures will prevent pollutants from entering sensitive features or the aquifer, by filtering the runoff through the silt fence and diverting it to the ponds prior to leaving the site and entering the ultimate stream basin (Town Lake).

Temporary Stormwater Section – Attachment F

Structural Practices

ATTACHMENT F – STRUCTURAL PRACTICES

Structural practices are utilized to limit the pollution potential from exposed areas at the project site. The exposed areas that are to be protected include the following: graded loose topsoil, spoil piles from pond excavation, deep grading, trenching supply lines and drain lines, or miscellaneous accumulations of soils from trenching.

Stabilized Construction Entrances

As described in **ATTACHMENT D**, one stabilized construction entrance will be utilized at the site as access. This controlled access point will include silt guards and runoff diverters.

Dikes and Diversions

Areas that might be disturbed from stormwater runoff will be protected using dikes and diversions intended to intercept runoff and divert it to silt fencing or the wet pond.

Silt Fences / Mulch Sock

Silt fencing, trenching, and mulch sock will be used as the primary structure control to divert overland flows away from erodible sites and keep and runoff generated onsite within construction boundaries. During temporary pauses in construction activities or after construction is completed for a specific activity, protective fencing will be installed around each soil accumulation to minimize the risk of erosion.

Stabilization

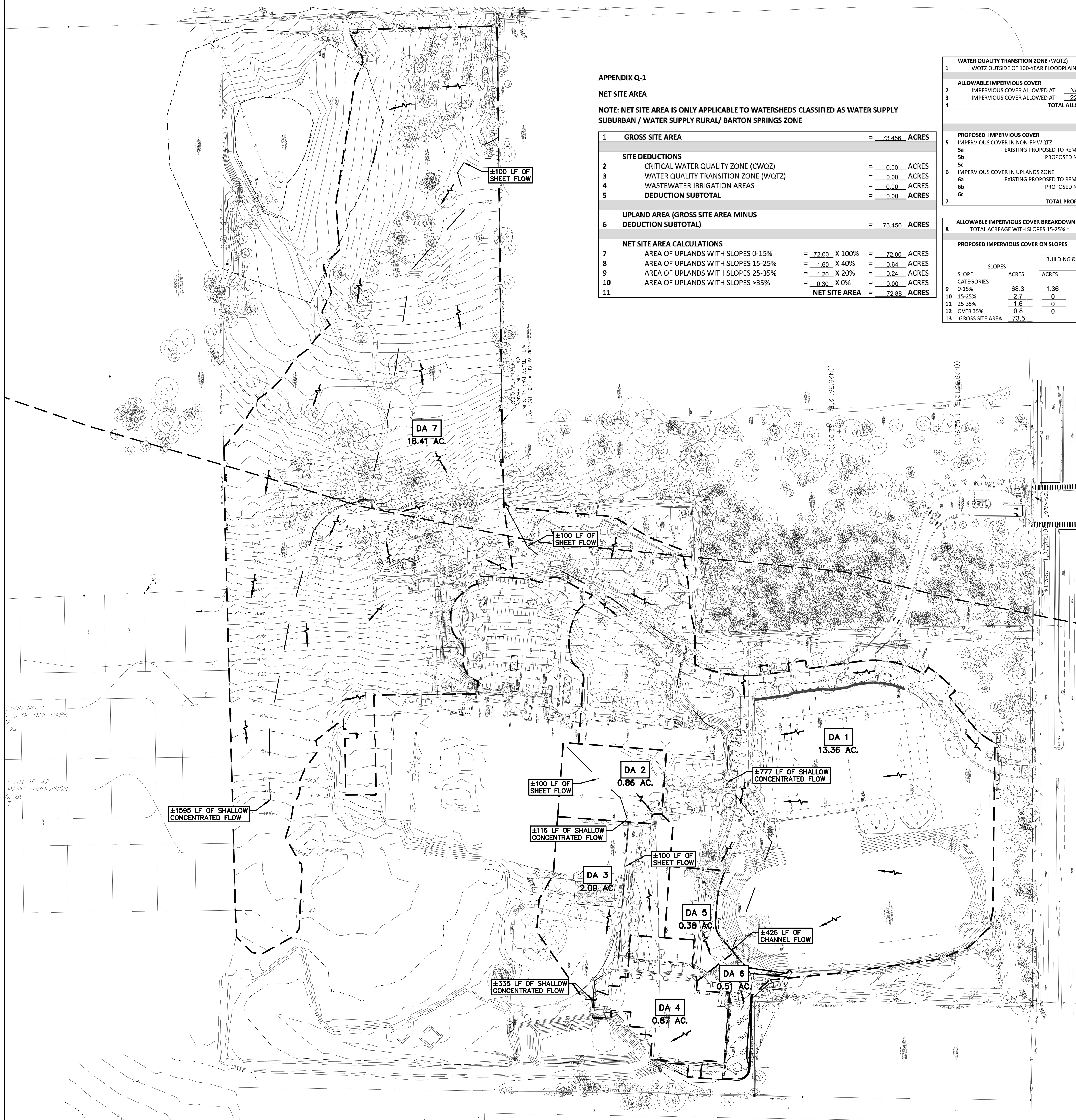
Stabilization measures shall be initiated soon as practical in parts of the site where construction activities have temporary or permanently ceased. Smaller spoil piles will be protected with plastic sheeting or tarp coverings. Larger stockpiles will be protected/stabilized with erosion blankets and/or mulching. The cover will be securely fastened to the surrounding ground via stakes, gravel, or other compacted material that will resist erosion and undercutting.

Temporary Stormwater Section – Attachment G

Drainage Area Map

ATTACHMENT G – DRAINAGE AREA MAP

Existing and Proposed Drainage Area Maps are included in the Construction Plans in the following section. The project site is approximately 73.456 acres in size. There are no areas with more 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 will be used within the disturbed drainage area.



APPENDIX Q-1

NET SITE AREA

NOTE: NET SITE AREA IS ONLY APPLICABLE TO WATERSHEDS CLASSIFIED AS WATER SUPPLY SUBURBAN / WATER SUPPLY RURAL/ BARTON SPRINGS ZONE

1	**GROSS SITE AREA**			= 73.456	**ACRES**
	SITE DEDUCTIONS				
2	CRITICAL WATER QUALITY ZONE (CWQZ)			= 0.00	ACRES
3	WATER QUALITY TRANSITION ZONE (WQTZ)			= 0.00	ACRES
4	WASTEWATER IRRIGATION AREAS			= 0.00	ACRES
5	**DEDUCTION SUBTOTAL**			= 0.00	**ACRES**
6	**UPLAND AREA (GROSS SITE AREA MINUS DEDUCTION SUBTOTAL)**			= 73.456	**ACRES**
	NET SITE AREA CALCULATIONS				
7	AREA OF UPLANDS WITH SLOPES 0-15%	= 72.00	X 100%	= 72.00	ACRES
8	AREA OF UPLANDS WITH SLOPES 15-25%	= 1.60	X 40%	= 0.64	ACRES
9	AREA OF UPLANDS WITH SLOPES 25-35%	= 1.20	X 20%	= 0.24	ACRES
10	AREA OF UPLANDS WITH SLOPES >35%	= 0.30	X 0%	= 0.00	ACRES
11			**NET SITE AREA**	= 72.88	**ACRES**

	WATER QUALITY TRANSITION ZONE (WQTZ)		
1	WQTZ OUTSIDE OF 100-YEAR FLOODPLAIN (NON-FP WQTZ)	= 0	ACRES
	ALLOWABLE IMPERVIOUS COVER		
2	IMPERVIOUS COVER ALLOWED AT N/A % X *(NON-FP WQTZ)*	= N/A	ACRES
3	IMPERVIOUS COVER ALLOWED AT 22 % X *(NET SITE AREA)*	= 16.03	ACRES
4	**TOTAL ALLOWED IMPERVIOUS COVER**	= 16.03	**ACRES**
	PROPOSED IMPERVIOUS COVER		
5	IMPERVIOUS COVER IN NON-FP WQTZ		
5a	EXISTING PROPOSED TO REMAIN = N/A ACRES		
5b	PROPOSED NEW = N/A ACRES		
5c	**SUBTOTAL**	= N/A	**ACRES**
6	IMPERVIOUS COVER IN UPLANDS ZONE		
6a	EXISTING PROPOSED TO REMAIN = 13.80 ACRES		
6b	PROPOSED NEW = 1.36 ACRES		
6c	SUBTOTAL	= 15.16	ACRES
7	**TOTAL PROPOSED IMPERVIOUS COVER**	= 15.16	**ACRES**

ALLOWABLE IMPERVIOUS COVER BREAKDOWN BY SLOPE CATEGORY

8 TOTAL ACREAGE WITH SLOPES 15-25% = ______ ACRES X 10% = ______ ACRES

PROPOSED IMPERVIOUS COVER ON SLOPES

	SLOPES		IMPERVIOUS COVER: BUILDING & OTHER IMPERVIOUS COVER		IMPERVIOUS COVER: DRIVES / ROADWAYS
	SLOPE CATEGORIES	ACRES	ACRES	% OF CATEGORY	ACRES
9	0-15%	68.3	1.36	2.0%	______
10	15-25%	2.7	0	0.0%	______
11	25-35%	1.6	0	0.0%	______
12	OVER 35%	0.8	0	0.0%	______
13	GROSS SITE AREA	73.5			

120 0 60 120 240

1" = 120'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY (R.O.W.) LINE
678	678	CONTOUR
		TIME OF CONCENTRATION
		DRAINAGE DIVIDE
		DIRECTION OF FLOW
	P1 1.03 AC.	DRAINAGE AREA NUMBER AND ACREAGE

Area:						DA-1			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	13.36	13.36	13.36	13.36	13.36	*Concrete*	4.75	206,910	35.55
C	0.48	0.54	0.58	0.66	0.73	*Grass, Fair, 2-7%*	8.61	375,052	64.45
Tc	12.28	12.28	12.28	12.28	12.28				
I	4.65	7.04	8.65	11.28	14.70				
Q	**29.8**	**50.8**	**67.4**	**99.6**	**143.2**	**Total**	**13.36**	**581,962**	**100**

Area:						DA-2			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.86	0.86	0.86	0.86	0.86	*Concrete*	0.05	2,178	5.79
C	0.35	0.41	0.45	0.52	0.60	*Grass, Fair, 2-7%*	0.81	35,445	94.21
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	**1.9**	**3.4**	**4.5**	**6.9**	**10.6**	**Total**	**0.86**	**37,623**	**100**

Area:						DA-3			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	2.09	2.09	2.09	2.09	2.09	*Concrete*	0.60	26,136	28.71
C	0.45	0.51	0.55	0.63	0.70	*Grass, Fair, 2-7%*	1.49	64,904	71.29
Tc	6.30	6.30	6.30	6.30	6.30				
I	5.91	8.99	11.03	14.41	18.84				
Q	**5.6**	**9.6**	**12.7**	**18.9**	**27.6**	**Total**	**2.09**	**91,040**	**100**

Area:						DA-4			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.87	0.87	0.87	0.87	0.87	*Concrete*	0.87	37,897	100.00
C	0.75	0.83	0.88	0.97	1.00				
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	**4.1**	**6.9**	**9.0**	**13.0**	**17.6**	**Total**	**0.87**	**37,897**	**100**

Area:						DA-5			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.38	0.38	0.38	0.38	0.38	*Concrete*	0.38	16,553	100.00
C	0.75	0.83	0.88	0.97	1.00				
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	**1.8**	**3.0**	**3.9**	**5.7**	**7.7**	**Total**	**0.38**	**16,553**	**100**

Area:						DA-6			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.51	0.51	0.51	0.51	0.51	*Concrete*	0.48	20,909	94.12
C	0.73	0.80	0.85	0.94	0.98	*Grass, Fair, 2-7%*	0.03	1,307	5.88
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	**2.3**	**3.9**	**5.1**	**7.4**	**10.1**	**Total**	**0.51**	**22,216**	**100**

Area:						DA-7			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	18.41	18.41	18.41	18.41	18.41	*Concrete*	2.63	114,563	14.29
C	0.39	0.44	0.49	0.56	0.64	*Grass, Fair, 2-7%*	15.78	687,377	85.71
Tc	13.61	13.61	13.61	13.61	13.61				
I	4.45	6.73	8.27	10.80	14.08				
Q	**32.0**	**55.1**	**74.0**	**111.0**	**165.9**	**Total**	**18.41**	**801,940**	**100**

garza emc
7708 Rialto Blvd, Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

REVISION | NO. | DATE

JONAH D. MANKOVSKY
110095
12/01/2023

PROPOSED DRAINAGE AREA MAP

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

NEW SHEET SPC-97-0320C(R3)

Temporary Stormwater Section – Attachment I

Inspection and Maintenance for BMPs

ATTACHMENT I - INSECTION AND MAINTENANCE FOR BMPs

Implementation of site controls shall be performed by a qualified contractor experienced in the proper installation of such devices in accordance with manufacturers' specifications, and in keeping with recognized Best Management Practices (BMP's), and in keeping with TPDES regulations. Qualification of installing Contractor shall be reviewed with the Owner prior to entering into a contract with them for services.

The Contractor shall inspect all BMP's at regular intervals as specified in the Storm Water Pollution Prevention Plan for this project.

- Use standard Owner Inspection forms for each inspection.
- Record all deficiencies of site controls and take immediate action to correct any deficiencies recorded.
- Keep records of inspections current and on file, available for review by EPA, TCEQ, MS4 operator and Owner.

The silt fences and temporary controls must be inspected at weekly intervals and after significant rainfall events in order to ensure that they are functioning properly. The following BMP's must be maintained after a rain storm:

The inlet protection must be checked for silt build up and when it is prohibiting the conveyance of water into the storm sewer, the silt must be removed.

The construction entrance shall be inspected after a rain storm to make sure it is still in adequate condition and intact to support and function as designed.

The washout pits shall be monitored and cleaned after a storm to limit the pollution and run-off.

The silt fences around the stock piles need to be checked and cleaned after a rain storm to remove the silt deposits over 6 inches.

Repairs must be made immediately to the damaged areas and when the silt accumulates in the controls to 6 inches it must be removed.

Temporary Stormwater Section – Attachment J

Schedule of Interim and Permanent Soil Stabilization Practices

ATTACHMENT J – SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Please see the General Notes Sheet in the attached Construction Documents for a detail of the permanent soil stabilization practices.

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Jonah Mankovsky, P.E.

Date: 2/14/2024

Signature of Customer/Agent

Regulated Entity Name: ST ANDREWS EPISCOPAL HIGH SCHOOL

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

☒ Design calculations (TSS removal calculations)

☒ TCEQ construction notes

☒ All geologic features

☒ All proposed structural BMP(s) plans and specifications

☐ N/A

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

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

    ☒ N/A

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

    ☒ N/A

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

    ☐ N/A

Responsibility for Maintenance of Permanent BMP(s)

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

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

    ☐ N/A

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

    ☐ N/A

Permanent Stormwater Section – Attachment B

BMPs for Upgradient Stormwater

ATTACHMENT B – BEST MANAGEMENT PRACTICES FOR UPGRADIENT STORMWATER

Upgradient stormwater from the proposed wellness center to the south flows across the site and is routed around the proposed improvements and ponds. The site generally slopes from northwest to southeast, towards a 6'x4' RCB culvert that connects to an existing splitter box and pond. The existing drainage measures convey off-site development runoff from the property. Reference the Drainage Area Maps provided in the Construction Documents within this section.

Permanent Stormwater Section – Attachment C

BMPs for On-Site Stormwater

ATTACHMENT C – BMPs FOR ON-SITE STORMWATER

The existing water quality pond is proposed to collect and treat the on-site stormwater runoff and to prevent pollution of surface water or groundwater that originates on-site or flows off the site. In addition, a proposed storm system will be used to collect stormwater and convey the stormwater to the existing water quality and detention ponds before leaving the site. The developed drainage area contributing to the pond totals approximately 18.64 acres. The sedimentation-filtration pond meets TCEQ's current design requirements and TSS removal standards for BMPs over the Edwards Aquifer Recharge Zone. It is designed to meet the City of Austin Environmental Criteria Manual standards which are more stringent for this site.

Permanent Stormwater Section – Attachment D

BMPs for Surface Streams

ATTACHMENT D – BEST MANAGEMENT PRACTICES FOR SURFACE STREAMS

The existing sedimentation-filtration pond adjacent to the proposed wellness center will collect and treat the on-site stormwater runoff, to prevent pollutants from entering surface streams, sensitive features, or the aquifer. In addition, a storm system will be used to collect stormwater and convey the stormwater to the proposed water quality and detention pond before leaving the site. The developed drainage area contributing to the pond totals approximately 18.64 acres. Disturbed areas and areas with proposed impervious cover or development, will be collected and conveyed to the storm system, before reaching the sedimentation-filtration pond, which discharges into the existing detention pond on site. The sedimentation-filtration pond meets TCEQ's current design requirements and TSS removal standards for BMPs over the Edwards Aquifer Recharge Zone.

Permanent Stormwater Section – Attachment F

Construction Plans

SITE DEVELOPMENT PERMIT PLANS

FOR

ST ANDREWS ATHLETICS & FITNESS COMPLEX

OWNER: ST. ANDREWS EPISCOPAL SCHOOL
5901 SOUTHWEST PARKWAY
AUSTIN, TEXAS 78735
(512) 299-9700

ARCHITECT: LPA DESIGN STUDIOS
1811 S ALAMO STREET, UNIT 100
SAN ANTONIO, TEXAS 78204
(210) 829-1737

ENGINEER: GarzaEMC, LLC.
7708 RIALTO BLVD, SUITE 125
AUSTIN, TEXAS 78735
(512) 298-3284

LANDSCAPE ARCHITECT: LPA DESIGN STUDIOS
431 I STREET, SUITE 107
SACRAMENTO, CA 95814
(916) 287-2400

WATERSHED STATUS:

XXX XXX XXX

FLOODPLAIN INFORMATION:

THIS PROPERTY IS LOCATED WITHIN ZONE 'X', AREAS OF MINIMAL FLOOD HAZARD, AS SHOWN ON F.I.R.M. MAP NO. 48453C0580H, TRAVIS COUNTY, TEXAS AND INCORPORATED AREAS, MAP REVISED SEPTEMBER 26, 2008.

LEGAL DESCRIPTION:

BEING A PORTION OF LOTS 1 & 2, BLOCK A, HARPER'S PARK SUBDIVISION SECTION ONE, A SUBDIVISION IN TRAVIS COUNTY, TEXAS ACCORDING TO THE MAP OR PLAT THEREOF, RECORDED IN VOLUME 100, PAGES 196-197 OF THE PLAT RECORDS OF TRAVIS COUNTY, TEXAS.

BENCHMARK NOTE:

TBM #1 - CHISELED "X" CUT ON TOP OF CONCRETE CURB ON THE SOUTH SIDE OF A CONCRETE DRIVE ON THE NORTH SIDE OF THE EXISTING GYM BUILDING, ±107 FEET WEST OF AN 18" CEDAR ELM TREE BETWEEN THE TRACK AND GYM BUILDING MARKED WITH TREE TAG #5048, AND S$p112 FEET SOUTHWEST OF A GRATE INLET ON THE SOUTH SIDE OF THE INTERIOR PART OF THE TRACK.
ELEVATION=805.56'

TBM #2 - MAG NAIL WITH "4WARD" WASHER SET IN ASPHALT ON THE EASTERLY SIDE OF THE ASPHALT DRIVE ON THE WEST SIDE OF THE EXISTING PERFORMING ARTS CENTER BUILDING, ±65 FEET NORTH OF A WASTEWATER MANHOLE IN THE MIDDLE OF THE ASPHALT DRIVE, AND ±67 FEET SOUTH OF A WASTEWATER MANHOLE ON THE NORTH SIDE OF A GRAVEL PATHWAY CONNECTING TO SAID ASPHALT DRIVE.
ELEVATION=842.40'

SUBDIVISION No: XXX

ZONING ORDINANCE No.: 20131212-094

garza emc
7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

FILE NO. : SPC-97-0320C(R3)

ADDRESS : 5901 SOUTHWEST PARKWAY

NOT FOR CONSTRUCTION

SUBMITTAL DATE : NOVEMBER, 2022

SUBMITTED BY :

JONAH D. MANKOVSKY 110095 12/01/2023

DATE

JONAH MANKOVSKY, P.E.
GarzaEMC, LLC.
7708 RIALTO BLVD, SUITE 125
AUSTIN, TEXAS 78735
(512) 298-3284

PLAN SUBMITTALS:

NO.	DATE	COMMENTS
	11/11/2022	100% SCHEMATIC DESIGN
	01/13/2023	50% DESIGN DEVELOPMENT
	02/15/2023	100% DESIGN DEVELOPMENT
	08/09/2023	60% CONSTRUCTION DESIGN
	09/28/2023	100% CONSTRUCTION DESIGN
	10/20/2023	ADDENDUM 1
	11/03/2023	ADDENDUM 2
	11/13/2023	ADDENDUM 3

I, JONAH MANKOVSKY, P.E., CERTIFY THAT THESE ENGINEERING DOCUMENTS ARE COMPLETE, ACCURATE AND ADEQUATE FOR THE INTENDED PURPOSES, INCLUDING CONSTRUCTION, BUT ARE NOT AUTHORIZED FOR CONSTRUCTION PRIOR TO FORMAL CITY APPROVAL.

SHEET LIST

NO.	DESCRIPTION	REVISE (R) ADD (A) VOID (V) SHEET NO.'S	TOTAL # SHEETS IN PLAN SET	NET CHANGE IMP. COVER (sq. ft.)	TOTAL SITE IMP. COVER (sq. ft.) [%]	CITY OF AUSTIN APPROVAL/DATE	DATE IMAGED

APPROVED FOR ACCEPTANCE:

DEVELOPMENT SERVICES DEPARTMENT DATE

CITY OF AUSTIN INDUSTRIAL WASTE DEPARTMENT DATE

AUSTIN WATER UTILITY DEPARTMENT DATE

CITY OF AUSTIN FIRE DEPARTMENT DATE

FOR CITY USE ONLY:

SITE PLAN APPROVAL Sheet C01 of 111
FILE NUMBER: ~~SPC-97-0320C(R3)~~ APPLICATION DATE: _____
APPROVED BY COMMISSION ON: _____ UNDER SECTION _____ OF CHAPTER _____ OF THE CITY OF AUSTIN CODE.
EXPIRATION DATE (25-5-81,LDC)_____ CASE MANAGER _____
PROJECT EXPIRATION DATE (ORD.#970905-A)_____ DWPZ ____ DDZ ____

_____
Director, Development Services Department

RELEASED FOR GENERAL COMPLIANCE:_____ ZONING: _____
Rev. 1_____ Correction 1 _____
Rev. 2_____ Correction 2 _____
Rev. 3_____ Correction 3 _____

FINAL PLAT MUST BE RECORDED BY THE PROJECT EXPIRATION DATE, IF APPLICABLE. SUBSEQUENT SITE PLANS WHICH DO NOT COMPLY WITH THE CODE CURRENT AT THE TIME OF FILING, AND ALL REQUIRED BUILDING PERMITS AND/OR A NOTICE OF CONSTRUCTION (IF A BUILDING PERMIT IS NOT REQUIRED), MUST ALSO BE APPROVED PRIOR TO THE PROJECT EXPIRATION DATE.

SHEET C01 OF 111

ST ANDREWS ATHLETICS & FITNESS COMPLEX

V:\113595-00006\Civil\00-CAD\113595-00006-CVR.dwg modified by mguajardoclark on Apr 16, 24 3:32 PM

GENERAL NOTES

ALL RESPONSIBILITY FOR THE ADEQUECY OF THESE PLANS REMAINS WITH THE ENGINEER. APPROVAL OF THESE PLANS BY THE CITY OF AUSTIN DOES NOT REMOVE THESE RESPONSIBILITIES.
"REVIEWED BY AUSTIN WATER" APPLIES ONLY TO AW PUBLIC FACILITIES. ALL OTHER WATER AND WASTEWATER FACILITIES INSIDE PRIVATE PROPERTY ARE UNDER THE JURISDICATION OF BUILDING INSPECTIONS.

Use of Electronic Files General Disclaimer: Use of the attached files in any manner indicates your acceptance of terms and conditions as set forth below. If you do not agree to all of the terms and conditions, please contact Austin Water Pipeline Engineering, project coordinator prior to use of the referenced information. Please be advised that the attached files are in a format that can be altered by the user. Due to this fact, any reuse of the data will be at the user's sole risk without liability or legal exposure to the City of Austin and user shall indemnify and hold harmless The City of Austin from all claims, damages, losses and expenses including attorney's fees arising out of or resulting from using the digital file. In addition, it is the responsibility of the user to compare all data with the PDF version of this drawing. In the event there is a conflict between the PDF version drawing and the electronic file, the PDF version drawing shall prevail.

Automated Metering Infrastructure: Effective March 2022, new water meters installed shall be in conformance with AW's automated metering infrastructure technology, and with the applicable standard product list. Applicants filing a site plan or subdivision plan will be required to coordinate with the Austin Water Plan Reviewer for details on approval and installation.

Prior to the handling and disposal of Asbestos Pipe, the Contractor's work plans will be reviewed and coordinated through Austin Water's Asbestos Program Manager who can be reached at 512-972-0915. It is the Contractor's responsibility to utilize a trained, certified and licensed Asbestos Abatement Contractor in accordance with the Federal, State and Local regulations.

Modifications to Austin Water signed and stamped sheets are not permitted. All design modifications will need to be submitted via the ABC portal for a Plan Correction or Revision. All unethical engineering practices, including modifying City Stamped plan sheets, shall be reported to the Texas Board of Professional Engineers and Land Surveyors (PELS).
Reference: Texas Engineering Practice Act and Rules, Subchapter C: Professional Conduct and Ethics

SERVICE EXTENSION REQUESTS

WASTEWATER SER NO. ____ WATER SER NO. ______

NO OFFSITE WATER/WASTEWATER IMPROVEMENTS WILL BE REQUIRED FOR THE PROPOSED DEVELOPMENT

PROJECT INFORMATION

FIRE, DOMESTIC AND IRRIGATION DEMAND DATA	
GRID NUMBER:	D20
MAPSCO NUMBER:	612L, 612Q
AW INTERSECTION NUMBER:	26333, 26333, 26334
BUILDING SIZE IN SQUARE FEET:	56,400 SF
BUILDING TYPE PER IFC:	TYPE II-A
BUILDING HEIGHT:	45' - 6"
AVAILABLE FIRE FLOW CALCS AT 20 PSI:	3,294 GPM
REQUIRED BUILDING FIRE FLOW PER IFC TABLE B105.1(2):	3,500 GPM
REDUCED FIRE FLOW PER 75% FIRE SPRINKLER REDUCTION PER IFC TABLE B105.2:	875 GPM
MINIMUM FIRE FLOW (SEE NOTE #2 BELOW):	1,500 GPM
DOMESTIC WATER DEMAND IN GPM:	200 GPM
WATER SUPPLY FIXTURE UNITS (WSFU) FLUSH TANKS OR FLUSHOMETERS (CIRCLE APPLICABLE ITEM):	686 WSFU
AUSTIN WATER PRESSURE ZONE:	NORTH
STATIC WATER PRESSURE IN PSI:	85 PSI
STATIC PRESSURE AT THE HIGHEST LOT SERVED IN PSI:	88 PSI
STATIC PRESSURE AT THE LOWEST LOT SERVED IN PSI:	76 PSI
MAXIMUM IRRIGATION DEMAND:	50 GPM
FIRE LINE VELOCITY: 8" SIZE OF FIRE LINE	9 FPS
DOMESTIC LINE VELOCITY: 4" SIZE OF DOMESTIC LINE	7 FPS
LIVING UNIT EQUIVALENTS (LUEs)	700 LUEs

NOTE: LOTS WITH 65 PSI OR GREATER REQUIRE A PRV TO BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE DOMESTIC WATER METER.

1. WITH THE EXCEPTION OF PROVIDING THE REQUIRED INFORMATION, DO NOT REVISE THESE TABLES IN ANYWAY.
2. MIN FIRE FLOW: DESIGN ENGINEER MUST INDICATE VALUES WHICH COMPLY WITH IFC TABLES B105.1(2) OR B105.2 (REQUIRED OR REDUCED FIRE FLOWS). MIN FIRE FLOW VALUE SHALL BE NO LESS THAN 1000 GPM FOR NFPA 13 SYSTEMS OR 1500 FOR NFPA 13R SYSTEMS (FOOTNOTES a and b FOR TABLE B105.2).
3. IF DEMAND, OTHER THAN MINIMUM FIRE FLOW, IS UTILIZED IN FIRE LINE VELOCITY DETERMINATION, ENGINEERING JUSTIFICATION SHALL BE SHOWN ON THIS SHEET WITH APPLICABLE DATA AND CALCULATIONS.

Meter Notice:

Meter 1.5 inches and larger must be purchased and ordered 90 days in advance of installation.

Meter(s) Requirement for Project:
Address: 5901 SOUTHWEST PARKWAY
Proposed Use: DOMESTIC (EXISTING 3" METER TO BE REUSED)
Type: COMPOUND
Size: 3" GPM Range: 2-350 GPM
Service Units: 17.5

Meter(s) Requirement for Project:
Address:
Proposed Use:
Type:
Size: GPM Range:
Service Units:

Reclaimed Meter(s) Requirement for Project:
Address:
Proposed Use:
Type:
Size: GPM Range:

NO IRRIGATION METER WILL BE REQUIRED DUE TO EXISTING IRRIGATION SYSTEM TO BE MODIFIED TO ACCOMMODATE PROPOSED IMPROVEMENTS.

FIRE FLOW TEST DATA

AUSTIN FIRE DEPARTMENT
FIRE PREVENTION DIVISION
6310 Wilhelmina Delco Dr., Austin, Texas 78752
afd.hydrants@austintexas.gov

Hydrant Flow Test Report

TEST DATE	02/11/2023	FIRE BOX	5101	COMPANY	PREVENTION
TIME	740 HRS	MAP GRID ID	D20	AFD STAFF	CARR, BRET

RESIDUAL HYDRANT

RESIDUAL HYDRANT #	167705	MAIN SIZE (in.)	8
BLK #	DIRECTION	STREET NAME	TYPE
5900		SOUTHWEST	PKWY
STATIC PRESSURE (PSI)	88	RESIDUAL PRESSURE (PSI)	78

FLOW HYDRANT

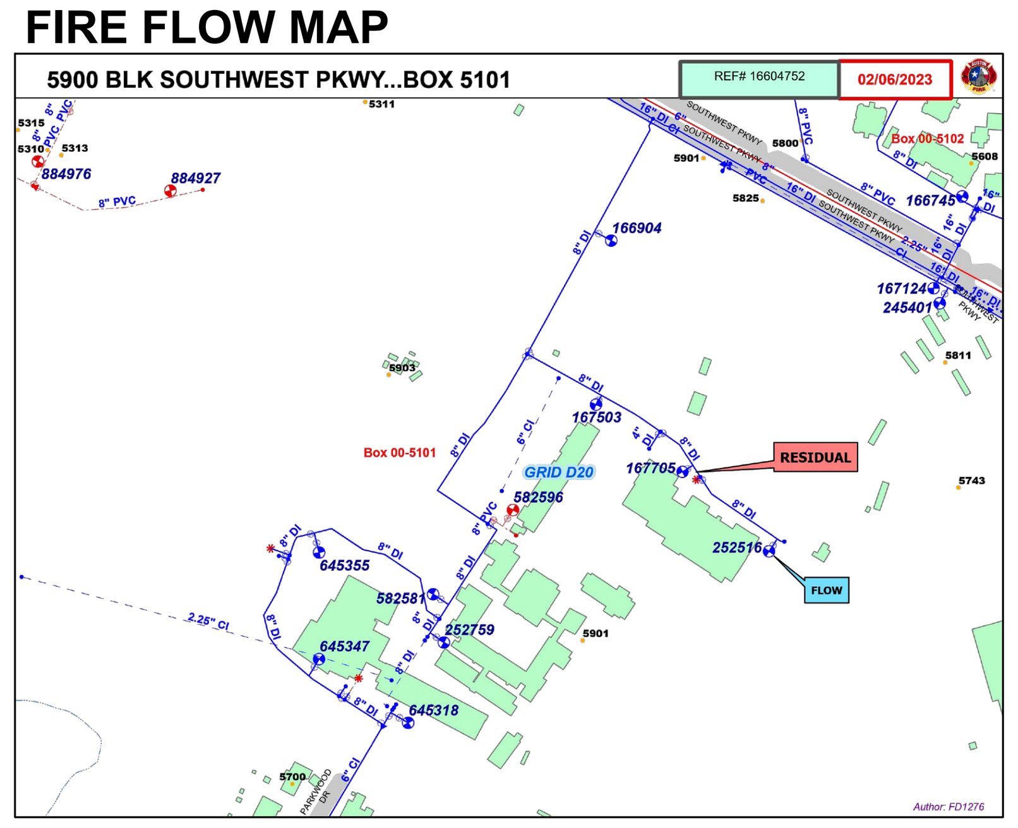
FLOW HYDRANT #	252516	MAIN SIZE (in.)	8
BLK #	DIRECTION	STREET NAME	TYPE
5900		SOUTHWEST	PKWY
STATIC PRESSURE (PSI)	88	RESIDUAL PRESSURE (PSI)	70

Comments	dc = discharge coefficient straight 2½" butt = 0.9 w/ 45° elbow = 0.75	0.75
	FLOW RATE (GPM) =	1170

NOTE: This information represents the water supply characteristics in the immediate area on the date and time tested. The City of Austin does not guarantee this data will be representative of the water supply characteristics at any time in the future. It is the requesting party's responsibility to ensure that this test information is appropriate to the location of the project in question and that any differences in elevation between the test location and project are accounted for and included in the hydraulic calculations.

HFTR #16638502

FIRE FLOW MAP



Additional Review Acknowledgement

Onsite Water Reuse & AW Reclaimed Information

Does this development have a total gross floor building area of 250,000 square feet or more?
- √ YES
- □ NO

Distance to nearest existing AW reclaimed main?
- □ 250' or less
- □ 251' to 500'
- √ Greater than 500'

Automated Metering Information

Is this project within the current service area of AW's Data Collection Units (DCUs)?
- √ YES
- □ NO

Does this project require a dedicated easement for DCU infrastructure?
- □ YES
- √ NO

AULCC Requirement

Does this project require an AULCC review?
- □ YES
- √ NO

IF YES, PLEASE PROVIDE UCC#__________

INSPECTION NOTES

Please contact Development Services Department, Site and Subdivision Inspection at sitesubintake@austintexas.gov for arrangements for payment of Inspection fees and job assignment for Inspection of the public utilities to this site. Inspection fees must be paid before any Pre-construction meeting can be held.

STANDARD CONSTRUCTION NOTES October 1, 2021

1. THE CITY STANDARD CONSTRUCTION SPECIFICATIONS CURRENT AT THE TIME OF BIDDING SHALL COVER MATERIALS AND METHODS USED TO DO THIS WORK.
2. CONTRACTOR MUST OBTAIN A ROW PERMIT FROM AUSTIN TRANSPORTATION DEPT, RIGHT OF WAY MANAGEMENT DIVISION BEFORE BEGINNING CONSTRUCTION WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR ALLEY. ACTIVITY WITHIN RIGHT-OF-WAY SHALL COMPLY WITH APPROVED TCP.
3. AT LEAST 48 HOURS PRIOR TO BEGINNING ANY UTILITY CONSTRUCTION ACTIVITY IN PUBLIC ROW OR PUBLIC EASEMENT, THE CONTRACTOR SHALL NOTIFY THE APPLICABLE CITY OF AUSTIN INSPECTION GROUP (AUSTIN TRANSPORTATION, DEVELOPMENT SERVICES, OR PUBLIC WORKS). SEE CURRENT NOTIFICATION REQUIREMENTS AT WWW.AUSTINTEXAS.GOV.
4. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF AUSTIN WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.
5. NO OTHER UTILITY SERVICE/APPURTENANCES SHALL BE PLACED NEAR THE PROPERTY LINE, OR OTHER ASSIGNED LOCATION DESIGNATED FOR WATER AND WASTEWATER UTILITY SERVICE THAT WOULD INTERFERE WITH THE WATER AND WASTEWATER SERVICES.
6. MINIMUM TRENCH SAFETY MEASURES SHALL BE PROVIDED, AS REQUIRED BY OSHA, CITY SPECIFICATION 509S, AND CITY/COUNTY CONSTRUCTION INSPECTORS.
7. ALL MATERIALS TESTS ORDERED BY THE OWNER FOR QUALITY ASSURANCE PURPOSES, SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY AND FUNDED BY THE OWNER IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 1804S.04.
8. PRESSURE TAPS SHALL BE ALLOWED ON A CASE BY CASE BASIS, AS DETERMINED BY THE DIRECTOR'S DESIGNEE. NORMALLY PRESSURE TAPS 4 INCHES AND LARGER SHALL BE ALLOWED IN THE FOLLOWING CASES: A) A TEST SHUT OUT INDICATES AN ADEQUATE SHUT OUT TO PERFORM THE WORK IS NOT FEASIBLE B) MORE THAN 30 CUSTOMERS OR A SINGLE CRITICAL CUSTOMER (AS DEFINED BY AUSTIN WATER) WOULD BE IMPACTED BY THE SHUT OUT OR C) THE EXISTING WATER LINE WARRANTS IT.
9. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEMS 510.3 (27)-(29). FORCE MAIN PRESSURE TESTING SHALL BE CONDUCTED AND FALL UNDER THE SPECIFICATIONS AS WATER LINES (PRESSURE PIPE) OR AT THE PRESSURES SHOWN ON THE APPROVED PLANS.
10. ALL MATERIAL USED ON THIS PROJECT MUST BE LISTED ON THE STANDARD PRODUCTS LISTING. ANY MATERIAL NOT LISTED HAS TO GO THROUGH THE REVIEW OF THE STANDARDS COMMITTEE FOR REVIEW AND APPROVAL PRIOR TO START OF PROJECT. TESTING AND EVALUATION OF PRODUCTS ARE REQUIRED BEFORE APPROVAL WILL BE GIVEN ANY CONSIDERATION.
11. WHEN WATER SERVICES ARE DAMAGED AND THE SERVICE MATERIAL IS POLYETHYLENE (PE), THE LINE SHALL BE REPAIRED ONLY BY HEAT FUSION WELD, AT BRASS FITTINGS, OR THE FULL LENGTH SHALL BE REPLACED PER CURRENT STANDARD DETAIL(S). WHEN POLYBUTYLENE (PB) TUBING IS DAMAGED OR TAMPERED WITH IN ANY WAY, THE FULL LENGTH OF SERVICE LINE SHALL BE REPLACED. (NOTE: FULL LENGTH IS FROM THE CORPORATION STOP TO THE METER.) REPAIR COUPLINGS ARE NOT ALLOWED FOR ANY WATER OR WASTEWATER SERVICE LINE REPAIR, RECONNECT, OR REPLACEMENT.
12. WHEN AN EXISTING WATERLINE SHUT OUT IS NECESSARY AND POSSIBLE, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR WHO WILL THEN NOTIFY AUSTIN WATER DISPATCH AND THE AFFECTED CUSTOMERS A MINIMUM OF FORTY-EIGHT (48) HOURS IN ADVANCE.
13. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR SO THAT HE CAN NOTIFY THE AUSTIN WATER AT 972-0000 AT A MINIMUM OF 72 HOURS PRIOR TO RELOCATING ANY DOMESTIC OR FIRE DEMAND WATER METERS. THE CONTRACTOR SHALL CAREFULLY REMOVE ALL METERS AND METERS BOXES THAT ARE INDICATED TO BE RELOCATED OR SALVAGED. THE CONTRACTOR SHALL INSTALL THE REMOVED METER OR CITY PROVIDED METER AT THE NEW LOCATION INDICATED ON THE CONSTRUCTION PLANS.
14. THE CONTRACTOR SHALL VERIFY ALL VERTICAL AND HORIZONTAL LOCATIONS OF EXISTING UTILITIES, BELOW GROUND AND OVERHEAD, PRIOR TO STARTING ONSITE UTILITY WORK.
15. ALL WATER, WASTEWATER, AND RECLAIMED MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE SEPARATION DISTANCES INDICATED ON THE PLANS, PER UTILITY CRITERIA MANUAL AND TCEQ CHAPTERS 210, 217, AND 290.
16. PROJECT-SPECIFIC SHOP DRAWINGS SHALL BE SUBMITTED FOR AW APPROVAL FOR PRE-CAST CIRCULAR VERTICAL MANHOLE SECTIONS LARGER THAN 48" DIAMETER. THE SHOP DRAWINGS SHALL INCLUDE THE FLOWLINE ELEVATION OF ALL CONNECTING PIPES; ELEVATIONS OF TRANSITIONS FROM LARGE DIAMETER SECTIONS TO 48" DIAMETER SECTIONS; TOP OF MANHOLE AND SURROUNDING GROUND ELEVATIONS; AND DETAILS OF SPECIAL CONSTRUCTION CONSIDERATIONS SPECIFIED IN THE CONTRACT DOCUMENTS.
17. WHEN CONCRETE MANHOLES LARGER THAN 48 INCH DIAMETER ARE USED, DRAWINGS THAT ARE SEALED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED FOR BASE SLABS, FLAT TOP LIDS (IF USED), AND FLAT TYPE CONCRETE PIECES USED TO TRANSITION FROM LARGER TO SMALLER DIAMETER MANHOLE SECTIONS.
18. ALL FIRE HYDRANTS AND VALVES THAT ARE TO BE ABANDONED SHALL BE REMOVED, SALVAGED AND RETURNED TO AUSTIN WATER. NOTICE SHOULD BE GIVEN 48 HOURS PRIOR, TO PIPELINE OPERATIONS DISTRIBUTION SYSTEM -VALVES AND HYDRANT SERVICES SUPERVISOR AT 512-972-1280.
19. ALL EXISTING WATER METERS IDENTIFIED TO BE RELOCATED OR ABANDONED AT THE DEVELOPMENT SHALL BE REMOVED FROM THE METER BOX PRIOR TO CONSTRUCTION AND GIVEN IMMEDIATELY TO THE CITY OF AUSTIN INSPECTOR.
20. THE ENGINEER SHALL CALL OUT THE SIZE, TYPE AND USE (DOMESTIC OR IRRIGATION) OF ALL EXISTING WATER METERS TO BE RELOCATED OR REPURPOSED. WATER METER NUMBERS WILL NOT BE REQUIRED TO BE PLACED ON THE PLAN SHEET. A SEPARATE AUSTIN WATER TAPS OFFICE FORM WILL BE USED TO PROVIDE RELEVANT DATA FOR THE EXISTING INFORMATION ON EXISTING METERS TO RECEIVE APPROPRIATE CREDITS. THIS FORM SHALL BE DIRECTLY SUBMITTED TO AUSTIN WATER TAPS OFFICE FOR REVIEW AND PROCESSING.
21. NO CONNECTION MAY BE MADE BETWEEN THE PRIVATE PLUMBING AND AUSTIN WATER INFRASTRUCTURE UNTIL A CITY APPROVED WATER METER HAS BEEN INSTALLED.
22. METER BOXES AND CLEAN OUTS SHALL NOT BE LOCATED WITHIN PAVED AREAS SUCH AS DRIVEWAYS AND SIDEWALKS.

AW INFRASTRUCTURE INFORMATION

PROPOSED PRODUCT TYPE (TO BE INSTALLED)	LENGTH OF PIPE (L.F.)	SIZE OF PIPE (INCH)	NO. OF SERVICES
WATER MAIN	283	8" DI	1

NOTE: DO NOT REMOVE THE TITLEBLOCK

AUSTIN WATER GENERAL INFORMATION AND CONSTRUCTION NOTES FOR COMMERCIAL SITES AND SUBDIVISION PLANS

CITY OF AUSTIN
AUSTIN WATER
October 2021

VERSION 2.0
STANDARD NO. 1 OF 1

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

REVISION | NO. | DATE

garza emc
7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

STATE OF TEXAS JONAH D. MANKOVSKY 110095 LICENSED PROFESSIONAL ENGINEER 12/01/2023

AWU GENERAL NOTES

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

NEW SHEET SPC-97-0320C(R3)

1" = 30'

LEGEND

EXISTING	DESCRIPTION
	PROPERTY LINE / R.O.W. LINE
(XXX)	RECORD INFORMATION
	LIGHT POLE
	GROUND LIGHT
	POWER POLE
	DOWN GUY
WTRMH	WATER MANHOLE
	WATER LINE MARKER
CMKR	UNDERGROUND CABLE MARKER
GMKR	UNDERGROUND GAS LINE MARKER
UGTM	UNDERGROUND TELEPHONE MARKER
GRSR	GAS RISER
TRSR	TELEPHONE RISER
SPC	SPRINKLER CONTROL BOX
	FIRE HYDRANT
	WATER VALVE
	WATER METER
TV	CABLE TV RISER
E	ELECTRIC BOX
EM	ELECTRIC METER
GM	GAS METER
G	GAS VALVE
TCB	TRAFFIC CONTROL BOX
TSP	TRAFFIC SIGNAL POST
	GRATE INLET
	CURB INLET (SIZE VARIES)
EMH	ELECTRIC MANHOLE (SIZE VARIES)
WWMH	WASTEWATER MANHOLE (SIZE VARIES)
SSMH	STORMSEWER MANHOLE (SIZE VARIES)
TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	WASTEWATER CLEANOUT
X	WIRE FENCE
//	WOOD FENCE
	CHAIN LINK FENCE
	CURB & GUTTER
	EDGE OF PAVEMENT
	CONCRETE SIDEWALKS
SS	STORMSEWER LINE
W	WATER LINE
WW	WASTEWATER LINE
G	GAS LINE
UE	UNDERGROUND ELECTRIC LINE
OE	OVERHEAD ELECTRIC LINE
OE	UNDERGROUND TELEPHONE LINE
UC	UNDERGROUND CABLE AND INTERNET
U-COMM	UNDERGROUND TELECOMMUNICATIONS
1111	TREE TO BE SAVED
1111	HERITAGE / MATURE TREE

NOTES:

1. SEE SHEET 81 FOR TREE LIST.

garza
7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

REVISION | NO. | DATE

JONAH D. MANKOVSKY 110095 12/01/2023

EXISTING CONDITIONS PLAN

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 80 OF 113

R3 NEW SHEET SPC-97-0320C(R3)

(R) 5048	18" CEDAR ELM
(R) 5049	20" CEDAR ELM
(R) 5050	8" ENGELMANN OAK
(R) 5051	9" ENGELMANN OAK
(R) 5052	7" ENGELMANN OAK
(R) 5053	6" ENGELMANN OAK
(R) 5054	6" ENGELMANN OAK
(R) 5055	13" LIVE OAK
(R) 5056	CLUSTER 2X CEDAR 2IN
5057	28" LIVE OAK
5058	28" LIVE OAK
5059	30" LIVE OAK 22-15
5060	23" LIVE OAK
5061	15" LIVE OAK
5062	18" LIVE OAK
5063	22" LIVE OAK
5064	18" LIVE OAK
5065	17" LIVE OAK
5066	27" LIVE OAK 20-7 AD*
5067	CLUSTER 2X CEDAR 6IN
5068	CLUSTER 2X CEDAR 3-6IN
5069	CLUSTER 2X CEDAR 5-6IN
5070	CLUSTER 2X CEDAR 4-6IN
5071	10" CEDAR 7-5
5072	12" CEDAR 9-5
5073	9" CEDAR 6-6
5074	9" CEDAR
5075	8" CEDAR
5076	CLUSTER 2X CEDAR 3-8IN
5077	7" HACKBERRY
5078	20" POST OAK
5079	9" CEDAR
5080	CLUSTER 2X LIGUSTRUM 2-3IN
5081	20" POST OAK
5082	6" CHINABERRY
5083	CLUSTER 2X CEDAR 2-3IN
5084	7" LIVE OAK
5085	10" LIVE OAK
5086	9" LIVE OAK
5087	13" LIVE OAK
5088	CLUSTER 2X CEDAR 2-4IN
5089	CLUSTER 2X CEDAR 2-6IN
5090	CLUSTER 2X CEDAR 2-7IN
5091	8" CEDAR
5092	CLUSTER 2X CEDAR 3-8IN
5093	CLUSTER 2X CEDAR 2-4IN
5094	CLUSTER 2X CEDAR 2-7IN
5095	CLUSTER 2X CEDAR 2-7IN
5096	CLUSTER 2X CEDAR 2-4IN
(R) 5097	CLUSTER 2X MESQUITE 3-4IN
5098	CLUSTER 2X CEDAR 2-6IN
5099	CLUSTER 2X CEDAR 2-6IN
5100	6" CEDAR
5101	CLUSTER 2X CEDAR 2-3IN
5102	9" CEDAR
5103	10" MULTI CEDAR
5104	CLUSTER 2X CEDAR 3IN
5105	7" CEDAR
5106	CLUSTER 2X CEDAR 2-4IN
5107	7" MULTI CEDAR
5108	CLUSTER 2X CEDAR 4-5IN
5109	CLUSTER 2X CEDAR 2-3IN
(R) 5110	8" CEDAR
(R) 5111	10" CEDAR
(R) 5112	CLUSTER 4X LIGUSTRUM 2-3IN
(R) 5113	15" CEDAR ELM AD
5114	6" CEDAR
(R) 5115	CLUSTER 2X CEDAR 4-5IN
5116	9" CEDAR
(R) 5117	CLUSTER 2X CEDAR 2-3IN
(R) 5118	13" LIVE OAK
(R) 5119	24" CEDAR ELM 13-8-7-6
(R) 5120	12" CEDAR ELM
(R) 5121	13" CEDAR ELM AD*
(R) 5122	18" CEDAR ELM 12-10
(R) 5123	22" LIVE OAK
(R) 5124	7" CEDAR ELM
(R) 5125	8" CEDAR ELM
(R) 5126	8" CEDAR ELM
(R) 5127	11" CEDAR ELM
(R) 5128	9" CEDAR ELM
(R) 5129	6" CEDAR
(R) 5130	7" CEDAR ELM
5131	6" CEDAR ELM
(R) 5132	6" CEDAR ELM
5133	15" MULTI CEDAR 8-7-6
5134	19" CEDAR ELM
5135	6" CEDAR
5136	12" CEDAR
(R) 5137	13" CEDAR ELM 9-7
5138	12" LIVE OAK
5139	15" LIVE OAK
(R) 5140	13" LIGUSTRUM 10-6 MULTI
5141	CLUSTER 2X LIGUSTRUM 2-3IN
5142	7" CEDAR
5143	15" CEDAR
5144	10" CEDAR
5145	16" LIVE OAK
5146	32" LIVE OAK 22-19
5147	16" LIVE OAK
5148	14" CEDAR ELM
5149	12" CEDAR ELM
5150	9" CEDAR ELM
5151	14" LIVE OAK
5152	13" CEDAR ELM 9-7
5153	13" LIVE OAK
5154	19" CEDAR
5155	12" CEDAR ELM
5156	20" LIVE OAK 12-6-5-4
5157	11" LIVE OAK
5158	20" CEDAR
5159	14" LIVE OAK
5160	9" CEDAR ELM
5161	16" LIVE OAK
5162	11" LIVE OAK
5163	11" LIVE OAK
5164	11" LIVE OAK
5165	11" LIVE OAK
5166	31" CEDAR 16-10-10-9
5167	8" CEDAR MULTI
5168	8" CEDAR MULTI
5169	23" LIVE OAK 17-12 MULTI
5170	31" LIVE OAK
5171	36" LIVE OAK
5172	18" CEDAR
5173	21" LIVE OAK
5174	15" LIVE OAK
5175	14" LIVE OAK
5176	14" LIVE OAK
5177	20" LIVE OAK
5178	27" LIVE OAK
5179	17" LIVE OAK
5180	17" LIVE OAK
5181	22" LIVE OAK
5182	17" CEDAR 12-10
5183	22" LIVE OAK
5184	21" LIVE OAK
5185	18" LIVE OAK
5186	25" LIVE OAK
5187	14" CEDAR
5188	12" CEDAR
5189	26" LIVE OAK
5190	16" LIVE OAK
5191	11" LIVE OAK
5192	12" LIVE OAK
5193	18" LIVE OAK
5194	12" LIVE OAK
5195	18" LIVE OAK
5196	26" LIVE OAK 19-14
5197	13" LIVE OAK
5198	10" LIVE OAK
5199	11" LIVE OAK
5200	12" LIVE OAK
5201	15" LIVE OAK
5202	9" LIVE OAK
5203	11" LIVE OAK
5204	9" LIVE OAK
5205	9" LIVE OAK
5206	8" LIVE OAK
5207	10" LIVE OAK
5208	9" LIVE OAK
5209	9" LIVE OAK
5210	11" LIVE OAK
5211	16" LIVE OAK 12-8
5212	9" LIVE OAK
5213	14" LIVE OAK 11-6
5214	12" LIVE OAK
5215	11" LIVE OAK
5216	14" LIVE OAK
5217	14" LIVE OAK
5218	11" LIVE OAK
5219	8" LIVE OAK
5220	19" LIVE OAK 13-12
5221	24" LIVE OAK 18-12
5222	15" LIVE OAK 11-8
5223	18" LIVE OAK 13 -10
5224	13" LIVE OAK
5225	14" LIVE OAK
5226	13" LIVE OAK
5227	13" LIVE OAK
5228	13" LIVE OAK
5229	23" LIVE OAK
5230	14" LIVE OAK
5231	14" LIVE OAK
5232	11" LIVE OAK
5233	11" LIVE OAK
5234	12" LIVE OAK
5235	11" LIVE OAK
5236	9" LIVE OAK
5237	14" LIVE OAK 9-9
5238	12" LIVE OAK
5239	12" LIVE OAK
5240	15" LIVE OAK
5241	12" LIVE OAK
5242	10" LIVE OAK
5243	16" LIVE OAK
5244	10" LIVE OAK
5245	8" LIVE OAK
5246	11" LIVE OAK
5247	8" LIVE OAK
5248	26" LIVE OAK
5249	14" LIVE OAK
5250	11" LIVE OAK
5251	12" LIVE OAK
5252	14" LIVE OAK
5253	12" LIVE OAK
5254	13" LIVE OAK
5255	13" LIVE OAK
5256	14" LIVE OAK
5257	15" LIVE OAK
5258	18" LIVE OAK
5259	18" LIVE OAK
5260	17" CEDAR ELM
5261	14" LIVE OAK
5262	21" LIVE OAK
5263	21" LIVE OAK
5264	11" LIVE OAK AD*
5265	16" LIVE OAK
5266	18" LIVE OAK
5267	15" LIVE OAK
5268	17" LIVE OAK
(5269 NOT USED)	
5270	18" LIVE OAK
5271	19" LIVE OAK
5272	17" LIVE OAK AD*
5273	9" CEDAR MULTI
5274	8" CEDAR
5275	11" LIVE OAK AD*
5276	19" LIVE OAK
5277	17" LIVE OAK
5278	11" LIVE OAK
5279	12" LIVE OAK
5280	36" LIVE OAK 26-20
5281	21" LIVE OAK
5282	29" LIVE OAK
5283	24" LIVE OAK
5284	22" LIVE OAK
5285	25" CEDAR
5286	16" CEDAR
5287	17" CEDAR
5288	19" CEDAR
5289	26" CEDAR AD*
5290	21" LIVE OAK
5291	24" CEDAR
5292	17" LIVE OAK
5293	10" CEDAR
5294	17" CEDAR
5295	14" LIVE OAK
5296	19" CEDAR 13-12
5297	21" CEDAR 15-12
5298	14" LIVE OAK
5299	11" CEDAR
5300	11" LIVE OAK
5301	26" LIVE OAK 18-15
5302	16" LIVE OAK 11-10
5303	8" LIVE OAK
5304	20" LIVE OAK 14-12
5305	8" LIVE OAK
5306	13" LIVE OAK
5307	13" LIVE OAK
5308	27" LIVE OAK
5309	13" LIVE OAK
5310	17" CEDAR 13-8
5311	14" CEDAR 11-6
5312	8" CEDAR
5313	19" LIVE OAK
5314	8" CEDAR
5315	8" CEDAR
5316	10" CEDAR
5317	23" CEDAR
5318	10" LIVE OAK
5319	13" LIVE OAK
5320	12" LIVE OAK
5321	17" LIVE OAK
5322	15" LIVE OAK
5323	23" LIVE OAK
5324	12" LIVE OAK
5325	15" CEDAR
5326	19" CEDAR
5327	8" HACKBERRY
5328	13" CEDAR
5329	19" LIVE OAK
5330	19" LIVE OAK
5331	11" LIVE OAK
5332	8" CEDAR MULTI
5333	9" CEDAR ELM
5334	10" HACKBERRY
5335	12" HACKBERRY
5336	9" HACKBERRY
5337	8" HACKBERRY
5338	9" HACKBERRY
5339	10" CEDAR MULTI
5340	8" CEDAR MULTI
5341	12" CEDAR MULTI
5342	8" CEDAR MULTI
5343	12" CEDAR ELM
5344	9" HACKBERRY
5345	13" CEDAR ELM
5346	8" HACKBERRY
5347	9" WOOLY BUMELIA
5348	15" MESQUITE 10-9
5349	9" CEDAR
5350	19" HACKBERRY 10-9-8
5351	13" HACKBERRY 9-8
5352	8" CEDAR ELM
5353	17" HACKBERRY
5354	12" HACKBERRY
5355	22" HACKBERRY
5356	13" CEDAR 9-8
5357	13" CEDAR
5358	18" WILLOW
5359	11" WILLOW
5360	8" WILLOW
5361	9" HACKBERRY
5362	23" CEDAR 17-11
5363	13" CEDAR
5364	13" CEDAR
5365	12" CEDAR
5366	20" CEDAR
5367	16" CEDAR
5368	24" CEDAR 13-12-9
5369	8" HACKBERRY
5370	16" CEDAR
5371	21" CEDAR
5372	15" CEDAR
5373	15" CEDAR 12-6
5374	15" CEDAR 10-9
5375	12" CEDAR MULTI
5376	19" CEDAR 10-10-8
5377	9" CEDAR MULTI
5378	8" CEDAR MULTI
5379	10" CEDAR MULTI
5380	10" CEDAR MULTI
5381	9" CEDAR
5382	11" CEDAR
5383	12" CEDAR 8-7
5384	8" CEDAR
5385	8" CEDAR MULTI
5386	12" CEDAR MULTI
5387	8" CEDAR
5388	18" CEDAR 10-9-7
5389	20" CEDAR
5390	10" CEDAR MULTI
5391	24" CEDAR 15-10-8 MULTI
5392	13" CEDAR 9-7
5393	12" CEDAR
5394	10" CEDAR AD*
5395	8" CEDAR
5396	8" CEDAR MULTI
5397	13" CEDAR MULTI
5398	11" CEDAR MULTI
5399	12" CEDAR 8-8 MULTI
5400	11" CEDAR MULTI
5401	12" CEDAR
5402	17" CEDAR 12-9
5403	11" CEDAR MULTI
5404	8" CEDAR MULTI
5405	12" CEDAR 8-8 MULTI
5406	12" CEDAR
5407	9" CEDAR MULTI
5408	12" CEDAR
5409	8" CEDAR MULTI
5410	9" CEDAR MULTI
5411	8" CEDAR MULTI
5412	12" CEDAR
5413	14" CEDAR 10-7
5414	16" CEDAR 11-10
5415	16" CEDAR
5416	11" CEDAR AD*
5417	10" CEDAR
5418	15" CEDAR
5419	10" CEDAR MULTI
5420	12" CEDAR 8-8 MULTI
5421	8" CEDAR MULTI
5422	9" CEDAR MULTI
5423	8" CEDAR
5424	16" CEDAR 11-9
5425	9" CEDAR
5426	10" CEDAR
5427	8" CEDAR
5428	9" CEDAR
5429	8" LIVE OAK
5430	9" CEDAR MULTI
5431	8" CEDAR
5432	15" LIVE OAK 10-9
5433	11" CEDAR
5434	8" LIVE OAK
5435	11" CEDAR
5436	14" LIVE OAK 10-8
5437	8" CEDAR
5438	10" CEDAR
5439	12" CEDAR 8-8
5440	10" CEDAR
5441	15" LIVE OAK
5442	8" CEDAR
5443	10" CEDAR MULTI
5444	8" CEDAR
5445	15" CEDAR
5446	8" CEDAR
5447	15" LIVE OAK
5448	9" CEDAR
5449	9" CEDAR
5450	16" CEDAR 11-9
5451	10" CEDAR
5452	13" CEDAR 9-8 MULTI
5453	14" CEDAR
5454	11" CEDAR MULTI
5455	13" CEDAR 10-6
5456	18" CEDAR 15-5
5457	8" CEDAR
5458	9" CEDAR MULTI
5459	26" CEDAR 11-11-9-9 MULTI
5460	23" CEDAR 10-9-8-8 MULTI
5461	21" CEDAR 12-11-8 MULTI
5462	9" CEDAR
5463	12" CEDAR 8-8 MULTI
5464	9" CEDAR
5465	12" CEDAR 8-8
5466	26" CEDAR 14-13-10 MULTI
5467	16" CEDAR
5468	21" CEDAR
5469	8" HACKBERRY
5470	8" HACKBERRY
5471	10" HACKBERRY
5472	16" HACKBERRY 12-8
5473	10" HACKBERRY
5474	10" HACKBERRY
5475	12" HACKBERRY
5476	18" CEDAR
5477	22" CEDAR 13-9-9 MULTI
5478	10" CEDAR
5479	17" CEDAR 12-10 MULTI
5480	8" CEDAR MULTI
5481	11" HACKBERRY 8-6
5482	17" CEDAR 13-8
5483	13" CEDAR
5484	10" CEDAR
5485	9" CEDAR
5486	12" CEDAR
5487	15" CEDAR
5488	21" CEDAR 17-8
5489	17" CEDAR
5490	17" CEDAR
5491	15" CEDAR 10-9 MULTI
5492	12" CEDAR
5493	15" CEDAR 10-10
5494	9" CEDAR
5495	9" CEDAR
5496	18" CEDAR
5497	11" LIVE OAK
5498	9" LIVE OAK
5499	8" CEDAR
5500	9" LIVE OAK
5501	12" LIVE OAK
5502	9" CEDAR
5503	13" LIVE OAK
5504	10" CEDAR
5505	10" CEDAR
5506	19" CEDAR 13-11 MULTI
5507	10" CEDAR
5508	11" LIVE OAK
5509	12" CEDAR MULTI
5510	15" CEDAR 10-9
5511	12" CEDAR 8-8 MULTI
5512	8" CEDAR MULTI
5513	8" CEDAR MULTI
5514	12" CEDAR MULTI
5515	13" CEDAR MULTI 9-8
5516	10" CEDAR MULTI
5517	10" CEDAR MULTI
5518	28" CEDAR 18-10-9 MULTI
5519	28" CEDAR 13-12-9-8 MULTI
5520	16" CEDAR 11-10 MULTI
5521	8" CEDAR MULTI
5522	9" CEDAR
5523	10" CEDAR
5524	11" CEDAR
5525	8" LIVE OAK
5526	8" CEDAR
5527	8" LIVE OAK
5528	8" LIVE OAK
5529	8" CEDAR MULTI
5530	9" LIVE OAK
5531	11" LIVE OAK AD*
5532	12" LIVE OAK
5533	17" LIVE OAK
5534	8" CHINQUAPIN OAK
5535	8" CHINQUAPIN OAK
5536	23" LIVE OAK 17-11
5537	10" CEDAR ELM
5538	16" LIVE OAK
5539	15" LIVE OAK
5540	8" CEDAR
5541	8" CEDAR ELM
5542	8" CEDAR ELM
5543	21" LIVE OAK 14-13
5544	15" RED OAK
5545	10" CHINQUAPIN OAK
5546	9" RED OAK
5547	11" RED OAK
5548	22" LIVE OAK
5549	20" LIVE OAK
5550	32" LIVE OAK
5551	28" LIVE OAK
5552	38" LIVE OAK
5553	27" LIVE OAK
5554	24" LIVE OAK
5555	24" LIVE OAK
5556	21" LIVE OAK
5557	14" LIVE OAK 9-9
5558	18" LIVE OAK
5559	11" CEDAR ELM
5560	11" CEDAR ELM
5561	10" CEDAR ELM
5562	11" CEDAR ELM
5563	9" CEDAR ELM
5564	11" CEDAR ELM
5565	9" CEDAR ELM
5566	16" CEDAR
5567	20" LIVE OAK 11-10-7
5568	15" LIVE OAK 8-7-7
5569	23" LIVE OAK 13-8-8-4
5570	15" LIVE OAK
5571	13" LIVE OAK
5572	31" CEDAR 25-12
5573	24" CEDAR
5574	34" LIVE OAK 23-21
5575	16" LIVE OAK 11-10
5576	30" LIVE OAK
5577	12" CEDAR ELM
5578	21" LIVE OAK 12-11-7
5579	17" LIVE OAK
5580	14" LIVE OAK 8-7-4
5581	25" LIVE OAK 13-12-6-6
5582	16" LIVE OAK 11-9
5583	15" LIVE OAK
5584	10" CEDAR ELM
5585	10" LIVE OAK
5586	12" CEDAR ELM
5587	20" LIVE OAK
5588	15" LIVE OAK
5589	15" LIVE OAK 10-10
5590	18" LIVE OAK
5591	19" LIVE OAK
5592	23" LIVE OAK 13-12-7
(R) 5593	15" LIVE OAK 10-9
5594	21" LIVE OAK
5595	31" LIVE OAK 17-15-13
5596	8" CEDAR ELM
5597	8" CEDAR ELM
5598	8" CEDAR ELM
5599	9" CEDAR ELM
5600	27" LIVE OAK 20-13
5601	31" LIVE OAK 16-15-15
5602	18" LIVE OAK 12-11
(R) 5603	15" LIVE OAK 8-8-5
(R) 5604	11" LIVE OAK
5605	22" LIVE OAK 12-11-9
5606	17" LIVE OAK
5607	21" LIVE OAK 15-12
5608	21" LIVE OAK 11-11-9
5609	10" CEDAR
5610	13" LIVE OAK
5611	12" CEDAR ELM
5612	11" CEDAR ELM
5613	24" LIVE OAK 16-16
5614	24" LIVE OAK 13-12-9
5615	24" LIVE OAK 18-12
5616	20" LIVE OAK 14-12
5617	16" LIVE OAK 11-9
(R) 5618	10" LIVE OAK
5619	17" LIVE OAK 11-11
(R) 5620	15" LIVE OAK
5621	22" LIVE OAK 15-14
5622	21" LIVE OAK 14-13
(R) 5623	16" LIVE OAK 11-10
5624	20" LIVE OAK 14-12
5625	21" LIVE OAK
5626	10" CEDAR ELM
5627	11" CEDAR ELM
5628	15" CEDAR ELM
5629	17" LIVE OAK
5630	18" LIVE OAK
(R) 5631	17" LIVE OAK
5632	16" LIVE OAK
5633	15" LIVE OAK
5634	19" LIVE OAK
5635	14" LIVE OAK
5636	17" LIVE OAK
5637	CLUSTER 9X YAUPON 2-3IN
5638	18" LIVE OAK
5639	16" LIVE OAK
5640	18" LIVE OAK
5641	16" LIVE OAK
5642	14" LIVE OAK
5643	19" LIVE OAK
5644	19" LIVE OAK
5645	14" LIVE OAK
5646	13" LIVE OAK
5647	16" LIVE OAK
5648	16" LIVE OAK
(R) 5649	13" LIVE OAK
(R) 5650	13" LIVE OAK
5651	16" LIVE OAK
(R) 5652	11" LIVE OAK
(R) 5653	11" LIVE OAK
(R) 5654	11" LIVE OAK
5655	CLUSTER 7X MOUNTAIN LAUREL 2-3IN
5656	30" LIVE OAK
5657	18" NET LEAF OAK
5658	CLUSTER 5X YAUPON 2-3IN
5659	CLUSTER 6X YAUPON 2-4IN
5660	37" LIVE OAK
5661	37" LIVE OAK
5662	21" LIVE OAK
5663	18" CEDAR ELM
5664	13" LIVE OAK 9-7
5665	9" LIVE OAK
5666	11" LIVE OAK
5667	15" LIVE OAK 11-7
5668	CLUSTER 8X YAUPON 2IN
5669	13" RED OAK
5670	16" LIVE OAK
5671	17" LIVE OAK
5672	15" LIVE OAK
5673	13" LIVE OAK
5674	22" LIVE OAK 15-14
5675	15" LIVE OAK
5676	11" LIVE OAK 8-5
5677	11" LIVE OAK 8-6
5678	9" CEDAR ELM
5679	8" CEDAR ELM
5680	10" CEDAR ELM
5681	14" LIVE OAK 10-8
5682	12" LIVE OAK
5683	12" LIVE OAK
5684	11" CEDAR ELM 8-5
5685	15" RED OAK 11-7
5686	9" LIVE OAK
5687	8" LIVE OAK
5688	11" LIVE OAK 8-5
5689	9" LIVE OAK
5690	24" LIVE OAK
5691	20" LIVE OAK
5692	10" CEDAR
5693	17" CEDAR 9-7-5-3
5694	15" LIVE OAK 8-8-3-2
5695	16" LIVE OAK 11-10
5696	22" LIVE OAK 14-10-5
5697	6" LIVE OAK
5698	7" LIVE OAK
5699	7" LIVE OAK
5700	7" LIVE OAK
5701	7" CEDAR
5702	7" LIVE OAK
5703	7" LIVE OAK
5704	13" CEDAR 7-4-4-4
5705	11" LIVE OAK 6-5-5
5706	6" CEDAR ELM
5707	7" LIVE OAK
5708	14" CEDAR 7-5-4-3
5709	7" LIVE OAK
5710	21" LIVE OAK 11-8-7-5
5711	6" CEDAR ELM
5712	6" LIVE OAK
5713	7" LIVE OAK
5714	10" CEDAR ELM
5715	6" BURR OAK
5716	6" CEDAR ELM
5717	7" CEDAR ELM
5718	7" CEDAR ELM
5719	7" CEDAR ELM
5720	6" CEDAR ELM
5721	7" CEDAR ELM
5722	8" LIVE OAK
5723	6" LIVE OAK
5724	6" LIVE OAK
5725	6" LIVE OAK
5726	7" LIVE OAK
5727	7" LIVE OAK
5728	6" LIVE OAK
5729	6" LIVE OAK
5730	6" CEDAR ELM
5731	9" LIVE OAK 7-4
5732	7" LIVE OAK
5733	9" LIVE OAK
5734	10" LIVE OAK 7-6
5735	7" LIVE OAK
5736	8" LIVE OAK
5737	7" LIVE OAK
5738	6" CEDAR ELM
5739	6" CEDAR ELM
5740	8" CEDAR ELM
5741	7" CEDAR ELM
5742	7" CEDAR ELM
5743	29" CEDAR
5744	36" CEDAR 12-12-10-10-9-7
5745	23" CEDAR 11-10-7-6
5746	26" CEDAR 10-8-7-6-5-5
5747	16" CEDAR 7-7-6-6-5
5748	19" CEDAR 8-7-5-5-4
5749	15" CEDAR 8-5-4-4
5750	12" CEDAR 7-5-4
5751	19" CEDAR 9-7-6-5
5752	17" CEDAR 9-6-5-4
5753	28" CEDAR 8-7-6-6-5-5-5-5
5754	18" CEDAR 13-6-4
5755	10" CEDAR
5756	10" CEDAR
5757	19" CEDAR 8-6-5-5-5
5758	18" CEDAR 8-7-6-5
5759	20" CEDAR 8-6-6-6-5
5760	6" CEDAR
5761	13" CEDAR 6-6-4-4
5762	19" CEDAR 14-10
5763	13" CEDAR 6-5-4-4
5764	7" CEDAR
5765	23" CEDAR 9-6-6-4-4-4-4
5766	28" CEDAR 7-7-6-5-5-5-4-4-4
5767	8" CEDAR
5768	7" CEDAR
5769	26" CEDAR 10-10-10-6-6
5770	14" CEDAR 7-7-7
5771	11" CEDAR 8-6
5772	6" CEDAR
5773	28" CEDAR 8-8-7-6-6-6-5
5774	16" CEDAR 7-5-4-4-4
5775	29" CEDAR 12-8-7-6-6-6
5776	CLUSTER 6X CEDAR 2-5IN
5777	21" CEDAR 9-8-6-6-3
5778	29" CEDAR 11-9-8-7-6-4
5779	7" CEDAR
5780	16" CEDAR 6-4-4-4-4-4
5781	6" CEDAR
5782	14" CEDAR 7-7-6
5783	22" CEDAR 10-8-8-8
5784	17" CEDAR 11-4-4-3
5785	13" CEDAR 6-5-4-3
5786	CLUSTER 8X CEDAR 3-5IN
5787	11" CEDAR 6-6-4
5788	10" CEDAR 8-4
5789	13" CEDAR 7-4-4-4
5790	14" CEDAR 6-5-4-3-3
5791	10" CEDAR 7-5
5792	26" CEDAR 9-8-6-6-5-5-4
5793	22" CEDAR 11-8-5-4-4
5794	24" CEDAR 15-6-6-6
5795	8" CEDAR
5796	15" CEDAR 6-6-5-4-3
5797	23" CEDAR 13-8-7-4
5798	6" HACKBERRY
5799	11" CEDAR
5800	6" CEDAR
5801	20" CEDAR 9-6-4-3-3-3-3
5802	10" CEDAR 7-6
5803	11" CEDAR
5804	7" CEDAR
5805	12" CEDAR 9-5
5806	12" CEDAR 9-5
5807	10" CEDAR 6-4-4
5808	12" CEDAR 7-6-4
5809	14" CEDAR 9-5-4
5810	19" CEDAR 6-5-4-4-4-4-4
5811	12" CEDAR 6-6-5
5812	8" LIVE OAK
5813	17" CEDAR 7-6-6-4-4
5814	12" LIVE OAK
5815	14" CEDAR 6-4-4-4-4
5816	10" CEDAR
5817	8" CEDAR 6-4
5818	13" CEDAR 7-4-4-4
5819	11" CEDAR 6-5-4
5820	22" CEDAR 7-6-5-5-5-4-4
5821	7" CEDAR
5822	CLUSTER 7X CEDAR 3-8IN
5823	15" LIVE OAK
5824	18" LIVE OAK
5825	6" CEDAR
5826	7" CEDAR
5827	17" CEDAR 10-5-5-4
5828	18" CEDAR 7-7-4-3-3
5829	9" CEDAR
5830	14" CEDAR 11-3-3
5831	27" CEDAR 11-9-9-8-5
5832	16" CEDAR 11-5-4
5833	11" CEDAR
5834	19" CEDAR 11-11-5
5835	8" CEDAR
5836	19" CEDAR 10-6-6-6
5837	12" CEDAR 8-4-3
5838	12" CEDAR 7-4-5
5839	CLUSTER 7X CEDAR 2-4IN
5840	CLUSTER 5X CEDAR 2-3IN
5841	6" CEDAR
5842	7" CEDAR
5843	7" CEDAR
5844	10" CEDAR
5845	27" CEDAR 8-7-7-5-5-5-4-4
5846	8" CEDAR 6-3
5847	CLUSTER 8X CEDAR 2-5IN
5848	10" CEDAR 7-6
5849	10" CEDAR 7-5
5850	12" CEDAR
5851	6" LIVE OAK
5852	15" CEDAR 10-9
5853	9" CEDAR
5854	7" CEDAR
5855	7" CEDAR
5856	13" LIVE OAK
5857	9" CEDAR
5858	13" LIVE OAK
5859	11" LIVE OAK 8-6
5860	11" CEDAR
5861	8" CEDAR
5862	14" CEDAR
5863	11" CEDAR
5864	6" CEDAR
5865	12" CEDAR 9-6
5866	15" CEDAR 12-6
5867	8" CEDAR
5868	11" CEDAR
5869	20" CEDAR 12-10-5
5870	13" CEDAR 8-6-4
5871	10" CEDAR 7-5
5872	6" CEDAR
5873	27" CEDAR 16-8-7-4-3
5874	11" CEDAR
5875	10" CEDAR
5876	11" CEDAR
5877	16" CEDAR
5878	9" CEDAR
5879	13" CEDAR
5880	6" CEDAR
5881	6" CEDAR
5882	7" CEDAR
5883	10" CEDAR
5884	10" CEDAR 7-5
5885	8" LIGUSTRUM 6-3
5886	10" CEDAR
5887	8" CEDAR
5888	8" CEDAR
5889	12" CEDAR
5890	8" CEDAR
5891	20" CEDAR
5892	8" CEDAR
5893	6" CEDAR
5894	7" CEDAR
5895	12" CEDAR 8-4-3
5896	8" CEDAR ELM
5897	11" CEDAR ELM
5898	11" CEDAR ELM
5899	12" CEDAR ELM
5900	7" CEDAR
5901	8" LIVE OAK
5902	16" LIVE OAK
5903	15" LIVE OAK
5904	22" LIVE OAK
5905	15" LIVE OAK
5906	17" LIVE OAK
5907	13" LIVE OAK
5908	18" LIVE OAK
5909	20" LIVE OAK
5910	12" CEDAR
5911	8" CEDAR 6-3
5912	10" CEDAR 6-4-4
5913	CLUSTER 3X LIGUSTRUM 2-4IN
5914	15" CEDAR
5915	10" CEDAR
5916	11" CEDAR
5917	8" CEDAR
5918	15" CEDAR
5919	13" CEDAR
5920	7" CEDAR
5921	19" CEDAR 11-10-6
5922	11" CEDAR
5923	9" CEDAR
5924	8" CEDAR
5925	7" CEDAR
5926	12" CEDAR
5927	17" LIVE OAK
5928	6" CEDAR
5929	9" CEDAR
5930	6" CEDAR
5931	14" CEDAR
5932	11" CEDAR
5933	6" CEDAR
5934	11" CEDAR
5935	13" CEDAR 8-5-5
5936	6" CEDAR
5937	10" CEDAR 8-3
5938	8" CEDAR
5939	6" CEDAR
5940	12" CEDAR 9-5
5941	12" CEDAR 6-4-4-4
5942	9" CEDAR
5943	26" CEDAR 14-7-5-5-3-3
5944	12" CEDAR 10-3
5945	7" CEDAR
5946	CLUSTER 4X CEDAR 2-5IN
5947	9" CEDAR 7-3
5948	11" CEDAR 7-7
5949	28" CEDAR 16-11-5-4-3
5950	12" CEDAR 9-5
5951	9" CEDAR 7-4
5952	10" CEDAR
5953	9" CEDAR 6-5
5954	6" CEDAR
5955	9" CEDAR
5956	19" CEDAR 14-10
5957	6" CEDAR
5958	11" CEDAR
5959	12" CEDAR 10-4
5960	14" CEDAR 10-4-4
5961	15" CEDAR 10-9
5962	10" CEDAR
5963	9" CEDAR
5964	8" CEDAR
5965	13" CEDAR
5966	6" CEDAR
5967	9" LIVE OAK
5968	10" LIVE OAK
5969	15" CEDAR
5970	11" LIVE OAK
5971	6" LIVE OAK
5972	18" CEDAR 12-11
5973	11" CEDAR
5974	8" CEDAR
5975	8" CEDAR
5976	22" CEDAR ELM 13-11-6
5977	9" CEDAR
5978	12" CEDAR
5979	9" LIVE OAK
5980	10" LIVE OAK
5981	7" LIVE OAK
5982	7" LIVE OAK
5983	8" LIVE OAK
5984	11" CEDAR ELM
5985	13" LIVE OAK
5986	10" LIVE OAK
5987	30" CEDAR 15-13-9-7
5988	26" CEDAR 9-7-7-6-6-5-3
5989	CLUSTER 3X LIGUSTRUM 2IN
5990	13" LIVE OAK
5991	18" LIVE OAK
5992	22" LIVE OAK 18-8
5993	CLUSTER 5X CEDAR 3-4IN
5994	15" CEDAR 11-7
5995	8" CEDAR
5996	16" CEDAR 12-7
5997	CLUSTER 2X CEDAR 4-5IN
5998	8" LIVE OAK
5999	9" CEDAR
6000	12" CEDAR
6001	15" CEDAR
6002	14" CEDAR
6003	12" CEDAR
6004	17" CEDAR
6005	14" CEDAR
6006	8" CEDAR
6007	9" CEDAR
6008	20" CEDAR
6009	20" CEDAR 15-9
6010	9" CEDAR
6011	8" CEDAR
6012	11" CEDAR
6013	11" CEDAR
6014	15" CEDAR
6015	9" CEDAR 7-4
6016	12" CEDAR 7-3-3-3
6017	7" LIVE OAK
6018	7" LIVE OAK
6019	CLUSTER 4X CEDAR 2-4IN
6020	10" LIVE OAK
6021	7" LIVE OAK
6022	7" LIVE OAK
6023	10" LIVE OAK
6024	8" LIVE OAK
6025	7" CEDAR
6026	10" LIVE OAK
6027	CLUSTER 4X CEDAR 2-5IN
6028	10" CEDAR
6029	6" CEDAR
6030	9" CEDAR
6031	12" LIVE OAK
6032	CLUSTER 3X CEDAR 2-3IN
6033	12" CEDAR
6034	6" LIVE OAK
6035	7" LIVE OAK AD*
6036	13" CEDAR
6037	9" LIVE OAK
6038	8" CEDAR
6039	6" CEDAR
6040	11" CEDAR 9-3
6041	21" CEDAR 16-4-3-3
6042	CLUSTER 4X LIGUSTRUM 2-3IN
6043	7" CEDAR
6044	CLUSTER 2X CEDAR 5IN
6045	11" CEDAR 8-3-2
6046	9" CEDAR
6047	7" CEDAR
6048	7" CEDAR
6049	6" CEDAR
6050	10" CEDAR
6051	7" CEDAR
6052	14" CEDAR 10-7
6053	7" CEDAR
6054	6" CEDAR
6055	14" CEDAR
6056	6" CEDAR
6057	17" CEDAR 15-3
6058	CLUSTER 3X CEDAR 3-5IN
6059	12" CEDAR 9-6
6060	8" CEDAR
6061	7" CEDAR
6062	6" CEDAR
6063	10" CEDAR
6064	8" CEDAR
6065	8" CEDAR 6-4
6066	9" CEDAR
6067	14" CEDAR 9-9
6068	7" CEDAR
6069	8" CEDAR
6070	8" CEDAR
6071	12" CEDAR
6072	CLUSTER 5X CEDAR 3-5IN
6073	10" CEDAR
6074	11" CEDAR
6075	14" CEDAR 11-5
6076	7" LIVE OAK
6077	10" LIVE OAK
6078	9" LIVE OAK
6079	6" LIVE OAK
6080	18" CEDAR 13-10
6081	7" CEDAR
6082	13" CEDAR
6083	14" CEDAR
6084	10" CEDAR 7-6
6085	8" CEDAR
6086	CLUSTER 5X CEDAR 2-4IN
6087	8" CEDAR
6088	8" CEDAR
6089	7" CEDAR
6090	CLUSTER 4X CEDAR 3-5IN
6091	7" CEDAR
6092	6" CEDAR
6093	13" CEDAR
6094	CLUSTER 5X CEDAR 3-5IN
6095	8" CEDAR
6096	11" CEDAR
6097	9" CEDAR
6098	8" CEDAR
6099	8" CEDAR
6100	10" CEDAR
6101	CLUSTER 4X CEDAR 3-4IN
6102	11" CEDAR
6103	6" CEDAR
6104	7" CEDAR
6105	CLUSTER 6X CEDAR 2-4IN
6106	8" CEDAR
6107	11" CEDAR 8-5
6108	6" CEDAR
6109	11" CEDAR
6110	8" CEDAR
6111	9" CEDAR
6112	13" CEDAR
6113	8" LIVE OAK
6114	12" LIVE OAK
6115	8" LIVE OAK
6116	7" LIVE OAK
6117	8" LIVE OAK
6118	9" LIVE OAK
6119	9" LIVE OAK
6120	CLUSTER 5X CEDAR 3-5IN
6121	8" LIVE OAK
6122	10" LIVE OAK
6123	7" CEDAR
6124	9" LIVE OAK
6125	8" LIVE OAK
6126	9" LIVE OAK
6127	CLUSTER 4X CEDAR 2-3IN
6128	9" CEDAR
6129	10" CEDAR
6130	21" CEDAR
6131	7" CEDAR
6132	6" CEDAR
6133	8" LIVE OAK
6134	8" CEDAR 6-4
6135	8" LIVE OAK
6136	12" CEDAR
6137	8" CEDAR
6138	11" LIVE OAK
6139	9" CEDAR
6140	6" CEDAR
6141	CLUSTER 2X CEDAR 3-4IN
6142	8" CEDAR
6143	12" LIVE OAK
6144	6" CEDAR
6145	7" CEDAR
6146	10" CEDAR
6147	10" CEDAR
6148	8" CEDAR
6149	8" CEDAR 6-3
6150	6" CEDAR
6151	6" CEDAR
6152	12" CEDAR
6153	8" CEDAR
6154	7" CEDAR
6155	8" CEDAR
6156	7" CEDAR
6157	11 CEDAR"
6158	10 CEDAR"
6159	7" LIVE OAK
6160	10" LIVE OAK
6161	27" CEDAR
6162	16" CEDAR 11-10
6163	8" CEDAR
6164	17" CEDAR
6165	8" CEDAR
6166	10" LIVE OAK
6167	8" CEDAR
6168	8" CEDAR
6169	CLUSTER 2X CEDAR 5IN
6170	6" CEDAR
6171	11" CEDAR 8-5
6172	8" LIVE OAK
6173	CLUSTER 6X CEDAR 2-5IN
6174	8" CEDAR
6175	CLUSTER 4X CEDAR 3-5IN
6176	17" CEDAR 14-6
6177	10" CEDAR 7-5
6178	6" CEDAR
6179	13" CEDAR 9-7
6180	8" CEDAR
6181	7" CEDAR
6182	8" CEDAR
6183	6" CEDAR
6184	9" CEDAR
6185	12" LIVE OAK
6186	11" CEDAR 7-4-4
6187	8" CEDAR
6188	11" CEDAR 9-4
6189	8" CEDAR
6190	15" CEDAR
6191	9" CEDAR
6192	13" CEDAR 10-6
6193	7" LIVE OAK
6194	6" LIVE OAK
6195	6" LIVE OAK
6196	12" CEDAR
6197	13" CEDAR 10-5
6198	10" CEDAR 6-4-3
6199	7" CEDAR
6200	CLUSTER 5X CEDAR 3-5IN
6201	CLUSTER 2X LIVE OAK 4IN
6202	9" CEDAR
6203	12" LIVE OAK
6204	CLUSTER 8X CEDAR 3-5IN
6205	10" CEDAR 7-6
6206	10" CEDAR
6207	9" CEDAR 7-4
6208	10" CEDAR 7-6
6209	12" CEDAR 8-4-3
6210	10" CEDAR 7-3-3
6211	6" CEDAR
6212	6" CEDAR
6213	8" CEDAR 6-4
6214	9" CEDAR
6215	14" CEDAR 7-7-7
6216	7" CEDAR
6217	12" CEDAR 7-4-3-3
6218	6" CEDAR
6219	CLUSTER 4X CEDAR 3-5IN
6220	7" LIVE OAK
6221	6" LIVE OAK
6222	14" CEDAR 6-6-5-5
6223	CLUSTER 4X CEDAR 4IN
6224	13" CEDAR 8-4-3-3
6225	CLUSTER 4X CEDAR 2-5IN
6226	10 CEDAR"
6227	CLUSTER 13X CEDAR 4-5IN
6228	9" CEDAR
6229	16" CEDAR 10-8-4
6230	12" CEDAR 7-5-4
6231	19" CEDAR 12-5-5-4
6232	10" LIVE OAK
6233	7" CEDAR
6234	7" LIVE OAK
6235	11" LIVE OAK
6236	7" CEDAR
6237	7" LIVE OAK
6238	6" CEDAR
6239	CLUSTER 4X CEDAR 3-5IN
6240	10" CEDAR 8-4
6241	13" CEDAR 10-6
6242	6" CEDAR
6243	10" CEDAR 7-5
6244	9" CEDAR 6-5
6245	9" LIVE OAK
6246	7" CEDAR
6247	CLUSTER 12X CEDAR 3-5IN
6248	12" CEDAR 10-3
6249	6" CEDAR
6250	10" LIVE OAK
6251	CLUSTER 3X CEDAR 2-5IN
6252	13" LIVE OAK
6253	7" CEDAR
6254	CLUSTER 5X CEDAR 2-5IN
6255	11" CEDAR 8-5
6256	7" CEDAR
6257	CLUSTER 6X CEDAR 2-6IN
6258	CLUSTER 4X CEDAR 2-5IN
6259	9" LIVE OAK
6260	11" LIVE OAK
6261	10" LIVE OAK
6262	CLUSTER 5X CEDAR 2-6IN
6263	8" LIVE OAK
6264	11" CEDAR
6265	10" CEDAR
6266	6" CEDAR
6267	6" CEDAR
6268	12" CEDAR 8-4-4
6269	11" CEDAR 8-5
6270	8" CEDAR 6-4
6271	14" CEDAR 11-5
6272	9" CEDAR 5-4-3
6273	18" CEDAR 8-6-6-4-4
6274	CLUSTER 8X CEDAR 2-5IN
6275	6" CEDAR
6276	9" CEDAR 6-5
6277	8" CEDAR
6278	CLUSTER 5X CEDAR 4-5IN
6279	15" CEDAR 7-5-5-4-2
6280	8" CEDAR 6-4
6281	CLUSTER 3X CEDAR 2-5IN
6282	22" CEDAR 9-8-7-7-4
6283	12" CEDAR 10-4
6284	17" LIVE OAK 11-11
6285	8" CEDAR
6286	CLUSTER 8X CEDAR 2-5IN
6287	11" CEDAR 8-3-3
6288	12" CEDAR 8-8
6289	12" LIVE OAK
6290	8" CEDAR 6-4
6291	8" CEDAR 6-4
6292	7" CEDAR 6-2
6293	8" CEDAR
6294	6" CEDAR
6295	CLUSTER 3X CEDAR 3-4IN
6296	6" CEDAR
6297	8" CEDAR 6-3
6298	CLUSTER 4X CEDAR 4-5IN
6299	9" CEDAR 7-3
6300	9" CEDAR 7-3
6301	9" CEDAR 6-5
6302	8" CEDAR 6-3
6303	8" CEDAR
6304	8" LIVE OAK
6305	7" CEDAR
6306	13" CEDAR
6307	13" CEDAR 11-4
6308	11" CEDAR
6309	12" CEDAR
6310	18" LIVE OAK 12-11
6311	10" LIVE OAK
6312	11" CEDAR
6313	12" CEDAR 9-6
6314	8" CEDAR 6-3
6315	6" CEDAR
6316	9" CEDAR 7-4
6317	9" CEDAR
6318	18" CEDAR 6-6-6-5-4-3
6319	13" CEDAR 8-6-4
6320	10" LIVE OAK
6321	6" CEDAR
6322	10" CEDAR 7-3-3
6323	15" CEDAR 9-6-6
6324	10" CEDAR 7-6
6325	15" CEDAR 7-6-5-5
6326	8" CEDAR
6327	9" LIVE OAK 7-3
6328	6" CEDAR
6329	11" CEDAR
6330	7" CEDAR
6331	6" CEDAR
6332	6" CEDAR
6333	8" LIVE OAK
6334	7" CEDAR
6335	9" LIVE OAK
6336	8" LIVE OAK
6337	8" LIVE OAK
6338	10" LIVE OAK
6339	10" LIVE OAK
6340	8" CEDAR
6341	9" LIVE OAK
6342	14" CEDAR 11-5
6343	6" CEDAR
6344	CLUSTER 8X CEDAR 3-5IN
6345	8" CEDAR 6-3
6346	7" CEDAR
6347	6" LIVE OAK
6348	7" CEDAR
6349	CLUSTER 5X CEDAR 2-4IN
6350	6" CEDAR
6351	11" CEDAR 8-5
6352	8" CEDAR
6353	10" CEDAR
6354	10" CEDAR
6355	13" CEDAR
6356	8" LIVE OAK
6357	13" LIVE OAK 10-6
6358	8" LIVE OAK
6359	12" LIVE OAK
6360	14" LIVE OAK
6361	17" CEDAR 12-5-4
6362	12" LIVE OAK
6363	12" LIVE OAK
6364	6" CEDAR
6365	11" CEDAR
6366	23" CEDAR 18-10
6367	8" CEDAR
6368	14" CEDAR 8-4-4-3
6369	6" CEDAR
6370	15" CEDAR 9-5-4-3
6371	9" CEDAR
6372	10" CEDAR
6373	6" CEDAR
6374	9" CEDAR
6375	8" CEDAR
6376	11" LIVE OAK
6377	11" LIVE OAK
6378	16" CEDAR 11-4-3-3
6379	11" CEDAR 9-3
6380	9" LIVE OAK
6381	7" CEDAR
6382	14" LIVE OAK 10-7
6383	28" CEDAR 10-6-6-5-5-4-3-3-3
6384	8" CEDAR
6385	6" CEDAR
6386	8" CEDAR 6-3
6387	11" CEDAR 9-4
6388	16" CEDAR 9-5-5-4
6389	12" CEDAR 8-7
6390	7" LIVE OAK
6391	6" LIVE OAK
6392	6" CEDAR
6393	10" CEDAR 8-4
6394	13" CEDAR 8-4-3-2
6395	13" CEDAR 9-4-3
6396	CLUSTER 6X CEDAR 2-5IN
6397	16" CEDAR 9-7-3-3
6398	15" CEDAR 9-5-3-3
6399	9" CEDAR
6400	10" CEDAR
6401	7" LIVE OAK
6402	6" LIVE OAK
6403	8" LIVE OAK
6404	9" LIVE OAK
6405	9" CEDAR
6406	10" CEDAR
6407	15" CEDAR 8-7-7
6408	8" CEDAR
6409	10" CEDAR
6410	13" CEDAR 8-6-3
6411	6" CEDAR
6412	8" CEDAR 6-3
6413	10" CEDAR 7-5
6414	7" CEDAR
6415	CLUSTER 7X CEDAR 2-5IN
6416	17" CEDAR 8-8-7-3
6417	6" CEDAR
6418	7" CEDAR
6419	8" LIVE OAK 6-4
6420	CLUSTER 2X CEDAR 3-5IN
6421	6" CEDAR
6422	6" CEDAR
6423	6" CEDAR
6424	16" CEDAR 8-6-5-4
6425	10" CEDAR
6426	6" LIVE OAK
6427	8" LIVE OAK
6428	8" LIVE OAK
6429	6" CEDAR
6430	21" LIVE OAK
6431	12" LIVE OAK
6432	7" CEDAR
6433	14" LIVE OAK 10-8
6434	9" LIVE OAK 7-3
6435	11" LIVE OAK 6-5-3-2
6436	7" CEDAR
6437	10" CEDAR 6-3-2-2
6438	CLUSTER 11X CEDAR 2-5IN
6439	12" CEDAR 7-6-3
6440	13" CEDAR 6-6-4-3
6441	29" CEDAR 10-9-7-8-4-4-3-3
6442	14" CEDAR 6-5-4-3-3
6443	16" CEDAR 6-6-6-4-3
6444	14" CEDAR 10-4-3
6445	11" CEDAR 7-4-4
6446	24" CEDAR 10-7-7-6-4-3
6447	22" CEDAR 11-10-6-6
6448	15" CEDAR 10-5-5
6449	22" CEDAR 9-6-6-5-5-4
6450	21" CEDAR 7-6-5-4-4-4-4
6451	14" CEDAR 6-6-4-3-3
6452	8" LIVE OAK
6453	9" CEDAR 7-3
6454	CLUSTER 5X LIVE OAK 2-4IN
6455	13" CEDAR 6-4-4-3-3
6456	CLUSTER 14X CEDAR 2-4IN
6457	20" CEDAR 8-4-4-3-3-3-3-3
6458	10" CEDAR 6-3-3-2
6459	8" CEDAR 6-3
6460	CLUSTER 14X CEDAR 2-5IN
6461	6" CEDAR
6462	12" CEDAR 7-6-4
6463	21" CEDAR 7-7-6-6-5-3
6464	15" CEDAR 6-6-4-4-3
6465	14" CEDAR 7-6-4-4
6466	CLUSTER 9X CEDAR 3-5IN
6467	8" CEDAR 6-3
6468	8" CEDAR 6-2-2
6469	12" CEDAR 7-5-2-2
6470	CLUSTER 8X CEDAR 2-3IN
6471	16" CEDAR 7-4-4-3-3-3
6472	15" CEDAR 6-6-5-3-3
6473	15" CEDAR 7-5-4-3-3
6474	17" CEDAR 7-6-6-4-4
6475	15" CEDAR 7-5-4-4-3
6476	12" CEDAR 6-5-4-3
6477	19" CEDAR 7-7-5-4-4-4
6478	27" CEDAR 11-10-6-6-5-5
6479	18" CEDAR 8-6-5-3-3-2
6480	11" LIVE OAK 7-5-3
6481	23" CEDAR 9-6-6-5-4-4-3
6482	10" CEDAR 6-4-3
6483	CLUSTER 17X CEDAR 2-5IN
6484	16" LIVE OAK 7-6-6-5
6485	CLUSTER 7X CEDAR 2-5IN
6486	CLUSTER 5X CEDAR 4IN
6487	15" CEDAR 7-5-4-4-3
6488	26" CEDAR 8-6-6-6-5-4-4-4
6489	21" CEDAR 6-6-6-4-4-3-3-3
6490	13" CEDAR 6-4-4-3-3
6491	10" CEDAR 6-4-4
6492	17" CEDAR 6-5-4-4-3-3-3
6493	10" CEDAR 7-4-2
6494	7" LIVE OAK
6495	6" LIVE OAK
6496	7" LIVE OAK
6497	7" CEDAR 6-2
6498	CLUSTER 12X CEDAR 2-4IN
6499	15" CEDAR 6-4-3-3-3-2-2
6500	8" CEDAR 6-4
6501	10" CEDAR 6-4-4
6502	6" CEDAR
6503	CLUSTER 20X CEDAR 2-5IN
6504	6" CEDAR
6505	CLUSTER 9X CEDAR 3-5IN
6506	14" CEDAR 7-7-3-3
6507	17" CEDAR 7-5-4-3-3-2-2
6508	11" CEDAR 7-4-3
6509	11" CEDAR 6-4-3-3
6510	19" CEDAR 9-8-6-5
6511	27" CEDAR 7-7-6-5-4-4-4-4-3-3
6512	12" CEDAR 10-4
6513	13" CEDAR 9-4-3
6514	32" CEDAR 7-7-7-7-6-6-5-4-4-4
6515	9" CEDAR
6516	18" CEDAR 7-6-4-4-4-4
6517	28" CEDAR 6-6-5-5-5-4-4-4-4-3-3
6518	19" CEDAR 6-5-4-4-4-3-3-3
6519	12" CEDAR 6-4-4-4
6520	8" CEDAR 6-4
6521	9" CEDAR 6-5
6522	CLUSTER 9X CEDAR 3-4IN
6523	13" CEDAR 6-5-5-4
6524	27" CEDAR 8-6-6-5-5-4-4-4-3
6525	17" CEDAR 7-6-5-5-4
6526	15" CEDAR 6-4-4-3-3-3
6527	24" CEDAR 6-5-4-4-4-4-3-3-3-2
6528	CLUSTER 16X CEDAR 3-5IN
6529	CLUSTER 12X CEDAR 3-5IN
6530	10" CEDAR 7-3-3
6531	CLUSTER 10X CEDAR 2-5IN
6532	27" CEDAR 6-6-5-5-5-5-4-4-3
6533	CLUSTER 17X CEDAR 2-4IN
6534	17" CEDAR 7-5-5-4-3-3
6535	9" CEDAR 7-4
6536	7" CEDAR
6537	18" CEDAR 7-7-4-4-3-3
6538	8" CEDAR 6-3
6539	12" CEDAR 7-6-4
6540	32" CEDAR 9-8-7-7-7-4-4-4-4
6541	CLUSTER 15X CEDAR 2-4IN
6542	11" CEDAR 6-4-3-3
6543	26" CEDAR 7-7-6-5-4-3-3-3-3-2-2
6544	29" CEDAR 6-6-5-5-5-5-4-4-4-4-4
6545	15" CEDAR 6-5-4-3-3-3
6546	CLUSTER 15X CEDAR 3-5IN
6547	CLUSTER 23X CEDAR 2-5IN
6548	22" CEDAR 7-4-4-4-3-3-3-3-3-3
6549	CLUSTER 19X CEDAR 2-5IN
6550	10" CEDAR 6-4-4
6551	14" CEDAR 7-4-3-3-3
6552	17" CEDAR 7-5-4-4-3-3
6553	CLUSTER 14X CEDAR 2-5IN
6554	6" CEDAR
6555	12" CEDAR 7-3-3-2-2
6556	15" CEDAR 6-4-4-3-3-3
6557	CLUSTER 16X CEDAR 2-5IN
6558	CLUSTER 23X CEDAR 2-5IN
6559	11" CEDAR 7-5-3
6560	CLUSTER 17X CEDAR 2-5IN
6561	19" CEDAR 7-5-4-4-4-3-3
6562	CLUSTER 14X CEDAR 2-5IN
6563	19" CEDAR 6-6-5-4-4-4-3
6564	28" CEDAR 8-8-6-6-6-4-4-3-3
6565	26" CEDAR 9-8-5-4-4-4-3-3-3
6566	8" CEDAR 6-2-2
6567	22" CEDAR 13-11-6
6568	12" CEDAR 6-4-4-4
6569	15" CEDAR 10-5-5
6570	17" CEDAR 7-5-5-3-3-2-2
6571	20" CEDAR 8-6-4-4-4-3-2
6572	15" CEDAR 6-5-4-3-3-3
6573	25" CEDAR 8-6-6-5-4-4-4-4
6574	23" CEDAR 8-7-7-5-4-4-3
6575	14" CEDAR 6-6-4-3-3
6576	10" CEDAR
6577	22" CEDAR 8-8-7-4-3-3-3
6578	10" CEDAR 7-5
6579	19" CEDAR 7-7-6-4-3-2-2
6580	19" CEDAR 7-6-6-4-4-4
6581	19" CEDAR 9-6-4-4-3-3
6582	7" CEDAR
6583	7" CEDAR
6584	CLUSTER 6X CEDAR 3-5IN
6585	11" CEDAR 8-6
6586	8" CEDAR
6587	6" CEDAR
6588	9" CEDAR 6-3-3
6589	13" CEDAR 8-5-4
6590	15" CEDAR 8-6-4-3
6591	15" CEDAR 6-4-4-3-3-3
6592	30" CEDAR 10-8-7-7-7-6-4
6593	37" CEDAR 10-9-8-6-6-5-5-5-3-3-3
6594	17" CEDAR 8-4-4-3-3-3
6595	16" CEDAR 6-6-4-4-3-3
6596	42" CEDAR 8-8-7-7-6-6-5-5-4-4-3-3-3-3-2-2
6597	14" CEDAR 10-4-4
6598	28" CEDAR 11-10-8-6-6-4
6599	36" CEDAR 10-9-8-7-6-4-4-4-3-3-3
6600	15" CEDAR 7-5-4-4-3
6601	CLUSTER 8X CEDAR 2-5IN
6602	35" CEDAR 9-9-8-7-6-4-4-4-4-3-3
6603	11" LIVE OAK
6604	13" LIVE OAK
6605	11" LIVE OAK 8-5 AD*
6606	10" LIVE OAK
6607	8" LIVE OAK
6608	14" CEDAR 6-4-3-3-2-2-2
6609	14" CEDAR 8-4-4-3
6610	11" LIVE OAK 8-5
6611	19" CEDAR
6612	20" CEDAR 6-6-6-5-4-3-3
6613	12" CEDAR 7-4-3-3
6614	20" CEDAR
6615	18" CEDAR 8-6-4-3-3-3
6616	8" CEDAR 6-4
6617	14" CEDAR 8-3-3-3-3
6618	9" LIVE OAK
6619	CLUSTER 13X CEDAR 2-5IN
6620	14" LIVE OAK
6621	CLUSTER 20X CEDAR 2-5IN
6622	CLUSTER 8X CEDAR 2-5IN
6623	8" CEDAR 6-2-2
6624	CLUSTER 3X LIVE OAK 2-3IN
6625	11" LIVE OAK
6626	CLUSTER 5X CEDAR 2-5IN
6627	16" CEDAR
6628	6" CEDAR
6629	15" CEDAR
6630	14" CEDAR
6631	13" CEDAR 6-5-4-4
6632	14" CEDAR 6-5-4-3-3
6633	12" CEDAR 7-3-3-2-2
6634	20" CEDAR 6-6-5-4-4-3-2-2-2
6635	CLUSTER 8X CEDAR 3-5IN
6636	18" LIVE OAK 13-9
6637	11" LIVE OAK 8-5
6638	19" CEDAR
6639	13" RED OAK 10-5
6640	7" CEDAR
6641	16" CEDAR 9-8-6
6642	9" CEDAR 6-5
6643	8" LIVE OAK
6644	7" LIVE OAK
6645	6" LIVE OAK
6646	6" LIVE OAK
6647	7" LIVE OAK
6648	18" CEDAR
6649	9" LIVE OAK
6650	7" LIVE OAK
6651	6" CEDAR
6652	CLUSTER 4X CEDAR 2-5IN
6653	6" CEDAR
6654	6" CEDAR
6655	8" CEDAR
6656	16" CEDAR 6-5-4-3-2-2-2-2
6657	14" CEDAR 8-5-4-3
6658	18" CEDAR 7-6-6-5-4
6659	10" CEDAR
6660	8" CEDAR 6-3
6661	17" CEDAR 11-7-4
6662	8" LIVE OAK 6-4
6663	12" LIVE OAK
6664	7" CEDAR
6665	7" CEDAR
6666	9" CEDAR
6667	17" CEDAR 12-9
6668	7" CEDAR
6669	11" LIVE OAK
6670	11" LIVE OAK
6671	10" LIVE OAK
6672	6" CEDAR
6673	16" LIVE OAK 11-9
6674	14" LIVE OAK
6675	8" CEDAR
6676	9" LIVE OAK
6677	13" LIVE OAK
6678	9" LIVE OAK
6679	12" CEDAR
6680	CLUSTER 3X CEDAR 3-5IN
6681	13" CEDAR 7-4-4-3
6682	7" CEDAR
6683	26" CEDAR 10-7-7-6-6-5
6684	7" CEDAR 6-2
6685	12" CEDAR 8-3-3-2-2
6686	15" CEDAR 8-5-5-3
6687	8" LIVE OAK
6688	7" CEDAR
6689	7" LIVE OAK
6690	7" LIVE OAK
6691	7" LIVE OAK
6692	9" LIVE OAK
6693	10" CEDAR
6694	8" LIVE OAK
6695	8" LIVE OAK
6696	10" CEDAR
6697	8" LIVE OAK
6698	8" CEDAR 6-3
6699	8" LIVE OAK
6700	9" LIVE OAK 7-3
6701	7" CEDAR
6702	8" CEDAR
6703	8" CEDAR
6704	11" CEDAR 6-5-4
6705	10" CEDAR 6-4-4
6706	6" CEDAR
6707	6" CEDAR
6708	6" LIVE OAK
6709	11" LIVE OAK
6710	18" CEDAR 13-5-4
6711	7" LIVE OAK
6712	8" LIVE OAK
6713	10" CEDAR 8-3
6714	7" CEDAR
6715	7" CEDAR
6716	21" CEDAR 10-7-5-5-4
6717	13" CEDAR 9-5-3
6718	8" CEDAR 7-2
6719	6" CEDAR
6720	6" LIVE OAK
6721	8" CEDAR 6-3
6722	7" CEDAR
6723	8" CEDAR
6724	6" CEDAR
6725	9" CEDAR 6-3-2
6726	7" CEDAR
6727	6" CEDAR
6728	8" LIVE OAK
6729	15" LIVE OAK
6730	15" CEDAR 13-4
6731	12" LIVE OAK
6732	10" CEDAR
6733	18" LIVE OAK 12-7-5
6734	8" CEDAR
6735	10" CEDAR 7-6
6736	14" LIVE OAK 10-7
6737	9" LIVE OAK
6738	11" LIVE OAK
6739	11" LIVE OAK
6740	10" CEDAR
6741	9" CEDAR 6-5
6742	CLUSTER 4X CEDAR 2-3IN
6743	CLUSTER 13X CEDAR 2-4IN
6744	6" CEDAR
6745	CLUSTER 11X CEDAR 2-4IN
6746	CLUSTER 11X CEDAR 2-5IN
6747	11" CEDAR 6-4-3-3
6748	6" CEDAR
6749	11" LIVE OAK 9-4
6750	14" LIVE OAK 7-4-4-3-3
6751	13" CEDAR 6-4-4-3-2
6752	CLUSTER 12X CEDAR 2-4IN
6753	15" RED OAK
6754	13" CEDAR 6-5-4-4
6755	6" CEDAR
6756	6" LIVE OAK
6757	6" LIVE OAK
6758	6" LIVE OAK
6759	7" LIVE OAK
6760	15" CEDAR 8-4-4-4-2
6761	9" CEDAR 7-4
6762	6" CEDAR
6763	CLUSTER 6X CEDAR 3-4IN
6764	9" CEDAR
6765	7" CEDAR
6766	6" CEDAR
6767	11" CEDAR 6-3-3-3
6768	CLUSTER 2X LIVE OAK 4-5IN
6769	6" CEDAR
6770	10" LIVE OAK
6771	9" CEDAR 7-2-2
6772	6" LIVE OAK
6773	9" LIVE OAK
6774	7" LIVE OAK
6775	9" CEDAR
6776	8" CEDAR
6777	9" CEDAR 7-4
6778	10" LIVE OAK
6779	11" LIVE OAK
6780	6" LIVE OAK
6781	7" CEDAR
6782	7" LIVE OAK
6783	6" CEDAR
6784	14" CEDAR 7-5-3-3-3
6785	6" LIVE OAK
6786	CLUSTER 4X CEDAR 2-4IN
6787	9" LIVE OAK
6788	9" LIVE OAK
6789	8" LIVE OAK
6790	9" LIVE OAK
6791	8" LIVE OAK
6792	11" LIVE OAK
6793	9" CEDAR
6794	30" LIVE OAK
6795	9" CEDAR 8-2
6796	15" CEDAR 8-4-3-3-2-2
6797	9" CEDAR 7-4
6798	12" CEDAR 6-4-3-3-2
6799	13" CEDAR 6-5-3-3-3
6800	14" CEDAR 6-5-5-3-2
6801	7" CEDAR
6802	CLUSTER 4X CEDAR 3-5IN
6803	8" CEDAR 6-3
6804	9" CEDAR 6-5
6805	10" CEDAR 6-5-3
6806	12" CEDAR
6807	7" CEDAR
6808	CLUSTER 9X CEDAR 2-5IN
6809	6" CEDAR
6810	8" CEDAR
6811	20" CEDAR 12-10-6
6812	18" CEDAR 6-5-4-4-4-4-3
6813	11" CEDAR 8-6
6814	CLUSTER 9X CEDAR 2-4IN
6815	11" CEDAR 6-4-3-3
6816	13" CEDAR 9-8
6817	9" CEDAR
6818	10" LIVE OAK
6819	8" LIVE OAK
6820	CLUSTER 8X CEDAR 2-3IN
6821	6" CEDAR
6822	12" CEDAR 8-8
6823	8" CEDAR
6824	7" CEDAR
6825	15" CEDAR 13-3
6826	18" CEDAR 6-5-4-4-4-4-3
6827	16" CEDAR 7-6-5-3-3
6828	7" CEDAR
6829	10" CEDAR 6-5-3
6830	11" CEDAR
6831	17" CEDAR 12-9
6832	7" CEDAR
6833	17" CEDAR 7-4-4-4-3-2-2
6834	6" CEDAR
6835	CLUSTER 6X CEDAR 3-4IN
6836	12" CEDAR
6837	CLUSTER 5X LIVE OAK 3-4IN
6838	17" CEDAR 12-9
6839	17" CEDAR
6840	CLUSTER 10X CEDAR 3-5IN
6841	10" CEDAR 6-3-2-2
6842	10" CEDAR
6843	13" CEDAR 8-6-4
6844	9" CEDAR
6845	6" CEDAR
6846	15" CEDAR 6-4-3-3-3-2-2
6847	15" CEDAR 6-5-5-4-3
6848	7" CEDAR
6849	10" CEDAR 6-4-3
6850	14" CEDAR
6851	7" LIVE OAK
6852	31" LIVE OAK 8-8-8-7-7-6-5-4
6853	16" CEDAR 7-7-6-5
6854	6" CEDAR
6855	7" CEDAR
6856	7" CEDAR
6857	7" CEDAR
6858	8" CEDAR
6859	9" CEDAR
6860	16" CEDAR
6861	6" HACKBERRY
6862	12" LIVE OAK
6863	9" CEDAR 6-2-2-2
6864	8" CEDAR
6865	20" MESQUITE 15-7-2
6866	11" CEDAR 6-4-3-3
6867	10" MESQUITE
6868	7" CEDAR
6869	22" POST OAK
6870	CLUSTER 10X CEDAR 2-4IN
6871	12" CEDAR 9-4-2
6872	14" CEDAR 8-5-3-3
6873	19" CEDAR 10-6-5-3-3 MULTI
6874	10" CEDAR 6-4-4 MULTI
6875	CLUSTER 9X CEDAR 2-5IN
6876	CLUSTER 6X CEDAR 3-5IN
6877	6" CEDAR
6878	CLUSTER 17X CEDAR 2-5IN
6879	18" LIVE OAK
6880	19" LIVE OAK
6881	20" LIVE OAK
6882	17" LIVE OAK
6883	20" LIVE OAK
6884	19" LIVE OAK
6885	8" LIVE OAK
6886	9" LIVE OAK
6887	10" LIVE OAK
(R) 6888	10" LIVE OAK
(R) 6889	12" LIVE OAK
(R) 6890	12" LIVE OAK
6891	10" LIVE OAK
6892	12" LIVE OAK
6893	10" LIVE OAK
6894	9" LIVE OAK
6895	15" LIVE OAK
6896	15" LIVE OA

(R) – TREE TO BE REMOVED

NOTE:
TREE LIST BASED ON AN ON THE GROUND TREE SURVEY PERFORMED 09/11/2023.

REVISION
NO.
DATE

garza emc
7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

JONAH D. MANKOVSKY
110095
12/01/2023

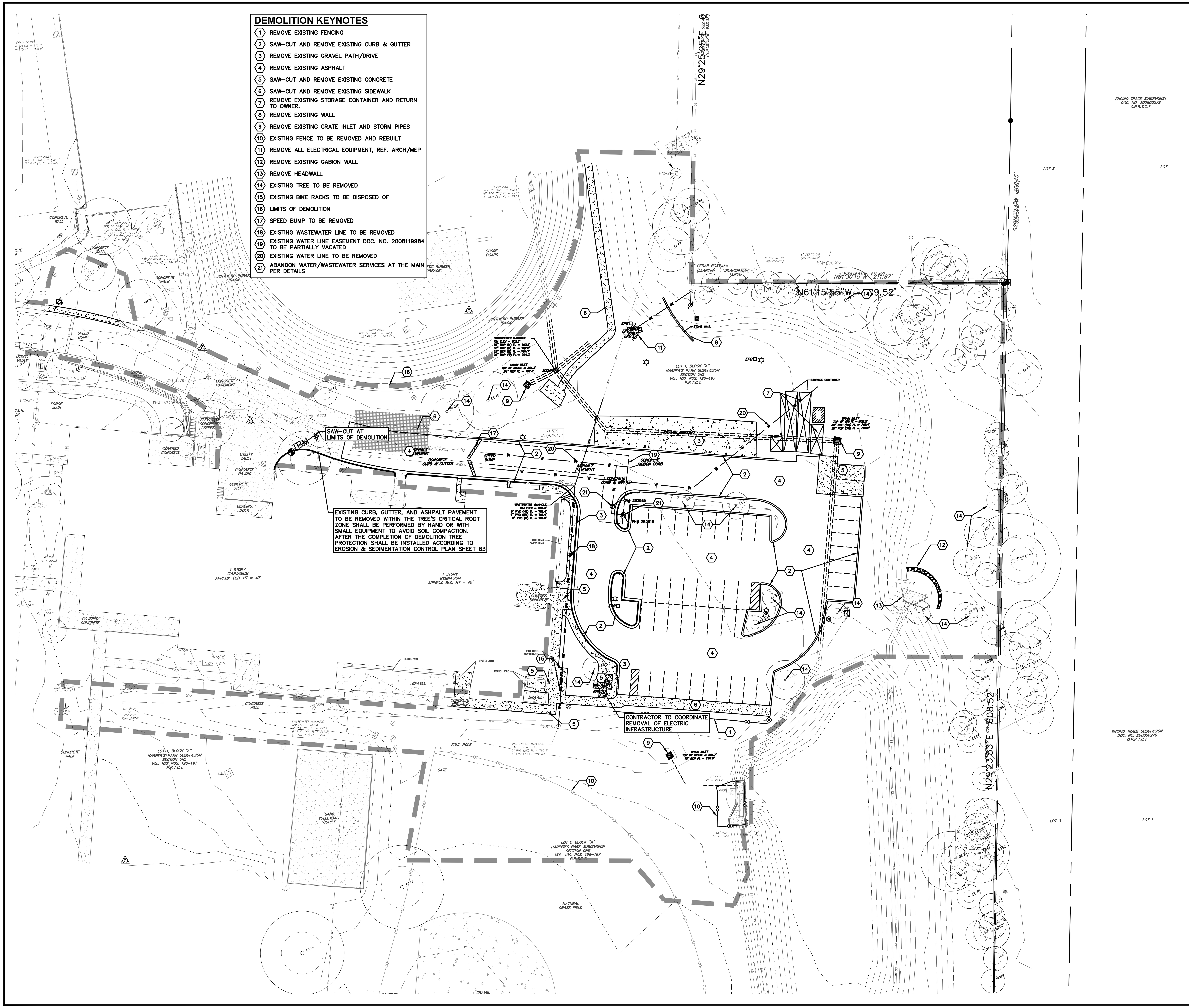
TREE LIST

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

R3 NEW SHEET



DEMOLITION KEYNOTES

1. REMOVE EXISTING FENCING
2. SAW-CUT AND REMOVE EXISTING CURB & GUTTER
3. REMOVE EXISTING GRAVEL PATH/DRIVE
4. REMOVE EXISTING ASPHALT
5. SAW-CUT AND REMOVE EXISTING CONCRETE
6. SAW-CUT AND REMOVE EXISTING SIDEWALK
7. REMOVE EXISTING STORAGE CONTAINER AND RETURN TO OWNER.
8. REMOVE EXISTING WALL
9. REMOVE EXISTING GRATE INLET AND STORM PIPES
10. EXISTING FENCE TO BE REMOVED AND REBUILT
11. REMOVE ALL ELECTRICAL EQUIPMENT, REF. ARCH/MEP
12. REMOVE EXISTING GABION WALL
13. REMOVE HEADWALL
14. EXISTING TREE TO BE REMOVED
15. EXISTING BIKE RACKS TO BE DISPOSED OF
16. LIMITS OF DEMOLITION
17. SPEED BUMP TO BE REMOVED
18. EXISTING WASTEWATER LINE TO BE REMOVED
19. EXISTING WATER LINE EASEMENT DOC. NO. 2008119984 TO BE PARTIALLY VACATED
20. EXISTING WATER LINE TO BE REMOVED
21. ABANDON WATER/WASTEWATER SERVICES AT THE MAIN PER DETAILS

LEGEND

EXISTING	DEMO	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WTRMH	WTRMH	WATER MANHOLE
		WATER LINE MARKER
		UNDERGROUND CABLE MARKER
		UNDERGROUND GAS LINE MARKER
		UNDERGROUND TELEPHONE MARKER
		GAS RISER
		TELEPHONE RISER
		SPRINKLER CONTROL BOX
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		CABLE TV RISER
		ELECTRIC BOX
		ELECTRIC METER
		GAS METER
		GAS VALVE
		TRAFFIC CONTROL BOX
		TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
EMH	EMH	ELECTRIC MANHOLE (SIZE VARIES)
WWMH	WWMH	WASTEWATER MANHOLE (SIZE VARIES)
SSMH	SSMH	STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
SS	SS	STORMSEWER LINE
W	W	WATER LINE
WW	WW	WASTEWATER LINE
G	G	GAS LINE
UE	UE	UNDERGROUND ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC LINE
UT	UT	UNDERGROUND TELEPHONE LINE
UC	UC	UNDERGROUND CABLE AND INTERNET
COMM	COMM	UNDERGROUND TELECOMMUNICATIONS
		TREE TO BE REMOVED
		TREE TO BE SAVED
		HERITAGE / MATURE TREE
		EXISTING SITE TO BE DEMOLISHED

DEMOLITION NOTES:

1. OFFSITE DISPOSAL: THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF AUSTIN ENVIRONMENTAL INSPECTION AT 512-974-2278 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO THE REMOVAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.
2. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF ANY AND ALL EXISTING APPLICABLE BUILDING/STRUCTURES ON THE SITE AND UTILITY RELOCATION WORK.
3. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER NOT TO DAMAGE THE SITE PRIOR TO ACCEPTANCE OF THE PROJECT.
4. ALL REQUIRED RELOCATIONS OR ALTERATIONS OF TELEPHONE POLES, UNDERGROUND CONDUIT, POWER POLES, AND ANY OTHER FACILITIES SHALL BE DONE BY THE CONTRACTOR UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS AND UTILITY COMPANIES SO AS NOT TO DELAY THE PROJECT.
5. THE CONTRACTOR SHALL REMOVE OR RELOCATE, WHEN APPLICABLE, ALL EXISTING BUILDINGS, FOUNDATIONS, BASEMENTS, AND CONNECTING IMPROVEMENTS, DRAIN PIPES, SANITARY SEWER PIPE, POWER POLES AND GUY WIRES, WATER METERS AND WATER LINES, WELLS, SIDEWALKS, SIGN POLES, UNDERGROUND GAS, SEPTIC TANKS, AND ASPHALT, SHOWN AND NOT SHOWN, WITHIN CONSTRUCTION LIMITS AND WHERE NEEDED, TO ALLOW FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
6. A DEMOLITION PERMIT IS REQUIRED TO BE OBTAINED FROM THE CITY OF AUSTIN PRIOR TO ANY DEMOLITION.
7. ANY OFF-SITE DUMPING OF DEBRIS WILL REQUIRE PERMITS OR EVIDENCE OF A LEGAL DUMP SITE TO BE PRESENTED TO THE CITY OF AUSTIN.
8. PROTECT ALL UTILITIES THAT ARE TO REMAIN.
9. ALL EROSION AND SEDIMENTATION CONTROLS MUST BE IN PLACE PRIOR TO ANY WORK.
10. NO DEMOLITION WILL OCCUR PRIOR TO THE PRE-CONSTRUCTION MEETING.
11. A PRECONSTRUCTION MEETING WITH THE ENVIRONMENTAL INSPECTOR IS REQUIRED PRIOR TO ANY SITE DISTURBANCE.
12. SPOILS ARE TO BE REMOVED FROM THE SITE DAILY.
13. ALL EXISTING WATER SERVICE(S) TO BE ABANDONED AT THE MAIN, AND METERS SHALL BE RETURNED TO AUSTIN WATER UTILITY.
14. CONTRACTOR TO COORDINATE WITH URBAN DESIGN BEFORE REMOVAL OF TREES.
15. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY.
16. TREE PROTECTION FENCING IS REQUIRED FOR ALL TREES WITHIN THE LIMITS OF DESTRUCTION ON SITE BEFORE DEMOLITION OCCURS. WHERE FENCING CANNOT BE PLACED TO PROTECT THE EXTENT OF CRZ WITH NATURAL GROUND COVER, PROVIDE AN 8" LAYER OF ORGANIC HARDWOOD MULCH.
17. STRAPPING 2X4 OR THICKER LUMBER (TO MATCH HEIGHT OF BUILDING) SECURELY AROUND TREE TRUNK, BUTTRESS ROOTS, AND ROOT FLARE IS REQUIRED IF FENCING CANNOT GO AROUND THE ENTIRE CRZ.
18. IF PRUNING IS NECESSARY DURING DEMOLITION, IT SHOULD TAKE PLCE PRIOR TO THE START OF THE DEMOLITION PROCESS. IT MUST BE PERFORMED BY A QUALIFIED ARBORIST AND NO MORE THAN 25% IS PERMITTED.
19. METER RETURN NOTICE: COORDINATE WITH CITY OF AUSTIN INSPECTOR FOR METER RETURN(S) TO AUSTIN WATER.

REVISION | NO. | DATE

garza EMC
7708 Rialto Blvd, Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

JONAH D. MANKOVSKY 110095 12/01/2023

DEMOLITION PLAN

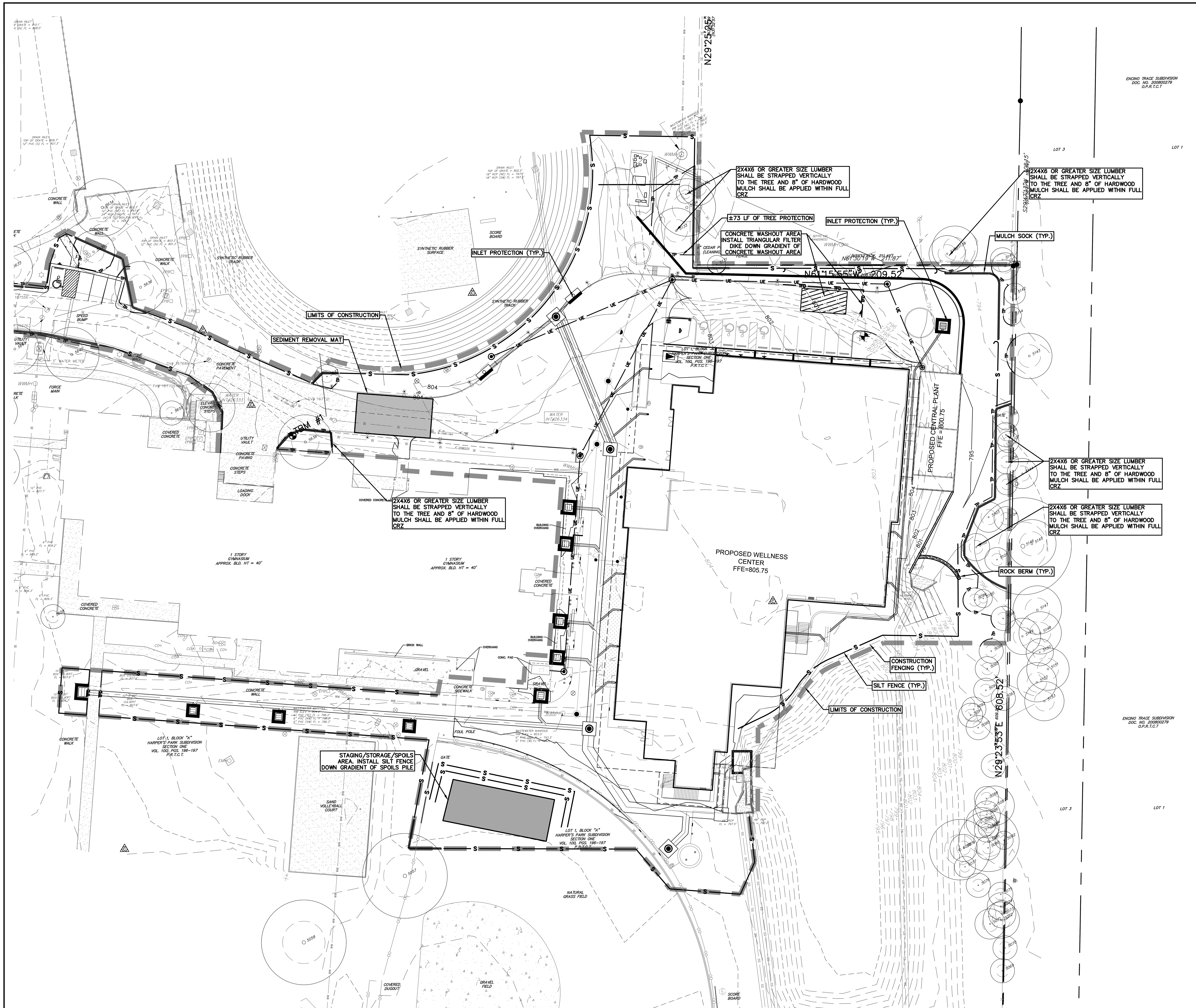
ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 82 OF 113

NEW SHEET SPC-97-0320C(R3)



1" = 30'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
		WATER MANHOLE
		WATER LINE MARKER
		UNDERGROUND CABLE MARKER
		UNDERGROUND GAS LINE MARKER
		UNDERGROUND TELEPHONE MARKER
		GAS RISER
		TELEPHONE RISER
		SPRINKLER CONTROL BOX
		SWITCH GEAR & PAD
		TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
		CABLE TV RISER
		ELECTRIC BOX
		ELECTRIC METER
		GAS METER
		GAS VALVE
		TRAFFIC CONTROL BOX
		TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
		ELECTRIC MANHOLE (SIZE VARIES)
		WASTEWATER MANHOLE (SIZE VARIES)
		STORMSEWER MANHOLE (SIZE VARIES)
		TELEPHONE MANHOLE (SIZE VARIES)
		WASTEWATER CLEANOUT
		WIRE FENCE
		WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
678	678	CONTOUR
		STORMSEWER LINE
		WATER LINE
		FIRE LINE
		WASTEWATER LINE
		GAS LINE
		UNDERGROUND ELECTRIC LINE
		OVERHEAD ELECTRIC LINE
		UNDERGROUND TELEPHONE LINE
		UNDERGROUND CABLE AND INTERNET
		UNDERGROUND TELECOMMUNICATIONS
		TREE PROTECTION
		SILT FENCE
		SILT FENCE WITH J-HOOKS
		LIMITS OF CONSTRUCTION & SILT FENCE
		SWALE
		TRIANGULAR FILTER DIKE
		ROCK BERM
		INLET PROTECTION
		SEDIMENT REMOVAL MAT/ TEMPORARY SPOILS/STAGING AREA
		MULCH SOCK
		MULCH LOG
		DIRECTION OF FLOW
1111		TREE TO BE REMOVED
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE

EROSION & SEDIMENTATION NOTES:

1. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
2. ALL DISTURBED AREAS OF THIS PROJECT SHALL BE REVEGETATED AND ALL PERMANENT EROSION AND SEDIMENTATION CONTROLS SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF OCCUPANCY PERMITS FOR THE SITE. TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE ADJUSTED AS NEEDED TO INSURE THAT DISTURBED AREAS ARE ADEQUATELY PROTECTED. ADDITIONALLY, ANY AREA WITHIN THE LIMIT OF CONSTRUCTION OF THE PROJECT THAT IS NOT ADEQUATELY REVEGETATED SHALL BE BROUGHT INTO COMPLIANCE PRIOR TO THE RELEASE OF THE CONTRACTOR FROM THE PROJECT.
3. IN AREAS WHERE HYDROMULCH IS UTILIZED, SEVERAL APPLICATIONS MAY BE REQUIRED TO ESTABLISH ADEQUATE STABILIZATION IF FREQUENT RAINFALL OCCURS DURING SEEDING ATTEMPTS.
4. IF DISTURBED AREA IS NOT BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING. [ECM 1.4.4.B.3, SECTION 5, I.]
5. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
6. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY.
7. EXTEND ALL TREE PROTECTION FENCING TO THE FULL EXTENT OF THE CRITICAL ROOT ZONE WHERE POSSIBLE. IF FENCING CANNOT BE INSTALLED AROUND THE FULL CRZ, PLACE THE FENCING AT THE 1/2CRZ AND ADD 8" OF HARDWOOD MULCH FROM THE 1/2 CRZ TO THE FULL CRZ. IF FENCING CANNOT BE INSTALLED AROUND THE 1/2 CRZ, 2X4X6 OR GREATER SIZE LUMBER SHALL BE STRAPPED VERTICALLY TO THE TREE AND 8" OF OF HARDWORD MULCH SHALL BE APPLIED WITHIN THE FULL CRZ. TREE PROTECTION FENCING OR USE OF LUMBER STRAPPED TO TREES APPLIES TO ROW TREES. LUMBER SHALL BE STRAPPED TO THE TRUNK OF ANY TREE WHERE WORK IS BEING DONE WITHIN THE CRZ WHILE TREE PROTECTION FENCING IS DOWN.
8. TREES PROPOSED TO BE PRESERVED MUST MEET THE FOLLOWING CRITERIA:
   - A MINIMUM OF 50% OF CRITICAL ROOT ZONE MUST BE PRESERVED AT NATURAL GRADE, WITH NATURAL GROUND COVER;
   - CUT OR FILL IS LIMITED TO 4 INCHES FROM THE 1/2 CRZ TO THE 1/4 CRZ;
   - NO CUT OR FILL IS PERMITTED WITHIN THE 1/4 CRZ
9. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED PER ECM 3.6.1

REVISION	NO.	DATE

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Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED PROFESSIONAL ENGINEER
12/01/2023

EROSION & SEDIMENTATION CONTROL PLAN

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 83 OF 113

NEW SHEET SPC-97-0320C(R3)

APPENDIX P-1 - EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS, TREE/NATURAL AREA PROTECTIVE FENCING, AND CONDUCT "PRE-CONSTRUCTION" TREE FERTILIZATION (IF APPLICABLE) PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE ENVIRONMENTAL CRITERIA MANUAL AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THE COA ESC PLAN SHALL BE CONSULTED AND USED AS THE BASIS FOR A TPDES REQUIRED SWPPP. IF A SWPPP IS REQUIRED, IT SHALL BE AVAILABLE FOR REVIEW BY THE CITY OF AUSTIN ENVIRONMENTAL INSPECTOR AT ALL TIMES DURING CONSTRUCTION, INCLUDING AT THE PRE-CONSTRUCTION MEETING. THE CHECKLIST BELOW CONTAINS THE BASIC ELEMENTS THAT SHALL BE REVIEWED FOR PERMIT APPROVAL BY COA EV PLAN REVIEWERS AS WELL AS COA EV INSPECTORS.

- PLAN SHEETS SUBMITTED TO THE CITY OF AUSTIN MUST SHOW THE FOLLOWING:
- DIRECTION OF FLOW DURING GRADING OPERATIONS.
- LOCATION, DESCRIPTION, AND CALCULATIONS FOR OFF-SITE FLOW DIVERSION STRUCTURES.
- AREAS THAT WILL NOT BE DISTURBED; NATURAL FEATURES TO BE PRESERVED.
- DELINEATION OF CONTRIBUTING DRAINAGE AREA TO EACH PROPOSED BMP (E.G., SILT FENCE, SEDIMENT BASIN, ETC.).
- LOCATION AND TYPE OF E&S BMPS FOR EACH PHASE OF DISTURBANCE.
- CALCULATIONS FOR BMPS AS REQUIRED.
- LOCATION AND DESCRIPTION OF TEMPORARY STABILIZATION MEASURES.
- LOCATION OF ON-SITE SPOILS, DESCRIPTION OF HANDLING AND DISPOSAL OF BORROW MATERIALS, AND DESCRIPTION OF ON-SITE PERMANENT SPOILS DISPOSAL AREAS, INCLUDING SIZE, DEPTH OF FILL AND REVEGETATION PROCEDURES.
- DESCRIBE SEQUENCE OF CONSTRUCTION AS IT PERTAINS TO ESC INCLUDING THE FOLLOWING ELEMENTS:

3. INSTALLATION SEQUENCE OF CONTROLS (E.G. PERIMETER CONTROLS, THEN SEDIMENT BASINS, THEN TEMPORARY STABILIZATION, THEN PERMANENT, ETC.)
4. PROJECT PHASING IF REQUIRED (LOC GREATER THAN 25 ACRES)
5. SEQUENCE OF GRADING OPERATIONS AND NOTATION OF TEMPORARY STABILIZATION MEASURES TO BE USED
6. SCHEDULE FOR CONVERTING TEMPORARY BASINS TO PERMANENT WQ CONTROLS
7. SCHEDULE FOR REMOVAL OF TEMPORARY CONTROLS
8. ANTICIPATED MAINTENANCE SCHEDULE FOR TEMPORARY CONTROLS

- CATEGORIZE EACH BMP UNDER ONE OF THE FOLLOWING AREAS OF BMP ACTIVITY AS DESCRIBED BELOW:
  - 3.1 MINIMIZE DISTURBED AREA AND PROTECT NATURAL FEATURES AND SOIL
  - 3.2 CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT
  - 3.3 STABILIZE SOILS
  - 3.4 PROTECT SLOPES
  - 3.5 PROTECT STORM DRAIN INLETS
  - 3.6 ESTABLISH PERIMETER CONTROLS AND SEDIMENT BARRIERS
  - 3.7 RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES
  - 3.8 ESTABLISH STABILIZED CONSTRUCTION EXITS
  - 3.9 ANY ADDITIONAL BMPS
- NOTE THE LOCATION OF EACH BMP ON YOUR SITE MAP(S).
- FOR ANY STRUCTURAL BMPS, YOU SHOULD PROVIDE DESIGN SPECIFICATIONS AND DETAILS AND REFER TO THEM.
- FOR MORE INFORMATION, SEE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL 1.4.

9. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.
10. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS, TREE/NATURAL AREA PROTECTION MEASURES AND "PRE-CONSTRUCTION" TREE FERTILIZATION (IF APPLICABLE) PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE OWNER OR OWNER'S REPRESENTATIVE SHALL NOTIFY THE DEVELOPMENT SERVICES DEPARTMENT, 512-974-2278 OR BY EMAIL AT ENVIRONMENTAL.INSPECTIONS@AUSTINTEXAS.GOV, AT LEAST THREE DAYS PRIOR TO THE MEETING DATE. COA APPROVED ESC PLAN AND TPDES SWPPP (IF REQUIRED) SHOULD BE REVIEWED BY COA EV INSPECTOR AT THIS TIME.
11. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST OR CITY ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY AUTHORIZED COA STAFF. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
12. THE CONTRACTOR IS REQUIRED TO PROVIDE A CERTIFIED INSPECTOR THAT IS EITHER A LICENSED ENGINEER (OR PERSON DIRECTLY SUPERVISED BY THE LICENSED ENGINEER) OR CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC OR CPESC - IT), CERTIFIED EROSION, SEDIMENT AND STORMWATER - INSPECTOR (CESSWI OR CESSWI - IT) OR CERTIFIED INSPECTOR OF SEDIMENTATION AND EROSION CONTROLS (CISEC OR CISEC - IT) CERTIFICATION TO INSPECT THE CONTROLS AND FENCES AT WEEKLY OR BI-WEEKLY INTERVALS AND AFTER ONE-HALF (½) INCH OR GREATER RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES OR ONE-THIRD (⅓) OF THE INSTALLED HEIGHT OF THE CONTROL WHICHEVER IS LESS.
13. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.
14. ALL WORK MUST STOP IF A VOID IN THE ROCK SUBSTRATE IS DISCOVERED WHICH IS; ONE SQUARE FOOT IN TOTAL AREA; BLOWS AIR FROM WITHIN THE SUBSTRATE AND/OR CONSISTENTLY RECEIVES WATER DURING ANY RAIN EVENT. AT THIS TIME IT IS THE RESPONSIBILITY OF THE PROJECT MANAGER TO IMMEDIATELY CONTACT A CITY OF AUSTIN ENVIRONMENTAL INSPECTOR FOR FURTHER INVESTIGATION.
15. TEMPORARY AND PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW:

A. ALL DISTURBED AREAS TO BE REVEGETATED ARE REQUIRED TO PLACE A MINIMUM OF SIX (6) INCHES OF TOPSOIL [SEE STANDARD SPECIFICATION ITEM NO. 601S.3(A)]. DO NOT ADD TOPSOIL WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES.

- TOPSOIL SALVAGED FROM THE EXISTING SITE IS ENCOURAGED FOR USE, BUT IT SHOULD MEET THE STANDARDS SET FORTH IN 601S.
- AN OWNER/ENGINEER MAY PROPOSE USE OF ONSITE SALVAGED TOPSOIL WHICH DOES NOT MEET THE CRITERIA OF STANDARD SPECIFICATION 601S BY PROVIDING A SOIL ANALYSIS AND A WRITTEN STATEMENT FROM A QUALIFIED PROFESSIONAL IN SOILS, LANDSCAPE ARCHITECTURE, OR AGRONOMY INDICATING THE ONSITE TOPSOIL WILL PROVIDE AN EQUIVALENT GROWTH MEDIA AND SPECIFYING WHAT, IF ANY, SOIL AMENDMENTS ARE REQUIRED.
- SOIL AMENDMENTS SHALL BE WORKED INTO THE EXISTING ONSITE TOPSOIL WITH A DISC OR TILLER TO CREATE A WELL-BLENDED MATERIAL.

THE VEGETATIVE STABILIZATION OF AREAS DISTURBED BY CONSTRUCTION SHALL BE AS FOLLOWS:

TEMPORARY VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH OR INCLUDE A COOL SEASON COVER CROP: (WESTERN WHEATGRASS (PASCOPYRUM SMITHII) AT 5.6 POUNDS PER ACRE, OATS (AVENA SATIVA) AT 4.0 POUNDS PER ACRE, CEREAL RYE GRAIN (SECALE CEREALE) AT 45 POUNDS PER ACRE. CONTRACTOR MUST ENSURE THAT ANY SEED APPLICATION REQUIRING A COOL SEASON COVER CROP DOES NOT UTILIZE ANNUAL RYEGRASS (LOLIUM MULTIFLORUM) OR PERENNIAL RYEGRASS (LOLIUM PERENNE). COOL SEASON COVER CROPS ARE NOT PERMANENT EROSION CONTROL.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 45 POUNDS PER ACRE OR A NATIVE PLANT SEED MIX CONFORMING TO ITEM 604S OR 609S.

A. FERTILIZER SHALL BE APPLIED ONLY IF WARRANTED BY A SOIL TEST AND SHALL CONFORM TO ITEM NO. 606S, FERTILIZER. FERTILIZATION SHOULD NOT OCCUR WHEN RAINFALL IS EXPECTED OR DURING SLOW PLANT GROWTH OR DORMANCY. CHEMICAL FERTILIZER MAY NOT BE APPLIED IN THE CRITICAL WATER QUALITY ZONE.
B. HYDROMULCH SHALL COMPLY WITH TABLE 1, BELOW.
C. TEMPORARY EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1½ INCHES HIGH WITH A MINIMUM OF 95% TOTAL COVERAGE SO THAT ALL AREAS OF A SITE THAT RELY ON VEGETATION FOR TEMPORARY STABILIZATION ARE UNIFORMLY VEGETATED, AND PROVIDED THERE ARE NO BARE SPOTS LARGER THAN 10 SQUARE FEET.
D. WHEN REQUIRED, NATIVE PLANT SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL, AND STANDARD SPECIFICATION 604S OR 609S.

TABLE 1: HYDROMULCHING FOR TEMPORARY VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATES
100% OR ANY BLEND OF WOOD, CELLULOSE, STRAW, AND/OR COTTON PLANT MATERIAL (EXCEPT NO MULCH SHALL EXCEED 30% PAPER)	70% OR GREATER WOOD/STRAW 30% OR LESS PAPER OR NATURAL FIBERS	0-3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	1500 TO 2000 LBS PER ACRE

PERMANENT VEGETATIVE STABILIZATION:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING IS CONSIDERED TO BE TEMPORARY STABILIZATION ONLY. IF COOL SEASON COVER CROPS EXIST WHERE PERMANENT VEGETATIVE STABILIZATION IS DESIRED, THE GRASSES SHALL BE MOWED TO A HEIGHT OF LESS THAN ONE-HALF (½) INCH AND THE AREA SHALL BE RE-SEEDED IN ACCORDANCE WITH TABLE 2 BELOW. ALTERNATIVELY, THE COOL SEASON COVER CROP CAN BE MIXED WITH BERMUDA GRASS OR NATIVE SEED AND INSTALLED TOGETHER, UNDERSTANDING THAT GERMINATION OF WARM-SEASON SEED TYPICALLY REQUIRES SOIL TEMPERATURES OF 60 TO 70 DEGREES.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 45 POUNDS PER ACRE WITH A PURITY OF 95% AND A MINIMUM PURE LIVE SEED (PLS) OF 0.83. BERMUDA GRASS IS A WARM SEASON GRASS AND IS CONSIDERED PERMANENT EROSION CONTROL. PERMANENT VEGETATIVE STABILIZATION CAN ALSO BE ACCOMPLISHED WITH A NATIVE PLANT SEED MIX CONFORMING TO ITEM 604S OR 609S.

A. FERTILIZER USE SHALL FOLLOW THE RECOMMENDATION OF A SOIL TEST. SEE ITEM 606S, FERTILIZER. APPLICATIONS OF FERTILIZER (AND PESTICIDE) ON CITY-OWNED AND MANAGED PROPERTY REQUIRES THE YEARLY SUBMITTAL OF A PESTICIDE AND FERTILIZER APPLICATION RECORD, ALONG WITH A CURRENT COPY OF THE APPLICATOR'S LICENSE. FOR CURRENT COPY OF THE RECORD TEMPLATE CONTACT THE CITY OF AUSTIN'S IPM COORDINATOR.
B. HYDROMULCH SHALL COMPLY WITH TABLE 2, BELOW.
C. WATER THE SEEDED AREAS IMMEDIATELY AFTER INSTALLATION TO ACHIEVE GERMINATION AND A HEALTHY STAND OF PLANTS THAT CAN ULTIMATELY SURVIVE WITHOUT SUPPLEMENTAL WATER. APPLY THE WATER UNIFORMLY TO THE PLANTED AREAS WITHOUT CAUSING DISPLACEMENT OR EROSION OF THE MATERIALS OR SOIL. MAINTAIN THE SEEDBED IN A MOIST CONDITION FAVORABLE FOR PLANT GROWTH. ALL WATERING SHALL COMPLY WITH CITY CODE CHAPTER 6-4 (WATER CONSERVATION), AT RATES AND FREQUENCIES DETERMINED BY A LICENSED IRRIGATOR OR OTHER QUALIFIED PROFESSIONAL, AND AS ALLOWED BY THE AUSTIN WATER UTILITY AND CURRENT WATER RESTRICTIONS AND WATER CONSERVATION INITIATIVES.
D. PERMANENT EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1½ INCHES HIGH WITH A MINIMUM OF 95 PERCENT FOR THE NON-NATIVE MIX, AND 95 PERCENT COVERAGE FOR THE NATIVE MIX SO THAT ALL AREAS OF A SITE THAT RELY ON VEGETATION FOR STABILITY MUST BE UNIFORMLY VEGETATED, AND PROVIDED THERE ARE NO BARE SPOTS LARGER THAN 10 SQUARE FEET.
E. WHEN REQUIRED, NATIVE PLANT SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL, ITEMS 604S AND 609S.

TABLE 2: HYDROMULCHING FOR PERMANENT VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATES
BONDED FIBER MATRIX (BFM)	80% ORGANIC DEFIBRATED FIBERS 10% TACKIFIER	6 MONTHS	ON SLOPES UP TO 2:1 AND EROSIVE SOIL CONDITIONS	2500 TO 4000 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS)
FIBER REINFORCED MATRIX (FRM)	65% ORGANIC DEFIBRATED FIBERS 25% REINFORCING FIBERS OR LESS 10% TACKIFIER	UP TO 12 MONTHS	ON SLOPES UP TO 1:1 AND EROSIVE SOIL CONDITIONS	3000 TO 4500 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS)

3. DEVELOPER INFORMATION:
   OWNER (REFER TO COVER SHEET)
   PHONE # (REFER TO COVER SHEET)
   ADDRESS (REFER TO COVER SHEET)
   OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:
   GARZA EMC, LLC.
   PHONE # (512) 298-3284
   PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE:
   (TO BE DETERMINED PRIOR TO CONSTRUCTION)
   PHONE #
   PERSON OR FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:
   (TO BE DETERMINED PRIOR TO CONSTRUCTION)
   PHONE #
4. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE DEVELOPMENT SERVICES DEPARTMENT AT 512-974-2278 AT LEAST 48 HOURS PRIOR WITH THE LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.

APPENDIX P-3:
ADDITIONAL EROSION CONTROL NOTES FOR BARTON SPRINGS CONTRIBUTING ZONE

1. DESIGNATION OF AN ENVIRONMENTAL PROJECT MANAGER WHO IS ON SITE >90% OF THE TIME, WHO IS REQUIRED TO BE AT THE PRECONSTRUCTION AND MID-CONSTRUCTION MEETINGS, AND IS RESPONSIBLE FOR COMPLIANCE ON SITE OF THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS. THE ENVIRONMENTAL PROJECT MANAGER IS RESPONSIBLE FOR ENSURING COMPLIANCE OF THE CONTROLS DURING THE CONSTRUCTION PERIOD. SHOULD THE PROJECT MANAGER NEED TO BE ABSENT FROM THE SITE FOR AN EXTENDED PERIOD (IN EXCESS OF ONE WEEK), THE ENVIRONMENTAL INSPECTOR WITH THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT SHOULD BE INFORMED OF THE NAME OF A DESIGNATED REPLACEMENT.
2. THE MAXIMUM LENGTH OF TIME BETWEEN CLEARING AND FINAL REVEGETATION OF A PROJECT SHALL NOT EXCEED 18 MONTHS, UNLESS EXTENDED BY THE DIRECTOR OF THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT (THIS DOES NOT AFFECT THE EXPIRATION OF THE SITE PLAN OR BUILDING PERMIT. THIS REQUIREMENT APPLIES TO SITES THAT HAVE SUSPENDED WORK AND ARE EXPERIENCING EROSION CONTROL PROBLEMS DUE TO DISTURBED SOIL CONDITIONS.) DISTURBED AREAS MUST BE MAINTAINED TO PREVENT EROSION AND SEDIMENT LOADING OF ANY WATERWAYS OR DRAINAGE FACILITIES.
3. IT IS A VIOLATION OF THE CODE AND THIS DEVELOPMENT PERMIT TO ALLOW SEDIMENT FROM A CONSTRUCTION SITE TO ENTER A CLASSIFIED WATERWAY DUE TO A FAILURE TO MAINTAIN THE REQUIRED EROSION AND SEDIMENTATION CONTROLS OR TO FOLLOW THE APPROVED CONSTRUCTION SEQUENCE.

APPENDIX P-4:
STANDARD SEQUENCE OF CONSTRUCTION

1. TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSTALLED AS INDICATED ON THE APPROVED SITE PLAN OR SUBDIVISION CONSTRUCTION PLAN AND IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) THAT IS REQUIRED TO BE POSTED ON THE SITE. INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES.
2. THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR MUST CONTACT THE WATERSHED PROTECTION DEPARTMENT, ENVIRONMENTAL INSPECTION, AT 512-974-2278, 72 HOURS PRIOR TO THE SCHEDULED DATE OF THE REQUIRED ON-SITE PRECONSTRUCTION MEETING.
3. THE ENVIRONMENTAL PROJECT MANAGER, AND/OR SITE SUPERVISOR, AND/OR DESIGNATED RESPONSIBLE PARTY, AND THE GENERAL CONTRACTOR WILL FOLLOW THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE REVISED, IF NEEDED, TO COMPLY WITH CITY INSPECTORS' DIRECTIVES, AND REVISED CONSTRUCTION SCHEDULE RELATIVE TO THE WATER QUALITY PLAN REQUIREMENTS AND THE EROSION PLAN.
4. ROUGH GRADE THE POND(S) AT 100% PROPOSED CAPACITY. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A SUMP PIT OUTLET AND AN EMERGENCY SPILLWAY MEETING THE REQUIREMENTS OF THE DRAINAGE CRITERIA MANUAL AND/OR THE ENVIRONMENTAL CRITERIA MANUAL, AS REQUIRED. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL INSTALLATION OF THE PERMANENT WATER QUALITY POND(S).
5. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE.
6. BEGIN SITE CLEARING/CONSTRUCTION (OR DEMOLITION) ACTIVITIES.
7. IN THE BARTON SPRINGS ZONE, THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR WILL SCHEDULE A MID-CONSTRUCTION CONFERENCE TO COORDINATE CHANGES IN THE CONSTRUCTION SCHEDULE AND EVALUATE EFFECTIVENESS OF THE EROSION CONTROL PLAN AFTER POSSIBLE CONSTRUCTION ALTERATIONS TO THE SITE. PARTICIPANTS SHALL INCLUDE THE CITY INSPECTOR, PROJECT ENGINEER, GENERAL CONTRACTOR AND ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR. THE ANTICIPATED COMPLETION DATE AND FINAL CONSTRUCTION SEQUENCE AND INSPECTION SCHEDULE WILL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR.
8. PERMANENT WATER QUALITY PONDS OR CONTROLS WILL BE CLEANED OUT AND FILTER MEDIA WILL BE INSTALLED PRIOR TO/CONCURRENTLY WITH REVEGETATION OF SITE.
9. COMPLETE CONSTRUCTION AND START REVEGETATION OF THE SITE AND INSTALLATION OF LANDSCAPING.
10. UPON COMPLETION OF THE SITE CONSTRUCTION AND REVEGETATION OF A PROJECT SITE, THE DESIGN ENGINEER SHALL SUBMIT AN ENGINEER'S LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT CONSTRUCTION, INCLUDING REVEGETATION, IS COMPLETE AND IN SUBSTANTIAL CONFORMITY WITH THE APPROVED PLANS. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE APPROPRIATE CITY INSPECTOR.
11. UPON COMPLETION OF LANDSCAPE INSTALLATION OF A PROJECT SITE, THE LANDSCAPE ARCHITECT SHALL SUBMIT A LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT THE REQUIRED LANDSCAPING IS COMPLETE AND IN SUBSTANTIAL CONFORMITY WITH THE APPROVED PLANS. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE APPROPRIATE CITY INSPECTOR.
12. AFTER A FINAL INSPECTION HAS BEEN CONDUCTED BY THE CITY INSPECTOR AND WITH APPROVAL FROM THE CITY INSPECTOR, REMOVE THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND COMPLETE ANY NECESSARY FINAL REVEGETATION RESULTING FROM REMOVAL OF THE CONTROLS. CONDUCT ANY MAINTENANCE AND REHABILITATION OF THE WATER QUALITY PONDS OR CONTROLS.

REVISION | NO. | DATE

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STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED PROFESSIONAL ENGINEER
12/01/2023

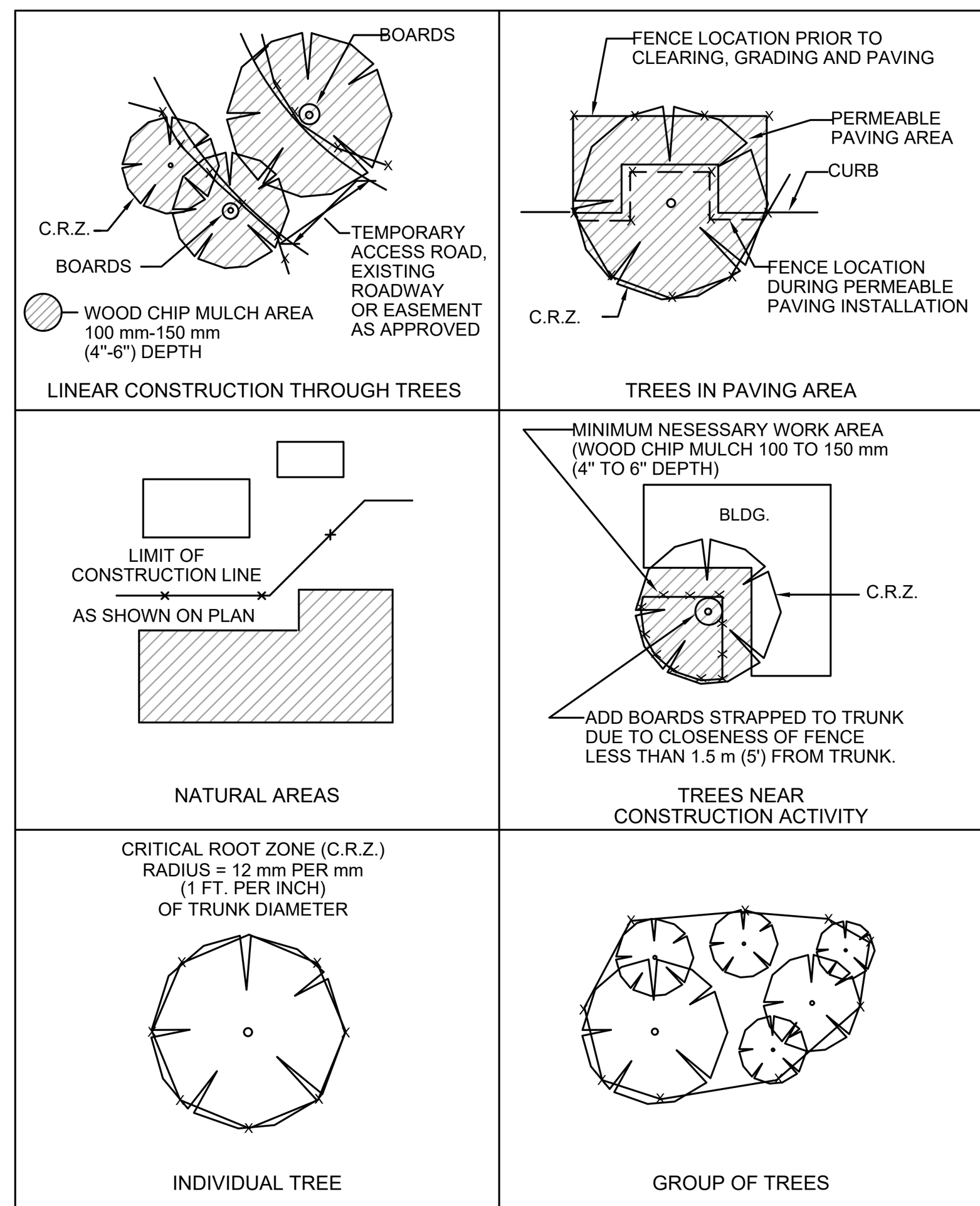
GENERAL NOTES

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

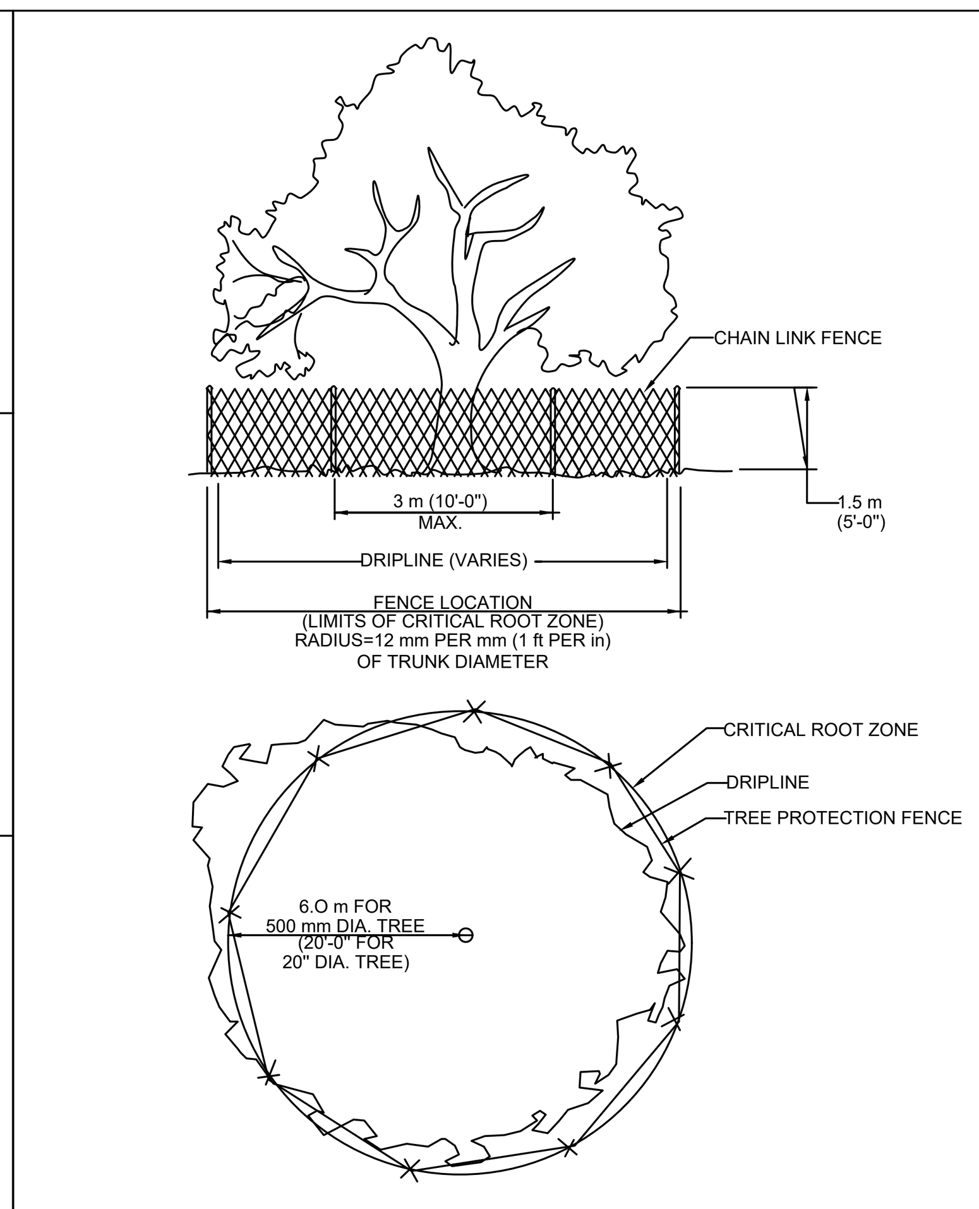
ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

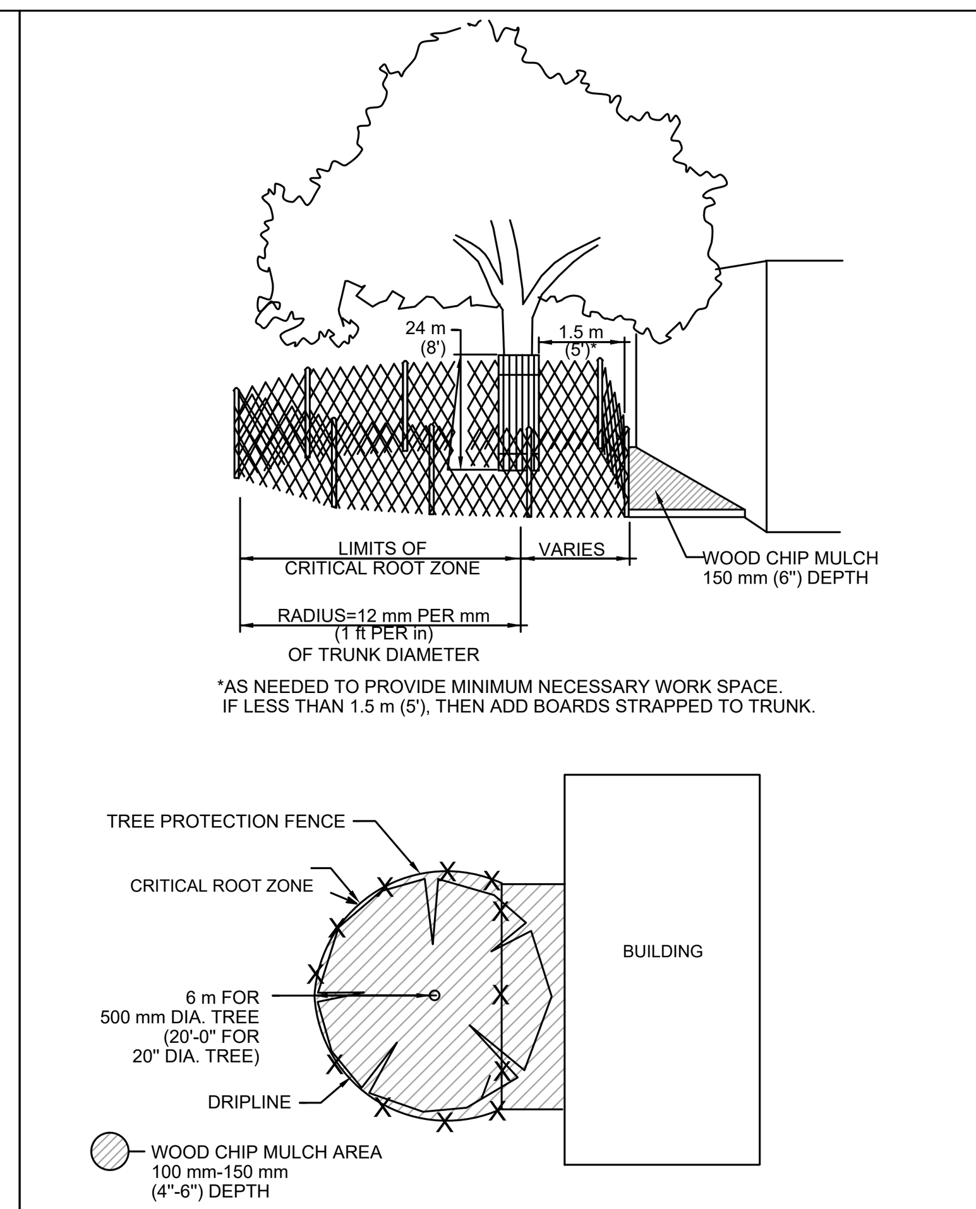
R3 NEW SHEET SPC-97-0320C(R3)



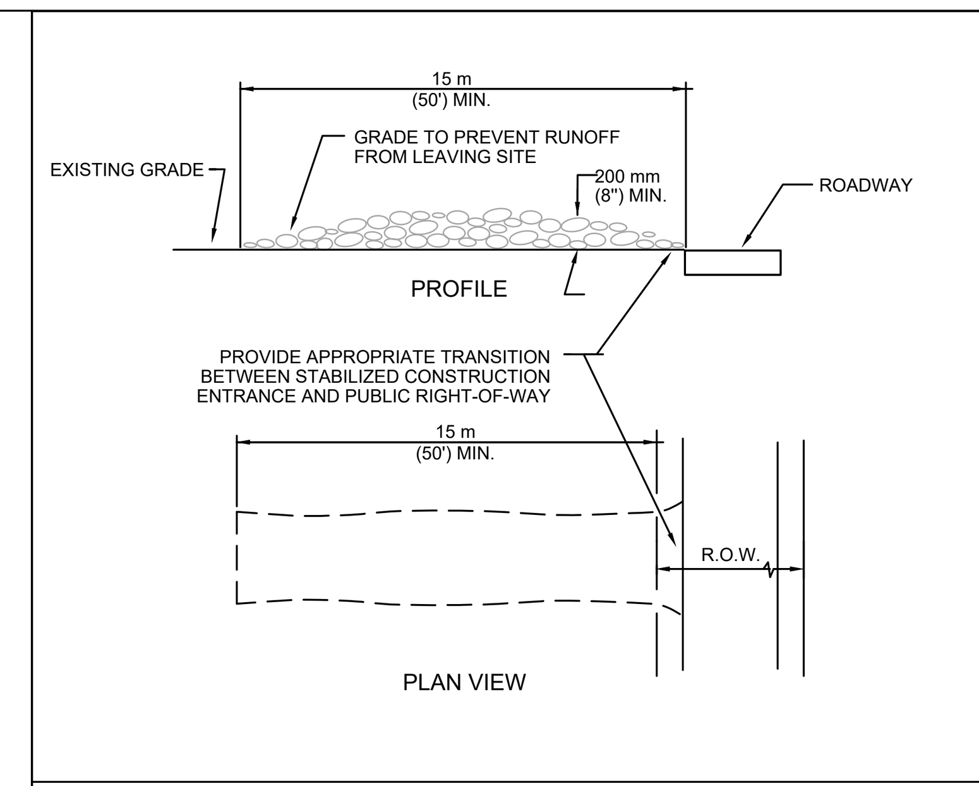
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE LOCATIONS	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-1



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2

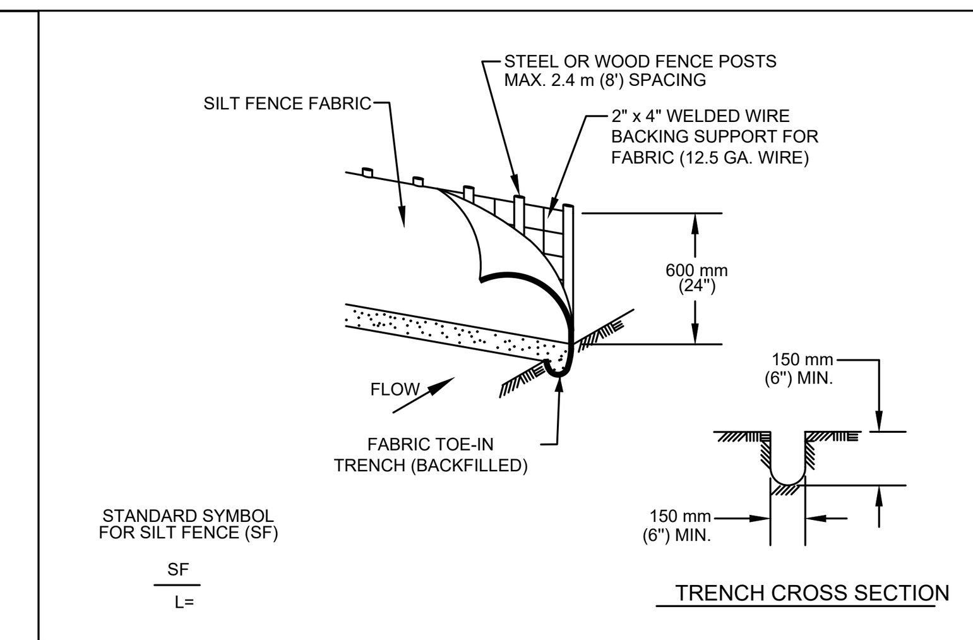


CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE MODIFIED TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-4



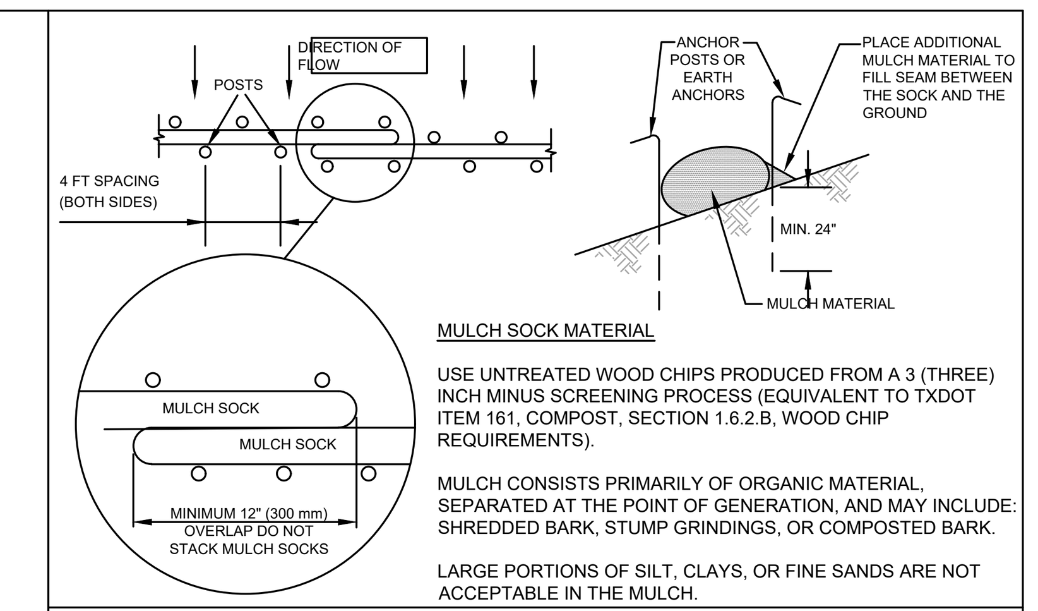
NOTES:
1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY — 5/23/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS — 09/01/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



MULCH SOCK MATERIAL

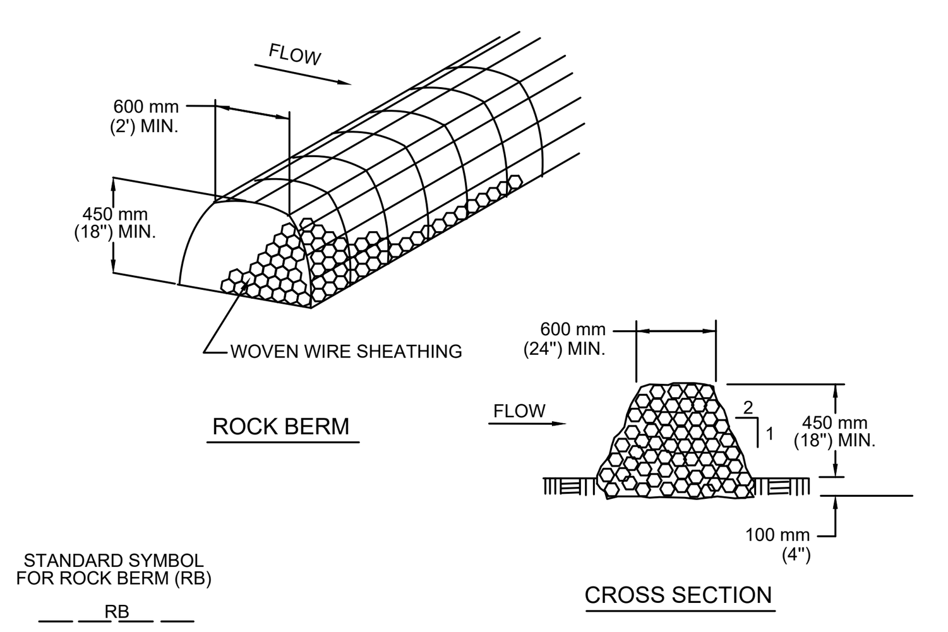
USE UNTREATED WOOD CHIPS PRODUCED FROM A 3 (THREE) INCH MINUS SCREENING PROCESS (EQUIVALENT TO TXDOT ITEM 161, COMPOST, SECTION 1.6.2.B, WOOD CHIP REQUIREMENTS).

MULCH CONSISTS PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, OR COMPOSTED BARK.

LARGE PORTIONS OF SILT, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MULCH.

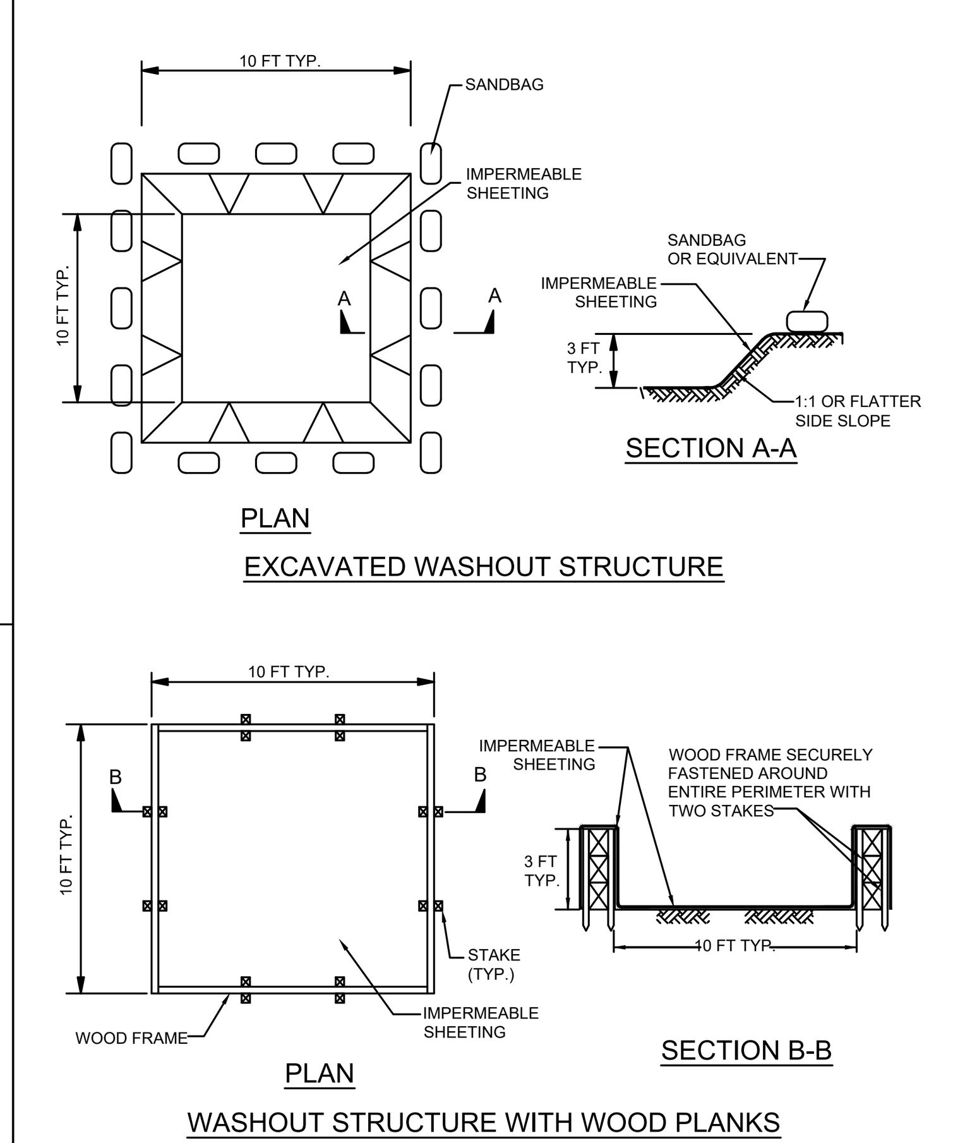
NOTES:
1. STEEL OR WOOD POSTS WHICH SUPPORT THE MULCH SOCK SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 600mm (24 inches). IF WOOD POSTS CANNOT ACHIEVE 600mm (24 inches) DEPTH, USE STEEL POSTS. EARTH ANCHORS ARE ALSO ACCEPTABLE.
2. THE TOE OF THE MULCH SOCK SHALL BE PLACED SO THAT THE MULCH SOCK IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. IN ORDER TO PREVENT WATER FROM FLOWING BETWEEN THE JOINTS OF ADJACENT ENDS OFMULCH SOCKS, LAP THE ENDS OF ADJACENT MULCH SOCKS A MINIMUM OF 300mm (12 inches).
3. MULCH MATERIAL MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH; IT IS NOT ACCEPTABLE FOR THE MULCH MATERIAL TO CONTAIN GROUND CONSTRUCTION DEBRIS, BIOSOLIDS, OR MANURE.
4. SOCK MATERIAL WILL BE 100% BIODEGRADABLE, PHOTODEGRADABLE, OR RECYCLABLE SUCH AS BURLAP, TWINE, UV PHOTOBIODEGRADABLE PLASTIC, POLYESTER, OR ANY OTHER ACCEPTABLE MATERIAL.
5. MULCH SOCKS SHOULD BE USED AT THE BASE OF SLOPES NO STEEPER THAN 2:1 AND SHOULD NOT EXCEED THE MAXIMUM SPACING CRITERIA PROVIDED IN CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL TABLE 1.4.5.F.1 FOR A GIVEN SLOPE CATEGORY.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	MULCH SOCK	
RECORD COPY SIGNED BY MORGAN BYARS — 08/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 648S-1



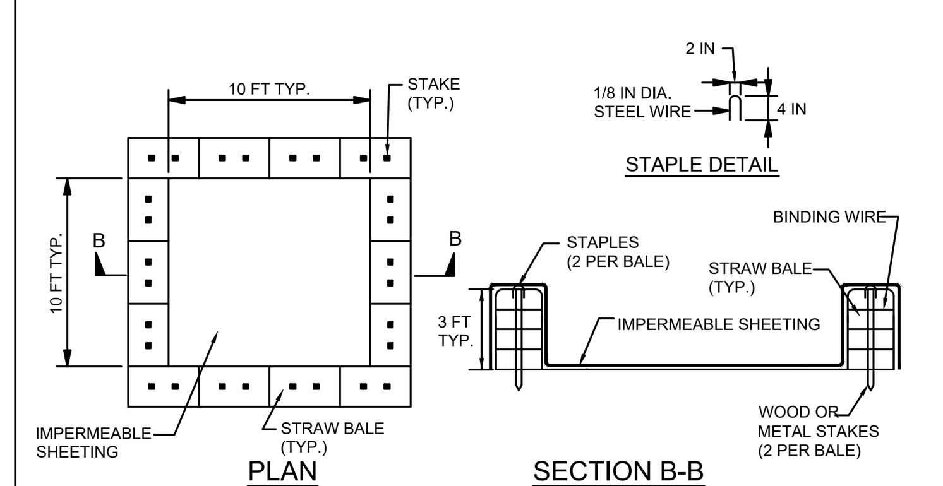
NOTES:
1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
RECORD COPY SIGNED BY MORGAN BYARS — 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



1 OF 2

ONSITE CONCRETE WASHOUT STRUCTURE



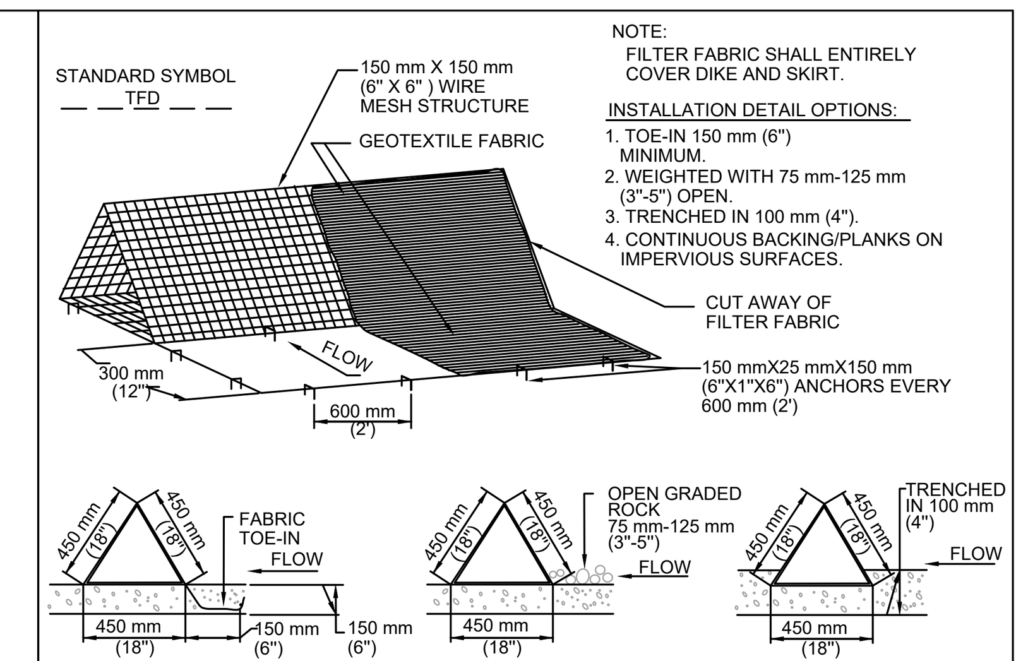
NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS
1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

ONSITE CONCRETE WASHOUT STRUCTURE



GENERAL NOTES
1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE NON-WOVEN FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75-125MM (3-5") OPEN GRADED ROCK OR TOED-IN 150MM (6") WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100MM (4").
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150MM (6") WIRE STAPLES ON 600MM (2') CENTERS ON BOTH EDGES AND SKIRT, OR STAKE USING 10MM (3/8 ") DIAMETER RE-BAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150MM (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE MW40-150MMX150MM (6 GA. 6"X6") WIRE MESH, 450MM (18") ON A SIDE.
7. INSPECTION SHALL BE MADE ONCE EVERY SEVEN (7) CALENDAR DAYS OR ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN TWENTY FOUR (24) HOURS AFTER A SIGNIFICANT RAINFALL EVENT OF ONE HALF INCH OR GREATER. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150MM (6") OR ONE-THIRD ($\frac{1}{3}$) THE HEIGHT OF THE CONTROL, WHICHEVER IS LESS, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN GENERAL NOTE 8 ABOVE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TRIANGULAR SEDIMENT FILTER DIKE	
RECORD COPY SIGNED BY: — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S

REVISION | NO. | DATE

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Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

STATE OF TEXAS — JONAH D. MANKOVSKY — 110095 — LICENSED PROFESSIONAL ENGINEER — 12/01/2023

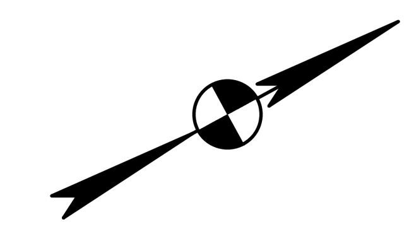
EROSION & SEDIMENTATION CONTROL DETAILS

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 85 OF 113



120 0 60 120 240
1" = 120'

LEGEND

EXISTING	DESCRIPTION
	PROPERTY (R.O.W.) LINE
678	CONTOUR
	TIME OF CONCENTRATION
	DRAINAGE DIVIDE
	DIRECTION OF FLOW
E1 1.03 AC.	DRAINAGE AREA NUMBER AND ACREAGE

Area:						EX-1			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	14.22	14.22	14.22	14.22	14.22	Concrete	4.58	199,505	32.21
C	0.47	0.52	0.57	0.64	0.72	Grass, Fair, 2-7%	9.64	419,918	67.79
Tc	12.45	12.45	12.45	12.45	12.45				
I	4.63	7.00	8.60	11.22	14.62				
Q	30.6	52.3	69.5	102.8	148.7	Total	14.22	619,423	100
								8.37	

Area:						EX-2			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.85	0.85	0.85	0.85	0.85	Concrete	0.05	2,178	5.88
C	0.35	0.41	0.45	0.52	0.60	Grass, Fair, 2-7%	0.80	34,848	94.12
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	1.9	3.3	4.5	6.8	10.4	Total	0.85	37,026	100

Area:						EX-3			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	2.00	2.00	2.00	2.00	2.00	Concrete	0.47	20,600	23.61
C	0.43	0.49	0.53	0.60	0.68	Grass, Fair, 2-7%	1.53	66,647	76.39
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	5.4	9.4	12.5	18.6	27.5	Total	2.00	87,246	100

Area:						EX-4			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	1.01	1.01	1.01	1.01	1.01	Concrete	0.92	39,962	91.07
C	0.71	0.79	0.84	0.93	0.96	Grass, Fair, 2-7%	0.09	3,920	8.93
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	4.5	7.6	10.0	14.4	19.6	Total	1.01	43,882	100

Area:						EX-5			
Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	18.40	18.40	18.40	18.40	18.40	Concrete	2.35	102,366	12.77
C	0.38	0.44	0.48	0.55	0.63	Grass, Fair, 2-7%	16.05	699,138	87.23
Tc	13.61	13.61	13.61	13.61	13.61				
I	4.45	6.73	8.27	10.80	14.08				
Q	31.4	54.2	72.9	109.5	164.1	Total	18.40	801,504	100

REVISION NO. DATE

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TBPE # F-14629

STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED
12/01/2023

EXISTING DRAINAGE AREA MAP

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

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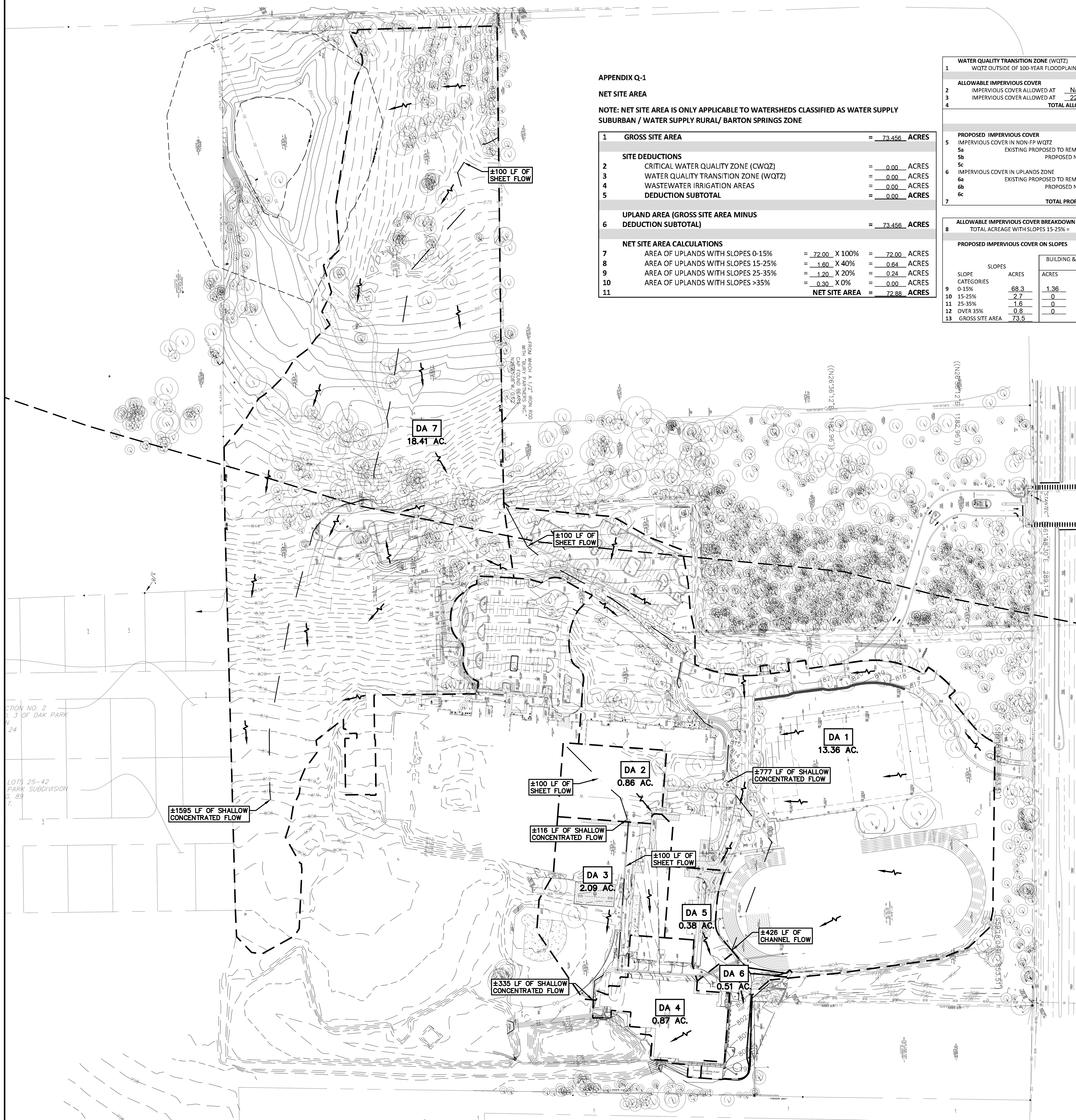
R3 NEW SHEET SPC-97-0320C(R3)



APPENDIX Q-1

NET SITE AREA

NOTE: NET SITE AREA IS ONLY APPLICABLE TO WATERSHEDS CLASSIFIED AS WATER SUPPLY SUBURBAN / WATER SUPPLY RURAL/ BARTON SPRINGS ZONE

1	**GROSS SITE AREA**			=	73.456	**ACRES**
	SITE DEDUCTIONS					
2	CRITICAL WATER QUALITY ZONE (CWQZ)			=	0.00	ACRES
3	WATER QUALITY TRANSITION ZONE (WQTZ)			=	0.00	ACRES
4	WASTEWATER IRRIGATION AREAS			=	0.00	ACRES
5	**DEDUCTION SUBTOTAL**			=	0.00	**ACRES**
6	**UPLAND AREA (GROSS SITE AREA MINUS DEDUCTION SUBTOTAL)**			=	73.456	**ACRES**
	NET SITE AREA CALCULATIONS					
7	AREA OF UPLANDS WITH SLOPES 0-15%	= 72.00	X 100%	=	72.00	ACRES
8	AREA OF UPLANDS WITH SLOPES 15-25%	= 1.60	X 40%	=	0.64	ACRES
9	AREA OF UPLANDS WITH SLOPES 25-35%	= 1.20	X 20%	=	0.24	ACRES
10	AREA OF UPLANDS WITH SLOPES >35%	= 0.30	X 0%	=	0.00	ACRES
11			**NET SITE AREA**	=	72.88	**ACRES**

	WATER QUALITY TRANSITION ZONE (WQTZ)		
1	WQTZ OUTSIDE OF 100-YEAR FLOODPLAIN (NON-FP WQTZ)	= 0	ACRES
	ALLOWABLE IMPERVIOUS COVER		
2	IMPERVIOUS COVER ALLOWED AT N/A % X *(NON-FP WQTZ)*	= N/A	ACRES
3	IMPERVIOUS COVER ALLOWED AT 22 % X *(NET SITE AREA)*	= 16.03	ACRES
4	**TOTAL ALLOWED IMPERVIOUS COVER**	= 16.03	**ACRES**
	PROPOSED IMPERVIOUS COVER		
5	IMPERVIOUS COVER IN NON-FP WQTZ		
5a	EXISTING PROPOSED TO REMAIN = N/A ACRES		
5b	PROPOSED NEW = N/A ACRES		
5c	**SUBTOTAL**	= N/A	**ACRES**
6	IMPERVIOUS COVER IN UPLANDS ZONE		
6a	EXISTING PROPOSED TO REMAIN = 13.80 ACRES		
6b	PROPOSED NEW = 1.36 ACRES		
6c	SUBTOTAL	= 15.16	ACRES
7	**TOTAL PROPOSED IMPERVIOUS COVER**	= 15.16	**ACRES**

ALLOWABLE IMPERVIOUS COVER BREAKDOWN BY SLOPE CATEGORY

8 TOTAL ACREAGE WITH SLOPES 15-25% = ________ ACRES X 10% = ________ ACRES

PROPOSED IMPERVIOUS COVER ON SLOPES

	SLOPES		IMPERVIOUS COVER: BUILDING & OTHER IMPERVIOUS COVER		DRIVES / ROADWAYS
	SLOPE CATEGORIES	ACRES	ACRES	% OF CATEGORY	ACRES
9	0-15%	68.3	1.36	2.0%	________
10	15-25%	2.7	0	0.0%	________
11	25-35%	1.6	0	0.0%	________
12	OVER 35%	0.8	0	0.0%	________
13	GROSS SITE AREA	73.5			

120 0 60 120 240

1" = 120'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY (R.O.W.) LINE
678	678	CONTOUR
		TIME OF CONCENTRATION
		DRAINAGE DIVIDE
		DIRECTION OF FLOW
	P1 1.03 AC.	DRAINAGE AREA NUMBER AND ACREAGE

Area: DA-1

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	13.36	13.36	13.36	13.36	13.36	Concrete	4.75	206,910	35.55
C	0.48	0.54	0.58	0.66	0.73	Grass, Fair, 2-7%	8.61	375,052	64.45
Tc	12.28	12.28	12.28	12.28	12.28				
I	4.65	7.04	8.65	11.28	14.70				
Q	29.8	50.8	67.4	99.6	143.2	Total	13.36	581,962	100

Area: DA-2

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.86	0.86	0.86	0.86	0.86	Concrete	0.05	2,178	5.79
C	0.35	0.41	0.45	0.52	0.60	Grass, Fair, 2-7%	0.81	35,445	94.21
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	1.9	3.4	4.5	6.9	10.6	Total	0.86	37,623	100

Area: DA-3

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	2.09	2.09	2.09	2.09	2.09	Concrete	0.60	26,136	28.71
C	0.45	0.51	0.55	0.63	0.70	Grass, Fair, 2-7%	1.49	64,904	71.29
Tc	6.30	6.30	6.30	6.30	6.30				
I	5.91	8.99	11.03	14.41	18.84				
Q	5.6	9.6	12.7	18.9	27.6	Total	2.09	91,040	100

Area: DA-4

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.87	0.87	0.87	0.87	0.87	Concrete	0.87	37,897	100.00
C	0.75	0.83	0.88	0.97	1.00				
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	4.1	6.9	9.0	13.0	17.6	Total	0.87	37,897	100

Area: DA-5

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.38	0.38	0.38	0.38	0.38	Concrete	0.38	16,553	100.00
C	0.75	0.83	0.88	0.97	1.00				
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	1.8	3.0	3.9	5.7	7.7	Total	0.38	16,553	100

Area: DA-6

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	0.51	0.51	0.51	0.51	0.51	Concrete	0.48	20,909	94.12
C	0.73	0.80	0.85	0.94	0.98	Grass, Fair, 2-7%	0.03	1,307	5.88
Tc	5.00	5.00	5.00	5.00	5.00				
I	6.31	9.61	11.79	15.42	20.25				
Q	2.3	3.9	5.1	7.4	10.1	Total	0.51	22,216	100

Area: DA-7

Event	2-yr	10-yr	25-yr	100-yr	500-yr	Surface	Acres	SF	%
Acres	18.41	18.41	18.41	18.41	18.41	Concrete	2.63	114,563	14.29
C	0.39	0.44	0.49	0.56	0.64	Grass, Fair, 2-7%	15.78	687,377	85.71
Tc	13.61	13.61	13.61	13.61	13.61				
I	4.45	6.73	8.27	10.80	14.08				
Q	32.0	55.1	74.0	111.0	165.9	Total	18.41	801,940	100

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TBPE # F-14629

REVISION | NO. | DATE

STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED
PROFESSIONAL ENGINEER
12/01/2023

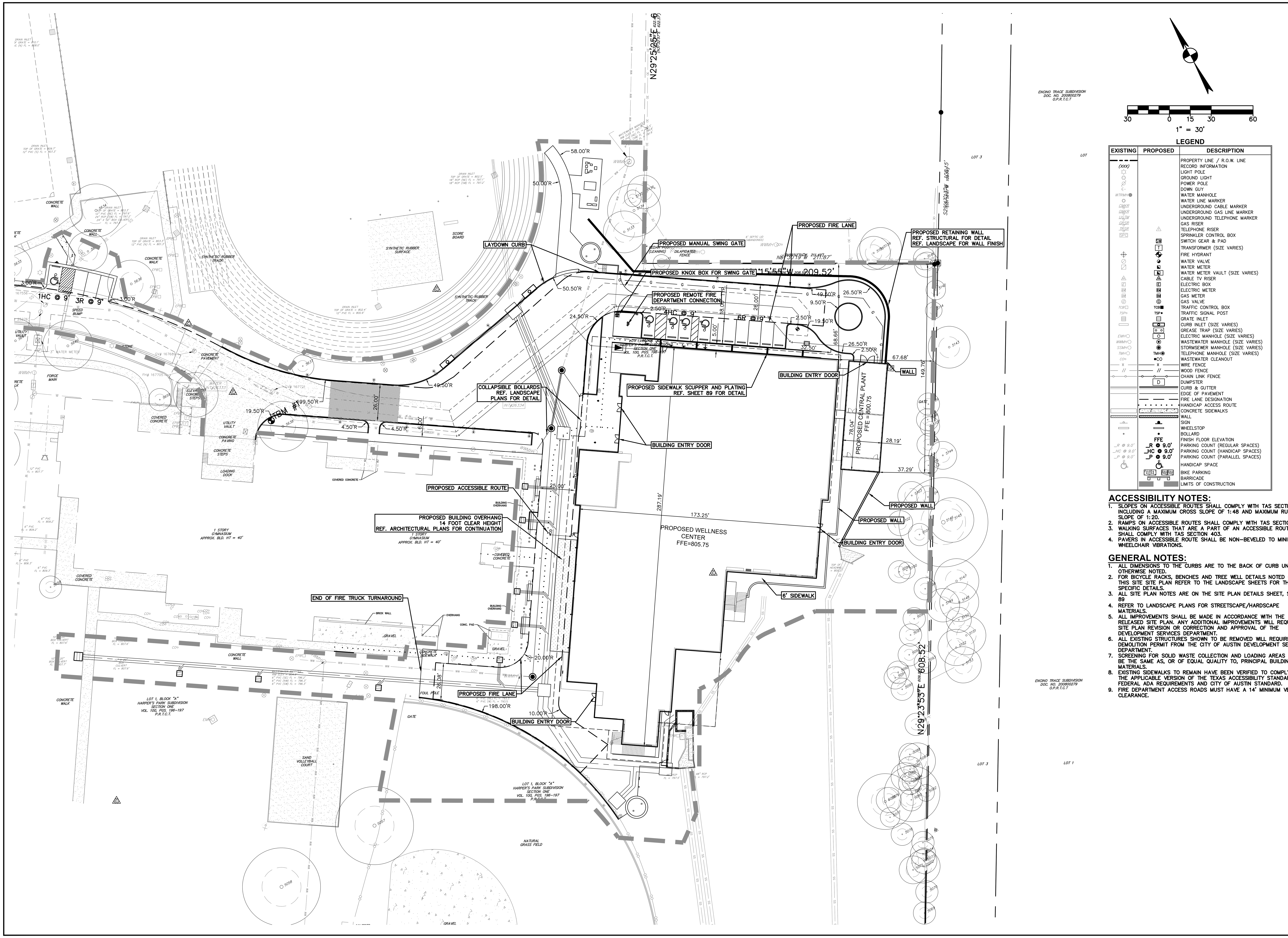
PROPOSED DRAINAGE AREA MAP

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

R3 NEW SHEET SPC-97-0320C(R3)



LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WMH		WATER MANHOLE
		WATER LINE MARKER
		UNDERGROUND CABLE MARKER
		UNDERGROUND GAS LINE MARKER
		UNDERGROUND TELEPHONE MARKER
		GAS RISER
		TELEPHONE RISER
		SPRINKLER CONTROL BOX
		SWITCH GEAR & PAD
		TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
		CABLE TV RISER
		ELECTRIC BOX
		ELECTRIC METER
		GAS METER
		GAS VALVE
TCB	TCB	TRAFFIC CONTROL BOX
TSP	TSP	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH		ELECTRIC MANHOLE (SIZE VARIES)
WWMH		WASTEWATER MANHOLE (SIZE VARIES)
SSMH		STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
	D	DUMPSTER
		CURB & GUTTER
		EDGE OF PAVEMENT
		FIRE LANE DESIGNATION
		HANDICAP ACCESS ROUTE
		CONCRETE SIDEWALKS
		WALL
		SIGN
		WHEELSTOP
		BOLLARD
	FFE	FINISH FLOOR ELEVATION
_R @ 9.0'	_R @ 9.0'	PARKING COUNT (REGULAR SPACES)
_HC @ 9.0'	_HC @ 9.0'	PARKING COUNT (HANDICAP SPACES)
_P @ 9.0'	_P @ 9.0'	PARKING COUNT (PARALLEL SPACES)
		HANDICAP SPACE
		BIKE PARKING
		BARRICADE
		LIMITS OF CONSTRUCTION

ACCESSIBILITY NOTES:

1. SLOPES ON ACCESSIBLE ROUTES SHALL COMPLY WITH TAS SECTION 402 INCLUDING A MAXIMUM CROSS SLOPE OF 1:48 AND MAXIMUM RUNNING SLOPE OF 1:20.
2. RAMPS ON ACCESSIBLE ROUTES SHALL COMPLY WITH TAS SECTION 405.
3. WALKING SURFACES THAT ARE A PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH TAS SECTION 403.
4. PAVERS IN ACCESSIBLE ROUTE SHALL BE NON-BEVELED TO MINIMIZE WHEELCHAIR VIBRATIONS.

GENERAL NOTES:

1. ALL DIMENSIONS TO THE CURBS ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.
2. FOR BICYCLE RACKS, BENCHES AND TREE WELL DETAILS NOTED ON THIS SITE SITE PLAN REFER TO THE LANDSCAPE SHEETS FOR THOSE SPECIFIC DETAILS.
3. ALL SITE PLAN NOTES ARE ON THE SITE PLAN DETAILS SHEET, SHEET 89
4. REFER TO LANDSCAPE PLANS FOR STREETSCAPE/HARDSCAPE MATERIALS.
5. ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE RELEASED SITE PLAN. ANY ADDITIONAL IMPROVEMENTS WILL REQUIRE SITE PLAN REVISION OR CORRECTION AND APPROVAL OF THE DEVELOPMENT SERVICES DEPARTMENT.
6. ALL EXISTING STRUCTURES SHOWN TO BE REMOVED WILL REQUIRE A DEMOLITION PERMIT FROM THE CITY OF AUSTIN DEVELOPMENT SERVICES DEPARTMENT.
7. SCREENING FOR SOLID WASTE COLLECTION AND LOADING AREAS SHALL BE THE SAME AS, OR OF EQUAL QUALITY TO, PRINCIPAL BUILDING MATERIALS.
8. EXISTING SIDEWALKS TO REMAIN HAVE BEEN VERIFIED TO COMPLY WITH THE APPLICABLE VERSION OF THE TEXAS ACCESSIBILITY STANDARD, FEDERAL ADA REQUIREMENTS AND CITY OF AUSTIN STANDARD.
9. FIRE DEPARTMENT ACCESS ROADS MUST HAVE A 14' MINIMUM VERTICAL CLEARANCE.

DATE	NO.	REVISION

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7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED PROFESSIONAL ENGINEER
12/01/2023

SITE PLAN

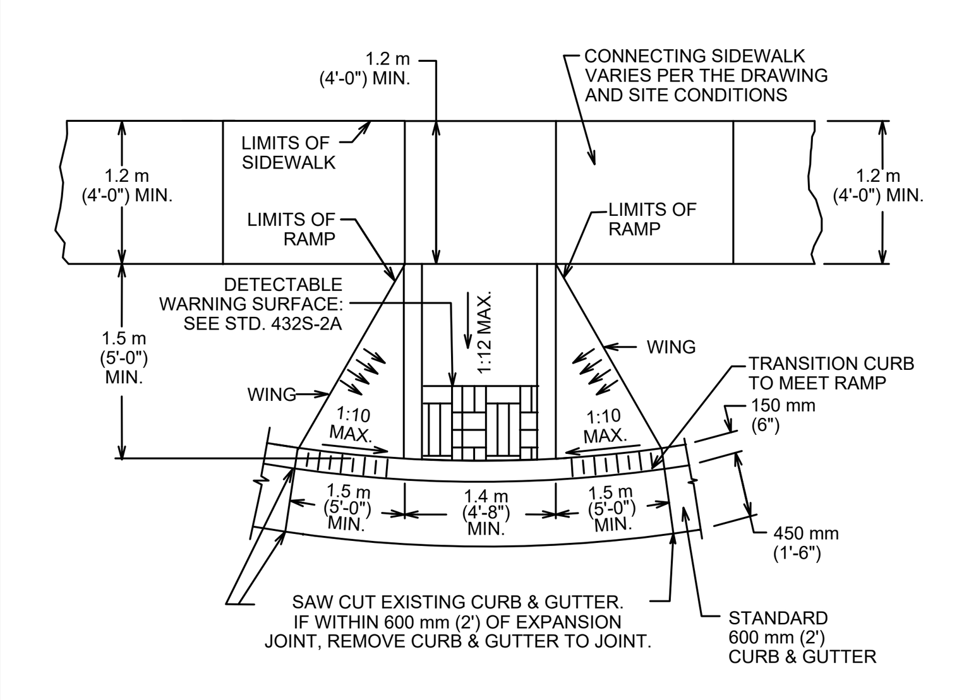
ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

V:\113595-00006\Civil\00-CAD\113595-00006-SITE.dwg modified by mguajardoclark on Apr 5, 24 10:02 AM

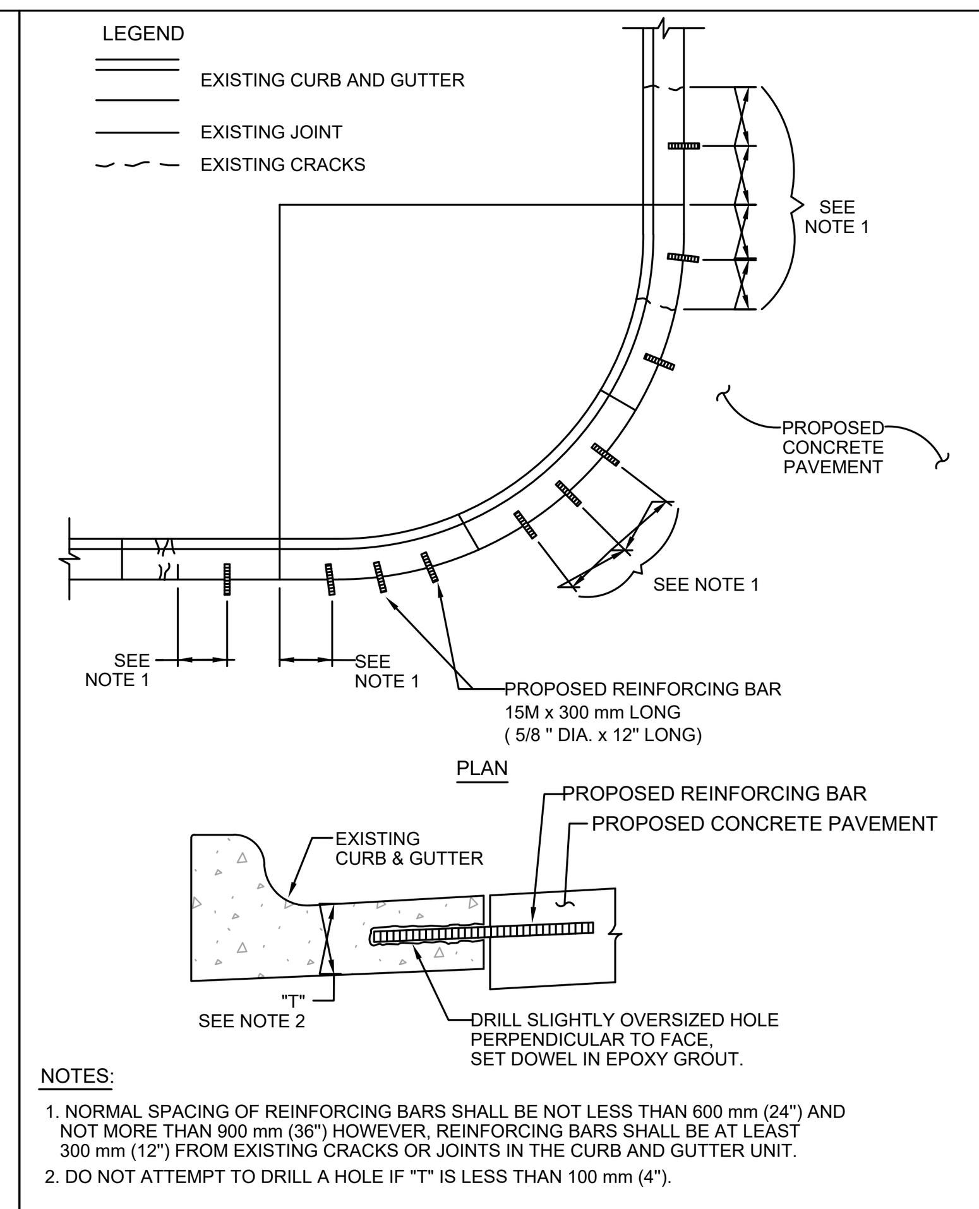
R3 NEW SHEET SPC-97-0320C(R3)



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPE 1 SIDEWALK CURB RAMP

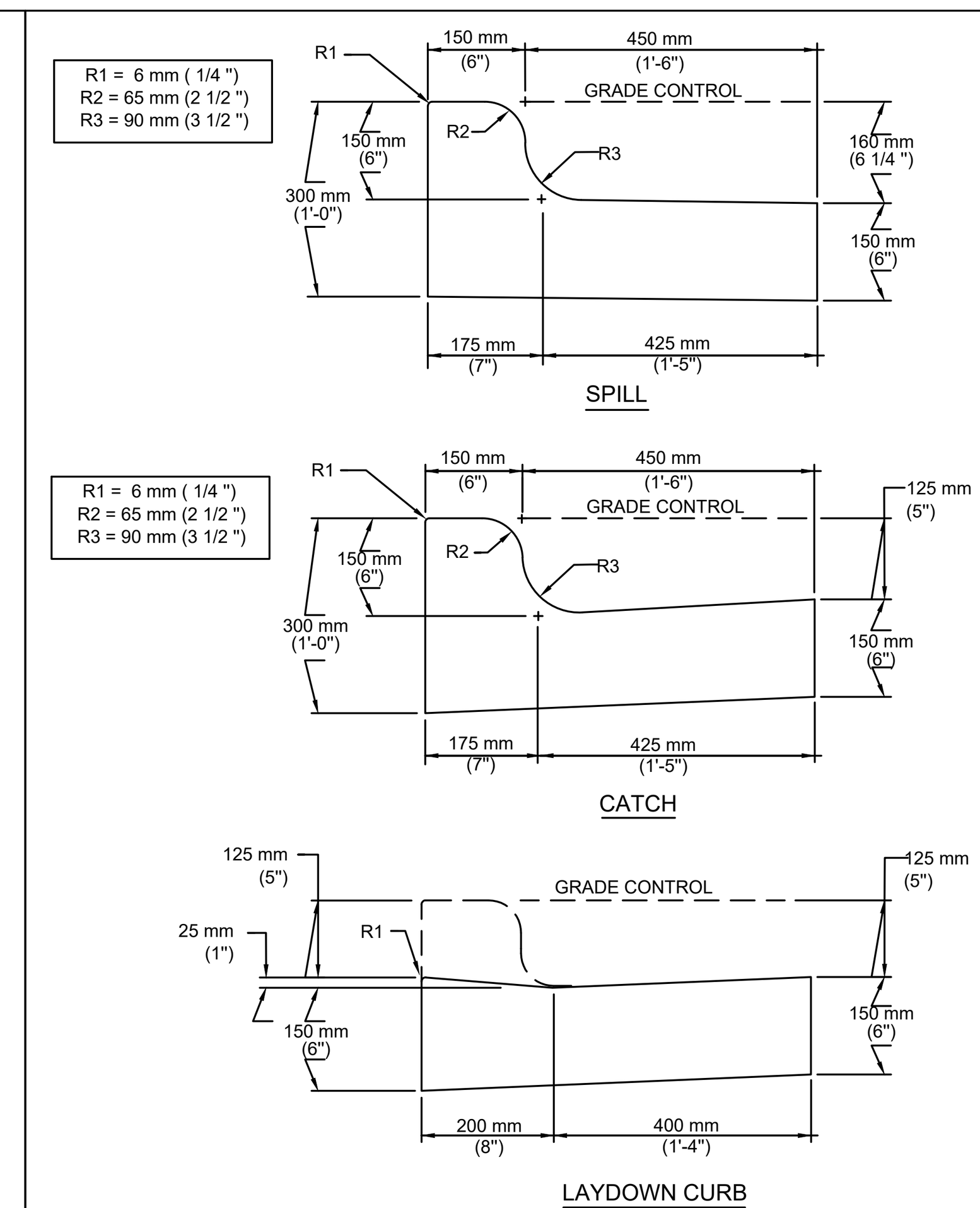
RECORD COPY SIGNED BY BILL GARDNER 9/14/05 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-5



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION

REINFORCING BAR DETAIL AT EXISTING CURB AND GUTTER

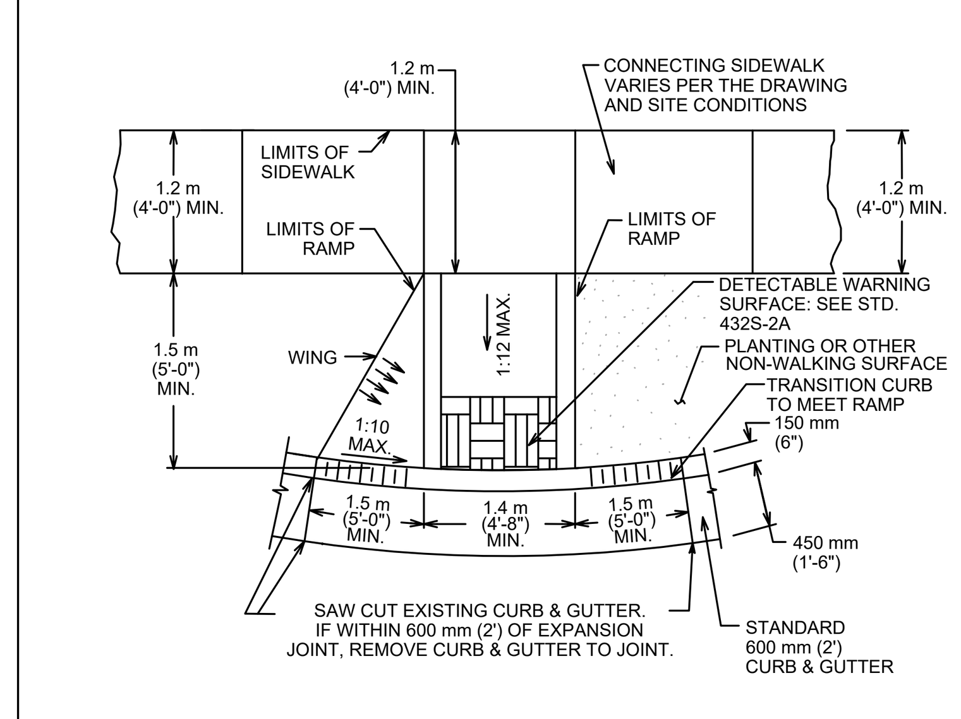
RECORD COPY SIGNED BY LINO RIVERA 4/5/99 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 430S-5



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION

CURB AND GUTTER SECTION

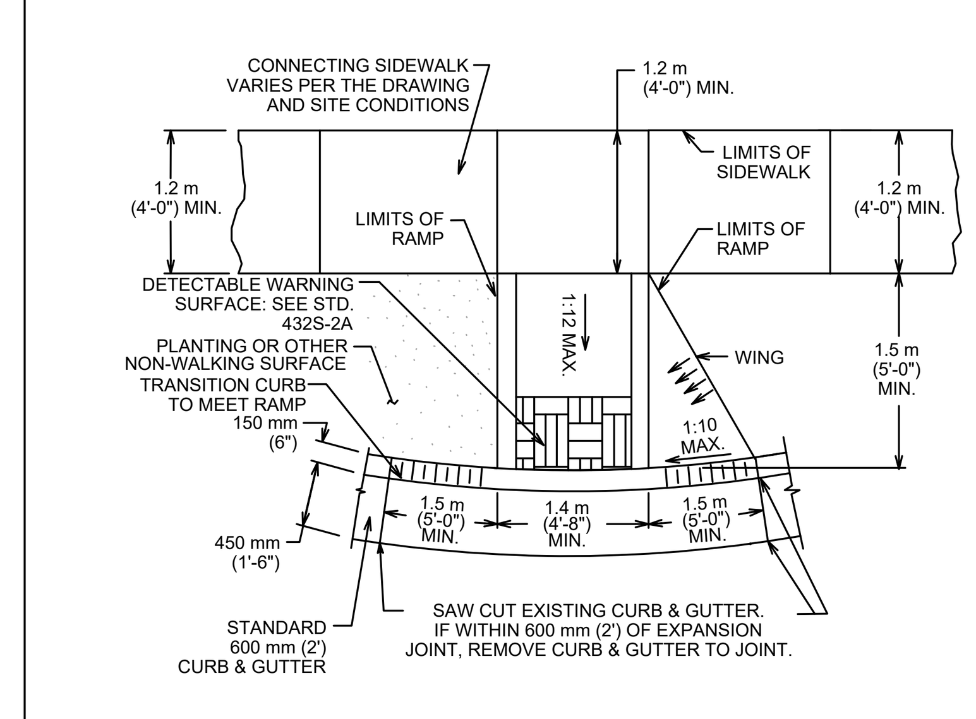
RECORD COPY SIGNED BY LINO RIVERA 9/29/99 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 430S-1



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPE 1A SIDEWALK CURB RAMP WITH LEFT FLARE

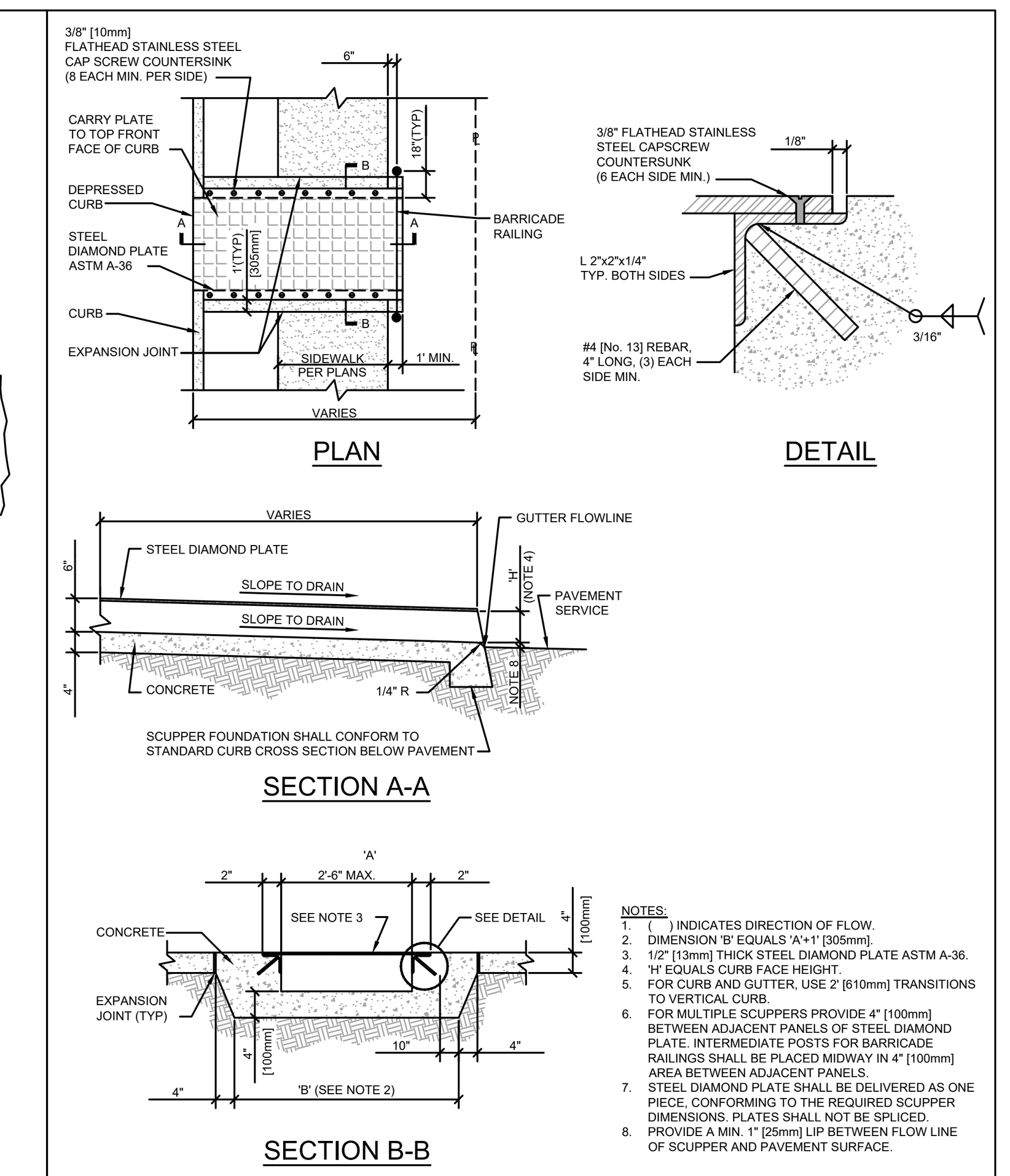
RECORD COPY SIGNED BY BILL GARDNER 06/16/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-5A 1 OF 2



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

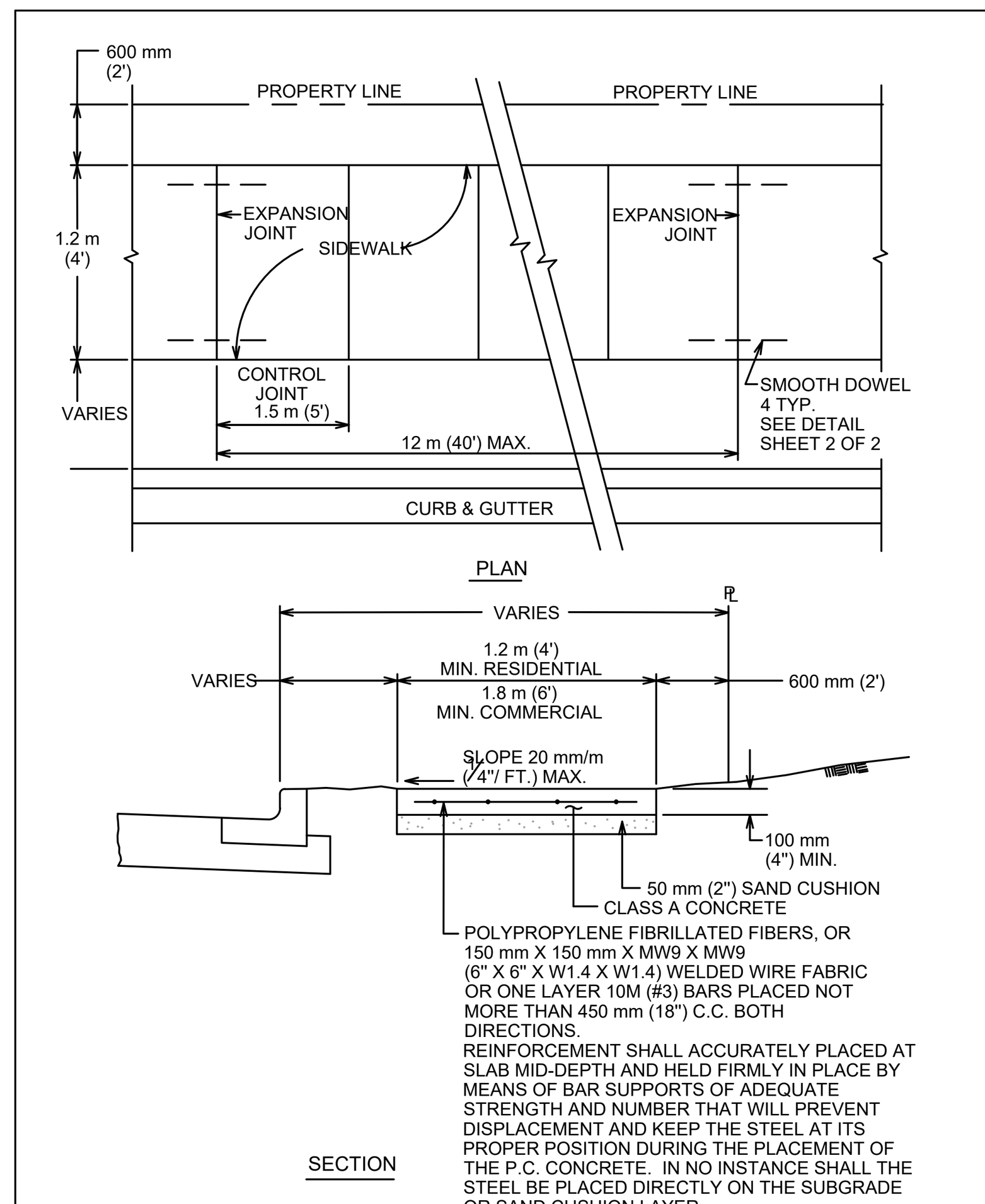
TYPE 1A SIDEWALK CURB RAMP WITH RIGHT FLARE

RECORD COPY SIGNED BY BILL GARDNER 06/16/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-5A 2 OF 2



1 OF 1

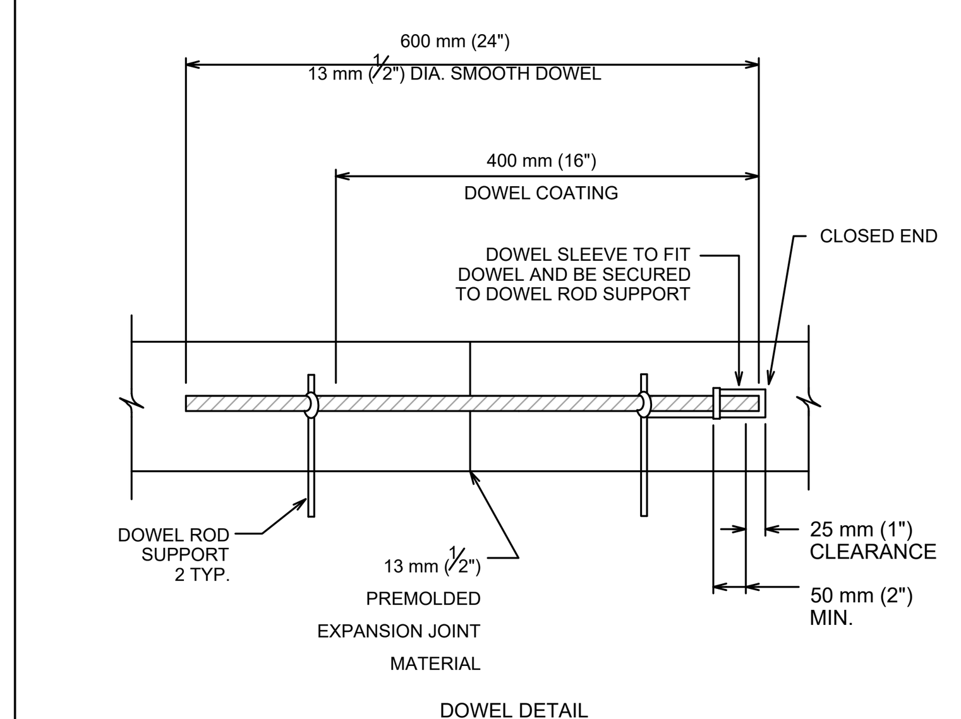
SIDEWALK SCUPPER (PLATING)



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

SIDEWALK

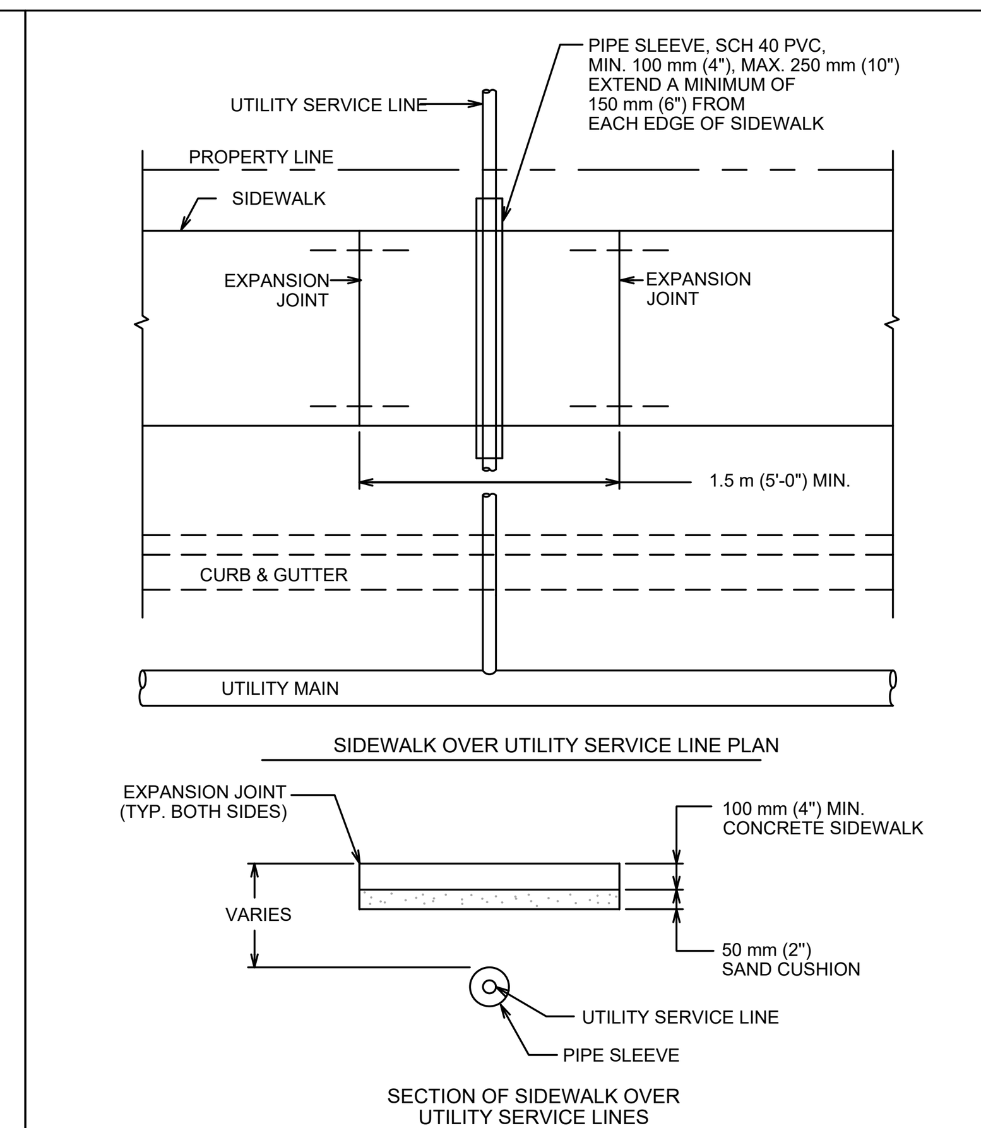
RECORD COPY SIGNED BY BILL GARDNER 03/26/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-1 1 OF 3



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

SIDEWALK

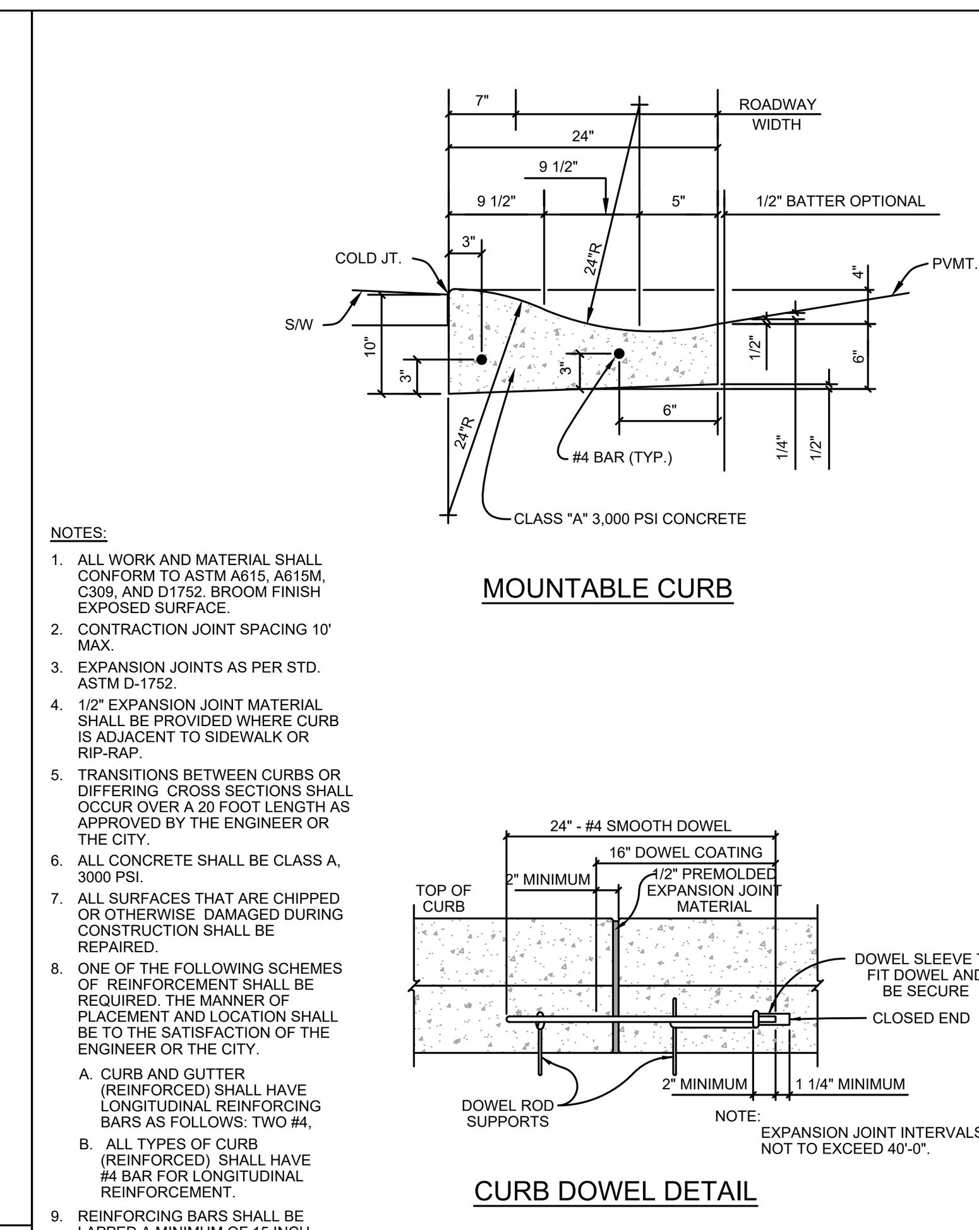
RECORD COPY SIGNED BY BILL GARDNER 03/26/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-1 2 OF 3



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

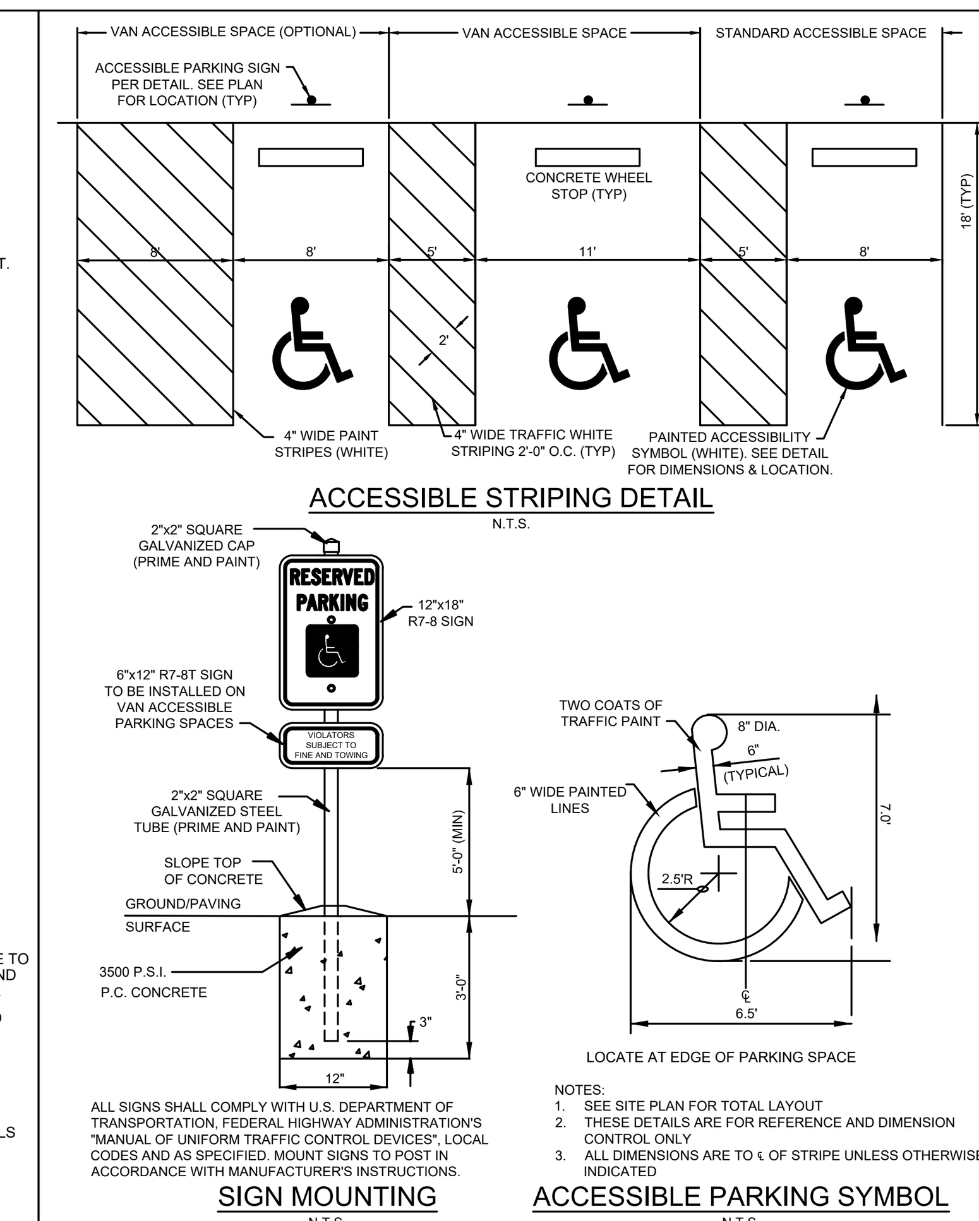
SIDEWALK

RECORD COPY SIGNED BY BILL GARDNER 03/26/08 ADOPTED | THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. | STANDARD NO. 432S-1 3 OF 3



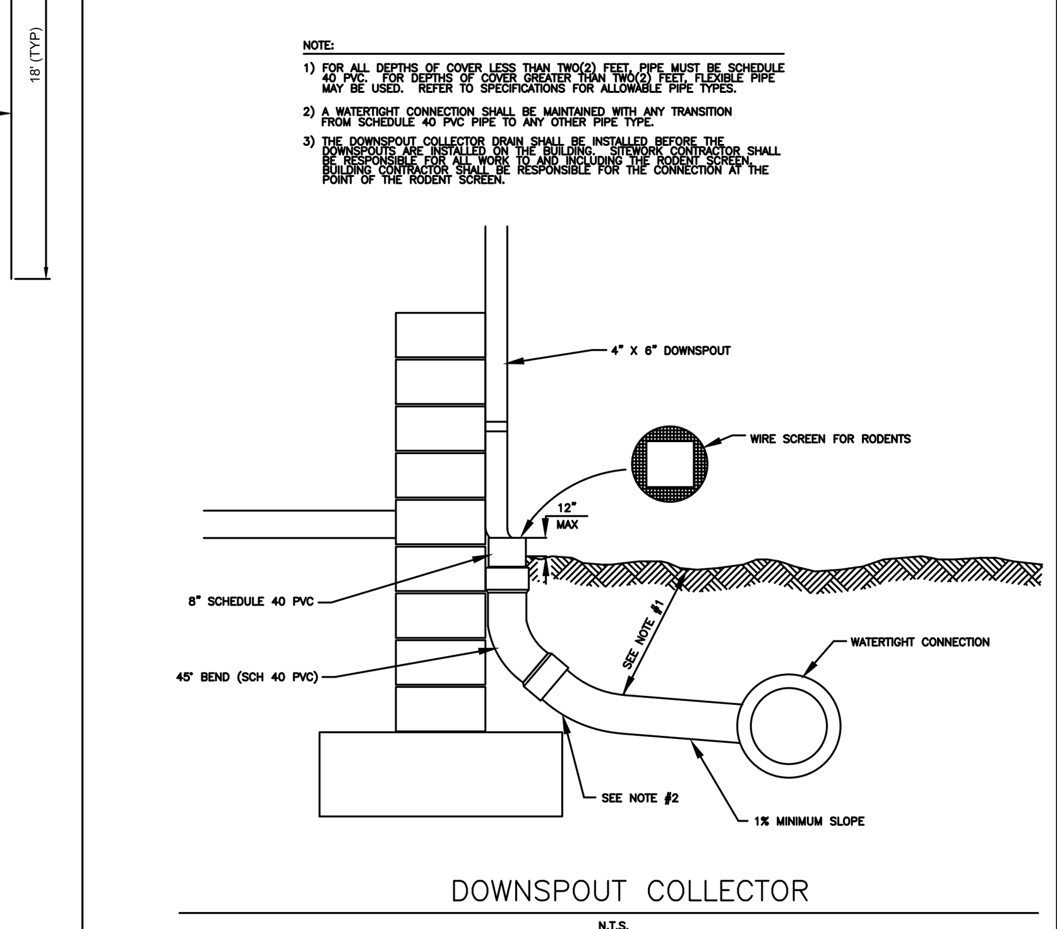
1 OF 1

MOUNTABLE CURB AND GUTTER DETAILS

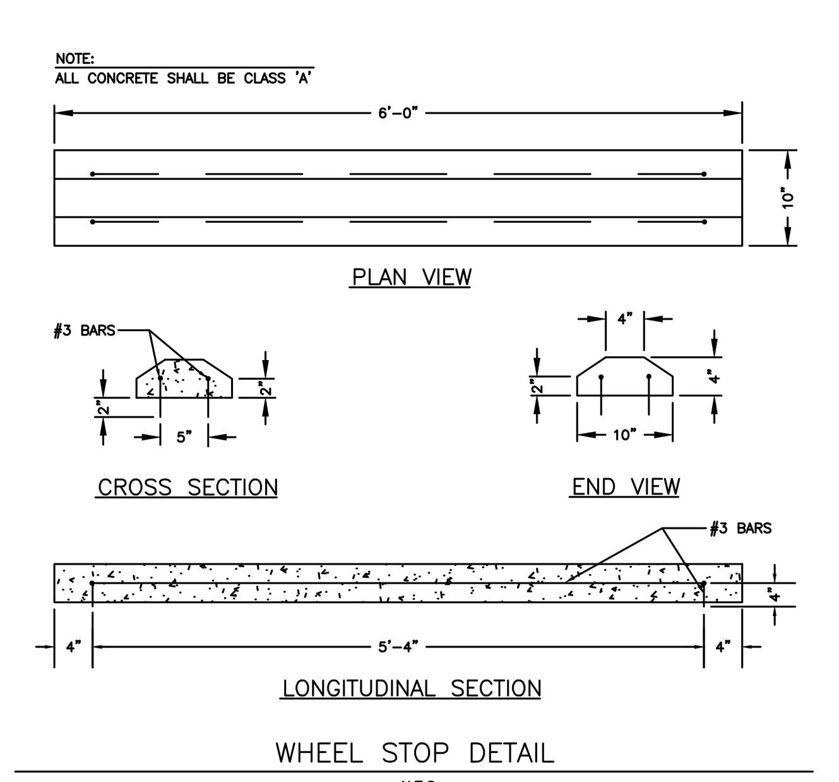


1 OF 1

HANDICAP STRIPING & SIGNAGE DETAIL



BPI–U12



WHEEL STOP DETAIL
N.T.S.

BPI–X02

SITE PLAN DATA TABLE	
ITEM	**OVERALL**
OVERLAY	BARTON SPRINGS ZONE
PROPOSED USE	PRIVATE EDUCATION
SITE AREA (SF)	3,199,743
SITE AREA (AC)	73.456
NEW PROPOSED IMPERVIOUS COVER (SF)	60548.40
PROPOSED IMPERVIOUS COVER (%)	1.9%
TOTAL IMPERVIOUS COVER (%)	20.6%
BUILDING GROSS AREA (PRIVATE EDUCATION USE)	56,640 SF
FINISHED FLOOR ELEVATION (FFE)	REFERENCE GRADING PLAN

PARKING LAYOUT TABLE

TYPE	TOTAL REQUIRED PER REVISION 20C	TOTAL PROVIDED PER REVISION 20 C	REMOVED	PROPOSED	NEW
REGULAR	449	755	43	89	801
HANDICAP ACCESSIBLE		26	2	5	29
TOTAL	449	781	45	94	830

garza EMC
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Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629
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REVISION | NO. | DATE

JONAH D. MANKOVSKY 110095
12/01/2023

SITE PLAN NOTES & DETAILS

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET
89
OF 113

V:\113595-00006\Civil\00-CAD\113595-00006-SITE-DTL.dwg modified by mguajardoclark on Feb 15, 24 4:59 PM

R3 NEW SHEET SPC-97-0320C(R3)

30 0 15 30 60
1" = 30'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
— — —		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
☼		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WTRMH ●		WATER MANHOLE
◎		WATER LINE MARKER
CMKR		UNDERGROUND CABLE MARKER
GMKR		UNDERGROUND GAS LINE MARKER
UGTM		UNDERGROUND TELEPHONE MARKER
GRSR		GAS RISER
TRSR	T	TELEPHONE RISER
SPC		SPRINKLER CONTROL BOX
	SW	SWITCH GEAR & PAD
	T	TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
TV	TV	CABLE TV RISER
E	E	ELECTRIC BOX
EM	EM	ELECTRIC METER
GM	GM	GAS METER
G	G	GAS VALVE
TCB □	TCB ■	TRAFFIC CONTROL BOX
TSP ○	TSP ●	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH ○		ELECTRIC MANHOLE (SIZE VARIES)
WWMH ○		WASTEWATER MANHOLE (SIZE VARIES)
SSMH ○	●	STORMSEWER MANHOLE (SIZE VARIES)
TMH ○	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO ○	● CO	WASTEWATER CLEANOUT
x	x	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
	D	DUMPSTER
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
678	678	CONTOUR
SS		STORMSEWER LINE
W		WATER LINE
		FIRE LINE
WW		WASTEWATER LINE
G		GAS LINE
UE	UE	UNDERGROUND ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC LINE
OE	UT	UNDERGROUND TELEPHONE LINE
UC	UC	UNDERGROUND CABLE AND INTERNET
U-COMM	U-COMM	UNDERGROUND TELECOMMUNICATIONS
	• • • • • • •	HANDICAP ACCESS ROUTE
		SIGN
		WHEELSTOP
	●	BOLLARD
	FFE	FINISH FLOOR ELEVATION
♿	♿	HANDICAP SPACE
		BIKE PARKING
		SWALE
		DIRECTION OF FLOW
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE
	HP	HIGH POINT
	TW	TOP OF WALL
	TC	TOP OF CURB
	G	GUTTER
× 701.33	× 701.33	SPOT ELEVATION

GRADING NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THERE ARE DISCREPANCIES BETWEEN THE DRAWINGS AND WHAT IS FOUND IN THE FIELD.
2. EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
3. ALL AREAS DISTRIBUTED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.
4. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF AUSTIN ENVIRONMENTAL INSPECTION AT (512) 974–2278 AT LEAST 48 HOURS PRIOR TO THE REMOVAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL, LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.
5. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER TO PREVENT DAMAGE TO THE OWNER PRIOR TO ACCEPTANCE OF THE PROJECT.
6. THE GEOTECHNICAL ENGINEER SHALL APPROVE ALL FILL MATERIAL PROVIDED PRIOR TO PLACING AND COMPLIANCE.
7. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS SUCH AS 6–INCH CONCRETE CURB AND GUTTER ARE REQUIRED. IF A STANDARD 6–INCH CURB AND GUTTER ARE NOT PROVIDED FOR ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, COMPLY WITH ECM SECTION 2.4.7, *PROTECTION OF LANDSCAPE AREAS.*

DATE	NO.	REVISION

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7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

JONAH D. MANKOVSKY
110095
12/01/2023

GRADING PLAN

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

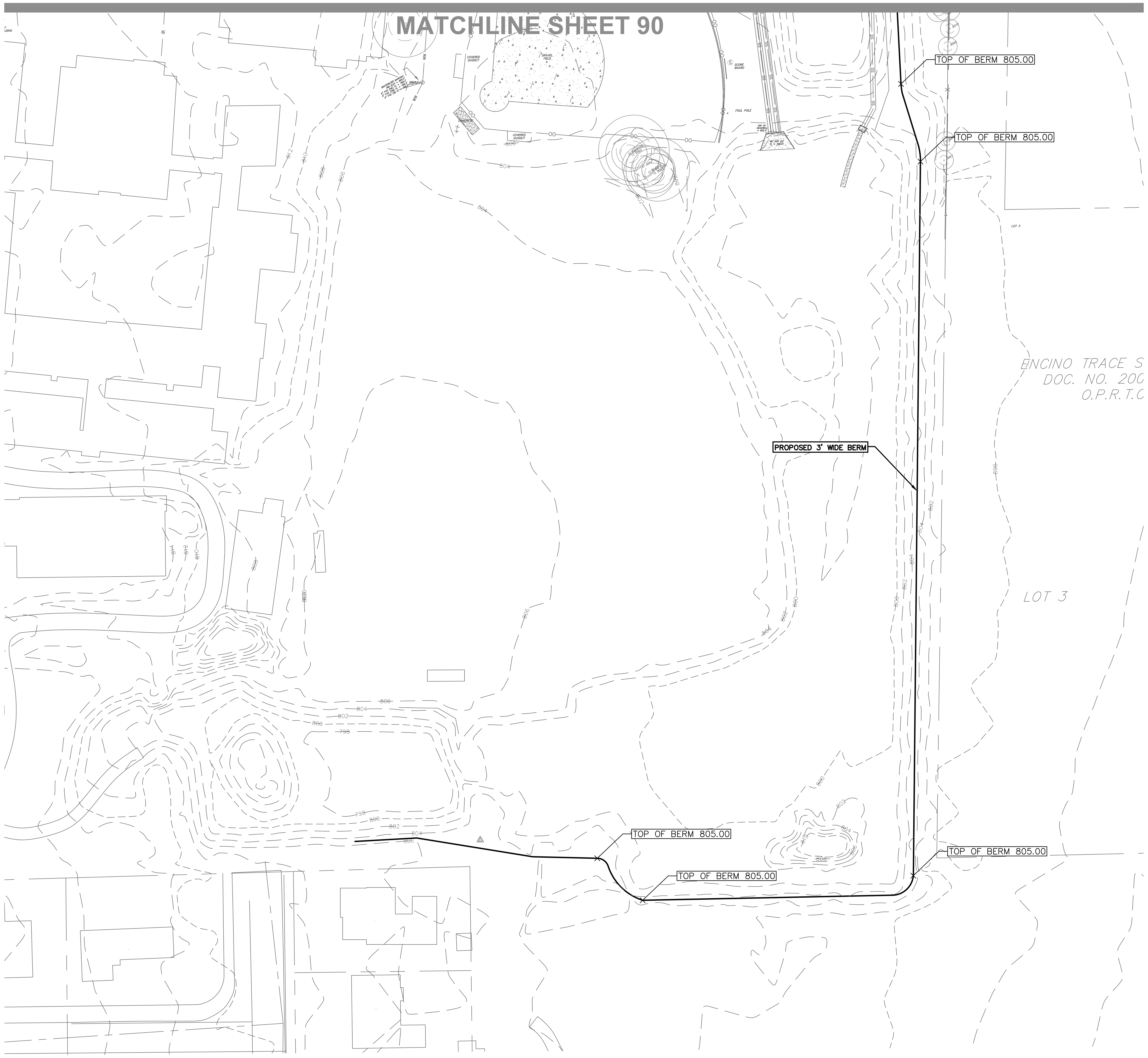
ST. ANDREWS EPISCOPAL SCHOOL

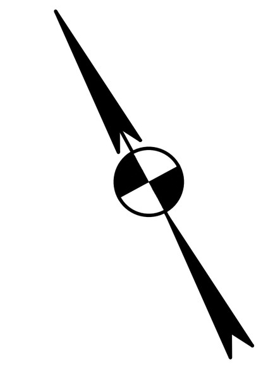
DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET
90
OF 113

V:\113595-00006\Civil\00-CAD\113595-00006-GRAD.dwg modified by mguajardoclark on Apr 12, 24 2:04 PM

R3 NEW SHEET SPC-97-0320C(R3)





30 0 15 30 60

1" = 30'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WTRMH		WATER MANHOLE
		WATER LINE MARKER
CMKR		UNDERGROUND CABLE MARKER
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UGTM		UNDERGROUND TELEPHONE MARKER
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TRSR	T	TELEPHONE RISER
SPC		SPRINKLER CONTROL BOX
	SW	SWITCH GEAR & PAD
	T	TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
TV	TV	CABLE TV RISER
E	E	ELECTRIC BOX
EM	EM	ELECTRIC METER
GM	GM	GAS METER
G	G	GAS VALVE
TCB	TCB	TRAFFIC CONTROL BOX
TSP	TSP	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH		ELECTRIC MANHOLE (SIZE VARIES)
WWMH		WASTEWATER MANHOLE (SIZE VARIES)
SSMH		STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
	D	DUMPSTER
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
678	678	CONTOUR
SS		STORMSEWER LINE
W		WATER LINE
		FIRE LINE
WW		WASTEWATER LINE
G		GAS LINE
UE	UE	UNDERGROUND ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC LINE
OE	UT	UNDERGROUND TELEPHONE LINE
UC	UC	UNDERGROUND CABLE AND INTERNET
U-COMM	U-COMM	UNDERGROUND TELECOMMUNICATIONS
		HANDICAP ACCESS ROUTE
		SIGN
		WHEELSTOP
		BOLLARD
	FFE	FINISH FLOOR ELEVATION
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1111		TREE TO BE SAVED
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NO.	DATE	REVISION

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Austin, Texas 78735
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TBPE # F-14629

JONAH D. MANKOVSKY
110095
12/01/2023

GRADING PLAN II

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

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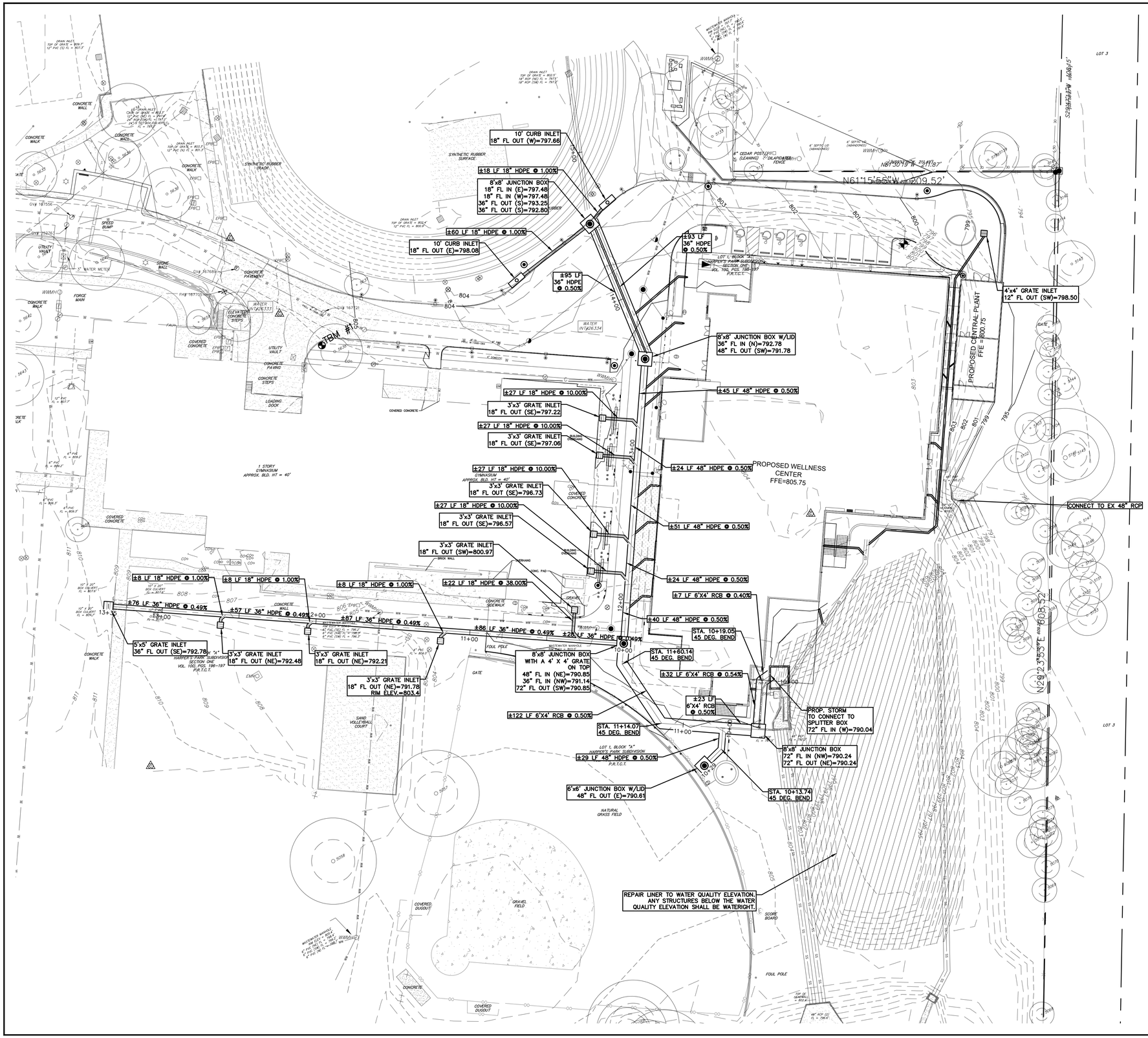
R3 NEW SHEET SPC-97-0320C(R3)



30 0 15 30 60
1" = 30'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
— — —		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
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		GROUND LIGHT
Ø		POWER POLE
		DOWN GUY
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◎		WATER LINE MARKER
CMKR		UNDERGROUND CABLE MARKER
GMKR		UNDERGROUND GAS LINE MARKER
UGTM		UNDERGROUND TELEPHONE MARKER
GRSR		GAS RISER
TRSR	T	TELEPHONE RISER
SPC		SPRINKLER CONTROL BOX
	SW	SWITCH GEAR & PAD
	T	TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
⊘		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
TV	TV	CABLE TV RISER
E	E	ELECTRIC BOX
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GM	GM	GAS METER
G	G	GAS VALVE
TCB ☐	TCB ■	TRAFFIC CONTROL BOX
TSP ○	TSP ●	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH ○		ELECTRIC MANHOLE (SIZE VARIES)
WWMH ○		WASTEWATER MANHOLE (SIZE VARIES)
SSMH ○	●	STORMSEWER MANHOLE (SIZE VARIES)
TMH ○	TMH ◉	TELEPHONE MANHOLE (SIZE VARIES)
CO ○	● CO	WASTEWATER CLEANOUT
— x —	— x —	WIRE FENCE
— // —	— // —	WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
— 678 —	— 678 —	CONTOUR
— SS —		STORMSEWER LINE
— W —		WATER LINE
		FIRE LINE
— WW —		WASTEWATER LINE
— G —		GAS LINE
— UE —	— UE —	UNDERGROUND ELECTRIC LINE
— OE —	— OE —	OVERHEAD ELECTRIC LINE
— OE —	— UT —	UNDERGROUND TELEPHONE LINE
— UC —	— UC —	UNDERGROUND CABLE AND INTERNET
— U-COMM —	— U-COMM —	UNDERGROUND TELECOMMUNICATIONS
	→ - - - —	SWALE
	FFE	FINISH FLOOR ELEVATION
	→	DIRECTION OF FLOW
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE

GRADING NOTES:

1. IF CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS, HE/SHE MUST CONTACT THE CONSTRUCTION MANAGER/SUPERVISOR AND ENGINEER IMMEDIATELY.
2. EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
3. ALL AREAS DISTRIBUTED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.
4. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF AUSTIN ENVIRONMENTAL INSPECTION AT (512) 974-2278 AT LEAST 48 HOURS PRIOR TO THE REMOVAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL, LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.
5. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER TO PREVENT DAMAGE TO THE OWNER PRIOR TO ACCEPTANCE OF THE PROJECT.
6. THE GEOTECHNICAL ENGINEER SHALL APPROVE ALL FILL MATERIAL PROVIDED PRIOR TO PLACING AND COMPLIANCE.
7. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS SUCH AS 6-INCH CONCRETE CURB AND GUTTER ARE REQUIRED. IF A STANDARD 6-INCH CURB AND GUTTER ARE NOT PROVIDED FOR ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, COMPLY WITH ECM SECTION 2.4.7, *PROTECTION OF LANDSCAPE AREAS.*
8. UNLESS OTHERWISE STATED, ALL EXTERNAL ROOF DRAIN DOWNSPOUTS SHALL BE 4"X6" REFERENCE ARCHITECTURAL PLANS FOR FINAL SIZE, LOCATION, DETAILS, AND SPECIFICATIONS.

REVISION	NO.	DATE

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TBPE # F-14629

JONAH D. MANKOVSKY
110095
12/01/2023

DRAINAGE PLAN

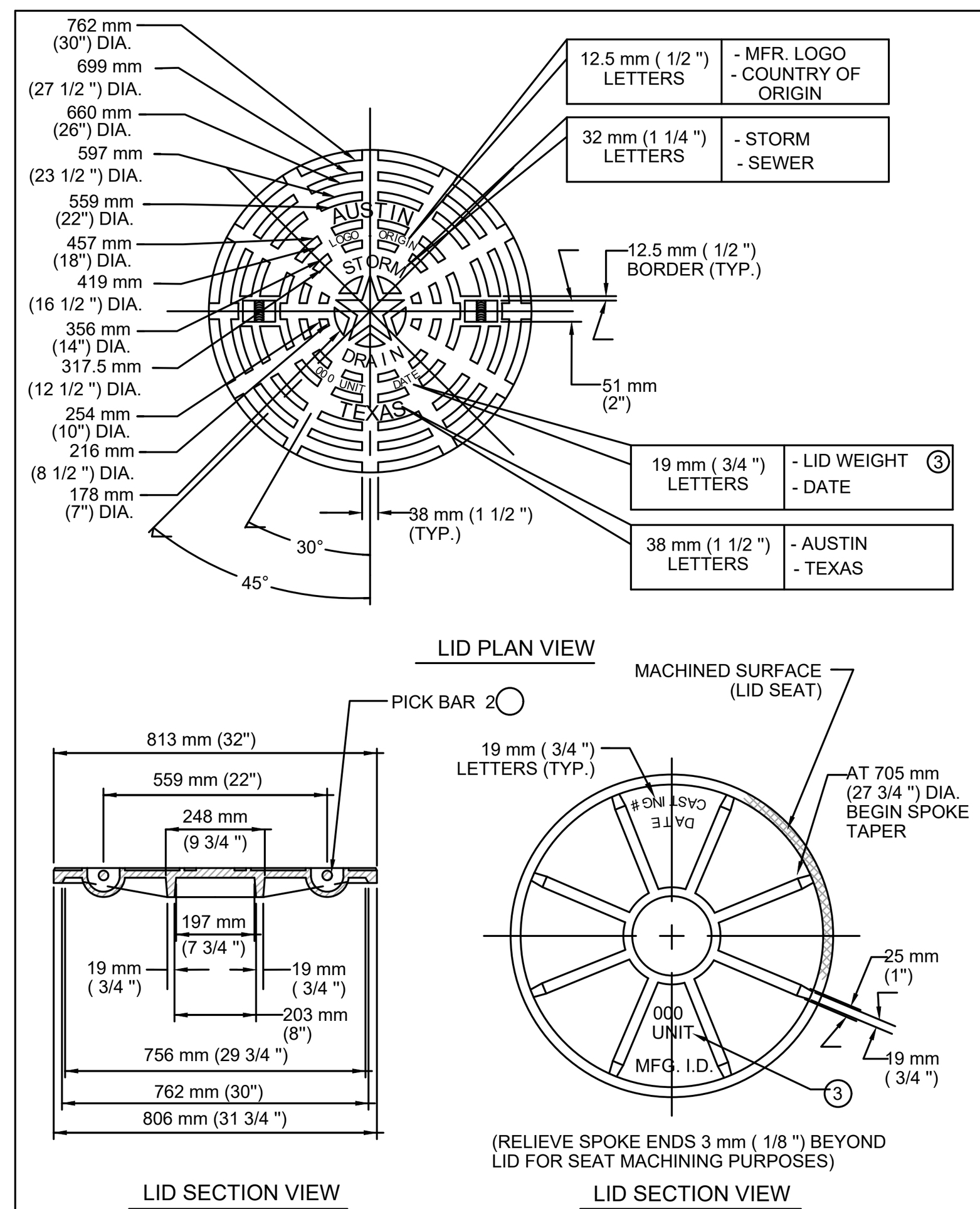
ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

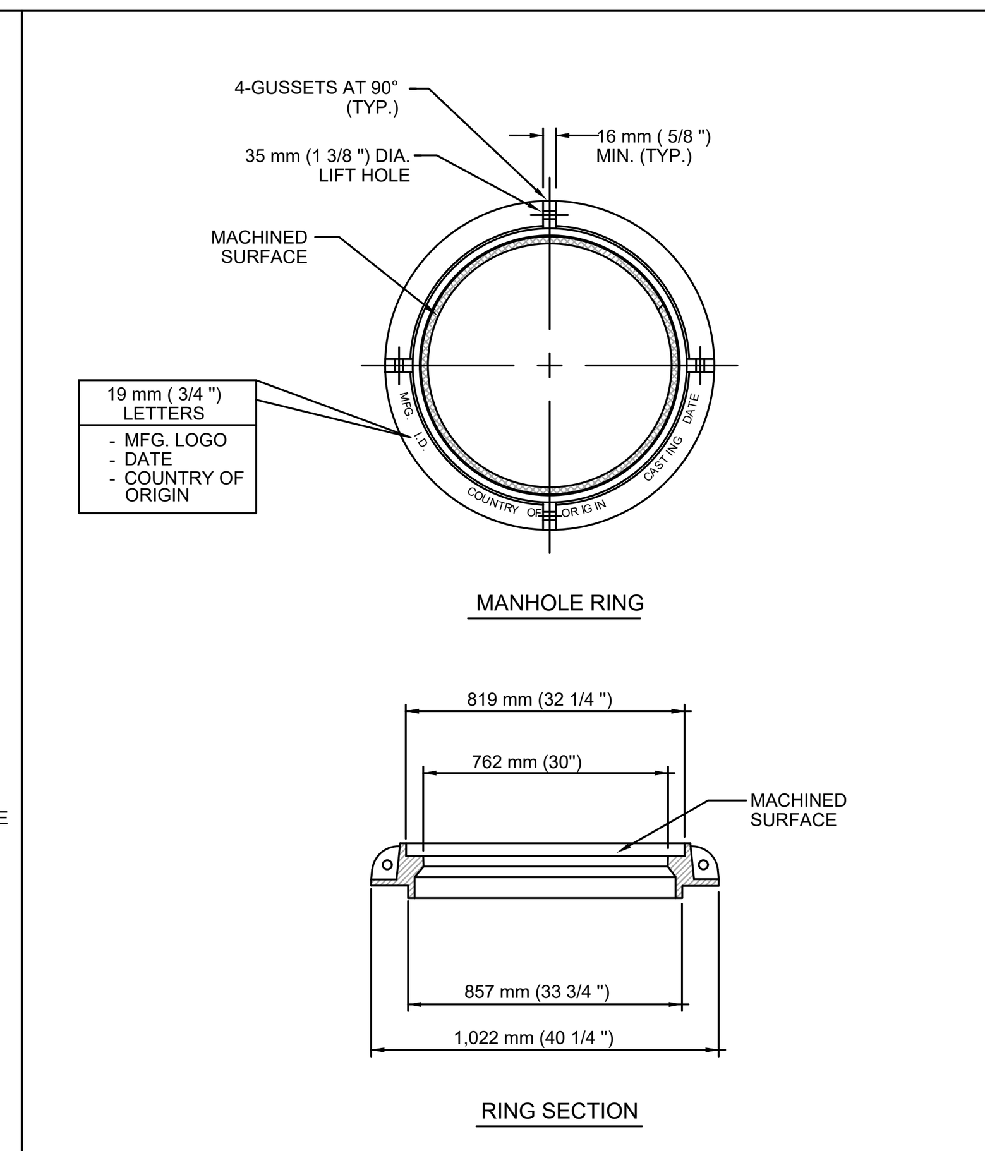
DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET
92
OF 113

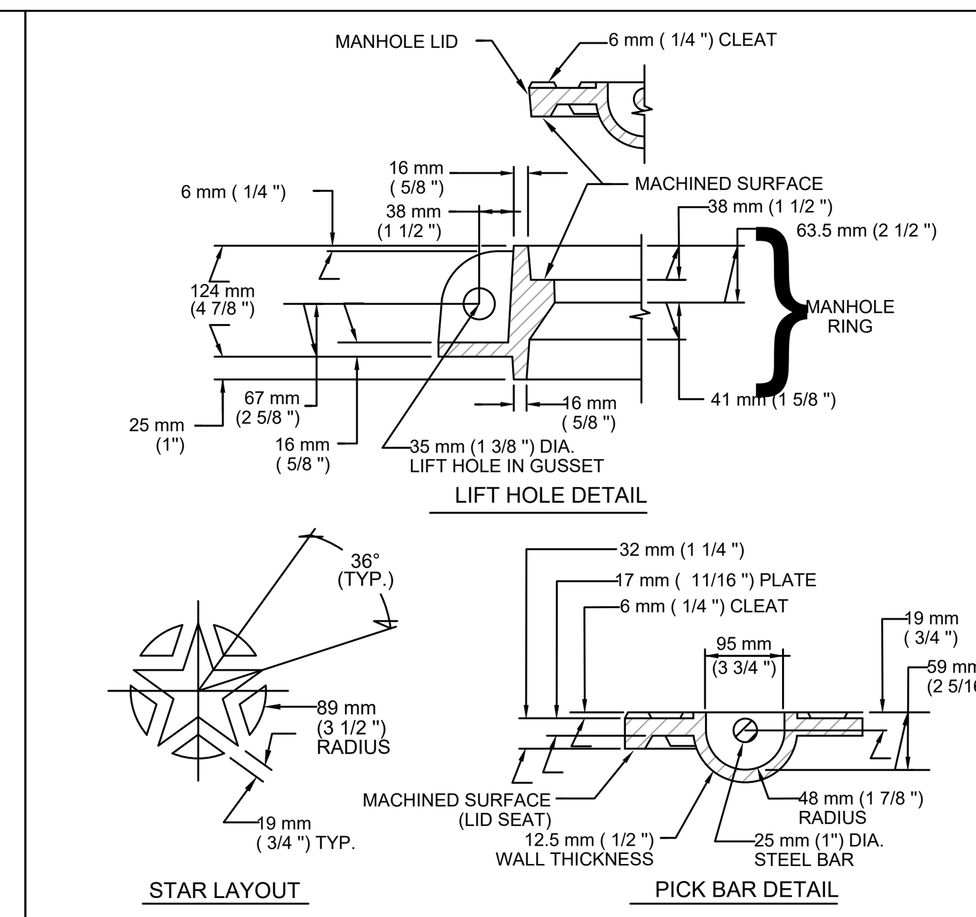
R3 NEW SHEET SPC-97-0320C(R3)



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE RING AND 813 mm (32") COVER	
RECORD COPY SIGNED BY GEORGE E. OSWALD — 2/14/02 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4S 1 OF 3



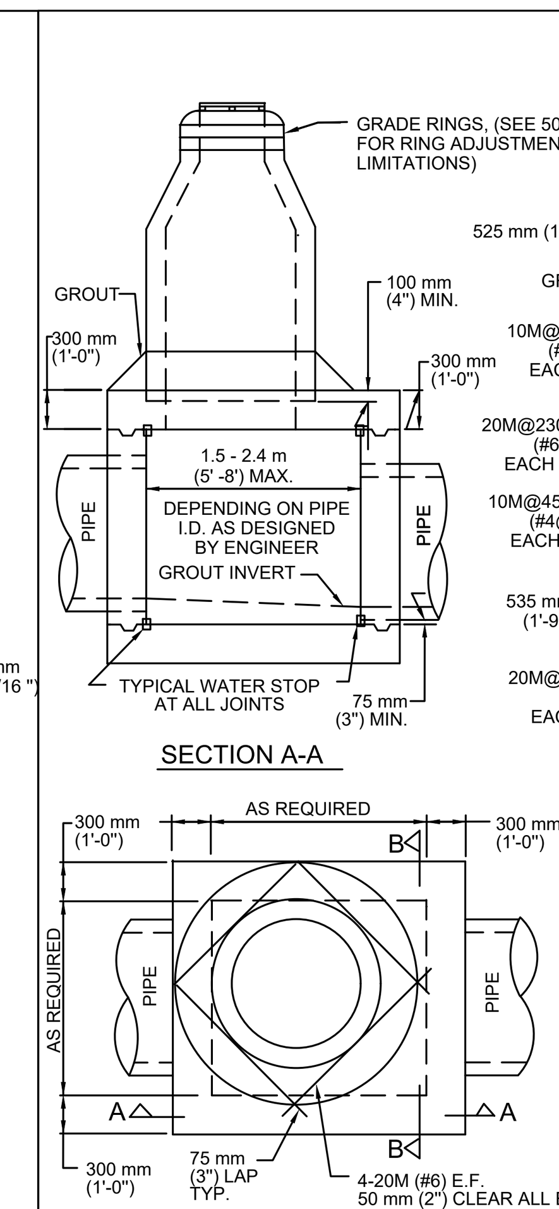
CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE RING AND 813 mm (32") COVER	
RECORD COPY SIGNED BY GEORGE E. OSWALD — 2/14/02 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4S 2 OF 3



NOTES:

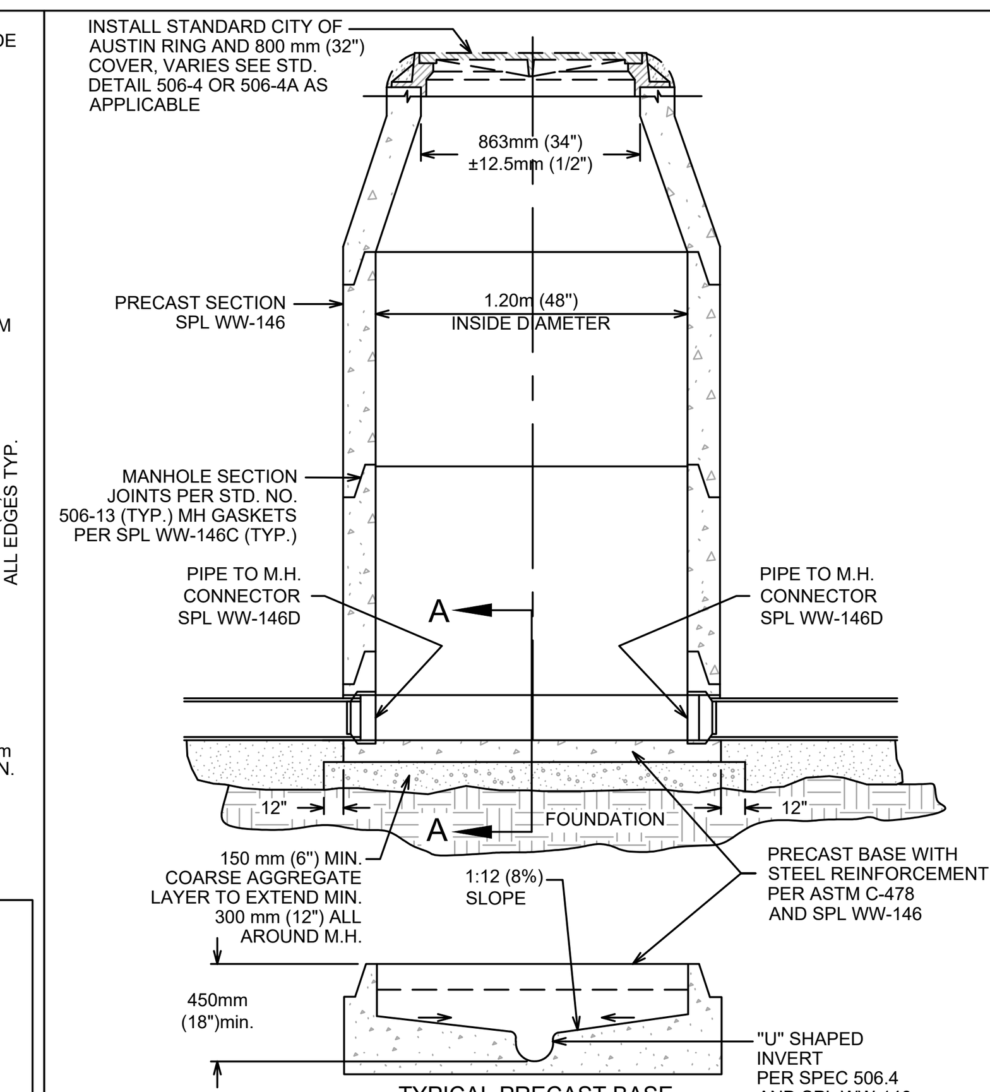
1. ALL CORNERS AND EDGES SHALL HAVE A 1.5 mm (1/16 ") MINIMUM RADIUS.
2. LIDS SHALL BE CAST WITH TWO 25 mm (1") DIA. STEEL PICK BARS.
3. LID WEIGHTS SHALL BE 935 N (210 LBS.) FOR CAST IRON OR 779 N (175 LBS.) FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF LID.
4. MANUFACTURER SHALL PROVIDE INDEPENDENT TESTING LABORATORY REPORT ON 25,000 POUND PROOF LOAD TEST CONDUCTED ACCORDING TO AASHTO M-306.
5. FILLETS SHALL BE 6 mm (1/4 ") RADIUS UNLESS OTHERWISE SPECIFIED.
6. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE RING AND 813 mm (32") COVER	
RECORD COPY SIGNED BY GEORGE E. OSWALD — 2/14/02 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4S 3 OF 3



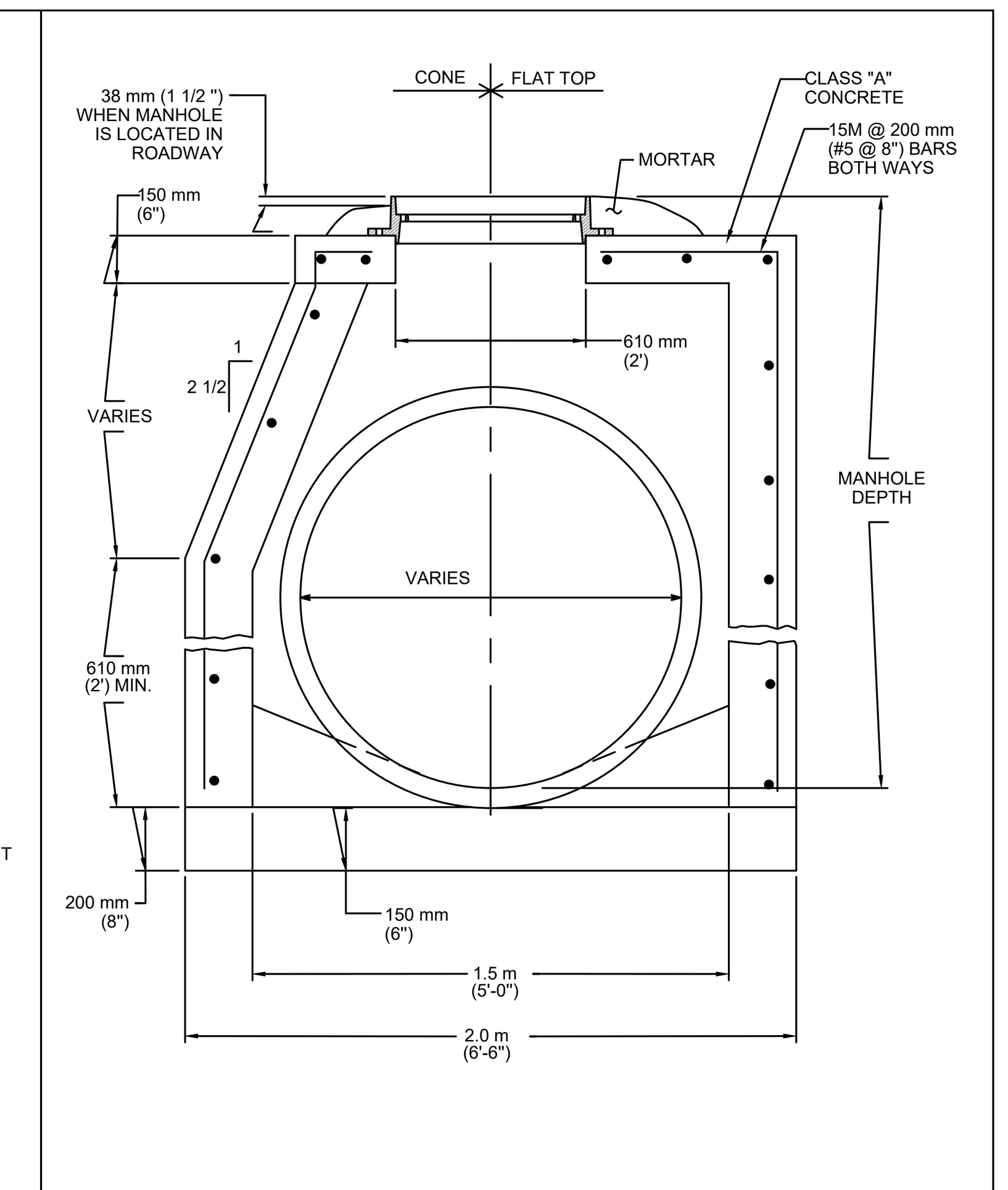
1. BOX WALLS MUST BE FORMED INSIDE AND OUTSIDE WITH APPROVED MATERIALS.
2. USE CLASS "A" CONCRETE. SEE ITEM 403.
3. TYPICAL CAST IN PLACE BOX FOR 760 mm (30") OR LARGER PIPE.
4. REINFORCING STEEL SHALL MEET ITEM 406, REINFORCING STEEL.

CITY OF AUSTIN WATER AND WASTEWATER UTILITY	TYPICAL BOX MANHOLE 760 mm (30") & LARGER PIPE	
RECORD COPY SIGNED BY KATHI L. FLOWERS — 2/17/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-5

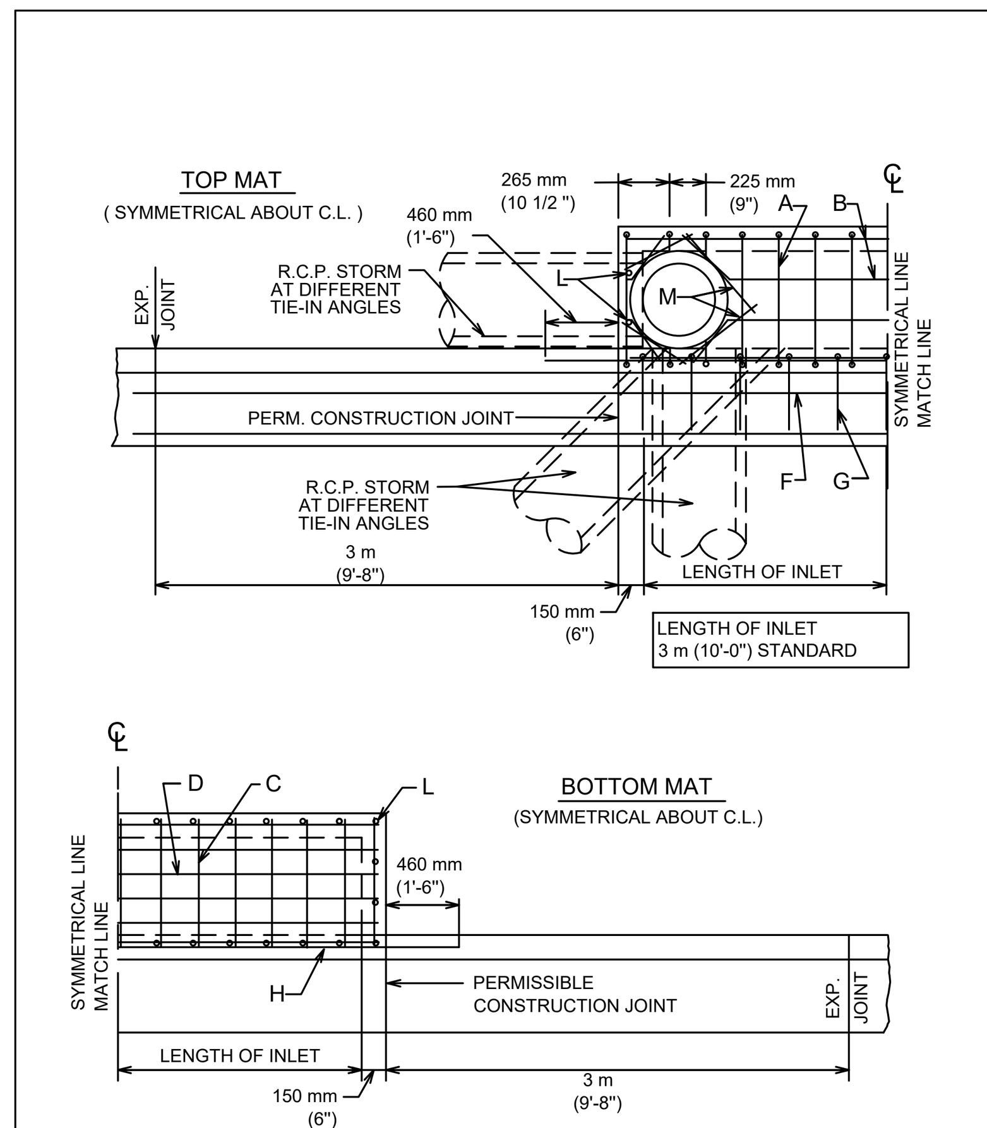


NOTE:
1. THE MANHOLE BASE SHALL BE BEDDED ON 150 mm (6") COARSE AGGREGATE. THE CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.
2. MH FOUNDATION SHALL MEET OR EXCEED STD. SPEC. 506.5B.

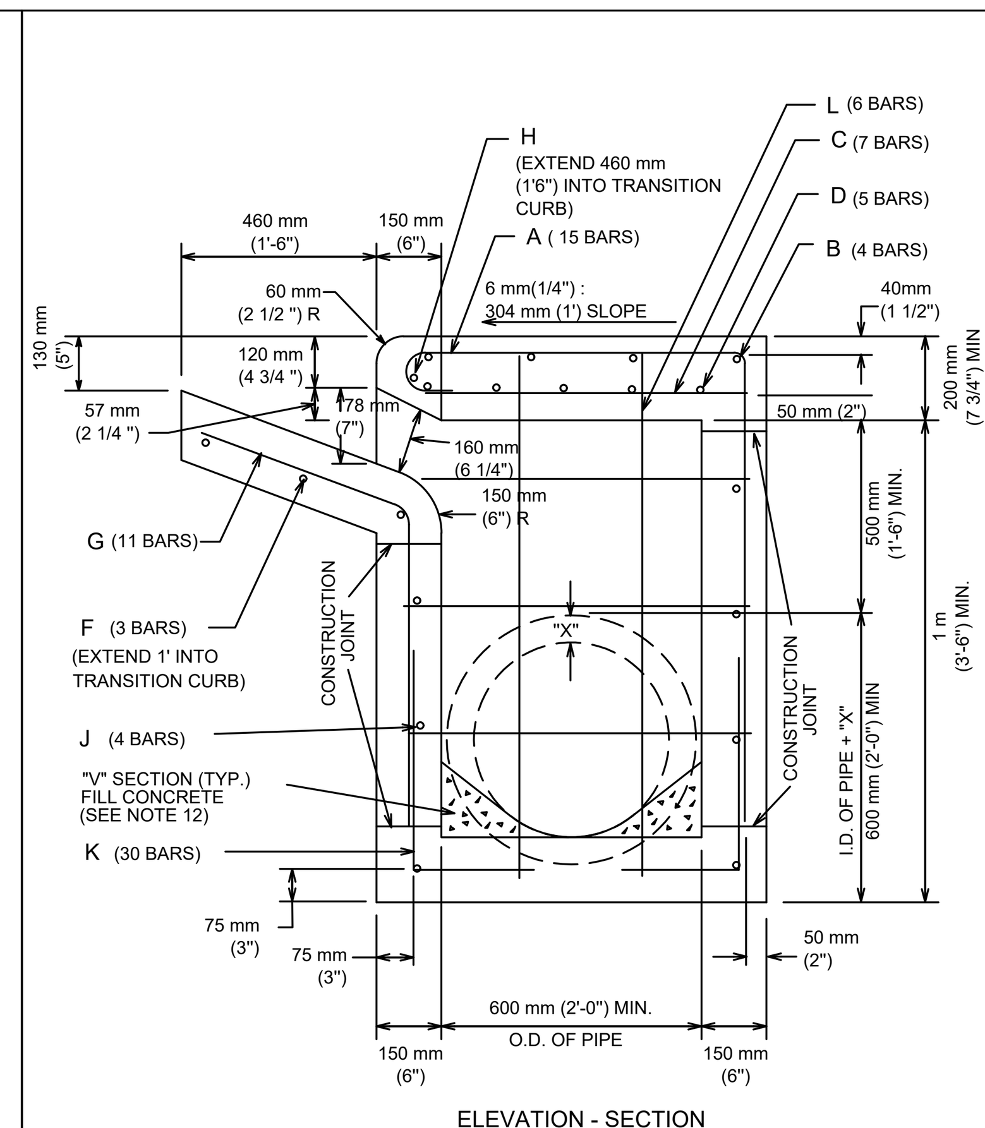
CITY OF AUSTIN AUSTIN WATER UTILITY	WASTEWATER MANHOLE ON PRECAST BASE	
RECORD COPY SIGNED BY KATHI L FLOWERS — 08/31/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-10



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STORM DRAIN MANHOLE DETAIL	
RECORD COPY SIGNED BY GEORGE E. OSWALD — 2/14/02 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-11



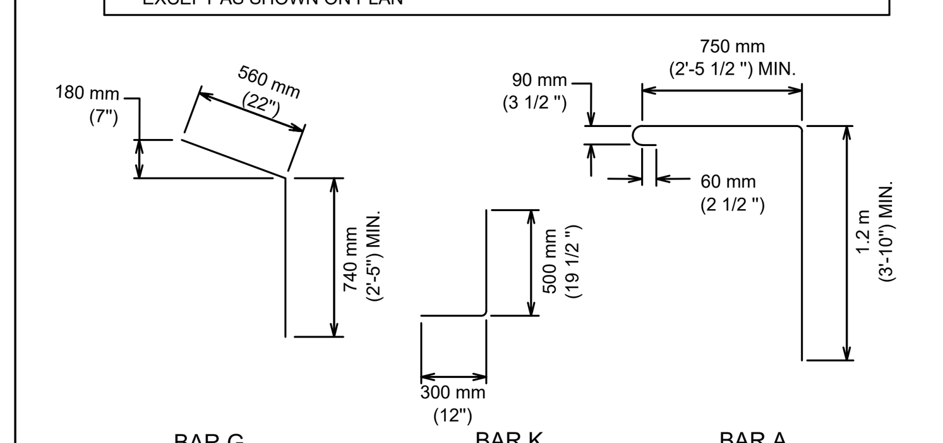
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 1 OF 4



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 2 OF 4

TABLE OF QUANTITIES
FOR 18" OUTLET PIPE
REINFORCING STEEL QUANTITIES

BARS	SIZE	SPACING	NUMBER	LENGTH	WEIGHT
A	4	230mm (9")*	15	2 m (7'-0")	73
B	4	250 mm (10")	4	3.25 m (10'-8")	29
C	4	460 mm (18")	7	760 mm (2'-6")	12
D	6	150 mm (6")	5	3.25 m (10'-8")	80
E	4	300 mm (12")	6	760 mm (2'-6")	10
F	4	250 mm (10")	3	4 m (13'-0")	35
G	4	300 mm (12")	11	1.25 m (4'-3")	31
H	6	—	1	4.25 m (14'-0")	20
J	4	300 mm (12")	7	3.25 m (10'-8")	50
K	4	230 mm (9")*	30	800 mm (2'-7 1/2")	52
L	4	300 mm (12")*	6	1.3 m (4'-4")	17
M	4	-	4	500 mm (1'-8") AVG	4
TOTAL STEEL, LB.					413
TOTAL CONCRETE, C.Y.					4.06
* EXCEPT AS SHOWN ON PLAN					



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 3 OF 4

NOTES:

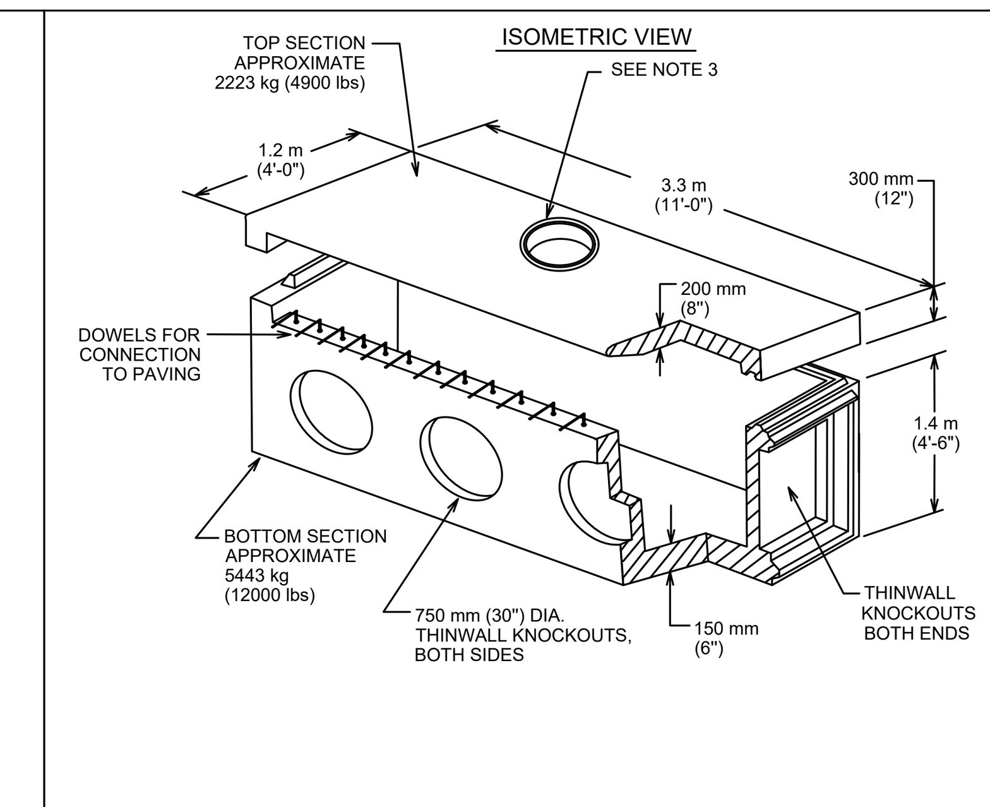
1. ALL CONCRETE SHALL BE CLASS "A"
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (380 mm or 15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. QUANTITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S INFORMATION ONLY. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND OVER.
7. CHAMFER ALL EXPOSED EDGES 20 mm (3/4 ").
8. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
9. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
10. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES.
11. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
12. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE, SHAPED AS "V" SECTION
13. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.

REFERENCES:

FOR EXPANSION JOINT DOWEL AND DOWEL LOCATION DETAILS SEE STD. 430S-3, "CURB EXPANSION JOINT DOWEL DETAIL".

FOR 18" MANHOLE FRAME AND COVER DETAILS SEE STD. 503S-1, "18" COVER AND FRAME".

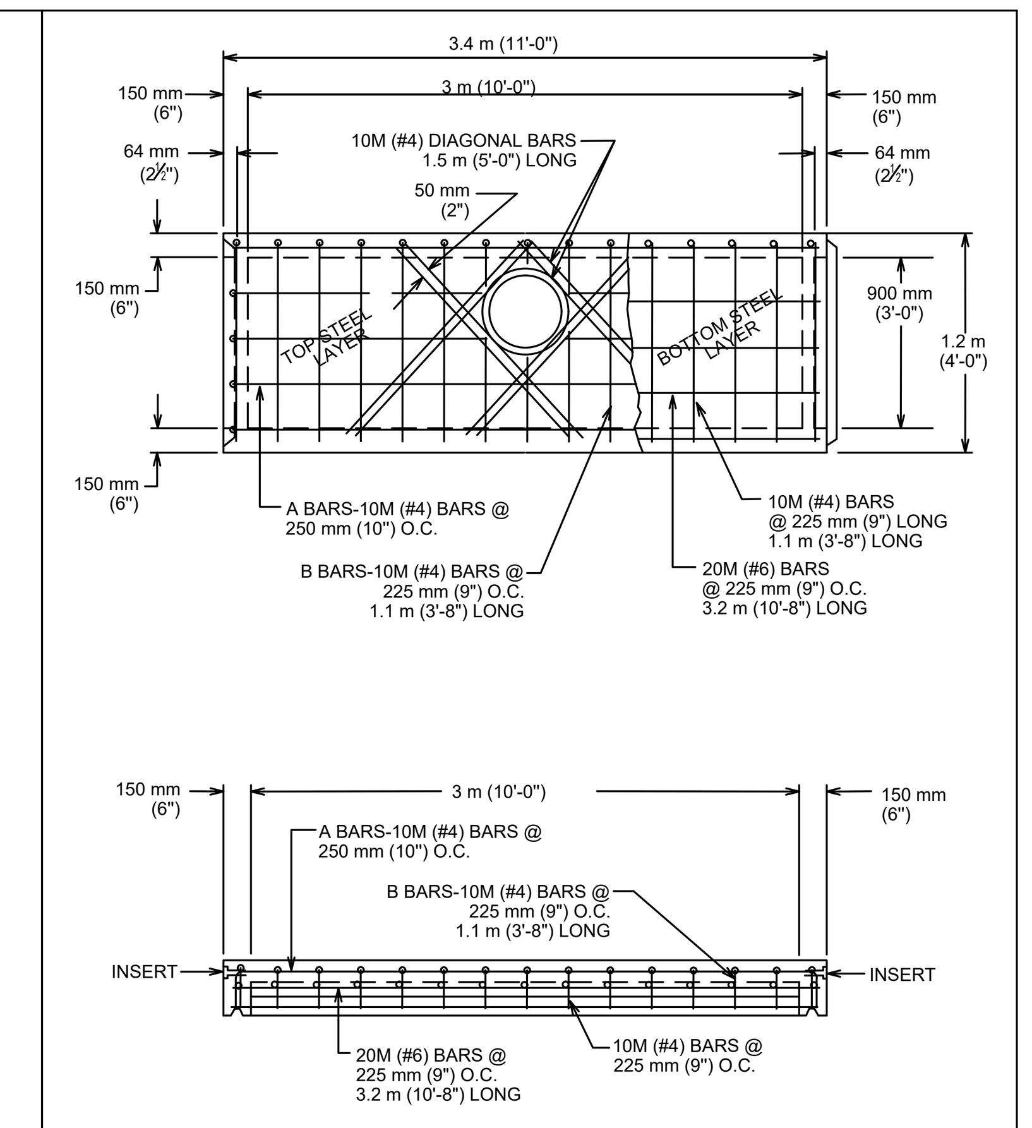
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 4 OF 4



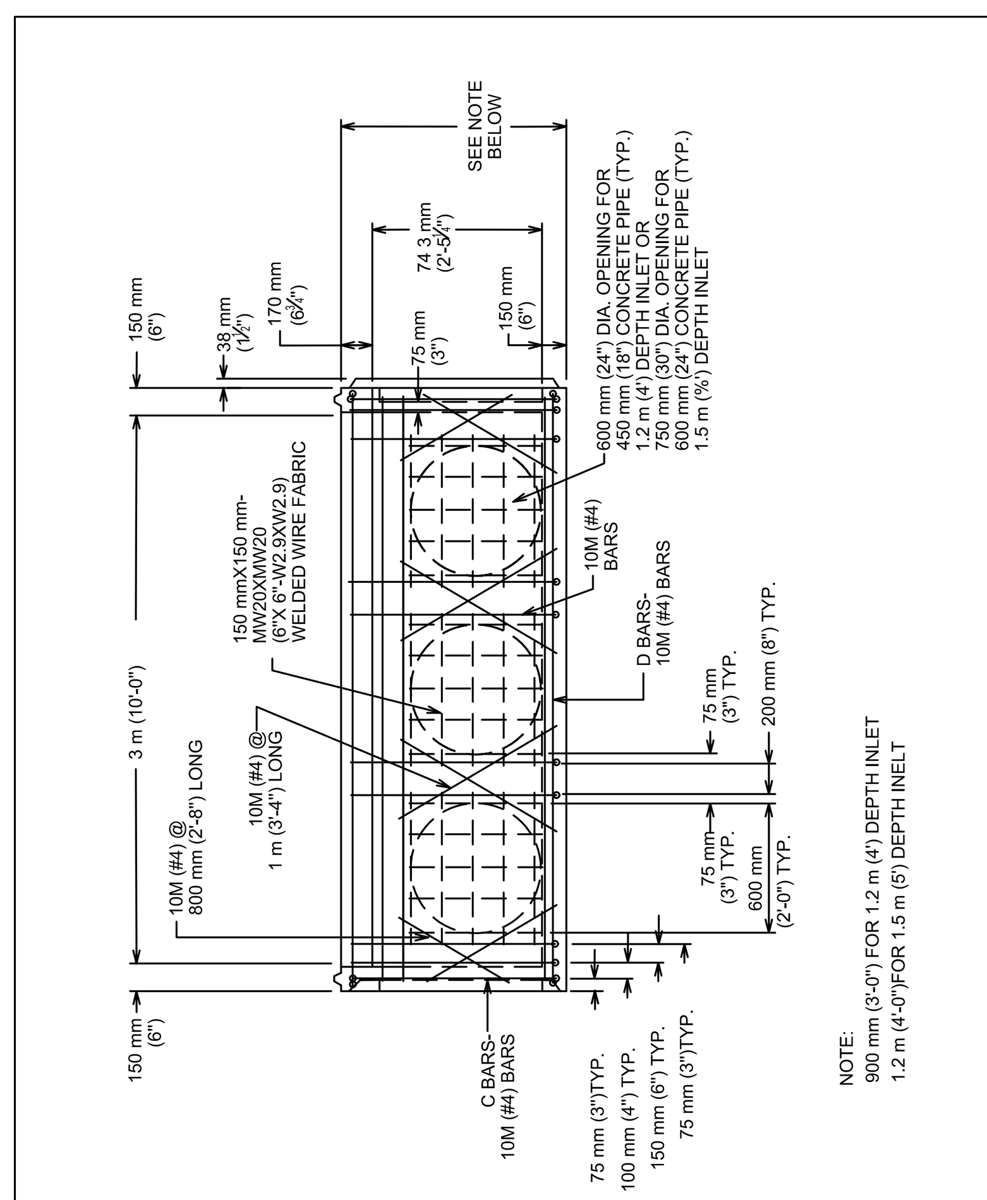
NOTES:

1. ALL CONCRETE SHALL BE CLASS "A" AS PER ITEM 403S.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB, IN ACCORDANCE WITH CITY OF AUSTIN STANDARD INLET DESIGN.
7. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE BY CONTRACTOR, SHAPED AS "V" SECTION
8. THE INLET AS DESIGNED EXCEEDS THE REQUIREMENTS OF ASTM C478.
9. THIS STANDARD COMPLIES WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO. 508S.
10. FOR INLET CONNECTION VARIATIONS FOR MAKING A 6 m (20'-0") CURB INLET FROM STANDARD 3 m (10'-0") INLETS, SEE DALWORTH CURB INLET CONNECTION DETAIL SHEET DQ-86-103.

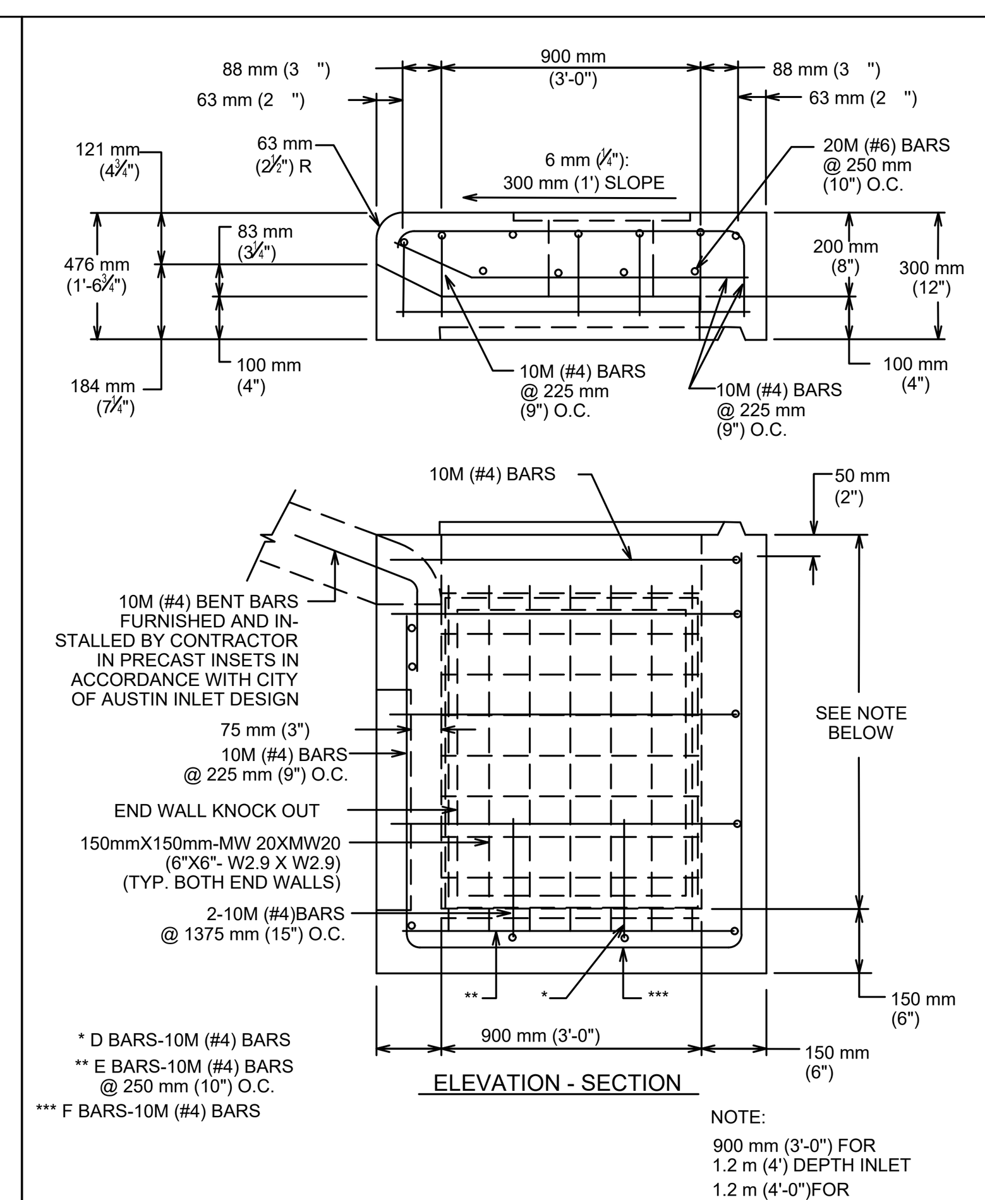
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 1 OF 5



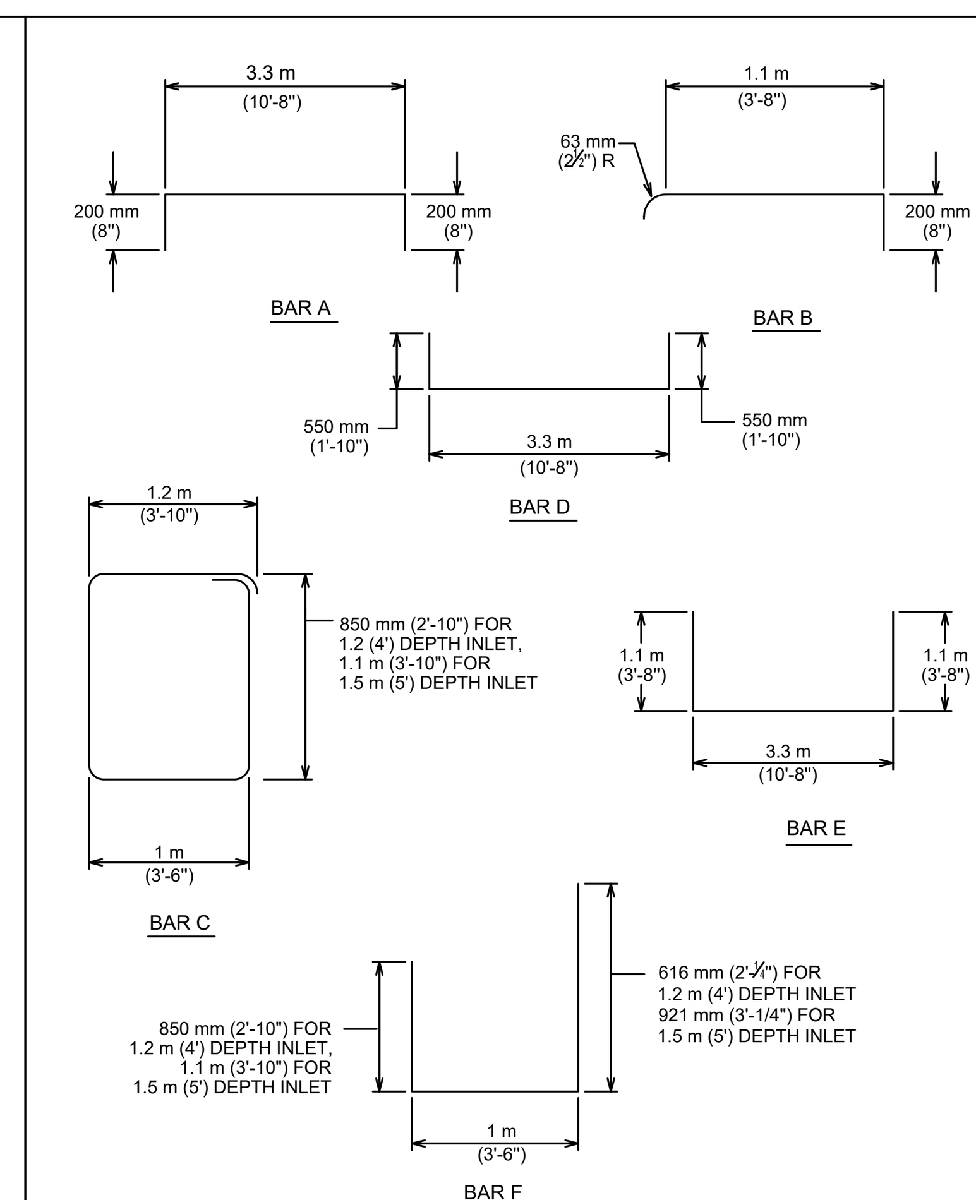
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 2 OF 5



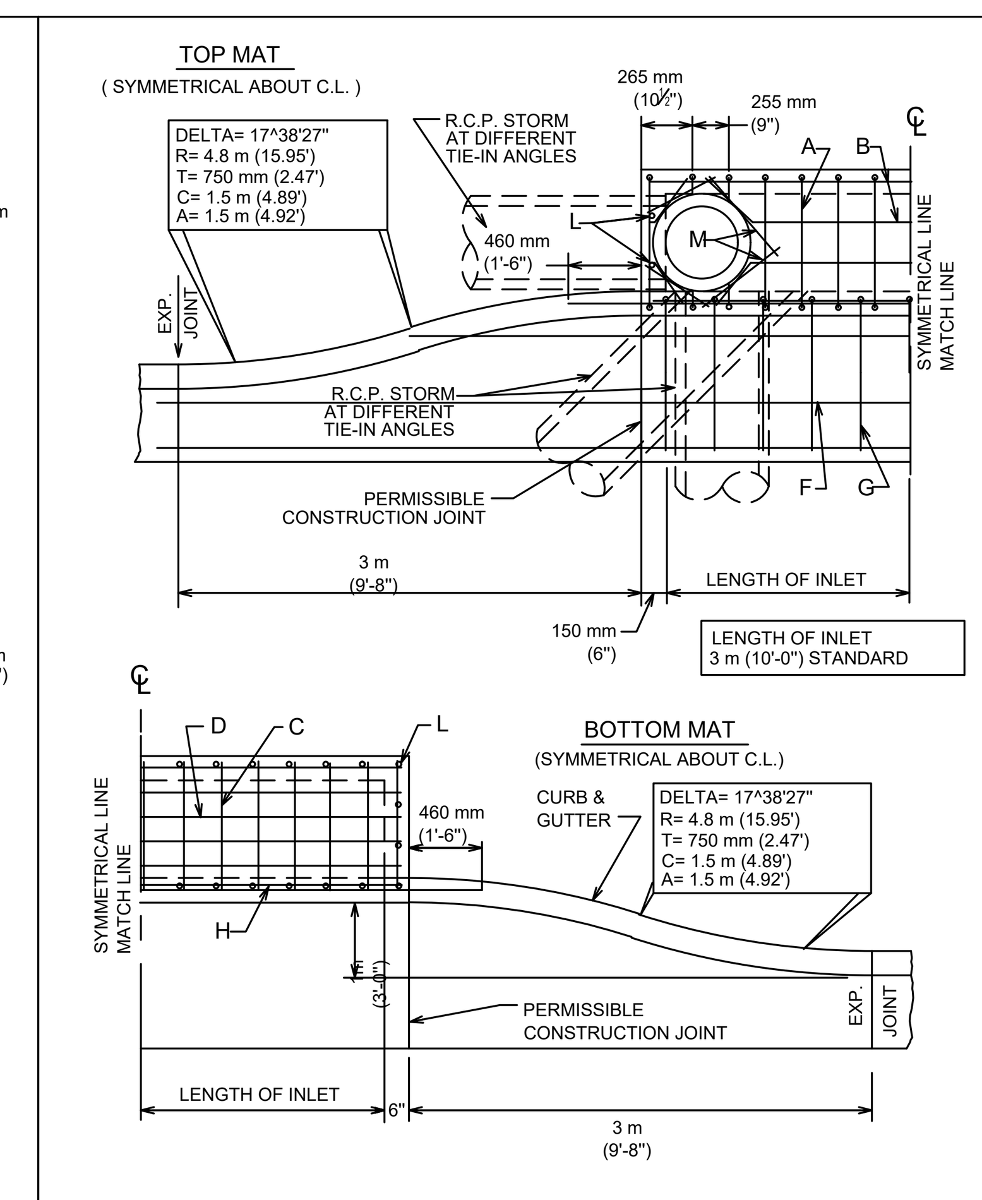
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 3 OF 5



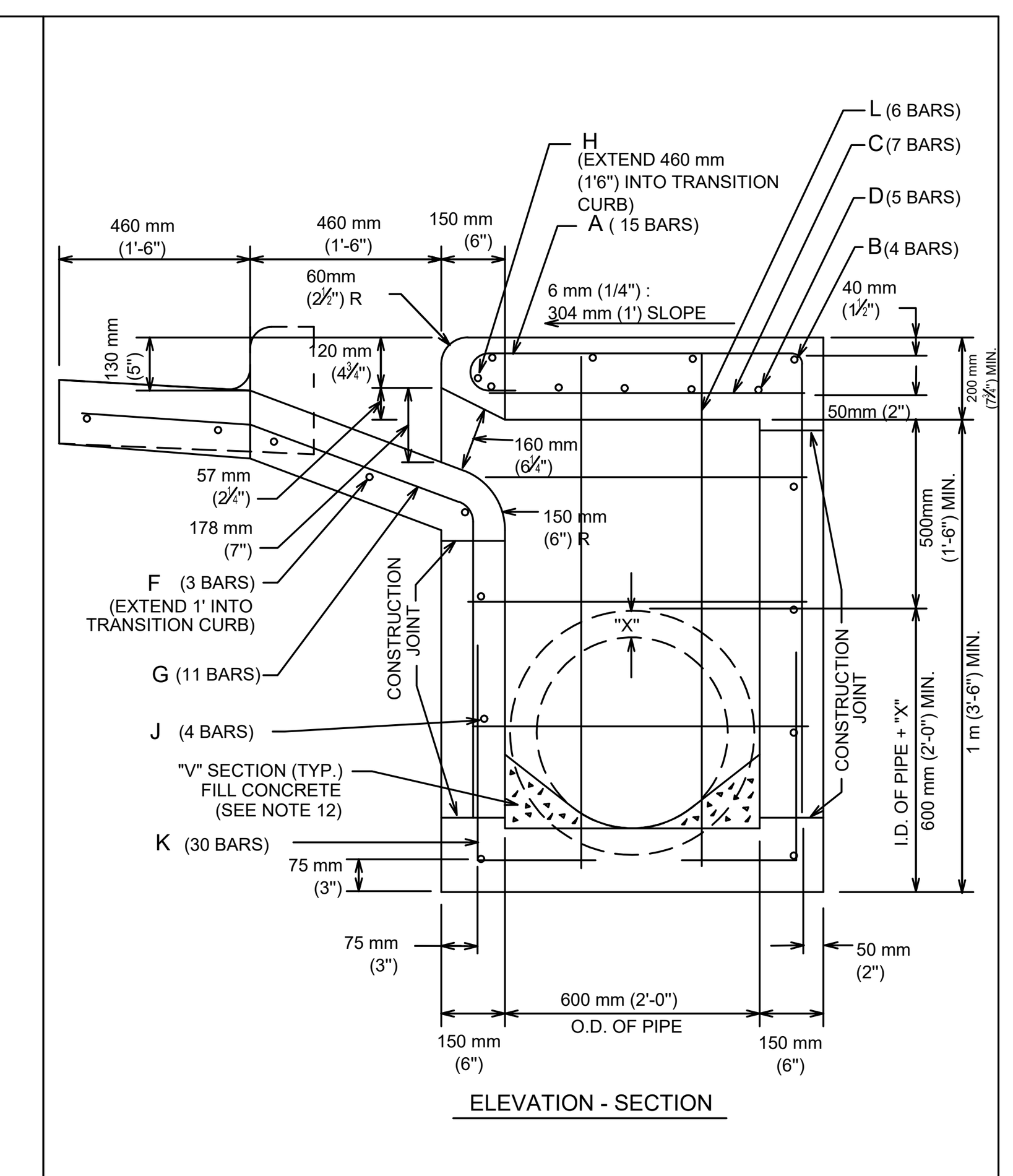
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 4 OF 5



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CURB INLET 3 m (10') PRECAST TYPE 1 OR TYPE 1-R	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 5 OF 5



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR RECESSED INLET	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-5 1 OF 4



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR RECESSED INLET	
RECORD COPY SIGNED BY BILL GARDNER — 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-5 2 OF 4

REVISION | NO. | DATE

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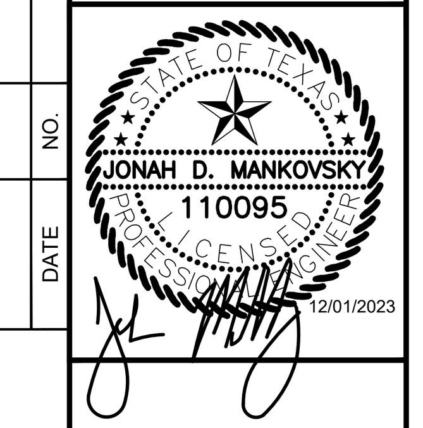

DRAINAGE DETAILS I

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 93 OF 113

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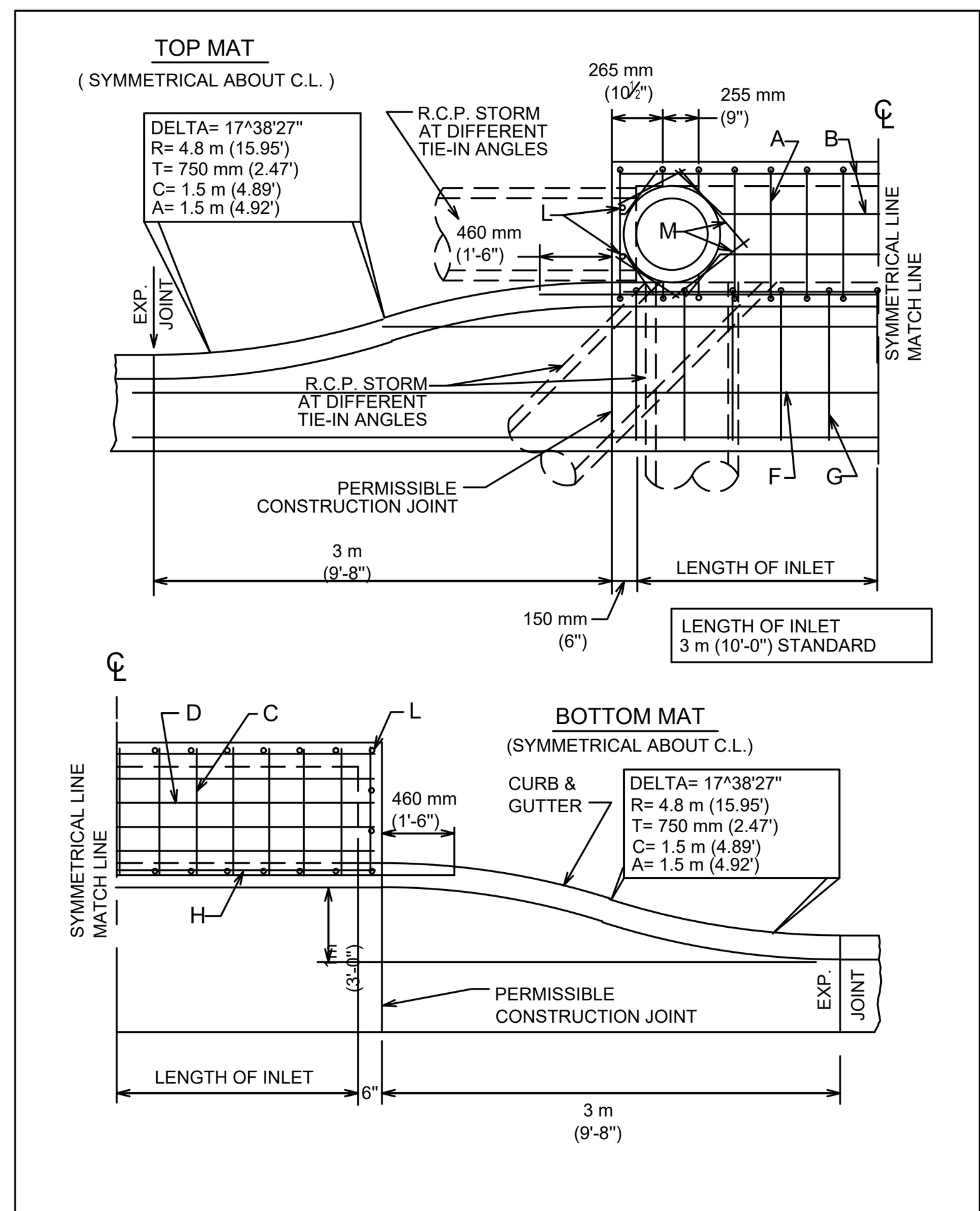
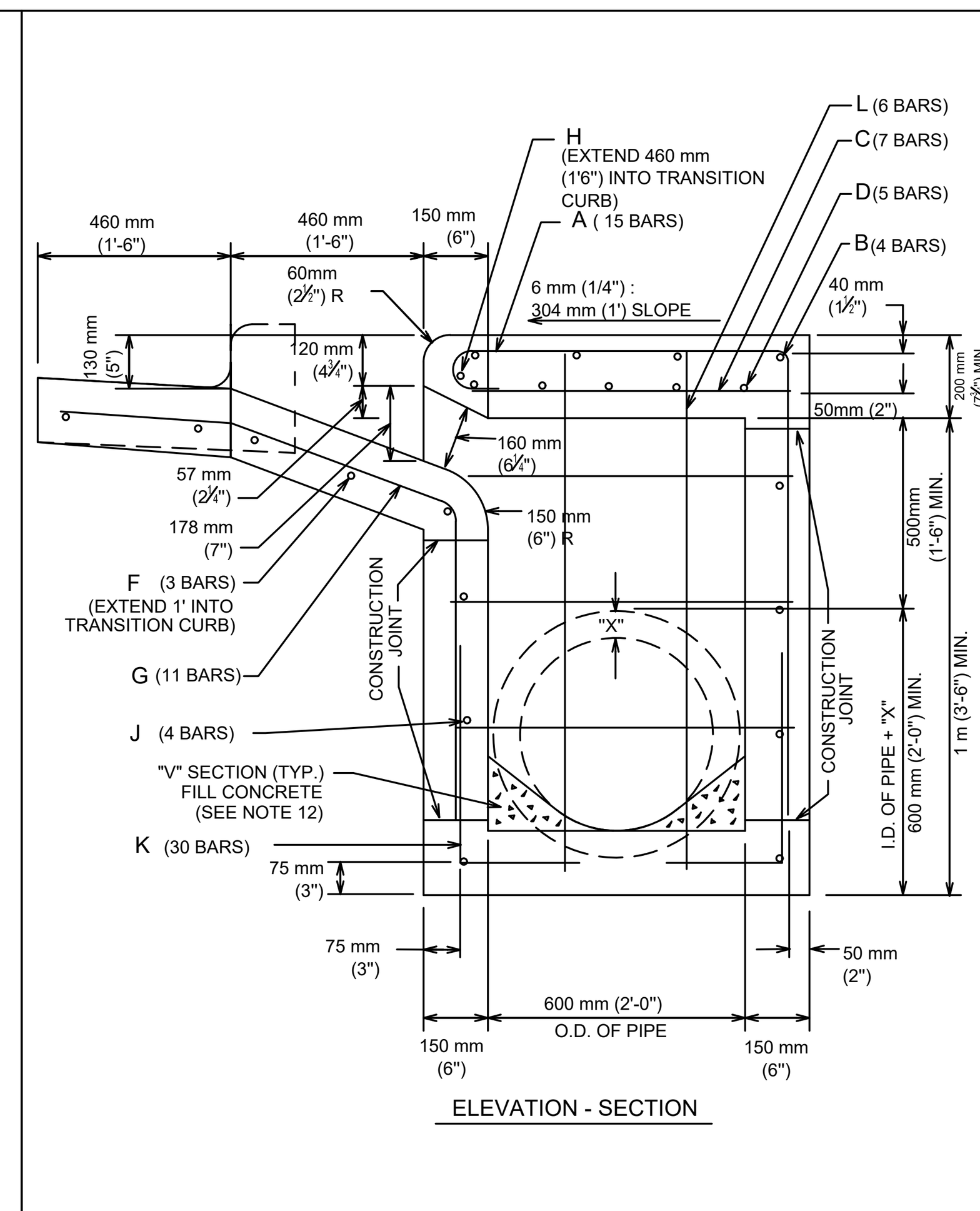
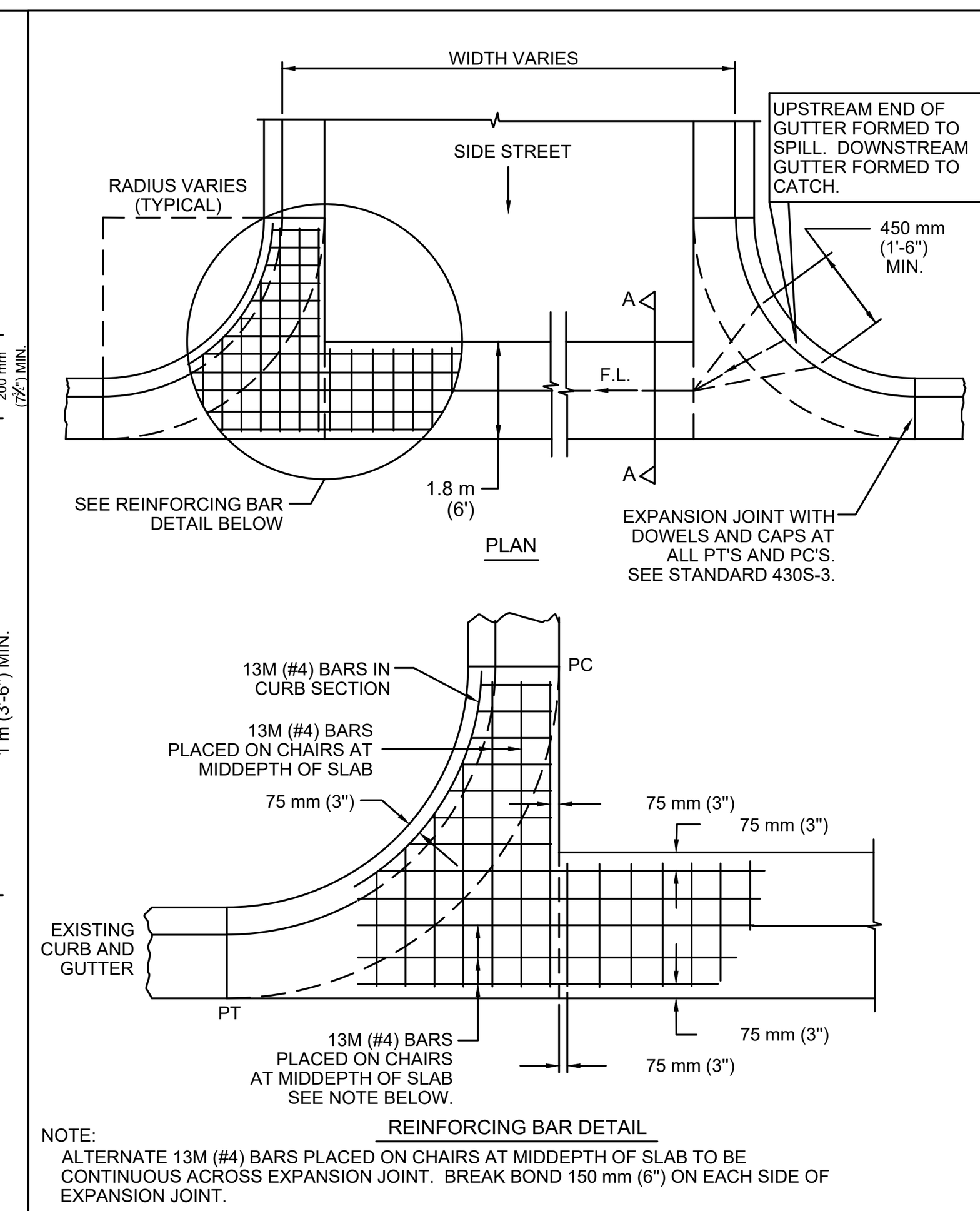
R3 NEW SHEET SPC-97-0320C(R3)



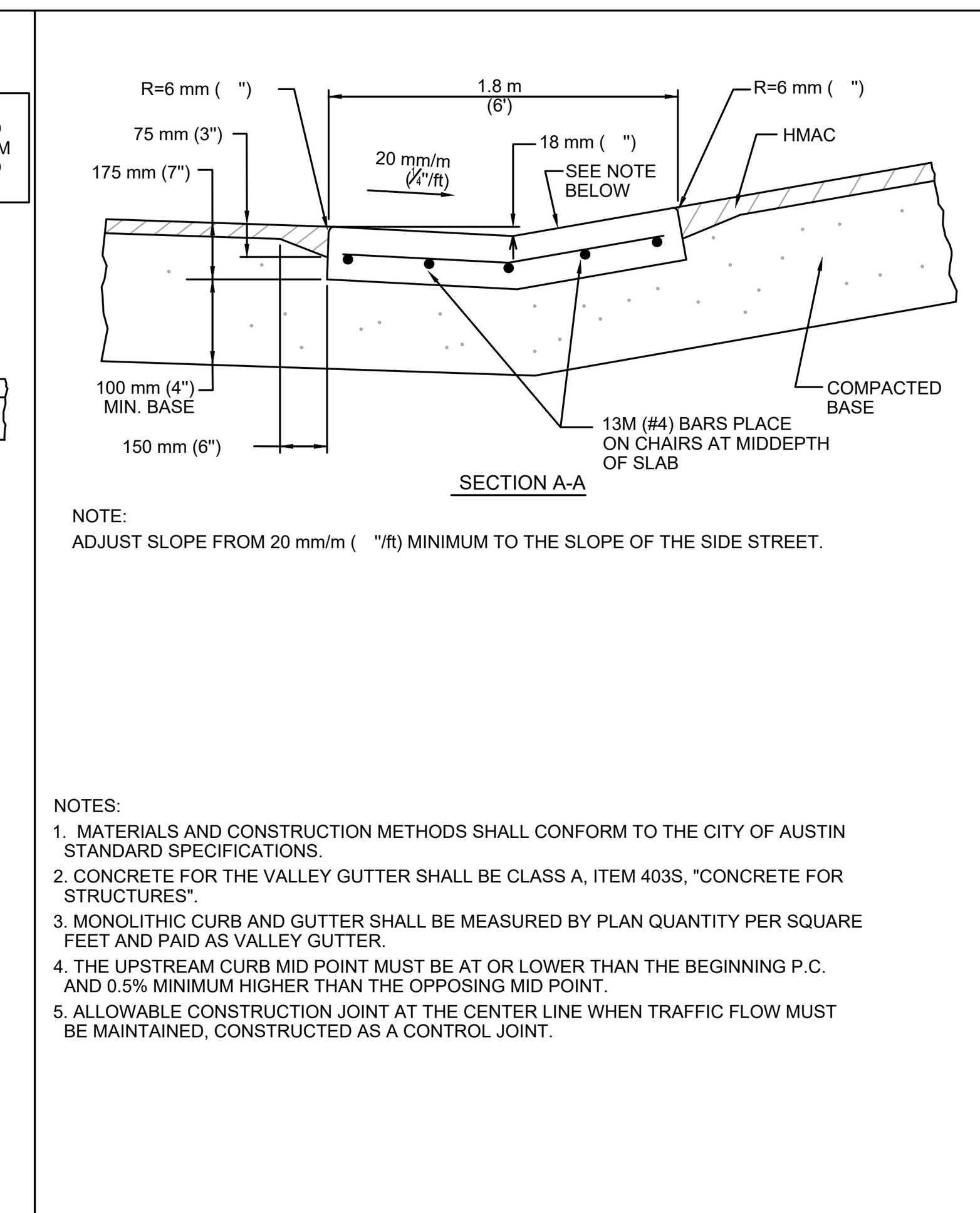
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR RECESSED INLET	
RECORD COPY SIGNED BY BILL GARDNER 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-5 1 OF 4



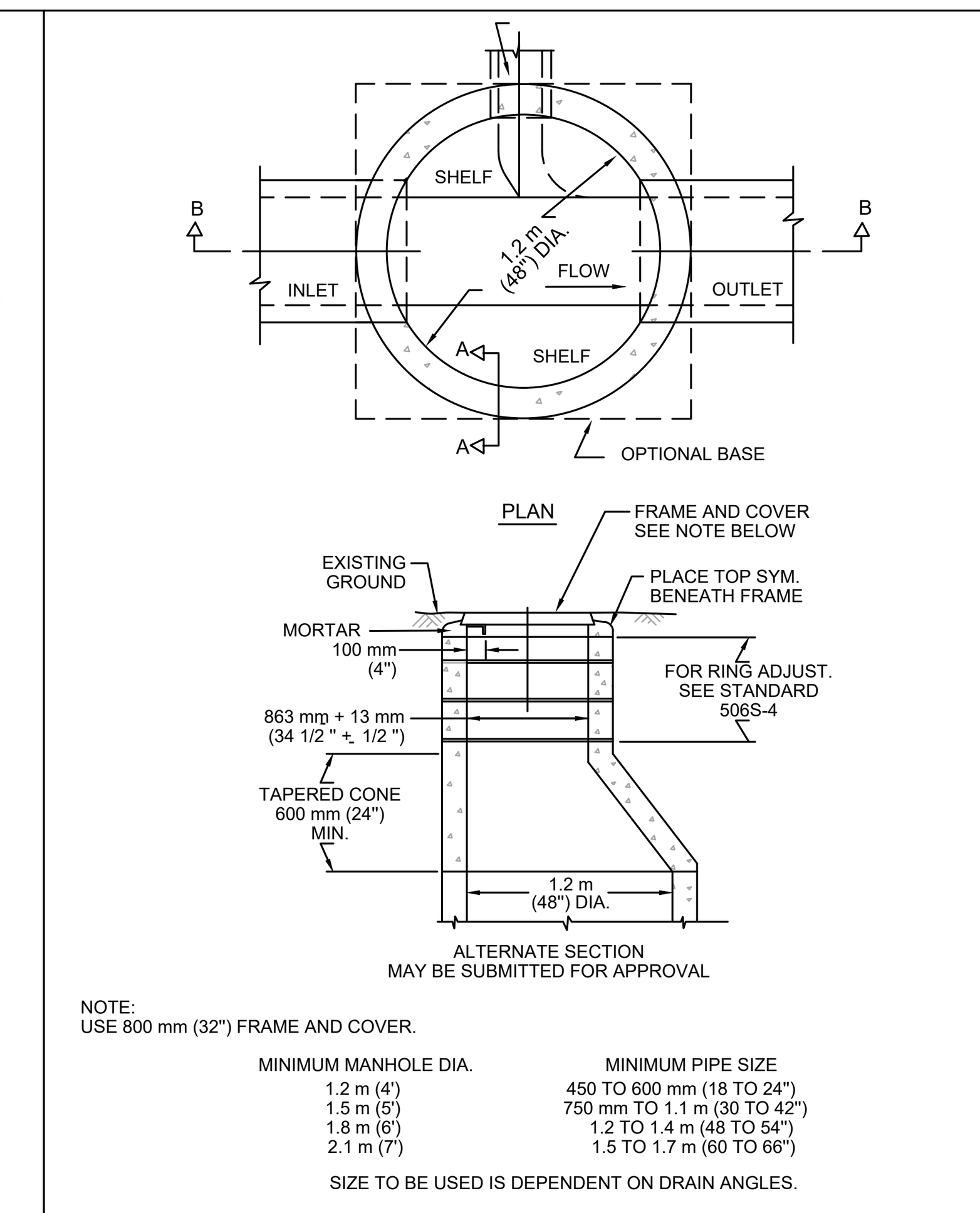
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL DETAILS FOR RECESSED INLET	
RECORD COPY SIGNED BY BILL GARDNER 12/09/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-5 2 OF 4



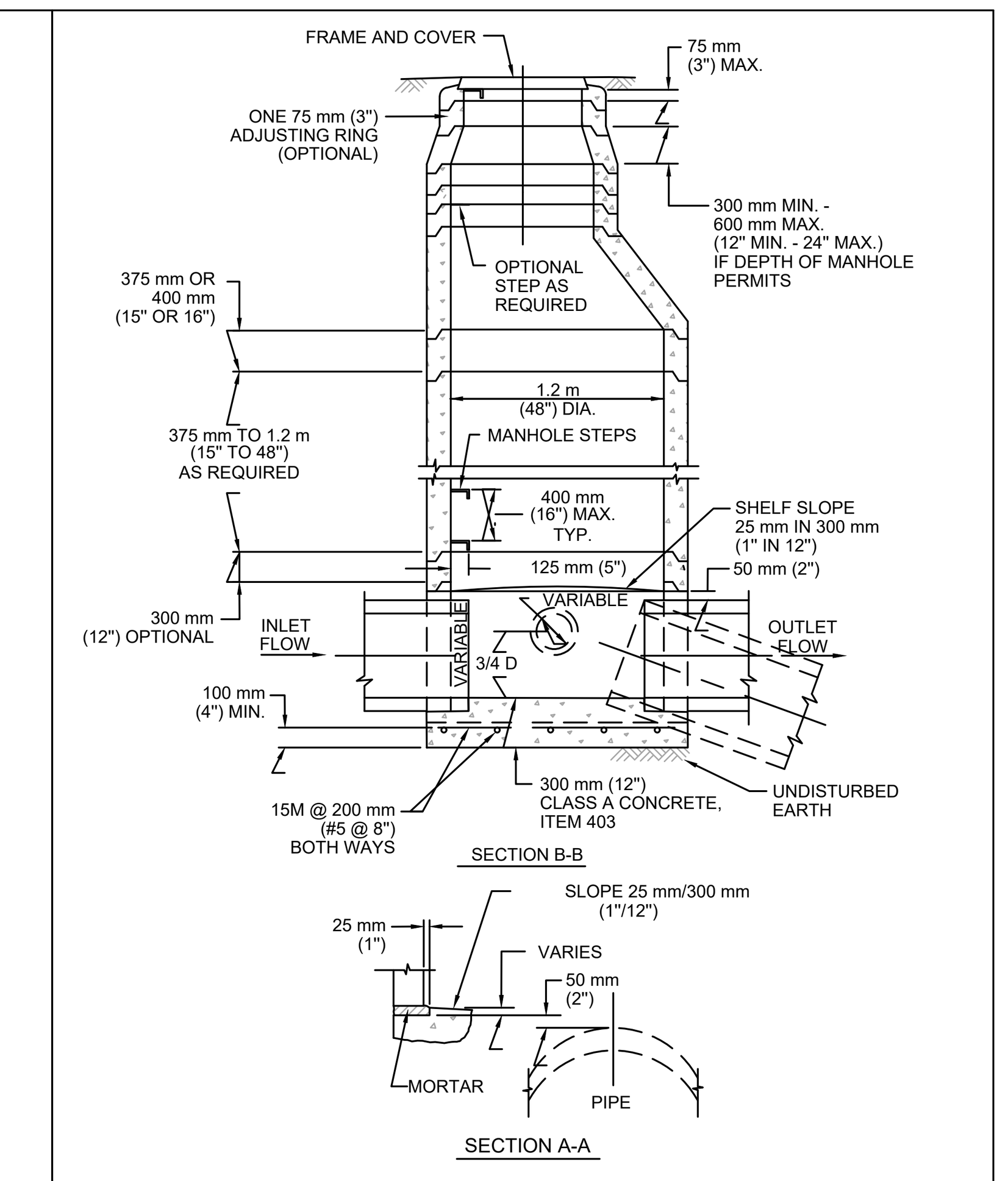
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CONCRETE VALLEY GUTTER	
RECORD COPY SIGNED BY BILL GARDNER 06/12/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 436S-2 1 OF 2



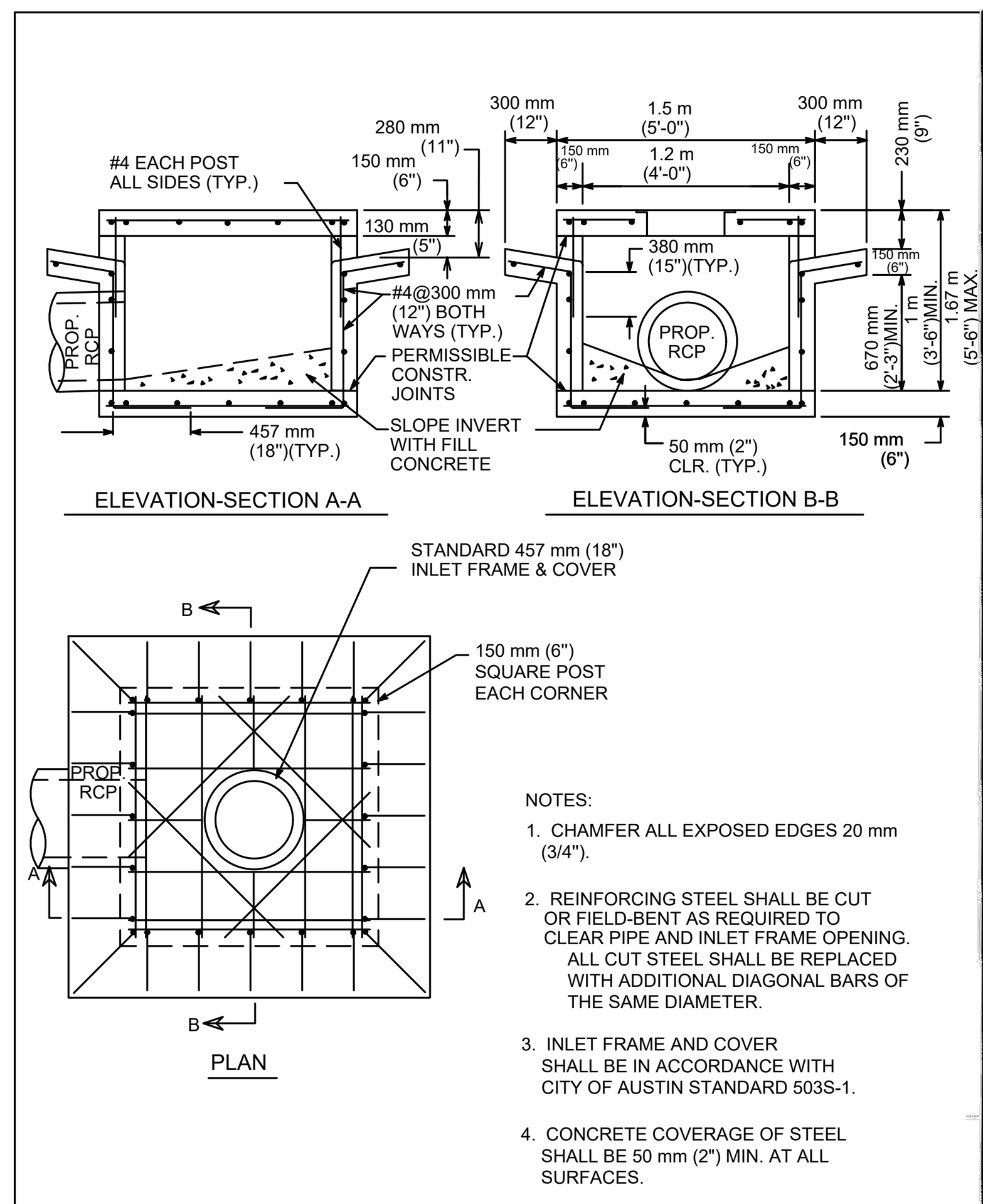
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CONCRETE VALLEY GUTTER	
RECORD COPY SIGNED BY BILL GARDNER 06/12/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 436S-2 2 OF 2



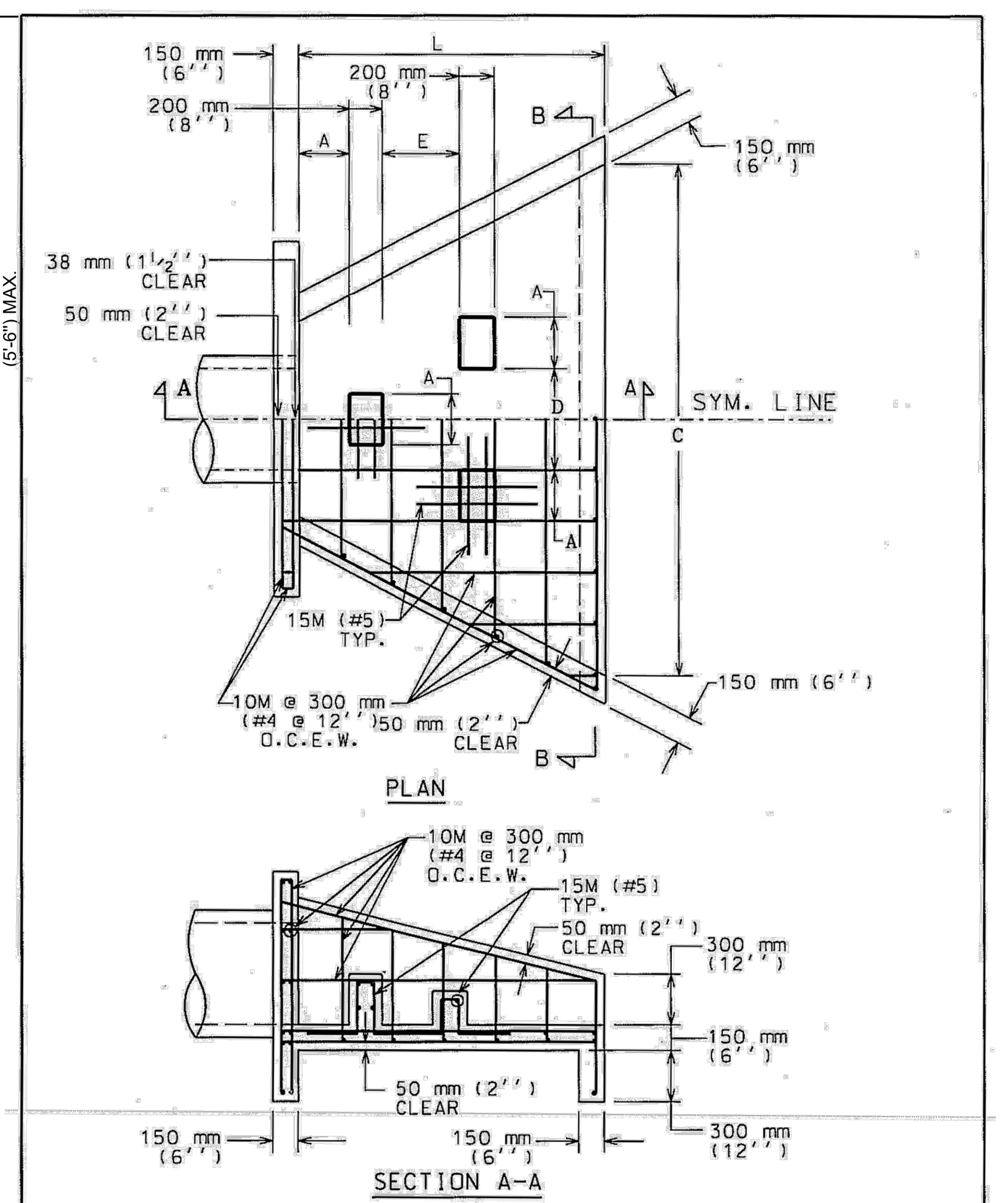
CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	PRE-CAST CONCRETE STORM DRAIN MANHOLE	
RECORD COPY SIGNED BY GEORGE E. OSWALD 2/14/02 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-3 1 OF 2



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	PRE-CAST CONCRETE STORM DRAIN MANHOLE	
RECORD COPY SIGNED BY GEORGE E. OSWALD 2/14/02 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-3 2 OF 2



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	4-SIDED AREA INLET	
RECORD COPY SIGNED BY ARTHUR C. ROMERO 08/18/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-9



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
Bill Gardner 8/20/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 1 OF 2

DRAINAGE DETAILS II

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Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

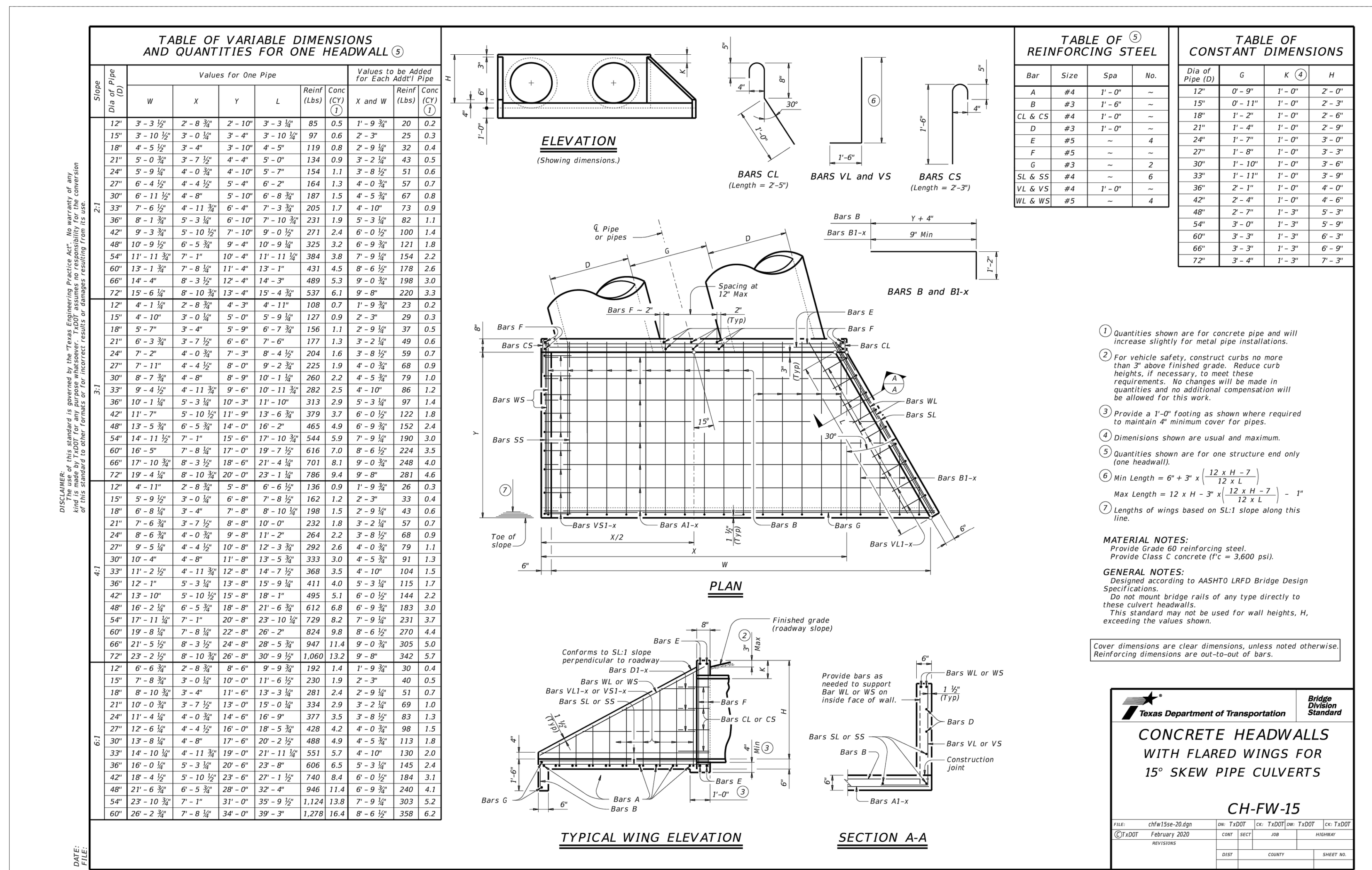
JONAH D. MANKOVSKY 110095 12/01/2023

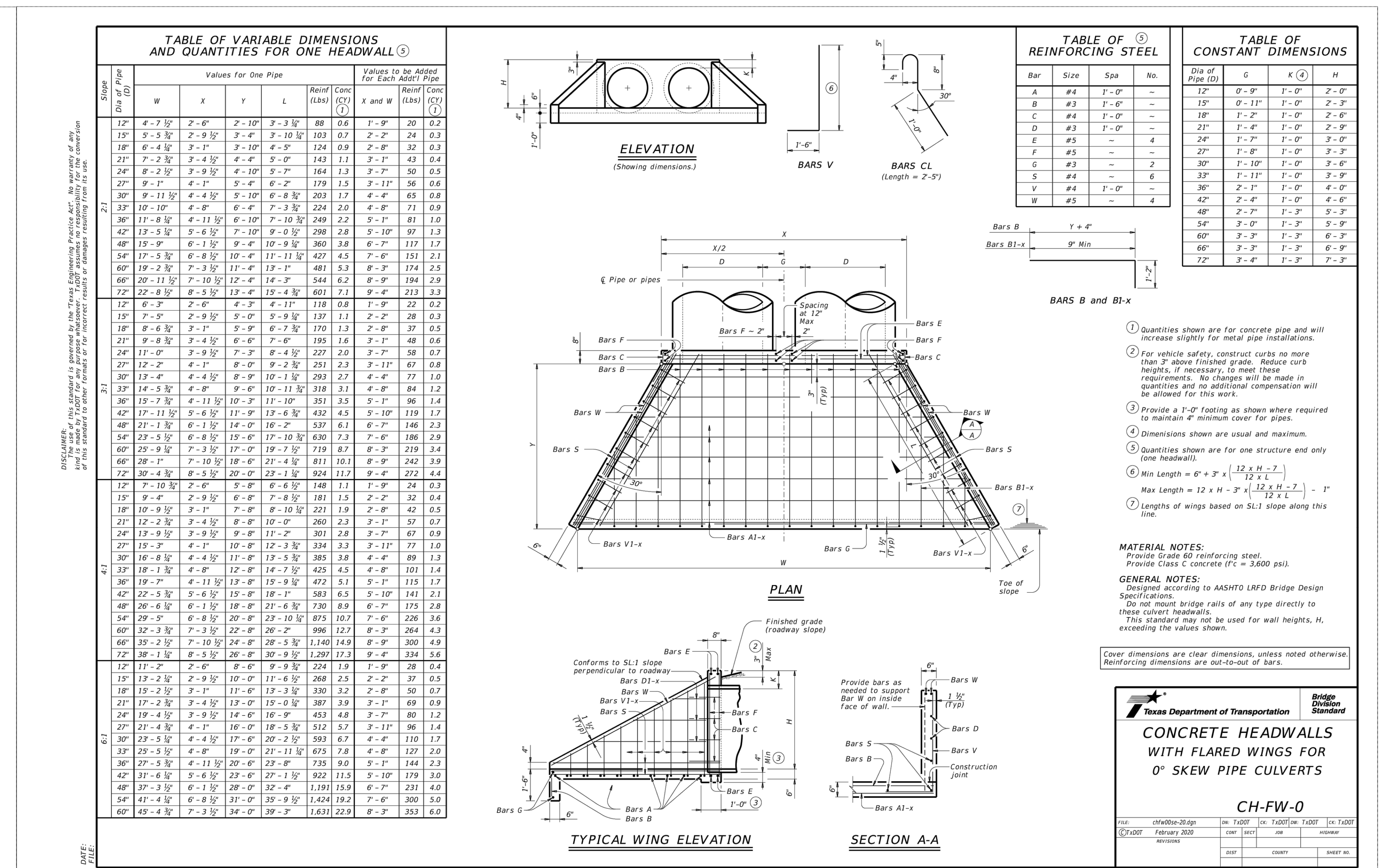
REVISION | NO. | DATE

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

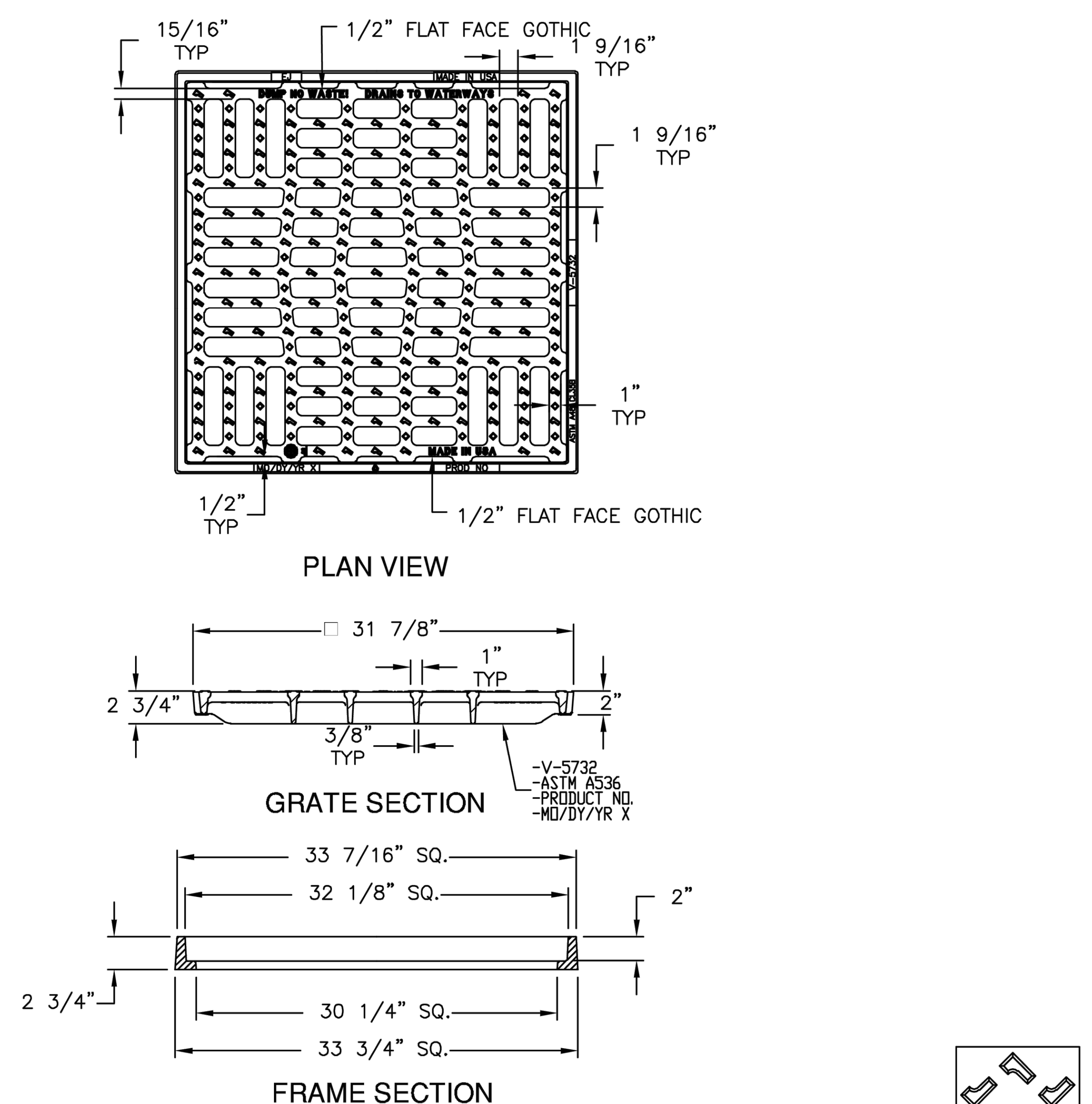
SHEET 94 OF 113

R3 NEW SHEET SPC-97-0320C(R3)





V5732 Assembly



Product Number
45732003

Design Features
-Materials
Frame
Gray Iron (CL35B)
Grate
Ductile Iron (70-50-05)

-Load Rating
Heavy Duty
-Open Area
507 Sq. Inches
-Coating
Undipped
-√ Designates Machined Surface

Certification
-
- ASTM A48
- ASTM A536
-Country of Origin: USA

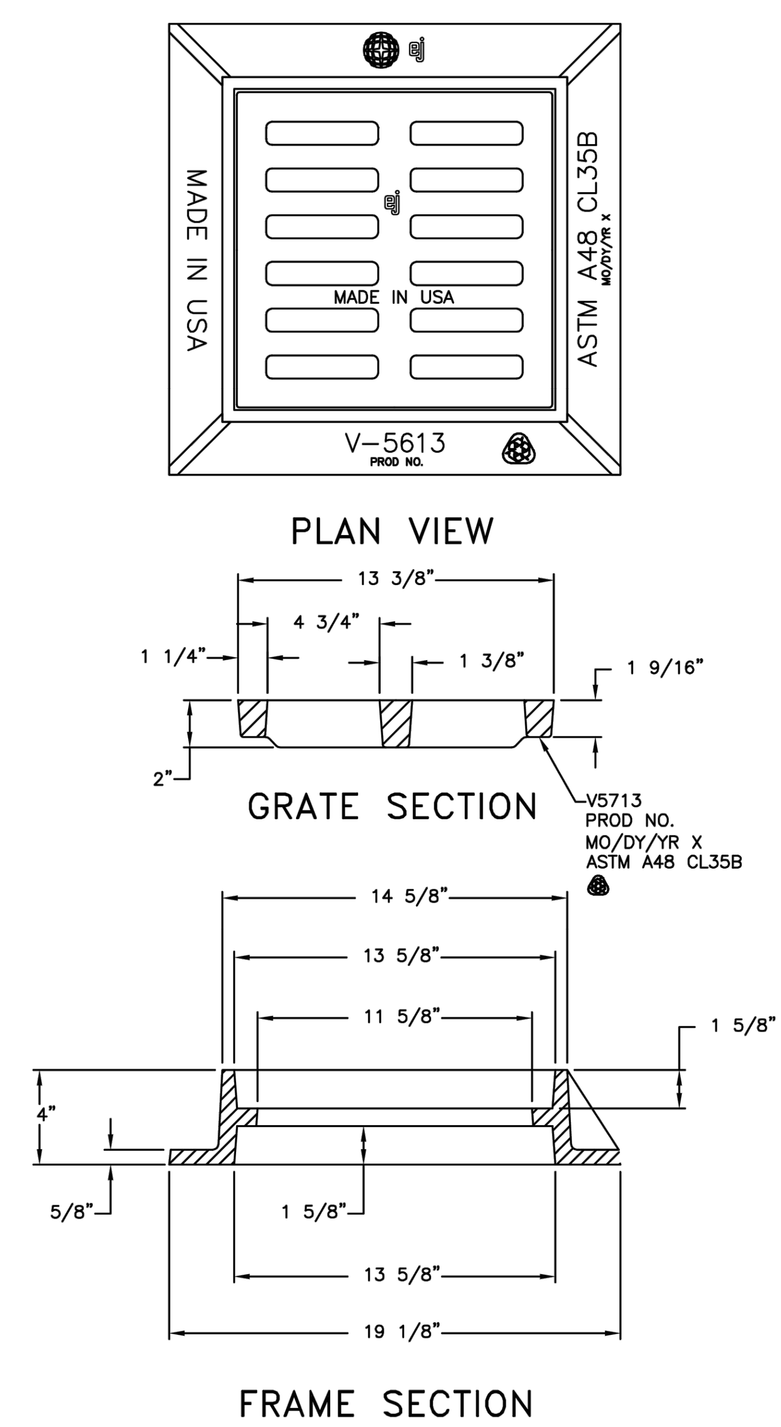
Major Components
45732010
45732050

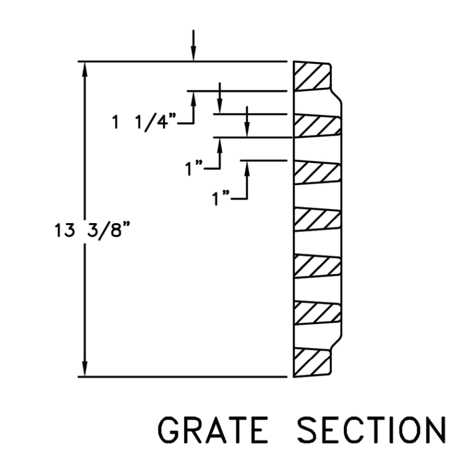
Drawing Revision
4/11/2022 Designer: MAH
Revised By:

Disclaimer
Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact
800 626 4653
ejco.com

V5613 V5713 Set





NOTE: COMPONENTS ARE SHIPPED LOOSE NOT ASSEMBLED.

FRAME IS REVERSIBLE.

Product Number
45713030C02

Design Features
-Materials
Frame
Gray Iron (CL35B)
Grate
Gray Iron (CL35B)

-Design Load
Heavy Duty
-Open Area
55 Sq. Inches
-Coating
Undipped
-√ Designates Machined Surface

Certification
-
- ASTM A48
-
-Country of Origin: USA

Major Components
45613010
45713030

Drawing Revision
03/05/2018 Designer: MAH
Revised By:

Disclaimer
Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact
800 626 4653
ejco.com

DATE	NO.	REVISION

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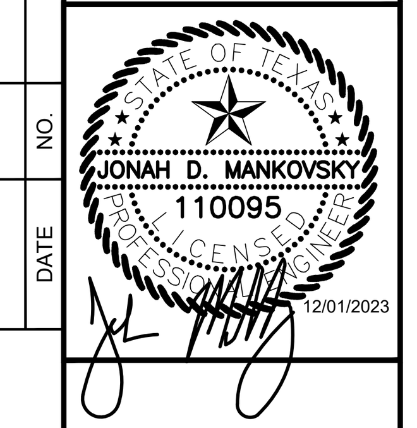
TBPE # F-14629



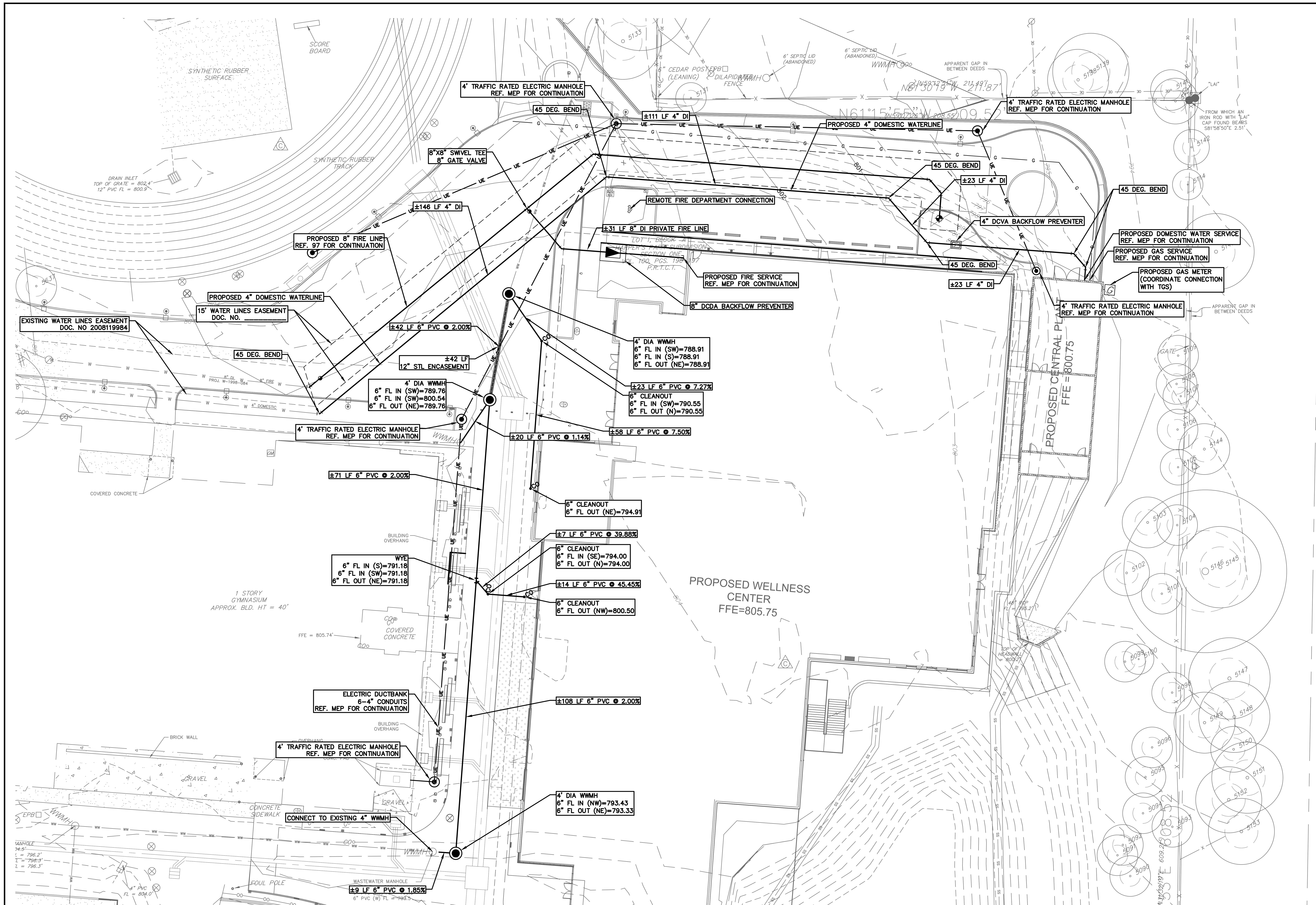
DRAINAGE DETAILS III

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 95 OF 113



1" = 20'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WTRMH		WATER MANHOLE
		WATER LINE MARKER
CMKR		UNDERGROUND CABLE MARKER
GMKR		UNDERGROUND GAS LINE MARKER
UGTM		UNDERGROUND TELEPHONE MARKER
GRSR		GAS RISER
TRSR	T	TELEPHONE RISER
SPC		SPRINKLER CONTROL BOX
	SW	SWITCH GEAR & PAD
	T	TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
TV	TV	CABLE TV RISER
E	E	ELECTRIC BOX
EM	EM	ELECTRIC METER
GM	GM	GAS METER
G	G	GAS VALVE
TCB	TCB	TRAFFIC CONTROL BOX
TSP	TSP	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH		ELECTRIC MANHOLE (SIZE VARIES)
WWMH		WASTEWATER MANHOLE (SIZE VARIES)
SSMH		STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
678	678	CONTOUR
SS		STORMSEWER LINE
W		WATER LINE
		FIRE LINE
WW		WASTEWATER LINE
G		GAS LINE
UE	UE	UNDERGROUND ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC LINE
OE	UT	UNDERGROUND TELEPHONE LINE
UC	UC	UNDERGROUND CABLE AND INTERNET
U-COMM	U-COMM	UNDERGROUND TELECOMMUNICATIONS
	FFE	FINISH FLOOR ELEVATION
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE

UTILITY NOTES:

1. ALL PUBLIC WATERLINES TO BE DUCTILE IRON CLASS 350. ALL FIRE LINES AND FIRE HYDRANT LEADS TO BE DUCTILE IRON CLASS 350 UNLESS OTHERWISE NOTED.
2. ALL WASTEWATER LINES SHALL BE SDR-26 PVC.
3. WATERLINES TO HAVE A TYPICAL DEPTH OF 48 INCHES BELOW GRADE. WHERE IN CONFLICT WITH ANY OTHER UTILITIES, WATER TO GO ABOVE.
4. CONTRACTOR TO VERIFY THE DEPTH OF THE EXISTING WATERLINE PRIOR TO MAKING THE CONNECTION. FLOWLINES GIVEN ARE BASED ON AS-BUILT CITY OF AUSTIN PLANS.
5. ALL HORIZONTAL AND VERTICAL WATERLINE BENDS, TEES, VALVES AND DEADEND'S SHALL BE RESTRAINED TO THE WATER MAIN USING MECHANICAL JOINT RESTRAINT DEVICES AS APPROVED IN SPL WW-27-A.
6. A TRENCH SAFETY PLAN MUST BE SUBMITTED TO THE ENGINEER ADN THE CITY OF AUSTIN PRIOR TO THE BEGINNING OF TRENCHING ACTIVITIES.
7. UNDERGROUND MAINS FEEDING NFPA 13 SPRINKLER SYSTEMS MUST BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA 13, AND THE FIRE CODE, BY A LICENSED SPRINKLER CONTRACTOR WITH A PLUMBING PERMIT. THE ENTIRE MAIN MUST BE HYDROSTATICALLY TESTED AT ONE TIME, UNLESS ISOLATION VALVES ARE PROVIDED BETWEEN TESTED SECTIONS.
8. ANY DISCHARGING OF GROUND WATER OR CONDESATES FROM THE COOLING SYSTEM MUST BE THROUGH THE STORM WATER SEWER. THIS INCLUDES THE DISCHARGING OF GROUNDWATER DURING CONSTRUCTION.
9. ALL JOINTS TO BE RESTRAINED. JOINT RESTRAINED SHALL BE MEGALUG OR CITY APPROVED EQUAL PER CITY STANDARD SPECIFICATION ITEM 510.3(22) AND SPL WW 27-A AND WW 27-F.
10. SERVICE PROVIDERS FOR TELECOM AND INTERNET SERVICE HAVE NOT BEEN IDENTIFIED AT THE TIME OF THIS PERMIT. ONCE THE DEVELOPER IS ABLE TO DETERMINE WHICH SERVICE PROVIDERS WILL BE DESIRED, A CORRECTION AND AULCC APPROVAL WILL BE REQUIRED TO REFLECT THE LOCATION OF THESE SERVICES.
11. GAS SERVICE IS NOT PROPOSED FOR THIS BUILDING AT THE TIME OF THIS PERMIT. IF GAS SERVICES IS NEEDED, A CORRECTION AND AULCC APPROVAL WILL BE REQUIRED TO REFLECT THE LOCATION OF THE SERVICE.
12. PRIOR TO RUNNING THE FIRE LINE TO THE BUILDING, THE FIRE PROTECTION ENGINEER SHALL PROVIDE FINAL SIZING AND COORDINATE WITH ON-SITE SITE UTILITY CONTRACTOR.
13. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THERE ARE DISCREPANCIES BETWEEN THE DRAWINGS AND WHAT IS FOUND IN THE FIELD.

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TBPE # F-14629

REVISION | NO. | DATE

JONAH D. MANKOVSKY
110095
12/01/2023

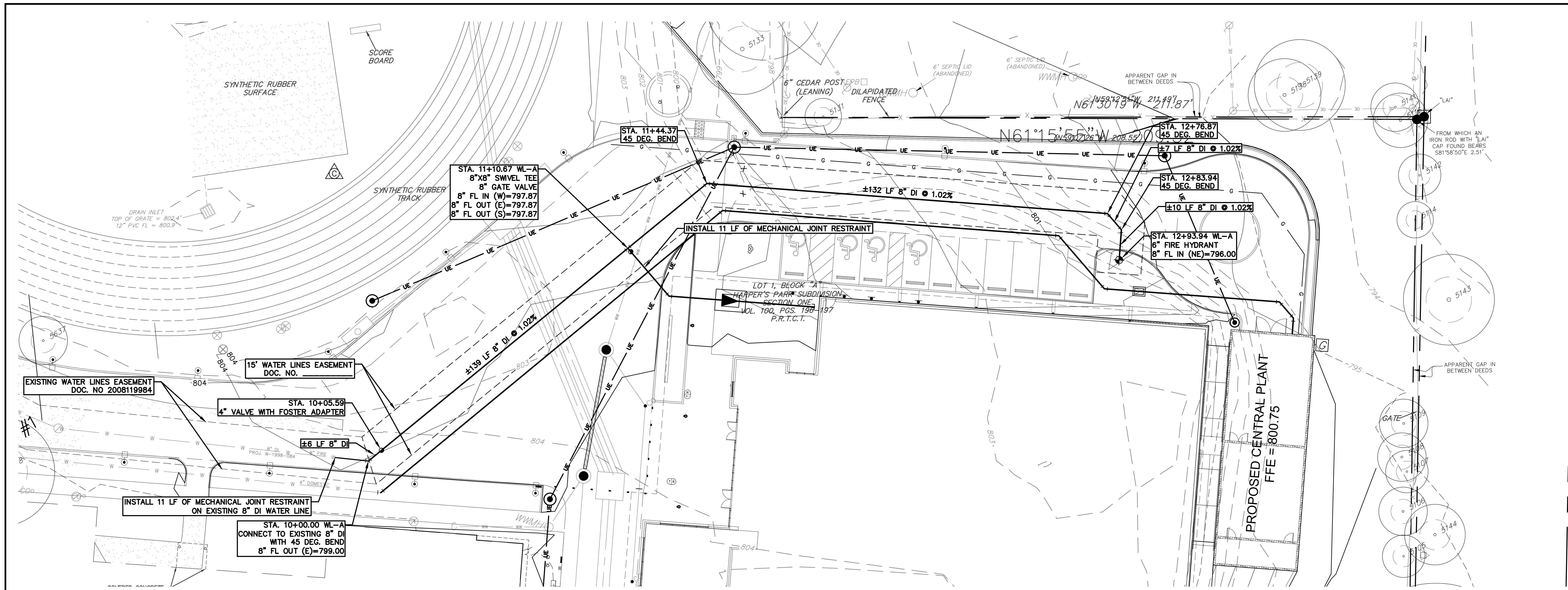
UTILITY PLAN

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

NEW SHEET SPC-97-0320C(R3)



20 0 10 20 40

1" = 20'

LEGEND

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		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH		ELECTRIC MANHOLE (SIZE VARIES)
WWMH		WASTEWATER MANHOLE (SIZE VARIES)
SSMH		STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
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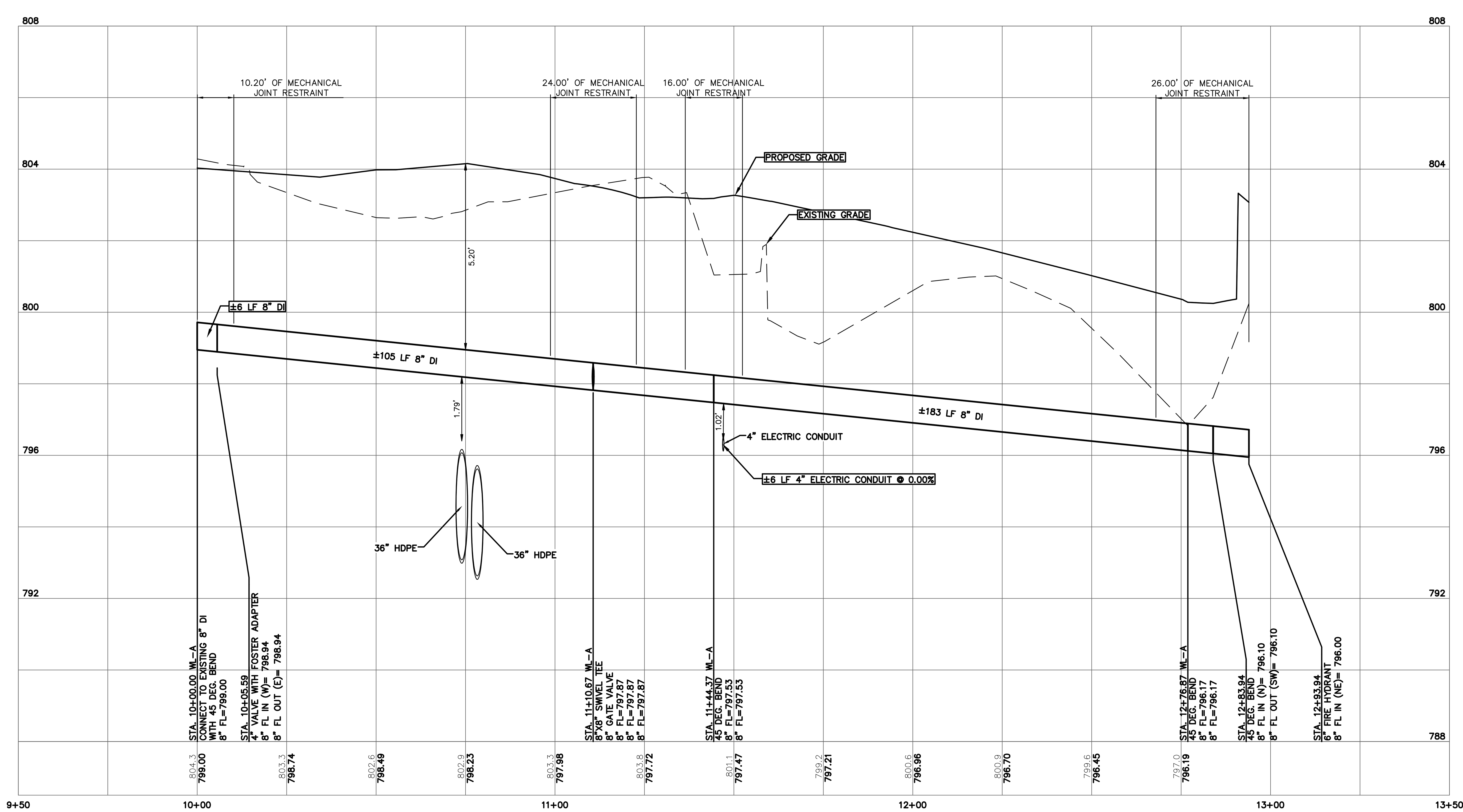
12. ALL GATE VALVES MUST BE AT ZERO GRADE.



ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

PUBLIC WATER PLAN AND PROFILE

REVISION | NO. | DATE

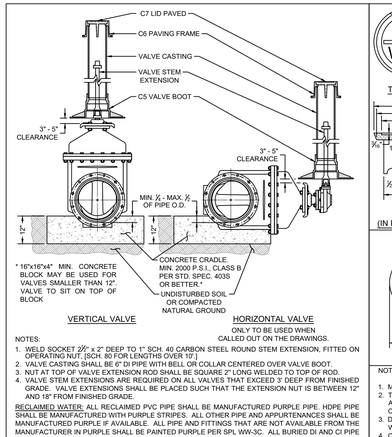
garza emc
7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

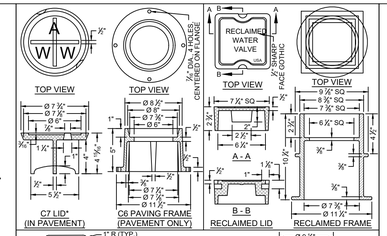
STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED PROFESSIONAL ENGINEER
12/01/2023

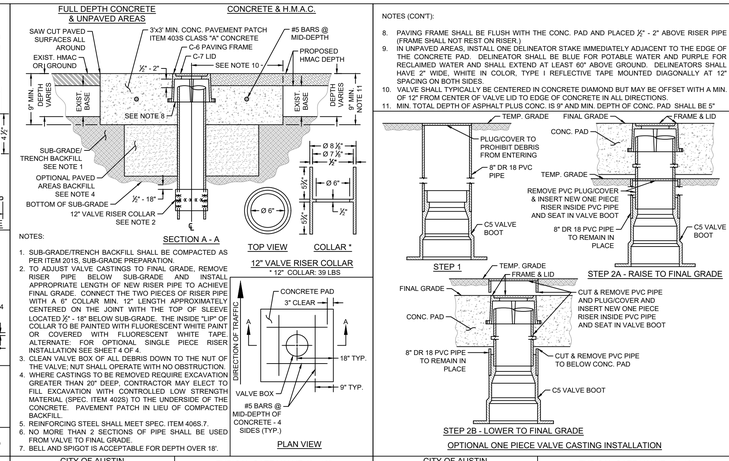
DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

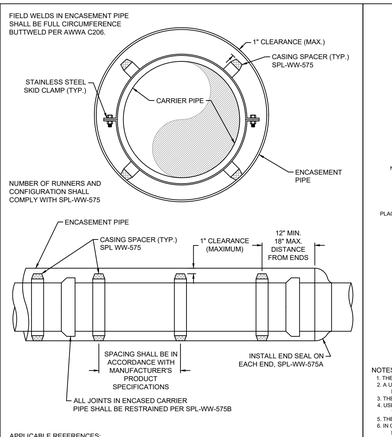
SHEET 97 OF 113

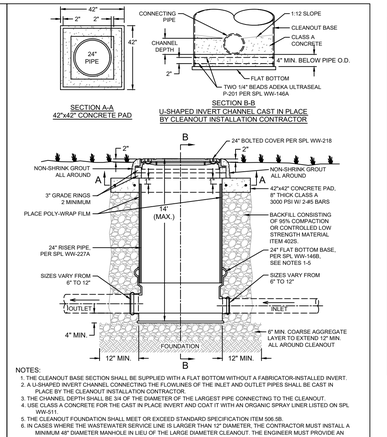
NEW SHEET SPC-97-0320C(R3)

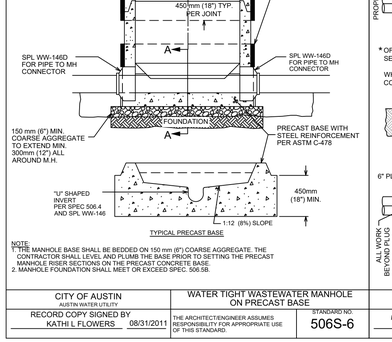


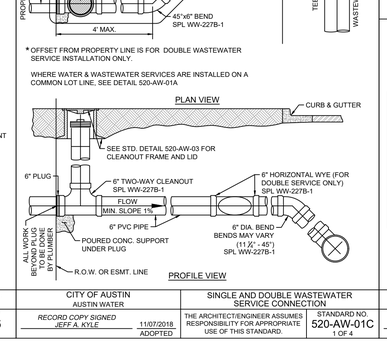


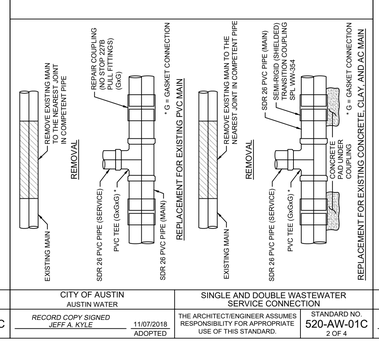


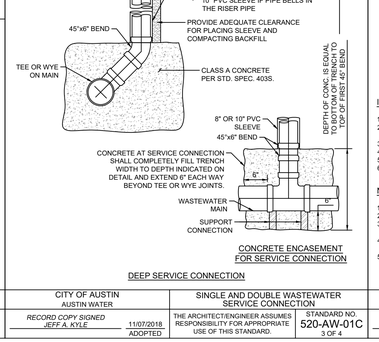


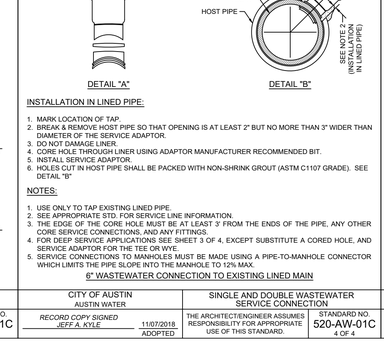


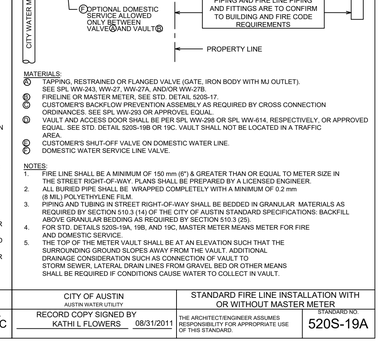












* 16"x16"x4" MIN. CONCRETE BLOCK MAY BE USED FOR VALVES SMALLER THAN 12". VALVE TO SIT ON TOP OF BLOCK

VERTICAL VALVE

HORIZONTAL VALVE

ONLY TO BE USED WHEN CALLED OUT ON THE DRAWINGS.

NOTES:

1. WELD SOCKET 2½" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT, [SCH. 80 FOR LENGTHS OVER 10'.]
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.

RECLAIMED WATER: ALL RECLAIMED PVC PIPE SHALL BE MANUFACTURED PURPLE PIPE. HDPE PIPE SHALL BE MANUFACTURED WITH PURPLE STRIPES. ALL OTHER PIPE AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL PIPE AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-27D. ALL COVERS SHALL HAVE "RECLAIMED WATER" CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 1 OF 4

NOTES:

1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID, FRAME, COLLAR AND BASE.
3. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
4. CASTING FINISH BY MANUFACTURER SHALL INCLUDE REMOVAL OF FINS AND FLASHING, AND PAINT WITH BLACK ASPHALT COATING.

WEIGHTS:

C7 LID: 13 LBS
RECLAIMED LID: 15 LBS
C6 FRAME: 23 LBS
RECLAIMED FRAME: 33 LBS
C5 BASE: 78 LBS

* LETTERING SHALL BE 1½"
2 PICK BAR SLOTS REQUIRED

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 2 OF 4

NOTES:

1. SUB-GRADE/TRENCH BACKFILL SHALL BE COMPACTED AS PER ITEM 201S, SUB-GRADE PREPARATION.
2. TO ADJUST VALVE CASTINGS TO FINAL GRADE, REMOVE RISER PIPE BELOW SUB-GRADE AND INSTALL APPROPRIATE LENGTH OF NEW RISER PIPE TO ACHIEVE FINAL GRADE. CONNECT THE TWO PIECES OF RISER PIPE WITH A 6" COLLAR MIN. 12" LENGTH APPROXIMATELY CENTERED ON THE JOINT WITH THE TOP OF SLEEVE LOCATED ½" - 18" BELOW SUB-GRADE. THE INSIDE "LIP" OF COLLAR TO BE PAINTED WITH FLUORESCENT WHITE PAINT OR COVERED WITH FLUORESCENT WHITE TAPE. ALTERNATE: FOR OPTIONAL SINGLE PIECE RISER INSTALLATION SEE SHEET 4 OF 4.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE NUT OF THE VALVE; NUT SHALL OPERATE WITH NO OBSTRUCTION.
4. WHERE CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL (SPEC. ITEM 402S) TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
5. REINFORCING STEEL SHALL MEET SPEC. ITEM 406S.7.
6. NO MORE THAN 2 SECTIONS OF PIPE SHALL BE USED FROM VALVE TO FINAL GRADE.
7. BELL AND SPIGOT IS ACCEPTABLE FOR DEPTH OVER 18'.

PLAN VIEW

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 3 OF 4

NOTES (CON'T):

8. PAVING FRAME SHALL BE FLUSH WITH THE CONC. PAD AND PLACED ½" - 2" ABOVE RISER PIPE (FRAME SHALL NOT REST ON RISER.)
9. IN UNPAVED AREAS, INSTALL ONE DELINEATOR STAKE IMMEDIATELY ADJACENT TO THE EDGE OF THE CONCRETE PAD. DELINEATOR SHALL BE BLUE FOR POTABLE WATER AND PURPLE FOR RECLAIMED WATER AND SHALL EXTEND AT LEAST 60" ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE IN COLOR, TYPE I REFLECTIVE TAPE MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES.
10. VALVE SHALL TYPICALLY BE CENTERED IN CONCRETE DIAMOND BUT MAY BE OFFSET WITH A MIN. OF 12" FROM CENTER OF VALVE LID TO EDGE OF CONCRETE IN ALL DIRECTIONS.
11. MIN. TOTAL DEPTH OF ASPHALT PLUS CONC. IS 9" AND MIN. DEPTH OF CONC. PAD SHALL BE 5"

OPTIONAL ONE PIECE VALVE CASTING INSTALLATION

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 4 OF 4

FIELD WELDS IN ENCASEMENT PIPE SHALL BE FULL CIRCUMFERENCE BUTTWELD PER AWWA C206.

APPLICABLE REFERENCES:
STANDARD SPECIFICATION: ITEM 505.4 & 510.3 (19)

CITY OF AUSTIN AUSTIN WATER	ENCASEMENT PIPE DETAIL WITH CASING SPACERS	
JEFF A. KYLE 02/22/2021 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 501-AW-01 1 OF 1

NOTES:

1. THE CLEANOUT BASE SECTION SHALL BE SUPPLIED WITH A FLAT BOTTOM WITHOUT A FABRICATOR-INSTALLED INVERT.
2. A U-SHAPED INVERT CHANNEL CONNECTING THE FLOWLINES OF THE INLET AND OUTLET PIPES SHALL BE CAST IN PLACE BY THE CLEANOUT INSTALLATION CONTRACTOR.
3. THE CHANNEL DEPTH SHALL BE 3/4 OF THE DIAMETER OF THE LARGEST PIPE CONNECTING TO THE CLEANOUT.
4. USE CLASS A CONCRETE FOR THE CAST IN PLACE INVERT AND COAT IT WITH AN ORGANIC SPRAY LINER LISTED ON SPL WW-511.
5. THE CLEANOUT FOUNDATION SHALL MEET OR EXCEED STANDARD SPECIFICATION ITEM 506.5B.
6. IN CASES WHERE THE WASTEWATER SERVICE LINE IS LARGER THAN 12" DIAMETER, THE CONTRACTOR MUST INSTALL A MINIMUM 48" DIAMETER MANHOLE IN LIEU OF THE LARGE DIAMETER CLEANOUT. THE ENGINEER MUST PROVIDE AN ACCEPTABLE SAMPLE PORT AND RECEIVE APPROVAL IN WRITING FROM THE INDUSTRIAL WASTE REVIEWER BEFORE INSTALLATION. THE 48" DIA. MANHOLE SHALL CONFORM TO STD. 506S-10 AND INCLUDE A SAMPLE PORT.

CITY OF AUSTIN AUSTIN WATER	LARGE DIAMETER CLEANOUT	
JEFF A. KYLE 08/14/2020 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD DETAIL 506-AW-04 1 OF 1

NOTE:
1. THE MANHOLE BASE SHALL BE BEDDED ON 150 mm (6") COARSE AGGREGATE. THE CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.
2. MANHOLE FOUNDATION SHALL MEET OR EXCEED SPEC. 506.5B.

CITY OF AUSTIN AUSTIN WATER UTILITY	WATER TIGHT WASTEWATER MANHOLE ON PRECAST BASE	
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-6

* OFFSET FROM PROPERTY LINE IS 6' FOR DOUBLE WASTEWATER SERVICE INSTALLATION ONLY.

WHERE WATER & WASTEWATER SERVICES ARE INSTALLED ON A COMMON LOT LINE, SEE DETAIL 520-AW-01A

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 1 OF 4

NOTES:

1. DURING SUBDIVISION CONSTRUCTION, UTILITY CONTRACTOR INSTALLS WASTEWATER TEE CONNECTION TO MAIN, 6" STUB, HORIZONTAL WYE FOR DOUBLE SERVICES, 6" SERVICE BRANCH WITH TWO-WAY CLEANOUT(S) AND RISER, FRAME, AND COVER. CLEANOUT(S) TO BE PLUGGED AT PROPERTY LINE OR EASEMENT LINE END. ALL WASTEWATER PIPING SHALL HAVE ELASTOMERIC GASKET TYPE JOINTS AND SLOPE DOWNWARD TO MAIN 1% MIN. TO 45° MAX. DEPTH OF SERVICE AT PROPERTY LINE WILL BE SHOWN ON PLANS BY ENGINEER IF GREATER THAN 4', OTHERWISE THE INSTALLED DEPTH WILL BE 4' MIN. AND 6' MAX. AT PROPERTY LINE. IF WASTEWATER SERVICE LINE TO MAIN REQUIRES DEFLECTION EXCEEDING 45°, SEE SHEET 3 OF 4.
2. PIPING IN STREET RIGHT-OF-WAY AND IN EASEMENT AREA SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY CITY OF AUSTIN STANDARD SPECIFICATION 510.3 (14); MATERIALS SHALL BE AS SPECIFIED IN 510.2 (2)(A) AND (3)(B); BACKFILL ABOVE THE GRANULAR BEDDING SHALL BE AS REQUIRED BY SECTION 510.3 (25). SERVICE LINES IN THESE AREAS SHALL HAVE A MIN. COVER BELOW FINAL STREET GRADE OF 42".
3. PLUMBER SHALL REMOVE PLUG AND CONNECT TO TWO-WAY CLEANOUT. NO CONNECTION TO CLEANOUT STACK IS ALLOWED.

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 2 OF 4

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 3 OF 4

INSTALLATION IN LINED PIPE:

1. MARK LOCATION OF TAP.
2. BREAK & REMOVE HOST PIPE SO THAT OPENING IS AT LEAST 2" BUT NO MORE THAN 3" WIDER THAN DIAMETER OF THE SERVICE ADAPTOR.
3. DO NOT DAMAGE LINER.
4. CORE HOLE THROUGH LINER USING ADAPTOR MANUFACTURER RECOMMENDED BIT.
5. INSTALL SERVICE ADAPTOR.
6. HOLES CUT IN HOST PIPE SHALL BE PACKED WITH NON-SHRINK GROUT (ASTM C1107 GRADE). SEE DETAIL "B"

NOTES:

1. USE ONLY TO TAP EXISTING LINED PIPE.
2. SEE APPROPRIATE STD. FOR SERVICE LINE INFORMATION.
3. THE EDGE OF THE CORE HOLE MUST BE AT LEAST 3' FROM THE ENDS OF THE PIPE, ANY OTHER CORE SERVICE CONNECTIONS, AND ANY FITTINGS.
4. FOR DEEP SERVICE APPLICATIONS SEE SHEET 3 OF 4, EXCEPT SUBSTITUTE A CORED HOLE, AND SERVICE ADAPTOR FOR THE TEE OR WYE.
5. SERVICE CONNECTIONS TO MANHOLES MUST BE MADE USING A PIPE-TO-MANHOLE CONNECTOR WHICH LIMITS THE PIPE SLOPE INTO THE MANHOLE TO 12% MAX.

6" WASTEWATER CONNECTION TO EXISTING LINED MAIN

CITY OF AUSTIN AUSTIN WATER	SINGLE AND DOUBLE WASTEWATER SERVICE CONNECTION	
RECORD COPY SIGNED JEFF A. KYLE 11/07/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01C 4 OF 4

MATERIALS:

- Ⓐ TAPPING, RESTRAINED OR FLANGED VALVE (GATE, IRON BODY WITH MJ OUTLET). SEE SPL WW-243, WW-27, WW-27A, AND/OR WW-27B.
- Ⓑ FIRELINE OR MASTER METER, SEE STD. DETAIL 520S-17.
- Ⓒ CUSTOMER'S BACKFLOW PREVENTION ASSEMBLY AS REQUIRED BY CROSS CONNECTION ORDINANCES. SEE SPL WW-293 OR APPROVEL EQUAL.
- Ⓓ VAULT AND ACCESS DOOR SHALL BE PER SPL WW-298 OR SPL WW-614, RESPECTIVELY, OR APPROVED EQUAL. SEE STD. DETAIL 520S-19B OR 19C. VAULT SHALL NOT BE LOCATED IN A TRAFFIC AREA.
- Ⓔ CUSTOMER'S SHUT-OFF VALVE ON DOMESTIC WATER LINE.
- Ⓕ DOMESTIC WATER SERVICE LINE VALVE.

NOTES:

1. FIRE LINE SHALL BE A MINIMUM OF 150 mm (6") & GREATER THAN OR EQUAL TO METER SIZE IN THE STREET RIGHT-OF-WAY. PLANS SHALL BE PREPARED BY A LICENSED ENGINEER.
2. ALL BURIED PIPE SHALL BE WRAPPED COMPLETELY WITH A MINIMUM OF 0.2 mm (8 MIL) POLYETHYLENE FILM.
3. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SECTION 510.3 (14) OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS: BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SECTION 510.3 (25).
4. FOR STD. DETAILS 520S-19A, 19B, AND 19C, MASTER METER MEANS METER FOR FIRE AND DOMESTIC SERVICE.
5. THE TOP OF THE METER VAULT SHALL BE AT AN ELEVATION SUCH THAT THE SURROUNDING GROUND SLOPES AWAY FROM THE VAULT. ADDITIONAL DRAINAGE CONSIDERATION SUCH AS CONNECTION OF VAULT TO STORM SEWER, LATERAL DRAIN LINES FROM GRAVEL BED OR OTHER MEANS SHALL BE REQUIRED IF CONDITIONS CAUSE WATER TO COLLECT IN VAULT.

CITY OF AUSTIN AUSTIN WATER UTILITY	STANDARD FIRE LINE INSTALLATION WITH OR WITHOUT MASTER METER	
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-19A

NOTE: ALL MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE BOLTED COVERS AS PER SPEC. 506S, SECTION 506S.3, MATERIALS AND COMPONENTS, ITEMS M & N.

CITY OF AUSTIN AUSTIN WATER UTILITY	SANITARY SEWER MANHOLE RING AND 813 mm (32") COVER	
RECORD COPY SIGNED BY KATHI L. FLOWERS 3/9/04 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4W 1 OF 3

NOTE: ALL MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE BOLTED COVERS AS PER SPEC. 506S, SECTION 506S.3, MATERIALS AND COMPONENTS, ITEMS M & N.

CITY OF AUSTIN AUSTIN WATER UTILITY	SANITARY SEWER MANHOLE RING AND 813 mm (32") COVER	
RECORD COPY SIGNED BY KATHI L. FLOWERS 3/9/04 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4W 2 OF 3

NOTES:

① ALL CORNERS AND EDGES SHALL HAVE A 1.5 mm (") MINIMUM RADIUS.

② LIDS SHALL BE CAST WITH TWO 25 mm (1") DIA. STEEL PICK BARS.

③ LID WEIGHTS SHALL BE 935 N (210 LBS.) FOR CAST IRON OR 779 N (175 LBS.) FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF LID.

④ MANUFACTURER SHALL PROVIDE INDEPENDENT TESTING LABORATORY REPORT ON 40,000 POUND PROOF LOAD TEST CONDUCTED ACCORDING TO AASHTO M-306.

⑤ FILLETS SHALL BE 6 mm (") RADIUS UNLESS OTHERWISE SPECIFIED.

⑥ MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.

NOTE: ALL MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE BOLTED COVERS AS PER SPEC. 506S, SECTION 506S.3, MATERIALS AND COMPONENTS, ITEMS M & N.

CITY OF AUSTIN AUSTIN WATER UTILITY	SANITARY SEWER MANHOLE RING AND 813 mm (32") COVER	
RECORD COPY SIGNED BY KATHI L. FLOWERS 3/9/04 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4W 3 OF 3

CITY OF AUSTIN AUSTIN WATER	1½" - 2" METER INSTALLATION SHOWING OPTIONAL BYPASS	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 520-AW-04 1 OF 2

MATERIALS LIST:

A. 2" SERVICE CLAMP
B. 2" CORPORATION STOP MALE THREAD INLET BY COMPRESSION OUTLET
C. 2" COPPER WATER SERVICE TUBING EXTENDED BEYOND PAVEMENT
D1. 2" BALL VALVE, SPL WW-275
D2. 2" BALL VALVE, SPL WW-275
E. 2" COPPER SERVICE TUBING
F. 2" BRASS COUPLING - COMPRESSION TO MALE IPT
G. 2" BRASS TEE
H. 2" BRASS CLOSE-NIPPLE
I. 2" ANGLE METER STOP; SERVICE TUBING INLET x FLANGED OUTLET
J. 2" BRASS NIPPLE
K. 2" BRASS ELBOW
L. 2" LOCKABLE CURB STOP - FEMALE IPT INLET BY COMPRESSION OUTLET
M. 2" BRASS COUPLING - SERVICE TUBING TO MALE IPT
N. RECTANGULAR METER BOX AND COVER, SPL WW-145A
O. BRASS ADAPTER (2" x 1½") FOR 1½" METER ONLY
P. WATER METER. LENGTH 13", (PURCHASED FROM AUSTIN WATER)
Q. 2" COPPER SERVICE TUBING (PRIVATE PLUMBING PER CODE)
R. CUSTOMER CUT-OFF VALVE
S. CUSTOMER VALVE BOX AND LID

NOTES:

1. SERVICE CLAMP SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
2. BRANCH CONNECTIONS AND ALL ANGLE METER STOPS MUST BE INSTALLED PRIOR TO ANY METER INSTALLATION.
3. TOP OF BOXES SHOULD BE 1" ABOVE GROUND.
4. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SECTION 510.3 (14) OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS; BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SECTION 510.3 (25).
5. BOX MUST BE BEHIND CURB NEXT TO PROPERTY LINE OR EASEMENT AND OUT OF VEHICULAR TRAFFIC AREA AND SIDEWALK.
6. BALL VALVE "D1" SHALL NOT BE LOCATED UNDER SIDEWALK, CURB, OR PAVEMENT, AND NOT BE LOCATED MORE THAN 24" HORIZONTALLY FROM METER BOX OR 36" BELOW FINAL GRADE.
7. COPPER SERVICE SHALL BE COPPER TUBING SIZE ANNEALED SEAMLESS TYPE "K" MEETING ASTM B88 WITH NO SWEAT OR SOLDERED JOINTS.

CITY OF AUSTIN AUSTIN WATER	1½" - 2" METER INSTALLATION SHOWING OPTIONAL BYPASS	
RECORD COPY SIGNED BY KATHI L FLOWERS 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 520-AW-04 2 OF 2

REVISION	NO.	DATE

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7708 Rialto Blvd., Suite 125
Austin, Texas 78735
Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

JONAH D. MANKOVSKY
110095
12/01/2023

UTILITY DETAILS

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET
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OF 113

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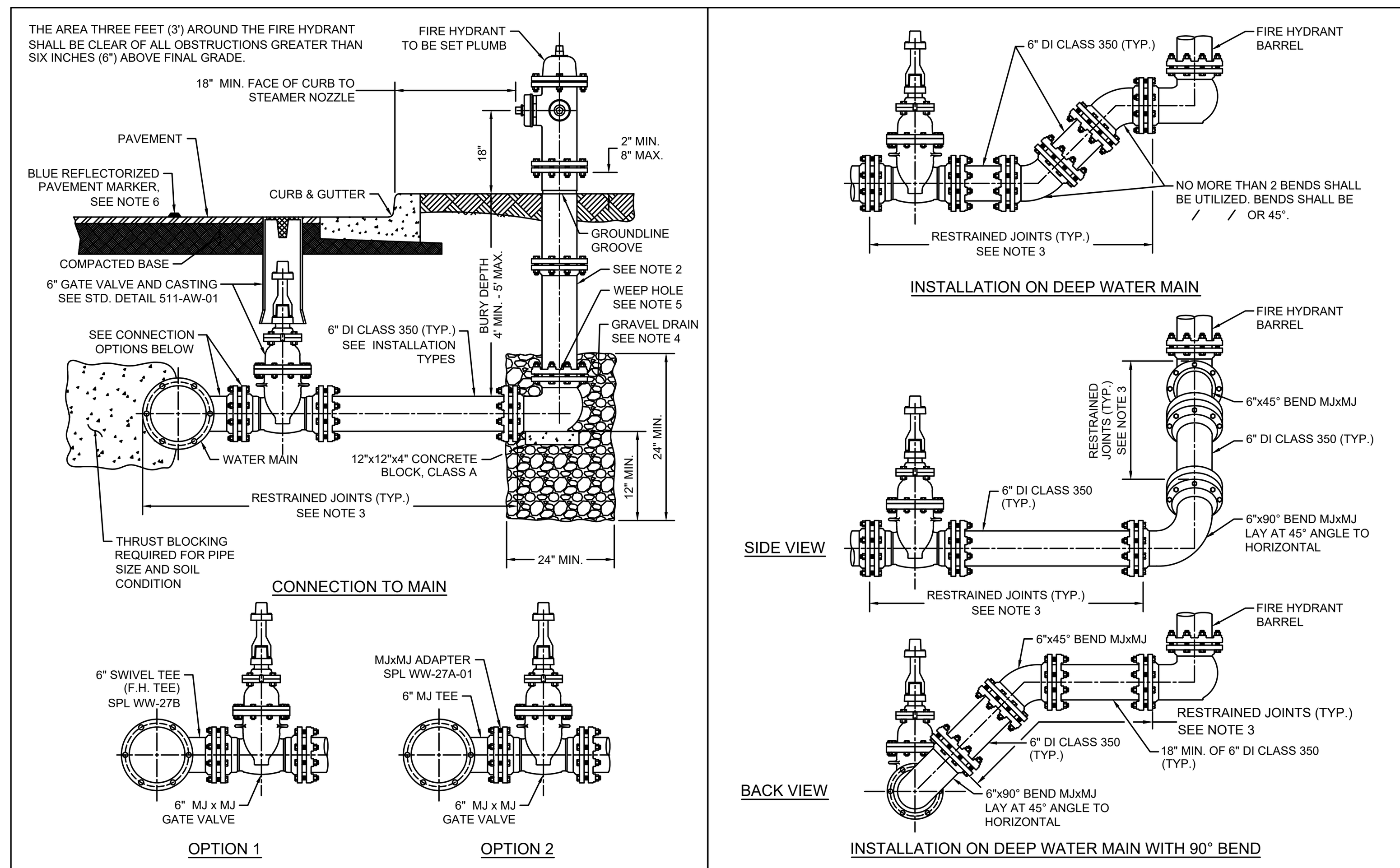
⚠ R3 NEW SHEET SPC-97-0320C(R3)



NOTES: APPLICABLE TO ALL INSTALLATION TYPES.

1. NO PART OF A HYDRANT OR ITS NOZZLE CAPS SHALL BE WITHIN 6" OF ANY SIDEWALK OR PEDESTRIAN RAMP. ANY FIRE HYDRANT PLACED NEAR A STREET CORNER SHALL BE LOCATED OUTSIDE THE CURVE RADIUS AND A MINIMUM OF 4' FROM RAMPS.
2. ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH MAY BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT IN ORDER TO MEET THE REQUIRED BURY DEPTH OF 4' - 5'. BREAK AWAY BOLTS (SHOE TYPES) SHALL BE PROPERLY SPACED AND PLACED.
3. FIRE LINE SHALL HAVE ALL JOINTS RESTRAINED FROM MAIN TO FIRE HYDRANT INCLUDING MJ RESTRAINT OF TEE AT THE MAIN. JOINTS SHOWN MAY VARY. SEE SPL WW-27A, WW-27A-01, AND WW-27B FOR RESTRAINT OPTIONS.
4. BELOW EACH HYDRANT, A DRAINAGE PIT 24" IN DIAMETER AND 12" DEEP SHALL BE EXCAVATED AND FILLED WITH COMPACTED COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND UNDER AND AROUND THE BOWL OF THE HYDRANT, AND TO A LEVEL 12" ABOVE THE HYDRANT DRAIN OPENING (SEE STD. SPEC. 510). THE HYDRANT DRAINAGE PIT SHALL NOT BE CONNECTED TO A SANITARY SEWER. THE DRAIN GRAVEL SHALL BE COVERED WITH FILTER FABRIC PER STD. SPEC. 620.
5. WRAP 8 MIL. POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS. CUT SLITS IN POLY-FILM WRAP AT BOOT TO ALLOW WATER TO ESCAPE FROM WEEP HOLES AND POLY-WRAP.
6. A BLUE TYPE II-B-B REFLECTORIZED PAVEMENT MARKER, CONFORMING TO STANDARD SPECIFICATION ITEM NO. 863S, SHALL BE PLACED 2 TO 3 FEET OFFSET FROM THE CENTERLINE OF PAVED STREETS, ON THE SIDE OF AND IN LINE WITH ALL NEWLY INSTALLED FIRE HYDRANTS.

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT ASSEMBLY	
JEFF A. KYLE 11/06/2023 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 511-AW-02 1 OF 3

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT ASSEMBLY	
JEFF A. KYLE 11/06/2023 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 511-AW-02 2 OF 3

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT ASSEMBLY	
JEFF A. KYLE 11/06/2023 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 511-AW-02 3 OF 3

REVISION | NO. | DATE

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03/01/2023

UTILITY DETAILS II

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 99 OF 113

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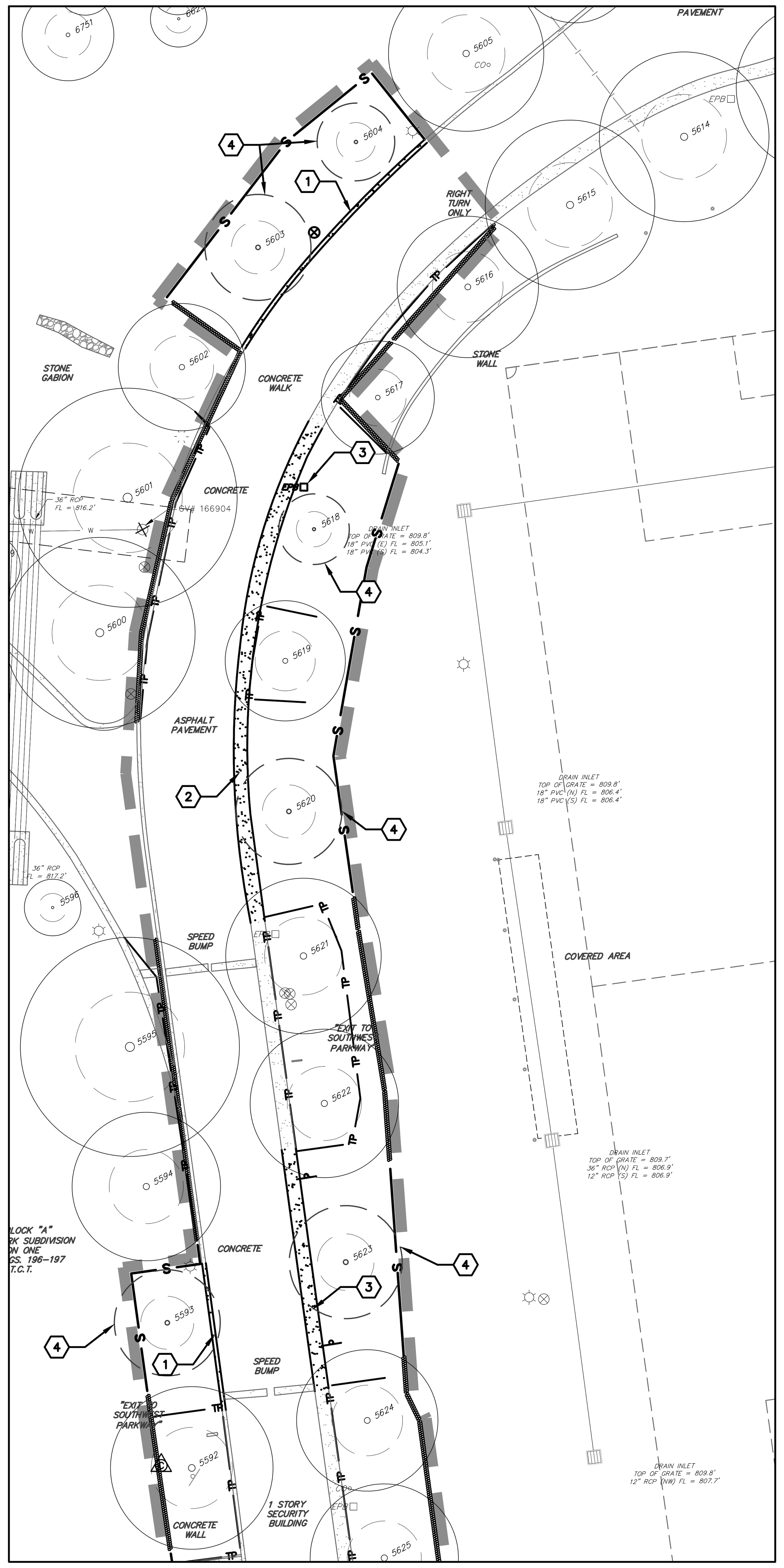
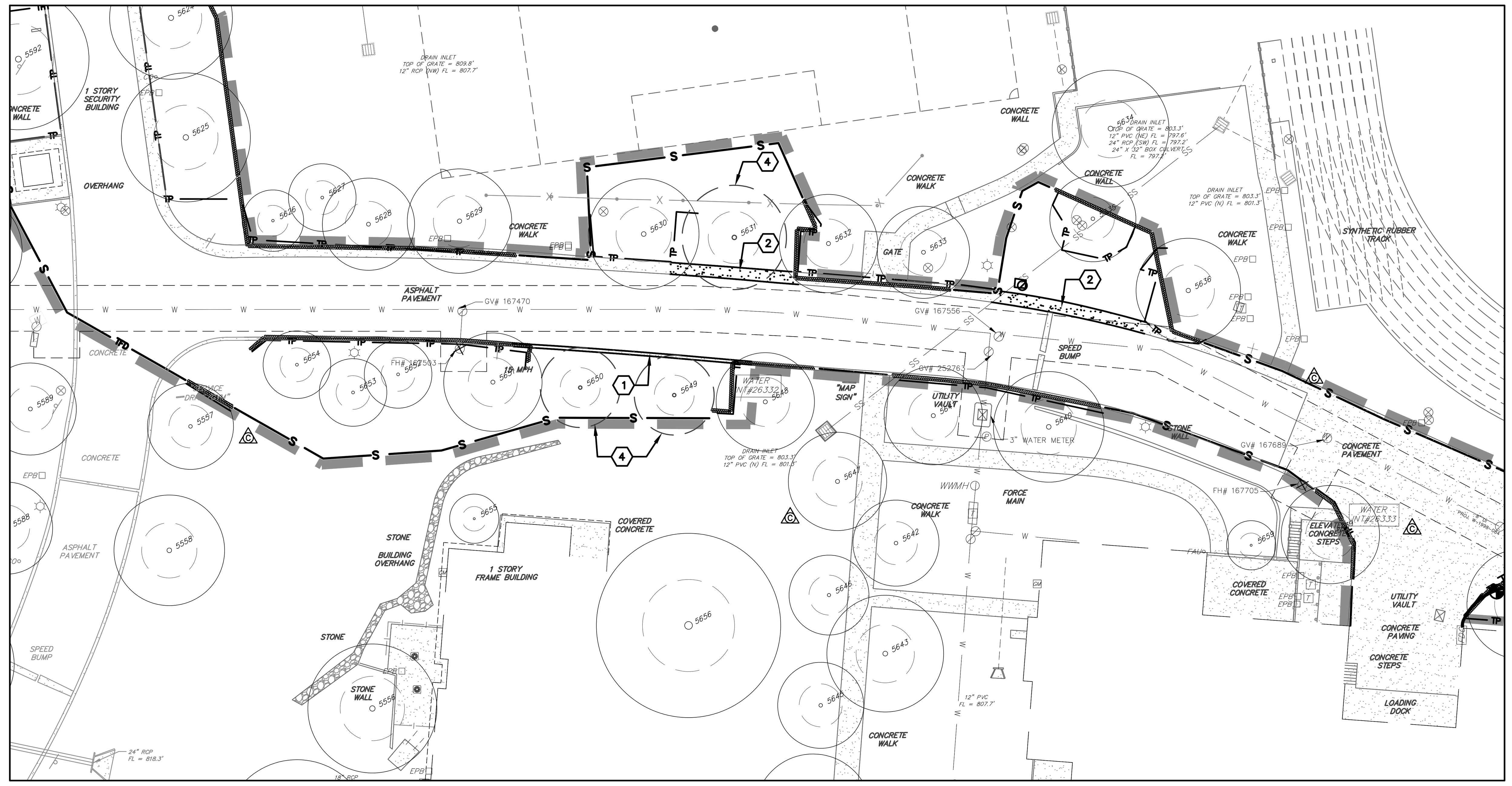
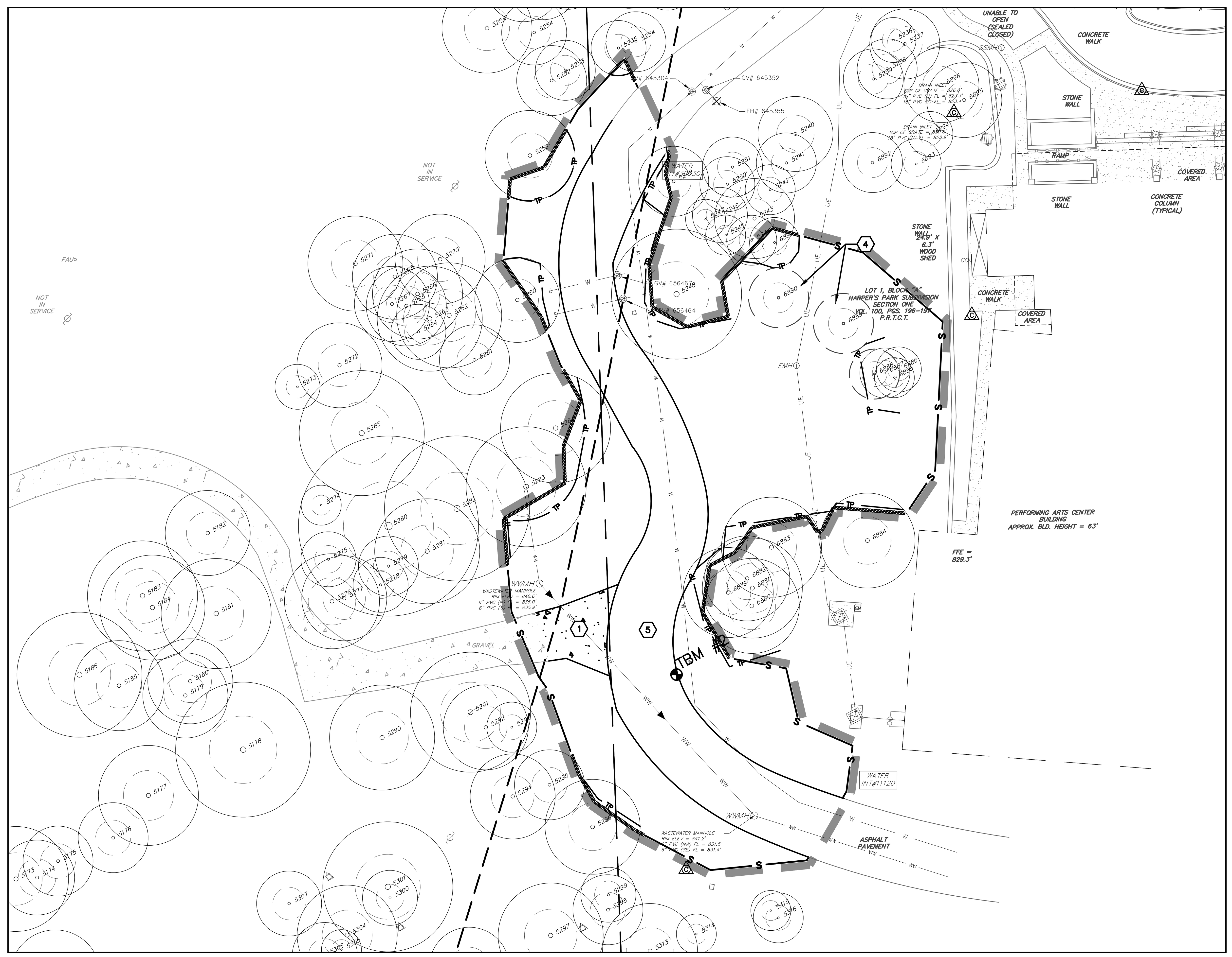
NEW SHEET SPC-97-0320C(R3)

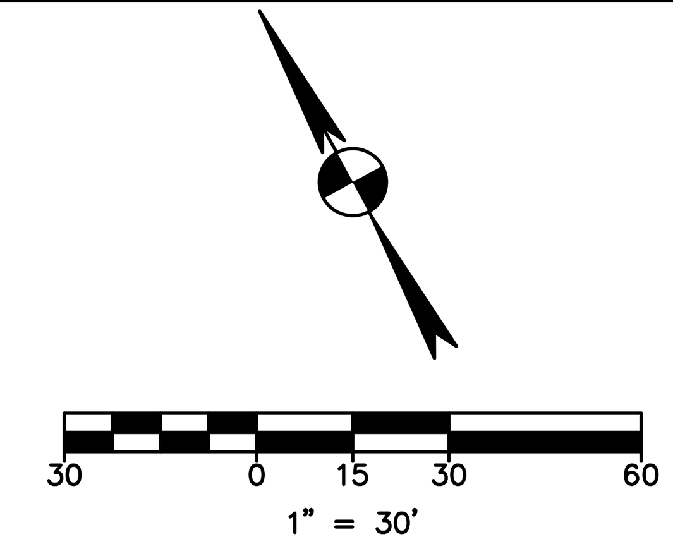






DEMOLITION KEYNOTES

1. SAW-CUT AND REMOVE EXISTING CONCRETE
2. SAW-CUT AND REMOVE EXISTING SIDEWALK
3. REMOVE ALL ELECTRICAL EQUIPMENT, REF. ARCH/MEP
4. EXISTING TREE TO BE REMOVED
5. REMOVE EXISTING ASPHALT



LEGEND

EXISTING	DEMO	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
		WATER MANHOLE
		WATER LINE MARKER
		UNDERGROUND CABLE MARKER
		UNDERGROUND GAS LINE MARKER
		UNDERGROUND TELEPHONE MARKER
		GAS RISER
		TELEPHONE RISER
		SPRINKLER CONTROL BOX
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		CABLE TV RISER
		ELECTRIC BOX
		ELECTRIC METER
		GAS METER
		GAS VALVE
		TRAFFIC CONTROL BOX
		TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		ELECTRIC MANHOLE (SIZE VARIES)
		WASTEWATER MANHOLE (SIZE VARIES)
		STORMSEWER MANHOLE (SIZE VARIES)
		TELEPHONE MANHOLE (SIZE VARIES)
		WASTEWATER CLEANOUT
		WIRE FENCE
		WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		STORMSEWER LINE
		WATER LINE
		WASTEWATER LINE
		GAS LINE
		UNDERGROUND ELECTRIC LINE
		OVERHEAD ELECTRIC LINE
		UNDERGROUND TELEPHONE LINE
		UNDERGROUND CABLE AND INTERNET
		UNDERGROUND TELECOMMUNICATIONS
1111		TREE TO BE REMOVED
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE
		EXISTING SITE TO BE DEMOLISHED

DEMOLITION NOTES:

1. OFFSITE DISPOSAL: THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF AUSTIN ENVIRONMENTAL INSPECTION AT 512-974-2278 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO THE REMOVAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.
2. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF ANY AND ALL EXISTING APPLICABLE BUILDING/STRUCTURES ON THE SITE AND UTILITY RELOCATION WORK.
3. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER NOT TO DAMAGE THE SITE PRIOR TO ACCEPTANCE OF THE PROJECT.
4. ALL REQUIRED RELOCATIONS OR ALTERATIONS OF TELEPHONE POLES, UNDERGROUND CONDUIT, POWER POLES, AND ANY OTHER FACILITIES SHALL BE DONE BY THE CONTRACTOR UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS AND UTILITY COMPANIES SO AS NOT TO DELAY THE PROJECT.
5. THE CONTRACTOR SHALL REMOVE OR RELOCATE, WHEN APPLICABLE, ALL EXISTING BUILDINGS, FOUNDATIONS, BASEMENTS, AND CONNECTING IMPROVEMENTS, DRAIN PIPES, SANITARY SEWER PIPE, POWER POLES AND GUY WIRES, WATER METERS AND WATER LINES, WELLS, SIDEWALKS, SIGN POLES, UNDERGROUND GAS, SEPTIC TANKS, AND ASPHALT, SHOWN AND NOT SHOWN, WITHIN CONSTRUCTION LIMITS AND WHERE NEEDED, TO ALLOW FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
6. A DEMOLITION PERMIT IS REQUIRED TO BE OBTAINED FROM THE CITY OF AUSTIN PRIOR TO ANY DEMOLITION.
7. ANY OFF-SITE DUMPING OF DEBRIS WILL REQUIRE PERMITS OR EVIDENCE OF A LEGAL DUMP SITE TO BE PRESENTED TO THE CITY OF AUSTIN.
8. PROTECT ALL UTILITIES THAT ARE TO REMAIN.
9. ALL EROSION AND SEDIMENTATION CONTROLS MUST BE IN PLACE PRIOR TO ANY WORK.
10. NO DEMOLITION WILL OCCUR PRIOR TO THE PRE-CONSTRUCTION MEETING.
11. A PRECONSTRUCTION MEETING WITH THE ENVIRONMENTAL INSPECTOR IS REQUIRED PRIOR TO ANY SITE DISTURBANCE.
12. SPOILS ARE TO BE REMOVED FROM THE SITE DAILY.
13. ALL EXISTING WATER SERVICE(S) TO BE ABANDONED AT THE MAIN, AND METERS SHALL BE RETURNED TO AUSTIN WATER UTILITY.
14. CONTRACTOR TO COORDINATE WITH URBAN DESIGN BEFORE REMOVAL OF TREES.
15. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY.
16. TREE PROTECTION FENCING IS REQUIRED FOR ALL TREES WITHIN THE LIMITS OF DESTRUCTION ON SITE BEFORE DEMOLITION OCCURS. WHERE FENCING CANNOT BE PLACED TO PROTECT THE EXTENT OF CRZ WITH NATURAL GROUND COVER, PROVIDE AN 8" LAYER OF ORGANIC HARDWOOD MULCH.
17. STRAPPING 2X4 OR THICKER LUMBER (TO MATCH HEIGHT OF BUILDING) SECURELY AROUND TREE TRUNK, BUTTRESS ROOTS, AND ROOT FLARE IS REQUIRED IF FENCING CANNOT GO AROUND THE ENTIRE CRZ.
18. IF PRUNING IS NECESSARY DURING DEMOLITION, IT SHOULD TAKE PLCE PRIOR TO THE START OF THE DEMOLITION PROCESS. IT MUST BE PERFORMED BY A QUALIFIED ARBORIST AND NO MORE THAN 25% IS PERMITTED.
19. METER RETURN NOTICE: COORDINATE WITH CITY OF AUSTIN INSPECTOR FOR METER RETURN(S) TO AUSTIN WATER.

DATE	NO.	REVISION

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Tel. (512) 298-3284 Fax (512) 298-2592
TBPE # F-14629

STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED PROFESSIONAL ENGINEER
12/01/2023

PARKING DEMOLITION PLAN

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET
100
OF 113

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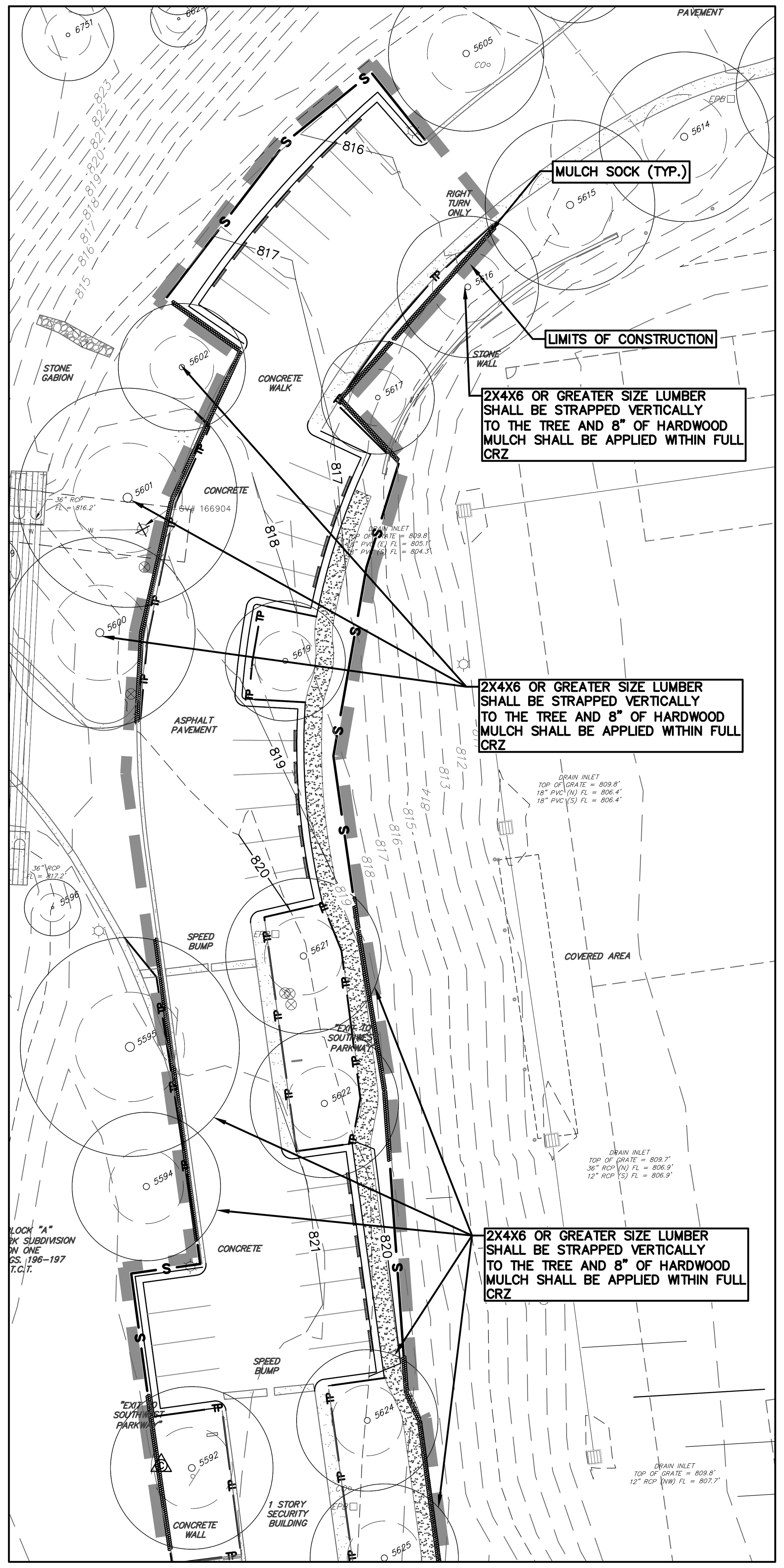
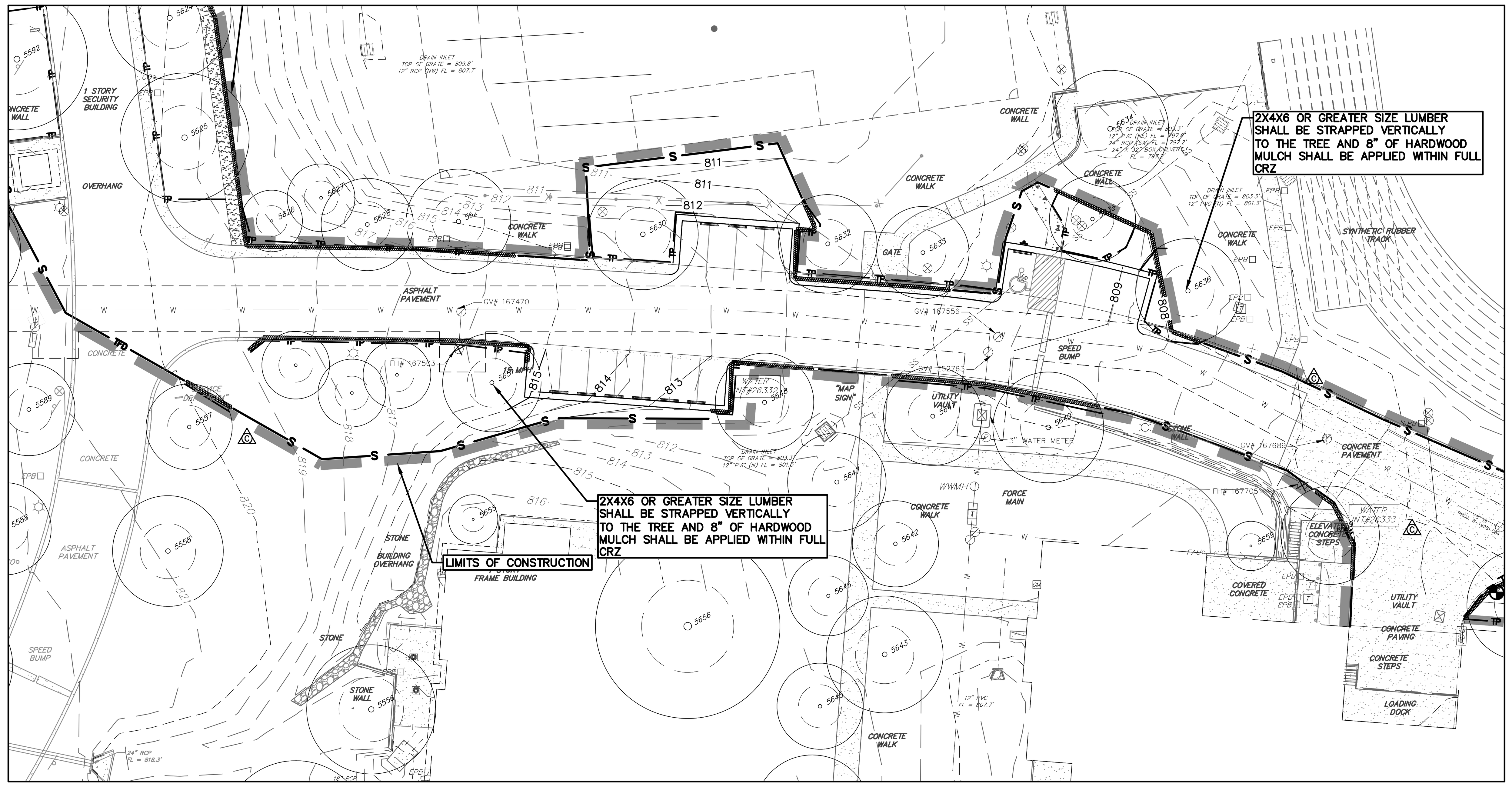
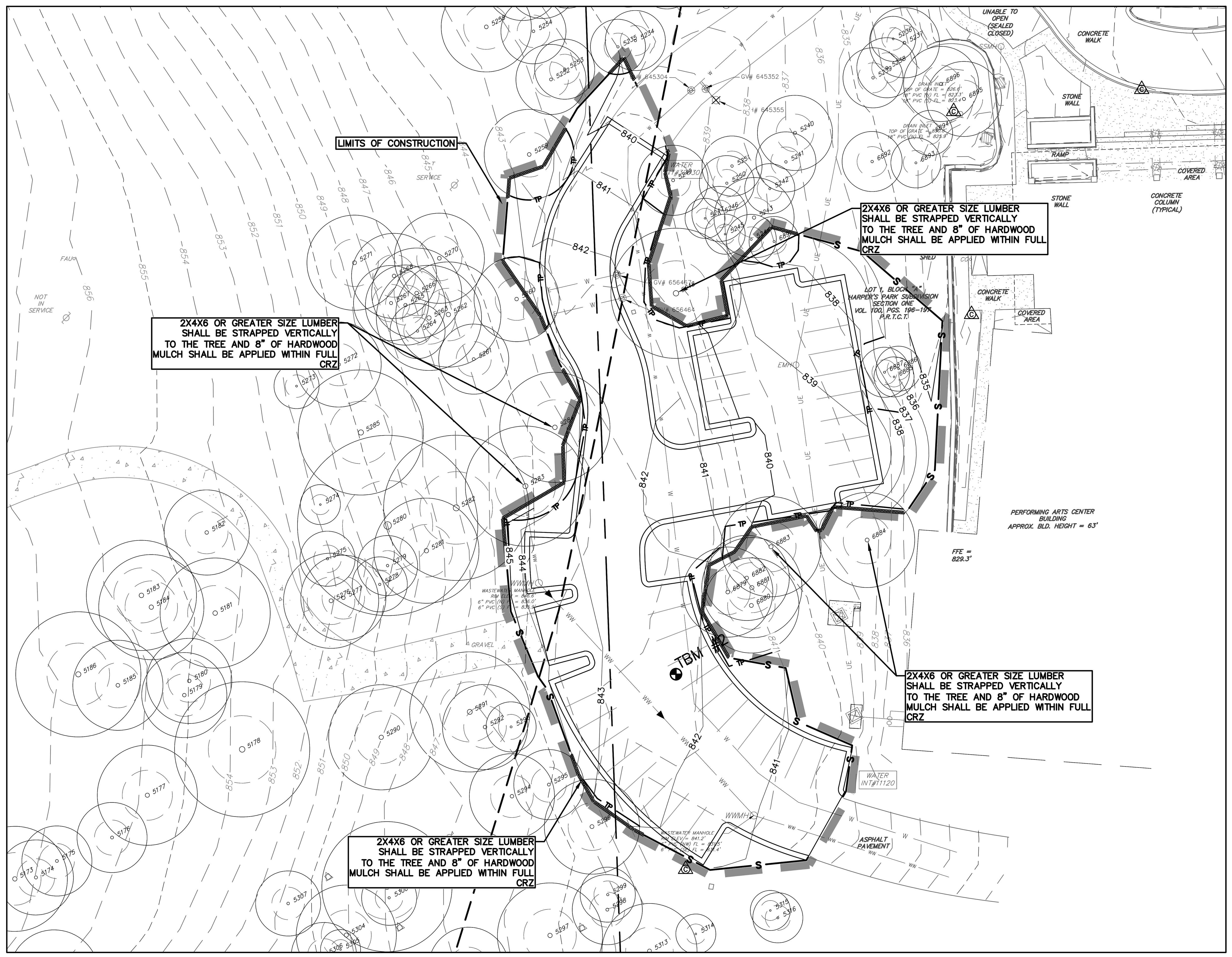
R3 NEW SHEET SPC-97-0320C(R3)







30 0 15 30 60

1" = 30'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WTRMH		WATER MANHOLE
		WATER LINE MARKER
CMKR		UNDERGROUND CABLE MARKER
GMKR		UNDERGROUND GAS LINE MARKER
UGTM		UNDERGROUND TELEPHONE MARKER
GRSR		GAS RISER
TRSR		TELEPHONE RISER
SPC		SPRINKLER CONTROL BOX
	SW	SWITCH GEAR & PAD
	T	TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
TV	TV	CABLE TV RISER
E	E	ELECTRIC BOX
EM	EM	ELECTRIC METER
GM	GM	GAS METER
G	G	GAS VALVE
TCB	TCB	TRAFFIC CONTROL BOX
TSP	TSP	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH		ELECTRIC MANHOLE (SIZE VARIES)
WWMH		WASTEWATER MANHOLE (SIZE VARIES)
SSMH		STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
678	678	CONTOUR
SS		STORMSEWER LINE
W		WATER LINE
		FIRE LINE
WW		WASTEWATER LINE
G		GAS LINE
UE	UE	UNDERGROUND ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC LINE
OE	UT	UNDERGROUND TELEPHONE LINE
UC	UC	UNDERGROUND CABLE AND INTERNET
U-COMM	U-COMM	UNDERGROUND TELECOMMUNICATIONS
	TP	TREE PROTECTION
	S	SILT FENCE
	S	SILT FENCE WITH J-HOOKS
	S	LIMITS OF CONSTRUCTION & SILT FENCE
		SWALE
	TFD	TRIANGULAR FILTER DIKE
		ROCK BERM
		INLET PROTECTION
		SEDIMENT REMOVAL MAT/ TEMPORARY SPOILS/STAGING AREA
		MULCH SOCK
		MULCH LOG
		DIRECTION OF FLOW
1111		TREE TO BE REMOVED
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE

EROSION & SEDIMENTATION NOTES:

1. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
2. ALL DISTURBED AREAS OF THIS PROJECT SHALL BE REVEGETATED AND ALL PERMANENT EROSION AND SEDIMENTATION CONTROLS SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF OCCUPANCY PERMITS FOR THE SITE. TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE ADJUSTED AS NEEDED TO INSURE THAT DISTURBED AREAS ARE ADEQUATELY PROTECTED. ADDITIONALLY, ANY AREA WITHIN THE LIMIT OF CONSTRUCTION OF THE PROJECT THAT IS NOT ADEQUATELY REVEGETATED SHALL BE BROUGHT INTO COMPLIANCE PRIOR TO THE RELEASE OF THE CONTRACTOR FROM THE PROJECT.
3. IN AREAS WHERE HYDROMULCH IS UTILIZED, SEVERAL APPLICATIONS MAY BE REQUIRED TO ESTABLISH ADEQUATE STABILIZATION IF FREQUENT RAINFALL OCCURS DURING SEEDING ATTEMPTS.
4. IF DISTURBED AREA IS NOT BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING. [ECM 1.4.4.B.3, SECTION 5, I.]
5. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
6. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY.
7. EXTEND ALL TREE PROTECTION FENCING TO THE FULL EXTENT OF THE CRITICAL ROOT ZONE WHERE POSSIBLE. IF FENCING CANNOT BE INSTALLED AROUND THE FULL CRZ, PLACE THE FENCING AT THE 1/2CRZ AND ADD 8" OF HARDWOOD MULCH FROM THE 1/2 CRZ TO THE FULL CRZ. IF FENCING CANNOT BE INSTALLED AROUND THE 1/2 CRZ, 2X4X6 OR GREATER SIZE LUMBER SHALL BE STRAPPED VERTICALLY TO THE TREE AND 8" OF OF HARDWORD MULCH SHALL BE APPLIED WITHIN THE FULL CRZ. TREE PROTECTION FENCING OR USE OF LUMBER STRAPPED TO TREES APPLIES TO ROW TREES. LUMBER SHALL BE STRAPPED TO THE TRUNK OF ANY TREE WHERE WORK IS BEING DONE WITHIN THE CRZ WHILE TREE PROTECTION FENCING IS DOWN.
8. TREES PROPOSED TO BE PRESERVED MUST MEET THE FOLLOWING CRITERIA:
   - A MINIMUM OF 50% OF CRITICAL ROOT ZONE MUST BE PRESERVED AT NATURAL GRADE, WITH NATURAL GROUND COVER;
   - CUT OR FILL IS LIMITED TO 4 INCHES FROM THE 1/2 CRZ TO THE 1/4 CRZ;
   - NO CUT OR FILL IS PERMITTED WITHIN THE 1/4 CRZ
9. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED PER ECM 3.6.1

REVISION | NO. | DATE

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TBPE # F-14629

STATE OF TEXAS
JONAH D. MANKOVSKY
110095
LICENSED PROFESSIONAL ENGINEER
12/01/2023

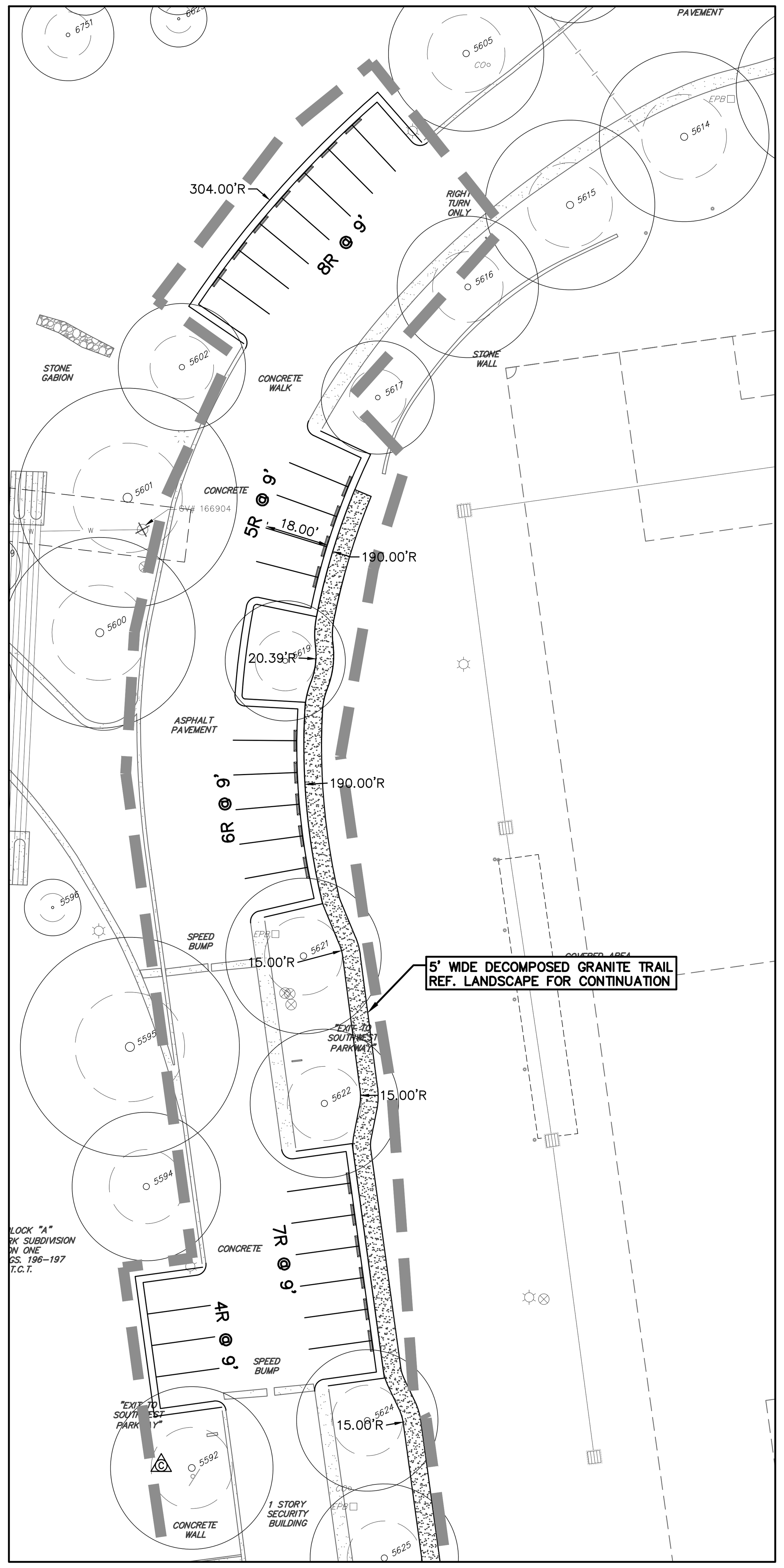
PARKING EROSION & SEDIMENTATION CONTROL PLAN

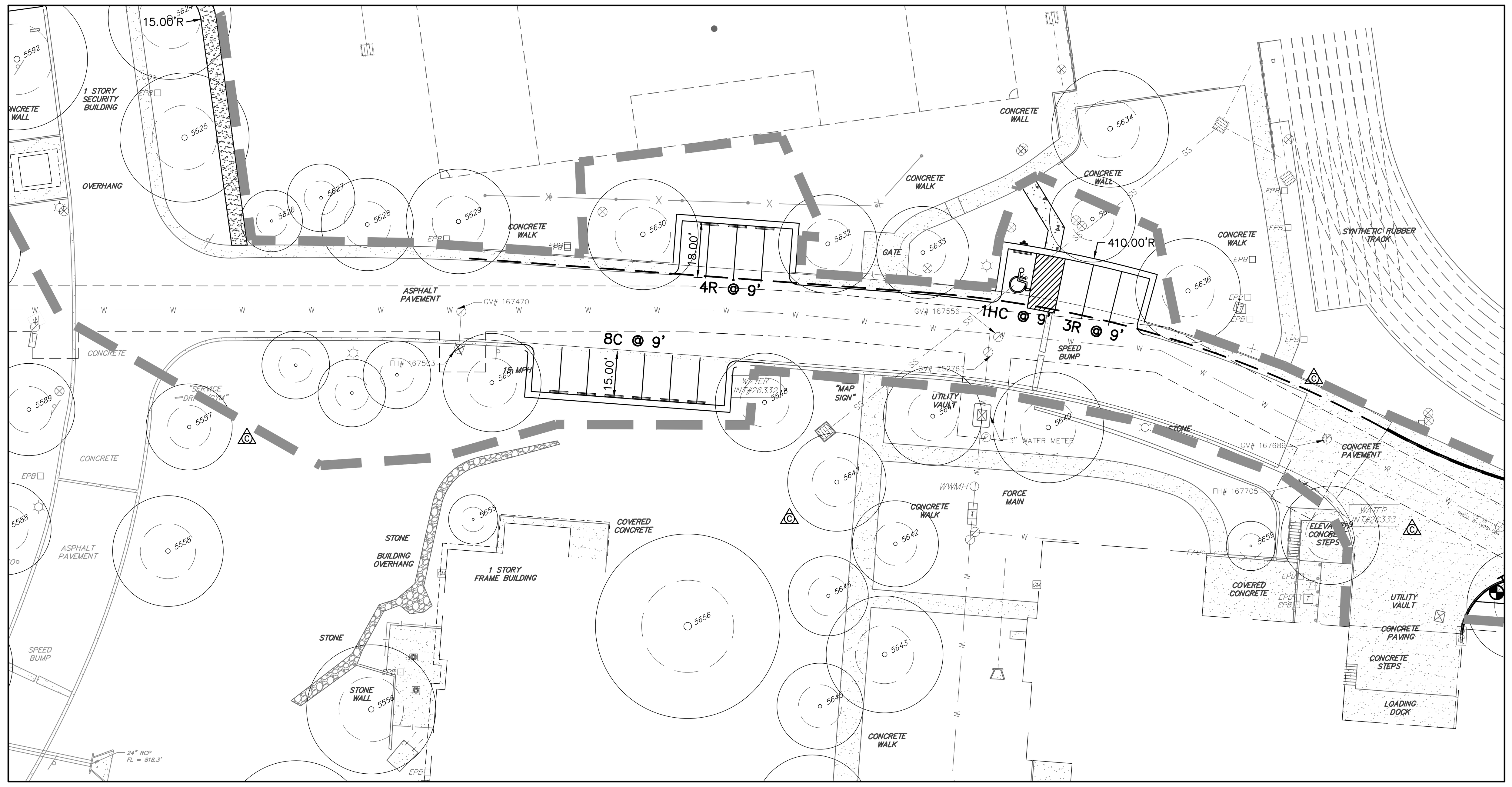
ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

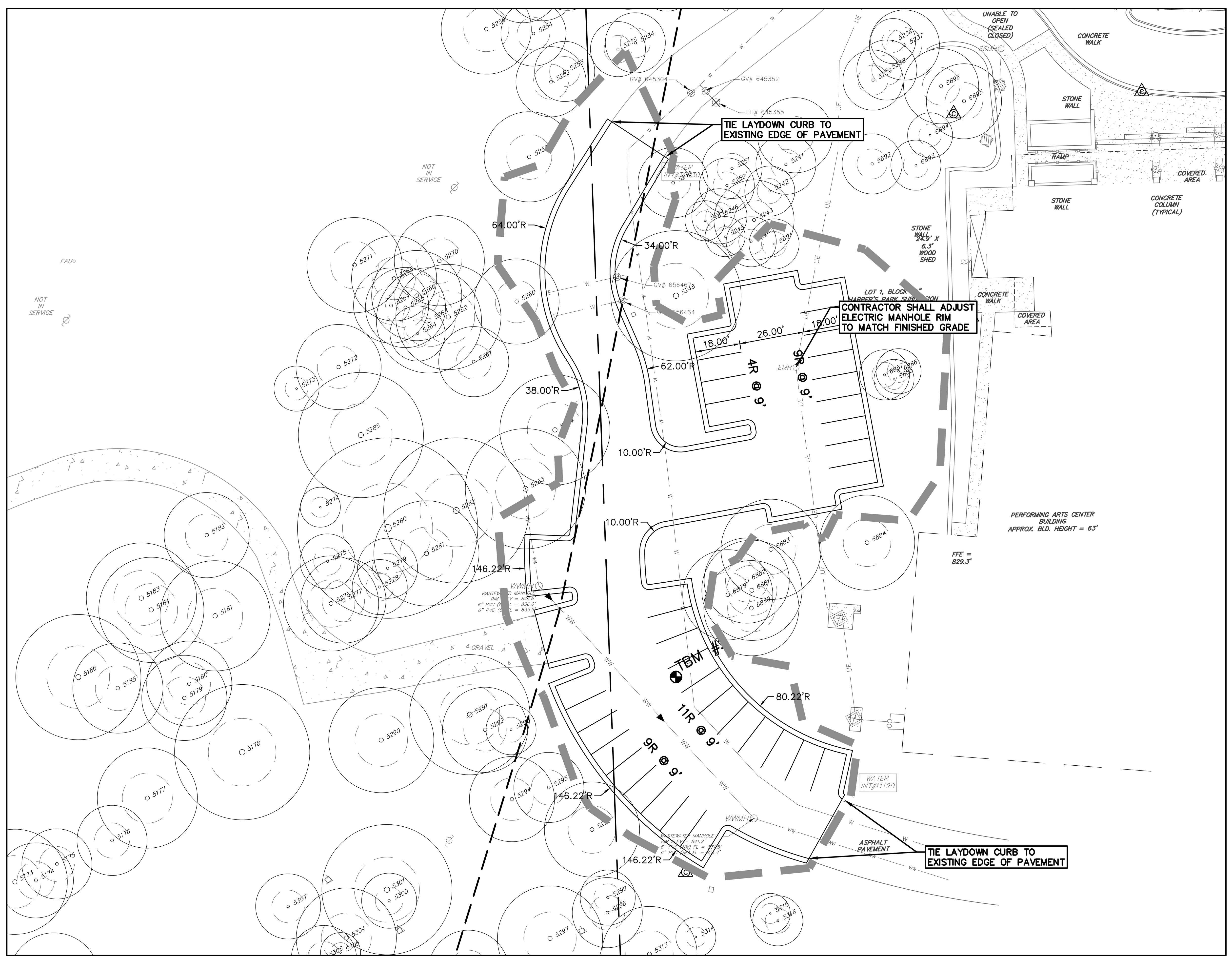
ST. ANDREWS EPISCOPAL SCHOOL

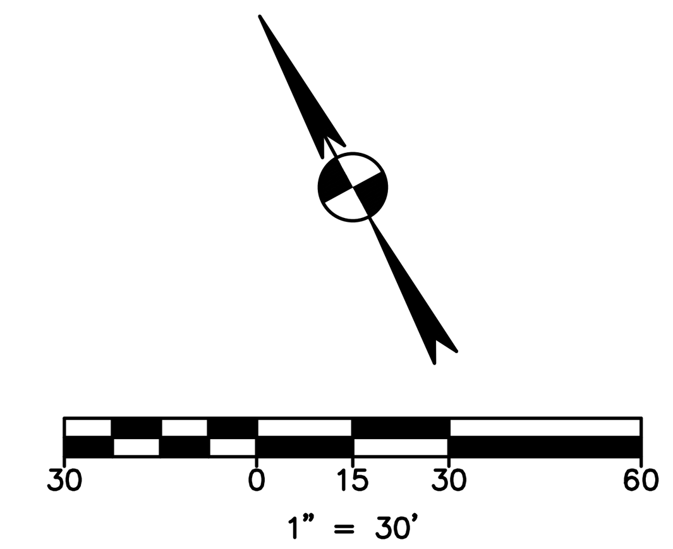
DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

R3 NEW SHEET SPC-97-0320C(R3)









LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE / R.O.W. LINE
(XXX)		RECORD INFORMATION
		LIGHT POLE
		GROUND LIGHT
		POWER POLE
		DOWN GUY
WWMH		WATER MANHOLE
		WATER LINE MARKER
		UNDERGROUND CABLE MARKER
		UNDERGROUND GAS LINE MARKER
		UNDERGROUND TELEPHONE MARKER
		GAS RISER
		TELEPHONE RISER
		SPRINKLER CONTROL BOX
		SWITCH GEAR & PAD
		TRANSFORMER (SIZE VARIES)
		FIRE HYDRANT
		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
		CABLE TV RISER
		ELECTRIC BOX
		ELECTRIC METER
		GAS METER
		GAS VALVE
TCB	TCB	TRAFFIC CONTROL BOX
TSP	TSP	TRAFFIC SIGNAL POST
		GRATE INLET
		CURB INLET (SIZE VARIES)
		GREASE TRAP (SIZE VARIES)
EMH		ELECTRIC MANHOLE (SIZE VARIES)
WWMH		WASTEWATER MANHOLE (SIZE VARIES)
SSMH		STORMSEWER MANHOLE (SIZE VARIES)
TMH	TMH	TELEPHONE MANHOLE (SIZE VARIES)
CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
	D	DUMPSTER
		CURB & GUTTER
		EDGE OF PAVEMENT
		FIRE LANE DESIGNATION
		HANDICAP ACCESS ROUTE
		CONCRETE SIDEWALKS
		WALL
		SIGN
		WHEELSTOP
		BOLLARD
	FFE	FINISH FLOOR ELEVATION
_R @ 9.0'	_R @ 9.0'	PARKING COUNT (REGULAR SPACES)
_HC @ 9.0'	_HC @ 9.0'	PARKING COUNT (HANDICAP SPACES)
_P @ 9.0'	_P @ 9.0'	PARKING COUNT (PARALLEL SPACES)
		HANDICAP SPACE
		BIKE PARKING
		BARRICADE
		LIMITS OF CONSTRUCTION

ACCESSIBILITY NOTES:

1. SLOPES ON ACCESSIBLE ROUTES SHALL COMPLY WITH TAS SECTION 402 INCLUDING A MAXIMUM CROSS SLOPE OF 1:48 AND MAXIMUM RUNNING SLOPE OF 1:20.
2. RAMPS ON ACCESSIBLE ROUTES SHALL COMPLY WITH TAS SECTION 405.
3. WALKING SURFACES THAT ARE A PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH TAS SECTION 403.
4. PAVERS IN ACCESSIBLE ROUTE SHALL BE NON-BEVELED TO MINIMIZE WHEELCHAIR VIBRATIONS.

GENERAL NOTES:

1. ALL DIMENSIONS TO THE CURBS ARE TO THE BACK OF CURB UNLESS OTHERWISE NOTED.
2. FOR BICYCLE RACKS, BENCHES AND TREE WELL DETAILS NOTED ON THIS SITE SITE PLAN REFER TO THE LANDSCAPE SHEETS FOR THOSE SPECIFIC DETAILS.
3. ALL SITE PLAN NOTES ARE ON THE SITE PLAN DETAILS SHEET, SHEET 89
4. REFER TO LANDSCAPE PLANS FOR STREETSCAPE/HARDSCAPE MATERIALS.
5. ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE RELEASED SITE PLAN. ANY ADDITIONAL IMPROVEMENTS WILL REQUIRE SITE PLAN REVISION OR CORRECTION AND APPROVAL OF THE DEVELOPMENT SERVICES DEPARTMENT.
6. ALL EXISTING STRUCTURES SHOWN TO BE REMOVED WILL REQUIRE A DEMOLITION PERMIT FROM THE CITY OF AUSTIN DEVELOPMENT SERVICES DEPARTMENT.
7. SCREENING FOR SOLID WASTE COLLECTION AND LOADING AREAS SHALL BE THE SAME AS, OR OF EQUAL QUALITY TO, PRINCIPAL BUILDING MATERIALS.
8. EXISTING SIDEWALKS TO REMAIN HAVE BEEN VERIFIED TO COMPLY WITH THE APPLICABLE VERSION OF THE TEXAS ACCESSIBILITY STANDARD, FEDERAL ADA REQUIREMENTS AND CITY OF AUSTIN STANDARD.
9. FIRE DEPARTMENT ACCESS ROADS MUST HAVE A 14' MINIMUM VERTICAL CLEARANCE.

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TBPE # F-14629

NO.	DATE	REVISION

JONAH D. MANKOVSKY
110095
12/01/2023

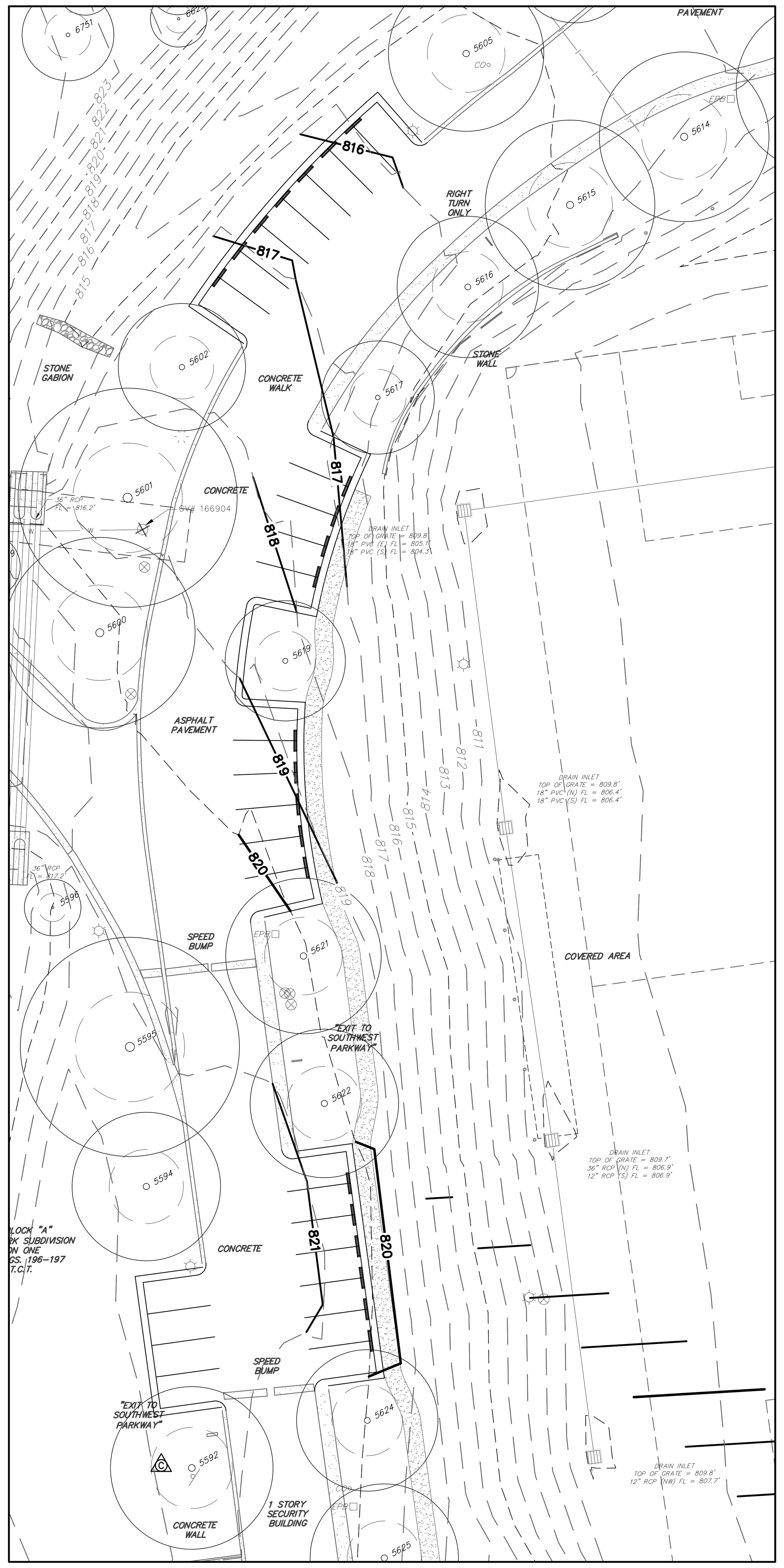
PARKING SITE PLAN

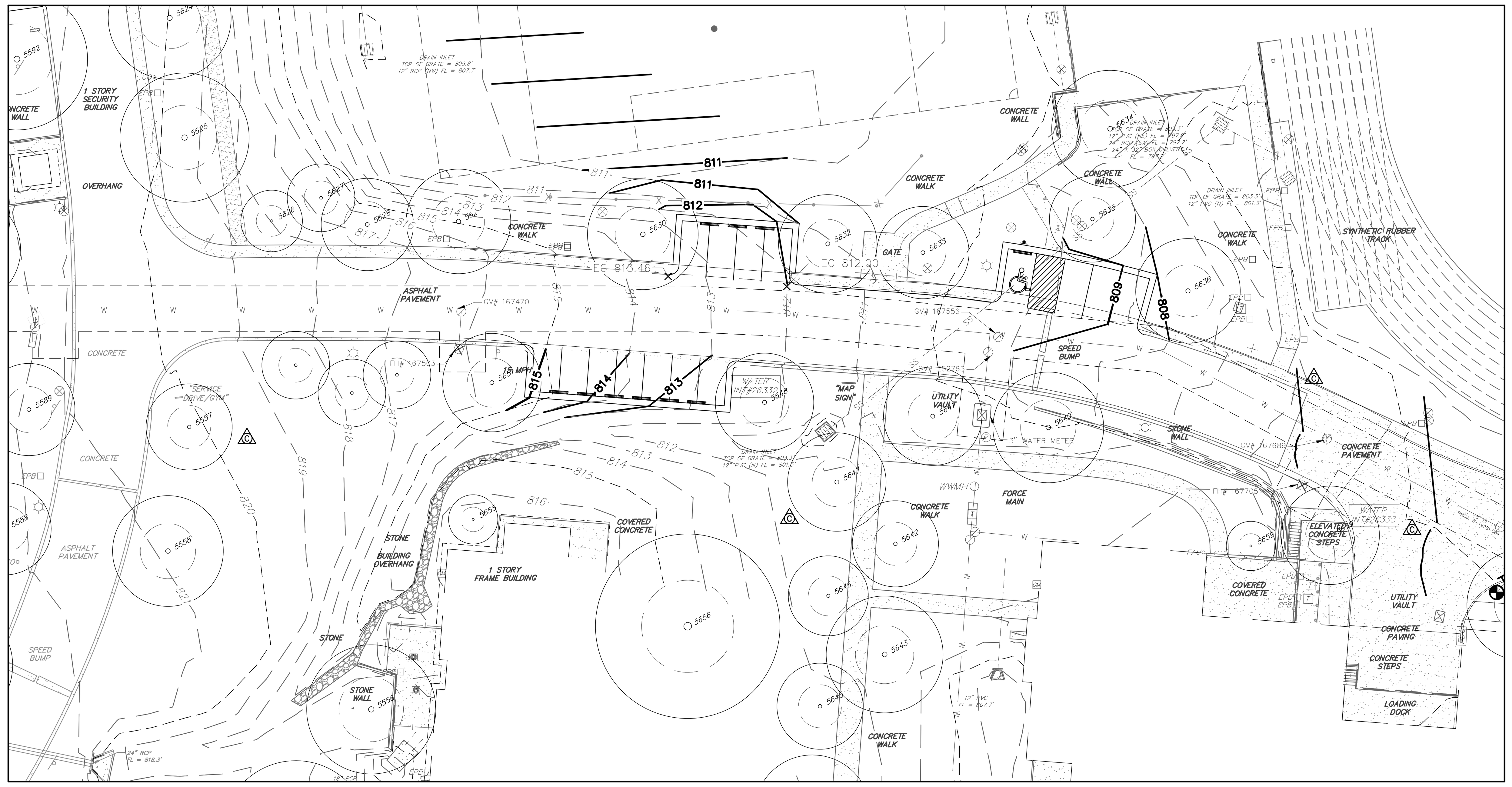
ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

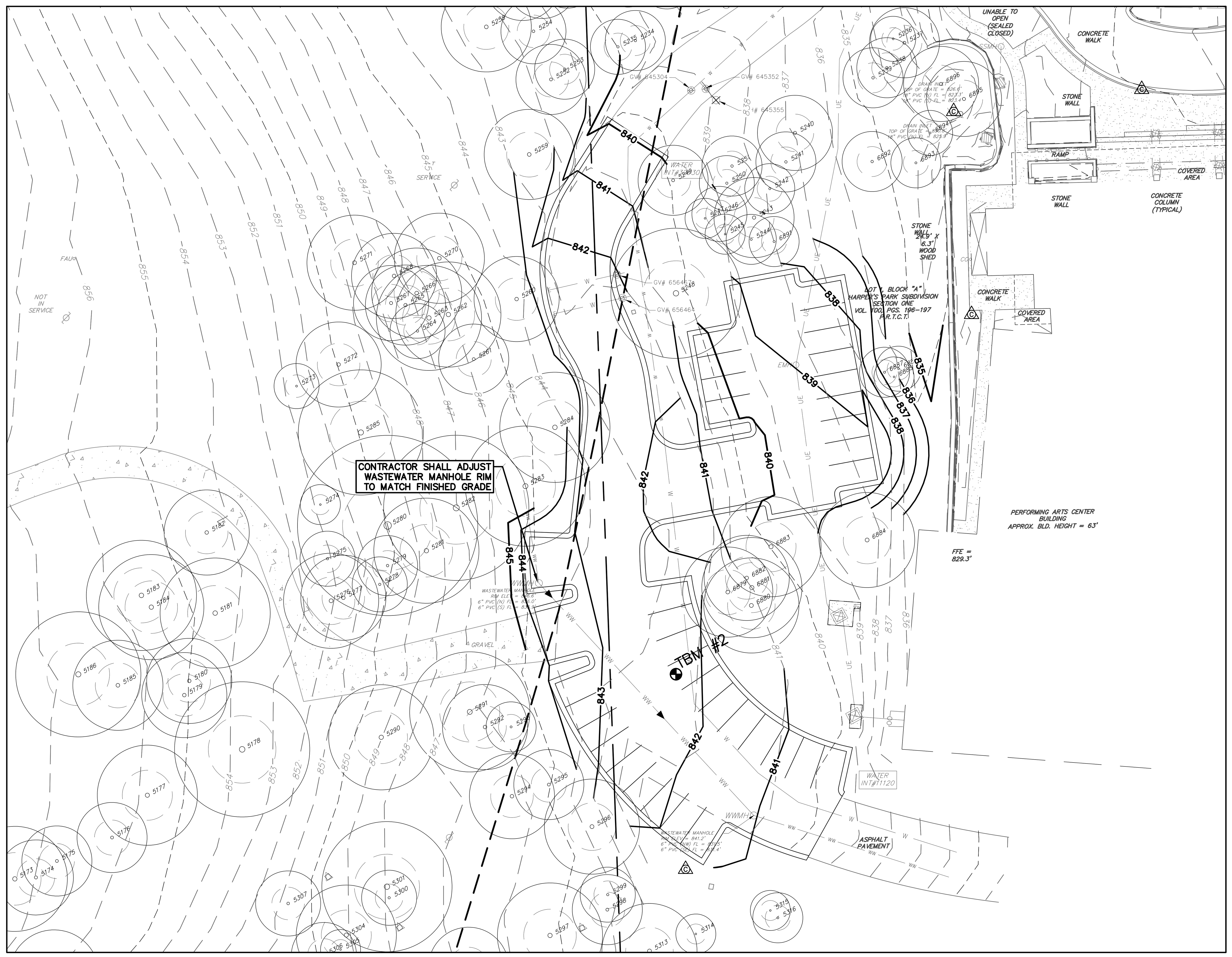
ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET
102
OF 113







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1" = 30'

LEGEND

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(XXX)		RECORD INFORMATION
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SPC		SPRINKLER CONTROL BOX
	SW	SWITCH GEAR & PAD
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		WATER VALVE
		WATER METER
		WATER METER VAULT (SIZE VARIES)
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G	G	GAS VALVE
TCB	TCB	TRAFFIC CONTROL BOX
TSP	TSP	TRAFFIC SIGNAL POST
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SSMH		STORMSEWER MANHOLE (SIZE VARIES)
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CO	CO	WASTEWATER CLEANOUT
X	X	WIRE FENCE
//	//	WOOD FENCE
		CHAIN LINK FENCE
	D	DUMPSTER
		CURB & GUTTER
		EDGE OF PAVEMENT
		CONCRETE SIDEWALKS
		WALL
		LIMITS OF CONSTRUCTION
678	678	CONTOUR
SS		STORMSEWER LINE
W		WATER LINE
		FIRE LINE
WW		WASTEWATER LINE
G		GAS LINE
UE	UE	UNDERGROUND ELECTRIC LINE
OE	OE	OVERHEAD ELECTRIC LINE
OE	UT	UNDERGROUND TELEPHONE LINE
UC	UC	UNDERGROUND CABLE AND INTERNET
U-COMM	U-COMM	UNDERGROUND TELECOMMUNICATIONS
		HANDICAP ACCESS ROUTE
		SIGN
		WHEELSTOP
		BOLLARD
	FFE	FINISH FLOOR ELEVATION
		HANDICAP SPACE
		BIKE PARKING
		SWALE
		DIRECTION OF FLOW
1111		TREE TO BE SAVED
1111		HERITAGE / MATURE TREE
	HP	HIGH POINT
	TW	TOP OF WALL
	TC	TOP OF CURB
	G	GUTTER
701.33	701.33	SPOT ELEVATION

GRADING NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THERE ARE DISCREPANCIES BETWEEN THE DRAWINGS AND WHAT IS FOUND IN THE FIELD.
2. EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
3. ALL AREAS DISTRIBUTED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.
4. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE CITY OF AUSTIN ENVIRONMENTAL INSPECTION AT (512) 974-2278 AT LEAST 48 HOURS PRIOR TO THE REMOVAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL, LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.
5. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER TO PREVENT DAMAGE TO THE OWNER PRIOR TO ACCEPTANCE OF THE PROJECT.
6. THE GEOTECHNICAL ENGINEER SHALL APPROVE ALL FILL MATERIAL PROVIDED PRIOR TO PLACING AND COMPLIANCE.
7. ADEQUATE BARRIERS BETWEEN ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS SUCH AS 6-INCH CONCRETE CURB AND GUTTER ARE REQUIRED. IF A STANDARD 6-INCH CURB AND GUTTER ARE NOT PROVIDED FOR ALL VEHICULAR USE AREAS AND ADJACENT LANDSCAPE AREAS, COMPLY WITH ECM SECTION 2.4.7, *PROTECTION OF LANDSCAPE AREAS.*

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REVISION | NO. | DATE

JONAH D. MANKOVSKY 110095 12/01/2023

PARKING GRADING PLAN

ST ANDREWS ATHLETICS & FITNESS COMPLEX
5901 SOUTHWEST PARKWAY

ST. ANDREWS EPISCOPAL SCHOOL

DRAWN BY:
DESIGNED BY:
QA / QC:
PROJECT NO.: 113595-00006

SHEET 103 OF 113

NEW SHEET SPC-97-0320C(R3)

ST. ANDREW'S ATHLETCIS AND STUDENT UNION
LANDSCAPE CALCULATIONS
3/13/2024

MITIGATION REPLACEMENT TREES

	REQUIRED	PROVIDED
REQUIRED MITIGATION CALIPER INCHES	**222**	
NUMBER & SIZE OF REPLACEMENT TREES		
CHILOPSIS LINEARIS 10 EA @ 4"		40
QUERCUS FUSIFORMIS 3 EA @ 5"		15
QUERCUS LACEYI 8 EA @ 4"		32
PLATANUS MEXICANA 23 EA @ 4"		92
ULMUS CRASSIFOLIA 11 EA @ 4"		44
ULMUS CRASSIFOLIA 2 EA @ 2.5"		5
(2 EA @ 1.5" FOR PARKING TREES)		
TOTAL MITGATION TREE PROVIDED		**228**

STREET YARD "A"

	REQUIRED	**PROVIDED**
TOTAL SITE AREA	N/A	73.43 AC
TOTAL STREET YARD AREA		13.6 AC
STREET YARD / LANDSCAPE (20%)	118,483 SF	265,599 SF (45%)
TREES (STREET YARD A)		
EXISTING TREE CREDIT		
2"-6" DIA: 8 EA. X 1 = 8		8
6" DIA AND GREATER: 148 EA. X 2 = 296		296
PROPOSED TREES (STREET YARD A)		27
TOTAL TREES (STREET YARD A)	**52**	**331**

PARKING LOT LANDSCAPE

	REQUIRED (SF)	**PROVIDED (SF)**
STREET YARD "A"		
10 STALLS	90	1667
NON-STREET YARD AREA		
0 STALLS		
TOTAL PARKING LOT LANDSCAPE	**90**	**1667**

BUFFER POINTS

	REQUIRED	PROVIDED
	854	
EXISTING TREES >8" (15) X 9 PTS		135
LARGE TREES (4"+) = 27 TREES X 9 PTS		243
LARGE SHRUBS (107) 5 GAL @ 3 PT		321
MEDIUM SHRUBS (28) 5 GAL @ 3 PT		84
SMALL SHRUBS (342) 1 GAL @ 0.5 PT EA		171
TOTAL POINTS		**954**

ST ANDREWS ATHLETICS &FITNESS COMPLEX (Hill Country Roadway)

TREES
Refer to Austin Environmental Criteria Manual 3.5.4; Hertiage Tree Definition Austin LDC 25-8-602

FIELD NUMBER	SURVEY NUMBER	SPECIES *For notes refer to sheet C05, Demolition Plan*	IN APPENDIX F?	DBH	ACTION	COMMENTS	TREES LESS THAN 19" (50%) PRESERVED inches	TREES LESS THAN 19" (50%) MITIGATED inches	TREES GREATER THAN OR EQUAL TO 19" (100%) PRESERVED inches	TREES GREATER THAN OR EQUAL TO 19" (100%) MITIGATED inches	PRESERVED TREES LESS THAN 8" (to count towards mitigation reqt)* PRESERVED inches
	5097	MESQUITE	Y	12	PRESERVE	CLUSTER 2X 3-4IN	12				
	5098	CEDAR	Y	12	PRESERVE	CLUSTER 2X 2-6IN	12				
	5099	CEDAR	Y	12	PRESERVE	CLUSTER 2X 2-6IN	12				
	5100	CEDAR	Y	6	PRESERVE		6				6
	5101	CEDAR	Y	6	PRESERVE	CLUSTER 2X 2-3 IN	6				6
	5102	CEDAR	Y	9	PRESERVE		9				
	5103	CEDAR	Y	10	PRESERVE	MULTI	10				
	5104	CEDAR	Y	6	PRESERVE	CLUSTER 2X	6				6
	5105	CEDAR	Y	7	PRESERVE		7				7
	5106	CEDAR	Y	6	PRESERVE	CLUSTER 2X 2-4 IN	6				6
	5107	CEDAR	Y	7	PRESERVE	MULTI	7				7
	5108	CEDAR	Y	10	PRESERVE	CLUSTER 2X 4-5 IN	10				
	5109	CEDAR	Y	6	PRESERVE	CLUSTER 2X 2-3 IN	6				6
	5114	CEDAR	Y	6	PRESERVE		6				6
	5116	ASH JUNIPER	Y	9	PRESERVE		9				
	5131	CEDAR ELM	Y	6	PRESERVE		6				6
	5133	CEDAR	Y	15	PRESERVE		15				
	5134	CEDAR ELM	Y	19	PRESERVE				19		
	5135	CEDAR	Y	6	PRESERVE		6				6
	5136	CEDAR	Y	12	PRESERVE		12				
	5142	CEDAR	Y	7	PRESERVE		7				7
	5244	LIVE OAK	Y	10	PRESERVE		10				
	5592	LIVE OAK	Y	23	PRESERVE				23		
	5619	LIVE OAK	Y	17	PRESERVE		17				
	5621	LIVE OAK	Y	22	PRESERVE				22		
	5622	LIVE OAK	Y	21	PRESERVE				21		
	5624	LIVE OAK	Y	20	PRESERVE				20		
	5625	LIVE OAK	Y	21	PRESERVE				21		
	5630	LIVE OAK	Y	18	PRESERVE		18				
	5635	LIVE OAK	Y	14	PRESERVE		14				
	5637	YAUPON	Y	18	PRESERVE		18				
	5638	LIVE OAK	Y	18	PRESERVE		18				
	5639	LIVE OAK	Y	16	PRESERVE		16				
	5651	LIVE OAK	Y	16	PRESERVE		16				
	6885	LIVE OAK	Y	8	PRESERVE		8				
	6886	LIVE OAK	Y	9	PRESERVE		9				
	6887	LIVE OAK	Y	10	PRESERVE		10				
	6891	LIVE OAK	Y	10	PRESERVE		10				
	5048	CEDAR ELM	Y	18	REMOVE			9			
	5049	CEDAR ELM	Y	20	REMOVE					20	
	5050	ENGLEMEN OAK	Y	8	REMOVE			4			
	5051	ENGLEMEN OAK	Y	9	REMOVE			4.5			
	5052	ENGLEMEN OAK	Y	7	REMOVE			3.5			
	5053	ENGLEMEN OAK	Y	6	REMOVE			3			
	5054	ENGLEMEN OAK	Y	6	REMOVE			3			
	5055	LIVE OAK	Y	13	REMOVE			6.5			
	5110	ASH JUNIPER	Y	8	REMOVE			4			
	5111	ASH JUNIPER	Y	10	REMOVE	*POOR, UPROOTED, WEAK STRUCTURE					
	5113	CEDAR ELM	Y	15	REMOVE	*DEAD					
	5115	ASH JUNIPER	Y	8	REMOVE	*POOR, UPROOTED, FALLEN TREE					
	5117	CEDAR	Y	8	REMOVE	CLUSTER 2-3 IN		4			
	5118	LIVE OAK	Y	13	REMOVE			6.5			
	5119	CEDAR ELM	Y	24	REMOVE	13-8-7-6				24	
	5120	CEDAR ELM	Y	12	REMOVE	*FAIR CONDITION, WEAK, LARGE DEADWOOD					
	5121	CEDAR ELM	Y	13	REMOVE	*APPEARS DEAD					
	5122	CEDAR ELM	Y	17	REMOVE	*POOR CONDITION, WEAK, LARGE DEADWOOD					
	5123	LIVE OAK	Y	22	REMOVE					22	
	5124	CEDAR ELM	Y	7	REMOVE			3.5			
	5125	CEDAR ELM	Y	8	REMOVE			4			
	5126	CEDAR ELM	Y	8	REMOVE			4			
	5127	CEDAR ELM	Y	11	REMOVE			5.5			
	5128	CEDAR ELM	Y	9	REMOVE			4.5			
	5129	CEDAR	Y	6	REMOVE			3			
	5130	CEDAR ELM	Y	7	REMOVE			3.5			
	5132	CEDAR ELM	Y	6	REMOVE			3			
	5137	CEDAR ELM	Y	13	REMOVE	*ALMOST COMPLETELY DEAD					
	5593	LIVE OAK	Y	15	REMOVE			7.5			
	5603	LIVE OAK	Y	15	REMOVE			7.5			
	5604	LIVE OAK	Y	11	REMOVE			5.5			
	5618	LIVE OAK	Y	10	REMOVE			5			
	5620	LIVE OAK	Y	15	REMOVE			7.5			
	5623	LIVE OAK	Y	16	REMOVE			8			
	5631	LIVE OAK	Y	17	REMOVE			8.5			
	5649	LIVE OAK	Y	13	REMOVE			6.5			
	5650	LIVE OAK	Y	13	REMOVE			6.5			
	5652	LIVE OAK	Y	11	REMOVE			5.5			
	5653	LIVE OAK	Y	11	REMOVE			5.5			
	5654	LIVE OAK	Y	11	REMOVE			5.5			
	6888	LIVE OAK	Y	10	REMOVE			5			
	6889	LIVE OAK	Y	12	REMOVE			6			
	6890	LIVE OAK	Y	12	REMOVE			6			
	5056	CRAPE MYRTLE	NO	4	REMOVE	CLUSTER 2X					
	5112	LIGUSTRUM	NO	12	REMOVE	INVASIVE					
	5140	LIGUSTRUM	NO	13	REMOVE	*FAIR/POOR, WEAK STRUCT, CO-DOM STEMS					
						***INDICATES ARBORIST EVALUATION**					
TOTAL APPENDIX F INCHES OF SURVEYED TREES:				**964**							
TOTAL INCHES OF SURVEYED TREES:				**993**							
						SUBTOTAL INCHES	334	175	126	66	69

*19" MAX. CREDIT FOR PRESERVED CEDARS

TOTAL MITIGATION INCHES REQUIRED:	241
Existing Tree Inches Preserved (CREDIT 1" TO 1")	19
TOTAL MITIGATION REPLACEMENT INCHES REQUIRED:	222
TOTAL MITIGATION REPLACEMENT INCHES PLANTED	228

SURVEYED:
TOTAL APPENDIX F INCHES SURVEYED: 964
HERITAGE TREE INCHES SURVEYED: N/A PER 1997 CODE
NON-APPENDIX F TREE INCHES SURVEYED: 29
INVASIVE TREE INCHES SURVEYED: 25

REMOVED:
TOTAL APPENDIX F INCHES REMOVED: 504
HERITAGE TREE INCHES REMOVED: N/A PER 1997 CODE
TOTAL NON-APPENDIX F INCHES REMOVED: 29
INVASIVE INCHES REMOVED: 25

TOTAL DEAD, DISEASED, OR IMMINENT HAZARD (DDI INCHES) REMOVED: 101
DDI APPENDIX F INCHES REMOVED: 88
DDI HERITAGE TREE INCHES REMOVED: N/A PER 1997 CODE
DDI NON-APPENDIX F INCHES REMOVED: 0
DDI INVASIVE INCHES REMOVED: 13

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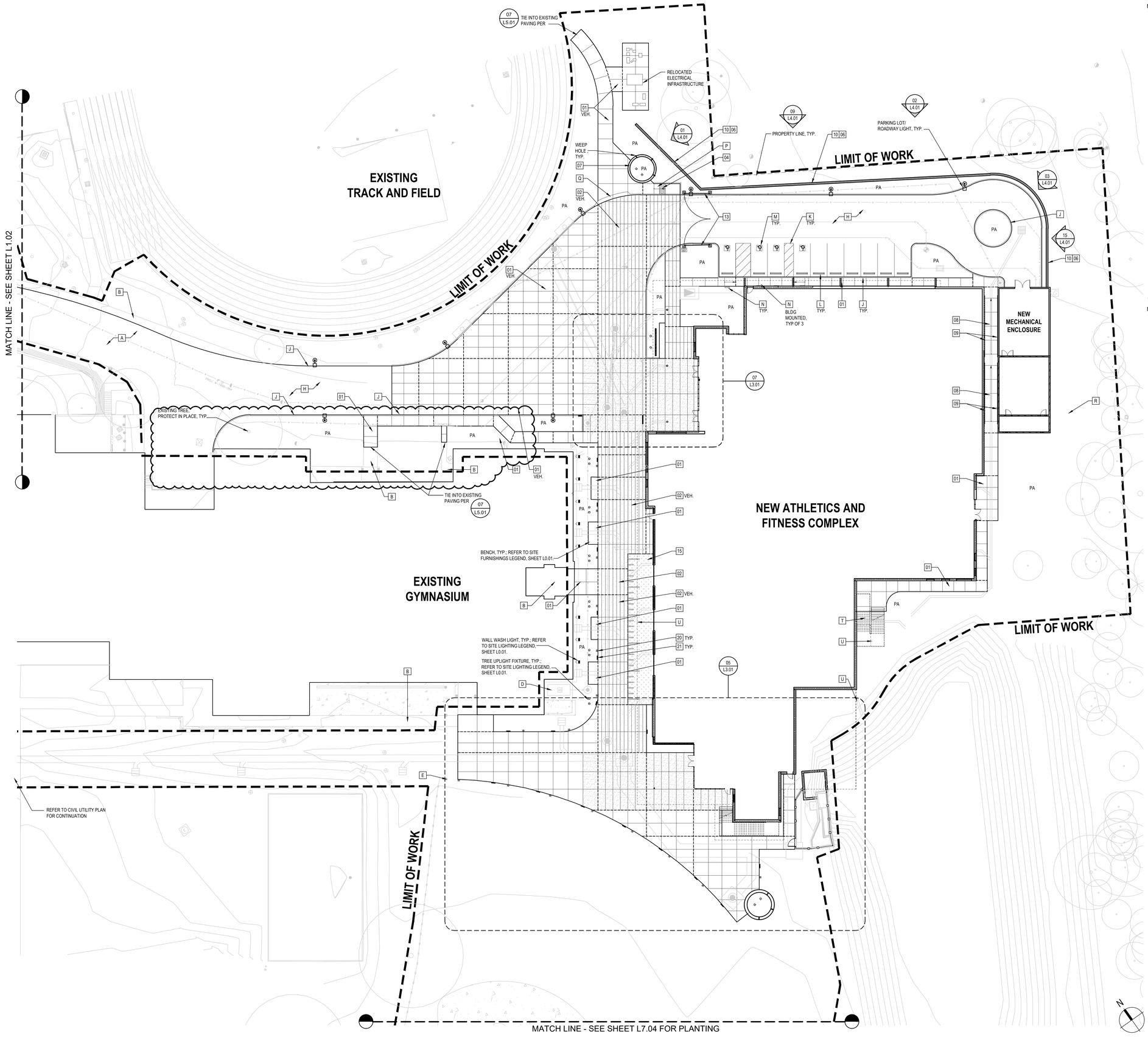
TREE MITIGATION AND LANDSCAPE CALCULATIONS



KEYNOTES

KEY NOTE	DESCRIPTION	DET/ SHT	COLOR / FINISH
01	CONCRETE PAVING	01/ L5.01	NATURAL GRAY/ MEDIUM BROOM FINISH
02	CONCRETE PAVING	01/ L5.01	NATURAL GRAY TOP CAST #05
03	CONCRETE PAVING	01/ L5.01	NATURAL GRAY TOP CAST #25
04	TRUNCATED DOME PAVERS	09/ L5.01	A-90 DARK GRAY/ WASAU TILE ADA 2 PAVER
05	CONCRETE BAND AT FENCE	17/ L5.01	NATURAL GRAY/ MEDIUM BROOM FINISH
06	CONCRETE RETAINING WALL	03/ L5.02	NATURAL GRAY LIGHT SANDBLAST
07	CONCRETE RETAINING SEAT WALL	01/ L5.02	NATURAL GRAY TOPCAST #05
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09	HANDRAIL AT RAMP	09/ L5.02	DARK BRONZE HIGH PERFORAMANCE COATING
10	GUARDRAIL	17 L5.02/	DARK BRONZE HIGH PERFORAMANCE COATING
11	SECURITY BOLLARD (FIXED)	10 L5.01	REFER TO SITE FURNISHINGS LEGEND L0.01
12	SECURITY BOLLARD (COLLAPSIBLE)	14 L5.01	REFER TO SITE FURNISHINGS LEGEND L0.01
13	VEHICULAR BARRIER GATE	19/ L5.03	HOOVER H-SERIES TUBULAR BARRIER DOUBLE GATE; GALV. STL
14	NOT USED	- -	
15	GRASS PAVER W/ SYNTHETIC TURF	19/ L5.01	ASTROTURF PGPN (FLORIDA BLUE) GRASSPAVE2 BY INVISIBLE STRUCT.
16	DESIGNMASTER FENCE - 8'H	01/ L5.03	HDG STEEL WITH POWDERCOATED BLACK
17	DESIGNMASTER SINGLE PED. GATE (8'H)	02/ L5.03	HDG STEEL POWDERCOATED BLACK
18	DECOMPOSED GRANITE WITH STABILIZER	12/ L5.01	TAN 1/4" MINUS EARTH STONE ROCK, OR EQUAL
19	NOT USED	-	
20	CONCRETE PAD AT BOLLARD LIGHT	21/ L5.01	MATCH ADJACENT PAVING COLOR AND FINISH
21	FIRE LANE MARKER	11/ L5.01	PRECAST CONCRETE DAVIS COLOR: TILE RED, ACID ETCH

REFERENCE KEYNOTES

KEY NOTE	DESCRIPTION	DET REF	NOTES
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F	EXISTING SPLITTER BOX		TO REMAIN PROTECT IN PLACE
G	EXISTING CHAIN LINK FENCE		TO REMAIN PROTECT IN PLACE
H	A.C. PAVING		PER CIVIL
J	CONCRETE CURB/GUTTER		PER CIVIL
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L	CONCRETE WHEEL STOP		PER CIVIL
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S	NEW SPLITTER BOX		PER CIVIL
T	STAIRS AT BUILDING		PER ARCH
U	ARCHITECTURAL CANOPY		PER ARCH
V	BUILDING COLUMN		PER ARCH
W	MONUMENT SIGN		PER ARCH
X	FLUSH CURB		PER CIVIL

SITE LIGHTING LEGEND

SYM.	DESCRIPTION	DET/ REF	COMMENTS	ADD'L/ DET
	PARKING LOT/ROADWAY LIGHT	SEE ELEC	SEE FIXTURE SCHED. FOR MODEL NO. AND COLOR	1/ S3.12
	BOLLARD LIGHT	SEE ELEC	SEE FIXTURE SCHED. FOR MODEL NO. AND COLOR	18/ L5.01
	TREE UPLIGHTS	SEE ELEC	SEE FIXTURE SCHED. FOR MODEL NO. AND COLOR	-/ -
	BUILDING UPLIGHTS	SEE ELEC	SEE FIXTURE SCHED. FOR MODEL NO. AND COLOR	-/ -

NOTE: SEE ELECTRICAL PLANS FOR FIXTURES. FOR UTILITY VAULTS, REFER TO CIVIL PLANS

SITE SYMBOLS LEGEND

SYM.	DESC.	SYM.	DESC.
	FIRE DEPT CONNECTION		CONCRETE PAVING COLD JOINTS
	CATCH BASIN		SAWCUT JOINTS
	CATCH BASIN	PA	PLANTING AREA
IC	IRRIGATION CONTROLER		ALIGN
	FIRE HYDRANT		MANHOLE
	BACKFLOW PREVENTER		CURB INLET
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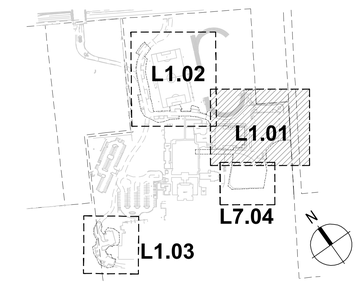
KEY MAP



MATERIALS PLAN | 1" = 20'-0" | 05

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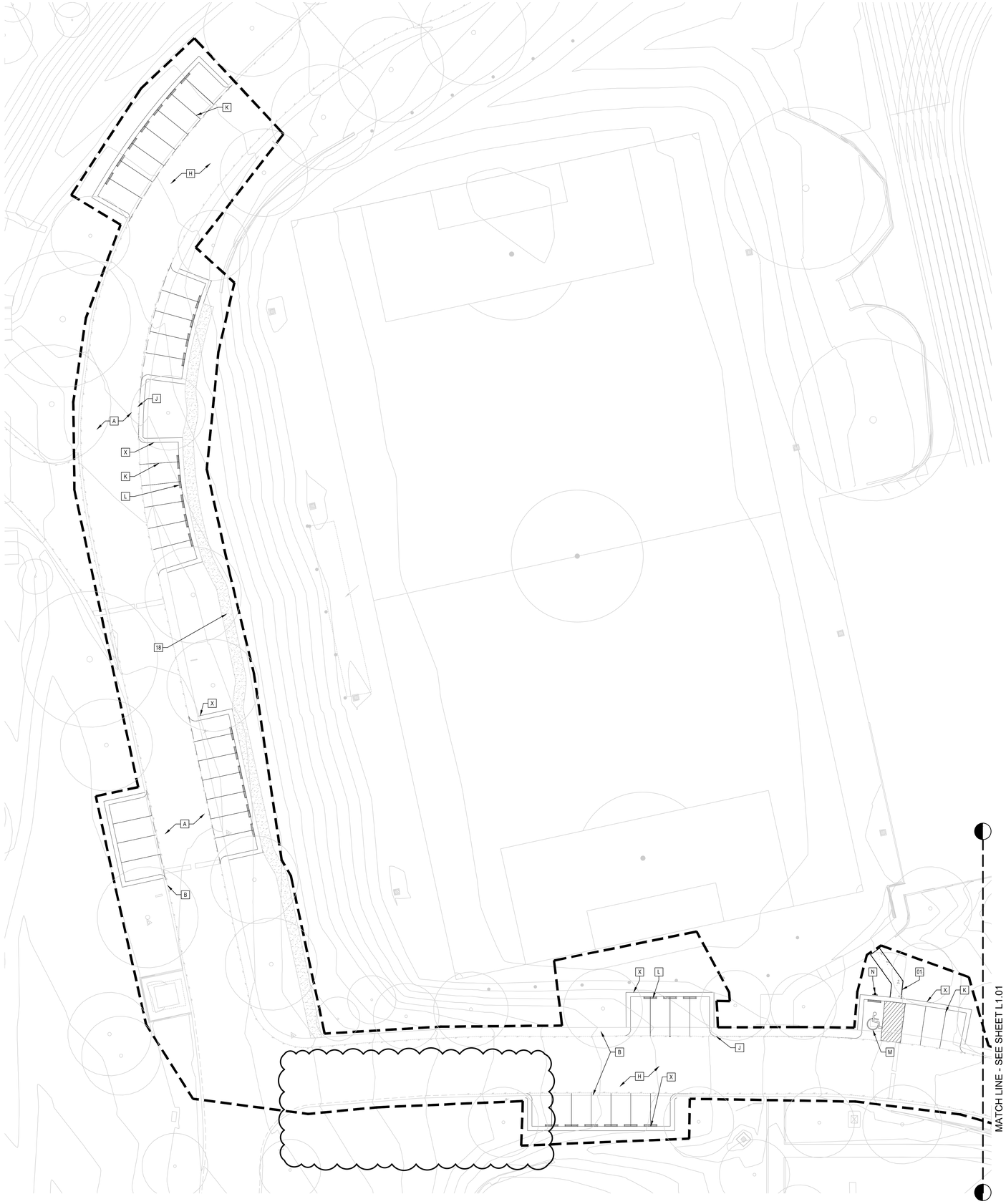

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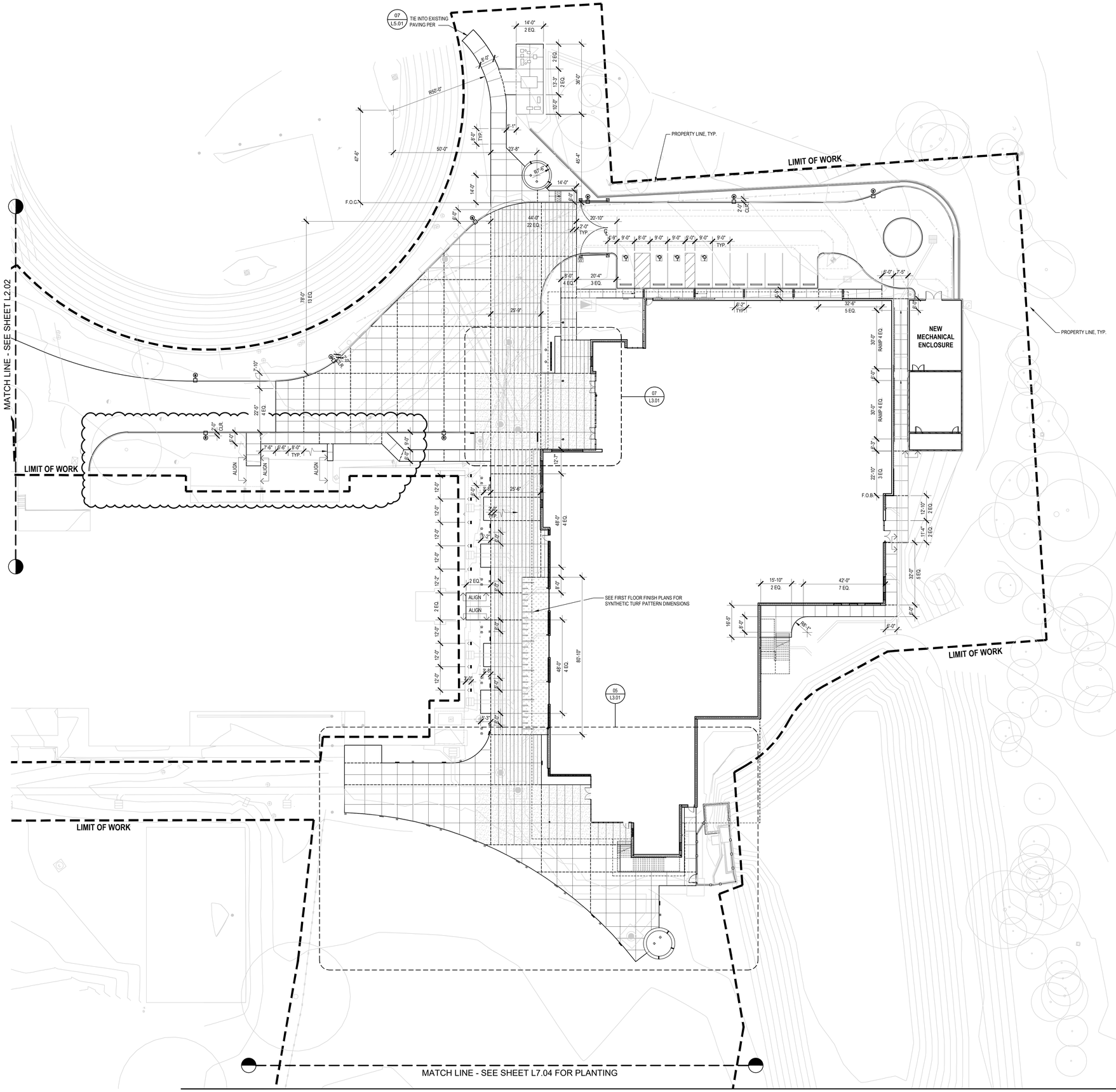
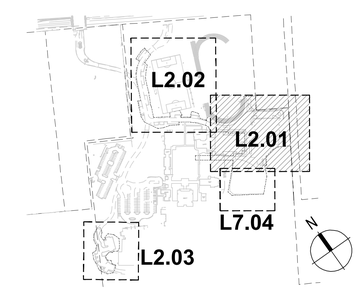


LAYOUT PLAN | 1" = 20' - 0" | 05

KEY MAP



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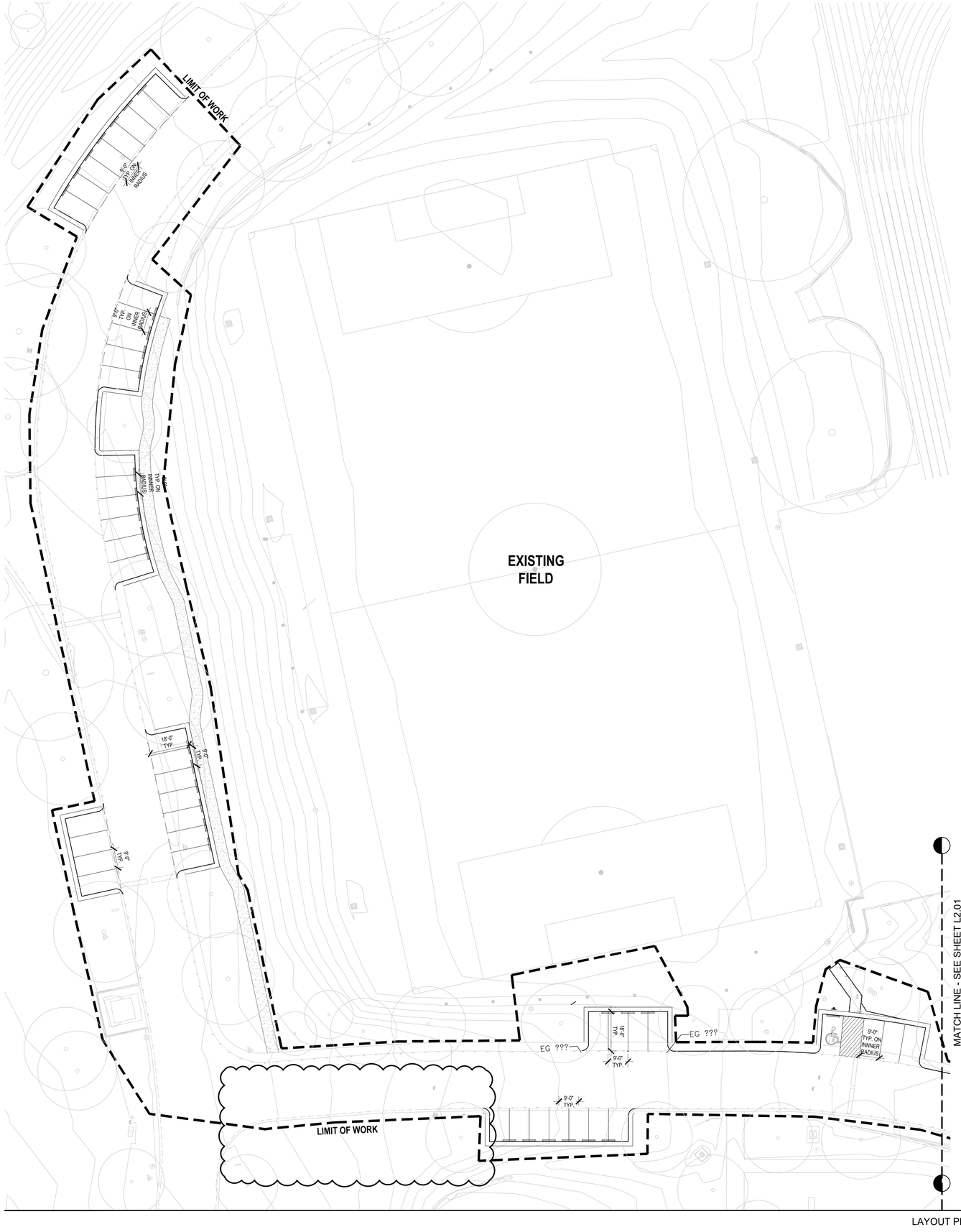

LAYOUT PLAN | 1" = 20' - 0" | 05

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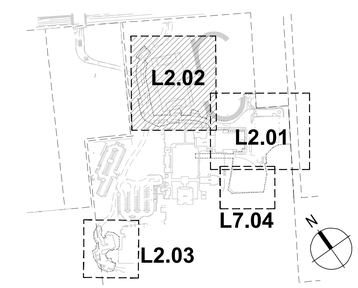

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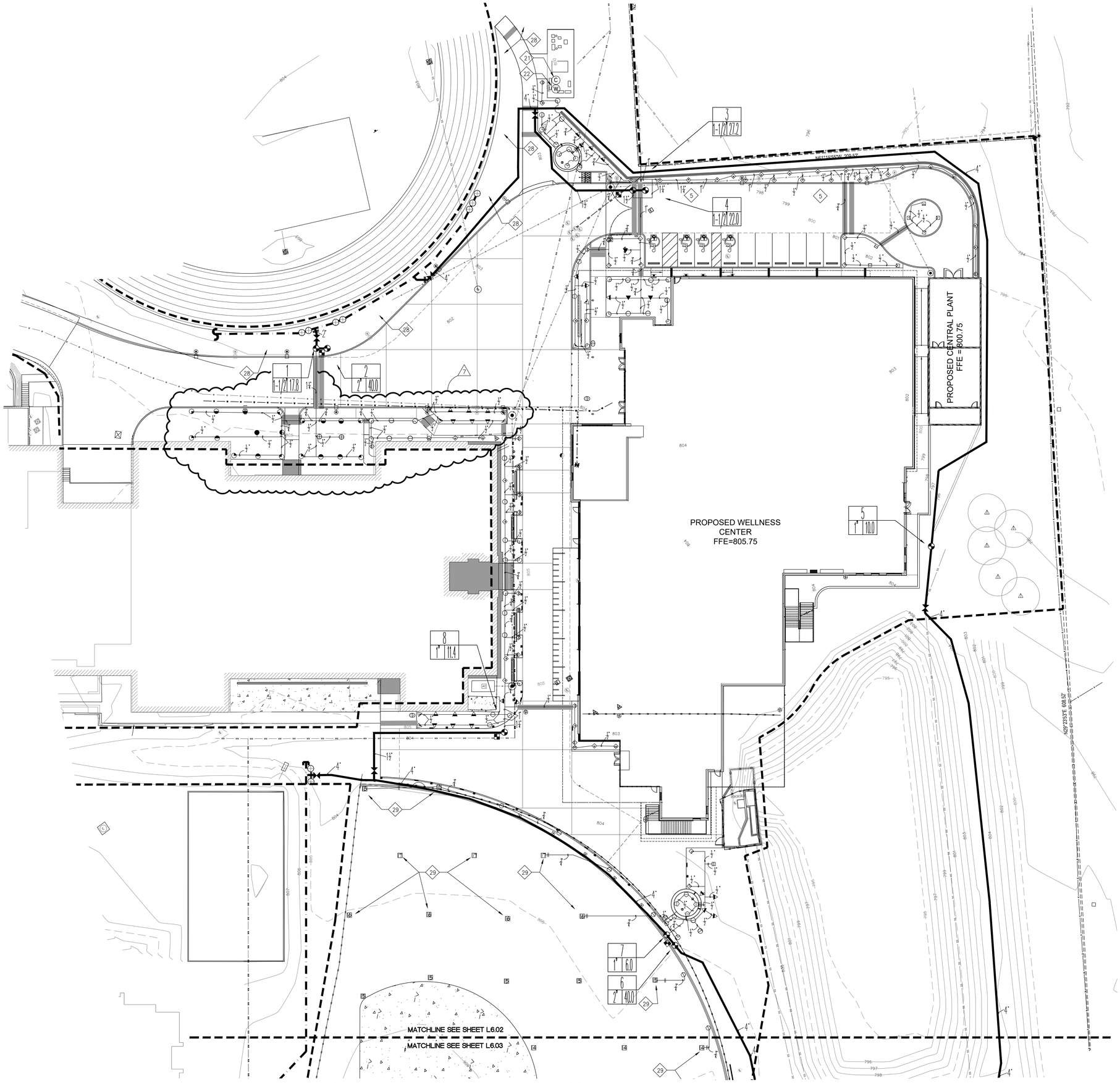

1 ENLARGED IRRIGATION PLAN
SCALE: 1"=20'-0"

LEGEND

- EXISTING REMOTE CONTROL VALVE
- EXISTING MANUAL VALVE
- EXISTING QUICK COUPLER
- EXISTING SPLICE BOX
- EXISTING LATERAL PIPING
- EXISTING SUPPLY LINE
- EXISTING LATERAL PIPING TO BE REMOVED
- EXISTING SUPPLY LINE TO BE REMOVED
- CAP EXISTING SUPPLY LINE
- CAP EXISTING LATERAL LINE
- TIE NEW LATERAL TO EXISTING LATERAL LINE
- TIE NEW SUPPLY TO EXISTING SUPPLY LINE
- TURF ROTARY HUNTER I-25 SEE DTL. 7/L6.04
- 17' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP2000
- 15' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP2000
- 12' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP1000
- 10' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP1000
- 8' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP1000
- 5' WIDE STRIP/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MPLCS-515/MPRCS-515/MPSS-530
- TREE BUBBLER ASSEMBLY, SEE DTL. 7/L6.04
- REMOTE CONTROL VALVE, SEE DTL. 5/L6.04
- MANUAL VALVE, SEE DTL. 2/L6.04
- QUICK COUPLER, SEE DTL. 9/L6.04
- LATERAL PIPING, SEE DTL. 10/L6.04
- TREE BUBBLER LATERAL PIPING, SEE DTL. 10/L6.04
- SUPPLY LINE, SEE DTL. 10/L6.04
- IRRIGATION SLEEVE, SEE DTL. 11/L6.04
- CONTROLLER, SEE DTL. 2/L6.04
- WEATHER SENSORS, SEE DTL. 3/L6.04
- BED EDGER, SEE SHEET L5.01
- VALVE DESIGNATION
- GALLONS PER MINUTE
- VALVE SIZE

IRRIGATION NOTES (◇# - Keyed Note)

NOTE: SEE SHEET L6.00 FOR IRRIGATION NOTES 1-20.

21. Locate controller on electrical rack. Contractor is responsible fo coordinating with other trades as required to provide power.
22. Locate weather sensors at electrical rack.
23. Cap existing mainline. Install wires in valve box.
24. Existing mainline to be removed.
25. Existing valve to be removed.
26. Existing rotors to be removed. Cap line next to fence. Return rotor to Owner.
27. Remove existing rotors for new work. Reinstall after construction work has been completed.
28. Remove and reinstall all irrigation heads/laterals and all appurtenances to accommodate new construction work.
29. Reinstall existing heads. See note 27.

VALVE SCHEDULE

BUB TREE BUBBLER ASSEMBLY ZONE
SB SPRAY ZONE IN BED AREA

STATION NO.		SIZE	GPM	•PRECIP. RATE	••SCHEDULE MIN. per DAY/WK
1	SB	1-1/2"	17.8	2.47	20 min./3 days
2	BUB	2"	40.0	3.7	10 min./3 days
3	SB	1-1/2"	27.2	2.47	20 min./3 days
4	BUB	1-1/2"	22.0	3.7	10 min./3 days
5	BUB	1"	10.0	3.7	10 min./3 days
6	BUB	2"	40.0	3.7	10 min./3 days
7	SB	1"	6.0	2.47	20 min./3 days
8	SB	1"	11.4	2.47	20 min./3 days

•REQUIRED PRECIPITATION RATE = .275"/HOUR
••WATER SCHEDULE REQUIRED TO PROVIDE 1"/WEEK

cfz C•F•Z Group LLC
Landscape Architecture & Planning
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San Antonio, Texas 78229
210-366-1911/210-366-0044 fax

S:\23-1340\DWGS\31340L1.DWG

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6 ADDENDUM #6	3-22-24
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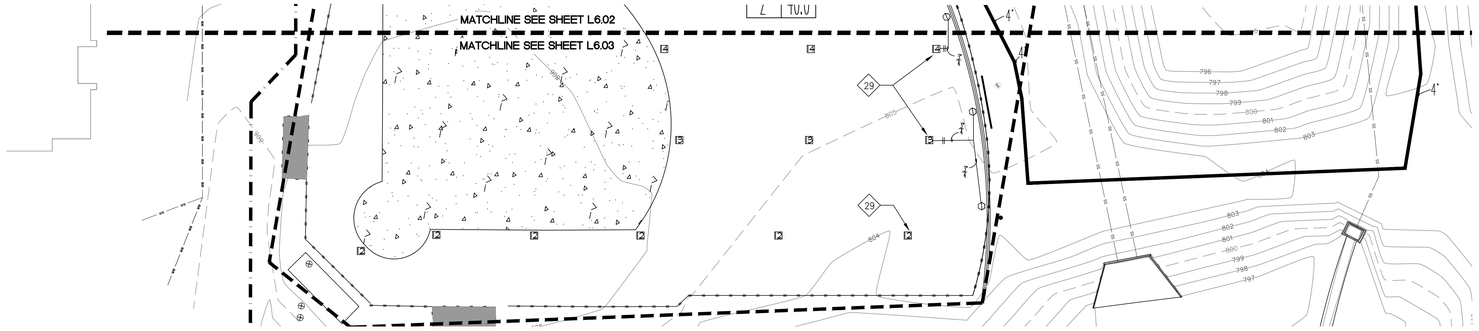
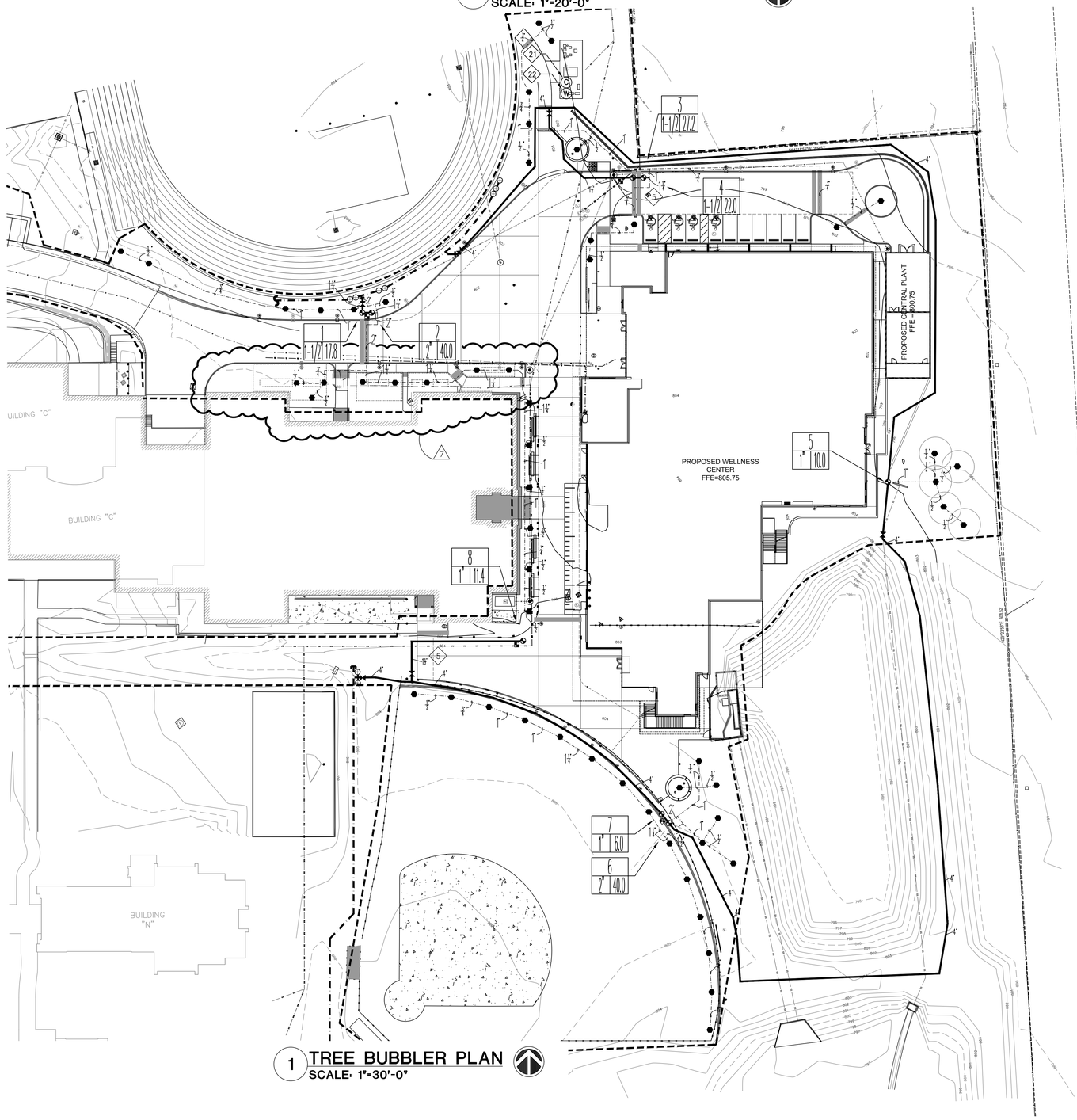
Scale	

ENLARGED IRRIGATION PLAN



1 ENLARGED IRRIGATION PLAN
SCALE: 1"=20'-0"



1 TREE BUBBLER PLAN
SCALE: 1"=30'-0"

IRRIGATION DESIGN REQUIREMENTS:

PRESSURE:
Static PSI: 70.0 IRRIGATION SYSTEM IS SUPPLIED BY WATER TANK
Design PSI: 38.67

PRESSURE LOSS CALCULATIONS:

GPM/ZONE:	2	40.0
Service:	NA	NA
Meter:	NA	NA
Backflow Preventer:	3"	5.0
Master Control Valve:	NA	NA
Elevation Loss:	+10.0'	+4.33
Mainline:	3"/4"	2.0
Remote Control Valve:	2"	1.0
Head PSI:		30.0
TOTAL LOSSES:		33.67

LEGEND

- EXISTING REMOTE CONTROL VALVE
- EXISTING MANUAL VALVE
- EXISTING QUICK COUPLER
- EXISTING SPLICE BOX
- EXISTING LATERAL PIPING
- EXISTING SUPPLY LINE
- EXISTING LATERAL PIPING TO BE REMOVED
- EXISTING SUPPLY LINE TO BE REMOVED
- CAP EXISTING SUPPLY LINE
- CAP EXISTING LATERAL LINE
- TIE NEW LATERAL TO EXISTING LATERAL LINE
- TIE NEW SUPPLY TO EXISTING SUPPLY LINE
- TURF ROTARY HUNTER I-25 SEE DTL. 7/L6.04
- 17' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP2000
- 15' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP2000
- 12' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP1000
- 10' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP1000
- 8' RADIUS/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MP1000
- 5' WIDE STRIP/SPRAY HEAD, SEE DTL. 6/L6.04 HUNTER MPLCS-515/MPRCS-515/MPSS-530
- TREE BUBBLER ASSEMBLY, SEE DTL. 7/L6.04
- REMOTE CONTROL VALVE, SEE DTL. 5/L6.04
- MANUAL VALVE, SEE DTL. 2/L6.04
- QUICK COUPLER, SEE DTL. 9/L6.04
- LATERAL PIPING, SEE DTL. 10/L6.04
- TREE BUBBLER LATERAL PIPING, SEE DTL. 10/L6.04
- SUPPLY LINE, SEE DTL. 10/L6.04
- IRRIGATION SLEEVE, SEE DTL. 11/L6.04
- CONTROLLER, SEE DTL. 2/L6.04
- WEATHER SENSORS, SEE DTL. 3/L6.04
- BED EDGER, SEE SHEET L5.01

17 — VALVE DESIGNATION
1" 29.6 — GALLONS PER MINUTE
VALVE SIZE

IRRIGATION NOTES (# - Keyed Note)

NOTE: SEE SHEET L6.00 FOR IRRIGATION NOTES 1-20.

21 Locate controller on electrical rack. Contractor is responsible for coordinating with other trades as required to provide power.

22 Locate weather sensors at electrical rack.

23 Cap existing mainline. Install wires in valve box.

24 Existing mainline to be removed.

25 Existing valve to be removed.

26 Existing rotors to be removed. Cap line next to fence. Return rotor to Owner.

27 Remove existing rotors for new work. Reinstall after construction work has been completed.

28 Remove and reinstall all irrigation heads/laterals and all appurtenances to accommodate new construction work.

29 Reinstall existing heads. See note 27.

cfz C•F•Z Group LLC
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STATE OF TEXAS — LEIGHA A. VAVLA — 1457 — REGISTERED LANDSCAPE ARCHITECT

9/29/2023

ATHLETICS AND FITNESS COMPLEX
5901 SOUTHWEST PKWY, AUSTIN, TX 78735
Developed for
ST. ANDREW'S EPISCOPAL SCHOOL

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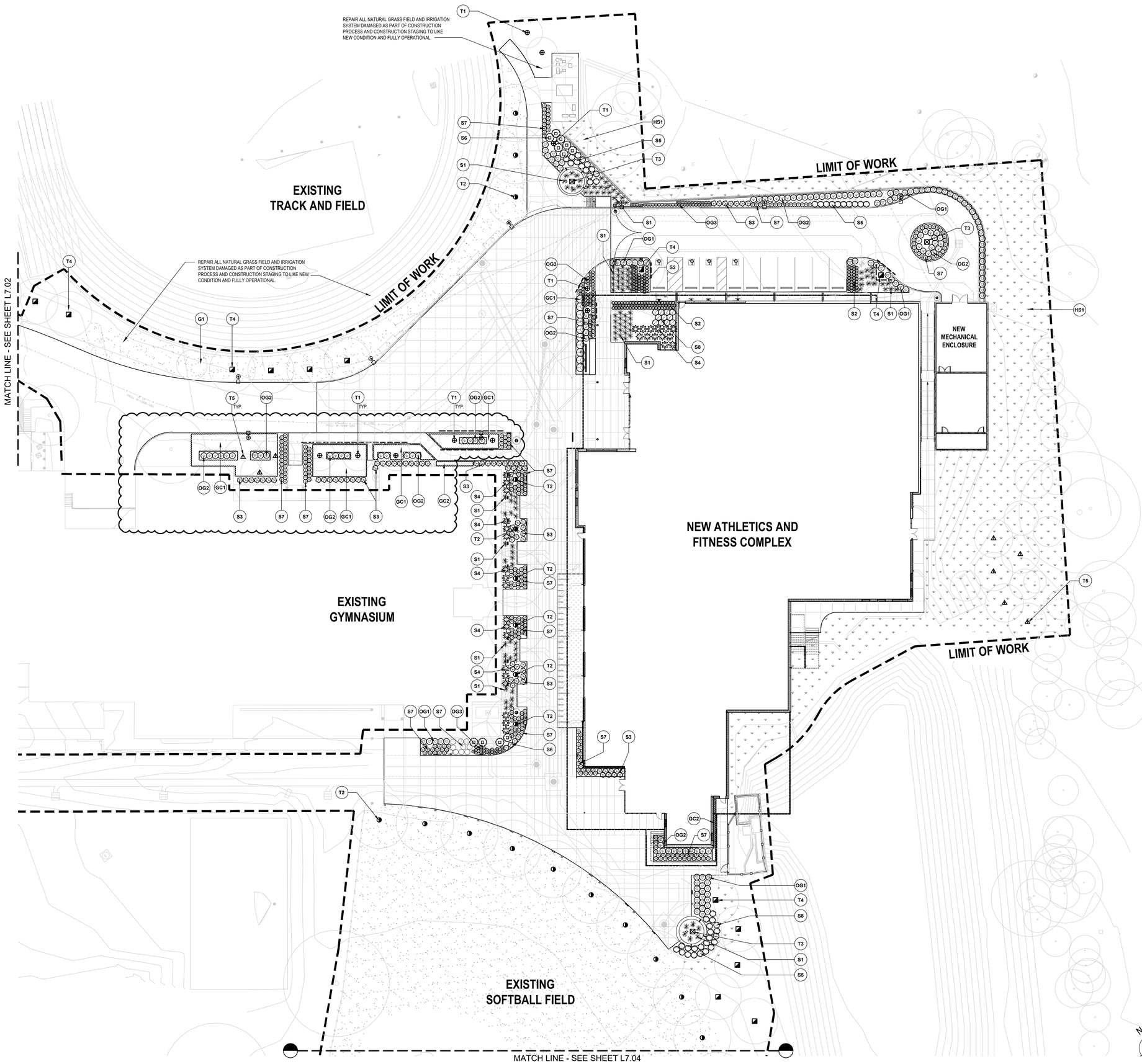
ENLARGED IRRIGATION PLAN



PLANTING LEGEND

TREE LIST

REF.	SYM.	BOTANICAL NAME/ COMMON NAME	SIZE / SPACING	DET.
T1	⊕	CHILOPSIS LINEARIS DESERT WILLOW	4" MULTI-STEM PER PLAN	01/ L7.03
T2	◑	PLATANUS MEXICANA MEXICAN SYCAMORE	4" PER PLAN	01/ L7.03
T3	⊠	QUERCUS FUSIFORMIS TEXAS LIVE OAK	5" PER PLAN	01/ L7.03
T4	◪	ULMUS CRASSIFOLIA CEDAR ELM	4" PER PLAN	01/ L7.03
T5	⚠	QUERCUS LACEYI LACEY OAK	4" PER PLAN	01/ L7.03
	·	EXISTING TREE PROTECT IN PLACE		

SHRUBS

S1	✳	RUSSELLIA EQUISETIFORMIS FIRECRACKER FERN	5 GAL/ AS SHOWN	11/ L7.03
S2	⊙	DIANELLA TASMANICA TASMAN FLAX LILY	1 GAL/ AS SHOWN	11/ L7.03
S3	⬡	ILEX VOMITORIA 'NANA' DWARF YAUPON HOLLY	5 GAL/ AS SHOWN	11/ L7.03
S4	✲	GALPHIMIA GLAUCA GOLDEN SHOWERS THYALLIS	5 GAL/ AS SHOWN	11/ L7.03
S5	◯	HESPERALOE PARVIFLORA RED YUCCA	1 GAL/ AS SHOWN	11/ L7.03
S6	⯃	LEUCOPHYLLUM FRUTESCENS 'WHITE CLOUD' TEXAS SAGE	5 GAL/ AS SHOWN	11/ L7.03
S7	⋏	SALVIA GREGGII AUTUMN SAGE	1 GAL/ AS SHOWN	11/ L7.03
S8	⌒	THELYPTERIS KUNTHII RIVER FERN	1 GAL/ AS SHOWN	11/ L7.03

ORNAMENTAL GRASSES

OG1	⋎	BOUTELOUA GRACILIS 'BLONDE AMBITION' BLUE GRAMA 'BLONDE AMBITION'	1 GAL/ 24" O.C.	11/ L7.03
OG2	⋎	MUHLENBERGUA CAPILLARIS PINK MUHLY	1 GAL/ 48" O.C.	11/ L7.03
OG3	⋎	NASSELLA TENUISSIMA MEXICAN FEATHER GRASS	1 GAL/ 24" O.C.	11/ L7.03

GROUNDCOVERS

GC1	⬚	CERATOSTIGMA PLUMBAGINOIDES PLUMBAGO	1 GAL/ 12" O.C.	11/ L7.03
GC2	⬚	TRACHELOSPERMUM ASIATICUM ASIAN JASMINE	FLATS/ 12" O.C.	11/ L7.03

TURF GRASS

G1	⬚	NATURAL GRASS LAWN MATCH EXISTING		SOD	SEE SPECS

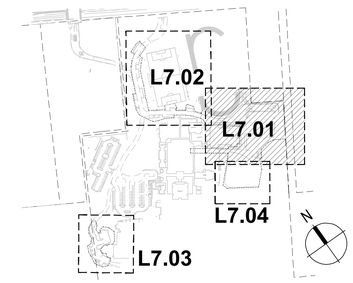
HYDROSEED

HS1	⬚	HABITURF SEED	4 LBS/ 1000 SF	HYDRO- SEED	SEE SPECS

MISCELLANEOUS SYMBOLS

- - -	ROOT BARRIER	09/ L7.03

KEY MAP



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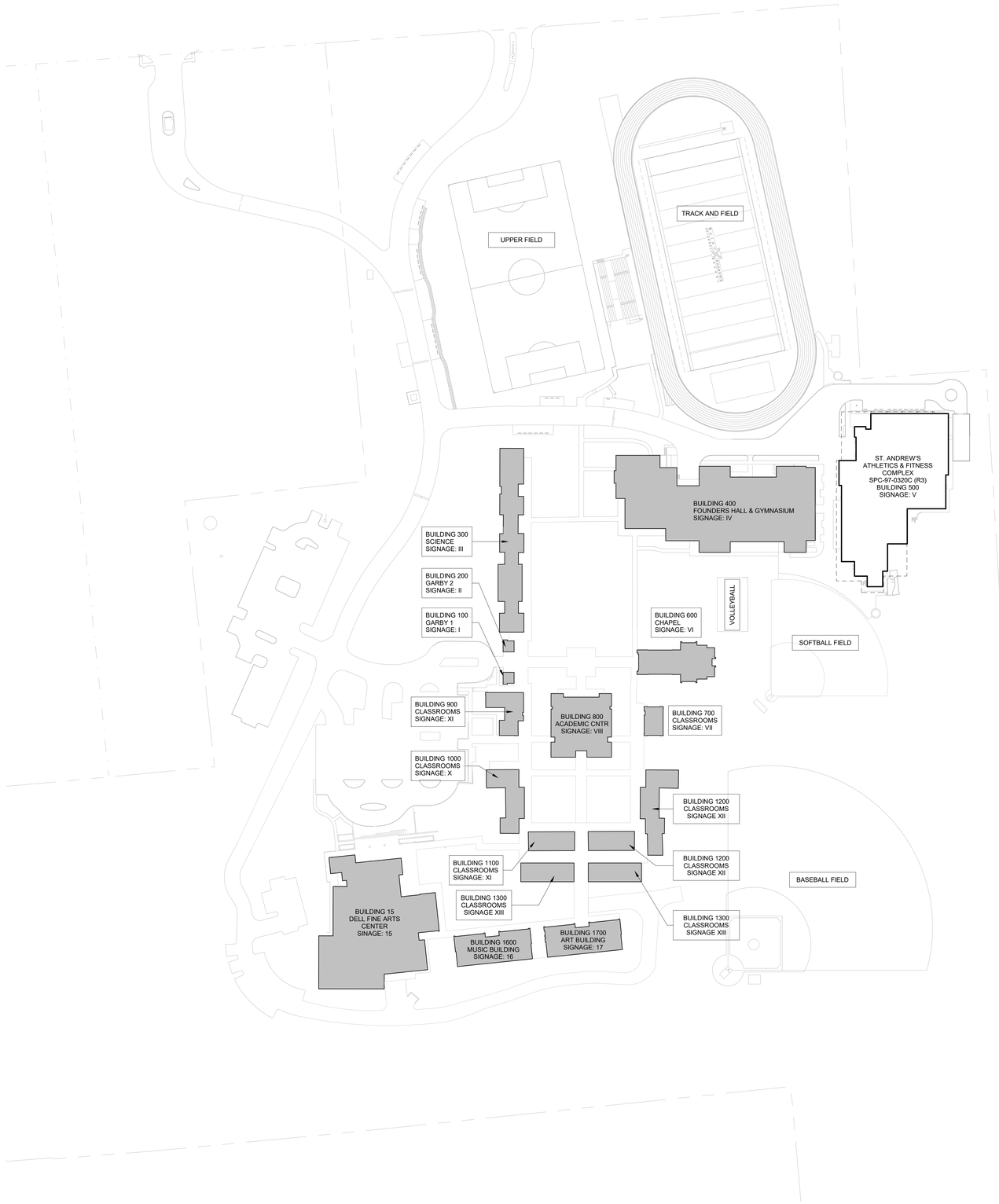
PLANTING PLAN



TRUE NORTH PROJECT NORTH

CAMPUS ADDRESSING PLAN 1" = 80'-0" 01

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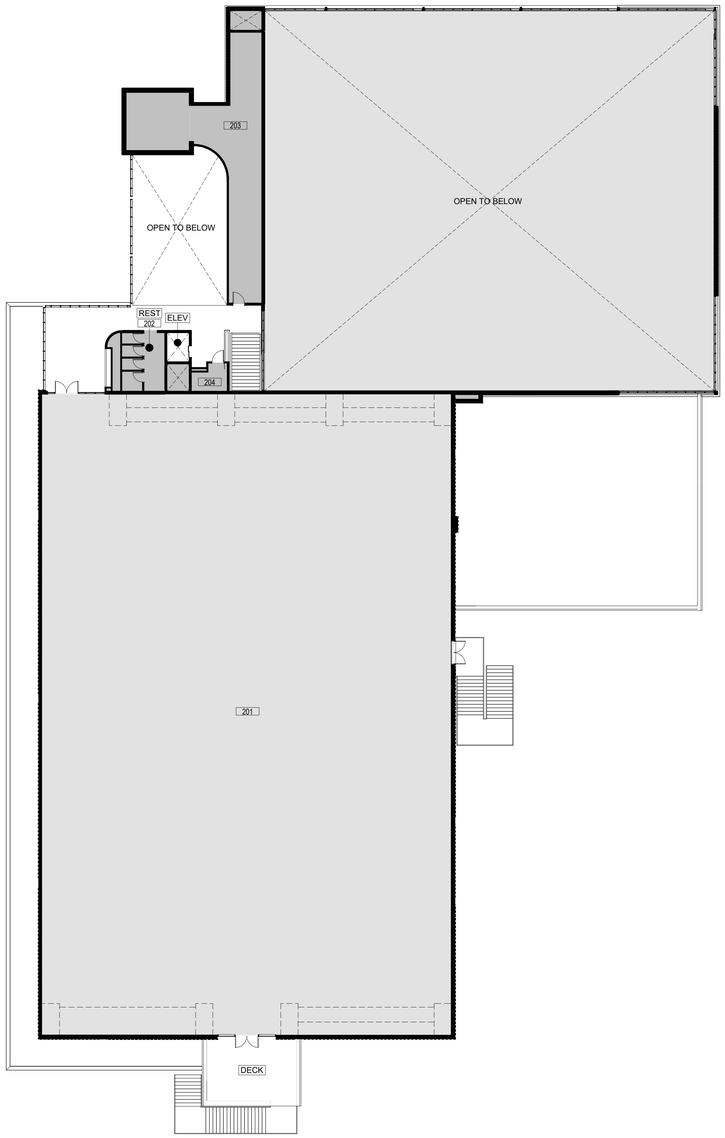
Job Number	30403.40
Checked By	Checker
Scale	1" = 80'-0"

CAMPUS ADDRESSING PLAN

ROOM SCHEMA

Number	Name
01 - FLOOR	
5.101	LOBBY
5.102	CONCESSIONS
5.103	COMPETITION GYM
5.104	STORAGE
5.105	STORAGE
5.106	MPR
5.107	STORAGE
5.108	TRAINING ROOM
5.109	TRAINING OFFICE
5.110	STORAGE
5.111	RESTROOM
5.112	WEIGHT ROOM
5.113	STUDENT UNION
5.114	SPIRIT SHOP
5.115	STORAGE
5.116	LOCKER ROOM
5.117	ATHLETIC LOCKER ROOM
5.118	COACHES OFFICE
5.119	COACHES RESTROOM
5.120	ALL GENDER RESTROOM
5.121	COACHES OFFICE
5.122	COACHES RESTROOM
5.123	LOCKER ROOM
5.124	ATHLETIC LOCKER ROOM
5.125	MEN'S RESTROOM
5.126	WOMEN'S RESTROOM
5.127	LAUNDRY
5.128	CUSTODIAL
5.129	TEAM ROOM
5.130	DATA
5.131	ELECTRICAL
5.132	TEAM ROOM
5.133	ATHLETICS SUITE
5.134	AD OFFICE
5.135	WORKROOM
5.136	LOCKER ROOM
5.137	RESTROOM
5.138	LOCKER ROOM
5.150	RISER
02 - FLOOR	
5.201	PRACTICE GYM
5.202	RESTROOM
5.203	STORAGE
5.204	CUSTODIAL

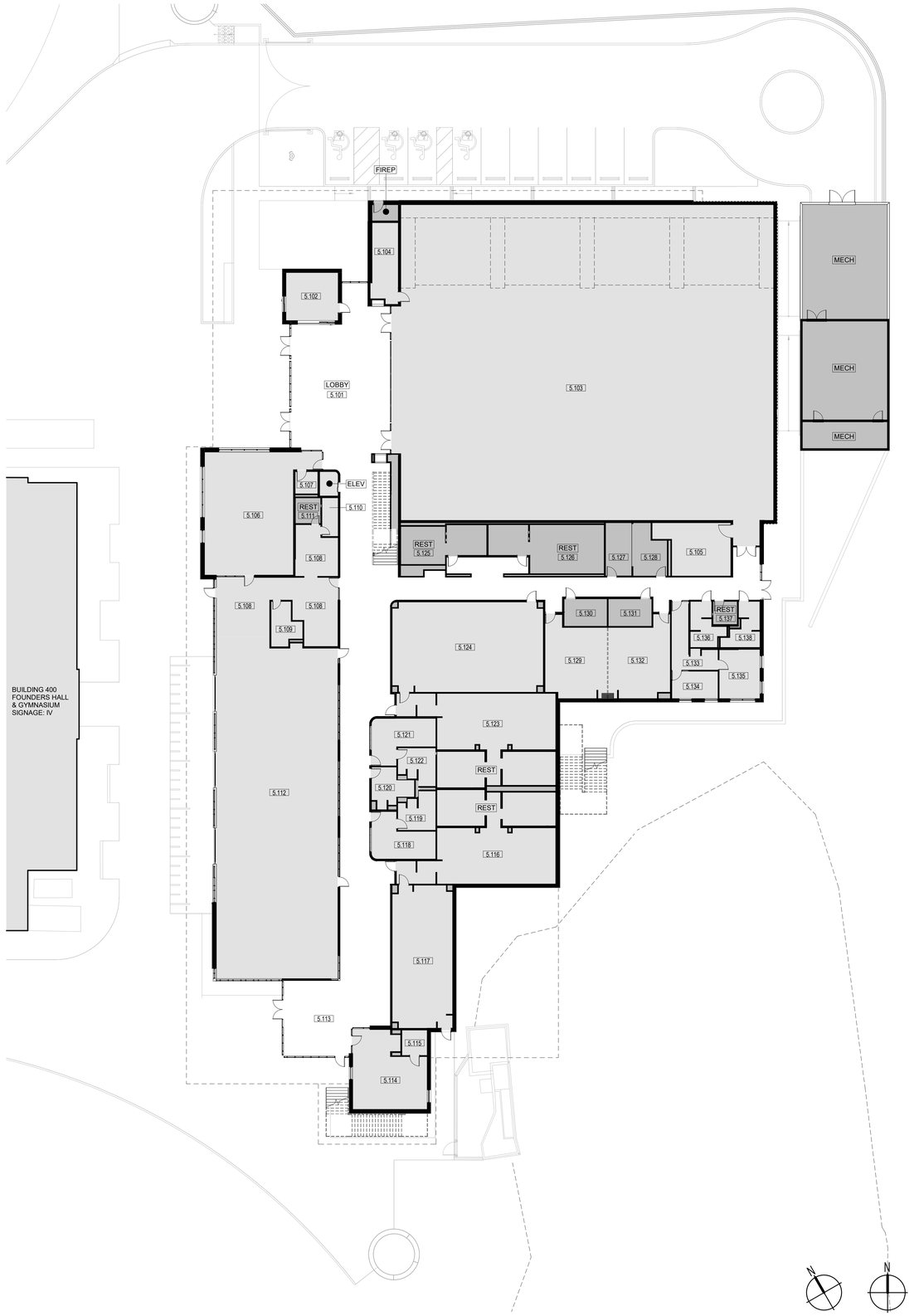
BUILDING 500
SECOND FLOOR ROOM PLAN



TRUE NORTH PROJECT NORTH

SECOND FLOOR ROOM SCHEMA 1/16" = 1'-0" 02

BUILDING 500
FIRST FLOOR ROOM PLAN



TRUE NORTH PROJECT NORTH

FIRST FLOOR ROOM SCHEMA 1/16" = 1'-0" 01

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Scale	1/16" = 1'-0"

BUILDING 500 ROOM SCHEMA

ATTACHMENT F – CONSTRUCTION PLANS

Construction Documents for the proposed storm system and ponds are included with this application. Design calculations for the existing BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. Reference the Drainage Area Maps, Pond Plan and Section, Detail, and General Notes Sheets for all applicable information.

Permanent Stormwater Section – Attachment G

Inspection, Maintenance, Repair and Retrofit Plan - Bioretention

ATTACHMENT G - INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

MAINTENANCE PROCEDURES FOR PERMANENT BMPs

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

A written record will be kept of inspection rules and maintenance performed.

3.5.9 Sand Filter Systems

Regular, routine maintenance is essential to effective, long-lasting performance of sand filters. Neglect or failure to service the filters on a regular basis will lead to poor performance and eventual costly repairs. It is recommended that sand filter BMPs be inspected on a quarterly basis and after large storms for the first year of operation. This intensive monitoring is intended to ensure proper operation and provide maintenance personnel with a feel for the operational characteristics of the filter. Subsequent inspections can be limited to semi-annually or more often if deemed necessary (Young et al., 1996).

Certain construction and maintenance practices are essential to efficient operation of the filter. The biggest threat to any filtering system is exposure to heavy sediment loads that clog the filter media. Construction within the watershed should be complete prior to exposing the filter to stormwater runoff. All exposed areas should be stabilized to minimize sediment loads. Runoff from any unstabilized construction areas should be treated via a separate sediment system that bypasses the filter media

Another important consideration in constructing the filter bed is to ensure that the top of the media is completely level. The filter design is based on the use of the entire filter media surface area; a sloped filter surface would result in disproportionate use of the filter media.

Other recommended maintenance guidelines include:

- *Inspections.* BMP facilities must be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) must be identified and repaired immediately. Cracks, voids and undermining should be patched/filled to prevent additional structural damage. Trees and root systems should be removed to prevent growth in cracks and joints that can cause structural damage.

- *Sediment Removal*. Remove sediment from the inlet structure and sedimentation chamber when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment should be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.

- *Media Replacement*. Maintenance of the filter media is necessary when the drawdown time exceeds 48 hours. When this occurs, the upper layer of sand should be removed and replaced with new material meeting the original specifications. Any discolored sand should also be removed and replaced. In filters that have been regularly maintained, this should be limited to the top 2 to 3 inches.

- *Debris and Litter Removal.* Debris and litter will accumulate near the sedimentation basin outlet device and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the control device or riser.

- *Filter Underdrain.* Clean underdrain piping network to remove any sediment buildup as needed to maintain design drawdown time.

- *Mowing.* Grass areas in and around sand filters must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. Vegetation on the pond embankments should be mowed as appropriate to prevent the establishment of woody vegetation.

Permanent Stormwater Section – Attachment I
Measures for Minimizing Surfaces Stream Contamination

ATTACHMENT I-MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

Surface water or groundwater that originates on-site will be collected by the proposed storm sewer system and conveyed to the existing water quality and detention ponds which will provide water treatment and control the amount of runoff leaving the site. The water quality pond meets TCEQ's current design requirements and TSS removal standards for BMPs over the Edwards Aquifer Recharge Zone. The pond outfall structure is designed to convey pond outflows directly to a 48" RCP and into the detention pond.