WATER POLLUTION ABATEMENT PLAN & ORGANIZED SEWAGE COLLECTION SYSTEM PLAN

BERRY CREEK HIGHLANDS PHASE 3 2451 STATE HIGHWAY 195 GEORGETOWN, WILLIAMSON COUNTY, TEXAS

Prepared For:

FR BERRY HILLS, LLC

11 Dupont Circle NW, Suite 900 Washington, DC 20036 (512) 610-7000

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC.

10814 Jollyville Road, Avallon IV, Suite 200 Austin, Texas 78759 (512) 418-1771

Firm No. 928 KHA Project No. 067782805

October 5, 2023

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SECTION 1: EDWARDS AQUIFER APPLICATION COVER PAGE

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

- 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: Berry Creek Highlands Phase 3				2. Re	egulat	ed Entity No.:		
3. Customer Name: FR Berry Hills, LLC		4. Customer No.:						
5. Project Type: (Please circle/check one)	New	Modif	ication	1	Exter	nsion	Exception	
6. Plan Type: (Please circle/check one)	WPAR CZP	scs	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential	Non-residential			8. Sit	te (acres):	16.885	
9. Application Fee:	\$5,183.50	10. Permanent B			BMP(s):	Detention Pone	d
11. SCS (Linear Ft.):	2,367 LF	12. AST/UST (No			No. Tanks): N/A		N/A	
13. County:	Williamson	14. Watershed:					Lower Berry Cı	reek

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%2oGWCD%20map.pdf

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

Austin Region					
County:	Hays	Travis	Williamson		
Original (1 req.)	_	_	<u>X</u>		
Region (1 req.)	_	_	<u>X</u>		
County(ies)	_	_	<u>X</u>		
Groundwater Conservation District(s)	Edwards Aquifer AuthorityBarton Springs/ Edwards AquiferHays TrinityPlum Creek	Barton Springs/ Edwards Aquifer	NA		
City(ies) Jurisdiction	AustinBudaDripping SpringsKyleMountain CitySan MarcosWimberleyWoodcreek	AustinBee CavePflugervilleRollingwoodRound RockSunset ValleyWest Lake Hills	AustinCedar ParkFlorenceX_GeorgetownJerrellLeanderLiberty HillPflugervilleRound 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 HillsFair Oaks RanchHelotesHill Country VillageHollywood ParkSan 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.		
Jacob Kondo, P.E.		
Print Name of Customer/Authorized Agent		
Jacob Kondo		
7. 20 710.40	09/14/2023	
Signature of Customer/Authorized Agent	Date	

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



SECTION 2: GENERAL INFORMATION

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: Jacob Kondo

Date: 09/14/2023

Signature of Customer/Agent:



Jacob Kondo

• •	oject imormation	
1.	Regulated Entity Name: Berry Creek Highlands Pha	se 3
2.	County: Williamson	
3.	Stream Basin: San Gabriel River	
4.	Groundwater Conservation District (If applicable): \underline{I}	<u> </u>
5.	Edwards Aquifer Zone:	
	Recharge Zone Transition Zone	
6.	Plan Type:	
	WPAPSCSModification	AST UST Exception Reques

/.	Customer (Applicant):	
	Contact Person: <u>Brandon Jenkins</u> Entity: <u>FR Berry Hills, LLC</u> Mailing Address: <u>11 Dupont Circle NW, Suite 900</u> City, State: <u>Washington, DC</u> Telephone: <u>512-450-4916</u> Email Address: <u>frank.delcastillo@ashtonwoods.com</u>	Zip: <u>20036</u> Fax: <u>N/A</u> n
8.	Agent/Representative (If any):	
	Contact Person: <u>Jacob Kondo</u> Entity: <u>Kimley-Horn</u> Mailing Address: <u>10814 Jollyville Road; Bldg. IV, Sui</u> City, State: <u>Austin, Texas</u> Telephone: <u>512-418-1771</u> Email Address: <u>Jacob.Kondo@kimley-horn.com</u>	ite 200 Zip: <u>78759</u> Fax: <u>N/A</u>
9.	Project Location:	
10.	 ☐ The project site is located inside the city limits of the project site is located outside the city limits jurisdiction) of Williamson County. ☐ The project site is not located within any city's located within any city's located and clarity so that the TCEQ's Regional st 	imits or ETJ. The description provides sufficient
	boundaries for a field investigation.	an can easily locate the project and site
	2451 State Highway 195, Georgetown, TX 78633	
11.	Attachment A – Road Map. A road map showing project site is attached. The project location and the map.	
12.	Attachment B - USGS / Edwards Recharge Zone USGS Quadrangle Map (Scale: 1" = 1000') of the The map(s) clearly show:	
	 ☑ Project site boundaries. ☑ USGS Quadrangle Name(s). ☑ Boundaries of the Recharge Zone (and Trans) ☑ Drainage path from the project site to the boundaries. 	
13.	The TCEQ must be able to inspect the project so Sufficient survey staking is provided on the project the boundaries and alignment of the regulated features noted in the Geologic Assessment.	ject to allow TCEQ regional staff to locate
	Survey staking will be completed by this date:	

	achment C – Project Description. Attached at the end of this form is a detailed rative description of the proposed project. The project description is consistent oughout 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. Existin	g 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:
Prohib	ited Activities
	n aware that the following activities are prohibited on the Recharge Zone and are not
•	posed for this project:
·	posed for this project: Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
(1)	Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to
(1)	Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
(1)	Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control); New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
(1) (2) (3) (4)	Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control); New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3; Land disposal of Class I wastes, as defined in 30 TAC §335.1;
(1) (2) (3) (4) (5)	Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control); New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3; Land disposal of Class I wastes, as defined in 30 TAC §335.1; The use of sewage holding tanks as parts of organized collection systems; and 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
(1) (2) (3) (4) (5) (6)	Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control); New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3; Land disposal of Class I wastes, as defined in 30 TAC §335.1; The use of sewage holding tanks as parts of organized collection systems; and 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). New municipal and industrial wastewater discharges into or adjacent to water in the

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



Attachment A Road Map

| MAGES | Overall Visinity - | VISINITY | VI CONSTRUCTION LOCATION State Highway 195 APPROXIMATE SITE LOCATION WOODS AT BERRY CREEK BERRY CREEK Berry VILLAGES OF BERRY CREEK Creek Country Club MEADOWS END AT BERRY CREEK © 2023 Microsoft Corporation © 2023 TomTom Scale: N.T.S SHEET Designed by: ANR Berry Creek Highlands Drawn by: ANR 1 Phase 3 ROAD MAP Checked by: JRK This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-th-ground survey and repres only the approximate relative location of property boundaries. Georgetown, Williamson County,

Texas

July 2023

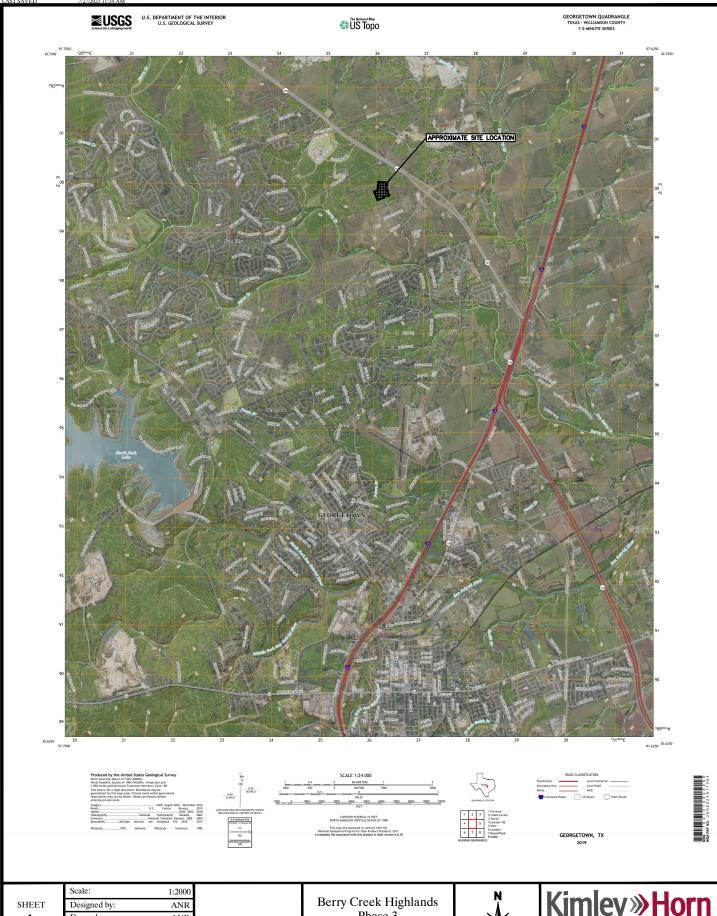
067782805

OF 1 SHEETS

Project No.



Attachment B USGS/Edwards Recharge Zone Map



	Scale:	1:2000
SHEET	Designed by:	ANR
1	Drawn by:	ANR
-	Checked by:	JRK
	Date:	July 2023
OF 1 SHEETS	Project No.	067782805

USGS Quadrangle

Berry Creek Highlands Phase 3 Georgetown, Williamson County, Texas





This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-th-ground survey and represents only the approximate relative location of property boundaries.



Attachment C

Introduction

The proposed Berry Creek Phase 3 development is located on the west side of Highway 195, Northwest of the intersection of Highway 195 and Shell Road, in Georgetown, Texas. The proposed development is approximately 16.885 acres of 90 single-family residences. The site is currently undeveloped.

The proposed improvements include water, wastewater, storm sewer, sidewalks, and other associated site improvements with the project.

No portion of this site is located in the Federal Emergency Management Agency's 100-year floodplain per the Flood Insurance Rate Map 48491C0285F, dated December 20, 2019, for Williamson County, Texas. No floodplain modifications are proposed. The site is located within the North Edwards Aquifer Recharge Zone according to the City of Georgetown and Edward's Aquifer GIS databases. There are no critical water quality zones or critical environmental features located on-site.

Legal Description

The legal description of the property is as follows:

BEING a 16.885-acre (735,512 square feet) tract of land situated in the Burrell Eaves Survey, Abstract No. 216, City of Georgetown, Williamson County, Texas; and being all of that certain 16.885 acre tract described in Special Warranty Deed to FR BERRY HILLS, LLC., recorded in Document No. 2022090595, of the Official Public Records of Williamson County.

Land Use

The site is undeveloped and resides within the Full Purpose city limits of the City of Georgetown.

Existing Drainage Conditions

The subject site is composed of 3 existing drainage areas, 2 of which are located off site. These drainage areas belong to the Lower Berry Creek watershed. The existing, on-site drainage area is sized at 162.63 acres, and the off-site drainage areas are sized at 23.10 acres and 19.70 acres.

Proposed Development

The proposed development includes the construction of public roads, sidewalks, landscaping, stormwater management infrastructure, water, and sanitary sewer. The subdivision will consist of 94 total lots; more specifically 90 single-family lots, 3 landscape lots, and 1 drainage lot. This development will gain access from Cowboy Canyon Drive (constructed with the Phase 1 improvements for the Berry Creek Highlands subdivision).



Drainage and Water Quality Analysis

Watershed Classification

This project is located within the Berry Creek Watershed of the Brazos River Basin.

Floodplain Information

No portion of the site is located within FEMA floodplain per Flood Insurance Rate Map #48491Co285F dated December 20, 2019, for Williamson County, Texas.

On-Site Drainage

This portion of the site to be improved is mostly undeveloped and is in good condition with pasture, grassland, or range with over 50% grass cover at an average of one to two percent slopes. All proposed runoff is designed to be collected in the on-site storm drain for Berry Creek Highlands. The storm drain will collect and discharge into an existing full sedimentation-filtration pond with stacked detention located at the east of the site. This pond has already been completed and accepted by the City of Georgetown in Phase 1 of the Berry Creek Highlands development. (EAPP AI No. 11001800)

Off-Site Drainage

There is no off-site drainage within this phase of the project.

Detention and Water Quality

The subject site has no existing detention or water quality ponds onsite. This subject site (Phase 3) will utilize an existing full sedimentation-filtration and detention pond within the phase 1 area. This pond has already been completed in Phase 1 of the Berry Creek Highlands development (EAPP AI No. 11001800). The detention pond is sized per current City of Georgetown design standards. Drainage area maps, calculations, and detention analysis that incorporate Atlas-14 rainfall data are included in the approved TCEQ application from phase 1 (EAPP AI No. 11001800) plan set for reference.

Based on the overall development drainage area maps and the topographic survey, the offsite flow incoming from the northwestern side of the property will be accepted by a channel along the northwestern side of the property. This channel will terminate at a proposed 36" headwall, which connects to the Berry Creek Highlands Phase 1 storm system. This headwall will connect into a 36" storm stub out that was installed in Phase 1.

Erosion and Sedimentation Controls

Temporary erosion and sedimentation controls during construction are proposed on the Erosion Control Plan and include: silt fences, inlet protection, construction staging area, concrete washout, and a stabilized construction entrance designed to City of Georgetown criteria. Where the City of Georgetown does not specify criteria, the City of Austin criteria is used. The land disturbed during construction, including the staging and stockpile areas, will drain via overland flow and into the detention and water quality pond located on-site. Permanent erosion control will include vegetation using perennial grasses and the water quality wet pond.



SECTION 3: GEOLOGIC ASSESSMENT



March 31, 2016 (Revised July 30, 2020)

KIMLEY-HORN

10814 Jollyville Road, Avallon IV, Suite 300 Austin, Texas 78759

Attn: Mr. Brian Parker, P.E., Senior Associate

Via email: <u>brian.parker@kimley-horn.com</u>

Re: Geologic Assessment

314-Acre Johnson/Schneider Tracts

Highway 195 & Bonnet Lane

Georgetown, Texas

PSI Project No.: 435-2660

Dear Mr. Parker:

Professional Service Industries, Inc. (PSI) has completed a geologic recharge assessment for the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe surficial geologic units and identify the locations and extent of significant recharge features present in the development area.

AUTHORIZATION

Authorization to perform this assessment was given by a signed copy of PSI Proposal No. 171837 between Kimley-Horn and PSI dated March 2, 2016.

PROJECT DESCRIPTION

The subject site is an irregular shaped tract of land, approximately 314-acres in size, located on the west side of Highway 195, at the southwest corner of Bonnet Lane and Hwy 195 in Georgetown, Williamson County, Texas. The site is covered with grassy vegetation, and varying thicknesses of soil, with rock outcrops scattered throughout. The online Edwards Aquifer Map provided by the TCEQ was reviewed for this assessment. According to the contour lines on the maps, the elevation of the property ranges from approximately 825 feet above mean sea level (MSL) in the northern portion of the tract, to approximately 735 feet MSL on the southwest corner of the tract, by Berry Creek. The contour lines in the area of the property indicate variable slopes; but generally to the south-southwest towards the Berry Creek drainage; while some middle portions slope to the southeast, towards a tributary drainage of Berry Creek.

REGIONAL GEOLOGY

Physiography

From west to east, the two physiographic provinces in Williamson County are: the Edwards Plateau and the Blackland Prairie. The Edwards Plateau terrain is rugged and hilly, with elevations ranging from 800 feet to 1,400 feet above sea level.

This area is underlain by beds of limestone that dip gently to the southeast. Southeast of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends north-south across Williamson County and is composed of fault blocks of limestone, chalk, shale and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 400 feet to 800 feet above sea level. The faults are predominantly normal, down thrown-to-the Gulf Coast, with near vertical throws.

The subject property lies on the Edwards Plateau. According to the 1974 Austin Sheet of the Geologic Atlas of Texas, published by the Bureau of Economic Geology in cooperation with the University of Texas at Austin, no faults are mapped in proximity to the subject site.

Stratigraphy and Structure

The site is predominantly clay covered, with few rock outcrops of note. According to the Austin Sheet of the Geologic Atlas of Texas, the underlying rocks at the site are mapped as the Edwards Limestone, undivided, which includes the overlying Georgetown Formation (Ked); is fine to coarse-grained, with abundant chert, medium gray to grayish brown; fossils in the formation are rudistids as reefs and individuals, miliolid (microfossils), and shell fragments; solution zones and collapse breccia common; thickness 300-500 feet.

No features scoring more than 40 points on the F-0585 form were observed on the subject tract. Feature S-1 is a small solution cavity on the western portion of the site, and Features S-2 to S-5 were small closed depressions on hillsides that appeared to have limited subsurface interconnection. Features S-6 and S-12 were water wells, and Feature S-7 was a linear outcrop feature in a drainage on the southeast portion of the site. Features S-8, 10 and 11 were small closed depressions on the western portion of the site, and S-11 may have been excavated as an attempt to make a stock tank/pond. Feature S-9 is a small solution cavity on the northwest portion of the site that had a lateral extent of about 4 feet in the subsurface.

SITE INVESTIGATION

The site investigation was performed by systematically traversing the subject tract, and mapping fractured or vuggy rock outcrops, closed depressions, sinkholes, caves, or indications of fault/fracture zones. The purpose of the site investigation was to delineate features with recharge potential that may warrant special protection or consideration. The results of the site investigation are included in the attached TCEQ report format.

SUMMARY

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We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.

John Langan Geology

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

John Langan, P.G.

Environmental Services

WARRANTY

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a general geological recharge assessment of this site. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geologic methods, only for the site described in this report. These methods have been developed to provide the client with information regarding apparent indications of existing or potential conditions relating to the subject site and are necessarily limited to the conditions observed at the time of the site visit and research. This report is also limited to the information available at the time it was prepared. In the event additional information is provided to PSI following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a possibility that conditions may exist which could not be identified within the scope of the assessment or which were not apparent during the site visit. PSI believes that the information obtained from others during the review of public information is reliable; however, PSI cannot warrant or guarantee that the information provided by others is complete or accurate.

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STRATIGRAPHIC COLUMN

314-Ac. Johnson/Schneider Tracts Highway 195 Georgetown, Texas

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
Del Rio Clay	40-70	Calcareous and gypsiferous, with pyrite common, with a blocky structure that weathers to light gray or yellowish gray. The characteristic marine mega fossil, <i>Ilmatogyra arietina</i> (formerly exogyra arietina) is widespread throughout the formation.
Georgetown Formation	2-20'	Light tan limestone identified by proximity to Del Rio clay and diagnostic marker fossil: waconella wacoensis brachiopod; low porosity and permeability development.
Edwards Limestone	60-350'	Limestones and dolomites, extensive porosity development in "honeycomb sections, interbedded with massive recrystallized limestones with more limited permeabilities

SOILS NARRATIVE

According to the Soil Survey of Williamson County, published by the United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Extension Service, issued in 1983, indicated the soils at the subject property include Eckrant cobbly clay, 1 to 8 percent slopes, (EaD), Eckrant extremely stony clay 0-3% slopes (EeB), Eckrant-Rock outcrop complex, rolling (ErE), Georgetown stony clay loam, 1-3% slopes (GsB) and Oakalla soils, channeled (Oc).

Eckrant soils are nearly level to gently sloping soils on broad ridges and shallow valleys in uplands that develop over limestone. Due to the large amount of rock fragments and shallowness, these soils are not suited to crops or pasturelands, but are used as rangeland. The soil is well drained, with moderately slow permeability, very low water capacity and rapid surface runoff. The shallow depth to limestone is suitable for home sites, as the rock offers stable footings for foundations, but considerable cutting and blasting is required for underground utility lines.

Georgetown stony clay loam occurs mostly on higher parts of uplands, and has an approximate 7" thick surface layer of slightly acid, brown stony clay loam which overlies a reddish-brown clay subsoil to a depth of approximately 35". The parent material is an indurated, fractured limestone. The soil is well drained, with slow permeability, medium surface runoff and low available water capacity. The soil is used as rangeland, and is suitable for home sites.

Oakalla soils occur on bottom lands in narrow stream valleys. The surface layer is a dark brown loam approximately 7" thick, which overlies a dark brown clay loam roughly 16" thick, which in turn overlies a dark brown sandy clay loam to a depth of 66". These soils are generally used as rangeland, as the channeled topography is not suited for farm equipment.

SITE GEOLOGIC NARRATIVE

Physiography

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No features scoring more than 40 points on the F-0585 form were observed on the subject tract. Feature S-1 is a small solution cavity on the western portion of the site, and Features S-2 to S-5 were small closed depressions on hillsides that appeared to have limited subsurface interconnection. Features S-6 and S-12 were water wells, and Feature S-7 was a linear outcrop feature in a drainage on the southeast portion of the site. Features S-8, 10 and 11 were small closed depressions on the western portion of the site, and S-11 may have been excavated as an attempt to make a stock tank/pond. Feature S-9 is a small solution cavity on the northwest portion of the site that had a lateral extent of about 4 feet in the subsurface.

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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: John Langan	Telephone: <u>210/342-9377</u>
Date: <u>March 31, 2016</u>	Fax: <u>210/342-9401</u>
Representing: PSI TBPG No. 50128 (Name o	Company and TBPG or TBPE registration number)
Signature of Geologist:	OFTEN
Regulated Entity Name: 314-Ac Johnson/Sco	hneider Tracts John Langan Geology 4871
Date(s) Geologic Assessment was perfor	med: 3/24-28/16
2. Type of Project:	
✓ WPAP✓ SCS3. Location of Project:	AST UST
Recharge Zone Transition Zone Contributing Zone within the Transit	ion Zone

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Eckrant cobbly		
clay ,1-8%	5	0.21
slopes	В	0-2'
Eckrant		
Extremely		
stony clay 0-	_	
3% slopes	В	0-2'
Eckrant Rock		
outcrop		
complex,	_	
rolling	В	0-1'
Georgetown		
stony clay		
loam 1-3%	_	
slopes	В	0-2

Soil Name	Group*	Thickness(feet)
Oakalla soils 0-1% slopes,		
channeled, freq flooded	С	1-3

- * 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" = 400' Site Geologic Map Scale: 1" = 400'

Site Soils Map Scale (if more than 1 soil type): 1" = 400' 9. Method of collecting positional data: Global Positioning System (GPS) technology. Other method(s). Please describe method of data collection: 10. The project site and boundaries are clearly shown and labeled on the Site Geologic Map. 11. Surface geologic units are shown and labeled on the Site Geologic Map. 12. A 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 2 (#) 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. \boxtimes 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.

STRATIGRAPHIC COLUMN

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GEOLOGIC ASSESSMENT

For

314-AC JOHNSON/SCHNEIDER TRACTS HIGHWAY 195 GEORGETOWN, WILLIAMSON COUNTY, TEXAS

Prepared for

KIMLEY-HORN 10814 JOLLYVILLE RD, AVALLON IV, STE 300 AUSTIN, TEXAS 78759

Prepared by

Professional Service Industries, Inc.
Three Burwood Lane
San Antonio, Texas 78216
Telephone (210) 342-9377

PSI PROJECT NO.: 0435-2660

March 31, 2016









March 31, 2016

KIMLEY-HORN

10814 Jollyville Road, Avallon IV, Suite 300 Austin, Texas 78759

Attn: Mr. Brian Parker, P.E., Senior Associate

Via email: brian.parker@kimley-horn.com

Re: Geologic Assessment

314-Acre Johnson/Schneider Tracts

Highway 195 & Bonnet Lane

Georgetown, Texas

PSI Project No.: 435-2660

Dear Mr. Parker:

Professional Service Industries, Inc. (PSI) has completed a geologic recharge assessment for the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe surficial geologic units and identify the locations and extent of significant recharge features present in the development area.

AUTHORIZATION

Authorization to perform this assessment was given by a signed copy of PSI Proposal No. 171837 between Kimley-Horn and PSI dated March 2, 2016.

PROJECT DESCRIPTION

The subject site is an irregular shaped tract of land, approximately 314-acres in size, located on the west side of Highway 195, at the southwest corner of Bonnet Lane and Hwy 195 in Georgetown, Williamson County, Texas. The site is covered with grassy vegetation, and varying thicknesses of soil, with rock outcrops scattered throughout. The online Edwards Aquifer Map provided by the TCEQ was reviewed for this assessment. According to the contour lines on the maps, the elevation of the property ranges from approximately 825 feet above mean sea level (MSL) in the northern portion of the tract, to approximately 735 feet MSL on the southwest corner of the tract, by Berry Creek. The contour lines in the area of the property indicate variable slopes; but generally to the south-southwest towards the Berry Creek drainage; while some middle portions slope to the southeast, towards a tributary drainage of Berry Creek.

REGIONAL GEOLOGY

Physiography

From west to east, the two physiographic provinces in Williamson County are: the Edwards Plateau and the Blackland Prairie. The Edwards Plateau terrain is rugged and hilly, with elevations ranging from 800 feet to 1,400 feet above sea level.

This area is underlain by beds of limestone that dip gently to the southeast. Southeast of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends north-south across Williamson County and is composed of fault blocks of limestone, chalk, shale and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 400 feet to 800 feet above sea level. The faults are predominantly normal, down thrown-to-the Gulf Coast, with near vertical throws.

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PROFESSIONAL SERVICE INDUSTRIES, INC.

John Langan, P.G.

Environmental Services

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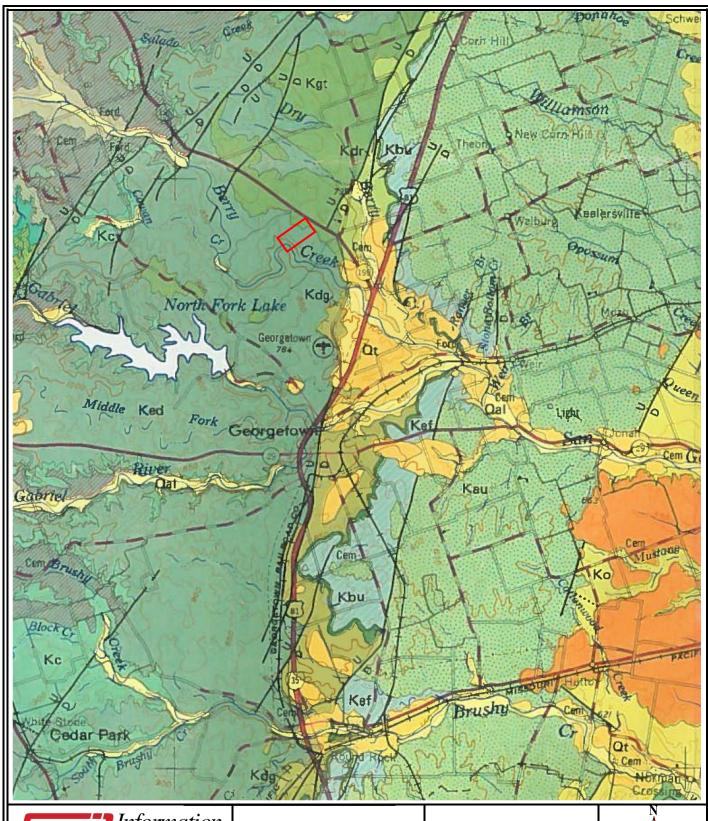
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PSI, Inc.

3 Burwood Lane San Antonio, Texas 78216

PROJECT NAME:

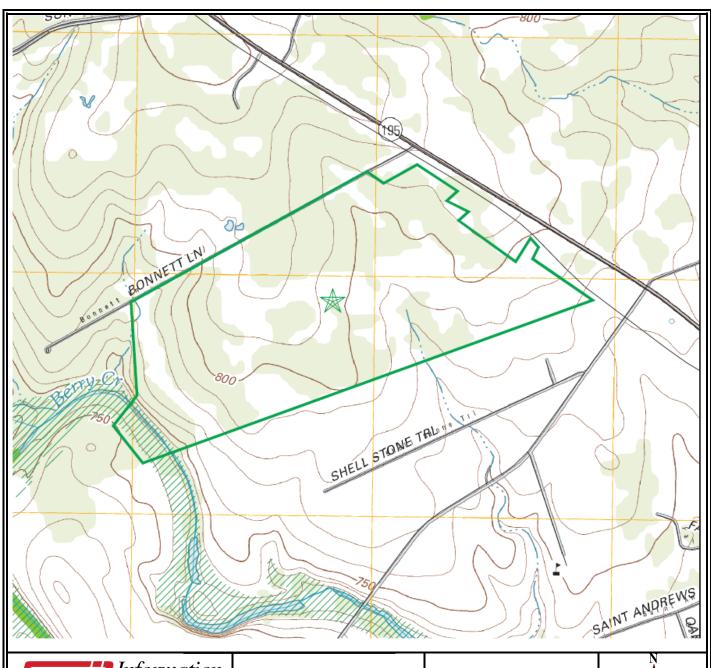
314-Ac Johnson/Schneider Tracts Highway 195 Georgetown, Texas

PROJECT NO.:435-2660

Geologic Atlas of Texas, Austin Sheet

(Bureau of Economic Geology, UT-Austin1981)







PSI, Inc.

3 Burwood Lane San Antonio, Texas 78216

PROJECT NAME:

314-Ac Johnson/Schneider Tracts Highway 195 Georgetown, Texas

PROJECT NO.:435-2660

Topographic Map USGS "Georgetown, Texas"

2013





GEC	GEOLOGIC ASSESSIV	SSESSIV	ENT	TABLE	ш		PRC	ZIE	ST NAR	ME:	314-,	Ac. Jol	osut	PROJECT NAME: 314-Ac. Johnson/Schneider Tracts	der T	ract	ွှ			
	LOCATION	NO				FEA	TURI	E CH	FEATURE CHARACTERISTICS	ERIS	SOLL				EVALUATION	-UAT	NOL	PHYS	PHYSICAL	SETTING
1A	18 *	.D.	2A	2B	3		4		. 2	5A	9	7	BA	88	6		10	=		12
FEATURE	E LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIME	DIMENSIONS (FEET)		TREND U		DENSITY A (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENS	SENSITIVITY	CATCHMENT AREA (ACRES)	NT AREA ES)	TOPOGRAPHY
						×	>	Z		10						<40	>40	<1.6	>1.6	
S F	30-43-17.6	97-41-37.2	SC	20	Ked	0.4	0.4	0.5		H				10	30	×		×		hillside
S-2	30-43-15,6	97-41-34.9	CD	5	Ked	4	4	0.5		\vdash				8	13	×		×		hillside
S-3	30-43-15,3	97-41-34.1	CD	5	Ked	4	3	0.05		H				8	13	×		×		hillside
S-4	30-43-31.9	97-40-54	CD	5	Ked	9	9	0.5		H				8	13	×		×		hillside
S-5	30-43-31.4	97-40-53.9	CD	5	Ked	7	9	0.5		-				8	13	×		×		hillside
9-S	30-43-33	97-41-19.2	MB	30	Ked	9.0	9.0	>100		-				4	34	×		×	Г	hillside
S-7	30-43-28.7	97-40-57.3	0	5	Ked	275	35	7		H				22	27	×			×	hillside
S-8	30-43-19.9	97-41-27.4	CD	5	Ked	1.5	1.5	-		\vdash				60	13	×		×	Г	hillside
6-S	30-43-27	97-41-32.8	SC	20	Ked	က	e	4						18	38	×		×		hillside
S-10	S-10 30-43-29.1	97-41-33.5	CD	5	Ked	5	2	-	_	\vdash				8	13	×		×		hillside
S-11	30-43-27.6	97-41-26,9	CD	5	Ked	25	20	3		_	_			8	13	×		×		hillside
S-12	30-43-29.9	97-41-16,2	MB	30	Ked	9.0	9.0	>100		Н	Н			4	34	×		×		hillside
										\dashv										
										_										
* DATUM:	UM:						П	П		Н	Н								П	
2A TYP	_	TYPE		26	2B POINTS	L'														
O	Cave				30						8A I	BA INFILLING	<i>(</i> 2							
SC	Solution cavity	t y			20		z	None,	None, exposed bedrock	edroc	×									
RS	Solution-enla	Solution-enlarged fracture(s)	(5)		20		O	Coarse	Coarse - cobbles, breakdown, sand, gravel	, brea	ıkdown,	sand, gra	avel							
比	Fault				20		0	coose	or soft muc	d or s	oil, orga	ınics, leav	/es, stic	Loose or soft mud or soil, organics, leaves, sticks, dark colors	ors					
0	Other natural	Other natural bedrock features	Ires		S			Fines,	compacted	d clay-	-rich se	diment, s	oil profi	Fines, compacted clay-rich sediment, soil profile, gray or red colors	d colors	(n				
MB	Manmade fea	Manmade feature in bedrock	×		30		-	Vegeta	Vegetation. Give details in narrative description	detail	ls in nar	rative de	scriptio	E						
SW	Swallow hole	77			30		ES.	Flowst	Flowstone, cements, cave deposits	nts, c	ave dep	osits								
SH	Sinkhole				20		×	Other	Other materials											
8	Non-karst clo	Non-karst closed depression	'n		S															
Z	Zone, cluster	Zone, clustered or aligned features	eatures		30				-	12 TO	12 TOPOGRAPHY	APHY								

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

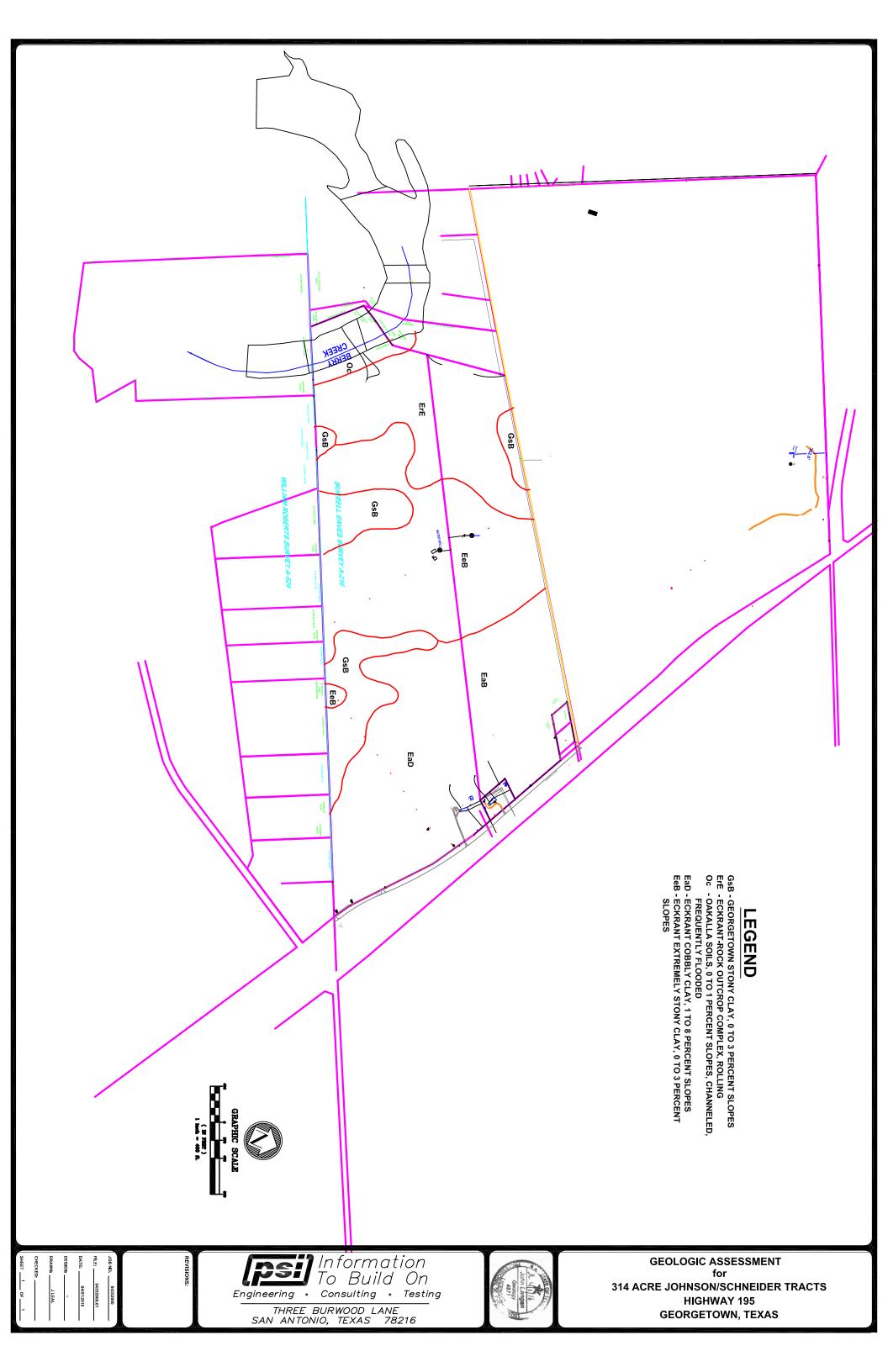
information presented here complies with that document and is a true representation of the conditions observed in the field. that I am qualified as a geologist as defined by 30 TAC Chapter 213.

My signature of

Sheet 1 of 1

Date: March 31, 2016

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



Project No. 435-2660 314-Ac. Johnson/Schneider Tract-Geologic Assessment Georgetown, TX March 2016

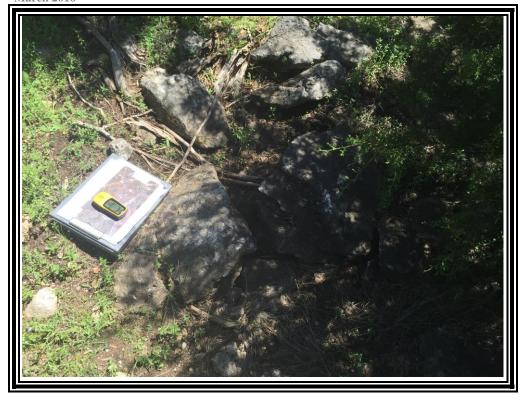


1. View northwest of Berry Creek on the western property line of the 314-Ac. Johnson/Schneider Tract on Highway 195 in Georgetown, Texas.



2. View of cut bank cliff outcrop of Edwards limestone along Berry Creek, showing thick vegetation masking visibility significantly.

Project No. 435-2660 314-Ac. Johnson/Schneider Tract-Geologic Assessment Georgetown, TX March 2016



3. View of closed depression feature S-2 located on the southwest portion of the 314-Ac. Johnson/Schneider Tract on Highway 195 in Georgetown, Texas.



4. View of closed depression feature S-3 located on the southwest portion of the site, southeast of S-2.



5. View of closed depression feature S-4 located on the eastern portion of the 314-Ac. Johnson/Schneider Tract on Highway 195 in Georgetown, Texas.



6. View of closed depression feature S-5, located south of feature S-4.



7. View of outcrop feature S-7, located in a drainage on the southeast portion of the site.



8. View of water well feature S-6, on the north-central portion of the site.

Project No. 435-2660 314-Ac. Johnson/Schneider Tract-Geologic Assessment Georgetown, TX March 2016



9. Close-up view of well feature S-6.



10. View of solution cavity feature S-9 located on the western portion of the site, at 30-43-27; 97-41-32.8.

Project No. 435-2660 314-Ac. Johnson/Schneider Tract-Geologic Assessment Georgetown, TX March 2016



11. View of water well feature S-12, in the central portion of the site at 30-43-29.9; 97-41-16.2.



12. View of closed depression feature S-11, which appeared to possibly have been excavated for an attempted stock tank, on the west central portion of the site at 30-43-27.6; 97-41-26.9.



SECTION 4: WATER POLLUTION ABATEMENT PLAN

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: <u>Jacob Kondo</u>

Date: <u>09/14/2023</u>

Signature of Customer/Agent:

Jacob Kondo

Regulated Entity Name: Berry Creek Highlands Phase 3

Regulated Entity Information

1.	The type of project is:
	Residential: Number of Lots: 90 Residential: Number of Living Unit Equivalents: Commercial Industrial Other:
2.	Total site acreage (size of property): 16.885

TCEQ-0584 (Rev. 02-11-15)

3. Estimated projected population: 315

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	270,000.00	÷ 43,560 =	6.20
Parking	N/A	÷ 43,560 =	N/A
Other paved surfaces	119,107.49	÷ 43,560 =	2.73
Total Impervious Cover	389,107.49	÷ 43,560 =	8.93

Total Impervious Cover $8.93 \div$ Total Acreage 16.885 X 100 = 52.88% 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. T	ype of project:
Г	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.
3. T	ype of pavement or road surface to be used:
	Concrete Asphaltic concrete pavement Other:
9. Le	ength of Right of Way (R.O.W.): feet.
	Vidth of R.O.W.: feet. x W = Ft ² ÷ 43,560 Ft ² /Acre = acres.
10. Le	ength of pavement area: feet.
L	Vidth of pavement area: feet. $x W = $ $Ft^2 \div 43,560 Ft^2/Acre = acres. avement area acres \div R.O.W. area acres x 100 = % impervious cover.$
11. [A rest stop will be included in this project.
	A rest stop will not be included in this project.

12.	TCEQ Executive Director. Modification	radways that do not require approval from the ns to existing roadways such as widening than one-half (1/2) the width of one (1) existing ICEQ.
Stor	rmwater to be generated	d by the Proposed Project
13.	volume (quantity) and character (qual occur from the proposed project is at quality and quantity are based on the	er of Stormwater. A detailed description of the lity) of the stormwater runoff which is expected to tached. The estimates of stormwater runoff area and type of impervious cover. Include the pre-construction and post-construction conditions
Was	stewater to be generated	d by the Proposed Project
14. Th	e character and volume of wastewater	is shown below:
<u>1</u>	00 % Domestic % Industrial % Commingled TOTAL gallons/day <u>0.10 MGD</u>	million gallons/day Gallons/day Gallons/day
15. Wa	astewater will be disposed of by:	
] On-Site Sewage Facility (OSSF/Septic 1	Tank):
	will be used to treat and dispose of licensing authority's (authorized a the land is suitable for the use of put the requirements for on-site sewarelating to On-site Sewage Facilities Each lot in this project/developments size. The system will be designed	from Authorized Agent. An on-site sewage facility of the wastewater from this site. The appropriate agent) written approval is attached. It states that private sewage facilities and will meet or exceed age facilities as specified under 30 TAC Chapter 285 es. ent is at least one (1) acre (43,560 square feet) in by a licensed professional engineer or registered sed installer in compliance with 30 TAC Chapter
\boxtimes	Sewage Collection System (Sewer Line	es):
	to an existing SCS.	vastewater generating facilities will be connected vastewater generating facilities will be connected
	☐ The SCS was previously submitted ☐ The SCS was submitted with this a☐ The SCS will be submitted at a late be installed prior to Executive Dire	application. er date. The owner is aware that the SCS may not

	The sewage collection system will convey the wastewater to the <u>San Gabriel</u> <u>Wastewater Treatment Plant</u> . The treatment facility is:
	Existing.Proposed.
16.	All private service laterals will be inspected as required in 30 TAC §213.5.
Si	te Plan Requirements
Iter	ns 17 – 28 must be included on the Site Plan.
17.	\square The Site Plan must have a minimum scale of 1" = 400'.
	Site Plan Scale: 1" = <u>60</u> '.
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):
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 $\underline{0}$ (#) 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.
	igspace 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
	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. $igotimes$ The drainage patterns and approximate slopes anticipated after major grading activities	
23. $igotimes$ Areas of soil disturbance and areas which will not be disturbed.	
24. \(\simega\) Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.	
25. $igotimes$ 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.	
igotimes There will be no discharges to surface water or sensitive features.	
28. 🔀 Legal boundaries of the site are shown.	
Administrative Information	
29. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.	
30. Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.	

Attachment A

Factors Affecting Water Quality

Materials that are anticipated to be used on site that could be a potential source of contamination include the following:

During Construction:

- 1. Concrete and Masonry Materials
- 2. Wood, plastic, and metal Materials
- 3. Tar and hydrocarbons from paving operations
- 4. Oil, Grease, fuel, and hydraulic fluid from construction equipment and vehicle drippings
- 5. Fertilizers, Herbicides, and Pesticides
- 6. Cleaning solutions and detergents
- 7. Miscellaneous construction trash and debris
- 8. Soil erosion and sedimentation due to construction activity

Ultimate Use:

- 1. Pollutants generated from vehicles utilizing the site
- 2. Fertilizers, Herbicides, and pesticides used to maintain landscaping
- 3. Miscellaneous trash and debris generated from the public

(This is not intended to be an all-inclusive list)

All practical management practices will be used to reduce the risk of spills and other exposure of any contaminant to surface or groundwater.

Attachment B

Volume and Character of Storm Water

The content of this report is based on 16.885-acre tract of land portioned form the 314.54-acre Berry Creek property. The property in acquisition is located on the west side of Highway 195, Northwest of the intersection of Highway 195 and Shell Road, in Georgetown, Texas. The client is proposing 90 single-family lots in phase 3 of the master-planned project. There are 90 proposed single family lots in Phase 3.

No portion of this site is located in the Federal Emergency Management Agency's 100-year floodplain per the Flood Insurance Rate Map 48491C0285F, dated December 20, 2019, for Williamson County, Texas. No floodplain modifications are proposed. The Suburban Watershed Requirements allow Residential Single-family (RS) developments to have up to 60% impervious cover per PUD Ord. 2018-36.

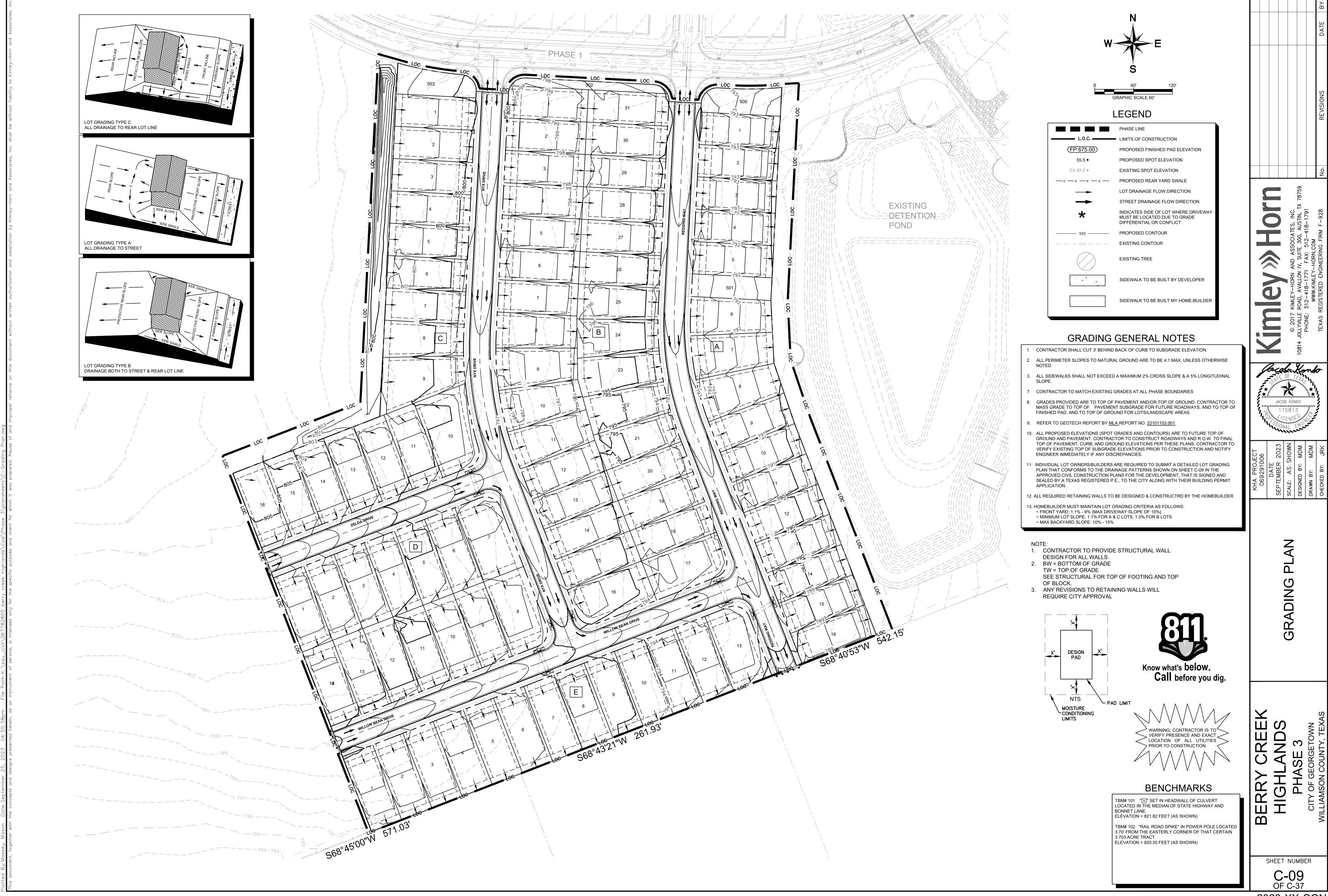
The Lot is located in the Lower Berry Creek Watershed, regulated as a Suburban watershed. No portion of the site is located within FEMA floodplain per Flood Insurance Rate Map #48491Co285F dated December 20, 2019, for Williamson County, Texas.

The subject site has no existing detention or water quality ponds. One detention pond is already constructed to the east side of the site. This detention and water quality pond was installed and accepted by the city of Georgetown in the Phase 1 construction plans. The as-built plans for the detention pond are attached in section 7 of this report. The Detention Pond is sized per current City of Georgetown design standards. Drainage area maps and calculations that incorporate Atlas-14 rainfall data are included in the plan set for reference. Detention analysis is provided with the construction plans.

Based on the overall development drainage area maps and the topographic survey it appears that all offsite drainage is conveyed via sheet flow onto the southeastern boundary of the site.

Both an existing and proposed drainage area map are provided at the end of this report.

Site Plan



SECTION 5: ORGANIZED SEWAGE COLLECTION SYSTEM PLAN

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: Berry Creek Highlands Phase 3

31. 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

32. 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: Brandon Jenkins

Entity: FR Berry Hills, LLC

Mailing Address: 11 Dupont Circle NW, Suite 900

City, State: Washington, DC Zip: $\underline{20036}$ Telephone: $\underline{512-450-4916}$ Fax: $\underline{N/A}$

Email Address: frank.delcastillo@ashtonwoods.com

The appropriate regional office must be informed of any changes in this information within 30 days of the change.

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

Contact Person: Jacob Kondo

Texas Licensed Professional Engineer's Number: 115813

Entity: Kimley-Horn

Mailing Address: 10814 Jollyville Road; Bldg. IV, Suite 200

City, State: Austin, Texas Zip: 78759

Telephone: <u>512-418-1771</u> Fax: <u>N/A</u>

Email Address: <u>Jacob.Kondo@kimley-horn.com</u>

Project Information

34.	34. Anticipated type of development to be served (estim plus adequate allowance for institutional and comme		
	Residential: Number of single-family lots: 90 Multi-family: Number of residential units: Commercial Industrial Off-site system (not associated with any development) Other:	lopment)
35.	35. The character and volume of wastewater is shown be	elow:	
	% Industrial % Commingled	.10	million gallons/day gallons/day gallons/day
	Total gallons/day: 0.10 MGD		
36.	36. Existing and anticipated infiltration/inflow is $\frac{11.73}{9}$ gains.	allons/da	y. This will be addressed by:
37.	 A Water Pollution Abatement Plan (WPAP) is required commercial, industrial or residential project located of 		
	 □ The WPAP application for this development we copy of the approval letter is attached. ☑ The WPAP application for this development we but has not been approved. □ A WPAP application is required for an associate submitted. □ There is no associated project requiring a WPAP 	vas subm ted proje	itted to the TCEQ on 10/5/23 ect, but it has not been
20	20 Dina description		

38. Pipe description:

Table 2 - Pipe Description

Pipe Diameter (Inches)	Linear Feet (1)	Pipe Material (2)	Specifications (3)
8" (WWL-A)	783 LF	SDR-26	ASTM D3034
8" (WWL-B)	402 LF	SDR-26	ASTM D3034
8" (WWL-C)	483 LF	SDR-26	ASTM D3034
8" (WWL-D)	699 LF	SDR-26	ASTM D3034

Total Linear Feet: 2367 LF

- (1) Linear feet Include stub-outs and double service connections. Do not include private service laterals.
- (1) Pipe Material If PVC, state SDR value.
- (2) Specifications ASTM / ANSI / AWWA specification and class numbers should be included.

	e sewage collection system will convey the wastewater to the <u>San Gabriel Wastewater</u> atment Plant.
The	e treatment facility is:
	Existing Proposed
40. All	components of this sewage collection system will comply with:
	☐ The City of Georgetown standard specifications.☐ Other. Specifications are attached.
41. 🖂	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.
Aligi	nment
42. 🔀	There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.
43. 🛚	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.
Man	holes and Cleanouts
44. 🖂	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 3 - Manholes and Cleanouts

Line	Shown on Sheet	Station	Manhole or Clean- out?
WWL-A	26 of 35	1+00.00	Manhole
WWL-A	26 of 35	4+59.57	Manhole
WWL-A	26 of 35	5+63.49	Manhole
WWL-A & WWL-B	26 & 27 of 35	6+82.86 & 1+00.00	Manhole
WWL-A	26 of 35	8+82.36	Manhole

Line	Shown on Sheet	Station	Manhole or Clean- out?
WWL-C	28 of 35	1+00.00	Manhole
WWL-C	28 of 35	3+38.54	Manhole
WWL-C	28 of 35	4+09.01	Manhole
WWL-C	28 of 35	5+02.43	Manhole
WWL-C	28 of 35	5.98.80	Manhole
WWL-C & WWL-D	28 & 29 of 35	8+52.18 & 1+00.00	Manhole
WWL-D	29 of 35	3+92.11	Manhole

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

46. $oxede$ The maximum spacing between manholes on this project for each pipe diameter is n	0
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.

47. 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.

- 48. The Site Plan must have a minimum scale of 1'' = 400'. Site Plan Scale: 1'' = 60'.
- 49. 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.

50. 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.

51. Location of existing and proposed water lines:

l	1 7	The entire water distribution system for this project is shown and labeled.
	\boxtimes I	If not shown on the Site Plan, a Utility Plan is provided showing the entire water and
	9	sewer systems.
		There will be no water lines associated with this project.

52. 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 4 - 100-Year Floodplain

Line	Sheet	Station
n/a	n/a	n/a

53. 5-year floodplain:

$\boxtimes A$	After construction is complete, no part of this project will be in or cross a 5-year
f	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 5 - 5-Year Floodplain

Line	Sheet	Station
n/a	n/a	n/a
n/a	n/a	n/a

Line	Sheet	Station
n/a	n/a	n/a
n/a	n/a	n/a

54. \(\) Legal boundaries of the site are shown.

55. 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.

56. 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 6 - Water Line Crossings

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
WWL-B	1+29.03	Crossing	n/a	1.50 FT
WWL-D	1+26.52	Crossing	n/a	0.70 FT
WWL-D	4+23.50	Crossing	n/a	1.60 FT

57. Vented Manholes:

∇A	No near of this content is a sixthing the 100 years flood along and year of several assumed as a second several as
\triangle	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 7 - Vented Manholes

Line	Manhole	Station	Sheet
n/a	n/a	n/a	n/a

58. 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(I)(2)(H).

Table 8 - Drop Manholes

Line	Manhole	Station	Sheet
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a

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

\boxtimes	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.

60. 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.

61. Minimum flow velocity (From Appendix A)

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

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

\boxtimes	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 – Calculation	ons for Slopes for Flows Greater Than 10.0 Feet per
Second. Assuming pipes a	are flowing full, some slopes produce flows which are
greater than 10 feet per se	econd. These locations are listed in the table below.
Calculations are attached.	

Table 9 - Flows Greater Than 10 Feet per Second

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

63	. 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(I)(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.
	\bowtie N/A

Administrative Information

- 64. 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.
- 65. 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 10 - Standard Details

Standard Details	Shown on Sheet
Lateral stub-out marking [Required]	n/a
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) [Required]	33-35 of 35
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	n/a
Typical trench cross-sections [Required]	33-35 of 35
Bolted manholes [Required]	n/a
Sewer Service lateral standard details [Required]	33-35 of 35
Clean-out at end of line [Required, if used]	33-35 of 35
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	n/a
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	33-35 of 35
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	n/a
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	33-35 of 35

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

67. 🔀	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 applicat	ion will be deemed incomplete and returned.

Survey staking was completed on this date:
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.
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: <u>Jacob Kondo</u>

Date: <u>09/14/2023</u>

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 11 - 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

Attachment A - SCS Engineering Design Report

This Engineering Design Report has been prepared to comply with the Texas Commission on Environmental Quality Design Criteria for Domestic Wastewater Systems, 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable. Please note that throughout this application, the more stringent of AWU or TCEQ regulations shall apply.

Project Description

Introduction

The content of this report is based on 16.885-acre tract of land portioned form the 314.54-acre Berry Creek property. The property in acquisition is located on the west side of Highway 195, Northwest of the intersection of Highway 195 and Shell Road, in Georgetown, Texas. The client is proposing 90 single-family lots within one phase (Phase 3) of the master-planned project.

No portion of this site is located in the Federal Emergency Management Agency's 100-year floodplain per the Flood Insurance Rate Map 48491C0285F, dated December 20, 2019, for Williamson County, Texas. No floodplain modifications are proposed.

The entire 314.54 tract is located within the Edwards Aquifer Recharge Zone.

On-site infrastructure is comprised of private domestic fire hydrants, water, gas, electric, wastewater, and storm sewer lines. The wastewater service outlined in this report will consist of four alignments: WWL-A, WWL-B, WWL-C, and WWL-D. These lines will tie into existing infrastructure on Cowboy Canyon Dr and will consist of laterals to each building that is proposed per this development. All proposed wastewater lines will be installed within the Edwards Aquifer Recharge Zone (EARZ).

The proposed system will connect to the existing Phase 1 Wastewater (EAP ID 11001827) system for conveyance to the San Gabriel Wastewater Treatment Plant for treatment and disposal. Based on the TCEQ approval of the existing Phase 1 Wastewater (EAP ID 11001827) system, the San Gabriel Treatment Plan currently has sufficient capacity to adequately treat the proposed peak flow.

Pipe Design

Flow Design Basis

Service for the future build-out of the 16.885-acre single-family site located at 2451 State Highway will be served by the existing wastewater stub-outs on Cowboy Canyon Dr.

Gravity Pipe and Joint Materials

The proposed pipe to be used for the 8-inch wastewater line will be ASTM D3034 SDR-26 PVC pipe (cell class 12454). The joints for this pipe shall meet the requirements of ASTM D3212. The pipe joints shall have an integral bell and rubber gasket seal with the locked-in type gasket.

Separation Distances for Water and Wastewater

A nine-foot minimum horizontal separation is maintained between all proposed wastewater infrastructure and existing public water supply lines. Where water and wastewater lines cross with less than 9 ft of vertical separation, 20 LF of steel encasement of the wastewater line is centered on the crossing.

Building Laterals and Taps

Each of the proposed buildings will have a lateral connection to the nearest wastewater line in the main drive aisle of the property. Lateral detail is shown on the construction plans.

Boring and Tunneling of Crossings

No boring or tunneling of crossings are proposed for this project.

Corrosion Potential

PVC pipe will be utilized for or all proposed wastewater lines. No deterioration of the proposed pipe or its associated components is anticipated in this application.

Odor Control

All flows contributing to the proposed wastewater lines are from multi-family developments generating domestic sewage. There are no significant generators of sulfide or other odorous compounds (such as lift stations) upstream of the proposed wastewater lines. Therefore, no odor control measures are proposed for this project.

Active Geologic Faults

Per the Geologic Assessment, no active geologic faults were located within the area of the project.

Capacity Analysis

The capacity of each proposed wastewater segment is calculated below based on Manning's Equation. The calculation for each segment is based on the minimum proposed slope.

$$Q = \frac{1.49}{n} * A * R^{0.67} * S^{0.5}$$

Where:

Qfull = flow rate of fluid in pipe at full flow (ft^3/s) (cfs)

Q90%= flow rate of fluid in pipe at 90% full flow (ft³/s) (cfs)

A = area of pipe (ft^2) =
$$\frac{\pi * d^2}{4}$$

d = internal pipe diameter (ft) = Do - 2t

Do = outside diameter (in) t = pipe wall thickness (in)

n = Manning's Roughness coefficient = 0.013

Rfull = hydraulic radius of pipe (full flow) = A/P = D/4 (ft)

R90%= hydraulic radius of pipe (90% full flow) = 0.9*A/P = 0.9*D/4 (ft)

P = wetted perimeter of pipe = \mathcal{T} *D (ft)

S = slope of energy line

	Pipe Size	Pipe Name	Upstream Slope (%)	Upstr. Length (ft)	# of LUEs Added	# of People	Total # of people	AREA SF	# of acres	I/I (GPM)	ADWF (GPM)	PDWF (GPM)	PDWF (CFS)	V PDWF (FPS)	PWWF (GPM)	V PWWF (FPS)	PWWF (CFS)	V FULL (FPS)	Q _{full} (gpm)	PDWF Capacity (%)	PWWF Capacity (%)
	8	PIPE-05	0.50%	359.569	16.00	56.00	56.00	117451.00	2.6963	1.4043	3	12	0.026	N/A	13	N/A	0.029	2.4	384	3.05%	3.42%
WWL-A	8	PIPE-06	0.50%	103.922"	3.00	10.50	66.50	28060.00	0.6442	0.3355	3	14	0.031	1.16	16	1.31	0.035	2.4	384	3.61%	4.06%
*****	8	PIPE-07	0.50%	119.370	2.00	7.00	73.50	12957.00	0.2975	0.1549	4	15	0.034	1.19	17	1.35	0.038	2.4	384	3.98%	4.47%
	8	PIPE-08	0.50%	199.500°	4.00	14.00	136.50	25914.00	0.5949	0.3098	7	28	0.062	1.43	30	1.65	0.067	2.4	384	7.26%	7.83%
WWL-B	8	PIPE-09	0.50%	401.303	14.00	49.00	49.00	111566.00	2.5612	1.3340	2	10	0.023	1.06	14	1.25	0.031	2.4	384	2.68%	3.60%
	8	PIPE-10	1.43%	238.537	10.00	35.00	35.00	75097.00	1.7240	0.8979	2	7	0.016	1.38	12	1.64	0.026	4.1	650	1.14%	1.82%
1	8	PIPE 10 (1)	0.33%	70.469'	3.00	10.50	45.50	22918.00	0.5261	0.2740	2	10	0.021	0.90	14	1.12	0.032	2.0	312	3.06%	4.57%
WWL-C	8	PIPE-11	0.33%	93.425'	2.00	7.00	52.50	14099.00	0.3237	0.1686	3	11	0.025	0.93	16	1.16	0.035	2.0	312	3.52%	5.09%
WWL-C	8	PIPE-12	0.33%	96.366'	4.00	14.00	66.50	33476.00	0.7685	0.4003	3	14	0.031	1.00	19	1.23	0.043	2.0	312	4.44%	6.13%
	8	PIPE-13	0.33%	253.384'	10.00	35.00	101.50	66740.00	1.5321	0.7980	5	21	0.047	1.13	27	1.39	0.060	2.0	312	6.71%	8.65%
	8	PIPE-14	0.33%	90.441	2.00	7.00	178.50	13340.00	0.3062	0.1595	9	36	0.081	1.33	42	1.62	0.094	2.0	312	11.58%	13.58%
WWL-D	8	PIPE-15	0.79%	292.105	6.00	21.00	21.00	40020.00	0.9187	0.4785	1	4	0.010	0.97	11	1.34	0.025	3.1	483	0.93%	2.32%
WWWL-D	8	PIPE-16	0.50%	406.322	14.00	49.00	70.00	93380.00	2.1437	1.1165	3	15	0.032	1.18	22	1.48	0.050	2.4	384	3.79%	5.83%

The proposed wastewater line installed at the slope specified provides capacity in excess of the calculated peak wet weather design flows at full flow and 90% full flow conditions. The minimum grade for 8-inch pipes is 0.33% - this information can be found in Appendix A, Table 10 of Form TCEQ-0582. The maximum grade can also be found in this table and is 8.40%. The proposed wastewater system fits within these criteria, as the minimum slope is 0.33% and maximum slope is 1.43%.

Lift Station Capacity

	WASTEWATER											
									Wastewate	r Flows		
Sewershed Name	Land Use	Total Area (Acres)	Units	LUE/Unit or SF	LUEs	Avg. Dry Weather (GPM)	Avg. Dry Weather (MGD)	Peaking Factor	Peak Dry Weather (GPM)	I & I (GPM)	Peak Wet Weather (GPM)	Peak Wet Weather (MGD)
A-4	Single-Family	28.09	191	1.00	191	33.16	0.05	3.50	116.00	19.50	135.51	0.20
OS-5	Multi-Family	26.30	308	0.80	246	42.78	0.06	3.43	146.89	18.26	165.15	0.24
Total Site		54.39	499	1.80	437	75.94	0.11	3.29	250.02	37.77	287.79	0.41

The proposed phase will bring wastewater flows from 191 single family lots, and 308 multifamily units online that will be served by the Berry Creek Highlands Lift Station. During the design of the lift station, 188 single family units and 360 multi-family units were assumed when calculating the required wastewater flow capacity for the lift station. The proposed development results in an ultimate build out wastewater flow of 784 gpm to be conveyed to the lift station. The lift station is designed to a capacity of 809 gpm, showing it has the necessary capacity to serve the proposed development.

The lift station capacity is shown above. This has already been approved by the TCEQ and accounts for flows from Phase 3.

Structural Analysis

Flexible pipe is proposed on this project. Structural calculations are provided for the flexible pipe to be installed. The proposed collection system piping is designed to have a minimum structural life of 50 years. As previously mentioned, all proposed PVC pipe shall be cell class 12454 with a tensile strength of 7,000 psi.

Live Load Calculations - no significant live loads are anticipated on any segment of this project.

Buckling Pressure - the following equations utilized for the calculation of buckling pressure are taken from the Handbook of PVC Pipe: Design and Construction (Uni-Bell PVC Pipe Association, 2001).

$$Pcr = \frac{2 * E}{(1 - v^2) * (DR - 1)^3}$$
 (Equation 7.14)

Pb =
$$1.15 * \sqrt{Pcr * E'}$$
 (Equation 7.18)

H = (Pb*144)/w (Equation 6.7)

Where:

Pcr = critical buckling pressure (psi)

E = modulus of elasticity (psi) = 400,000 psi for PVC

v = Poisson's Ratio = 0.38 for PVC

DR = dimension ratio

Pb = buckling pressure in soil (psi)

E' = modulus of soil reaction (psi) = 2,000 psi for crushed rock compacted to greater than 95% relative

density

H = maximum allowable cover height of soil (ft)

 $w = weight of soil (lbs/ft^3) = 120 lbs/ft^3$

8" ASTM D3034 SDR-26

$$Pcr = \frac{2*400,000}{(1-0.38^2)*(26-1)^3}$$

Pcr = 59.84 psi

Pb =
$$1.15 * \sqrt{59.84 * 2,000}$$

Pb = 397.84 psi

H = (397.84*144) / 120

H = 477.41 ft height of soil to cause pipe buckling

Prism Load Calculations - the following equations utilized for the calculation of prism loads are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

 $P = H^*w$ (Equation 6.7)

Where:

P = prism load pressure due to soil weight (lbs/ft²)

H = depth of pipe (ft)

 $w = soil density (lbs/ft^3) = 120 lbs/ft^3$

8" ASTM D3034 SDR-26

P = 12 * 120

 $P = 1,440 \text{ lbs/ft}^2 \text{ or } 10.00 \text{ psi}$

Long Term Deflection Calculations - the following equations utilized for the calculation of long term deflection are taken from the Handbook of PVC Pipe: Design and Construction (Uni-Bell PVC Pipe Association, 2001).

$$\Delta Y/D = \frac{DL*K*P+K*W_1}{[2E/(3(DR-1)^3)]+0.061*E'}*100$$
 (Equation 7.10)

Where:

 $\Delta Y/D$ = long term deflection (%)

DL = Deflection Lag Factor = 1.0 for prism load calculation

K = bedding constant = 0.096 for 90°

P = prism load pressure due to soil weight (lbs/ft²)

 $W_1 =$ live load (psi) = 0 psi

E = modulus of elasticity (psi) = 400,000 psi for PVC

DR = dimension ratio

E' = modulus of soil reaction (psi) = 2,000 psi for crushed rock bedding compacted to greater than 95% relative density

Note: Leonhardt's Zeta factor is assumed to equal 1, and thus is not required in the calculation. This is a conservative assumption that results in a more conservatively calculated value for long term deflection.

8" ASTM D3034 SDR-26

$$\Delta Y/D = \frac{1.0*0.096*10.00+0.096*0}{[2(400,000)/(3(26-1)^3)]+0.061*2,000}*100$$

 $\Delta Y/D = 0.69\%$

Wall Crushing Calculations - the following equations utilized for the calculation of wall crushing are taken from the Handbook of PVC Pipe: Design and Construction (Uni-Bell PVC Pipe Association, 2001).

$$Py = \frac{\Theta c * 2 * A}{D}$$
 (Equation 7.20)

$$H = Py / w$$
 (Equation 6.7)

Where:

Py = pressure due to soil weight (psi)

 Θc = compressive stress (psi) = 4,000 psi for PVC pipe

A= surface area of the pipe wall (in²/in)

D = mean pipe diameter (in) = Do - t

t = pipe wall thickness (in)

H = maximum allowable height of cover (ft)

 $w = soil density (lbs/ft^3) = 120 lbs/ft^3$

8" ASTM D3034 SDR-26

Do = 8.40 - 0.323 = 8.077 in, A = $3.88 \text{ in}^2/\text{ft}$ (0.323 in * 12 in/ft)

$$Py = \frac{4,000 * 2 * (3.88/12)}{8.077}$$

Py = 320.25 psi

H = (320.25*144) / 120

H = 384.30 ft height of soil to cause wall crushing

Strain Calculations - the following equations utilized for the calculation of strain are taken from the Handbook of PVC Pipe: Design and Construction (Uni-Bell PVC Pipe Association, 2001).

$$\varepsilon h = \frac{P * D}{2 * t * E}$$
 (Equation 7.22)

$$\varepsilon f = \frac{t}{D} * \frac{[3 * \Delta Y / D]}{[1 - 2 * \Delta Y / D]}$$
 (Equation 7.24)

$$\varepsilon = \varepsilon h + \varepsilon f$$
 (Equation 7.25)

Where:

εh = maximum strain in the pipe wall due to hoop stress (in/in)

P = prism load pressure due to soil weight (psi)

D = mean pipe diameter (in) = Do - t

t = pipe wall thickness (in)

E = modulus of elasticity (psi) = 400,000 psi for PVC

εf = maximum strain in the pipe due to ring deflection or flexure (in/in)

 $\Delta Y/D$ = long term deflection

 ε = maximum combined strain in pipe wall (in/in)

8" ASTM D3034 SDR-26

$$\epsilon h = \frac{10.00*8.077}{2*0.323*400,000}$$

 $\epsilon h = 0.00031 in/in$

$$\varepsilon f = \frac{0.323}{8.077} * \frac{[3*0.0069]}{[1-2*0.0069]}$$

 $\epsilon f = 0.00084 in/in$

 $\varepsilon = 0.00031 + 0.00084$

$\epsilon = 0.00115 \text{ in/in}$

Per the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001), deflection test samples have experienced a pipe wall strain of up to 0.025 in/in and have not "showed any failures or cracks". The calculated strains for this project are significantly below this level, so no failure due to strain is anticipated.

Pipe Stiffness Calculation - the following equations utilized for the calculation of pipe stiffness are taken from the *Handbook of PVC Pipe: Design and Construction* (Uni-Bell PVC Pipe Association, 2001).

$$Ps = 4.47 * \frac{E}{(DR-1)^3}$$
 (Equation 7.3)

Where:

Ps = pipe stiffness (psi)

DR = Dimensional Ration = Do / t

Do = Outside diameter (in)

t = pipe wall thickness (in)

E = modulus of elasticity (psi) = 400,000 psi for PVC

8" ASTM D3034 SDR-26

DR = 26

 $Ps = 4.47 * \frac{400,000}{(26-1)^3}$

Ps = 115 psi

Criteria for Laying Pipe

Pipe Embedment

Bedding and initial backfill material selection and installation will be carried out in accordance with applicable governing procedures contained within the *City of Georgetown Construction Specifications and Standards, TCEQ Chapter 217.54(a),* and in accordance with the City of Georgetown detail WW-16 through WW-18. Bedding material shall be in accordance with *City of Georgetown Technical Specifications Section G4 – Pipe Excavation, Trenching, Embedment, Encasement, and Backfilling.* Compacted backfill, from a point one (1) foot above the pipe to the finished surface, will be comprised of suitable material removed during excavation, as described in Section G4.05. Brush, debris, and junk shall not be utilized as a backfilling material.

Compaction

Trench compaction will be carried out in accordance with the *City of Georgetown Technical Specifications* Section G4 – Pipe Excavation, Trenching, Embedment, Encasement, and Backfilling and TCEQ Chapter 217.54(b). Proper placement of the backfill and compaction per City of Georgetown requirements will not negatively impact the structural integrity of the pipe.

Envelope Size

Envelope size will be in accordance with *City of Georgetown Technical Specifications Section G4 – Pipe Excavation, Trenching, Embedment, Encasement, and Backfilling* and *TCEQ Chapter 217.54(c)*. Per the City of Georgetown Detail WW-16, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe and the trench wall and floor. In addition, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe bell and the trench wall. The embedment and initial backfill must be installed to a minimum depth of 12 inches above the crown of the pipe.

Trench Width

Trench width will be in accordance with the City of Georgetown Detail WW-16 and *TCEQ Chapter 217.54(d)*. Per the City of Georgetown Detail WW-16, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe and the trench wall and floor. In addition, a minimum of 6-inch and maximum of 12-inch space shall be allowed between the outside diameter of the pipe bell and the trench wall. These limits shall be maintained to protect the structural integrity of the pipe and will be sufficient for the placement of materials and use of compaction equipment in the pipe zone.

Manholes and Related Structures

Manhole and Appurtenance Placement

Each manhole is placed according to the construction plans. There are 23 – 4' manholes to be constructed.

Manhole Stub Outs

No stub outs are included on this project.

Cleanouts

Cleanouts are proposed for the service line connections in the locations specified on the construction plans.

Manhole Material

Monolithic or precast manholes are acceptable for the contractor to utilize and are included in the City of Georgetown Wastewater Specifications - Section WW-1. The use of bricks is not acceptable for the manhole or for cover adjustments.

Manhole Spacing

Manhole spacing meets the requirements of Table C.2 in TCEQ Chapter 217.55.

Manholes within Waterways

No manholes will be located within flow paths of waterways or in areas where water ponding is probable.

Manhole Covers, Inlets, and Bases

Per the City of Georgetown detail WW-02, the manhole covers shall have a 30-inch diameter clear opening. Manhole covers shall be constructed of cast iron and have no openings for water to infiltrate. No proposed manholes are located within the 100-year flood plain. All manholes shall be watertight, with watertight rings and covers, as shown per the City of Georgetown detail WW-02.

As shown in the project details, the bottom of the manhole shall have a U-shaped channel to provide smooth continuation between the inlet and outlet pipes. For the proposed pipe, the manhole channel depth shall be equal to at least half the largest pipe diameter. Manholes with different pipe sizes shall have the tops

of the pipes at the same elevation and flow channels in the invert sloped evenly from pipe to pipe. A bench will be provided above each manhole channel to slope at a minimum of 0.5 inches per foot.

Manhole Steps

No steps shall be allowed in any proposed manholes.

Manhole Connections

Manhole-pipe connections shall be watertight per City of Georgetown pipe to manhole connector SPL WW-146D. See detail WW-2 for more information.

Manhole Venting

The proposed manholes are spaced at less than 1,500-foot intervals and none are located within the 100-year flood plain. Therefore, no vented manholes are proposed on this project.

Trenchless Pipe Installation

There will be no trenchless pipe installation.

Testing Requirements for Gravity Pipes

Infiltration/Exfiltration and Low Pressure Air Test

All testing will be in compliance with Texas Administrative Code title 30 Part 1 Chapter 217 Subchapter C 217.57 and 217.58. See TCEQ note on Sheet 2 of 8.

Infiltration and exfiltration or low pressure air testing in accordance with ASTM C828, C924 or F1417 are required for all proposed gravity wastewater pipe as specified in the project notes, sheet 2 of 8. The requirements specified are in accordance with *TCEQ Chapter 217.57*.

Deflection Testing

For the proposed 8-inch wastewater line, deflection shall be measured with a rigid mandrel per the project detail on sheet 2 of 8. The requirements specified are in accordance with *TCEQ Chapter 217.57*.

Owner Inspection

The Owner shall have an inspector onsite during construction of the project. A professional engineer registered in the state of Texas (Jacob Kondo, P.E.) shall be present to witness the testing of the wastewater lines.

Testing Requirements for Manholes

Manhole testing in accordance with *TCEQ Chapter 217.58* is specified in the project notes, sheet 2 of 8. Manholes will be tested after assembly and backfilling for leakage by either a hydrostatic test and/or a vacuum test.

For the vacuum test, all lift holes and exterior joints shall be plugged with an approved non-shrink grout and no grout shall be placed in horizontal joints before testing. All pipes entering the manhole shall be plugged, taking care to securely brace the plugs from being drawn into the manhole. Stub-outs, manhole boots and pipe plugs shall be secured to prevent movement while the vacuum is drawn. A minimum 60-inch/lb torque wrench shall be used to tighten the external clamps that secure the test cover to the top of the manhole. The test head shall be placed at the inside of the top of the cone section and the seal inflated in accordance with the manufacturer's recommendation. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches of

mercury. The manhole shall pass if the time is greater than 2 minutes. If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout while the vacuum is still being drawn. If the manhole fails a second time, repairs should again be made, and the manhole shall be tested by means of a hydrostatic test. If any manhole fails the hydrostatic test, after failing the vacuum test twice, the contractor should consider replacing that manhole. If the contractor chooses to attempt to repair that manhole, the manhole must be retested by means of the hydrostatic test until it passes.

Inspection will be provided during critical phases of construction by a qualified inspector under the direction of a P.E. (Jacob Kondo, P.E.). Critical phases of construction are deemed at a minimum to include testing of pipe and manholes for leakage and testing of flexible pipe for installed deflection.

TCEQ approval letters for plans and specifications review contain the requirement that once the project is completed, a P.E. registered in the state of Texas (Jacob Kondo, P.E.) much certify that the construction was performed substantially in accordance with the approved plans and specifications.

Notification and Inspection

TCEQ Chapter 213 requires that the applicant must provide written notification to the Austin regional office at least 48 hours prior to commencing construction on the regulated activity. If any sensitive feature is discovered during construction then the work shall be suspended immediately, and the Austin regional office shall be notified to then determine the appropriate course of action. All other notification and inspection requirements identified in TCEQ Chapter 213.5(c) shall be met.

Wastewater Calculations

Wastewater Design Criteria		
Avg. Daily Flow (gpd):	250	gpd/LUE
Residential Peak Factor:	PF=2.8*Av	gDWF^-0.0732
I&I Contribution:	1,000	gpd/acre
Average Dry Weather:	16.15	gpm
Peaking Factor:	3.69	

Total Area: 16.885 AC Units: 90 Single-Family

LUE/unit: 1.00

Infiltration & Inflow: $\frac{16.885AC \times 1,000 \frac{gpd}{acre}}{1440 minutes} = 11.73 \ gpm$

Average Dry Weather: $\frac{90 \ LUES \times 250 \frac{gpd}{LUE}}{1440 minutes} = 15.63 \ gpm$

Peak Dry Weather: $15.63 \ gpm \ x \ 3.69 = 57.66 \ gpm$

Peak Wet Weather: $57.66 \ gpm + 11.73 \ gpm = 69.39 \ gpm$

Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes

NOT APPLICABLE

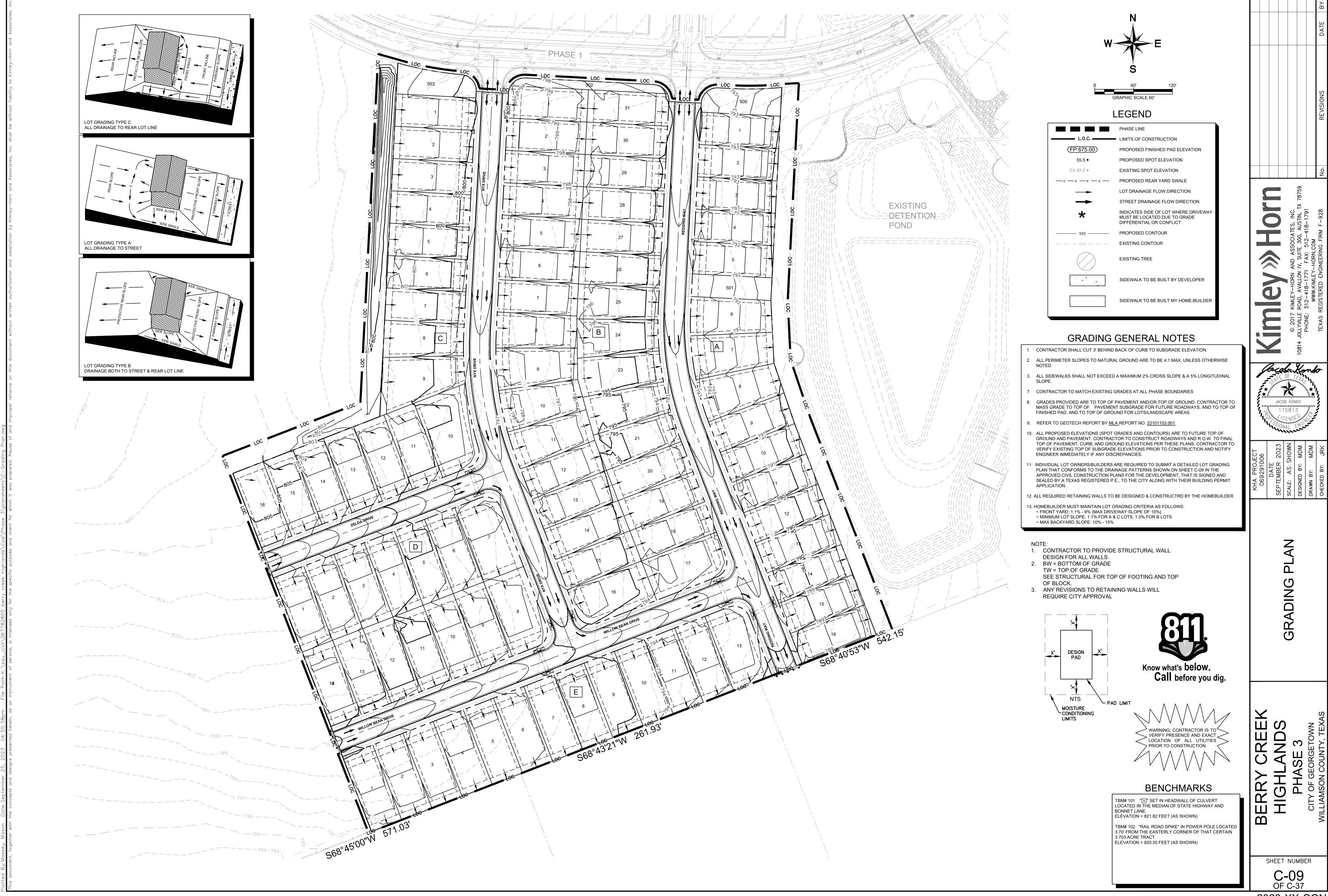
Attachment C - Justification for Variance from Manhole Spacing

NOT APPLICABLE

Attachment D - Explanation of Slopes for Flows Greater Than 10.0 FPS

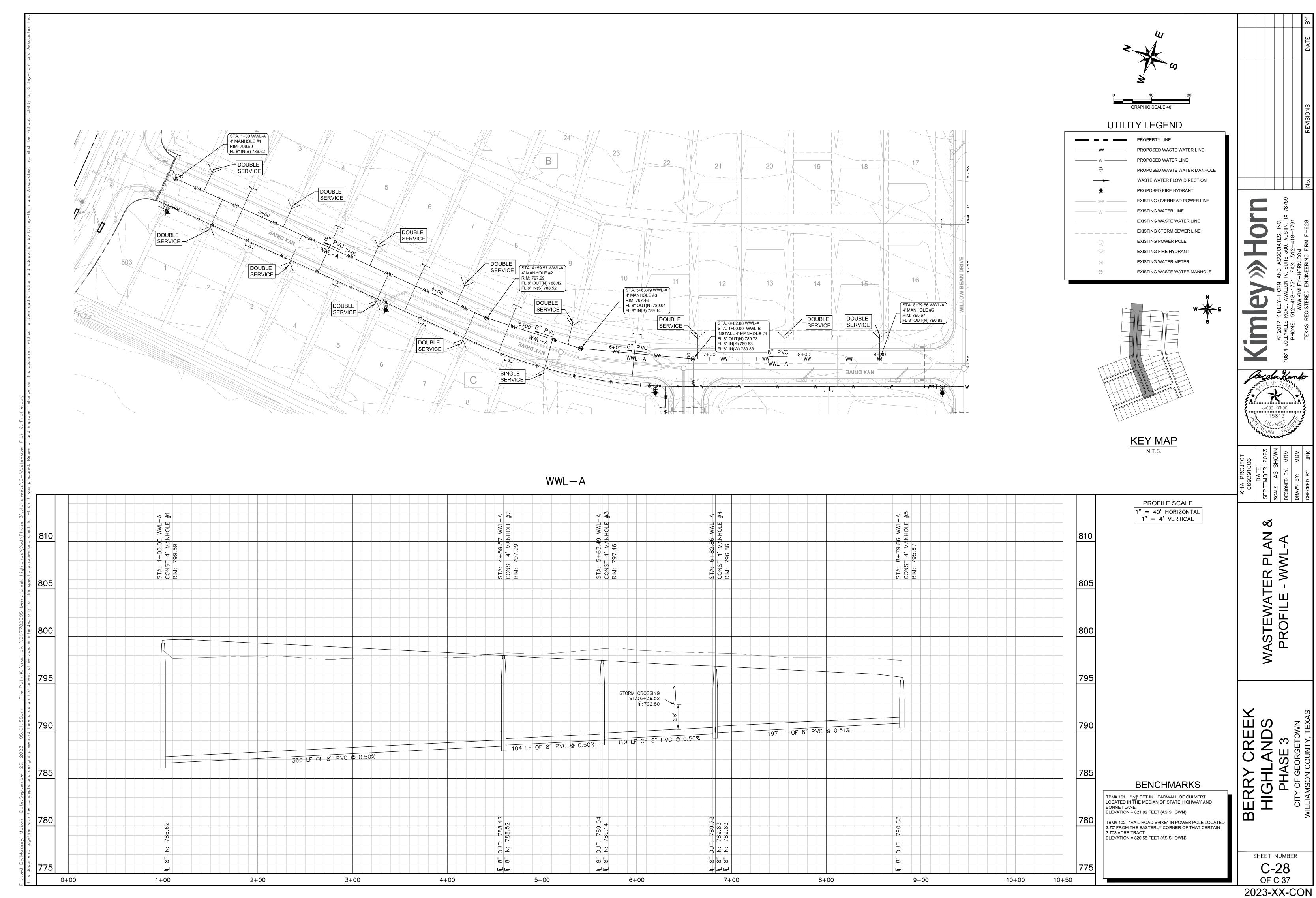
NOT APPLICABLE

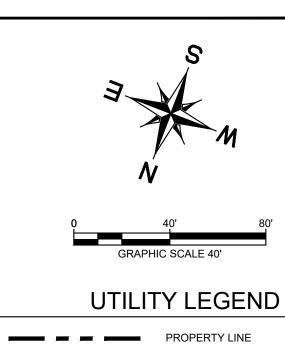
Site Plan



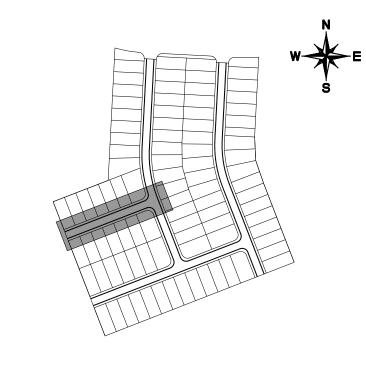


Final Plan and Profile Sheets





	PROPERTY LINE
ww	PROPOSED WASTE WATER LINE
W	PROPOSED WATER LINE
®	PROPOSED WASTE WATER MANHOLE
	WASTE WATER FLOW DIRECTION
-	PROPOSED FIRE HYDRANT
OHP	EXISTING OVERHEAD POWER LINE
——— W ———	EXISTING WATER LINE
	EXISTING WASTE WATER LINE
=======	EXISTING STORM SEWER LINE
\Diamond	EXISTING POWER POLE
-\$-	EXISTING FIRE HYDRANT
\otimes	EXISTING WATER METER
(m)	EXISTING WASTE WATER MANHOLE



KEY MAP

SINGLE SERVICE

SINGLE SERVICE

STA. 5+01.30 WWL-B END & PLUG RIM: 793.03 FL 8" OUT(E) 791.84

DOUBLE SERVICE

DOUBLE SERVICE

STA. 6+82.86 WWL-A STA. 1+00.00 WWL-B INSTALL 4' MANHOLE #4 FL 8" OUT(N) 789.73 FL 8" IN(S) 789.83 FL 8" IN(W) 789.83

DOUBLE SERVICE

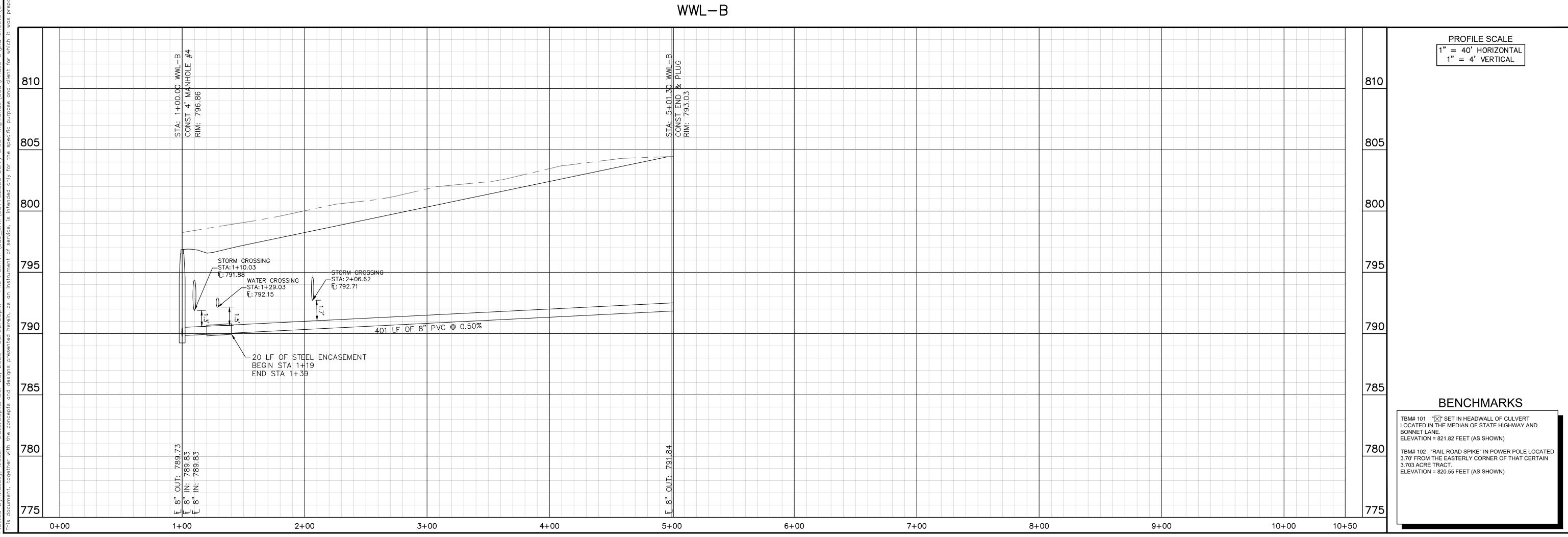
S. DAC AGLES

DOUBLE

3+00 | WWL-B

DOUBLE

DOUBLE SERVICE



JACOB KONDO

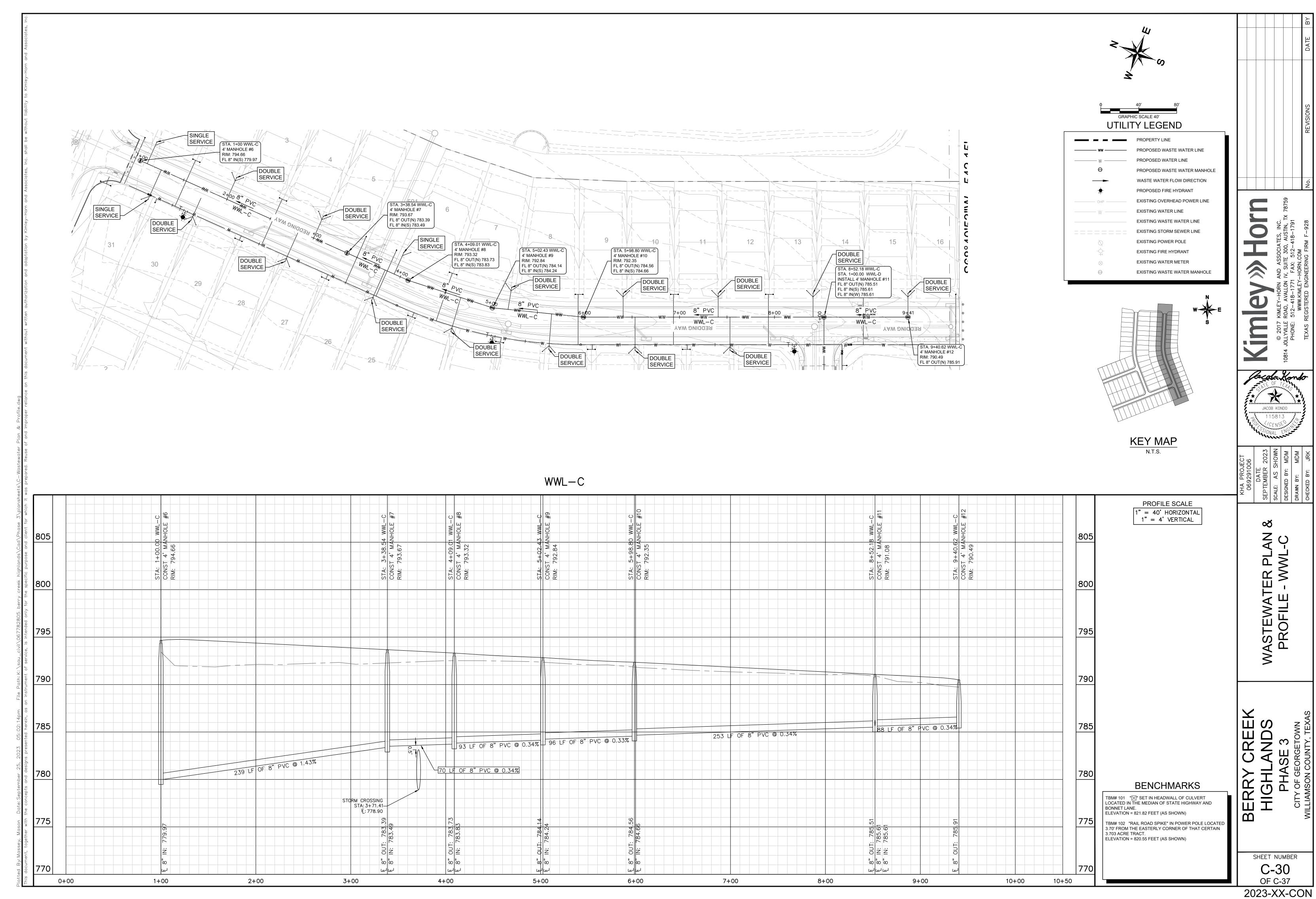
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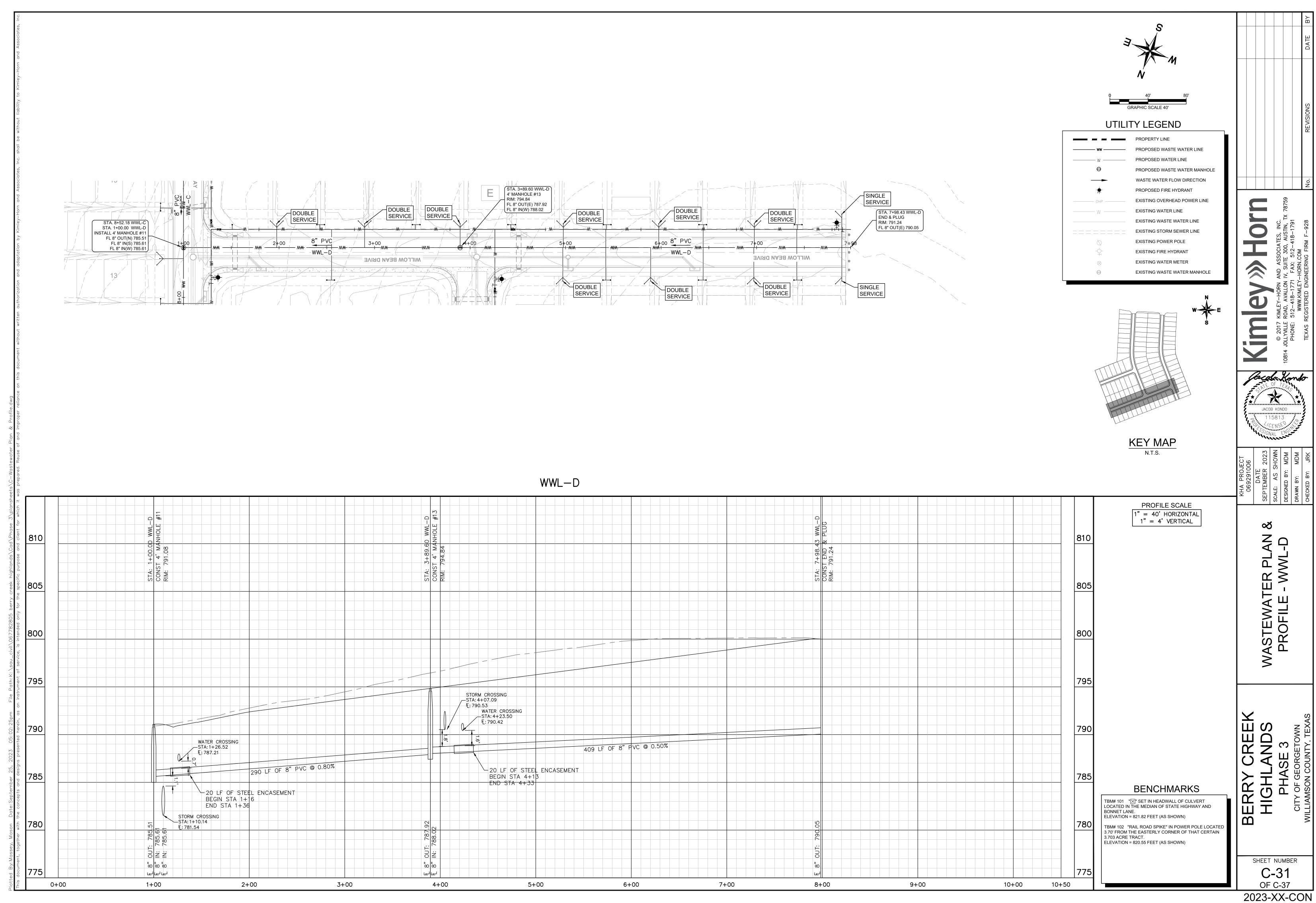
WASTEWATER PLAN PROFILE - WWL-B

BERRY CREEK
HIGHLANDS
PHASE 3
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

SHEET NUMBER C-29

2023-XX-CON







SECTION 6: TEMPORARY STORMWATER SECTION

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: Jacob Kondo

Date: <u>09/14/2023</u>

Signature of Customer/Agent:

Jacob Kondo

Regulated Entity Name: Berry Creek Highlands Phase 3

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.

L.	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.
	igstyle igstyle 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.
S	equence 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: <u>Lower Berry Creek (1428B).</u>
T	emporary Best Management Practices (TBMPs)
sta co	osion control examples: tree protection, interceptor swales, level spreaders, outlet abilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized instruction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment sins. Please refer to the Technical Guidance Manual for guidelines and specifications. All

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 w groundwater or stormwater that originates upgradient from the site and flow across the site.	
	 A description of how BMPs and measures will prevent pollution of surface w groundwater that originates on-site or flows off site, including pollution cause contaminated stormwater runoff from the site. A description of how BMPs and measures will prevent pollutants from enters surface streams, sensitive features, or the aquifer. A description of how, to the maximum extent practicable, BMPs and measur maintain flow to naturally occurring sensitive features identified in either th geologic assessment, TCEQ inspections, or during excavation, blasting, or construction. 	sed by ing es will
8. [The temporary sealing of a naturally occurring sensitive feature which accepts re to the Edwards Aquifer as a temporary pollution abatement measure during act 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 real and practicable alternative exists for each feature. There will be no temporary sealing of naturally occurring sensitive features of site. 	asonable
9. [Attachment F - Structural Practices . A description of the structural practices that used to divert flows away from exposed soils, to store flows, or to otherwise liming discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.	it runoff
10. [Attachment G - Drainage Area Map. A drainage area map supporting the follow requirements is attached:	ving
	 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 used. 	be
	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 pr down slope and side slope boundaries of the construction area. There are no areas greater than 10 acres within a common drainage area that disturbed at one time. A smaller sediment basin and/or sediment trap(s) wi used in combination with other erosion and sediment controls within each of	otect at will be II be

	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.
\boxtimes	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
mulchi	les: establishment of temporary vegetation, establishment of permanent vegetation, ng, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or vation of mature vegetation.
17. 🔀	Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices. A schedule of the interim and permanent soil stabilization practices for the site is

attached.

- 18. Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
- 19. Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

- 20. All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
- 21. If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
- 22. Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.



Attachment A Spill Response Actions

If there is an accidental spill on site, the contractor shall respond with appropriate action. The contractor will be required to contact the owner and in turn the owner will contact the TCEQ in the event of a spill on site. In addition to the following guidance, reference the latest version of TCEQ's Technical Guidance Manual (TGM) RG-348 Section 1.4.16.

Cleanup

- Clean up leaks and spills immediately.
- 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.
- 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.
- Onsite personnel will be trained to perform and be knowledgeable of the spill response actions.

Minor Spills

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

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

- Contain spread of the spill.
- Notify the project foreman immediately.
- If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
- If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
- If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:



- Notify the TCEQ by telephone as soon as possible and within 24 hours at (512)339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
- Notification should first be made by telephone and followed up with a written report.
- The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- Other agencies which may need to be consulted include, but not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.



Attachment B Potential Sources of Contamination

Potential Source: Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dripping.

Preventative Measures: Vehicle maintenance will be performed within the construction staging area or a local maintenance shop.

Potential Source: Miscellaneous trash and litter from construction workers and material wrappings.

Preventative Measures: Trash containers will be placed throughout the site to encourage proper disposal of trash.

Potential Source: Silt leaving the site.

Preventative Measures: Contractor will install all temporary best management practices prior to start of construction including the stabilized construction entrance to prevent tracking onto adjoining streets.

Potential Source: Construction Debris.

Preventative Measures: Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis.

Potential Source: Soil and Mud from Construction Vehicle tires as they leave the site.

Preventative Measures: A stabilized construction exit shall be utilized as vehicles leave the site. Any soil, mud, etc. carried from the project onto public roads shall be cleaned up within 24 hours.

Potential Source: Sediment from soil, sand, gravel and excavated materials stockpiled on site.

Preventative Measures: Silt fence shall be installed on the down gradient side of the stockpiled materials. Reinforced rock berms shall be installed at all downstream discharge locations.

Potential Source: Portable toilet spill.

Preventative Measures: Toilets on the site will be emptied on a regular basis by the contracted toilet company.



Attachment C Sequence of Major Activities

The installation of erosion and sedimentation controls shall occur prior to any excavation of materials or major disturbances on the site. The sequence of major construction activities will be as follows. Approximate acreage to be disturbed is listed in parentheses next to each activity.

Intended Schedule or Sequence of Major Activities:

- 1. Construct Access (<u>0.05</u> Acres)
- 2. Installation of Temporary BMPs (9.00 Acres)
- 3. Initiate Grubbing and Topsoil Stripping of Site (9.00 Acres)
- 4. Rough Subgrade Preparation (earthwork, grading, street and drainage excavation and embankment) (<u>9.00</u> Acres)
- 5. Wet and Dry Utility Construction (<u>9.00</u> Acres)
- 6. Final Subgrade Preparation (9.00 Acres)
- 7. Installation of Base Materials (9.00 Acres)
- 8. Concrete (foundations, curbs, flatwork) (<u>9.00</u> Acres)
- 9. Building Construction (<u>9.00</u> Acres)
- 10. Paving Activities (9.00 Acres)
- 11. Topsoil, Irrigation, Landscaping, and Permanent Soil Stabilization (9.00 Acres)
- 12. Site cleanup and Removal of Temporary BMPs (<u>9.00</u> Acres)

Maximum total construction time is not expected to exceed 36 months.

NOTE: The total area to be disturbed is 16.885 acres, however, only 9 acres will be disturbed at a time.



Attachment D

Temporary Best Management Practices and Measures

- **A.** There is no storm water that originates up gradient from the site that will flow across the site.
- **B.** Temporary BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed on site to reduce vehicle "tracking" onto adjoining streets. A concrete washout pit will be used to collect all excess concrete during construction.

BMPs for this project will protect surface water or groundwater from turbid water, phosphorus, sediment, oil, and other contaminants, which may mobilize in storm water flows by slowing the flow of runoff to allow sediment and suspended solids to settle out of the runoff.

Practices may also be implemented on site for interim and permanent stabilization. Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, and other similar measures.

- **C.** There are no sensitive features or surface streams within the boundaries of the project. The temporary onsite BMPs will be used to treat stormwater runoff before it leaves the project and prevent pollutants from entering into surface streams or any sensitive features down-gradient of the site.
- **D.** There were no sensitive features identified during the geologic assessment. However, the BMPs for this project are designed to allow water to pass through after sedimentation has occurred. Existing flow patterns will be maintained to any naturally occurring sensitive features that are discovered during construction.



Attachment E Request to Temporarily Seal a Feature

Naturally occurring features will not be sealed on the site.



Attachment F Structural Practices

Structural BMPs will be used to limit runoff discharge of pollutants from exposed areas of the site. BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the downgradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed at the site entry/exit point to reduce tracking onto adjoining streets. A construction staging area will be used onsite to perform all vehicle maintenance and for equipment and material storage. A concrete truck washout pit will be placed on site to provide containment and easier cleanup of waste from concrete operations. The location of all structural temporary BMP's are shown on the erosion control plan sheet and details and specifications are provided on the erosion control details sheet which can be found at the end of this report under Section 7.

Description of Temporary BMPs

Temporary Construction Entrance/Exit

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment onto public rights-of-way. This practice should be used at all points of construction ingress and egress.

Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected were access is not necessary. A rock stabilized construction entrance should be used at all designated access points.

Silt Fence

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Concrete Washout Area

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.



- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Rock Berm

The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures further up the watershed.

Triangular Filter Dike

The purpose of a triangular sediment filter dike is to intercept and detain water-borne sediment from unprotected areas of limited extent. The triangular sediment filter dike is used where there is no concentration of water in a channel or other drainage way above the barrier and the contributing drainage area is less than one acre. If the uphill slope above the dike exceeds 10%, the length of the slope above the dike should be less than 50 feet. If concentrated flow occurs after installation, corrective action should be taken such as placing rock berm in the areas of concentrated flow. This measure is effective on paved areas where installation of silt fence is not possible or where vehicle access must be maintained. The advantage of these controls is the ease with which they can be moved to allow vehicle traffic and then reinstalled to maintain sediment.

Inlet Protection

In developments for which drainage is to be conveyed by underground storm sewers (i.e., streets with curbs and gutters), all inlets that may receive storm runoff from disturbed areas should be protected. Temporary inlet protection is a series of different measures that provide protection against silt transport or accumulation in storm sewer systems. This clogging can greatly reduce or completely stop the flow in the pipes. The different measures are used for different site conditions and inlet type.



Attachment G Drainage Area Map

Berry Creek Highlands Phase 3 will produce an area greater than 10 acres within a common drainage area that will be disturbed at one time. An existing and proposed drainage area map is provided at the end of this report in Section 7 to support the requirement.



Attachment H Temporary Sediment Pond(s) Plans and Calculations

Temporary sediment ponds are not proposed.



Attachment I

Inspection and Maintenance for BMPs

Personnel Responsible for Inspections

The agent that performs the inspections should be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWPPP for the site. The contractor is to provide an inspector with a CPESC, CESSWI, or CISEC certification. Documentation of the inspector's qualifications is to be included in the attached Inspector Qualifications Log.

Inspection Schedule

The primary operator is required to choose one of the two inspections listed below.

Option 1: Once every seven calendar days. If this alternative schedule is developed, then the
inspection must occur regardless of whether or not there has been a rainfall event since
the previous inspection.
Option 2: Once every 14 calendar days and within 24 hours of the end of a storm event of two
inches or greater

The inspections may occur on either schedule provided that documentation reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented (e.g., end of "dry" season and beginning of "wet" season).

If option 2 is the chosen frequency of inspections a rain gauge must be properly maintained on site or the storm event information from a weather station that is representative of the site location. For any day of rainfall during normal business hours that measures 0.25 inches or greater, proper documentation of the total rainfall measured for that day must be recorded.

Personnel provided by the permittee must inspect:

- disturbed areas of the construction site that have not been finally stabilized;
- areas used for storage of materials that are exposed to precipitation;
- structural controls (for evidence of, or the potential for, pollutants entering the drainage system);
- sediment and erosion control measures identified in the SWP3 (to ensure they are operating correctly); and
- locations where vehicles enter or exit the site (for evidence of off-site sediment tracking).

Reductions in Inspection Frequency

Where sites have been finally or temporarily stabilized or where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), inspections must be conducted at least once every month. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. A record of the total rainfall measured, as well as the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections in the attached Rain Gauge Log.

In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

Inspection Report Forms

Use the Inspection Report Forms given as a checklist to ensure that all required areas of the construction site are addressed. There is space to document the inspector's name as well as when the inspections regularly take place. The tables will document that the required area was inspected. (If there were any areas



of concern, briefly describe them in this space with a more detailed description in the narrative section. Use the last table to document any discharges found during the inspections).

Describe how effective the installed BMPs are performing. Describe any BMP failures that were noted during the investigation and describe any maintenance required due to the failure. If new BMPs are needed as the construction site changes, the inspector can use the space at the bottom of the section to list BMPs to be implemented before the next inspection.

Describe the inspector's qualifications, how the inspection was conducted, and describe any areas of non-compliance in detail. If an inspection report does not identify any incidents of non-compliance, then it must contain a certifying signature stating that the facility or site is in compliance. The report must be signed by a person and in a manner required by 30 TAC 305.128. There is space at the end of the form to allow for this certifying signature.

Whenever an inspection shows that BMP modifications are needed to better control pollutants in runoff, the changes must be completed within seven calendar days following the inspection. If existing BMPs are modified or if additional BMPs are needed, you must describe your implementation schedule, and wherever possible, make the required BMP changes before the next storm event.

The Inspection Report Form functions as the required report and must be signed in accordance with TCEQ rules at 30 TAC 305.128.

Corrective Action

Personnel Responsible for Corrective Actions

Both Primary and Secondary Operators are responsible for maintaining all necessary Corrective Actions. If an individual is specifically identified as the responsible party for modifying the contact information for that individual should be documented in the attached Inspector Qualifications Log.

Corrective Action Forms

The Temporary BMPs must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the attached forms and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable. Actions taken as a result of inspections must be properly documented by completing the corrective action forms given.



Attachment J

Schedule of Interim and Permanent Soil Stabilization

Construction practices shall disturb the minimal amount of existing ground cover as required for land clearing, grading, and construction activity for the shortest amount of time possible to minimize the potential of erosion and sedimentation from the site. Existing vegetation shall be maintained and left in place until it is necessary to disturb for construction activity. For this project the following stabilization practices will be implemented:

- 1. Hydraulic Mulch and Seeding: Disturbed areas subject to erosion shall be stabilized with hydraulic mulch and/or seeded and watered to provide interim stabilization. For areas that are not to be sodded as per the project landscaping plan, a minimum of 85% vegetative cover will be established to provide permanent stabilization.
- 2. Sodding and Wood Mulch: As per the project landscaping plan, Sodding and wood mulch will be applied to landscaped areas to provide permanent stabilization prior to project completion.

Records of the following shall be maintained:

- a) The dates when major grading activities occur;
- b) The dates when construction activities temporarily or permanently cease on a portion of the site; and
- c) The dates when stabilization measures are initiated.

Stabilization measures must be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in the following, must be initiated no more that fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased:

Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practical.

Where construction activity on a portion of the site is temporarily ceased and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of the site.

In arid areas (areas with an average rainfall of 0-10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practical.

Maintenance

Below are some maintenance practices to be used to maintain erosion and sediment controls:

- All measures will be maintained in good working order. The operator should correct any damage or deficiencies as soon as practicable after the inspection, but in no case later than seven (7) calendar days after the inspection.
- BMP Maintenance (as applicable)
- Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
- Silt fence will be inspected for depth of sediment, tears, to see of the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Drainage swale will be inspected and repaired as necessary.



- Inlet control will be inspected and repaired as necessary.
- Check dam will be inspected and repaired as necessary.
- Straw bale dike will be inspected and repaired as necessary.
- Diversion dike will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee must to work with the owner or operator of the property to remove the sediment.
- Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.

To maintain the above practices, the following will be performed:

• Maintenance and repairs will be conducted before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. Following an inspection, deficiencies should be corrected no later than seven (7) calendar days after the inspection.



Inspector Qualifications Log*

Inspector Name:
Qualifications (Check as appropriate and provide description): □ Training Course
□ Supervised Experience □ Other
U Other
Inspector Name:
Qualifications (Check as appropriate and provide description): □ Training Course
□ Supervised Experience □ Other
Inspector Name:
Qualifications (Check as appropriate and provide description): □ Training Course
□ Supervised Experience
□ Other
Inspector Name:
Qualifications (Check as appropriate and provide description): □ Training Course
□ Supervised Experience
□ Other
In an actor Name.
Inspector Name: Qualifications (Check as appropriate and provide description):
□ Training Course
□ Supervised Experience □ Other
Inspector Name:
Qualifications (Check as appropriate and provide description):
□ Training Course □ Supervised Experience
Other

^{*} The agent that performs the inspections should be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWPPP for the site. The contractor is to provide an inspector with a CPESC, CESSWI, or CISEC certification.



Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]



Construction Activity Sequence Log

Name of Operator	Projected dates Month/year	Activity Disturbing Soil clearing, excavation, etc.	Location on-site where activity will be conducted	Acreage being disturbed
			l de la companya de l	

^{*}Construction activity sequences for linear projects may be conducted on a rolling basis. As a result, construction activities may be at different stages at different locations in the project area. The Contractor is required to complete and update the schedule and adjust as necessary.



Stormwater Control Installation and Removal Log

Stormwater Control	Location On-Site	Installation Date	Removal Date
	•		
	•		



Stabilization Activities Log

Date Activity Initiated	Description of Activity	Description of Stabilization Measure and Location	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated

Stabilization and erosion control practices may include, but are not limited to: establishing temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, and protecting existing trees and vegetation. List practices used where they are located, when they will be implemented, and whether they are temporary (interim) or permanent.



Inspection Frequency Log

Date	Frequency Schedule and Reason for Change



Rain Gauge Log

Date	Location of Rain Gauge	Gauge Reading



			General Infor	mation			
Name of Project				Tracking No.		Inspection Date	
Inspector Name, T Contact Information							
Present Phase of C	onstruction						
Inspection Locatio inspections are requir location where this ins being conducted)	ed, specify						
- Once per r	nency:	Every 7 days and within 2	or arid, semi-arid, or drou	ght-stricken areas du	uring seasonally dry period	ds or during drought)	
If yes, how did ☐ Rain gauge or	you determin site	by a 0.25" storm event? ned whether a 0.25" st Weather station represent triggered the inspection	t orm event has occur tative of site. Specify we		e:		
If "yes", co	ine that any mplete the f	portion of your site wa	•		No		
- Location((s) where condi	tions were found:					



	Cond	ition and Effect	iveness of Erosion	and Sediment (E&S) Controls
Type/Location of E&S Control	Repairs or Other Maintenance Needed?	Corrective Action Required?	Date on Which Maintenance or Corrective Action First Identified?	Notes
1.	□Yes □No	□Yes □No		
2.	□Yes □No	□Yes □No		
3.	□Yes □No	□Yes □No		
4.	□Yes □No	□Yes □No		
5.	□Yes □No	□Yes □No		
6.	□Yes □No	□Yes □No		
7.	□Yes □No	□Yes □No		
8.	□Yes □No	□Yes □No		
9.	□Yes □No	□Yes □No		
10.	□Yes □No	□Yes □No		



	Cond	lition and Effect	tiveness of Pollu	tion Prevention (P2) Practices
Type/Location of P2 Practices	Repairs or Other Maintenance Needed?	Corrective Action Required?	Identification Date	Notes
1.	□Yes □No	□Yes □No		
2.	□Yes □No	□Yes □No		
3.	□Yes □No	□Yes □No		
4.	□Yes □No	□Yes □No		
5.	□Yes □No	□Yes □No		
6.	□Yes □No	□Yes □No		
7.	□Yes □No	□Yes □No		
8.	□Yes □No	□Yes □No		
9.	□Yes □No	□Yes □No		
10.	□Yes □No	□Yes □No		



	Stabilization of I	Exposed Soil	
Stabilization Area	Stabilization Method	Have You Initiated Stabilization?	Notes
1.		☐ YES ☐ NO If yes, provide date:	
2.		☐ YES ☐ NO If yes, provide date:	
3.		☐ YES ☐ NO If yes, provide date:	
4.		☐ YES ☐ NO If yes, provide date:	
5.		☐ YES ☐ NO If yes, provide date:	
	Description of 1	Discharges	
	ner discharge occurring from any painformation for each point of dischar	rt of your site at the time of the inspec rge:	ction?
Discharge Location	Observations		
1.	Describe the discharge:		
	signs of erosion and/or sediment accum-	and banks of surface waters in the immedia ulation that can be attributed to your discha- location(s) where these conditions were for e action is needed to resolve the issue:	arge? 🗌 Yes 🔲 No
2.	Describe the discharge:		
At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge? Yes No If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:			arge? 🗌 Yes 🔲 No
3.	Describe the discharge:		
	signs of erosion and/or sediment accum-	and banks of surface waters in the immedia ulation that can be attributed to your discha- location(s) where these conditions were for e action is needed to resolve the issue:	arge? 🗌 Yes 🔲 No



Contractor or Subcontractor Certification and Signature	
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervisio to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of system, or those persons directly responsible for gathering the information, the information submitted is, to the best of accurate, and complete. I am aware that there are significant penalties for submitting false information, including the knowing violations."	the person or persons who manage the f my knowledge and belief, true,
Signature of Contractor or Subcontractor:	Date:
Printed Name and Affiliation:	
Certification and Signature by Permittee	
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of system, or those persons directly responsible for gathering the information, the information submitted is, to the best of accurate, and complete. I am aware that there are significant penalties for submitting false information, including the knowing violations."	the person or persons who manage the f my knowledge and belief, true,
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of system, or those persons directly responsible for gathering the information, the information submitted is, to the best of accurate, and complete. I am aware that there are significant penalties for submitting false information, including the	the person or persons who manage the f my knowledge and belief, true,
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of system, or those persons directly responsible for gathering the information, the information submitted is, to the best of accurate, and complete. I am aware that there are significant penalties for submitting false information, including the knowing violations." Signature of Permittee or	the person or persons who manage the of my knowledge and belief, true, possibility of fine and imprisonment for



Section A – Initial Report (Complete this section <u>within 24 hours</u> of discovering the condition that triggered corrective action)						
Name of Project	Tracking 1	No.	Today's Date			
Date Problem First Disco	vered		Time Problem Firs	et Discovered		
Name and Contact Inform	nation of Individual Completing this					
☐ A required stormwate ☐ The stormwater cont						
Provide a description of t	he problem:					
	corrective action (Enter date that is eit ork within the first 7 days, enter the da				the problem, or (2) if it is	
If your estimated date of date you have established	completion falls after the 7-day deadlir d for making the new or modified storm	ne, explain (1) w nwater control o	why you believe it is a pperational is the so	nfeasible to complete work within onest practicable timeframe:	7 days, and (2) why the	
	Section (Complete this section no later than 7 c	on B – Correc alendar days afte	ctive Action Progr er discovering the cond	ress ition that triggered corrective action)		
Section B.1 – Why the	Problem Occurred					
Cause(s) of Problem (Ade	d an additional sheet if necessary)		How This Was De	termined and the Date You Determ	nined the Cause	
1.			1.			
2.			2.			
3.			3⋅			
Section B.2 – Stormw	Section B.2 – Stormwater Control Modifications to be Implemented to Correct the Problem					
List of Stormwater Contr Problem (Add an additio	ol Modification(s) Needed to Correct nal sheet if necessary)	Completion Date	SWPPP Update Necessary?	Notes		
1.			☐Yes ☐No Date:			
2.			☐Yes ☐No Date:			
3.			□Yes □No Date:			



Section A – Initial Report (Complete this section within 24 hours of discovering the condition that triggered corrective action)						
Name of Project	Tracking 1	No.	Today's Date			
Date Problem First Disco	vered		Time Problem Firs	t Discovered		
Name and Contact Inform	nation of Individual Completing this					
☐ A required stormwater ☐ The stormwater contri	What site conditions triggered the requirement to conduct corrective action: A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or 3 The stormwater controls that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards A prohibited discharge has occurred or is occurring					
Provide a description of t	he problem:					
	corrective action (Enter date that is eit ork within the first 7 days, enter the do				the problem, or (2) if it is	
	completion falls after the 7-day deadling the new or modified storm				17 days, and (2) why the	
	Secti (Complete this section <u>no later than 7 c</u>		ctive Action Progr er discovering the condi			
Section B.1 – Why the	Problem Occurred					
Cause(s) of Problem (Add	l an additional sheet if necessary)		How This Was Det	ermined and the Date You Determ	nined the Cause	
1.			1.			
2.			2.			
3.			3.			
Section B.2 – Stormw	ater Control Modifications to be	Implemented	to Correct the Pr	oblem		
List of Stormwater Contr Problem (Add an addition	ol Modification(s) Needed to Correct nal sheet if necessary)	Completion Date	SWPPP Update Necessary?	Notes		
1.			☐Yes ☐No Date:			
2.			□Yes □No Date:			
3.			☐Yes ☐No Date:			



Contractor or Subcontractor Certification and Signature	
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my accurate, and complete. I am aware that there are significant penalties for submitting false information, including the poss knowing violations."	person or persons who manage the knowledge and belief, true,
Signature of Contractor or Subcontractor:	Date:
Printed Name and Affiliation:	
Certification and Signature by Permittee	
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in a to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my accurate, and complete. I am aware that there are significant penalties for submitting false information, including the poss knowing violations."	person or persons who manage the knowledge and belief, true,
Signature of Permittee or "Duly Authorized Representative":	Date:
Printed Name and Affiliation:	



SECTION 7: PERMANENT STORMWATER

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: Jacob Kondo

Date: 09/14/2023

Signature of Customer/Agent

Jacob Kondo

Regulated Entity Name: Berry Creek Highlands Phase 3

Permanent Best Management Practices (BMPs)

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

Δ.	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 ensure 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 guidanc 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 ensure 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 multifamily 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.
ŝ.	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
7.	\boxtimes	flows across the site, and an explanation is attached. 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.
ownership is transferred.

Attachment A

20% or Less Impervious Cover Waiver

A waiver will not be submitted for this project.

Attachment B

BMPs for UP-GRADIENT STORMWATER

Up-gradient storm water does not exist based on current topography maps and field observations. Please refer to the Proposed Drainage Area Map that is provided at the end of this report in Section 7.

Attachment C

BMPs for On-Site Stormwater

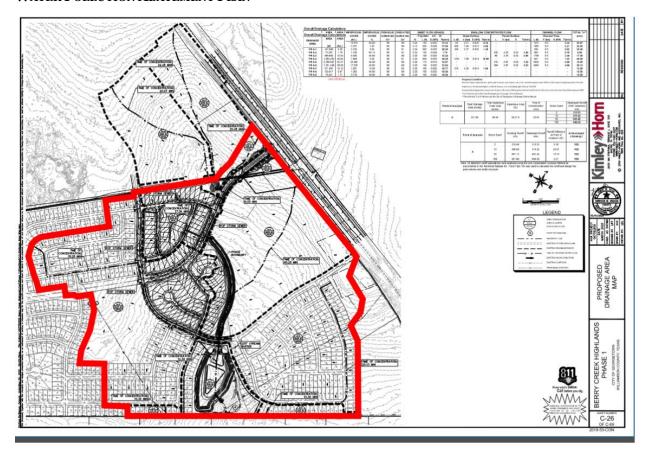
A detention pond will be utilized as the permanent best management practices on this site. All stormwater runoff from impervious areas will be collected and conveyed to the pond via storm drainage pipe network and routed through the sand filter basin to provide the required overall removal of 80% of the increase in Total Suspended Solids.

Construction plans, calculations and specifications are provided in Section 7 which is located at the end of this report.

A water quality pond will be utilized as a permanent best management practice on this site. The proposed, permanent water quality pond is a wet pond with a TSS reduction efficiency of 93%. The proposed water quality wet pond was designed to treat the additional impervious cover within the TxDOT right-of-way. The right-of-way area was incorporated into the TSS spreadsheet and calculations. The total area is designated as post-development impervious cover. This includes 5.67 acres of existing impervious cover in the right-of-way and 0.71 acres of proposed impervious cover in the right-of-way. The following table summarizes the breakdown of on-site area versus TxDOT right-of-way area.

	ON-SITE	TXDOT ROW	TOTAL
PROJECT AREA INCLUDED IN PLAN (ACRES)	179.11	15.4	194.51
PREDEVEOPMENT IMPERVIOUS AREA WITHIN THE LIMITS OF THE PLAN (ACRES)	0	5.67	5.67
PROPOSED IMPERVIOUS AREA WITHIN THE LIMITS OF THE PLAN (ACRES)	50.46	0.71	51.17
TOTALPOST-DEVELOPMENT IMPERVIOUS AREA WITHIN THE LIMITS OF THE PLAN (ACRES)	50.46	6.38	56.84

The water quality pond was proposed and constructed within Berry Creek Highlands Phase 1. The pond received TCEQ approval on February 27,2020 per EAPP ID No. 11001800. This water quality pond will serve all the sections outlined below in red.



The pond was designed to over-detain (194.51 AC), whereas only 183.89 AC will be draining to it. (see overall drainage calculations below). By over-detaining, it is ensured that the southern lot of Phase 3 will be accounted for.

Overall Drainage Calculations

DRAINAGE	AREA	AREA
AREA	(sf)	(Ac.)
PR A-1	147,668	3.39
PR A-2	77,972	1.79
PR A-3	589,802	13.54
PR A-4	1,953,230	44.84
PR A-5	2,760,397	63.37
PR A-6	1,701,454	39.06
PR A-7	571,507	13.12
PR A-8	133,917	3.07
PR A-9	74,547	1.71

total 183.89 ac

Attachment D

BMPs for Surface Streams

There are no existing surface streams or sensitive features on site. All permanent BMP's have been designed to remove 80% of the increase in Total Suspended Solids as per current TCEQ requirements.

Attachment E

Request To Seal a Feature

The permanent sealing of or diversion of flow from a naturally-occurring "sensitive" or "possibly sensitive" feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed for any naturally-occurring "sensitive" or "possibly sensitive" features on this site.

Attachment F

Construction Plans

Calculations for the load removal requirements for the project and the load removal provided by the permanent BMP's are provided as an exhibit in section 7 which have been signed and sealed by a professional engineer licensed in the state of Texas. The load removal requirements are derived from the equations from the technical guidance manual based upon project area and increase in impervious cover. All stormwater runoff from impervious areas will be treated by the proposed permanent BMP's to provide the overall required removal of 80% of the increase in Total Suspended Solids. Provided within the calculations is a summary of the amount of pollutant load required to be removed from the drainage areas and the amount of removal provided by the permanent BMP's.

Construction plans, details, specifications, calculations, and construction notes are provided in section 7 which is attached at the end of this report.

Responsible Party:

Inspection, Maintenance, Repair and Retrofit Plan

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

It is the responsibility of the owner to provide the inspections and maintenance as outlined in the plan for the duration of the project. The owner will maintain this responsibility until it is assumed or transferred to another entity in writing. If the property is leased or sold, the responsibility for the maintenance will be required to be transferred through the lease agreement, binding covenants, closing documents, or other binding legal instrument.

Disposal of accumulated silt shall be accomplished following Texas Commission on Environmental Quality guidelines and specifications.

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

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

Berry Creek (Georgetown) ASLI IX LLC

	•	<u> </u>			
Mailing Address:	923 N. Pe	nnsylvania Avenue			_
City, State:	Winter Pa	ark, Florida			Zip: <u>32789</u>
Telephone:	(407) 628	3-8488		_Fax:	N/A
I, the owner, have read Plan for the proposed P maintain responsibility transferred to or assum	ermanent B for the impl	est Management Pra lementation and exe	actices for my proj ecution of the plan	ect. I ac until th	knowledge that I will e responsibility is
Signature of Responsib	le Party	See attached s	sheets.	_Date _	
This Maintenance Plan	is based on	TCEQ Maintenance	Guidelines.		
Ŋ-n	l-uf-				
Dy.	M Hudson	D.F.		_Date _	03/02/2020
Harrison	M Hudson	РΕ			

Water Quality Ponds

Routine Maintenance

<u>Mowing:</u> The side-slopes, embankment, and emergency spillway of the basin should be mowed at least twice a year to prevent woody growth and to control weeds.

<u>Inspections.</u> Water Quality Ponds should be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. When possible, inspections should be conducted during wet weather to determine if the basin is functioning properly. There are many functions and characteristics of these BMPs that should be inspected. The embankment should be checked for subsidence, erosion, leakage, cracking, and tree growth. The condition of the emergency spillway should be checked. The inlet, barrel, and outlet should be inspected for clogging. Stability of the side slopes should be checked. Modifications to the basin structure and contributing watershed should be evaluated. During semi-annual inspections, replace any dead or displaced vegetation. Replanting of various species of wetland vegetation may be required at first, until a viable mix of species is established. 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. The inspections should be carried out with As-built pond plans in hand.

<u>Debris and Litter Removal:</u> As part of periodic mowing operations and inspections, debris and litter should be removed from the surface of the basin. Attention should be paid to floatable debris, and the outlet should be checked for possible clogging.

<u>Sediment Removal:</u> Inspection of the forebay should be completed every three months for the first two years after construction completion, and during the three-month inspection cycle, if more than 15% of the forebay volume is lost, the sediment build-up should be removed. After the two-year period, the sediment forebay should be inspected every three years, and the sediment should be cleaned out if more than one-third of the forebay volume is lost. Every six years, the sediment build-up in the mail pool should be inspected and sediment should be removed if twenty percent of the main pool volume is lost.

Erosion Control: The basin side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion. Corrective measures such as re-grading and re-vegetation may be necessary.

<u>Nuisance Control:</u> Most public agencies surveyed indicate that control of insects, weeds, odors, and algae may be needed in some ponds. Nuisance control is probably the most frequent maintenance item demanded by local residents. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.). Biological control of algae and mosquitoes using fish such as fathead minnows is preferable to chemical applications.

Non-Routine Maintenance

<u>Structural Repairs and Replacement:</u> The structural integrity of the embankment, outlet structure and retaining walls should be inspected during the required routine inspections. Leakage or seepage of water through the embankment must be avoided and any structural damage should be repaired immediately.

<u>Harvesting:</u> If vegetation is present on the fringes or in the pond, it can be periodically harvested and the clippings removed to provide export of nutrients and to prevent the basin from filling with decaying organic matter.

BERRY CREEK (GEORGETOWN) WATER POLLUTION ABATEMENT PLAN

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

Responsible Party:	Berry Creek (Georgetown) ASLI IX LLC	<u>, </u>
Mailing Address:	923 N Pennsylvania Avenue	<u> </u>
City, State:	Winter Park, Florida	Zip: 32789
Telephone:	(407) 628-8488	Fax: N/A

I, the owner, have read and understand the requirements of the attached Inspection and Maintenance Plan for the proposed Permanent Best Management Practices for my project. I acknowledge that I will maintain responsibility for the implementation and execution of the plan until the responsibility is transferred to or assumed by another party in writing through a binding legal instrument.

Signature of Responsible Party	SEE SIGNATURE BELOW	Date	

BERRY CREEK (GEORGETOWN) ASLI IX, LLC

By: Avanti Strategic Land Investors IX, L.L.L.P.

By: APG ASLI IX GP, LLC

By: Avanti Properties Group III, L.L.L.P.

By: APG III GP, LLC

By: Avanti Management Corporation

Title: Executive Vice President

Date: 11/5/19

Background

Sand Filter Basins (SFBs) are a common type of Stormwater Management facility utilized within the Edwards Aquifer Recharge Zone. A SFB consists of a sedimentation chamber, a flat surfaced area of sand, a filtration chamber, and a flat sand filter bed with an underdrain system. A surcharge zone exists within the sedimentation and filtration chambers for temporary storage of the Water Quality Capture Volume (WQCV). During a storm, runoff enters the sedimentation chamber, where the majority of sediments are deposited. The runoff then enters the filtration chamber where it ponds above the sand bed and gradually infiltrates into the underlying sand filter, filling the void spaces of the sand. The underdrain gradually dewaters the sand bed and discharges the runoff to a nearby channel, swale, or storm sewer. SFBs provide for filtering and absorption of pollutants in the stormwater. The popularity of SFBs has grown because they allow the WQCV to be provided on a site that has little open area available for stormwater management. However, there are limitations on their use due to potential clogging from large amounts of sediment.

Inspecting Sand Filter Basins

Access and Easements

Inspection and maintenance personnel may utilize the stormwater facility map located in Appendix G containing the locations of the access points and maintenance easements of the SFBs within this development.

Stormwater Management Facilities Locations

Inspection and maintenance personnel may utilize the stormwater facility map located in Appendix G containing the locations of the SFBs within this development.

Sand Filter Extended Detention Basin (SFB) Features

SFBs have a number of features that are designed to serve a particular function. Many times the proper function of one feature depends on another. It is important for maintenance personnel to understand the function of each of these features to prevent damage to any feature during maintenance operations. Below is a list and description of the most common features within a SFB and the corresponding maintenance inspection items that can be anticipated:

TABLE SFB-1
Typical Inspection & Maintenance Requirements Matrix

	Sediment	Mowing	Trash/	Erosion	Overgrown	Removal/	Structure
	Removal	Weed	Debris		Vegetation	Replacement	Repair
		control	Removal		Removal		
Inflow	X		Χ				X
Points/Splitter							
Box							
Sedimentation	Х	Х	Х	Х	Х		
Chamber							
Filter Media	X	Χ	X	Х	Χ	X	
Underdrain						Х	
System							
Overflow	X		Χ				X
Outlet Works							
Embankment		X	Χ	X	Χ		

Inflow Points/Splitter Box

Inflow points or outfalls into SFBs are the point of stormwater discharge into the facility. An inflow point is commonly a curb cut with a concrete or riprap rundown or a storm sewer pipe outfall with a flared end section.

SFBs are designed to treat only the WQCV. The WQCV is a volume of water that runs off a site during an 80th percentile event. Any amount over the WQCV is allowed to go to a detention facility without water

quality treatment. The splitter box is generally constructed of reinforced concrete. The splitter box typically has a lower wall that has a height that will trap the required WQCV. Volumes over the WQCV are allowed to spill over the wall and enter a storm sewer system that conveys the runoff to a detention facility. Proper inspection and maintenance of the splitter box is essential in ensuring the long-term operation of the SFB.

An energy dissipater is typically immediately downstream of the splitter box, at the discharge point into the SFB, to protect the sedimentation and filtration chambers from erosion. In some cases, the splitter box outfall can have a toe-wall or cut-off wall immediately below the structure to prevent undercutting of the outfall from erosion.

The typical maintenance activities that are required at inflow points are as follows:

- a. Riprap Displaced Many times, because of the repeated impact/force of water, the riprap can shift and settle. If any portion of the riprap apron appears to have settled, soil is present between the riprap, or the riprap has shifted, maintenance may be required to ensure future erosion is prevented.
- b. Sediment Accumulation Because of the turbulence in the water created by the energy dissipater, sediment often deposits immediately downstream of the inflow point. To prevent a loss in performance of the upstream infrastructure, sediment that accumulates in this area must be removed on a timely basis.
- c. Structural Damage Structural damage can occur at anytime during the life of the facility. Typically for an inflow, the structural damage occurs to the pipe flared end section (concrete or steel). Structural damage can lead to additional operating problems with the facility, including loss of hydraulic performance.

Sedimentation Chamber

The sedimentation chamber is located adjacent to the splitter box and generally consists of a flat irrigated turf grass area followed by a water trapping device that allows water to be briefly held in the sedimentation chamber before being released into the filtration chamber. This slowing of the runoff allows sediments to be deposited in the sedimentation chamber and not the filtration chamber where they can cause clogging of the filter media.

The typical maintenance activities that are required within the sedimentation chamber are as follows:

a. Mowing/woody growth control/weeds present - Routine mowing of the turf grass within the sediment chamber is necessary to improve the overall appearance and to ensure proper function of the SFB. Turf grass should be mowed to a height of 2 to 4- inches and shall be bagged to prevent potential contamination of the filter media. If undesirable vegetation is not routinely mowed/removed, the growth can cause debris/sediment to accumulate, resulting in blockage of the filter media. Also, shrub, grass and weed roots can cause damage to the filter media and underdrain system. Routine management is essential to prevent more extensive and costly future maintenance.

Filter Media

The filter media is the main pollutant removal component of the SFB. The filter media consists of 18-inches of washed sand. The filter media removes pollutants through several different processes, including sedimentation, filtration and microbial uptake.

Sedimentation is accomplished by the slow release of stormwater runoff through the filter media. This slow release allows for sediment particles that were not deposited in the sedimentation chamber to be deposited on the top layer of the filter media where they are easily removed through routine maintenance. Other pollutants are also removed through this process because they are attached to sediment.

Filtration is the main pollutant removal mechanism of SFBs. When the stormwater runoff migrates down through the filter media, many of the particulate pollutants are physically strained out as they pass through the filter bed of sand and are trapped on the surface or among the pores of the filter media.

SFBs that are not lined with an impervious liner allow for infiltration into the native soils. This process also allows for additional pollutant removal.

Microbes that naturally occur in the filter media can assist with pollutant removal by breaking down organic pollutants.

The typical maintenance activities that are required within the filter media areas are as follows:

- a. Mowing/woody growth control/weeds present Noxious weeds and other unwanted vegetation must be treated as needed throughout the SFB. This activity can be performed either through mechanical means (mowing/pulling) or with herbicide. Consultation with a local Weed Inspector is highly recommended prior to the use of herbicide. Herbicides should be utilized sparingly and as a last resort. All herbicide applications should be in accordance with the manufacturer's recommendations.
- b. Sediment/Pollutant Removal Although SFBs should not be utilized in areas where large concentrations of sediment and other pollutants will enter the SFB, it is inevitable that some sediment and other pollutants will enter the SFB. Most sediment will be deposited in the sedimentation chamber, however finer suspended particles will migrate to the filter media. These sediments need to be removed to ensure proper infiltration rates of the stormwater runoff.
- c. Filter Replacement The top layers of the filter media are the most susceptible to pollutant loading and therefore may need to be removed and disposed of properly on a semi-regular basis when infiltration rates slow.
- d. Infiltration Rate Test An infiltration test may be necessary to ensure proper functioning of the filter media. The infiltration test can be conducted by filling the sand filter with water to the elevation of the overflow wall in the splitter box. The sand filter needs to drain completely within 24-hours of the filling. If the drain time for the basin is longer than 24-hours, the filter is in need of maintenance.

Underdrain System

The underdrain system consists of a layer of geotextile fabric, gravel storage area and perforated PVC pipes. The geotextile fabric is utilized to prevent the filter media from entering the underdrain system. The gravel storage area allows for storage of treated stormwater runoff prior to the discharge of the runoff through the perforated PVC pipe.

The typical maintenance activities that are required for the underdrain system are as follows:

With proper maintenance of the filter media and sediment chamber, there should be a minimum amount of maintenance required on the underdrain system. Generally, the only maintenance performed on the underdrain system is jet-vac cleaning.

Overflow Outlet Works

Some SFBs include an overflow outlet works in place of the splitter box. The overflow outlet works allows runoff amounts that exceed the WQCV to exit the SFB to the detention facility. The outlet works is typically constructed of reinforced concrete into the embankment of the SFB. The concrete structure typically has steel orifice plates anchored/embedded into it to control stormwater release rates. The larger openings (flood control) on the outlet structure typically have trash racks over them to prevent clogging. Proper inspection and maintenance of the outlet works is essential in ensuring the long-term operation of the SFB.

The typical maintenance activities that are required for the overflow outlet works are as follows:

- a. Structural Damage The overflow outlet structure is primarily constructed of concrete, which can crack, spall, and settle. The steel grate on the overflow outlet structure is also susceptible to damage.
- b. Mowing/woody growth control/weeds present The presence of plant material not part of the original landscaping, such as wetland plants or other woody growth, can clog the overflow outlet works during a larger storm event, causing flooding damage to adjacent areas. This plant material may indicate a clogging of the filter media and may require additional investigation.

Embankments

Some SFBs utilize irrigated turf grass embankments to store the WQCV.

The typical maintenance activities that are required for the embankment areas are as follows:

- a. Vegetation Sparse The embankments are one of the most visible parts of the SFB and, therefore, aesthetics is important. Adequate and properly maintained vegetation can greatly increase the overall appearance of the SFB. Also, vegetation can reduce the potential for erosion and subsequent sediment transport to the filter media, thereby reducing the need for more costly maintenance.
- b. Erosion Inadequate vegetative cover may result in erosion of the embankments. Erosion that occurs on the embankments can cause clogging of the filter media.
- c. Trash/Debris Trash and debris can accumulate in the upper area after large events, or from illegal dumping. Over time, this material can clog the SFB filter media and outlet works.
- d. Mowing/woody growth control/weeds present The presence of plant material not part of the original landscaping, such as wetland plants or other woody growth, can result in difficulty in performing maintenance activities. These trees and shrubs may also damage the underdrain system of the SFB. This plant material may indicate a clogging of the filter media and may require additional investigation.

Emergency Overflow

An emergency spillway is typical of all SFBs and designed to serve as the overflow in the event the volume of the pond is exceeded. The emergency spillway is typically armored with riprap (or other hard armor), and is sometimes buried with soil or may be a concrete wall or other structure. The emergency spillway is typically a weir (notch) in the basin embankment. Proper function of the emergency spillway is essential to ensure flooding does not affect adjacent properties.

The typical maintenance activities that are required for the emergency overflow areas are as follows:

- a. Riprap Displaced As mentioned before, the emergency spillway is typically armored with riprap to provide erosion protection. Over the life of an SFB, the riprap may shift or become dislodged due to flow.
- b. Erosion Present Although the spillway is typically armored, stormwater flowing through the spillway can cause erosion damage. Erosion must be repaired to ensure the integrity of the basin embankment, and proper function of the spillway.
- c. Mowing/weed/woody growth control Management of woody vegetation is essential in the proper long-term function of the spillway. Larger trees or dense shrubs can capture larger debris entering the SFB and reduce the capacity of the spillway. These trees and shrubs may also damage the underdrain system of the SFB
- d. Obstruction/Debris The spillway must be cleared of any obstruction (man made or natural) to ensure the proper design capacity.

Miscellaneous

There are a variety of inspection/maintenance issues that may not be attributed to a single feature within the SFB. This category on the inspection form is for maintenance items that are commonly found in the SFB, but may not be attributed to an individual feature.

a. Encroachment in Easement Area – Private lots/property can sometimes be located very close to the SFBs, even though they are required to be located in tracts with drainage easements. Property owners may place landscaping, trash, fencing, or other items within the easement area that may affect maintenance or the operation of the facility.

b. Graffiti/Vandalism – Vandals can cause damage to the SFB infrastructure. If criminal mischief is evident, the inspector should forward this information to the local Sheriff's Office

c. Public Hazards – Public hazards include items such as vertical drops of greater than 4-feet, containers of unknown/suspicious substances, and exposed metal/jagged concrete on structures. If any hazard is found within the facility area that poses an immediate threat to public safety, contact the local Sheriff's Office at 911 immediately.

d. Other – Any miscellaneous inspection/maintenance items not contained on the form should be entered here.

Inspection Forms

SFB Inspection forms are located in Appendix D. Inspection forms shall be completed by the person(s) conducting the inspection activities. Each form shall be reviewed and submitted by the property owner or property manager to Arapahoe County per the requirements of the Operations and Maintenance Manual. These inspection forms shall be kept indefinitely and made available to Arapahoe County upon request.

Maintaining Sand Filter Basins (SFBs)

Maintenance Personnel

Maintenance personnel must be qualified to properly maintain SFBs. Inadequately trained personnel can cause additional problems resulting in additional maintenance costs.

Equipment

It is imperative that the appropriate equipment and tools are taken to the field with the operations crew. The types of equipment/tools will vary depending on the task at hand. Below is a list of tools, equipment, and material(s) that may be necessary to perform maintenance on a SFB:

- 1.) Mowing Tractors
- 2.) Trimmers (extra string)
- 3.) Shovels
- 4.) Rakes
- 5.) All Surface Vehicle (ASVs)
- 6.) Skid Steer
- 7.) Back Hoe
- 8.) Track Hoe/Long Reach Excavator
- 9.) Dump Truck
- 10.) Jet-Vac Machine
- 11.) Engineers Level (laser)
- 12.) Riprap (Minimum Type M)
- 13.) Geotextile Fabric
- 14.) Erosion Control Blanket(s)
- 15.) Sod
- 16.) Illicit Discharge Cleanup Kits
- 17.) Trash Bags
- 18.) Tools (wrenches, screw drivers, hammers, etc)
- 19.) Confined Space Entry Equipment
- 20.) Approved Stormwater Facility Operation and Maintenance Manual
- 21.) ASTM C-33 Sand

Some of the items identified above may not be needed for every maintenance operation. However, this equipment should be available to the maintenance operations crews should the need arise.

Safety

Vertical drops may be encountered in areas located within and around the SFB. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within

the pond that is greater than 48-inches in height, make the appropriate note/comment on the maintenance inspection form.

SFB Maintenance Forms

The SFB Maintenance Form provides a record of each maintenance operation performed by maintenance contractors. The SFB Maintenance Form shall be filled out in the field after the completion of the maintenance operation. Each form shall be reviewed and submitted by the property owner or property manager to Arapahoe County per the requirements of the Operations and Maintenance Manual. The SFB Maintenance form is located in Appendix E.

SFB Maintenance Categories and Activities

A typical SFB Maintenance Program will consist of three broad categories of work: Routine, Minor and Major. Within each category of work, a variety of maintenance activities can be performed on a SFB. A maintenance activity can be specific to each feature within the SFB, or general to the overall facility. This section of the SOP explains each of the categories and briefly describes the typical maintenance activities for a SFB.

A variety of maintenance activities are typical of SFBs. The maintenance activities range in magnitude from routine trash pickup to the reconstruction of the SFB filter media or underdrain system. Below is a description of each maintenance activity, the objectives, and frequency of actions:

Routine Maintenance Activities

The majority of this work consists of scheduled mowings, trash and debris pickups for the SFB during the growing season. It also includes activities such as weed control. These activities normally will be performed numerous times during the year. These items typically do not require any prior correspondence with Arapahoe County, however, completed inspection and maintenance forms shall be submitted to Arapahoe County for each inspection and maintenance.

The Routine Maintenance Activities are summarized below, and further described in the following sections.

TABLE SFB-2

Summary of Routine Maintenance Activities

Maintenance Activity	Minimum Frequency	Look for:	Maintenance Action
Mowing	Twice annually	Excessive grass height/aesthetics	2"-4" grass height
Trash/Debris Removal	Twice annually		Remove and dispose of trash and debris
Splitter Box/Overflow Outlet Works Cleaning	As needed - after significant rain events – twice annually minimum	Clogged outlet structure; ponding water	Remove and dispose of debris/trash/sediment to allow outlet to function properly
Woody growth control /Weed removal	Minimum twice annually	Noxious weeds; Unwanted vegetation	Treat w/herbicide or hand pull; consult a local Weed Inspector

Mowing

Routine mowing of the turf grass embankments and turf grass located in the sedimentation chamber is necessary to improve the overall appearance of the SFB and ensure proper performance of the sediment chamber. Turf grass should be mowed to a height of 2 to 4-inches and shall be bagged to prevent potential contamination of the filter media.

Frequency – Routine - Minimum of twice annually or depending on aesthetics.

Trash/Debris Removal

Trash and debris must be removed from the entire SFB area to minimize outlet clogging and to improve aesthetics. This activity must be performed prior to mowing operations.

Frequency – Routine – Prior to moving operations and minimum of twice annually.

Splitter Box/Overflow Outlet Works Cleaning

Debris and other materials can clog the splitter box/overflow outlet work's grate. This activity must be performed anytime other maintenance activities are conducted to ensure proper operation.

Frequency - Routine - After significant rainfall event or concurrently with other maintenance activities.

Woody Growth Control/Weed Removal

Noxious weeds and other unwanted vegetation must be treated as needed throughout the SFB. This activity can be performed either through mechanical means (mowing/pulling) or with herbicide. Consultation with a local County Weed Inspector is highly recommended prior to the use of herbicide. Herbicides should be utilized sparingly and as a last resort. All herbicide applications should be in accordance with the manufacturer's recommendations.

Frequency – Routine – As needed based on inspections.

Minor Maintenance Activities

This work consists of a variety of isolated or small-scale maintenance/operational problems. Most of this work can be completed by a small crew, hand tools, and small equipment. These items require prior approval from Arapahoe County. Completed inspection and maintenance forms shall be submitted to Arapahoe County for each inspection and maintenance period. In the event that the SFB needs to be dewatered, care should be given to ensure sediment, filter material and other pollutants are not discharged. All dewatering activities shall be coordinated with Arapahoe County.

TABLE SFB-3
Summary of Minor Maintenance Activities

Maintenance Activity	Minimum Frequency	Look for:	Maintenance Action
Sediment/Pollutant Removal	As needed; typically every 1 –2 years	Sediment build-up in sedimentation chamber and filter media; decrease in infiltration rate	Remove and dispose of sediment
Erosion Repair	As needed, based upon inspection	Rills/gullies on embankments or sedimentation in the forebay	Repair eroded areas & revegetate; address cause
Jet-Vac/Cleaning Underdrains	As needed, based upon inspection	Sediment build-up /non-draining system	Clean drains; Jet-Vac if needed

Sediment Removal/Pollutant Removal

Sediment removal is necessary to ensure proper function of the filter media. The infiltration rate of the SFB needs to be checked in order to ensure proper functioning of the SFB. Generally, a SFB should drain completely within 12-hours of a storm event. If drain times exceed the 12-hour drain time than maintenance of the filter media shall be required.

At a minimum, the top 3-inches of filter media should be removed at each removal period. Additional amounts of filter media may need to be removed if deeper sections of the filter media are contaminated. New filter media will need to be placed back into the SFB when the total amount of sand removed reaches 9-inches. This may take multiple maintenance events to accomplish. It is critical that only sand that meets the American Society for Testing and Materials (ASTM) C-33 standard be utilized in the replacement of the filter media.

ASTM C-33 Sand Standard

US Standard Sieve Size (Number)	Total Percent Passing (%)
9.5mm (3/8 inch)	100
4.75 mm (No. 4)	95-100
2.36 mm (No. 8)	80-100
1.18 mm (No. 16)	50-85
600 μm (No. 30)	25-60
300 μm (No. 50)	10-30
150 μm (No. 100)	2-10

Other types of sand and soil material may lead to clogging of the SFB. The minor sediment removal activities can typically be addressed with shovels, rakes and smaller equipment. Major sediment removal activities will require larger and more specialized equipment. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur. The major sediment removal activities will also require surveying with an engineer's level, and consultation with Arapahoe County Engineering Staff to ensure design volumes/grades are achieved.

Stormwater sediments removed from SFBs do not meet the regulatory definition of "hazardous waste". However, these sediments can be contaminated with a wide array of organic and inorganic pollutants and handling must be done with care to ensure proper removal and disposal. Sediments should be transported by motor vehicle only after they are dewatered. All sediments must be taken to a licensed landfill for proper disposal. Should a spill occur during transportation, prompt and thorough cleanup and disposal is imperative.

Frequency — Non-routine — As necessary, based upon inspections. Sediment removal in the sedimentation chamber may be necessary as frequently as every 1-2 years.

Erosion Repair

The repair of eroded areas is necessary to ensure the proper functioning of the SFB, to minimize sediment transport, and to reduce potential impacts to other features. Erosion can vary in magnitude from minor repairs to filter media and embankments, to rills, and gullies in the embankments and inflow points. The repair of eroded areas may require the use of excavators, earthmoving equipment, riprap, concrete, and sod. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur. Major erosion repair to the pond embankments, spillways, and adjacent to structures will require consultation with Arapahoe County Engineering Staff.

Frequency – Non-routine – As necessary, based upon inspections.

Jet-Vac/Clearing Drains

A SFB contains an underdrain system that allows treated stormwater runoff to exit the facility. These underdrain systems can develop blockages that can result in a decrease of hydraulic capacity and also create standing water. Many times the blockage to this infrastructure can be difficult to access and/or clean. Specialized equipment (jet-vac machines) may be necessary to clear debris from these difficult areas.

Frequency – Non-routine – As necessary, based upon inspections.

Major Maintenance Activities

This work consists of larger maintenance/operational problems and failures within the stormwater management facilities. All of this work requires approval from Arapahoe County Engineering to ensure the proper maintenance is performed. This work requires that Engineering Staff review the original design and construction drawings to assess the situation and assign the necessary maintenance activities. This work may also require more specialized maintenance equipment, design/details, surveying, or assistance through private contractors and consultants. In the event that the basin needs to be dewatered, care should be given to ensure sediment, filter material and other pollutants are not discharged. Consultation with Arapahoe County is required prior to any dewatering activity.

TABLE SFB-4
Summary of Major Maintenance Activities

Maintenance Activity	Minimum	Look for:	Maintenance
•	Frequency		Action
Major Sediment/Pollutant Removal	As needed - based upon scheduled inspections	Large quantities of sediment in the sedimentation chamber and/or filter media; reduced infiltration rate /capacity	Remove and dispose of sediment. Repair vegetation as needed
Major Erosion Repair	As needed – based upon scheduled inspections	Severe erosion including gullies, excessive soil displacement, areas of settlement, holes	Repair erosion – find cause of problem and address to avoid future erosion
Structural Repair	As needed – based upon scheduled inspections	Deterioration and/or damage to structural components – broken concrete, damaged pipes & outlet works	Structural repair to restore the structure to its original design
SFB Rebuild	As needed – due to complete failure of SFB	Removal of filter media and underdrain system	Contact Arapahoe County Engineering

Major Sediment/Pollutant Removal

In very rare cases the filter media of the SFB may be contaminated so badly that the entire 18-inches of the filter media may need to be removed.

Major sediment/pollutant removal consists of removal of large quantities of sediment/filter media. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur. The sediment/filter media needs to be carefully removed, transported and properly disposed. Vegetated areas need special care to ensure design volumes and grades are preserved or may need to be replaced due to the removal activities. Stormwater sediments removed from SFBs do not meet the regulatory definition of "hazardous waste". However, these sediments can be contaminated with a wide array of organic and inorganic pollutants and handling must be done with care to insure proper removal and disposal. Sediments should be transported by motor vehicle only after they are dewatered. All sediments must be taken to a licensed landfill for proper disposal. Should a spill occur during transportation, prompt and thorough cleanup and disposal is imperative.

Frequency – Non-routine – Repair as needed, based upon inspections.

Major Erosion Repair

Major erosion repair consists of filling and revegetating areas of severe erosion. Determining the cause of the erosion as well as correcting the condition that caused the erosion should also be part of the erosion repair. Care should be given to ensure design grades and volumes are preserved. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur.

Frequency - Non-routine - Repair as needed, based upon inspections.

Structural Repair

A SFB generally includes a splitter box or concrete overflow outlet structure that can deteriorate or be damaged during the service life of the facility. These structures are constructed of steel and concrete that can degrade or be damaged and may need to be repaired or re-constructed from time to time. Major repairs to structures may require input from a structural engineer and specialized contractors. Consultation with Arapahoe County Engineering Staff shall take place prior to all structural repairs.

Frequency – Non-routine – Repair as needed, based upon inspections.

SFB Rebuild

In very rare cases a SFB may need to be rebuilt. Generally, the need for a complete rebuild is a result of improper construction, improper maintenance resulting in structural damage to the underdrain system, or extensive contamination of the SFB. Consultation with Arapahoe County Engineering Staff shall take place prior to any rebuild project.

Frequency – Non-routine – As needed, based upon inspections.

Attachment H

Pilot-Scale Field Testing Plan

The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site; therefore pilot-scale field testing is not required.

Attachment I

Measures for Minimizing Surface Stream Contamination

There are no sensitive features or surface streams within the boundaries of the project, however, Berry Creek is one mile away from the project location. Therefore, the temporary onsite BMPs will be used to treat stormwater runoff before it leaves the project area and will prevent pollutants from entering surface streams or any sensitive features down-gradient of the site.



SECTION 8: ADDITIONAL FORMS

Agent Authorization Form

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

	Brandon Jenkins	
	Print Name	
	Authorized Signatory	
	Title - Owner/President/Other	
of	FR Berry Hills, LLC	
	Corporation/Partnership/Entity Name	
have authorized	Jacob Kondo	
	Print Name of Agent/Engineer	
of	Kimley-Horn	
	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

7/22/2' Date

THE STATE OF Washings ton De County of District of & Columbia

BEFORE ME, the undersigned authority, on this day personally appeared ____ Brandon Jenkins_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 21st day of July 2022

NOTARY PUBLIC

Talesse Woldenichael
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 7-14-2027

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Berry Creek Highlands Phase 3

Regulated Entity Location: <u>2451 State Highway 195, Georgetown, TX 78633</u>

Name of Customer: FR Berry Hills, LLC

Contact Person: Jacob Kondo Phone: 512-418-1771

Tune of DI	210	Ci=o	Fac Duc
X Recharge Zone	Contributing Zone	Transit	ion Zone
Site Location (Check All That Ap	ply):		
Austin, TX 78711-3088	(5)	12)239-0357	
P.O. Box 13088	Αι	ıstin, TX 78753	
Mail Code 214	Ви	ilding A, 3rd Floor	
Revenues Section	12	100 Park 35 Circle	
Mailed to: TCEQ - Cashier	Ov	ernight Delivery to: To	CEQ - Cashier
X Austin Regional Office	Sa	n Antonio Regional Of	fice
Commission on Environmental C form must be submitted with yo	-	•	•
Application fees must be paid by	check, certified check, or	money order, payabl	e to the Texas
Comal	Kinney		
Bexar	Medina	Uva	alde
San Antonio Regional Office (33	62)		
Hays	Travis	⊠ Wil	liamson
Austin Regional Office (3373)			
Customer Reference Number (if Regulated Entity Reference Num	· —		
C D - C N / C	' I\		

Miconarde Zone Gontingating 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	16.885 Acres	\$ 4,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	2,367 L.F.	\$ 1,183.50
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: _	Jacob Kondo	Date: <u>09/14/2023</u>

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



Check Payable to the "Texas Commission on Environmental Quality"



Core Data Form



TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

		sion (If other is ch	•					,	h tha n	ragram application	n 1			
			•							rogram аррисацы	n.)			
	•	ta Form should be		th the re	enewa	il torm)			ther	= 00 D.C	change in Regulated Entity Ownership Accounts) at is current and active with the enter previous Customer below: 10. DUNS Number (if applicable) 11. General Limited 12. Limited 13. Dunction one of the following 14. Dunction one of the following 15. Dunction one of the following 16. Dunction one of the following 17. Dunction one of the following			
2. Customer	Reference	e Number <i>(if iss</i>	,	Follow to for CN o	or RN r		rs in	3. Regi	ulated	Entity Reterence	e Number (1	f issued)		
SECTION	II: Cus	stomer Info	rmation											
4. General Cu	ustomer Ir	nformation	5. Effective I	Date fo	r Cust	tomer	Inform	nation l	Jpdate	es (mm/dd/yyyy)	9/19/2	2023		
New Cust □ Change in		ne (Verifiable with		Jpdate to ecretary					oller of	•	Regulated E	Entity Ownership		
		ne submitted if State (SOS) of	-	•				-			rrent and	active with the		
6. Customer	Legal Nar	ne (If an individual,	, print last name	first: eg	g: Doe, .	John)		<u>If n</u>	ew Cus	stomer, enter previ	ous Custome	er below:		
FR Berry	—— Hills, Ll	LC												
7. TX SOS/CF 080465853	_	Number	8. TX State T 32085556	•	(11 digits	5)		9. I	Federa	II Tax ID (9 digits)	10. DUN	S Number (if applicable)		
11. Type of C	Customer:		on			Individu	ual		Par	tnership: 🗌 Gener	al 🔲 Limited			
Government:	City (County Federal] State ☐ Other			Sole Pr	roprieto	orship		Other:				
12. Number o	of Employ 21-100	rees 101-250	∑ 251-500		501 an	ıd highe	er		Indep Yes		and Opera	ted?		
14. Custome	r Role (Pro	oposed or Actual) –	as it relates to t	he Regu	ulated E	Entity lis	sted on	this forn	n. Pleas	se check one of the	following			
Owner Occupation	nal License	☐ Operati ee ☐ Respoi	or nsible Party				Operat y Clean	itor nup App	olicant	Other:				
	11 Dup	pont Circle N	W, Suite 9	00										
15. Mailing Address:			_		_	_	_	_	_		_			
Addition.	City	Washington		Sta	ate	DC		ZIP	2003	36	ZIP + 4			
16. Country I	Mailing Inf	formation (if outsid	de USA)				17. E-	-Mail A	ddress	(if applicable)				
							franl	k.delc	astill	o@ashtonwo	ods.com			
18. Telephon	e Number	ſ		19. Ext	tensio	n or C	ode			20. Fax Numbe	r (if applicat	ole)		
(512)45	0-4916									()	-			
ECTION	III: Re	egulated En	ti <u>ty Infor</u>	<u>mati</u>	<u>on</u>									
						y" is se	lected	below t	his fon	m should be acco	mpanied by	a permit application)		
⊠ New Regu	ulated Entit	ty Dpdate	to Regulated E	Entity Na	ame		Jpdate	to Reg	ulated	Entity Information	l			
_		ity Name subi Indings such a	•			d in o	order	to me	et TC	EQ Agency D	ata Stano	lards (removal		
22. Regulated	d Entity N	ame (Enter name o	of the site where	the reg	julated a	action is	s taking	g place.)						
Berry Cree	ek Highl	lands Phase 3	3											

TCEQ-10400 (02/21) Page 1 of 2

23. Street Address of	Highwa	y 195						
the Regulated Entity:								
(No PO Boxes)	City	Georgetow	n State	TX	ZIP	78626	ZIP + 4	
24. County		<u> </u>	l		l .		II.	II.
	E	nter Physical Lo	cation Descripti	on if no stre	eet addres	s is provided.		
25. Description to Physical Location:		WY 195 and	•			•		
26. Nearest City						State	Nea	rest ZIP Code
Georgetown						TX	78	626
27. Latitude (N) In Decin	nal:	30.723943		28. Lo	ongitude (W) In Decimal:	-97.6847	38
Degrees	Minutes	S	econds	Degree	es	Minutes		Seconds
30	4	43	26.1948		97		41	5.0604
29. Primary SIC Code (4	digits) 30.	Secondary SIC	Code (4 digits)	31. Primar (5 or 6 digits			econdary NA	ICS Code
1521	15	22		236115				
33. What is the Primary			Do not repeat the SIC	or NAICS desc	cription.)	1		
Single-Family Resi	dential H	omes						
24 Mailina			11	Dupont Ci	rcle NW, S	Suite 900		
34. Mailing Address:								
Addiess.	City	Washington	State	DC	ZIP	20036	ZIP + 4	
35. E-Mail Address	:		fr	ank.delcast	illo@asht	onwoods.com		
36. Telepho	one Number	r	37. Extension	n or Code		38. Fax Nu	ımber <i>(if appl</i>	icable)
(512) 4	450-4916					() -	
. TCEQ Programs and ID	Numbers (Check all Programs	and write in the pe	rmits/registrat	ion numbers	s that will be affected	d by the updates	submitted on this
rm. See the Core Data Form	instructions fo	r additional guidand						
m. See the Core Data Form i Dam Safety	instructions fo		⊠ Edwards Aqu	ifer		ions Inventory Air	☐ Industria	l Hazardous Was
rm. See the Core Data Form i	instructions fo	s	⊠ Edwards Aqu	ifer	☐ Emiss	ions Inventory Air	_	l Hazardous Was
m. See the Core Data Form i	instructions fo		1	ifer	☐ Emiss		☐ Industria	l Hazardous Was
rm. See the Core Data Form i Dam Safety Municipal Solid Waste	instructions fo	s ource Review Air	☑ Edwards Aqu	ifer	☐ Emiss	ions Inventory Air	□ PWS	l Hazardous Was
rm. See the Core Data Form i	instructions fo	s ource Review Air	⊠ Edwards Aqu	ifer	☐ Emiss	ions Inventory Air	_	
rm. See the Core Data Form i Dam Safety Municipal Solid Waste Sludge	instructions fo	ource Review Air			☐ Emiss ☐ Petrole ☐ Tires	ions Inventory Air eum Storage Tank	☐ PWS	
rm. See the Core Data Form i Dam Safety Municipal Solid Waste	instructions fo	ource Review Air	☑ Edwards Aqu		☐ Emiss ☐ Petrole ☐ Tires	ions Inventory Air	☐ PWS	
m. See the Core Data Form in Dam Safety Municipal Solid Waste Sludge Voluntary Cleanup	instructions fo	ource Review Air Water Water			☐ Emiss ☐ Petrole ☐ Tires	ions Inventory Air eum Storage Tank	☐ PWS	
m. See the Core Data Form Dam Safety Municipal Solid Waste Sludge Voluntary Cleanup ECTION IV: Pre	instructions fo District New So Storm Waste	ource Review Air Water Water			☐ Emiss ☐ Petrol ☐ Tires ☐ Water	ions Inventory Air eum Storage Tank	☐ PWS	
m. See the Core Data Form Dam Safety Municipal Solid Waste Sludge Voluntary Cleanup ECTION IV: Pre Jacob Kondo	□ Storm □ Waste □ P.E.	ource Review Air Water Water Mater		Agriculture 41. Title:	☐ Emiss ☐ Petrol ☐ Tires ☐ Water	eum Storage Tank Rights ect Manager	☐ PWS	
m. See the Core Data Form in Dam Safety Municipal Solid Waste Sludge Voluntary Cleanup ECTION IV: Pre	□ Storm □ Waste □ P.E.	ource Review Air Water Water Mater	☐ OSSF ☐ Title V Air ☐ Wastewater A	Agriculture 41. Title: 45. E-Ma	☐ Emiss ☐ Petrol ☐ Tires ☐ Water ☐ Proje ail Addres	eum Storage Tank Rights ect Manager	☐ PWS ☐ Used Oi	
m. See the Core Data Form in Dam Safety Municipal Solid Waste Sludge Voluntary Cleanup ECTION IV: Preside. Jacob Kondo Jacob Kondo 12. Telephone Number	District New So Storm Waste Parer In P.E. 43. Ext./Coo	ource Review Air Water Water Mater 44. Fax	☐ OSSF ☐ Title V Air ☐ Wastewater A	Agriculture 41. Title: 45. E-Ma	☐ Emiss ☐ Petrol ☐ Tires ☐ Water ☐ Proje ail Addres	eum Storage Tank Rights ect Manager	☐ PWS ☐ Used Oi	
m. See the Core Data Form in Dam Safety Municipal Solid Waste Sludge Voluntary Cleanup ECTION IV: Presented to Suppose the	District New So Storm Waste Parer In P.E. Horized I certify, to	water Water Water Mater Mater Signature the best of my kr	☐ OSSF ☐ Title V Air ☐ Wastewater A Number — anowledge, that the	41. Title: 45. E-Ma jacob.l	☐ Emiss ☐ Petrol ☐ Tires ☐ Water ☐ Proje ail Addres kondo@	eum Storage Tank Rights ect Manager s kimley-horn.c	Depth PWS Used Oi Other: com and complete	, and that I have

TCEQ-10400 (02/21) Page 2 of 2

(737) 471- **0326**

09/19/2023

Phone:

Date:

Name (In Print):

Signature:

Jacob Kondo, P.E.

Pacol Kondo



SECTION 9: EXHIBITS

		REVIS	SIONS/CC	RRECTIONS	3		
NO.	DESCRIPTION	REVISE (R) VOID (V) ADD (A) SHEET NO.'S	TOTAL NO. SHEETS IN PLAN SET	NET CHANGE IMP. COVER (SQ. FT.)	TOTAL SITE IMP. COVER (SQ. FT.)/%	CITY OF AUSTIN APPROVAL DATE	DATE IMAGED

CIVIL CONSTRUCTION PLANS PAVING, GRADING & UTILITIES

FOR

BERRY CREEK HIGHLANDS PHASE 3

CITY OF GEORGETOWN, WILLIAMSON COUNTY, TEXAS

- REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER (IONLY APPLICABLE FOR NON-RESIDENTIAL AND MULTI-FAMILY DEVELOPMENT) ALL ELECTRIC AND COMMUNICATION INFRASTRUCTURE SHALL COMPLY WITH UDC SECTION 13.06.
- THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON MARCH 31, 2016. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREIN

BEING A 16.886 ACRE (735,554 SQUARE FEET) TRACT OF LAND SITUATED IN THE BURRELL EAVES SURVEY, ABSTRACT NO. 216, CITY OF GEORGETOWN, WILLIAMSON COUNTY, TEXAS; AND BEING A PORTION OF THAT CERTAIN 314.54 ACRE TRACT DESCRIBED IN QUIT CLAIM DEED TO BERRY CREEK (GEORGETOWN) ASLI IX, LLC, AS RECORDED IN DOCUMENT NO. 2018106295 OF THE OFFICIAL

ENGINEER/APPLICANT

10814 JOLLYVILLE ROAD, AVALLON IV, SUITE 200 AUSTIN TEXAS 78759 CERTIFICATE OF REGISTRATION #928 CONTACT: JACOB KONDO, P.E. EMAIL: JACOB.KONDO@KIMLEY-HORN.COM TELEPHONE: 737-471-0326

OWNER/DEVELOPER

FR BERRY CREEK, LLC **BRANDON JENKINS** SUITE 900 **WASHINGTON DC 20036** CONTACT: FRANK DEL CASTILLO EMAIL: frank.delcastillo@ashtonwoods.com TELEPHONE: 512-450-4916 WEBSITE: www.ashtonwoods.com

GAS SERVICE

ATMOS ENERGY CORPORATION 3110 N INTERSTATE 35 **ROUND ROCK, TEXAS 78681** TELEPHONE: (512) 310-3855 CONTACT: ALIDA PAINE WEBSITE: www.atmosenergy.com

ELECTRIC SERVICE

PEDERNALES ELECTRIC COOPERATIVE, INC. 10625 WEST HIGHWAY 29 LIBERTY HILL, TEXAS 78642 TELEPHONE: (512) 778-5470 CONTACT: JUSTIN BOWERMAN WEBSITE: WWW.PEC.COOP

SURVEYOR

WEBSITE: http://www.kimley-horn.com/ 601 NW LOOP 410, SUITE 350 SAN ANTONIO, TEXAS 78216 TELEPHONE: (210) 541-9166 CONTACT: JOHN G. MOSIER EMAIL: greg.mosier@kimley-horn.com

PROJECT INFORMATION

ACREAGE: 20.38 ACRES ZONING: BERRY CREEK HIGHLANDS PUD

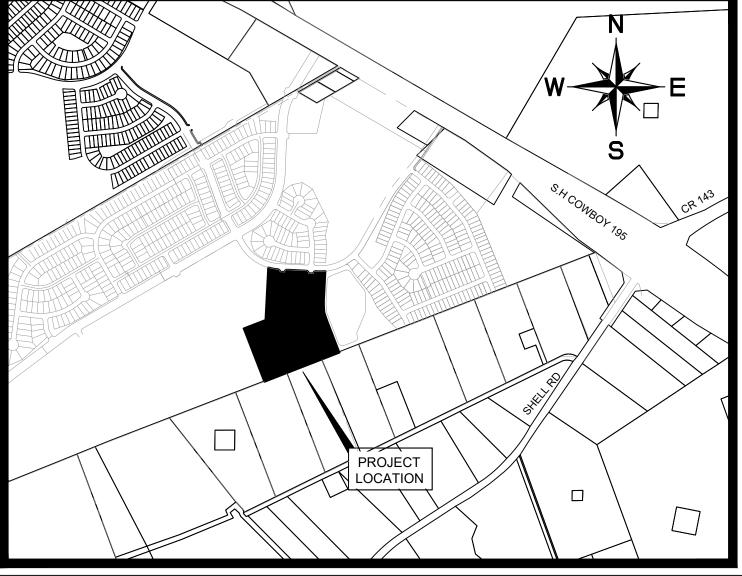
WATER SERVICE

CITY OF GEORGETOWN **GEORGETOWN UTILITY SYSTEMS** 300-1 INDUSTRIAL AVENUE GEORGETOWN, TEXAS 78626 TELEPHONE: (512)930-3555 CONTACT: DAVID MUNK WEBSITE: https://gus.georgetown.org/

WASTEWATER SERVICE

CITY OF GEORGETOWN **GEORGETOWN UTILITY SYSTEMS** 300-1 INDUSTRIAL AVENUE GEORGETOWN, TEXAS 78626 TELEPHONE: (512)930-3555 CONTACT: DAVID MUNK WEBSITE: https://gus.georgetown.org/

BERRY CREEK HIGHLANDS MUNICIPAL UTILITY DISTRICT 4



16.886 ACRES SITUATED IN THE BURRELL EAVES SURVEY ABSTRACT NO. 216 CITY OF GEORGETOWN, WILLIAMSON COUNTY, TEXAS

> **VICINITY MAP** SCALE: 1" = 1,000'

PLAN SUBMITTAL/REVIEW LOG

1ST SUBMITTAL TO CITY

09/15/2023

SHEET INDEX

SHEET NO.	DESCRIPTION
C-01	COVER SHEET
C-02	FINAL PLAT (SHEET 1 OF 2)
C-03	FINAL PLAT (SHEET 2 OF 2)
C-04	GENERAL NOTES (SHEET 1 OF 2)
C-05	GENERAL NOTES (SHEET 2 OF 2)
C-06	EROSION CONTROL PLAN
C-07	TREE PRESERVATION PLAN (SHEET 1 OF 2)
C-08	TREE PRESERVATION PLAN (SHEET 2 OF 2)
C-09	GRADING PLAN
C-10	PAVING PLAN & PROFILE - NYX DRIVE
C-11	PAVING PLAN & PROFILE - REDDING WAY
C-12	PAVING PLAN & PROFILE - WILLOW BEAN DRIVE
C-13	PAVING PLAN & PROFILE - ZELDA DRIVE
C-14	EXISTING DRAINAGE AREA MAP
C-15	PROPOSED DRAINAGE AREA MAP
C-16	INLET DRAINAGE AREA MAP
C-17	DRAINAGE CALCULATIONS
C-18	OVERALL STORM PLAN
C-19	STORM PLAN & PROFILE - SD-A (SHEET 1 OF 2)
C-20	STORM PLAN & PROFILE - SD-A (SHEET 2 OF 2)
C-21	STORM PLAN & PROFILE - SD-B & SD-D & SD-E
C-22	STORM PLAN & PROFILE - SD-C
C-23	STORM PLAN & PROFILE - OS-1
C-24	STORM LATERAL PROFILES (SHEET 1 OF 2)
C-25	STORM LATERAL PROFILES (SHEET 2 OF 2)
C-26	OVERALL WATER PLAN (SHEET 1 OF 2)
C-27	OVERALL WATER PLAN (SHEET 2 OF 2)
C-28	WASTEWATER PLAN & PROFILE - WWL-A
C-29	WASTEWATER PLAN & PROFILE - WWL-B
C-30	WASTEWATER PLAN & PROFILE - WWL-C
C-31	WASTEWATER PLAN & PROFILE - WWL-D
C-32	STREET LIGHT & SIGN PLAN
C-33	EROSION CONTROL DETAILS
C-34	PAVING DETAILS
C-35	UTILITY DETAILS (SHEET 1 OF 3)
C-36	UTILITY DETAILS (SHEET 2 OF 3)
C-37	UTILITY DETAILS (SHEET 3 OF 3)
C-36	` '

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,

APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY CITY ENGINEERS.

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM.

IN REVIEWING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY UPON THE ADEQUACY OF THE WORK OF

THE DESIGN ENGINEER. REVIEW OF THE SUBMITTED MATERIALS 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 HIS/HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR ORDINANCE COMPLIANCE BY THE CITY ENGINEER.

ACCURACY AND ADEQUACY OF HIS/HER SUBMITTAL, WHETHER OR NOT THE

Call before you dig.

WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES

BENCHMARKS

TBM# 101 "⊠" SET IN HEADWALL OF CULVERT LOCATED IN THE MEDIAN OF STATE HIGHWAY AND BONNET LANE ELEVATION = 821.82 FEET (AS SHOWN)

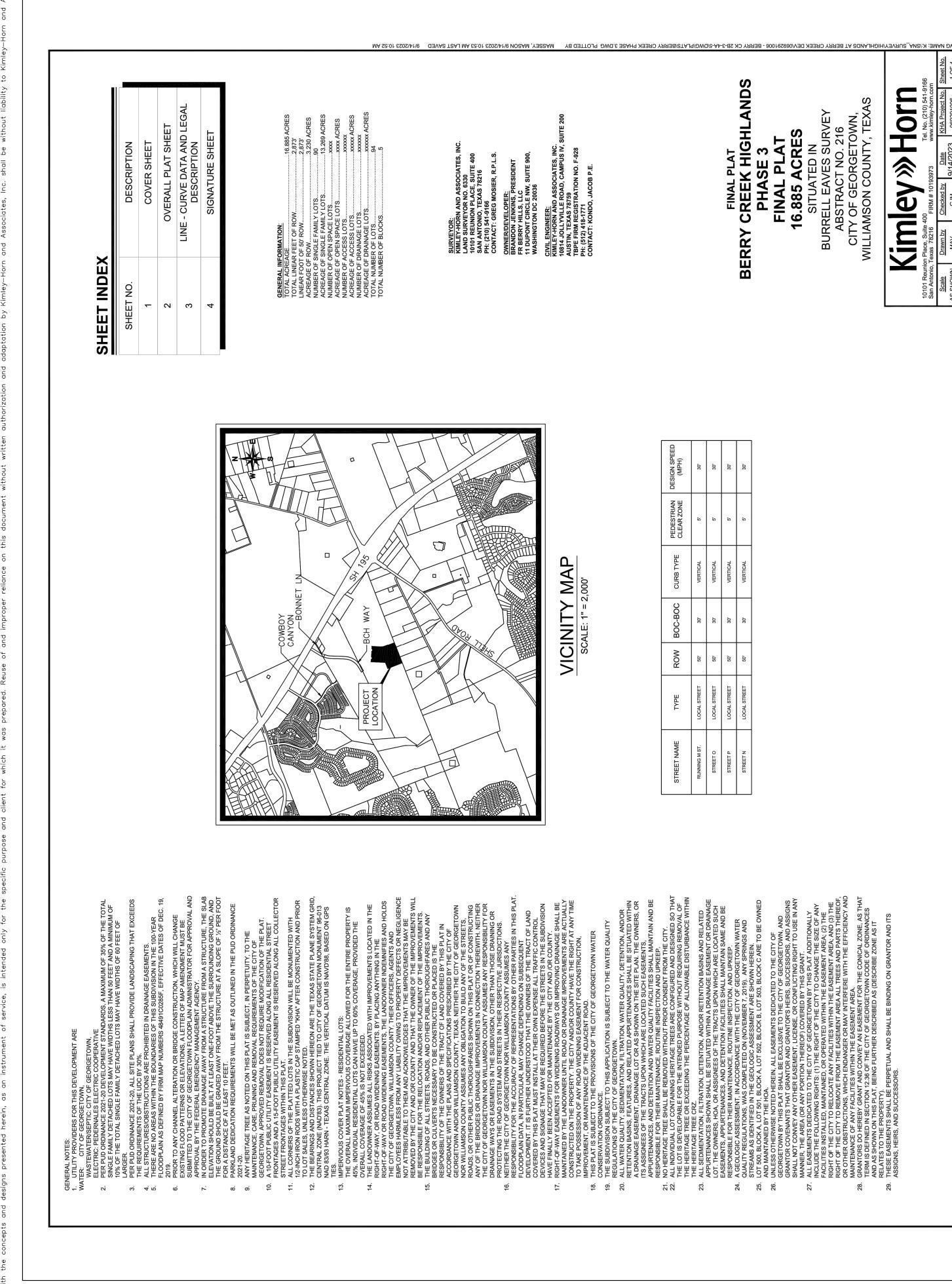
TBM# 102 "RAIL ROAD SPIKE" IN POWER POLE LOCATED 3.70' FROM THE EASTERLY CORNER OF THAT CERTAIN 3 703 ACRE TRACT ELEVATION = 820.55 FEET (AS SHOWN)

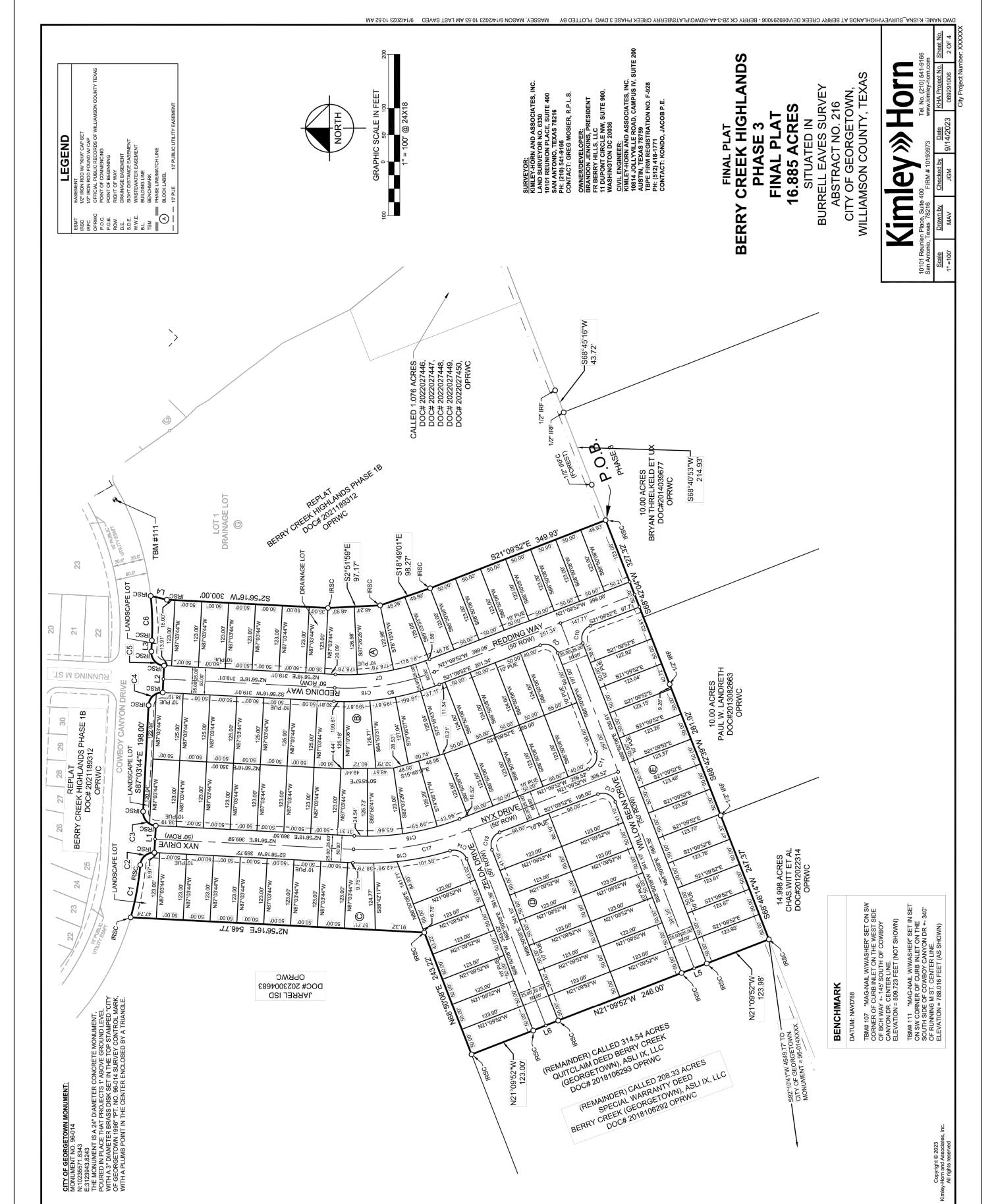
SHEET NUMBER

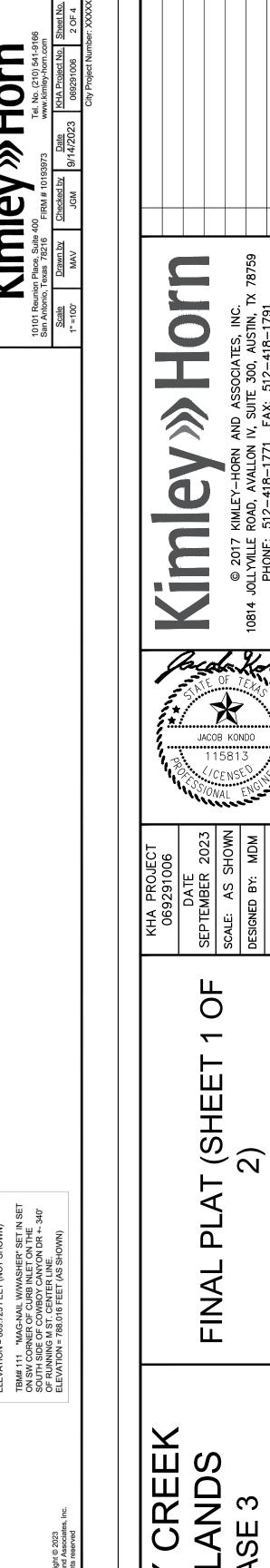
REIN N

2023-XX-CON

Know what's below.







JACOB KONDO

BERRY CREEK HIGHLANDS - PHASE

CIVIL CONSTRUCTION PLANS BERR SHEET NUMBER C-02 OF C-37 2023-XX-CON

WG NAME: K./SNA_SURVEY/HIGHLANDS AT BERRY CREEK DEV/069291006 - BERRY CR 28-3-4A-5/DWG/PLATS/BERRY CREEK PHASE 3.DWG PLOTTED BY MASON 9/14/2023 10:53 AM LAST SAVED 9/14/2023 AM LAST SAVED 9/14/2023 10:53 AM LAST SAVE Kimley» Horn LINE TABL

NO. BEARING

L1 S86°48'35"E

L2 S87°03'44"E

L3 S87°03'44"E

L4 S13°11'05"W

L5 N20°35'09"W

L6 N21°44'36"W
 CURVE TABL

 NO.
 DELTA
 RADIUS
 LENGTH
 C

 C1
 11°25'34"
 500.00'
 99.71'
 C

 C2
 88°20'22"
 25.00'
 38.55'
 C

 C3
 90°00'00"
 25.00'
 39.27'
 C

 C4
 90°00'00"
 25.00'
 39.27'
 C

 C5
 90°00'00"
 25.00'
 178.78'
 C

 C7
 24°06'08"
 425.00'
 178.78'
 C

 C9
 90°00'00"
 25.00'
 39.27'
 C

 C10
 90°00'00"
 25.00'
 39.27'
 C

 C11
 90°00'00"
 25.00'
 39.27'
 C

 C12
 90°00'00"
 25.00'
 39.27'
 C

 C13
 90°00'00"
 25.00'
 39.27'
 C

 C14
 86°53'02"
 25.00'
 39.27'
 C

 C15
 24°06'08"
 475.00'
 199.81'
 C

 C15
 24°06'08"
 475.00'
 199.81'
 LOT TABLE

LOT NO. ACRES SQ. FT.

BLOCK A-LOT 1 6,150

BLOCK A-LOT 2 0.141 6,150

BLOCK A-LOT 3 0.141 6,150

BLOCK A-LOT 5 0.141 6,150

BLOCK A-LOT 7 0.167 7,289

BLOCK A-LOT 7 0.167 7,289

BLOCK A-LOT 1 0.141 6,150

BLOCK A-LOT 1 0.141 6,150

BLOCK A-LOT 1 0.141 6,150

BLOCK A-LOT 11 0.141 6,150

BLOCK A-LOT 12 0.141 6,150

BLOCK A-LOT 13 0.141 6,150

BLOCK A-LOT 14 6,150

BLOCK A-LOT 15 0.141 6,150

BLOCK A-LOT 11 0.141 6,150 OWNER/DEVELOPER: BRANDON JENKINS, PRES FR BERRY HILLS, LLC 11 DUPONT CIRCLE NW, S WASHINGTON DC 20036 South 13*11'05" West, 30.94 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
 South 02*56'16" West, 30.04 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
 South 02*56'15" West, 300.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
 South 02*56'15" Set set, 37.7 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
 South 21*09'52" East, 349.33 feet to the POINT OF BEGINNING and containing 16.885 acres of land in Willie shown in the document saved in the office of Kimley-Hom and Associates, inc. in San Antonio, Texas. The ba description is the Texas State Plane Coordinate System Grid, Central Zone (FIPS 4203) (NAD'83). All distance in U.S. Survey Feet. This document was prepared in the office of Kimley-Hom and Associates, inc. in San Antonio.

OWNER/DEVE BRANDON JEN FR BERRY HIL 11 DUPONT CII BRANDON JENKINS, AUTHOR FR BERRY HILLS LLC 11 DUPONT CIRCLE NW, SUIT WASHINGTON, DC 20036

OF r (SHEET 2)

KHA PROJECT

069291006

DATE

SEPTEMBER 2023

SCALE: AS SHOWN

DESIGNED BY: MDM

CHECKED BY: JRK

KHA PROJECT NO. 069291006

Kimley » Horn

BERRY CREEK HIGHLANDS - PHASE

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PLANS ARE CONCEPTUAL.

- CONTRACTOR SHALL CONTACT ALL FRANCHISE UTILITY COMPANIES TO HAVE THEM LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND DEPTH OF ALL FRANCHISE UTILITY SERVICES AND ANY REQUIRED RELOCATION AND/OR EXTENSIONS. SERVICES SHOWN ON THE
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELOCATION AND INSTALLATION OF FRANCHISE UTILITIES NECESSARY FOR ON AND OFF SITE CONSTRUCTION.
- BRACING OF LITH ITY POLES MAY BE REQUIRED BY LITH ITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR. THERE IS NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE VARIOUS PAY ITEMS FOR INSTALLATION
- THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY RECORDS AND PLANS AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC AND PRIVATE UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT THEIR EXPENSE. THE ENGINEER SHALL BE NOTIFIED WHEN PROPOSED FACILITY GRADES CONFLICT WITH EXISTING UTILITY GRADES.
- 7. CONTRACTOR SHALL USE ALL NECESSARY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND POWER LINES.
- 8. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS SHOWN ON THE PLANS AND REVIEW ALL FIELD CONDITIONS, INCLUDING EXISTING GRADES AND UTILITY FLOW LINES, AND SHOULD DISCREPANCIES OCCUR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
- 9. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PAVEMENT, GRASS, TREES, LAWN SPRINKLER AND IRRIGATION SYSTEMS AT NO COST TO THE OWNER. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT (UNLESS OTHERWISE NOTED) AND IS NOT A SEPARATE PAY ITEM.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO
- 11. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE APPROVED CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
- 12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN NEAT AND ACCURATE CONSTRUCTION RECORD PLANS.
- 13. CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT AND PROFESSIONAL MANNER. WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS, THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS (FOR APPROVAL) OF METHODS PROPOSED.
- 14. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE OWNER AND ENGINEER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
- 15. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER AND DESIGN ENGINEER OF RECORD DIRECTLY FROM THE TESTING AGENCY.
- 16. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO THE FINAL CONNECTION OF SERVICES.
- 17. CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUM PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF
- 18. ALL HORIZONTAL DIMENSIONS GIVEN ARE TO FACE OF CURB AND TO PIPE CENTERLINES, UNLESS OTHERWISE NOTED
- 19. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING. CONSTRUCTION STAKING SHALL BE PERFORMED BY A REGISTERED PUBLIC SURVEYOR IN THE STATE OF TEXAS.
- 20. THE CONTRACTOR SHALL TOPSOIL, SEED AND FERTILIZE ALL AREAS DISTURBED BY CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE WHATEVER MEASURES ARE NEEDED INCLUDING TEMPORARY IRRIGATION TO ENSURE FULL COVERAGE OF GRASSING. UNLESS OTHERWISE NOTED, PRIVATE LAWN AREAS AND PARKWAYS IN FRONT OF PRIVATE LAWN AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED WITH BLOCK SOD OF A SIMILAR GRASS TO THAT EXISTING. ALL SEEDED OR SODDED AREAS SHALL RECEIVE SIX(6) INCHES OF TOPSOIL. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- 21. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE AREAS SHALL THEN BE SEEDED, IRRIGATED, AND STABILIZED AS SPECIFIED IN THE PLANS, AND MAINTAINED UNTIL SOIL IS STABILIZED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE STABILIZED AND MULCHED AS SHOWN ON THE LANDSCAPE, GRADING, AND EROSION CONTROL PLANS.
- 22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL
- 23. SOD MUST BE INSTALLED AND MAINTAINED ON EXPOSED SLOPES WITHIN TO PREVENT EROSION, SEDIMENTATION OR
- 24. CONTRACTOR IS TO CONSTRUCT A STABILIZED CONSTRUCTION EXIT AT ALL PRIMARY POINTS OF ACCESS. THIS STABILIZED EXIT SHALL BE CONSTRUCTED PER CITY DETAILS.
- 25. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN WITH ALL CONDITIONS ATTACHMENTS EXHIBITS AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE SWPPP MUST BE MADE READILY AVAILABLE AT THE TIME OF AN ON-SITE INSPECTION TO: THE EXECUTIVE DIRECTOR; A FEDERAL, STATE, OR LOCAL AGENCY APPROVING SEDIMENT AND EROSION PLANS, GRADING PLANS, OR STORMWATER MANAGEMENT PLANS; LOCAL GOVERNMENT OFFICIALS; AND THE OPERATOR OF A MUNICIPAL SEPARATE STORM SEWER (MS4) RECEIVING DISCHARGES FROM THE SITE.
- 26. ANY ENTITY THAT MEETS THE DEFINITION OF A "PRIMARY OPERATOR" FOR A LARGE CONSTRUCTION ACTIVITY (FIVE OR MORE ACRES) SHALL BE RESPONSIBLE FOR COMPLETING AND SUBMITTING A NOTICE OF INTENT (NOI) AND A NOTICE OF TERMINATION (NOT) WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).
- 27. THE CONTRACTOR MUST CONSTRUCT AND MAINTAIN A PERMANENT STABLE PROTECTIVE COVER (GRASS) FOR EROSION AND SEDIMENT CONTROL ON ALL LAND SURFACES EXPOSED OR DISTURBED BY CONSTRUCTION OF THE PERMITTED PROJECT. THE PROTECTIVE COVER MUST BE INSTALLED WITHIN FOURTEEN DAYS AFTER FINAL GRADING OF THE AFFECTED LAND SURFACE. A PERMANENT STABLE COVER MUST BE ESTABLISHED WITHIN 60 DAYS OF IT'S INSTALLATION.
- 28. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE AS-BUILT PLANS IDENTIFYING ALL DEVIATIONS OR VARIATIONS OF ORIGINAL PLANS. AS-BUILT PLANS ARE SUBSIDIARY TO ALL OTHER BID ITEMS AND SHALL NOT BE PAID FOR AS A SEPARATE LINE ITEM.
- 29. DURING CONSTRUCTION, ALL MATERIAL TESTING SHALL BE COORDINATED WITH THE CITY OF GEORGETOWN CONSTRUCTION INSPECTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CITY STANDARD SPECIFICATIONS. ALL SOILS TESTING IS THE RESPONSIBILITY OF AND WILL BE PAID FOR BY THE CONTRACTOR. MATERIAL TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
- 30. ALL EXISTING TRAFFIC AND STREET SIGNS DISTURBED SHALL BE REINSTALLED WHERE APPLICABLE BY THE
- 31. ALL EXISTING SHRUBS, TREES, PLANTING, AND OTHER VEGETATION, OUTSIDE OF PROPERTY LIMITS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED WITH EQUIVALENT MATERIAL BY THE CONTRACTOR AT NO ADDITIONAL
- 32. THE CONTRACTOR SHALL SALVAGE AND PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONE RISERS, WATER VALVES, ETC. DURING ALL CONSTRUCTION PHASES.
- 33. CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS OFFSITE FROM THE EXISTING ROADWAYS AND PROJECT SITE THAT ARE A RESULT OF THE PROPOSED CONSTRUCTION AS REQUESTED BY THE CITY OF GEORGETOWN. AT A MINIMUM, THIS TASK SHOULD OCCUR ONCE A WEEK.
- 34. CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT AND PROFESSIONAL MANNER. WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS, THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS (FOR APPROVAL) OF METHODS PROPOSED.
- 35. WATER SHALL NOT BE PERMITTED IN OPEN TRENCHES DURING CONSTRUCTION.
- 36. CONTRACTOR SHALL CONTACT THE DESIGNATED CONSTRUCTION INSPECTOR ASSIGNED TO THIS PROJECT AT LEAST
- 37. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A TRENCH SAFETY PLAN TO THE CITY OF GEORGETOWN PUBLIC WORKS DEPARTMENT AT THE TIME OF THE PRECONSTRUCTION MEETING, OR PRIOR TO BEGINNING CONSTRUCTION OF THESE IMPROVEMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY STANDARDS, TEXAS STATE LAW, AND O.S.H.A. STANDARDS FOR ALL EXCAVATION IN EXCESS OF FIVE FEET IN DEPTH. NO OPEN TRENCHES WILL BE ALLOWED OVERNIGHT WITHOUT THE PRIOR SPECIFIC WRITTEN APPROVAL OF THE CITY OF GEORGETOWN PUBLIC WORKS DEPARTMENT, OR DESIGNATED REPRESENTATIVE. ONSITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 38. CONTRACTOR TO REVIEW DESIGN INTENT OF THESE PLANS AND SUBMIT REQUESTS-FOR-INFORMATION IN A TIMELY MANNER PRIOR TO COMMENCING THAT WORK.
- 39. ALL APPURTENANCES INSTALLED IN PAVEMENT AREAS SHALL BE ADJUSTED AS REQUIRED TO BE FLUSH WITH
- 40. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR COMPLETING AND IMPLEMENTING TRAFFIC CONTROL PLAN.

PAVING & STRIPING NOTES

- ALL CONSTRUCTION SHALL BE IN GENERAL ACCORDANCE WITH THESE PLANS, CITY OF GEORGETOWN, TX STANDARD SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS.
- TESTING OF MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE PAVING IMPROVEMENTS SHALL BE PERFORMED BY AN APPROVED AGENCY FOR TESTING MATERIALS. THE NOMINATION OF THE TESTING LABORATORY AND THE PAVEMENT OF SUCH TESTING SERVICES SHALL BE MADE BY THE CONTRACTOR THE OWNER SHALL APPROVE THE LABORATORY NOMINATED TO DO THE TESTING OF MATERIALS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SHOW BY STANDARD TESTING PROCEDURES THAT THE WORK CONSTRUCTED DOES MEET THE REQUIREMENTS OF THE CITY'S SPECIFICATIONS AND THESE PLANS.
- BARRIER FREE RAMPS SHALL BE CONSTRUCTED AT ALL DRIVEWAY APPROACHES PER CITY STANDARDS.
- ALL SIGNS. PAVEMENT MARKINGS. AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"
- CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS FOR FIRE LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINT FOR PAVEMENT MARKINGS SHALL ADHERE TO CITY OF GEORGETOWN STANDARD DETAILS AND SPECIFICATIONS.
- 6. REFER TO GEOTECHNICAL REPORT FOR PAVING JOINT LAYOUT PLAN.

RAMP AND OTHER PAVING DETAILS.

- 7. REFER TO GEOTECHNICAL REPORT FOR REINFORCEMENT STEEL.
- 8. REFER TO GEOTECHNICAL REPORT FOR SOIL COMPACTION SPECIFICATION.
- FIRE LANES SHALL BE DESIGNATED BY CONTINUOUS PAINTED LINES FOUR (4) INCHES IN WIDTH ON EACH SIDE OF THE FIRE LANE STARTING AT THE ENTRANCE FROM THE STREET AND TO BE CONTINUED TO THE EXIT. SUCH LINES SHALL BE BRIGHT RED IN COLOR.
- 10. FIRE LANES ADJACENT TO CURBS SHALL BE OUTLINED BY A FOUR (4) INCH WIDE STRIP PAINTED BRIGHT RED IN COLOR ALONG THE CURB'S GUTTER LINE.
- 11. THE WORDS "FIRE LANE" AND "NO PARKING" SHALL BE STENCILED IN FOUR (4) INCH HIGH WHITE LETTERS ALTERNATELY EVERY FIFTEEN (15) FEET ALONG THE RED FIRE LANE STRIPES.
- 12. ALL HANDICAP RAMPING, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT THAT IS MOST CURRENT.
- 13. REFERENCE CITY OF GEORGETOWN, TX STANDARD CONSTRUCTION DETAILS FOR HANDICAP
- 14. CONTRACTOR RESPONSIBLE FOR PREPARATION, SUBMITTAL, AND APPROVAL BY CITY OF GEORGETOWN, TX OF TRAFFIC CONTROL PLAN PRIOR TO START OF CONSTRUCTION.
- 15. SIDEWALKS ADJACENT TO CURB SHALL BE CONNECTED TO BACK OF CURB USING LONGITUDINAL
- 16. UNLESS THE PLANS SPECIFICALLY DICTATE TO THE CONTRARY, ON-SITE AND OTHER DIRECTIONAL SIGNS SHALL BE LOCATED OUT OF THE PEDESTRIAN AND AUTOMOBILE ROUTES AND SHALL BE LOCATED BETWEEN THREE TO FIVE FEET BEHIND THE NEAREST BACK OF CURB. SIGN HEIGHT LOCATION, AND STRUCTURE SHALL BE SUCH THAT THE SIGNS POSE NO THREAT TO PUBLIC
- 17. UNLESS THE PLANS SPECIFICALLY DICTATE TO THE CONTRARY, ON-SITE AND OTHER DIRECTIONAL SIGNS SHALL BE ORIENTED SO THEY ARE READILY VISIBLE TO THE ONCOMING TRAFFIC FOR WHICH THEY ARE INTENDED, FIELD ADJUSTMENTS OF LOCATION AND ORIENTATION OF THE SIGNS ARE TO BE MADE TO ACCOMPLISH THIS.
- 18. THE CONTRACTOR FOR THE PROJECT SHALL NOT PLACE ANY PERMANENT PAVEMENT UNTIL ALL SLEEVING FOR ELECTRIC, GAS, TELEPHONE, CABLE TV, SITE IRRIGATION, OR ANY OTHER UNDERGROUND UTILITY HAS BEEN INSTALLED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THAT ALL SLEEVING IS IN PLACE PRIOR TO PLACEMENT OF PERMANENT PAVEMENT.
- 19. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE HANDICAPPED ROUTES (PER A.D.A. & T.A.S) EXIST TO AND FROM EVERY DOOR. IN NO CASE SHALL HANDICAP RAMP SLOPES EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPES EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPES EXCEED 5.0 PERCENT. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR A.D.A. AND TAS COMPLIANCE ISSUES
- 20. STREETS, SIDEWALKS, DRIVEWAYS, AND STORM DRAINAGE FACILITIES IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CITY OF GEORGETOWN INFRASTRUCTURE DESIGN & DEVELOPMENT STANDARDS MANUAL, LATEST EDITION.
- FIRE LANES SHALL REMAIN OPEN/ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION; FIRE LANE SHALL BE INSTALLED & ACCEPTED BY THE CITY PRIOR TO ANY CONSTRUCTION ABOVE THE FOUNDATION.

- ALL CONSTRUCTION SHALL BE IN GENERAL ACCORDANCE WITH THESE PLANS, CITY OF GEORGETOWN, TX STANDARD SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS.
- UNLESS OTHERWISE NOTED, PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN IN PAVED AREAS REFLECT TOP OF PAVEMENT SURFACE. ADD .50' TO PAVING GRADE FOR TOP OF CURB GRADE. THE LIMITS OF EARTHWORK IN PAVED AREAS IS THE BOTTOM OF PAVEMENT.
- THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL USE SILT FENCES (OR OTHER METHODS APPROVED BY THE ENGINEER AND CITY) AS REQUIRED TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM FLOWING ONTO ADJACENT PROPERTIES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, OR LOCAL EROSION, CONSERVATION, AND SILTATION REQUIREMENTS. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF PERMANENT DRAINAGE FACILITIES AND THE ESTABLISHMENT OF A STAND OF GRASS OR OTHER GROWTH TO PREVENT EROSION, CONTRACTOR IS RESPONSIBLE FOR FILING N.O.I. AND N.O.T. WITH THE TCEQ. CONTRACTOR SOLELY RESPONSIBLE FOR ALL MANDATED SWPPP RECORD KEEPING AND REPORTING
- ALL EXCAVATING IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED. UNUSABLE EXCAVATED MATERIAL AND ALL WASTE RESULTING FROM SITE CLEARING AND GRUBBING SHALL BE DISPOSED OF OFF SITE BY THE GRADING CONTRACTOR AT HIS
- BEFORE ANY EARTHWORK IS PERFORMED, THE CONTRACTOR SHALL STAKE OUT AND MARK THE LIMITS OF PAVEMENT AND OTHER ITEMS ESTABLISHED BY THE PLANS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ENGINEERING AND SURVEYING FOR LINE AND GRADE CONTROL POINTS RELATED TO EARTHWORK.
- REFERENCE STRUCTURAL DRAWINGS AND SPECIFICATIONS AND GEOTECHNICAL REPORT FOR STRUCTURAL SCOPE AND PAVING SUBGRADE INFORMATION.
- THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
- GRADING CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES FOR ANY REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS.
- TESTING OF MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE PAVING IMPROVEMENTS SHALL BE PERFORMED BY AN APPROVED AGENCY FOR TESTING MATERIALS. THE NOMINATION OF THE TESTING LABORATORY AND THE PAYMENTS FOR SUCH TESTING SERVICES SHALL BE MADE BY THE CONTRACTOR. THE OWNER SHALL APPROVE THE LABORATORY NOMINATED TO DO THE TESTING OF MATERIALS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SHOW BY STANDARD TESTING PROCEDURES THAT THE WORK CONSTRUCTED DOES MEET THE REQUIREMENTS OF THE CITY'S SPECIFICATIONS AND
- 10. PROPOSED CONTOURS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND DESIGNATED GRADIENT ARE TO BE USED IN CASE OF DISCREPANCY.
- 11. REFER TO SITE PLAN AND/OR DIMENSION CONTROL PLAN AND FINAL PLAT FOR HORIZONTAL
- REFER TO EROSION CONTROL PLAN FOR EROSION CONTROL DEVICES TO BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION.
- 13. NO TREE SHALL BE REMOVED OR DAMAGED WITHOUT PRIOR AUTHORIZATION OF THE OWNER OR OWNER'S REPRESENTATIVE. EXISTING TREES SHALL BE PRESERVED WHENEVER
- 14. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL CONTROL PRIOR TO COMMENCING CONSTRUCTION AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE CONSTRUCTION COMMENCES.
- AFTER PLACEMENT OF SUBGRADE AND PRIOR TO PLACEMENT OF PAVEMENT, CONTRACTOR SHALL TEST AND OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING. ALL AREAS SHALL ADEQUATELY DRAIN TOWARDS THE INTENDED STRUCTURE TO CONVEY STORM RUNOFF. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND ENGINEER IF ANY DISCREPANCIES ARE DISCOVERED.

- THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION AND SHALL NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER OF ANY CONFLICTS DISCOVERED. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE.
- 2. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN. INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER.
- 3. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM
- 4. THE INSPECTOR SHALL INSPECT ALL "PUBLIC" CONSTRUCTION. THE CONTRACTOR'S BID PRICE SHALL INCLUDE ALL INSPECTION FEES.

5. ALL PVC TO RCP CONNECTIONS SHALL BE CONSTRUCTED WITH CONCRETE

- ALL ONSITE STORM SEWER LINES SHALL BE HDPE, ALL PRIVATE STORM SHALL BE NOTED AS ON PLANS. CONTRACTOR TO CONTACT ENGINEER WITH QUESTIONS ABOUT PIPE MATERIAL PRIOR TO ORDERING. CONTRACTOR SHALL SUBMIT TECHNICAL DATA TO PROJECT ENGINEER AND CITY ENGINEER
- FOR APPROVAL PRIOR TO ORDERING MATERIAL. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION FOR NORTH CENTRAL
- 8. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION STAKING FOR ALL STORM SEWER LINES AND OTHER UTILITIES.

TEXAS, LATEST EDITION, AND ANY SPECIAL PROVISION AS APPROVED BY THE

- 9. EMBEDMENT FOR ALL ONSITE SEWER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY OF GEORGETOWN, TX STANDARD DETAILS.
- 10. REFER TO TCEQ DESIGN GUIDELINES (CHAPTER 290) FOR ALL UTILITY CROSSINGS.
- 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND IMPLEMENTING A TRENCH PROTECTION PLAN FOR ALL OPEN TRENCH **EXCAVATION**
- 12. USE 4 FOOT JOINTS WITH BEVELED ENDS IF RADIUS OF STORM SEWER IS LESS
- 13. ALL PRIVATE LANDSCAPE AREA DRAINS SHALL BE OF MATERIAL APPROVED BY BOTH ENGINEER AND LANDSCAPE ARCHITECT.

WATER AND SANITARY SEWER NOTES

CITY OF GEORGETOWN, TX.

- ALL MATERIALS AND WORKMANSHIP TO CONFORM TO THE REQUIREMENTS SET FORTH IN THE CITY OF GEORGETOWN WATER AND WASTEWATER CONSTRUCTION STANDARDS AND DETAILS, LATEST EDITION.
- 2. WATER PIPE SHALL BE PVC C-900 DR 18, EXCEPT WHEN OTHERWISE NOTED
- SEWER PIPE SHALL BE MINIMUM SDR 35 PVC OR ULTRA RIB PVC SDR 26. 4. WATER MAINS SHALL HAVE THE FOLLOWING MINIMUM COVER BELOW STREET
 - GRADES: LARGER AS SHOWN ON PLANS

D. RED TAPE FOR SEWER SERVICES.

- PLASTIC TAPE FOR UTILITY SERVICES SHALL BE ATTACHED TO THE ENDS OF ALL WATER AND SEWER SERVICE LINES AND EXTEND ABOVE GROUND LEVEL THE TAPE SHALL MEET THE FOLLOWING SPECIFICATION: A. "GEORGETOWN MARKING TAPE" OR APPROVED EQUAL.
- B. ROLL MARKED CONTINUOUSLY, "CAUTION WATER LINE" OR "CAUTION SEWER C. SIX (6) INCHES IN WIDTH.
- E. BLUE TAPE FOR WATER SERVICES. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY EXACT LOCATIONS OF EXISTING PUBLIC AND PRIVATE UTILITIES AND SERVICES PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL CALL 811 FOR FIELD LOCATION OF EXISTING UTILITIES. CALL AT LEAST 48 HOURS BEFORE OCATIONS ARE NEEDED. NOTE THAT THE DIG TESS SERVICE DOES NO LOCATE ALL UTILITIES, ONLY THOSE REGISTERED WITH THE SERVICE.
- REFER TO SITE GRADING PLANS, PAVING PLANS, AND LANDSCAPE PLANS FOR FINAL GRADES FOR DETERMINING PROPOSED MANHOLE RIM ELEVATIONS.
- LOCATIONS AND SIZES OF EXISTING PUBLIC AND PRIVATE UTILITIES SHOWN ON THESE PLANS ARE FROM CITY AND UTILITY COMPANY RECORDS ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING ALL UTILITIES AND FOR DAMAGES RESULTING FROM FAILURE TO DO SO.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING "RECORD" PLANS

- TO THE ENGINEER SHOWING THE LOCATION OF WATER AND SEWER SERVICES AND ANY DEVIATIONS FROM PLANS MADE DURING CONSTRUCTION. 10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS SHOWN, COORDINATING THE
- HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITY SERVICES ENTERING THE BUILDING AND/OR CROSSING OTHER UTILITIES. 11. ALL WATER AND SANITARY SEWER SERVICES SHALL TERMINATE FIVE (5) FEET
- OUTSIDE THE BUILDING, UNLESS NOTED OTHERWISE.
- 12. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE UTILITIES. ALL PUBLIC PIPE, STRUCTURES, AND FITTINGS SHALL BE INSPECTED BY THE CITY INSPECTOR PRIOR TO BEING COVERED. THE INSPECTOR MUST ALSO BE PRESENT DURING DISINFECTION AND PRESSURE TESTING OF ALL MAINS. THE CONTRACTOR'S BID PRICE SHALL INCLUDE ALL INSPECTION FEES.
- 13. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE TRENCH SAFETY DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A TRENCH EXCAVATION PROTECTION PLAN, SEALED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF TEXAS, FOR ALL TRENCHES DEEPER
- 14. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION STAKING FOR ALL WATER AND SANITARY SEWER LINES AND OTHER UTILITIES.
- 15. REFER TO TCEQ DESIGN GUIDELINES (CHAPTER 290) FOR ALL UTILITY
- 16. CONTRACTOR TO SEQUENCE CONSTRUCTION AS TO AVOID INTERRUPTION OF WATER OR SANITARY SEWER SERVICE TO SURROUNDING AREAS.
- 17. EXISTING MANHOLE TOPS, VALVE BOXES, ETC. ARE TO BE ADJUSTED AS REQUIRED TO MATCH PROPOSED GRADES.
- 18. FIRE HYDRANTS SHALL BE LOCATED A MINIMUM OF TWO (2) FEET AND A MAXIMUM OF SIX (6) FEET BEHIND THE CURB LINE OF FIRE LANE AND STREET.
- 19. ANY WATER OR SANITARY SEWER SERVICE LOCATED OUTSIDE OF A STREET, ALLEY OR EASEMENT SHALL BE INSTALLED BY A PLUMBER AND BE INSPECTED BY CODE ENFORCEMENT

- THE DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (KEN HEROY, PH: 512-989-2200) SHALL BE CONTRACTED 48 HOURS PRIOR TO: PRE-CONSTRUCTION MEETINGS;
- BEGINNING EACH PHASE OF CONSTRUCTION; TESTING OF WATER AND/OR WASTEWATER LINES; AND, 4. FINAL WALK-THROUGH OF FACILITIES

CITY OF GEORGETOWN NOTES:

STANDARDS AND SPECIFICATIONS.

INCLUDED WITH THE DISK.

- BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION REQUIREMENTS AND CODES.
- THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.

- 4. WASTEWATER MAINS AND SERVICE LINES SHALL BE SDR 26 PVC
- 6. MAXIMUM DISTANCE BETWEEN WASTEWATER MANHOLES IS 500 FEET
- 8. WASTEWATER MANHOLES SHALL BE VACUUM TESTED AND COATED BY THE CONTRACTOR ACCORDING TO CITY OF GEORGETOWN AND TCEQ REQUIREMENTS.
- CITY ON DVD FORMAT PRIOR TO PAVING THE STREETS.
- 11. PRIVATE WATER SYSTEM FIRE LINES SHALL BE DUCTILE IRON PIPING FROM THE WATER MAIN TO THE BUILDING SPRINKLER SYSTEM, AND 200 PSI C900 PVC FOR ALL OTHERS.
- 150 PSI FOR 4 HOURS.
- BLOCKED.
- 14. LONG FIRE HYDRANT LEADS SHALL BE RESTRAINED.

15. ALL WATER LINES ARE TO BE BACTERIA TESTED BY THE CONTRACTOR ACCORDING TO THE CITY

- 17. FLEXIBLE BASE MATERIAL FOR PUBLIC STREETS SHALL BE TXDOT TYPE A GRADE 1
- 19. ALL SIDEWALK RAMPS AND SIDEWALK ALONG PARKLAND, OPEN SPACE, OR OTHER NON-RESIDENTIAL LOTS ARE TO BE INSTALLED WITH THE PUBLIC INFRASTRUCTURE 20. A MAINTENANCE BOND IS REQUIRED TO BE SUBMITTED TO THE CITY PRIOR TO ACCEPTANCE OF

THE PUBLIC IMPROVEMENTS. THIS BOND SHALL BE ESTABLISHED FOR 2 YEARS IN THE AMOUNT OF

- 22. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER, AND SUCCESSORS TO THE CURRENT PROPERTY OWNER, TO ENSURE THE SUBJECT PROPERTY AND ANY IMPROVEMENTS ARE
- 23. THE DEVELOPMENT SHALL COMPLY WITH ALL STANDARDS OF THE UNIFIED DEVELOPMENT CODE (UDC), THE CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL,
- 24. THE SITE DEVELOPMENT PLAN SHALL MEET THE UDC STORMWATER REQUIREMENTS.
- SERVICES DEPARTMENT. NO SIGNAGE IS APPROVED WITH THE SITE DEVELOPMENT PLAN.
- GEORGETOWN.
- 28. OUTDOOR LIGHTING SHALL COMPLY WITH SECTION 7.05 OF THE UDC.
- CHAPTER 8 OF THE UDC. THE SCREENING IS SHOWN ON THE LANDSCAPE AND ARCHITECTURAL PLANS, AS APPLICABLE.
- INSTALLED TO MEET ALL REQUIREMENTS OF THE UDC. 31. ALL MAINTENANCE OF REQUIRED LANDSCAPE SHALL COMPLY WITH THE MAINTENANCE
- STANDARDS OF CHAPTER 8 OF THE UDC.
- 35. AT THE CONCLUSION OF CONSTRUCTION AND AS PART OF THE PROCESS FOR THE CITY TO OF CONSTRUCTION AND AS PART OF THE PROCESS FOR THE CITY TO ACCEPT THIS PHASE. THE THE FIRE DEPARTMENT AND THE HYDRANTS SHALL BE PAINTED AND COLOR CODED** CAUTION IF

THE FIRE CODE, SECTION LA- 507.5.7 CITY OF GEORGETOWN FIRE HYDRANT COLOR CODE

- LA-507.5.7 CITY OF GEORGETOWN FIRE HYDRANT COLOR CODE SYSTEM. PRIVATE FIRE HYDRANT MAINTENANCE SHALL BE IN ACCORDANCE WITH NFPA 291.
- THE CUSTOMER'S RESPONSIBILITY TO TEST AND MAINTAIN THEIR PRIVATE FIRE HYDRANT(S).
- DURING NORMAL OPERATION. SUCH COLOR APPLIED TO THE FIRE HYDRANT BY PAINTING THE BONNET THE APPROPRIATE COLOR FOR THE EXPECTED FLOW CONDITION.
- STANDARD IN AS FOLLOWS: AT 20 PSI RESIDUAL.
- GREATER THAN 1500 GPM BLUE
- 1000- 1500 GPM GREEN 500-999 GPM ORANGE
- LESS THAN 500 GPM RED NOT WORKING BLACK OR BAGGED
- OF THE REPORT SHALL BE EMAILED INTO THE FIRE DEPARTMENT AND THE HYDRANTS SHALL BE PAINTED AND COLOR CODED *** CAUTION IF PRESSURE REDUCING VALVES WERE INSTALLED IN THIS PHASING THEY MUST BE SET PRIOR TO FIRE HYDRANT FLOW TESTING.***

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER POLLUTION ABATEMENT PLAN

GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES - LEGAL DISCLAIMER

THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED), NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED. THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT. CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TAC, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE ED'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TAC § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE ED TO ANY PART OF TITLE 30 TAC,

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

the contact information of the prime contractor.

CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION

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

contractors are required to keep on-site copies of the approved plan and approval letter.

- 3. If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.
- 4. No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
- 5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
- 6. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
- . Sediment must be removed from the sediment traps or sedimentation basins not later than when it occupies 50% of the basin's design capacity.
- 8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S

owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site. 10. If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required.

If drought conditions or inclement weather prevent action by the 14th day, stabilization measures

controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the

11. The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur;

shall be initiated as soon as possible.

- the dates when construction activities temporarily or permanently cease on a portion of the site; and - the dates when stabilization measures are initiated.
- A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

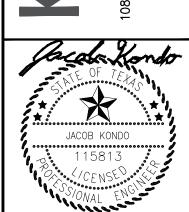
B. any change in the nature or character of the regulated activity from that which was originally

approved or a change which would significantly impact the ability of the plan to prevent pollution

in writing and obtain approval from the executive director prior to initiating any of the following:

12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office

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



S

WARNING: CONTRACTOR IS TO

PRIOR TO CONSTRUCTION.

VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES

SHEET NUMBER

STORM SEWER NOTES

1. THE CONSTRUCTION PORTION OF THESE PLANS WERE PREPARED, SEALED, SIGNED AND DATED SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL

2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT

3. THE SITE CONSTRUCTION PLANS SHALL MEET ALL REQUIREMENTS OF THE APPROVED SITE PLAN.

5. WASTEWATER MAINS SHALL BE INSTALLED WITHOUT HORIZONTAL OR VERTICAL BENDS.

7. WASTEWATER MAINS SHALL BE LOW PRESSURE AIR TESTED AND MANDREL TESTED BY THE CONTRACTOR ACCORDING TO CITY OF GEORGETOWN AND TCEQ REQUIREMENTS.

9. WASTEWATER MAINS SHALL BE CAMERA TESTED BY THE CONTRACTOR AND SUBMITTED TO THE

10. PRIVATE WATER SYSTEM FIRE LINES SHALL BE TESTED BY THE CONTRACTOR TO 200 PSI FOR 2

- 12. PUBLIC WATER SYSTEM MAINS SHALL BE 150 PSI C900 PVC AND TESTED BY THE CONTRACTOR AT
- 13. ALL BENDS AND CHANGES IN DIRECTION ON WATER MAINS SHALL BE RESTRAINED AND THRUST
- 16. WATER AND SEWER MAIN CROSSINGS SHALL MEET ALL REQUIREMENTS OF THE TCEQ AND THE
- 18. HOT MIX ASPHALTIC CONCRETE PAVEMENT SHALL BE TYPE D UNLESS OTHERWISE SPECIFIED AND SHALL BE A MINIMUM OF 2 INCHES THICK ON PUBLIC STREETS AND ROADWAYS.
- 10% OF THE COST OF THE PUBLIC IMPROVEMENTS AND SHALL FOLLOW THE CITY FORMAT 21. RECORD DRAWINGS OF THE PUBLIC IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO ACCEPTANCE OF THE PROJECT. THESE DRAWINGS SHALL BE ON MYLAR OR ON TIFF OR PDF DISK (300DPI). IF A DISK IS SUBMITTED, A BOND SET SHALL BE
- MAINTAINED IN CONFORMANCE WITH THIS SITE DEVELOPMENT PLAN.
- 25. ALL SIGNAGE REQUIRES A SEPARATE APPLICATION AND APPROVAL FROM THE INSPECTION
- 26. SIDEWALKS SHALL BE PROVIDED IN ACCORDANCE WITH THE UDC 27. DRIVEWAYS WILL REQUIRE APPROVAL BY THE DEVELOPMENT ENGINEER OF THE CITY OF

THE DEVELOPMENT MANUAL AND ALL OTHER APPLICABLE CITY STANDARDS.

- 29. SCREENING OF MECHANICAL EQUIPMENT, DUMPSTERS AND PARKING SHALL COMPLY WITH
- 30. THE COMPANION LANDSCAPE PLAN HAS BEEN DESIGNED AND PLANT MATERIALS SHALL BE
- 32. A SEPARATE IRRIGATION PLAN SHALL BE REQUIRED AT THE TIME OF BUILDING PERMIT 33. FIRE FLOW REQUIREMENTS OF 1,500 GALLONS PER MINUTE ARE BEING MET BY THIS PLAN. 34. ANY HERITAGE TREE NOTED ON THIS SITE DEVELOPMENT PLAN IS SUBJECT, IN PERPETUITY, TO
- THE MAINTENANCE, CAR, PRUNING, AND REMOVAL REQUIREMENTS OF THE UDC. ACCEPT THIS PHASE. THE FIRE HYDRANTS SHALL BE FLOWED AND TESTED A AT THE CONCLUSION FIRE HYDRANTS SHALL BE FLOWED AND TESTED A COPY OF THE REPORT SHALL BE EMAILED INTO
- FIRE HYDRANT FLOW TESTING.***
- SYSTEM, IS HEREBY ADDED TO READ AS FOLLOWS:

PRESSURE REDUCING VALVES WERE INSTALLED IN THIS PHASING THEY MUST BE SET PRIOR TO

- A. ALL PRIVATE HYDRANT BARRELS WILL BE PAINTED RED WITH THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN PARAGRAPH C OF THIS SECTION TO INDICATE FLOW. IT WILL BE
- B. ALL PRIVATE FIRE HYDRANTS SHOULD BE INSPECTED, MAINTAINED, AND FLOW TESTED ANNUALLY, AND COLOR CODED TO INDICATE THE EXPECTED FIRE FLOW FROM THE HYDRANT
- C. HYDRANT FLOW CODING STANDARDS. PUBLIC HYDRANTS BARRELS WILL BE PAINTED SILVER, THE HYDRANTS WILL BE FLOW TESTED, AND THE BONNET PAINTED USING THE HYDRANT FLOW FLOW COLOR

SURVEYOR TO THE OWNER AND ENGINEER FOR REVIEW

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE PLANS, CITY (OR TOWN) STANDARD DETAILS AND SPECIFICATIONS. THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA. AND COMMONLY ACCEPTED CONSTRUCTION

STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION AND DETAIL SHALL BE FOLLOWED THE CONTRACTOR SHALL COMPLY WITH CITY (OR TOWN) "GENERAL NOTES" FOR CONSTRUCTION, IF EXISTING AND REQUIRED BY THE CITY. FOR INSTANCES WHERE THEY CONFLICT WITH THESE KH GENERAL NOTES, THEN THE MORE RESTRICTIVE SHALL APPLY. THE CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE

CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE AUTHORITIES' SPECIFICATIONS AND REQUIREMENTS.

. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO DETERMINE EXISTING CONDITIONS. 5. THE EXISTING CONDITIONS SHOWN ON THESE PLANS WERE PROVIDED BY THE TOPOGRAPHIC SURVEY PREPARED BY THE PROJECT SURVEYOR, AND ARE BASED ON THE BENCHMARKS SHOWN. THE CONTRACTOR SHALL REFERENCE THE SAME BENCHMARKS. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING TOPOGRAPHIC SURVEY SHOWN ON THE PLANS REPRESENTS EXISTING

FIELD CONDITIONS PRIOR TO CONSTRUCTION, AND SHALL REPORT ANY DISCREPANCIES FOUND TO THE OWNER AND ENGINEER 7. IF THE CONTRACTOR DOES NOT ACCEPT THE EXISTING TOPOGRAPHIC SURVEY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY AT THEIR OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED PROFESSIONAL LAND

CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SURVEYING AND STAKING. 9. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL CONTROL, INCLUDING BENCHMARKS PRIOR TO COMMENCING

CONSTRUCTION OR STAKING OF IMPROVEMENTS. PROPERTY LINES AND CORNERS SHALL BE HELD AS THE HORIZONTAL CONTROL. 10. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS. ELEVATIONS. AND FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT, ENGINEER, AND IF APPLICABLE THE CITY AND OWNER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE CITY, ENGINEER, AND OWNER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM. 1.CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL. LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER/ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.

12.IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK TO HAVE THEM LOCATE THEIR EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION 13. CONTRACTOR SHALL CALL TEXAS 811 AN ADEQUATE AMOUNT OF TIME PRIOR TO COMMENCING CONSTRUCTION OR ANY EXCAVATION.

14. CONTRACTOR SHALL USE EXTREME CAUTION AS THE SITE CONTAINS VARIOUS KNOWN AND UNKNOWN PUBLIC AND PRIVATE UTILITIES. 15. THE LOCATIONS, ELEVATIONS, DEPTH, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE LITILITY COMPANY MAPS AND PLANS AND ARE CONSIDERED APPROXIMATE AND INCOMPLETE. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO VERIFY THE PRESENCE, LOCATION, ELEVATION, DEPTH, AND DIMENSION OF EXISTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION SO THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE ENGINEER SHALL BE NOTIFIED WHEN A PROPOSED IMPROVEMENT CONFLICTS WITH AN EXISTING UTILITY

16. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY ADJUSTMENTS AND RELOCATIONS OF EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS. INCLUDING BUT NOT LIMITED TO. ADJUSTING EXISTING MANHOLES TO MATCH PROPOSED GRADE RELOCATING EXISTING POLES AND GUY WIRES THAT ARE LOCATED IN PROPOSED DRIVEWAYS. ADJUSTING THE HORIZONTAL OR VERTICAL ALIGNMENT OF EXISTING UNDERGROUND UTILITIES TO ACCOMMODATE PROPOSED GRADE OR CROSSING WITH A PROPOSED UTILITY, AND ANY OTHERS THAT MAY BE ENCOUNTERED THAT ARE UNKNOWN AT THIS TIME AND NOT SHOWN ON

17. CONTRACTOR SHALL ARRANGE FOR OR PROVIDE, AT ITS EXPENSE, ALL GAS, TELECOMMUNICATIONS, CABLE, OVERHEAD AND UNDERGROUND POWER LINE. AND UTILITY POLE ADJUSTMENTS NEEDED.

18. CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF FRANCHISE UTILITIES THAT ARE NECESSARY FOR ON-SITE AND OFF-SITE CONSTRUCTION AND SERVICE TO THE PROPOSED DEVELOPMENT 19. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES DUE TO THE CONTRACTORS' FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED BY THE CONTRACTOR AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.

20.BRACING OF UTILITY POLES MAY BE REQUIRED BY THE UTILITY COMPANIES WHEN TRENCHING OR EXCAVATING IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR, WITH NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE PAY ITEM.

21.CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND POWER LINES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, FEDERAL AND UTILITY OWNER REGULATIONS PERTAINING TO WORK SETBACKS FROM POWER LINES.

22.THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS, APPROVALS, AND BONDS PRIOR TO CONSTRUCTION 23.THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES A COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, GEOTECHNICAL REPORT AND ADDENDA, PROJECT AND CITY SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED

CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS. 24.ALL SHOP DRAWINGS AND OTHER DOCUMENTS THAT REQUIRE ENGINEER REVIEW SHALL BE SUBMITTED BY THE CONTRACTOR SUFFICIENTLY IN ADVANCE OF CONSTRUCTION OF THAT ITEM, SO THAT NO LESS THAN 10 BUSINESS DAYS FOR REVIEW AND RESPONSE

IS AVAILABLE. 25.ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES, AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO USE OF THE FACILITY AND THE FINAL CONNECTION OF SERVICES.

26.CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS. 27.CONTRACTOR'S BID PRICE SHALL INCLUDE ALL INSPECTION FEES

28.ALL SYMBOLS SHOWN ON THESE PLANS (E.G. FIRE HYDRANT, METERS, VALVES, INLETS, ETC....) ARE FOR PRESENTATION PURPOSES ONLY AND ARE NOT TO SCALE. CONTRACTOR SHALL COORDINATE FINAL SIZES AND LOCATIONS WITH APPROPRIATE CITY INSPECTOR. 29.THE SCOPE OF WORK FOR THE CIVIL IMPROVEMENTS SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. REFERENCE THE BUILDING PLANS (E.G. ARCHITECTURAL, STRUCTURAL, MEP) FOR AREAS WITHIN 5-FEET OF THE BUILDING AND WITHIN THE BUILDING FOOTPRINT 30.REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR ALL FINAL BUILDING DIMENSIONS.

31. THE PROPOSED BUILDING FOOTPRINT(S) SHOWN IN THESE PLANS WAS PROVIDED TO KIMLEY-HORN AND ASSOCIATES, INC. (KH) BY THE PROJECT ARCHITECT AT THE TIME THESE PLANS WERE PREPARED. IT MAY NOT BE THE FINAL CORRECT VERSION BECAUSE THE BUILDING DESIGN WAS ONGOING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFIRMING THE FINAL CORRECT VERSION OF THE BUILDING FOOTPRINT WITH THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO LAYOUT. DIMENSIONS AND/OR COORDINATES SHOWN ON THESE PLANS WERE BASED ON THE AROVE STATED ARCHITECTURAL FOOTPRINT, AND ARE THEREFORE A PRELIMINARY LOCATION OF THE BUILDING. THE CONTRACTOR IS SOLELY RESPONSIBLE TO VERIFY WHAT PART OF THE BUILDING THE ARCHITECT'S OTPRINT REPRESENTS (F.G. SLAB, OUTSIDE WALL, MASONRY LEDGE, ETC....) AND TO CONFIRM ITS FINAL POSITION ON THE SITE. BASED ON THE FINAL ARCHITECTURAL FOOTPRINT, CIVIL DIMENSION CONTROL PLAN, SURVEY BOUNDARY AND/OR PLAT. ANY

32.ALL CONSTRUCTION SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING

DIFFERENCES FOUND SHALL BE REPORTED TO KH IMMEDIATELY.

33.CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL MATERIALS TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND COMPLY WITH CITY STANDARD SPECIFICATIONS AND GEOTECHNICAL REPORT. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING MATERIALS. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR MATERIALS TESTING.

35.IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE MATERIALS, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS.

34.ALL COPIES OF MATERIALS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING

36.DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING. IF NONE IS CURRENTLY EXISTING

37.ALL CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS OUTSIDE OF THE WORK AREA WILL BE 6. ALL FINISHED GRADES SHALL TRANSITION UNIFORMLY BETWEEN THE FINISHED ELEVATIONS SHOWN. ALLOWED. ANY DAMAGE RESULTING THEREFROM SHALL BE CONTRACTOR'S SOLE RESPONSIBILITY TO REPAIR. 38.THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, UTILITIES, MANHOLES, POLES, GUY WIRES, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, COMMUNICATION BOXES/PEDESTALS, AND OTHER FACILITIES TO REMAIN AND SHALL REPAIR ANY DAMAGES AT

NO COST TO THE OWNER. 39. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY OR PUBLIC IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCES, WALLS, SIGNS, PAVEMENT, CURBS, UTILITIES, SIDEWALKS, GRASS, TREES, LANDSCAPING, AND IRRIGATION SYSTEMS, ETC.... TO ORIGINAL CONDITION OR BETTER AT NO COST TO THE OWNER.

40.ALL AREAS IN EXISTING RIGHT-OF-WAY DISTURBED BY SITE CONSTRUCTION SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER, INCLUDING AS NECESSARY GRADING, LANDSCAPING, CULVERTS, AND PAVEMENT. 41.THE CONTRACTOR SHALL SALVAGE ALL EXISTING POWER POLES, SIGNS, WATER VALVES, FIRE HYDRANTS, METERS, ETC... THAT ARE

TO BE RELOCATED DURING CONSTRUCTION. 42.CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES. 43. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL

ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY. 44.THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

45. SITE SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR 46.THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE ENGINEER'S SEAL HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ALL REQUIRED SAFETY PROCEDURES AND PROGRAMS

47.SIGNS RELATED TO SITE OPERATION OR SAFETY ARE NOT INCLUDED IN THESE PLANS. 48.CONTRACTOR OFFICE AND STAGING AREA SHALL BE AGREED ON BY THE OWNER AND CONTRACTOR PRIOR TO BEGINNING OF

CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING REQUIREMENTS FOR THE CONSTRUCTION OFFICE, TRAILER, STORAGE, AND STAGING OPERATIONS AND LOCATIONS 49.LIGHT POLES, SIGNS, AND OTHER OBSTRUCTIONS SHALL NOT BE PLACED IN ACCESSIBLE ROUTES. 50.ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM

TRAFFIC CONTROL DEVICES". 51.TOP RIM ELEVATIONS OF ALL EXISTING AND PROPOSED MANHOLES SHALL BE COORDINATED WITH TOP OF PAVEMENT OR FINISHED GRADE AND SHALL BE ADJUSTED TO BE FLUSH WITH THE ACTUAL FINISHED GRADE AT THE TIME OF PAVING.

52.CONTRACTOR SHALL ADJUST ALL EXISTING AND PROPOSED VALVES, FIRE HYDRANTS, AND OTHER UTILITY APPURTENANCES TO MATCH ACTUAL FINISHED GRADES AT THE TIME OF PAVING. 53.THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION SEQUENCING AND PHASING, AND SHALL CONTACT THE APPROPRIATE CITY

OFFICIALS, INCLUDING BUILDING OFFICIAL, ENGINEERING INSPECTOR, AND FIRE MARSHALL TO LEARN OF ANY REQUIREMENTS. 54.CONTRACTOR IS RESPONSIBLE FOR PREPARATION, SUBMITTAL, AND APPROVAL BY THE CITY OF A TRAFFIC CONTROL PLAN PRIOR TO THE START OF CONSTRUCTION, AND THEN THE IMPLEMENTATION OF THE PLAN.

55.CONTRACTOR SHALL KEEP A NEAT AND ACCURATE RECORD OF CONSTRUCTION, INCLUDING ANY DEVIATIONS OR VARIANCES FROM 56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT PLANS TO THE ENGINEER AND CITY IDENTIFYING ALL DEVIATIONS

AND VARIATIONS FROM THESE PLANS MADE DURING CONSTRUCTION.

THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL AND WATER QUALITY REQUIREMENTS, LAWS, AND ORDINANCES THAT APPLY TO THE CONSTRUCTION SITE LAND DISTURBANCE.

2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE "TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS

POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000" 3. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF LAND DISTURBANCE. 4. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE

5. CONTRACTOR IS SOLELY RESPONSIBLE FOR INSTALLATION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL EROSION CONTROL DEVICES, BEST MANAGEMENT PRACTICES (BMPS), AND FOR UPDATING THE EROSION CONTROL PLAN DURING CONSTRUCTION AS FIELD CONDITIONS CHANGE.

6. CONTRACTOR SHALL DOCUMENT THE DATES OF INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL FOR EACH BMP EMPLOYED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE 7. AS STORM SEWER INLETS ARE INSTALLED ON-SITE, TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AT EACH INLET PER

8. THE EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE AREA IT PROTECTS HAS BEEN PERMANENTLY STABILIZED. 9. CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL DEVICES NEEDED DUE TO PROJECT PHASING. 10. CONTRACTOR SHALL OBSERVE THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND MAKE FIELD ADJUSTMENTS AND MODIFICATIONS AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE. IF THE EROSION CONTROL DEVICES DO NOT

EFFECTIVELY CONTROL EROSION AND PREVENT SEDIMENTATION FROM WASHING OFF THE SITE, THEN THE CONTRACTOR SHALL 11.0FF-SITE SOIL BORROW, SPOIL, AND STORAGE AREAS (IF APPLICABLE) ARE CONSIDERED AS PART OF THE PROJECT SITE AND MUST ALSO COMPLY WITH THE EROSION CONTROL REQUIREMENTS FOR THIS PROJECT. THIS INCLUDES THE INSTALLATION OF BMP'S TO CONTROL EROSION AND SEDIMENTATION AND THE ESTABLISHMENT OF PERMANENT GROUND COVER ON DISTURBED AREAS PRIOR TO FINAL APPROVAL OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP AND EROSION CONTROL PLAN TO INCLUDE BMPS FOR ANY OFF-SITE THAT ARE NOT ANTICIPATED OR SHOWN ON THE EROSION CONTROL PLAN.

12. ALL STAGING, STOCKPILES, SPOIL, AND STORAGE SHALL BE LOCATED SUCH THAT THEY WILL NOT ADVERSELY AFFECT STORM WATER QUALITY. PROTECTIVE MEASURES SHALL BE PROVIDED IF NEEDED TO ACCOMPLISH THIS REQUIREMENT, SUCH AS COVERING OR ENCIRCLING THE AREA WITH AN APPROPRIATE BARRIER 13. CONTRACTORS SHALL INSPECT ALL EROSION CONTROL DEVICES, BMPS, DISTURBED AREAS, AND VEHICLE ENTRY AND EXIT AREAS WEEKLY AND WITHIN 24 HOURS OF ALL RAINFALL EVENTS OF 0.5 INCHES OR GREATER, AND KEEP A RECORD OF THIS INSPECTION IN

THE SWPPP BOOKLET IF APPLICABLE, TO VERIFY THAT THE DEVICES AND EROSION CONTROL PLAN ARE FUNCTIONING PROPERLY. 14. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS IN ACCORDANCE WITH CITY SPECIFICATIONS. CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION TRAFFIC USES THE STABILIZED ENTRANCE AT ALL TIMES FOR ALL INGRESS/EGRESS

15. SITE ENTRY AND EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING AND FLOWING OF SEDIMENT AND DIRT ONTO OFF-SITE ROADWAYS. ALL SEDIMENT AND DIRT FROM THE SITE THAT IS DEPOSITED ONTO AN OFF-SITE ROADWAY SHALL BE REMOVED IMMEDIATELY.

16. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS FROM THE AFFECTED OFF-SITE ROADWAYS THAT ARE A

RESULT OF THE CONSTRUCTION, AS REQUESTED BY OWNER AND CITY. AT A MINIMUM, THIS SHOULD OCCUR ONCE PER DAY FOR THE 17. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO EXITING THE SITE, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP BMP. 18. CONTRACTOR SHALL INSTALL A TEMPORARY SEDIMENT BASIN FOR ANY ON-SITE DRAINAGE AREAS THAT ARE GREATER THAN 10

ACRES, PER TCEQ AND CITY STANDARDS. IF NO ENGINEERING DESIGN HAS BEEN PROVIDED FOR A SEDIMENTATION BASIN ON THESE

PLANS. THEN THE CONTRACTOR SHALL ARRANGE FOR AN APPROPRIATE DESIGN TO BE PROVIDED 19. ALL FINES IMPOSED FOR SEDIMENT OR DIRT DISCHARGED FROM THE SITE SHALL BE PAID BY THE RESPONSIBLE CONTRACTOR 20. WHEN SEDIMENT OR DIRT HAS CLOGGED THE CONSTRUCTION ENTRANCE VOID SPACES BETWEEN STONES OR DIRT IS BEING TRACKED ONTO A ROADWAY. THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED. RUNOFF FROM THE WASH-DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL SEDIMENTATION. PERIODIC RE-GRADING OR NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE CONSTRUCTION ENTRANCE. 21.TEMPORARY SEEDING OR OTHER APPROVED STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE OF ANY AREA, UNLESS ADDITIONAL CONSTRUCTION IN THE AREA IS EXPECTED WITHIN 21 DAYS OF THE LAST DISTURBANCE. 22.CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION, ALWAYS CLEANING UP DIRT, LOOSE

MATERIAL AND TRASH AS CONSTRUCTION PROGRESSES 23.UPON COMPLETION OF FINE GRADING, ALL SURFACES OF DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED. STABILIZATION IS ACHIEVED WHEN THE AREA IS EITHER COVERED BY PERMANENT IMPERVIOUS STRUCTURES, SUCH AS BUILDINGS, SIDEWALK, PAVEMENT OR A LINIFORM PERENNIAL VEGETATIVE COVER

24.AT THE CONCLUSION OF THE PROJECT, ALL INLETS, DRAIN PIPE, CHANNELS, DRAINAGEWAYS AND BORROW DITCHES AFFECTED BY THE CONSTRUCTION SHALL BE DREDGED, AND THE SEDIMENT GENERATED BY THE PROJECT SHALL BE REMOVED AND DISPOSED IN ACCORDANCE WITH APPLICABLE REGULATIONS

CONTRACTOR SHALL COMPLY WITH ALL TCEQ AND EPA STORM WATER POLLUTION PREVENTION REQUIREMENTS. 2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000.

3. THE CONTRACTOR SHALL ENSURE THAT ALL PRIMARY OPERATORS SUBMIT A NOI TO TCEQ AT LEAST SEVEN DAYS PRIOR TO COMMENCING CONSTRUCTION (IF APPLICABLE), OR IF UTILIZING ELECTRONIC SUBMITTAL, PRIOR TO COMMENCING CONSTRUCTION. ALL PRIMARY OPERATORS SHALL PROVIDE A COPY OF THE SIGNED NOI TO THE OPERATOR OF ANY MS4 (TYPICALLY THE CITY) RECEIVING DISCHARGE FROM THE SITE.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE, INCLUDING POSTING SITE NOTICE, INSPECTIONS, DOCUMENTATION, AND SUBMISSION OF ANY INFORMATION REQUIRED BY THE TCEQ AND EPA (E.G. NOI). 5. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN THE REQUIRED CONTRACTOR

CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP. 6. A COPY OF THE SWPPP, INCLUDING NOI, SITE NOTICE, CONTRACTOR CERTIFICATIONS, AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY BY THE CONTRACTOR AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION. . A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO TCEQ BY ANY PRIMARY OPERATOR WITHIN 30 DAYS AFTER ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL

OPERATOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER A DIFFERENT PERMIT. A COPY OF THE NOT SHALL BE PROVIDED TO

UNPAVED AREAS AND AREAS NOT COVERED BY STRUCTURES, A TRANSFER OF OPERATIONAL CONTROL HAS OCCURRED, OR THE

. KH IS NOT RESPONSIBLE FOR THE MEANS AND METHODS EMPLOYED BY THE CONTRACTOR TO IMPLEMENT THIS DEMOLITION PLAN. THIS PRELIMINARY DEMOLITION PLAN SIMPLY INDICATES THE KNOWN OBJECTS ON THE SUBJECT TRACT THAT ARE TO BE DEMOLISHED

2. KH DOES NOT WARRANT OR REPRESENT THAT THE PLAN, WHICH WAS PREPARED BASED ON SURVEY AND UTILITY INFORMATION PROVIDED BY OTHERS. SHOWS ALL IMPROVEMENTS AND UTILITIES. THAT THE IMPROVEMENTS AND UTILITIES ARE SHOWN ACCURATELY, OR THAT THE UTILITIES SHOWN CAN BE REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ITS OWN SITE RECONNAISSANCE TO SCOPE ITS WORK AND TO CONFIRM WITH THE OWNERS OF IMPROVEMENTS AND UTILITIES THE ABILITY AND PROCESS FOR THE REMOVAL OF THEIR FACILITIES.

3. THIS PLAN IS INTENDED TO GIVE A GENERAL GUIDE TO THE CONTRACTOR, NOTHING MORE. THE GOAL OF THE DEMOLITION IS TO LEAVE THE SITE IN A STATE SUITABLE FOR THE CONSTRUCTION OF THE PROPOSED DEVELOPMENT. REMOVAL OR PRESERVATION OF IMPROVEMENTS, UTILITIES, ETC. TO ACCOMPLISH THIS GOAL ARE THE RESPONSIBILITY OF THE CONTRACTOR. . CONTRACTOR IS STRONGLY CAUTIONED TO REVIEW THE FOLLOWING REPORTS DESCRIBING SITE CONDITIONS PRIOR TO BIDDING AND IMPLEMENTING THE DEMOLITION PLAN:

a. ENVIRONMENTAL SITE ASSESSMENT PROVIDED BY THE OWNER. b. ASBESTOS BUILDING INSPECTION REPORT(S) PROVIDED BY THE OWNER,

THE OPERATOR OF ANY MS4 RECEIVING DISCHARGE FROM THE SITE.

. GEOTECHNICAL REPORT PROVIDED BY THE OWNER. d. OTHER REPORTS THAT ARE APPLICABLE AND AVAILABLE.

5. CONTRACTOR SHALL CONTACT THE OWNER TO VERIFY WHETHER ADDITIONAL REPORTS OR AMENDMENTS TO THE ABOVE CITED REPORTS HAVE BEEN PREPARED AND TO OBTAIN/REVIEW/AND COMPLY WITH THE RECOMMENDATION OF SUCH STUDIES PRIOR TO STARTING ANY WORK ON THE SITE

6. CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS REGARDING THE DEMOLITION OF OBJECTS ON THE SITE AND THE DISPOSAL OF THE DEMOLISHED MATERIALS OFF-SITE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVIEW THE SITE. DETERMINE THE APPLICABLE REGULATIONS. RECEIVE THE REQUIRED PERMITS AND AUTHORIZATIONS. AND COMPLY. 7. KH DOES NOT REPRESENT THAT THE REPORTS AND SURVEYS REFERENCED ABOVE ARE ACCURATE, COMPLETE, OR COMPREHENSIVE SHOWING ALL ITEMS THAT WILL NEED TO BE DEMOLISHED AND REMOVED.

8. SURFACE PAVEMENT INDICATED MAY OVERLAY OTHER HIDDEN STRUCTURES, SUCH AS ADDITIONAL LAYERS OF PAVEMENT, FOUNDATIONS OR WALLS. THAT ARE ALSO TO BE REMOVED.

1. THE CONTRACTOR AND GRADING SUBCONTRACTOR SHALL VERIFY THE SUITABILITY OF EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE START OF CONSTRUCTION. THE CIVIL ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF 2. CONTRACTOR SHALL OBTAIN ANY REQUIRED GRADING PERMITS FROM THE CITY.

SURFACE. IN LOCATIONS ALONG A CURB LINE, ADD 6-INCHES (OR THE HEIGHT OF THE CURB) TO THE PAVING GRADE FOR TOP OF CURB 4. PROPOSED SPOT ELEVATIONS AND CONTOURS OUTSIDE THE PAVEMENT ARE TO TOP OF FINISHED GRADE. 5. PROPOSED CONTOURS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND DESIGNATED GRADIENT ARE TO BE USED IN CASE OF

. UNLESS OTHERWISE NOTED, PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN IN PAVED AREA REFLECT TOP OF PAVEMENT

DISCREPANCY 7. CONTOURS AND SPOT GRADES SHOWN ARE ELEVATIONS OF TOP OF THE FINISHED SURFACE. WHEN PERFORMING THE GRADING OPERATIONS THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE FLEVATION HOLD-DOWN ALLOWANCE FOR THE THICKNESS OF PAVEMENT, SIDEWALK, TOPSOIL, MULCH, STONE, LANDSCAPING, RIP-RAP AND ALL OTHER SURFACE MATERIALS THAT WILL CONTRIBUTE TO THE TOP OF FINISHED GRADE. FOR EXAMPLE, THE LIMITS OF EARTHWORK IN PAVED AREAS IS THE BOTTOM OF THE

PAVEMENT SECTION $8.\,$ NO REPRESENTATIONS OF EARTHWORK QUANTITIES OR SITE BALANCE ARE MADE BY THESE PLANS. THE CONTRACTOR SHALL PROVIDE THEIR OWN EARTHWORK CALCULATION TO DETERMINE THEIR CONTRACT QUANTITIES AND COST. ANY SIGNIFICANT VARIANCE FROM A BALANCED SITE SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CIVIL ENGINEER. 9. ALL GRADING AND EARTHWORK SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING

10. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED. UNUSABLE EXCAVATED MATERIAL AND ALL WASTE RESULTING FROM SITE CLEARING AND GRUBBING SHALL BE REMOVED FROM THE SITE AND APPROPRIATELY DISPOSED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE. 1.EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF GRADING. REFERENCE EROSION CONTROL PLAN, DETAILS, GENERAL NOTES, AND SWPPP FOR ADDITIONAL INFORMATION AND

REQUIREMENTS. 12.BEFORE ANY EARTHWORK IS PERFORMED, THE CONTRACTOR SHALL STAKE OUT AND MARK THE LIMITS OF THE PROJECT'S PROPERTY LINE AND SITE IMPROVEMENTS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ENGINEERING AND SURVEYING FOR LINE AND GRADE CONTROL POINTS RELATED TO EARTHWORK

13. CONTRACTOR TO DISPOSE OF ALL EXCESS EXCAVATION MATERIALS IN A MANNER THAT ADHERES TO LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS. THE CONTRACTOR SHALL KEEP A RECORD OF WHERE EXCESS EXCAVATION WAS DISPOSED, ALONG WITH THE RECEIVING LANDOWNER'S APPROVAL TO DO SO 14. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF TOPSOIL AT THE COMPLETION OF FINE GRADING. CONTRACTOR

SHALL REFER TO LANDSCAPE ARCHITECTURE PLANS FOR SPECIFICATIONS AND REQUIREMENTS FOR TOPSOIL 15. CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES. 16.NO EARTHWORK FILL SHALL BE PLACED IN ANY EXISTING DRAINAGE WAY, SWALE, CHANNEL, DITCH, CREEK, OR FLOODPLAIN FOR ANY REASON OR ANY LENGTH OF TIME, UNLESS THESE PLANS SPECIFICALLY INDICATE THIS IS REQUIRED.

18 REFER TO DIMENSION CONTROL PLAN, AND PLAT FOR HORIZONTAL DIMENSIONS 19. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND CONDITION FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO

17. TEMPORARY CULVERTS MAY BE REQUIRED IN SOME LOCATIONS TO CONVEY RUN-OFF.

20.CONTRACTOR IS RESPONSIBLE FOR ALL SOILS TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL SOILS TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND SHALL COMPLY WITH CITY STANDARD SPECIFICATIONS AND THE GEOTECHNICAL REPORT. SOILS TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING SOILS. THE OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR SOILS TESTING 21.ALL COPIES OF SOILS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING

22.IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE SOILS, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS. 23.THE SCOPE OF WORK FOR CIVIL IMPROVEMENT SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT AND STRUCTURAL PLANS AND SPECIFICATIONS FILL, CONDITIONING, AND PREPARATION

IN THE BUILDING PAD 24.DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.

25.CONTRACTOR SHALL ENSURE THAT SUFFICIENT POSITIVE SLOPE AWAY FROM THE BUILDING PAD IS ACHIEVED FOR ENTIRE PERIMETER

OF THE PROPOSED BUILDING(S) DURING GRADING OPERATIONS AND IN THE FINAL CONDITION. IF THE CONTRACTOR OBSERVES THAT

THIS WILL NOT BE ACHIEVED, THE CONTRACTOR SHALL CONTACT THE ENGINEER TO REVIEW THE LOCATION. 26.THE CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST. CONTRACTOR SHALL CONTROL DUST BY SPRINKLING WATER, OR BY OTHER MEANS APPROVED BY THE CITY, AT NO ADDITIONAL COST TO THE OWNER. 27.CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES FOR ANY REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS NEEDED FOR GRADING OPERATIONS AND TO ACCOMMODATE PROPOSED GRADE, INCLUDING THE UNKNOWN UTILITIES NOT SHOWN ON THESE PLANS. CONTRACTOR SHALL REFER TO THE GENERAL NOTES "OVERALL" SECTION THESE PLANS FOR ADDITIONAL

28.EXISTING TREE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR SHALL REPORT ANY DISCREPANCIES FOUND IN THE FIELD THAT AFFECT THE GRADING PLAN TO THE CIVIL ENGINEER 29.CONTRACTOR SHALL FIELD VERIFY ALL PROTECTED TREE LOCATIONS, INDIVIDUAL PROTECTED TREE CRITICAL ROOT ZONES, AND PROPOSED SITE GRADING, AND NOTIFY THE CIVIL ENGINEER AND LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH THE TREE

PRESERVATION PLAN BY THE LANDSCAPE ARCHITECT PRIOR TO COMMENCING THE WORK 30. TREE PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY STANDARD TREE PROTECTION DETAILS AND THE

APPROVED TREE PRESERVATION PLANS BY THE LANDSCAPE ARCHITECT. 31.CONTRACTOR SHALL REFER TO THE LANDSCAPING AND TREE PRESERVATIONS PLANS FOR ALL INFORMATION AND DETAILS

REGARDING EXISTING TREES TO BE REMOVED AND PRESERVED. 32.NO TREE SHALL BE REMOVED UNLESS A TREE REMOVAL PERMIT HAS BEEN ISSUED BY THE CITY, OR CITY HAS OTHERWISE CONFIRMED IN WRITING THAT ONE IS NOT NEEDED FOR THE TREE(S). 33.NO TREE SHALL BE REMOVED OR DAMAGED WITHOUT PRIOR AUTHORIZATION OF THE OWNER OR OWNER'S REPRESENTATIVE.

EXISTING TREES SHALL BE PRESERVED WHENEVER POSSIBLE AND GRADING IMPACT TO THEM HELD TO A MINIMUM. 34.AFTER PLACEMENT OF SUBGRADE AND PRIOR TO PLACEMENT OF PAVEMENT, CONTRACTOR SHALL TEST AND OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING AND INADEQUATE SLOPE FOR DRAINAGE. ALL AREAS SHALL ADEQUATELY DRAIN TOWARDS THE INTENDED STRUCTURE TO CONVEY STORMWATER RUNOFF. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND ENGINEER IF ANY

AREAS OF POOR DRAINAGE ARE DISCOVERED. 35. CONTRACTOR FIELD ADJUSTMENT OF PROPOSED SPOT GRADES IS ALLOWED, IF THE APPROVAL OF THE CIVIL ENGINEER IS OBTAINED.

RETAINING WALLS SHOWN ARE FOR SITE GRADING PURPOSES ONLY, AND INCLUDE ONLY LOCATION AND SURFACE SPOT ELEVATIONS AT THE TOP AND BOTTOM OF THE WALL 2. RETAINING WALL TYPE OR SYSTEM SHALL BE SELECTED BY THE OWNER 3. RETAINING WALL DESIGN SHALL BE PROVIDED BY OTHERS AND SHALL FIT IN THE WALL ZONE OR LOCATION SHOWN ON THESE PLANS.

STRUCTURAL DESIGN AND PERMITTING OF RETAINING WALLS, RAILINGS, AND OTHER WALL SAFETY DEVICES SHALL BE PERFORMED BY A LICENSED ENGINEER AND ARE NOT PART OF THIS PLAN SET 4. RETAINING WALL DESIGN SHALL MEET THE INTENT OF THE GRADING PLAN AND SHALL ACCOUNT FOR ANY INFLUENCE ON ADJACENT BUILDING FOUNDATIONS, UTILITIES, PROPERTY LINES AND OTHER CONSTRUCTABILITY NOTES.

RETAINING WALL ENGINEER SHALL CONSULT THESE PLANS AND THE GEOTECHNICAL REPORT FOR POTENTIAL CONFLICTS.

. ALL PAVING MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS, THE CITY STANDARD DETAILS AND SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION/DETAIL SHALL BE FOLLOWED.

2. ALL PRIVATE ON-SITE PAVING AND PAVING SUBGRADE SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING ALL ADDENDA. 3. ALL FIRELANE PAVING AND PAVING SUBGRADE SHALL COMPLY WITH CITY STANDARDS AND DETAILS. IF THESE ARE DIFFERENT THAN THOSE IN THE GEOTECHNICAL REPORT, THEN THE MORE RESTRICTIVE SHALL BE FOLLOWED. 4. ALL PUBLIC PAVING AND PAVING SUBGRADE SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS. 5. CONTRACTOR IS RESPONSIBLE FOR ALL PAVING AND PAVING SUBGRADE TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL PAVING AND PAVING SUBGRADE TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING PAVING AND SUBGRADE. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR PAVING AND PAVING SUBGRADE TESTING.

6. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE PAVING AND PAVING SUBGRADE, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS. 7. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING. THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, JE NONE IS CURRENTLY EXISTING 8. CURB RAMPS ALONG PUBLIC STREETS AND IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED BASED ON THE CITY STANDARD

CONSTRUCTION DETAIL AND SPECIFICATIONS. 9. PRIVATE CURB RAMPS ON THE SITE (I.E. OUTSIDE PUBLIC STREET RIGHT-OF-WAY) SHALL CONFORM TO ADA AND TAS STANDARDS AND SHALL HAVE A DETECTABLE WARNING SURFACE THAT IS FULL WIDTH AND FULL DEPTH OF THE CURB RAMP, NOT INCLUDING FLARES. 10. ALL ACCESSIBLE RAMPS, CURB RAMPS, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO ADA AND TAS STANDARDS, LATEST

11. ANY COMPONENTS OF THE PROJECT SUBJECT TO RESIDENTIAL USE SHALL ALSO CONFORM TO THE FAIR HOUSING ACT, AND COMPLY WITH THE FAIR HOUSING ACT DESIGN MANUAL BY THE US DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT. 12. CONTRACTOR SHALL CONSTRUCT PROPOSED PAVEMENT TO MATCH EXISTING PAVEMENT WITH A SMOOTH, FLUSH, CONNECTION. 13. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS FOR FIRE LANES. PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINT AND

PAVEMENT MARKINGS SHALL ADHERE TO CITY AND OWNER STANDARDS. 14.REFER TO GEOTECHNICAL REPORT FOR PAVING JOINT LAYOUT PLAN REQUIREMENTS FOR PRIVATE PAVEMENT 15. REFER TO CITY STANDARD DETAILS AND SPECIFICATIONS FOR JOINT LAYOUT PLAN REQUIREMENTS FOR PUBLIC PAVEMENT. 16. ALL REINFORCING STEEL SHALL CONFORM TO THE GEOTECHNICAL REPORT, CITY STANDARDS, AND ASTM A-615, GRADE 60, AND SHALL BE SUPPORTED BY BAR CHAIRS. CONTRACTOR SHALL USE THE MORE STRINGENT OF THE CITY AND GEOTECHNICAL STANDARDS. 17. ALL JOINTS SHALL EXTEND THROUGH THE CURB.

18. THE MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS SHALL BE 2 FEET. 19. CONTRACTOR SHALL SUBMIT A JOINTING PLAN TO THE ENGINEER AND OWNER PRIOR TO BEGINNING ANY OF THE PAVING WORK. 20.ALL SAWCUTS SHALL BE FULL DEPTH FOR PAVEMENT REMOVAL AND CONNECTION TO EXISTING PAVEMENT.

21.FIRE LANES SHALL BE MARKED AND LABELED AS A FIRELANE PER CITY STANDARDS. 22.UNLESS THE PLANS SPECIFICALLY DICTATE TO THE CONTRARY, ON-SITE AND OTHER DIRECTIONAL SIGNS SHALL BE ORIENTED SO THEY ARE READILY VISIBLE TO THE ONCOMING TRAFFIC FOR WHICH THEY ARE INTENDED 23. CONTRACTOR IS RESPONSIBLE FOR INSTALLING NECESSARY CONDUIT FOR LIGHTING, IRRIGATION, ETC. PRIOR TO PLACEMENT OF PAVEMENT, ALL CONSTRUCTION DOCUMENTS (CIVIL, MEP. LANDSCAPE, IRRIGATION, AND ARCHITECT) SHALL BE CONSULTED. 24 BEFORE PLACING PAVEMENT. CONTRACTOR SHALL VERIFY THAT SUITABLE ACCESSIBLE PEDESTRIAN ROUTES (PER ADA. TAS. AND FHA) EXIST TO AND FROM EVERY DOOR AND ALONG SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ACCESSIBLE

ROUTES. IN NO CASE SHALL AN ACCESSIBLE RAMP SLOPE EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPE EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPE EXCEED 5.0 PERCENT. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0 PERCENT SLOPE IN ANY DIRECTION. 25. CONTRACTOR SHALL TAKE FIELD SLOPE MEASUREMENTS ON FINISHED SUBGRADE AND FORM BOARDS PRIOR TO PLACING PAVEMENT TO VERIFY THAT ADA/TAS SLOPE REQUIREMENTS ARE PROVIDED. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR ADA AND TAS SLOPE COMPLIANCE ISSUES.

ALL STORM SEWER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND

SPECIFICATIONS 2. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM SEWER.

3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING STORM SEWER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY STORM SEWER, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED. 4. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION

OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER 5. FLOW LINE, TOP-OF-CURB, RIM, THROAT, AND GRATE ELEVATIONS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE GRADING PLAN AND FIELD CONDITIONS PRIOR TO THEIR INSTALLATION. 6. ALL PUBLIC STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS

7. ALL PRIVATE STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS. 8. ALL PVC TO RCP CONNECTIONS AND ALL STORM PIPE CONNECTIONS ENTERING STRUCTURES OR OTHER STORM PIPES SHALL HAVE A CONCRETE COLLAR AND BE GROUTED TO ASSURE THE CONNECTION IS WATERTIGHT. 9. ALL PUBLIC STORM SEWER LINES SHALL BE MINIMUM CLASS III RCP. PRIVATE STORM SEWER LINES 18-INCHES AND GREATER SHALL BE

CLASS III RCP OR OTHER APPROVED MATERIAL 10. WHERE COVER EXCEEDS 20-FEET OR IS LESS THAN 2-FEET, CLASS IV RCP SHALL BE USED. 11.IF CONTRACTOR PROPOSES TO USE HDPE OR PVC IN LIEU OF RCP FOR PRIVATE STORM SEWER, CONTRACTOR SHALL SUBMIT TECHNICAL DATA TO THE OWNER, ENGINEER AND CITY ENGINEER/INSPECTOR FOR APPROVAL PRIOR TO ORDERING THE MATERIAL. ANY PROPOSED HDPE AND PVC SHALL BE WATERTIGHT.

12. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING FOR ALL STORM SEWER LINES 13.EMBEDMENT FOR ALL STORM SEWER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS. 14. ALL WYE CONNECTIONS AND PIPE BENDS ARE TO BE PREFABRICATED AND INSTALLED PER MANUFACTURERS SPECIFICATIONS. 15. USE 4 FOOT JOINTS WITH BEVELED ENDS IF RADIUS OF STORM SEWER IS LESS THAN 100 FEET.

16. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY. 17. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

ANY PONDS THAT ARE INTENDED TO HOLD WATER INDEFINITELY SHALL BE CONSTRUCTED WATERTIGHT 2. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR 3. A GEOTECHNICAL ENGINEER SHALL REVIEW AND APPROVE ALL POND LINER MATERIAL, PLACEMENT PROCEDURES, AND PROVIDE TESTING TO ENSURE THE POND LINER MATERIAL PLACED IS WATERTIGHT. 4. STORM SEWER PIPES AND HEADWALLS THAT CONNECT TO A POND INTENDED TO HOLD WATER INDEFINITELY SHALL BE INSTALLED

5. ANY GRAVEL OR OTHER PERVIOUS EMBEDMENT AROUND PIPES OR OUTFALL STRUCTURES NEAR THE POND SHALL BE ELIMINATED FOR AT LEAST 20-FEET FROM THE POND SO NO ROUTE FOR WATER TO LEAK THROUGH THE EMBEDMENT MATERIAL IS PROVIDED. BACKFILL IN THESE AREAS SHALL BE OF IMPERVIOUS MATERIAL 6. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE WATER LEVEL FOLLOWING COMPLETION AND FILLING OF THE POND SHALL BE MONITORED BY THE CONTRACTOR FOR AT LEAST 60 DAYS TO OBSERVE WATER INFLOW, OUTFLOW, AND CALCULATE

WITH WATERTIGHT JOINTS TO AT LEAST 1-FOOT ABOVE THE NORMAL POOL WATER SURFACE ELEVATION.

EVAPORATION TO VERIFY THAT THE POND IS WATERTIGHT. 7. FOR ANY PONDS INTENDED TO HOLD WATER INDEFINITELY: THE POND WATER LEVEL SHALL ALSO BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION SO THAT IT REMAINS FULL TO ITS DESIGN WATER LEVEL, AND IS NOT LOWERED, AS THIS MAY DRY-OUT THE POND LINER AND RISK ITS WATERTIGHT PROPERTIES

ALL UTILITY SERVICES ENTERING THE BUILDING.

. ALL WATER AND WASTEWATER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS. 2. CONTRACTOR SHALL FIELD VERIFY THE SIZE. CONDITION. HORIZONTAL. AND VERTICAL LOCATIONS OF ALL EXISTING WATER AND WASTEWATER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY WATER OR WASTEWATER CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED. 3. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF

4. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF ALL UTILITY CROSSINGS PRIOR TO THE INSTALLATION OF ANY PIPE. 5. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE WATER AND WASTEWATER IMPROVEMENTS 6. ALL PUBLIC WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.

PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS. 8. FIRE SPRINKLER LINES SHALL BE DESIGNED AND INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR, AND COMPLY TO THE APPLICABLE CODES AND INSPECTIONS REQUIRED. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF THE FIRE SPRINKLER DESIGN. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES.

ALL PRIVATE WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE

9. EMBEDMENT FOR ALL WATER AND WASTEWATER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS. 10. CONTRACTOR SHALL TAKE REQUIRED SANITARY PRECAUTIONS, FOLLOWING ANY CITY, TCEQ, AND AWWA STANDARDS, TO KEEP WATER PIPE AND FITTINGS CLEAN AND CAPPED AT TIMES WHEN INSTALLATION IS NOT IN PROGRESS. I1.CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING FOR ALL WATER AND WASTEWATER LINES.

12. ALL WATER AND WASTEWATER SERVICES SHALL TERMINATE 5-FEET OUTSIDE THE BUILDING, UNLESS NOTED OTHERWISE 13. CONTRACTOR SHALL COMPLY WITH CITY REQUIREMENTS FOR WATER AND WASTEWATER SERVICE DISRUPTIONS AND THE AMOUNT OF PRIOR NOTICE THAT IS REQUIRED, AND SHALL COORDINATE DIRECTLY WITH THE APPROPRIATE CITY DEPARTMENT. 14. CONTRACTOR SHALL SEQUENCE WATER AND WASTEWATER CONSTRUCTION TO AVOID INTERRUPTION OF SERVICE TO SURROUNDING 15. CONTRACTOR SHALL MAINTAIN WATER SERVICE AND WASTEWATER SERVICE TO ALL CUSTOMERS THROUGHOUT CONSTRUCTION (IF NECESSARY, BY USE OF TEMPORARY METHODS APPROVED BY THE CITY AND OWNER). THIS WORK SHALL BE CONSIDERED

16. THE CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WATER AND WASTEWATER LINES CROSSING THE PROJECT. THE CONTRACTOR SHALL REPAIR ALL DAMAGED LINES IMMEDIATELY. ALL REPAIRS OF EXISTING WATER MAINS, WATER SERVICES, SEWER MAINS, AND SANITARY SEWER SERVICES ARE SUBSIDIARY TO THE WORK, AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED. 17. VALVE ADJUSTMENTS SHALL BE CONSTRUCTED SUCH THAT THE COVERS ARE AT FINISHED SURFACE GRADE OF THE PROPOSED 18. THE ENDS OF ALL EXISTING WATER MAINS THAT ARE CUT, BUT NOT REMOVED, SHALL BE PLUGGED AND ABANDONED IN PLACE. THIS

WORK SHALL BE CONSIDERED AS A SUBSIDIARY COST TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

SUBSIDIARY TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

19. ALL FIRE HYDRANTS, VALVES, TEES, BENDS, WYES, REDUCERS, FITTINGS, AND ENDS SHALL BE MECHANICALLY RESTRAINED AND/OR 20.CONTRACTOR SHALL INSTALL A FULL SEGMENT OF WATER OR WASTEWATER PIPE CENTERED AT ALL UTILITY CROSSINGS SO THAT THE

JOINTS ARE GREATER THAN 9-FEET FROM THE CROSSING. 21.ALL CROSSINGS AND LOCATIONS WHERE WASTEWATER IS LESS THAN 9-FEET FROM WATER, WASTEWATER CONSTRUCTION AND MATERIALS SHALL COMPLY WITH TCEQ CHAPTER 217.53.

22.ALL CROSSING AND LOCATIONS WHERE WATER IS LESS THAN 9-FEET FROM WASTEWATER, WATER CONSTRUCTION AND MATERIALS SHALL COMPLY WITH TCEQ CHAPTER 290.44. 23.ALL WATER AND WASTEWATER SHALL BE TESTED IN ACCORDANCE WITH THE CITY, AWWA, AND TCEO STANDARDS AND SPECIFICATIONS. AT A MINIMUM. THIS SHALL CONSIST OF THE FOLLOWING

a. ALL WATERLINES SHALL BE HYDROSTATICALLY TESTED AND CHLORINATED BEFORE BEING PLACED INTO SERVICE. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH TCEQ REGULATIONS. b. WASTEWATER LINES AND MANHOLES SHALL BE PRESSURE TESTED. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH TCEQ REGULATIONS. AFTER COMPLETION OF THESE TESTS, A TELEVISION INSPECTION SHALL BE PERFORMED AND PROVIDED TO THE CITY AND OWNER ON A DVD.

24. CONTRACTOR SHALL INSTALL DETECTABLE WIRING OR MARKING TAPE A MINIMUM OF 12" ABOVE WATER AND WASTEWATER LINES. MARKER DECALS SHALL BE LABELED "CAUTION - WATER LINE" OR "CAUTION - SEWER LINE" DETECTABLE WIRING AND MARKING TAPE SHALL COMPLY WITH CITY STANDARDS, AND SHALL BE INCLUDED IN THE COST OF THE WATER AND WASTEWATER PIPE. 25.DUCTILE IRON PIPE SHALL BE PROTECTED FROM CORROSION BY A LOW-DENSITY POLYETHYLENE LINER WRAP THAT IS AT LEAST A SINGLE LAYER OF 8-MIL. ALL DUCTILE IRON JOINTS SHALL BE BONDED. 26.WATERLINES SHALL BE INSTALLED AT NO LESS THAN THE MINIMUM COVER REQUIRED BY THE CITY.

27. CONTRACTOR SHALL PROVIDE CLEAN-OUTS FOR PRIVATE SANITARY SEWER LINES AT ALL CHANGES IN DIRECTION AND 100-FOOT INTERVALS, OR AS REQUIRED BY THE APPLICABLE PLUMBING CODE. CLEAN-OUTS REQUIRED IN PAVEMENT OR SIDEWALKS SHALL HAVE CAST IRON COVERS FLUSH WITH FINISHED GRADE. 28. CONTRACTOR SHALL PROVIDE BACKWATER VALVES FOR PLUMBING FIXTURES AS REQUIRED BY THE APPLICABLE PLUMBING CODE (E.G. FLOOR ELEVATION OF FIXTURE UNIT IS BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER). CONTRACTOR SHALL REVIEW BOTH MEP AND CIVIL PLANS TO CONFIRM WHERE THESE ARE REQUIRED. 29.THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO

OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY.

30. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER. ABBREVIATIONS AND DEFINITIONS AMERICANS WITH DISABILITIES ACT AMERICAN WATER WORKS ASSOCIATION AWWA B-B BACK TO BACK BEGIN CURVE BACK OF CURB BCR BEGIN CURB RETURN BEST MANAGEMENT PRACTICE BACK OF CURB BEGIN VERTICAL CURVE ELEVATION BVCS BEGIN VERTICAL CURVE STATION BW **BOTTOM OF WALL** CFS CUBIC FEET PER SECOND CITY, TOWN, OR OTHER APPLICABLE LOCAL GOVERNMENT JURISDICTION C/L CENTERLINE CENTERLINE CONC CONCRETE CUBIC YARD DEMO DEMOLITION DG DECOMPOSED GRANITE DTL DETAIL EACH **END CURVE** END CURB RETURN ECR EXISTING GROUND EG **ELEVATION** ELECTRICAL / ELECTRICITY ELEC ELEV EPA UNITES STATES ENVIRONMENTAL PROTECTION AGENCY EASEMENT **EVCE** END VERTICAL CURVE ELEVATION END VERTICAL CURVE STATION **EVCS** FXISTING FACE TO FACE FINISHED GROUND FIRE HYDRANT

FLOW LINE FACE OF CURB FEET HYDRAULIC GRADE LINE KIMLEY-HORN AND ASSOCIATES, INC KIMLEY-HORN AND ASSOCIATES, INC LAT LATERAL LINEAR FEET LEFT MAXIMUM MATCH EXISTING ELEVATION

MANHOLE MINUTE / MINI NUMBER

NOTICE OF TERMINATION, REF. TCEQ GENERAL PERMIT NOT TO SCALE ON CENTER OFFSET OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

NOTICE OF INTENT, REF. TCEQ GENERAL PERMIT

POINT OF CURVATURE PORTLAND CEMENT CONCRETE / POINT OF COMPOUND CURVATURE PROPOSED GRADE LINE POINT OF INFLECTION PROPOSED POINT OF REVERSE CURVATURE POUNDS PER SQUARE INCH

POINT OF TANGENCY POLYVINYL CHLORIDE POINT OF VERTICAL INFLECTION **PVMT** PAVEMENT RCP REINFORCED CONCRETE PIPE ROW RIGHT OF WAY

SQUARE FEET SANITARY SEWER SANITARY SEWER MANHOLE STATION STD STANDARD

SQUARE YARD ARCHITECTURAL BARRIERS TEXAS ACCESSIBILITY STANDARDS TOP OF CURB TEXAS COMMISSION OF ENVIRONMENTAL QUALITY

TEMP TEMPORARY **TXDOT** TEXAS DEPARTMENT OF TRANSPORTATION TXMUTCD TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES TOP OF WALL

TYPICAL VERTICAL CURVE WATER WASTEWATER

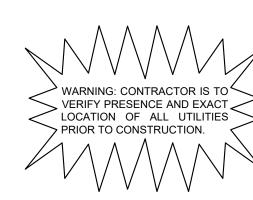
THESE PLAN AND GENERAL NOTES REFER TO GEOTECHNICAL ENGINEERING REPORT MLA GEOTECHNICAL Project No. 22101103.001

INCLUDING ALL REVISIONS AND ADDENDA TO THIS

REPORT THAT MAY HAVE BEEN RELEASED AFTER

THE NOTED DATE



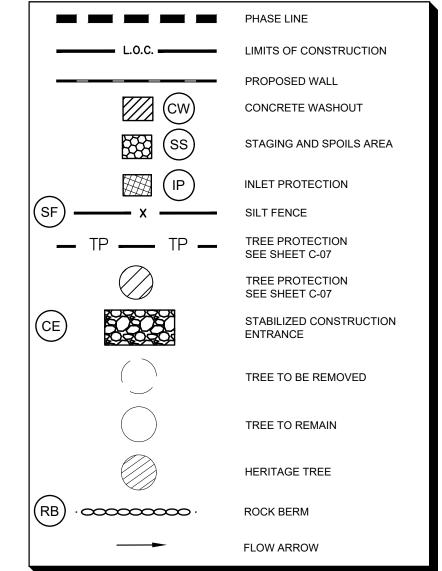


S

JACOB KONDO

SHEET NUMBER





- CONTRACTOR IS SOLELY RESPONSIBLE FOR IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL SWPPP CONTROLS - CONTROLS SHOWN ON THIS SITE MAP
- CONTRACTOR SHALL RECORD INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL DATES FOR EACH BMP EMPLOYED (WHETHER CALLED OUT ON ORIGINAL
 - THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE
 - CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURE DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER THE CITY OR AS DIRECTED BY
- 6. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AT THE FARLIEST POSSIBLE TIME DURING THE CONSTRUCTION SEQUENCE
- AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED BEFORE COMMENCEMENT OF ANY GRADING ACTIVITIES. OTHER BMP'S SHALL BE INSTALLED AS SOON AS PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION I ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S).
- GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER. FOR EXAMPLE: SILT FENCES LOCATED AT TOE OF SLOPE AND INLET
- ADDITIONAL EROSION AND SEDIMENTATION CONTROLS MAY BE REQUIRED BY THE
- AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING [ECM 1.4.4.B.3, SECTION 5, I.]. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY [ECM 1.4.4.D.4].



WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

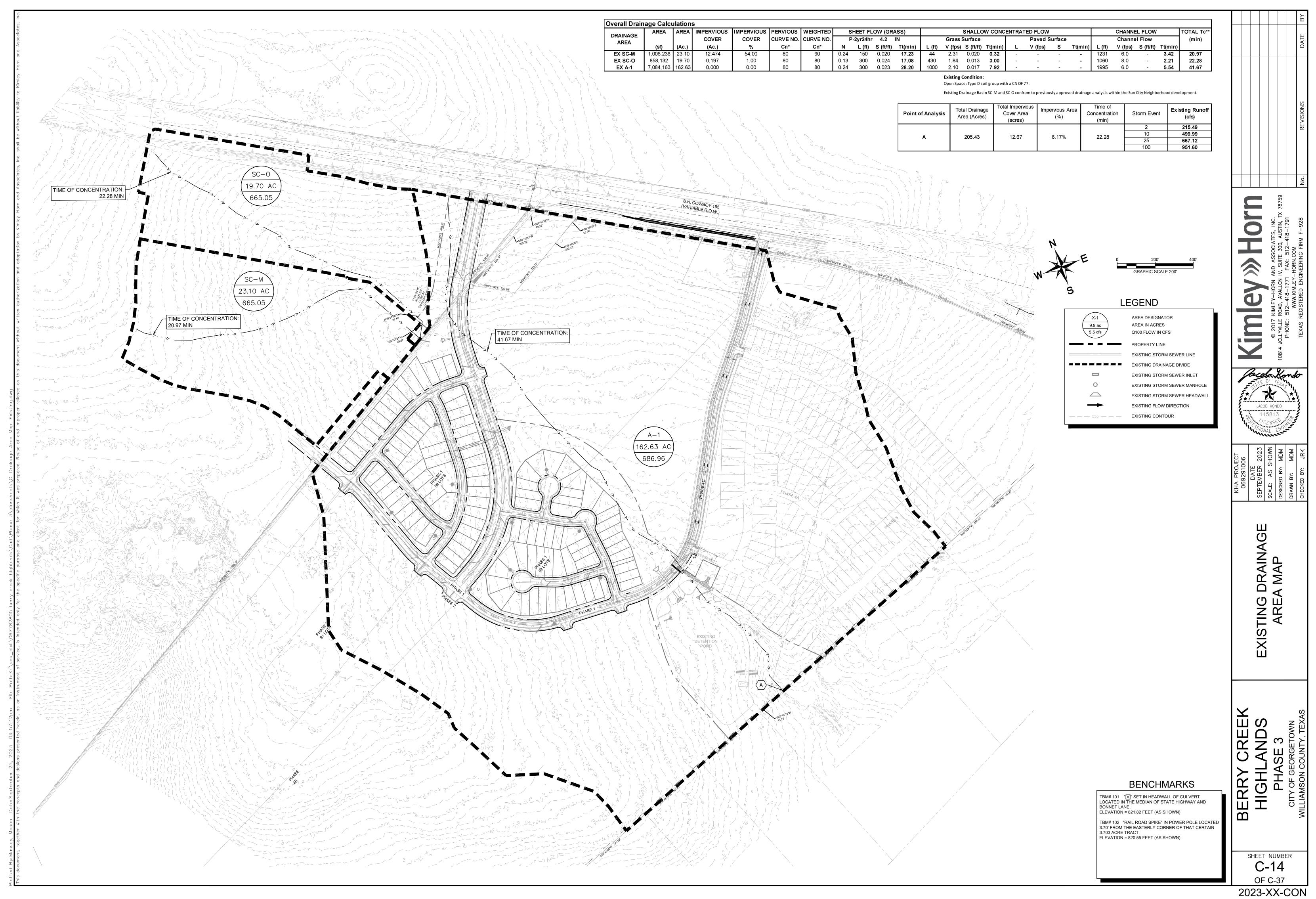
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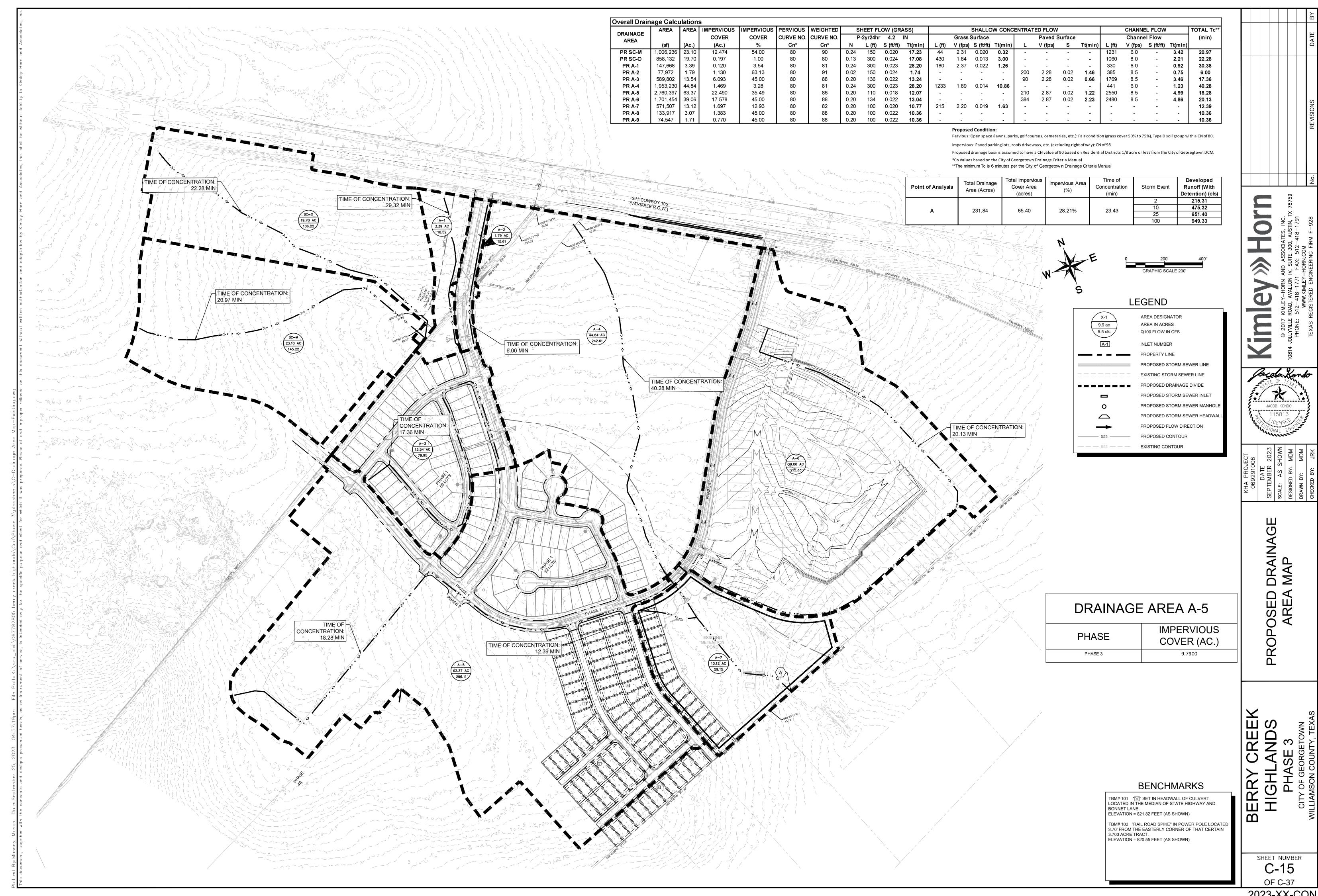
JACOB KONDO

CONTROL

EROSION

2023-XX-CON





2023-XX-CON



												PHASE	3													
Peak Flow Ca	lculation - R	ational Meth	od			RU	JNOFF COE	FFICIENT (C)											RAINFALL II	NTENSITY (I)				
INLET DRAINAGE	Area (Acres)	Street Length (FT)	Lot Coverage	Impervious Cover (Acres)	% I.C.	C 2-Year	C 10-Year	C 25-Year	C 100-Year		SHEET FLO r24hr	W (GRASS) 4.2	IN	SHAL	LOW CONC	ENTRATED	FLOW	TC (MIN)	l 2-Year	l 10-Year	l 25-Year	l 100-Year	Q 2-Year	Q 10-Year	Q 25-Year	Q 100-Year
AREA			(FT^2)							N	L (ft)	S (ft/ft)	Tt(min)	L (ft)	V (fps)	S (ft/ft)	Tt(min)									
LAT SD-A1	0.150	270	0	0.13	86.8%	0.88	0.89	0.89	0.90	0.30	10	0.02	2.36	270	1.44	0.005	3.13	5.49	6.35	8.48	9.67	11.69	0.84	1.13	1.30	1.58
LAT SD-A2	0.800	135	31103	0.39	48.3%	0.63	0.66	0.68	0.71	0.30	250	0.02	30.99	135	1.44	0.005	1.57	32.56	3.09	4.43	5.24	6.50	1.57	2.34	2.83	3.70
LAT SD-A3	1.310	150	52987	0.62	47.3%	0.63	0.65	0.67	0.71	0.30	260	0.02	31.98	150	1.44	0.005	1.74	33.72	3.02	4.34	5.15	6.38	2.48	3.72	4.51	5.91
LAT SD-A4	0.970	150	36570	0.45	46.4%	0.62	0.65	0.66	0.70	0.30	260	0.02	31.98	150	1.44	0.005	1.74	33.72	3.02	4.34	5.15	6.38	1.82	2.73	3.32	4.35
LAT SD-A5	0.810	120	30783	0.38	46.4%	0.62	0.65	0.66	0.70	0.30	260	0.02	31.98	120	1.44	0.005	1.39	33.37	3.04	4.37	5.17	6.42	1.53	2.29	2.78	3.65
LAT SD-A6	0.630	284	8746	0.23	36.1%	0.55	0.59	0.61	0.65	0.30	50	0.02	8.55	284	2.34	0.0132	2.03	10.58	5.27	7.16	8.26	10.06	1.84	2.64	3.15	4.12
LAT SD-A7	0.220	380	0	0.18	83.3%	0.86	0.87	0.87	0.89	0.30	10	0.02	2.36	380	2.34	0.0132	2.71	5.07	6.46	8.62	9.81	11.85	1.22	1.65	1.89	2.31
LAT SD-A8	0.930	140	37070	0.45	48.4%	0.63	0.66	0.68	0.71	0.30	260	0.02	31.98	140	2.34	0.0132	1.00	32.98	3.06	4.40	5.21	6.46	1.81	2.70	3.27	4.28
SD-A	0.790	150	30702	0.39	49.3%	0.64	0.67	0.68	0.72	0.30	260	0.02	31.98	150	2.34	0.0132	1.07	33.05	3.06	4.39	5.20	6.45	1.55	2.31	2.80	3.65
SD-B	0.930	140	37317	0.45	48.7%	0.64	0.66	0.68	0.71	0.30	260	0.02	31.98	140	1.44	0.005	1.62	33.60	3.03	4.35	5.16	6.40	1.79	2.68	3.25	4.24
LAT SD-C1	0.490	100	18568	0.24	49.0%	0.64	0.66	0.68	0.71	0.30	150	0.02	20.60	100	1.44	0.005	1.16	21.76	3.86	5.41	6.34	7.81	1.21	1.76	2.11	2.74
LAT SD-C2	0.660	165	18754	0.27	41.4%	0.59	0.62	0.64	0.68	0.30	120	0.02	17.23	165	1.44	0.005	1.91	19.14	4.12	5.73	6.70	8.23	1.60	2.34	2.81	3.68
LAT SD-C3	0.300	528	0	0.25	84.8%	0.87	0.88	0.88	0.89	0.30	10	0.02	2.36	528	1.44	0.005	6.12	8.48	5.66	7.64	8.78	10.66	1.48	2.02	2.33	2.86
LAT SD-C4	0.740	180	27920	0.38	50.7%	0.65	0.67	0.69	0.72	0.30	120	0.02	17.23	180	1.44	0.005	2.09	19.32	4.10	5.71	6.67	8.20	1.97	2.85	3.40	4.39
SD-C	0.960	260	35870	0.50	51.7%	0.66	0.68	0.69	0.73	0.30	120	0.02	17.23	260	1.44	0.005	3.01	20.24	4.01	5.59	6.54	8.04	2.52	3.65	4.36	5.62
LAT SD-D1	0.190	290	0	0.14	73.6%	0.80	0.81	0.82	0.84	0.30	10	0.02	2.36	290	2.81	0.0191	1.72	5.00	6.48	8.64	9.84	11.88	0.98	1.33	1.53	1.89
SD-D	0.780	290	26971	0.42	53.6%	0.67	0.69	0.71	0.74	0.30	100	0.02	14.89	290	2.81	0.0191	1.72	16.61	4.40	6.08	7.08	8.68	2.29	3.28	3.90	5.00
LAT SD-E1	0.360	611	0	0.29	81.8%	0.85	0.86	0.87	0.88	0.30	50	0.02	8.55	611	1.44	0.005	7.08	15.64	4.52	6.23	7.25	8.88	1.39	1.93	2.26	2.81
SD-E	0.350	393	1585	0.21	58.8%	0.70	0.72	0.74	0.76	0.30	10	0.02	2.36	393	1.44	0.005	4.56	6.92	6.00	8.06	9.22	11.17	1.48	2.04	2.37	2.99
OS-1	10.160	0	0	0.00	0.0%	0.32	0.37	0.40	0.47	0.30	820	0.02	80.16	700	2.03	0.01	5.74	85.90	1.59	2.45	2.97	3.75	5.16	9.22	12.05	17.89

arabolic	Crown																					
Inlet	Inlet	Drainage	Street Width	K0	K1	K2	Q	Q Pass	Q Total	Slope	a	yo	Ponded	R.F.	Qa/La	La	Length	L/La	a/yo	Q/Qa	Q	Q Pass
No.	Type	Area No.	(FOC - FOC)				(cfs)	(cfs)	(Qa) (cfs)	(%)	(in.)	(ft.)	Width (ft)	(%)		(ft)	(ft)				(cfs)	(cfs)
1	Sump	LAT SD-A1	31'	2.85	0.50	3.03	1.3	0.0	1.3	0.50%	5.0	0.300	5.57	0	0.75	1.72	10	5.80	1.39	1.00	1.3	0.0
2	Grade	LAT SD-A2	31'	2.85	0.50	3.03	2.8	0.0	2.8	0.50%	5.0	0.387	7.94	0	0.85	3.35	10	2.99	1.08	1.00	2.8	0.0
3	Sump	LAT SD-A3	31'	2.85	0.50	3.03	4.5	0.0	4.5	0.50%	5.0	0.452	10.34	0	0.92	4.93	10	2.03	0.92	1.00	4.5	0.0
4	Grade	LAT SD-A4	31'	2.85	0.50	3.03	3.3	0.0	3.3	0.50%	5.0	0.408	8.62	0	0.87	3.82	10	2.62	1.02	1.00	3.3	0.0
5	Grade	LAT SD-A5	31'	2.85	0.50	3.03	2.8	0.0	2.8	0.50%	5.0	0.385	7.88	0	0.84	3.30	10	3.03	1.08	1.00	2.8	0.0
6	Grade	LAT SD-A6	31'	2.85	0.50	3.03	3.2	0.0	3.2	1.32%	5.0	0.342	6.63	0	0.80	3.96	10	2.53	1.22	1.00	3.2	0.0
7	Grade	LAT SD-A7	31'	2.85	0.50	3.03	1.9	0.0	1.9	1.32%	5.0	0.289	5.32	0	0.74	2.55	10	3.93	1.44	1.00	1.9	0.0
8	Grade	LAT SD-A8	31'	2.85	0.50	3.03	3.3	0.0	3.3	1.32%	5.0	0.346	6.75	0	0.80	4.08	10	2.45	1.20	1.00	3.3	0.0
9	Grade	SD-A	31'	2.85	0.50	3.03	2.8	0.0	5.2	1.32%	5.0	0.404	8.46	0	0.86	6.03	10	1.66	1.03	1.00	5.2	0.0
10	Grade	SD-B	31'	2.85	0.50	3.03	3.2	0.0	3.2	0.50%	5.0	0.406	8.53	0	0.86	3.76	10	2.66	1.03	1.00	3.2	0.0
11	Grade	LAT SD-C1	31'	2.85	0.50	3.03	2.1	0.0	2.1	0.50%	5.0	0.352	6.90	0	0.81	2.62	10	3.82	1.18	1.00	2.1	0.0
12	Grade	LAT SD-C2	31'	2.85	0.50	3.03	2.8	0.0	2.8	0.50%	5.0	0.387	7.91	0	0.84	3.33	10	3.00	1.08	1.00	2.8	0.0
13	Grade	LAT SD-C3	31'	2.85	0.50	3.03	2.3	0.0	2.3	0.50%	5.0	0.363	7.22	0	0.82	2.84	10	3.52	1.15	1.00	2.3	0.0
14	Grade	LAT SD-C4	31'	2.85	0.50	3.03	3.4	0.0	3.4	0.50%	5.0	0.412	8.74	0	0.87	3.90	10	2.56	1.01	1.00	3.4	0.0
15	Grade	SD-C	31'	2.85	0.50	3.03	4.4	0.0	4.4	0.50%	5.0	0.447	10.11	0	0.91	4.79	10	2.09	0.93	1.00	4.4	0.0
16	Grade	LAT SD-D1	31'	2.85	0.50	3.03	1.5	0.0	1.5	1.91%	5.0	0.254	4.53	0	0.71	2.17	10	4.61	1.64	1.00	1.5	0.0
17	Grade	SD-D	31'	2.85	0.50	3.03	3.9	0.0	3.9	1.91%	5.0	0.345	6.72	0	0.80	4.87	10	2.05	1.21	1.00	3.9	0.0
18	Grade	LAT SD-E1	31'	2.85	0.50	3.03	2.3	0.0	2.3	0.50%	5.0	0.360	7.12	0	0.82	2.77	10	3.61	1.16	1.00	2.3	0.0
19	Grade	SD-E	31'	2.85	0.50	3.03	2.4	0.0	2.4	0.50%	5.0	0.366	7.29	0	0.82	2.89	10	3.46	1.14	1.00	2.4	0.0

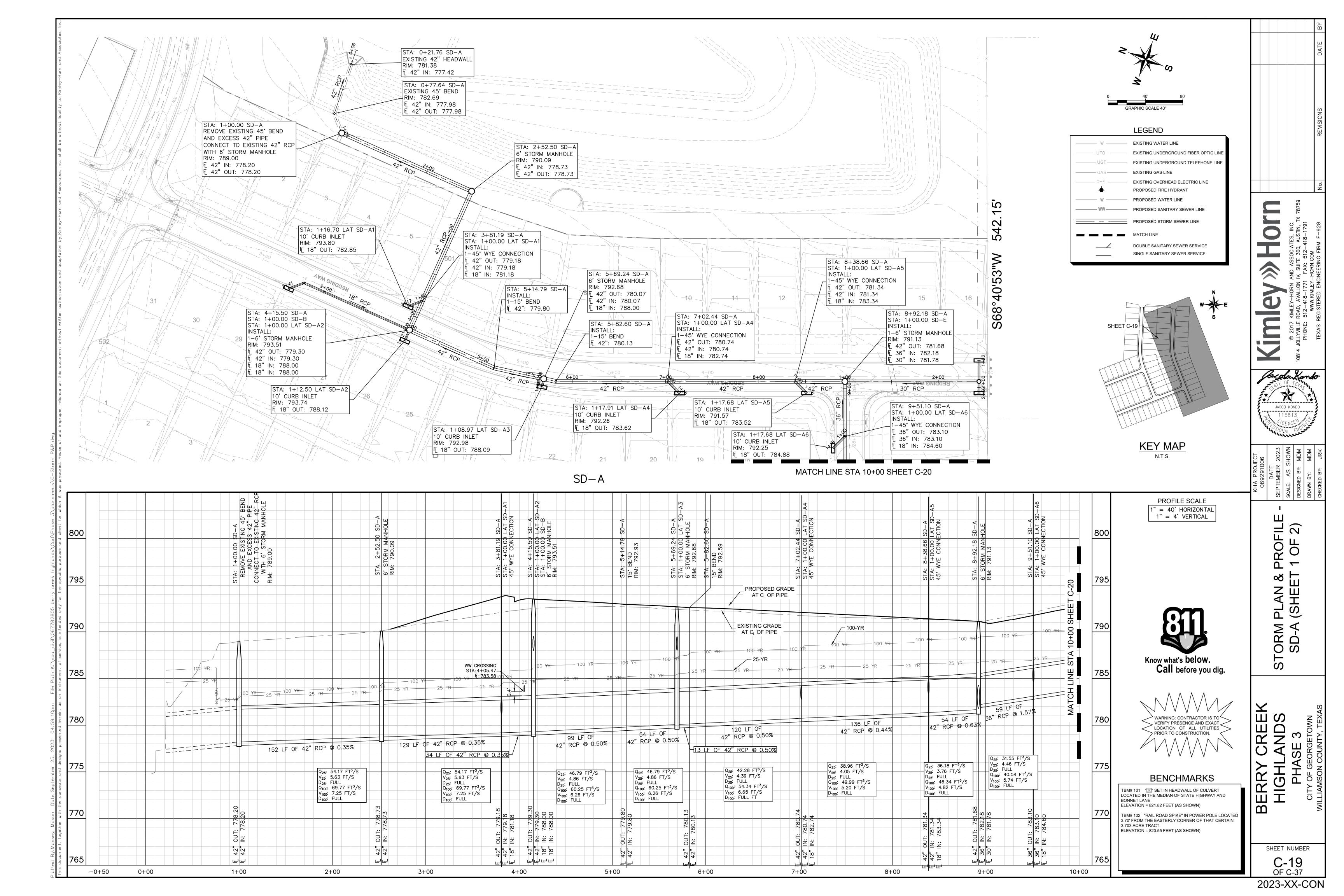
							INLET	FLOW	CALCL	<u>JLATION</u>	N TABL	E (100	-Yr Flow	s) PHA	SE 3							
arabolic (Crown																					
Inlet	Inlet	Drainage	Street Width	K0	K1	K2	Q	Q Pass	Q Total	Slope	a	yo	Ponded	R.F.	Qa/La	La	Length	L/La	a/yo	Q/Qa	Q	Q Pass
No.	Type	Area No.	(FOC - FOC)				(cfs)	(cfs)	(Qa) (cfs)	(%)	(in.)	(ft.)	Width (ft)	(%)		(ft)	(ft)				(cfs)	(cfs)
1	Sump	LAT SD-A1	31'	2.85	0.50	3.03	1.6	0.0	1.6	0.50%	5.0	0.320	6.06	0	0.77	2.05	10	4.88	1.30	1.00	1.6	0.0
2	Grade	LAT SD-A2	31'	2.85	0.50	3.03	3.7	0.0	3.7	0.50%	5.0	0.423	9.16	0	0.88	4.18	10	2.39	0.98	1.00	3.7	0.0
3	Sump	LAT SD-A3	31'	2.85	0.50	3.03	5.9	0.0	5.9	0.50%	5.0	0.494	12.90	0	0.96	6.14	10	1.63	0.84	1.00	5.9	0.0
4	Grade	LAT SD-A4	31'	2.85	0.50	3.03	4.3	0.0	4.3	0.50%	5.0	0.446	10.09	0	0.91	4.78	10	2.09	0.93	1.00	4.3	0.0
5	Grade	LAT SD-A5	31'	2.85	0.50	3.03	3.6	0.0	3.6	0.50%	5.0	0.421	9.09	0	0.88	4.14	10	2.42	0.99	1.00	3.6	0.0
6	Grade	LAT SD-A6	31'	2.85	0.50	3.03	4.1	0.0	4.1	1.32%	5.0	0.374	7.52	0	0.83	4.96	10	2.02	1.12	1.00	4.1	0.0
7	Grade	LAT SD-A7	31'	2.85	0.50	3.03	2.3	0.0	2.3	1.32%	5.0	0.309	5.79	0	0.76	3.03	10	3.30	1.35	1.00	2.3	0.0
8	Grade	LAT SD-A8	31'	2.85	0.50	3.03	4.3	0.0	4.3	1.32%	5.0	0.378	7.66	0	0.84	5.12	10	1.95	1.10	1.00	4.3	0.0
9	Grade	SD-A	31'	2.85	0.50	3.03	3.6	0.0	5.2	1.32%	5.0	0.404	8.46	0	0.86	6.03	10	1.66	1.03	1.00	5.2	0.0
10	Grade	SD-B	31'	2.85	0.50	3.03	4.2	0.0	4.2	0.50%	5.0	0.443	9.94	0	0.91	4.69	10	2.13	0.94	1.00	4.2	0.0
11	Grade	LAT SD-C1	31'	2.85	0.50	3.03	2.7	0.0	2.7	0.50%	5.0	0.383	7.81	0	0.84	3.25	10	3.07	1.09	1.00	2.7	0.0
12	Grade	LAT SD-C2	31'	2.85	0.50	3.03	3.7	0.0	3.7	0.50%	5.0	0.422	9.13	0	0.88	4.16	10	2.40	0.99	1.00	3.7	0.0
13	Grade	LAT SD-C3	31'	2.85	0.50	3.03	2.9	0.0	2.9	0.50%	5.0	0.389	7.98	0	0.85	3.38	10	2.96	1.07	1.00	2.9	0.0
14	Grade	LAT SD-C4	31'	2.85	0.50	3.03	4.4	0.0	4.4	0.50%	5.0	0.448	10.15	0	0.91	4.82	10	2.08	0.93	1.00	4.4	0.0
15	Grade	SD-C	31'	2.85	0.50	3.03	5.6	0.0	5.6	0.50%	5.0	0.486	12.25	0	0.95	5.90	10	1.70	0.86	1.00	5.6	0.0
16	Grade	LAT SD-D1	31'	2.85	0.50	3.03	1.9	0.0	1.9	1.91%	5.0	0.272	4.93	0	0.72	2.61	10	3.83	1.53	1.00	1.9	0.0
17	Grade	SD-D	31'	2.85	0.50	3.03	5.0	0.0	5.0	1.91%	5.0	0.375	7.55	0	0.83	6.01	10	1.66	1.11	1.00	5.0	0.0
18	Grade	LAT SD-E1	31'	2.85	0.50	3.03	2.8	0.0	2.8	0.50%	5.0	0.386	7.91	0	0.84	3.33	10	3.01	1.08	1.00	2.8	0.0
19	Grade	SD-E	31'	2.85	0.50	3.03	3.0	0.0	3.0	0.50%	5.0	0.394	8.16	0	0.85	3.50	10	2.85	1.06	1.00	3.0	0.0

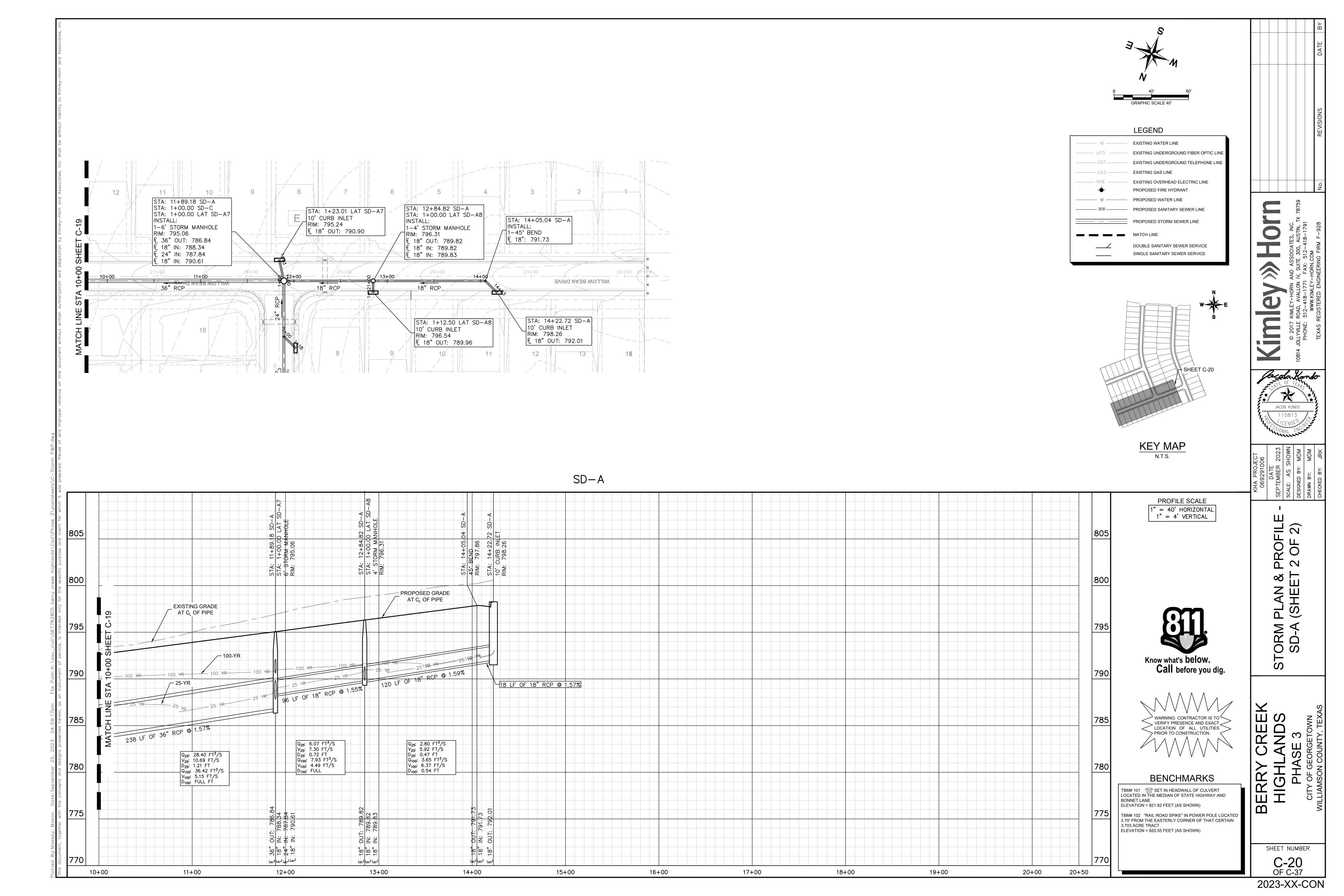
	nmission on Environmental Quality							
TSS Remov	al Calculations 04-20-2009			Project Name: Date Prepared:	_		lands Ph	ase 3
	nformation is provided for cells with a red trian In blue indicate location of instructions in the Technic				cursor ove	er the ce	ell.	
	shown in red are data entry fields. shown in black (Bold) are calculated fields. Cl	nanges to the	ese fields	will remove the e	quations u	sed in tl	he sprea	dsheet.
	d Load Reduction for the total project:	Calculations f					•	
i. The Require	d Load Reduction for the total project.	Calculations	IOIII RG-346		Pages 3-27 to	0 3-30		
	Page 3-29 Equation 3.3: L _M	= 27.2(A _N x P)						
where:	880 A THE REST OF THE PARTY OF	-		ulting from the propose	d developmen	t = 85% o	f increased	load
		Net increaseAverage annu		area for the project on, inches				
Site Data	Determine Required Load Removal Based on the Entire Proj	ect						
		= Williamson	acres					
	redevelopment impervious area within the limits of the plan *	= 0.00	acres					
l otal pos	st-development impervious area within the limits of the plan* Total post-development impervious cover fraction *	= 0.53	acres					
	Р	= 32	inches					
	L _M TOTAL PROJECT		lbs.					
The values e	entered in these fields should be for the total project are	ea.						
Nun	nber of drainage basins / outfalls areas leaving the plan area	= 1						
2. Drainage Ba	sin Parameters (This information should be provided for	or each basin):						
	Drainage Basin/Outfall Area No.	= 1	•					
D	Total drainage basin/outfall area		acres					
Post-dev	velopment impervious area within drainage basin/outfall area velopment impervious area within drainage basin/outfall area	= 63.25	acres					
Post-develo	opment impervious fraction within drainage basin/outfall area L_M This basin	W. T. C.	lbs.					
3. Indicate the	proposed BMP Code for this basin.							
	Proposed BMP	= Wet Basin						
	Removal efficiency		percent		Aqualogic Ca	rtridae Fil	ter	
					Bioretention Contech Stor			
					Constructed '	Wetland		
					Extended De Grassy Swale			
					Retention / In Sand Filter	rigation		
					Stormceptor	tor Otrino		
					Vegetated Fill	iter Strips		
					Wet Basin Wet Vault			
I. Calculate Ma	aximum TSS Load Removed (L _R) for this Drainage Basi	n by the select	ted BMP Typ	<u>oe.</u>				
	RG-348 Page 3-33 Equation 3.7: L _R	= (BMP efficien	cy) x P x (A _I	x 34.6 + A _P x 0.54)				
where:				a in the BMP catchme				
				in the BMP catchment the BMP catchment a				
				is catchment area by		BMP		
	A _C	= 179.11	acres					
	Aı		acres					
	A_P L_R		acres lbs					
5, Calculate Fr	action of Annual Runoff to Treat the drainage basin / o	utfall area						
2	Desired L _{M This Basin}		lbs.					
			IDS.					
	F	= 0.88						
3. Calculate Ca	apture Volume required by the BMP Type for this drain	age basin / out	fall area.	Calculations from RG	5-348	Pages 3-	34 to 3-36	
		= 1.50	inches					
	Rainfall Depth		•					
	Post Development Runoff Coefficient		CUDIC TEET					
			cubic feet					
	Post Development Runoff Coefficient			Pages 3-36 to 3-37				
	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP	= 242473 Calculations f = 43.80	from RG-348	Pages 3-36 to 3-37				
	Post Development Runoff Coefficient : On-site Water Quality Volume	= 242473 Calculations f = 43.80 = 0.00	rom RG-348	Pages 3-36 to 3-37				
	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP Off-site Impervious cover draining to BMP	= 242473 Calculations f = 43.80 = 0.00 = 0.00 = 0.02	from RG-348	Pages 3-36 to 3-37				
	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP Off-site Impervious cover draining to BMP Impervious fraction of off-site area Off-site Runoff Coefficient Off-site Water Quality Volume	= 242473 Calculations f = 43.80 = 0.00 = 0.00 = 0.02 = 4770	acres	Pages 3-36 to 3-37				
	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP Off-site Impervious cover draining to BMP Impervious fraction of off-site area Off-site Runoff Coefficient Off-site Water Quality Volume Storage for Sediment pture Volume (required water quality volume(s) x 1.20)	= 242473 Calculations f = 43.80 = 0.00 = 0.00 = 0.02 = 4770 = 49448 = 296691	acres acres cubic feet					
The following	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP Off-site Impervious cover draining to BMP Impervious fraction of off-site area Off-site Runoff Coefficient Off-site Water Quality Volume Storage for Sediment	= 242473 Calculations f = 43.80 = 0.00 = 0.00 = 0.02 = 4770 = 49448 = 296691	acres acres cubic feet					
The following : The values for	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP Off-site Impervious cover draining to BMP Impervious fraction of off-site area Off-site Runoff Coefficient Off-site Water Quality Volume Storage for Sediment pture Volume (required water quality volume(s) x 1.20) sections are used to calculate the required water quali BMP Types not selected in cell C45 will show NA.	= 242473 Calculations f = 43.80 = 0.00 = 0.00 = 0.02 = 4770 = 49448 = 296691 ty volume(s) fo	acres acres cubic feet cubic feet	ed BMP.				
The following	Post Development Runoff Coefficient : On-site Water Quality Volume Off-site area draining to BMP Off-site Impervious cover draining to BMP Impervious fraction of off-site area Off-site Runoff Coefficient Off-site Water Quality Volume Storage for Sediment pture Volume (required water quality volume(s) x 1.20) sections are used to calculate the required water quali BMP Types not selected in cell C45 will show NA.	= 242473 Calculations f = 43.80 = 0.00 = 0.00 = 0.02 = 4770 = 49448 = 296691 ty volume(s) fo	acres acres cubic feet cubic feet	ed BMP.	Pages 3-66 t			

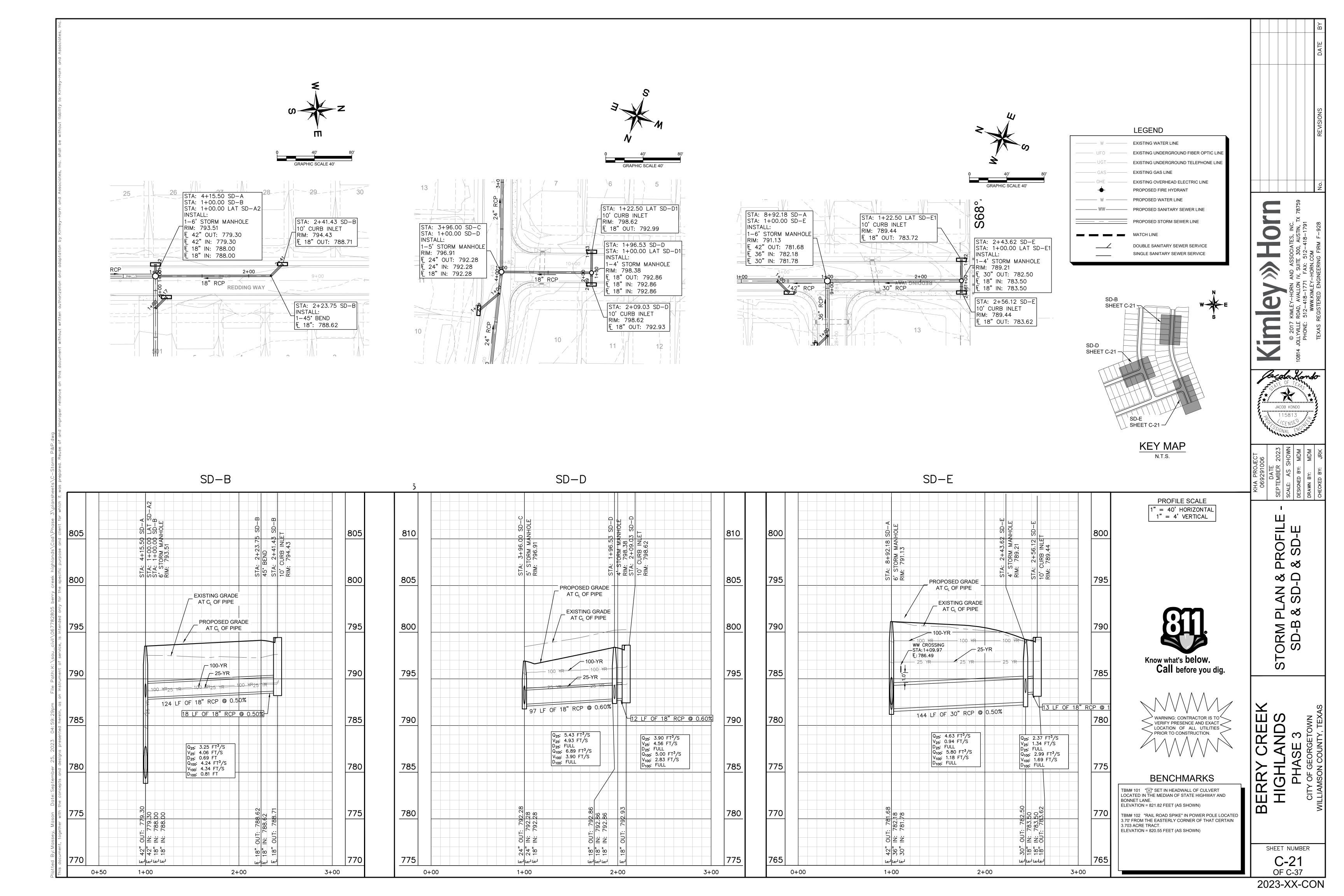
BERRY CREEK
HIGHLANDS
PHASE 3
CITY OF GEORGETOWN
WILLIAMSON COUNTY, TEXAS

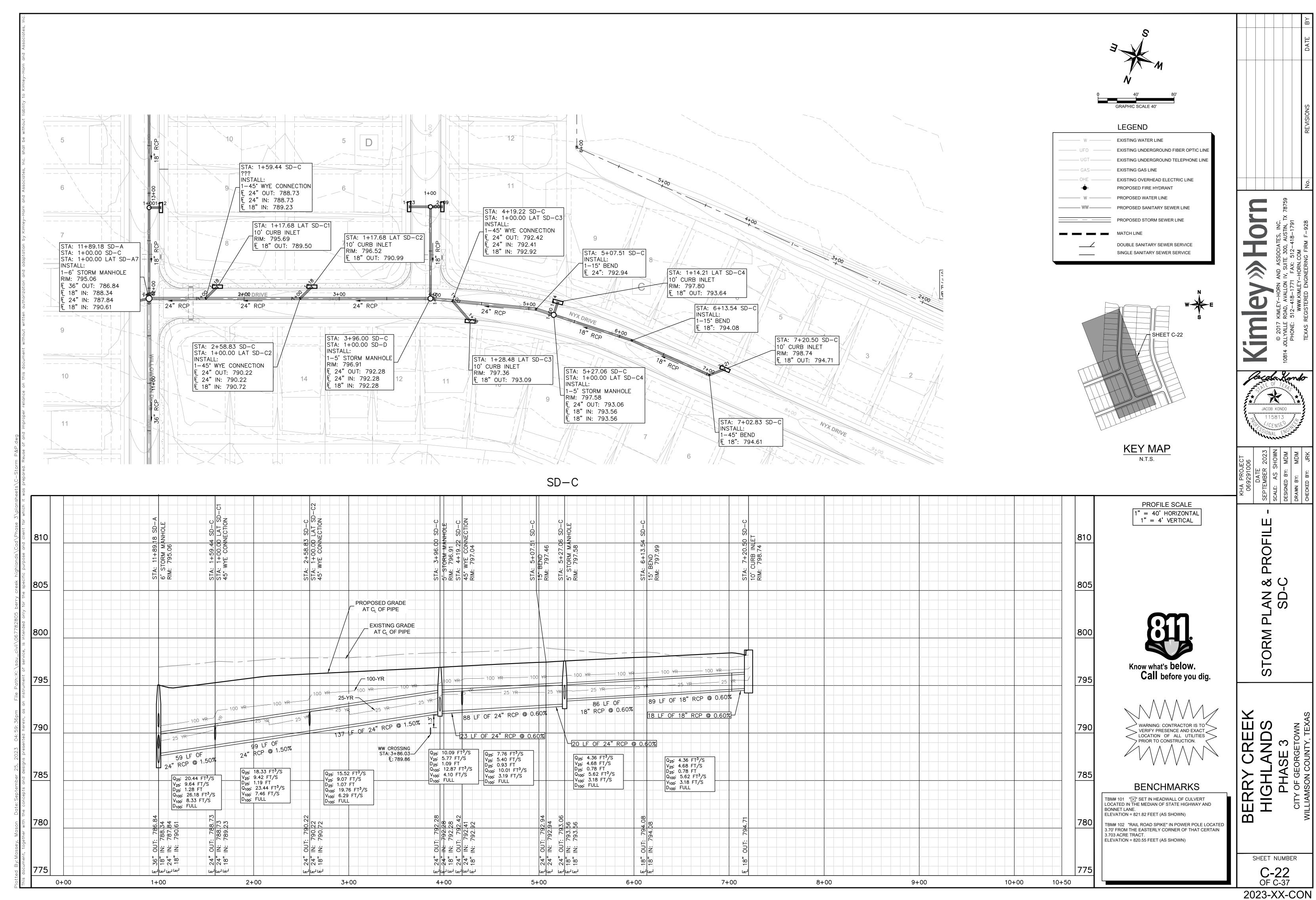
SHEET NUMBER C-17 OF C-37 2023-XX-CON

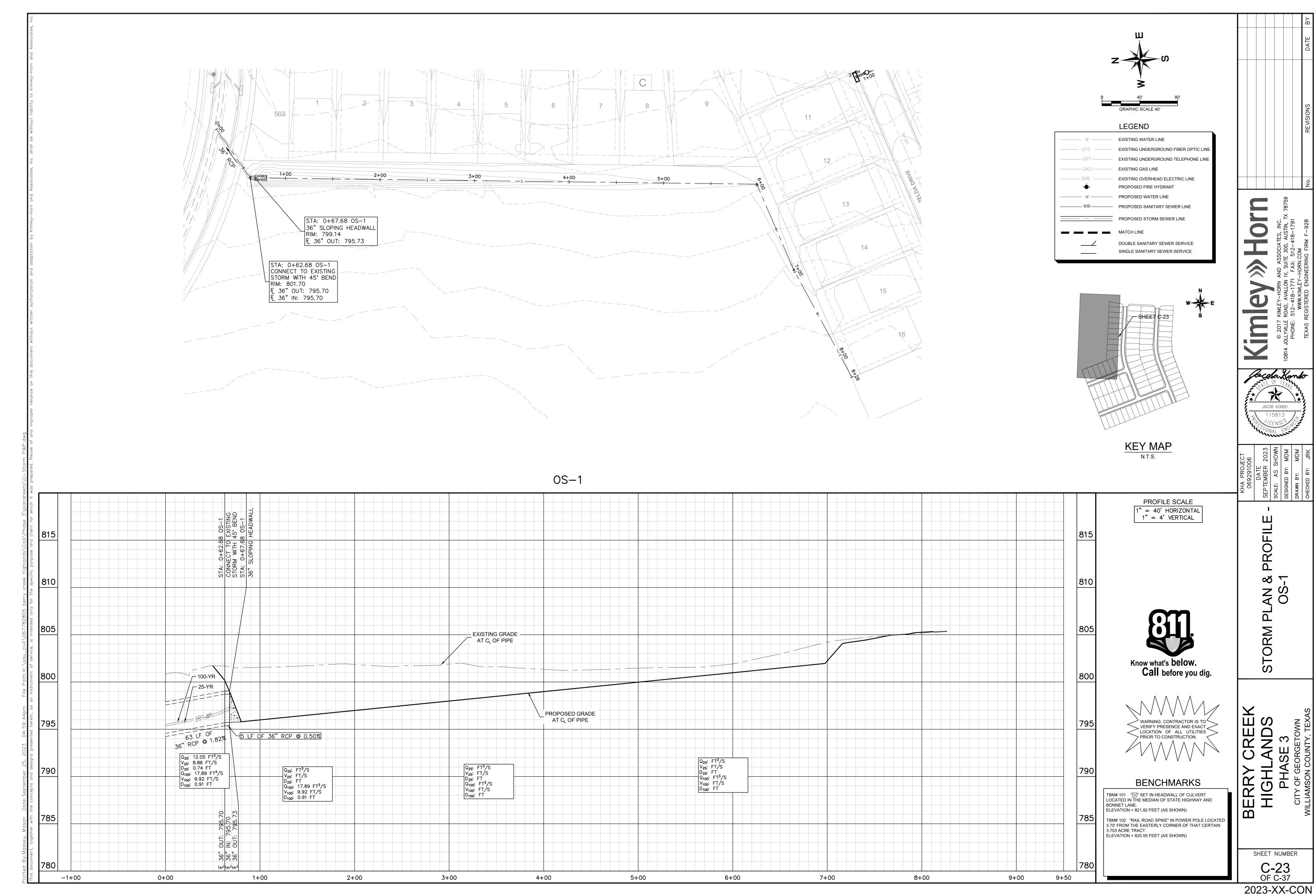


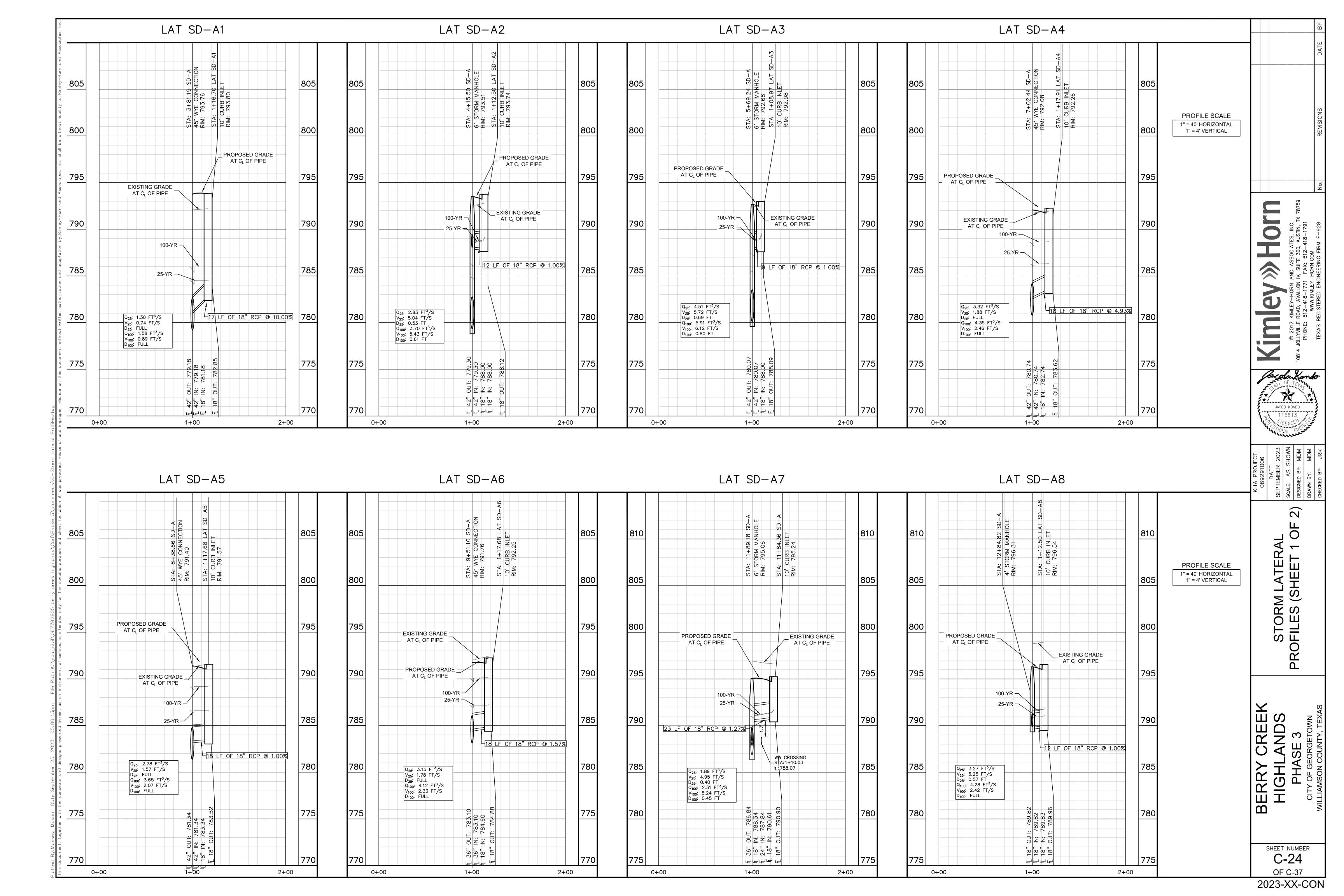


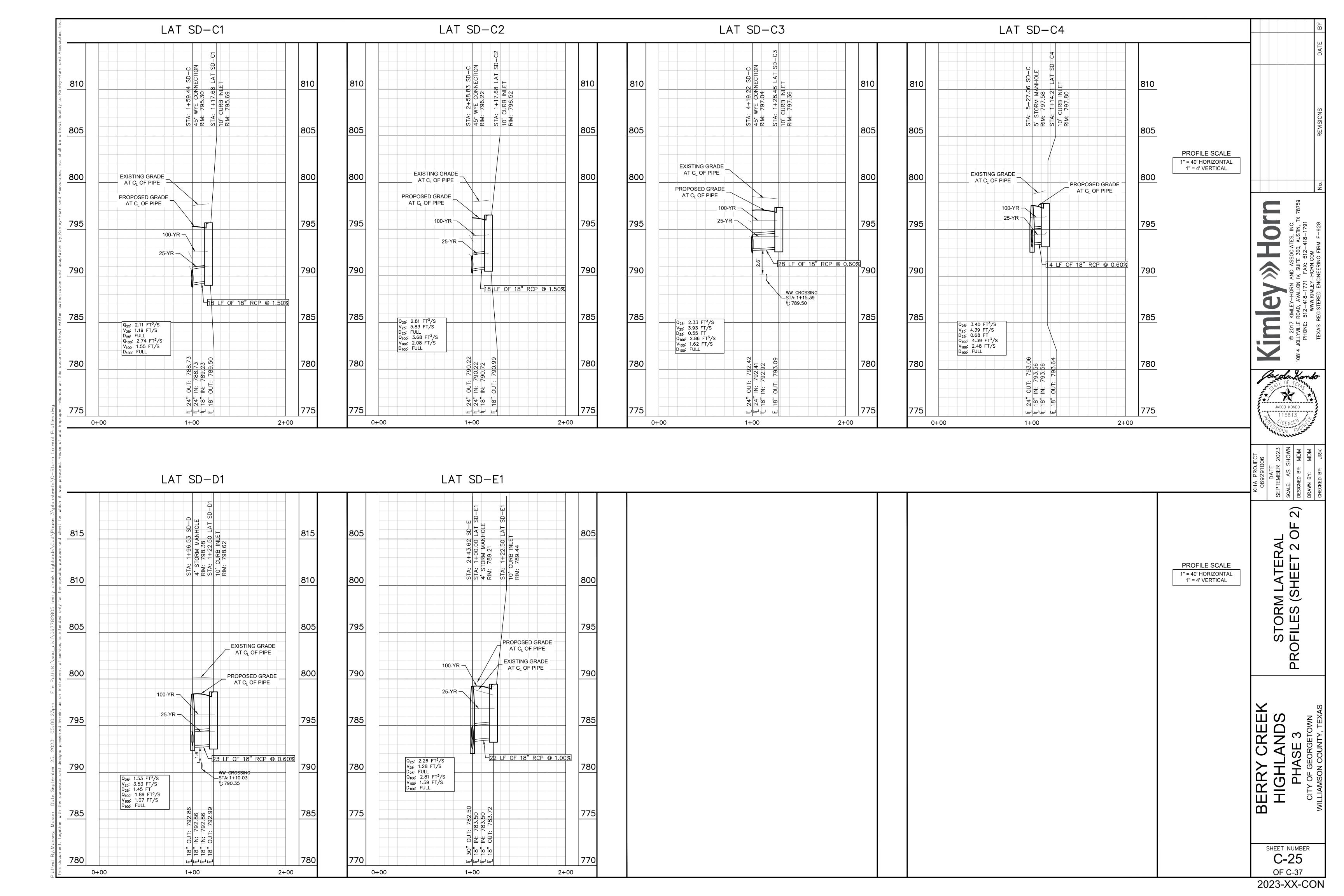


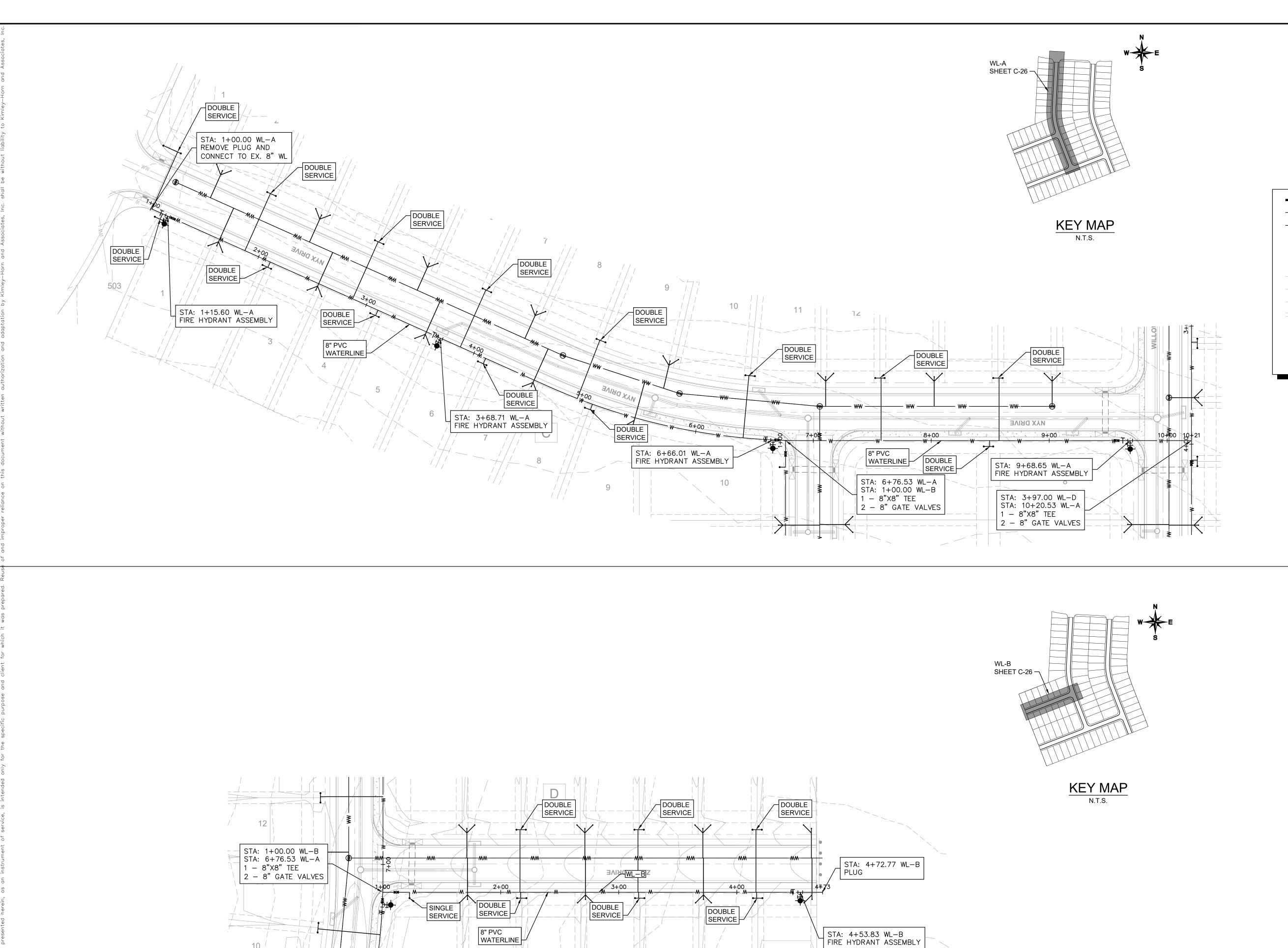


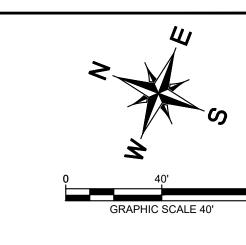






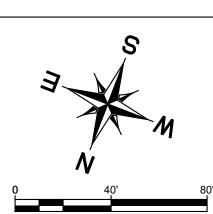


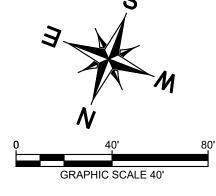




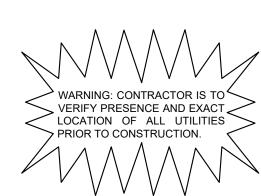
UTILITY LEGEND

	PROPERTY LINE
ww	PROPOSED WASTE WATER LINE
——— w ———	PROPOSED WATER LINE
⊚	PROPOSED WASTE WATER MANHOLE
→	WASTE WATER FLOW DIRECTION
 	PROPOSED FIRE HYDRANT
OHP	EXISTING OVERHEAD POWER LINE
W	EXISTING WATER LINE
	EXISTING WASTE WATER LINE
	EXISTING STORM SEWER LINE
\Diamond	EXISTING POWER POLE
	EXISTING FIRE HYDRANT
\otimes	EXISTING WATER METER
(ii)	EXISTING WASTE WATER MANHOLE









BENCHMARKS

TBM# 101 "⊠" SET IN HEADWALL OF CULVERT LOCATED IN THE MEDIAN OF STATE HIGHWAY AND BONNET LANE. ELEVATION = 821.82 FEET (AS SHOWN)

TBM# 102 "RAIL ROAD SPIKE" IN POWER POLE LOCATED 3.70' FROM THE EASTERLY CORNER OF THAT CERTAIN 3.703 ACRE TRACT.
ELEVATION = 820.55 FEET (AS SHOWN)

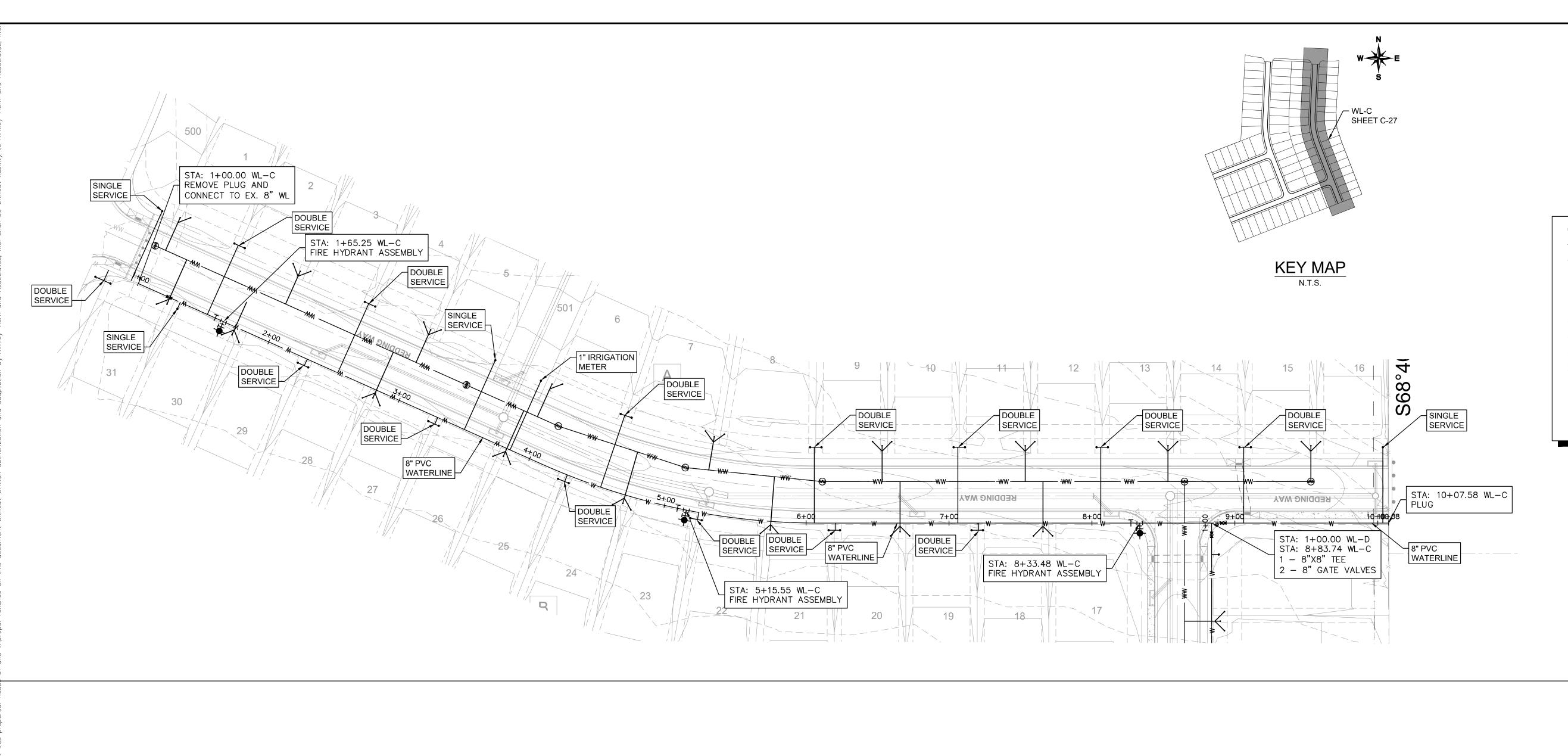
SHEET NUMBER C-26 OF C-37

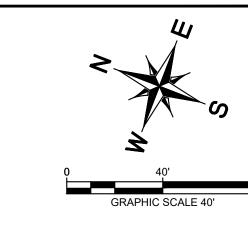
JACOB KONDO

2) 2)

OVERALL WATER (SHEET 1 OF)

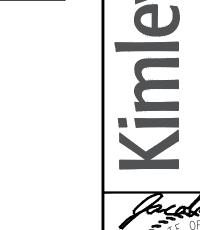
2023-XX-CON





UTILITY LEGEND

	PROPERTY LINE
ww	PROPOSED WASTE WATER LINE
w	PROPOSED WATER LINE
⊚	PROPOSED WASTE WATER MANHOL
─	WASTE WATER FLOW DIRECTION
*	PROPOSED FIRE HYDRANT
OHP	EXISTING OVERHEAD POWER LINE
W	EXISTING WATER LINE
	EXISTING WASTE WATER LINE
=======	EXISTING STORM SEWER LINE
\Diamond	EXISTING POWER POLE
-\$-	EXISTING FIRE HYDRANT
\otimes	EXISTING WATER METER
(m)	EXISTING WASTE WATER MANHOLE

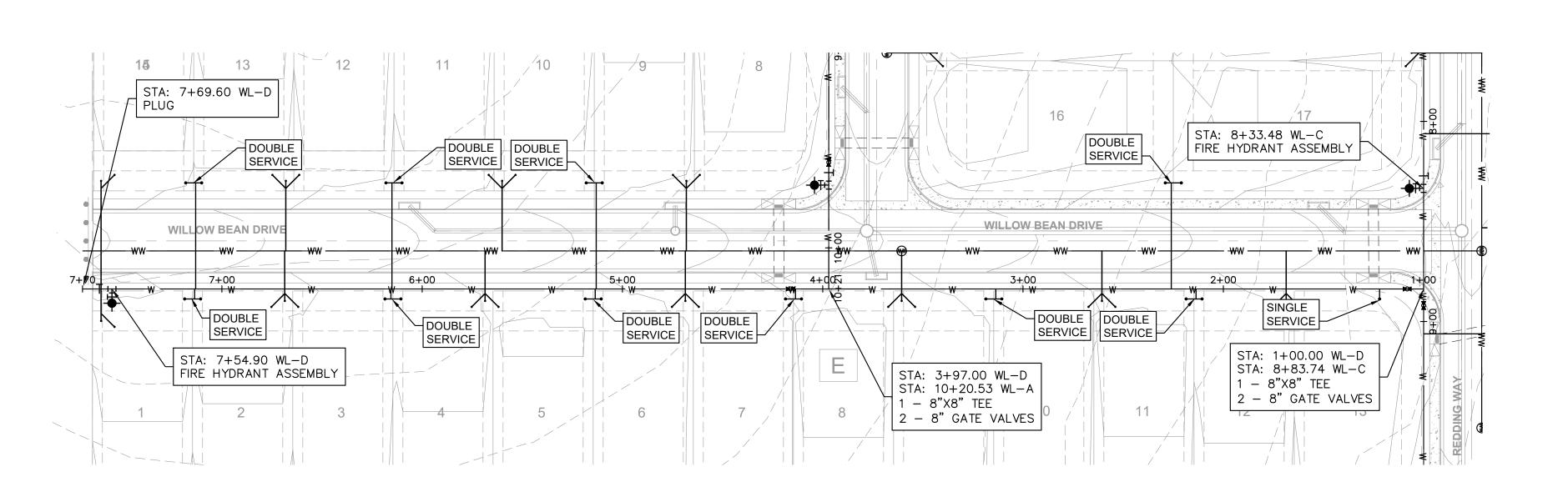


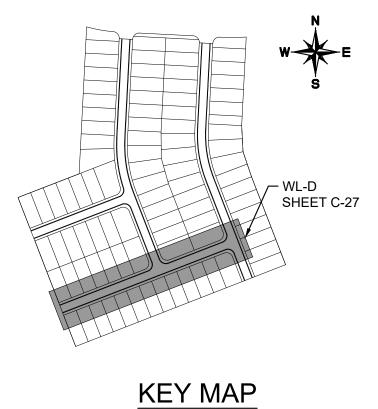


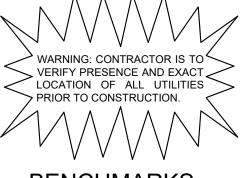
2) 2) OVERALL WATER (SHEET 2 OF

SHEET NUMBER C-27

OF C-37 2023-XX-CON







BONNET LANE. ELEVATION = 821.82 FEET (AS SHOWN) TBM# 102 "RAIL ROAD SPIKE" IN POWER POLE LOCATED 3.70' FROM THE EASTERLY CORNER OF THAT CERTAIN 3.703 ACRE TRACT.
ELEVATION = 820.55 FEET (AS SHOWN)

GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 - 10%
	200 FEET	2 ACRES	10 - 20%
	100 FEET	1 ACRE	20 - 30%
	50 FEET	1/2 ACRE	> 30%
TRIANGLE FILTER DIKE	100 FEET	1/2 ACRE	< 30% SLOPE
	50 FEET	1/4 ACRE	> 30% SLOPE
ROCK BERM *, **	500 FEET	< 5 ACRES	0 - 10%

* FOR ROCK BERM DESIGN WHERE PARAMETERS ARE OTHER THAN STATED, DRAINAGE AREA CALCULATIONS AND ROCK BERM DESIGN MUST BE SUBMITTED FOR REVIEW. ** HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF GEORGETOWN.

The Architect/Engineer assumes responsibility for appropriate

ise of this standard.				
		REVISION NOTE:	ADOPTE	D 6/21/2006
91_	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	DRAWING NAME:		EC01
GEORGETOWN	TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES	scale: NTS	DATE: 1/2003	
TEXAS Georgetown Utility Systems Your Community Owned Utility		DRAWN BY: MRS	APPROVED BY: TRB	

NOTE: THIS SECTION IS INTENDED TO ASSIST THOSE PERSONS PREPARING WATER POLLUTION ABATEMENT PLANS (WPAP) OR STORM WATER POLLUTION PREVENTION PLANS (SW3P) THAT COMPLY WITH FEDERAL, STATE AND/OR LOCAL STORM WATER REGULATIONS.

- THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.
- REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.

 2. ALL PROJECTS WITHIN THE RECHARGE ZONE OF THE EDWARD'S AQUIFER SHALL SUBMIT A BEST MANAGEMENT PRACTICES AND WATER POLLUTION AND ABATEMENT PLAN TO THE TNRCC FOR APPROVAL PRIOR TO ANY CONSTRUCTION.

 3. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN. DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.

 4. ALL PLANTING SHALL BE DONE BETWEEN MAY 1 AND SEPTEMBER 15 EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING. IF PLANTING IS AUTHORIZED TO BE DONE OUTSIDE THE DATES SPECIFIED, THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 10016/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MINIMUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROPRIATE FUNCICIDE AT TIME OF MIXING. SEED SHALL BE FURNISHED IN SEALED, STANDARD CONTAINERS WITH DEALER'S GUARANLEED ANALYSIS.

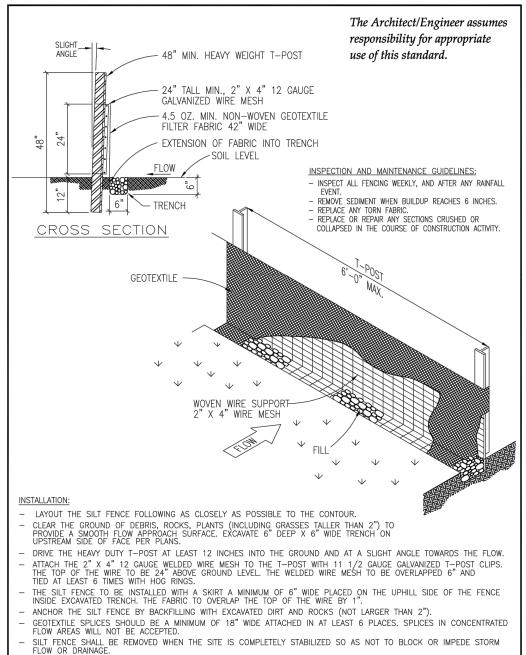
 5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN
- 5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN. 6. THE PLANTED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF FOUR (4) INCHES. THE IRRIGATION TO OCCUR AT 10-DAY INTERVALS DURING THE FIRST TWO MONTHS TO INSURE GERMINATION AND ESTABLISHMENT OF THE GRASS . RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTPONE THE WATERING SCHEDULE ONE WEEK.

 7. RESTORATION TO BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1-1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 25 SQUARE FEET EXIST.
- 8. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL TO BE PLACED IN ALL AREAS DISTURBED BY CONSTRUCTION. 9. THE CONTRACTOR TO HYDROMULCH OR SOD (AS SHOWN ON PLANS) ALL EXPOSED CUTS AND FILLS UPON COMPLETION OF CONSTRUCTION.
- 10. EROSION AND SEDIMENTATION CONTROLS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRIPLINE.
- 11. TO AVOID SOIL COMPACTION, CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS IN THE TREE DRIPLINE AREAS. 12. WHERE A FENCE IS CLOSER THAN FOUR (4) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE FENCING.
- TREES TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.

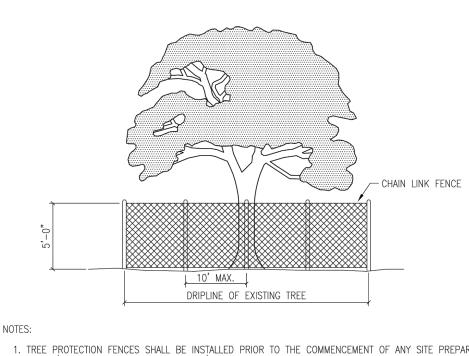
 14. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
- 15. CONTRACTOR TO PRUNE VEGETATION TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.). ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE "NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES").
- 16. THE CONTRACTOR IS TO INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/4
 INCH TO VERIFY THAT THEY HAVE NOT BEEN SIGNIFICANTLY DISTURBED. ANY ACCUMULATED SEDIMENT AFTER A
 SIGNIFICANT RAINFALL TO BE REMOVED AND PLACED IN THE OWNER DESIGNATED SPOIL DISPOSAL SITE. THE CONTRACTOR
 TO CONDUCT PERIODIC INSPECTIONS OF ALL EROSION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR
 MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
- 17. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'-4') BEHIND THE AREA IN QUESTION.
- 18. NO ABOVE AND/OR BELOW GROUND TEMPORARY FUEL STORAGE FACILITIES TO BE STORED ON THE PROJECT SITE. 19. IF EROSION AND SEDIMENTATION CONTROL SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER'S REPRESENTATIVE AND THE CONTRACTOR TO EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEMS FOR DAMAGE PRIOR TO CONSTRUCTION. ANY DAMAGE TO PREEXISTING EROSION AND SEDIMENTATION CONTROLS NOTED TO BE REPAIRED AT OWNERS EXPENSE.
- INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

		REVISION NOTE:	ADOPTE	0 6/21/20
4	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS EROSION AND SEDIMENTATION AND	DRAWING NAME:	E	CO1A
GEORGETOWN	TREE PROTECTION NOTES	SCALE: NTS	1/2003	
Orgetown Utility Systems Your Community Owned Utility		DRAWN BY: MRS	APPROVED BY: TRB	

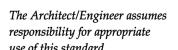


OR DRAINAGE.	WHEN THE SITE IS COMPLETEL.	L 214BILIZED 20 A	2 NOT 10	BLOCK OR	IMPEDE SI
			REVISION NOTE:	ADOPTEL	0 6/21/2
H	CITY OF GEORG CONSTRUCTION STANDARI		DRAWING NAME:	[EC02
	SILT FENCE I)FTAII			

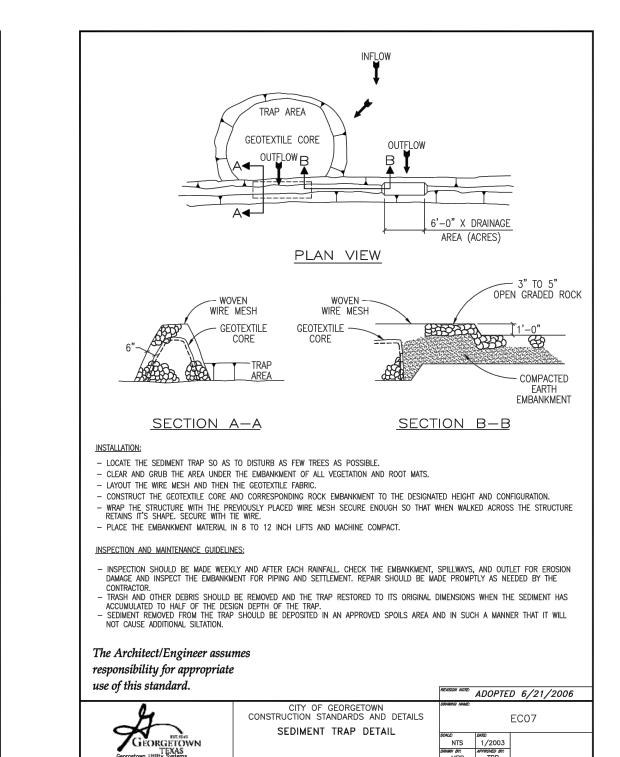


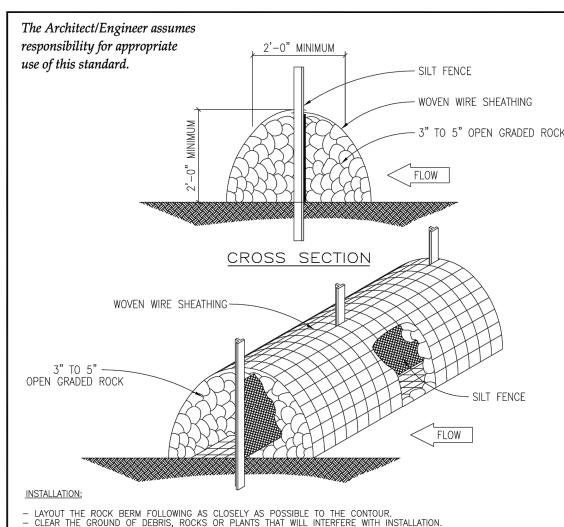
I. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).

- FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES; WILL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
- A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS. B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6") CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
- C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT. D. OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING 3. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
- A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
- B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.



se of this standard.				
		REVISION NOTE:	ADOPTE	D 6/21/200
4_	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	DRAWING NAME:		EC09
GEORGETOWN	TREE PROTECTION — CHAIN LINK FENCE	scale: NTS	1/2003	
TEXAS		DRAWN BY:	APPROVED BY:	





 LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
 CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
 PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM. INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT. INSTALLATION SHOULD BE AS DESCRIBED IN DRAWING NO. EC-02 "SILT FENCE DETAIL".

- PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND ON BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT. - WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.

- SECURE WITH TIE WIRE.

- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:

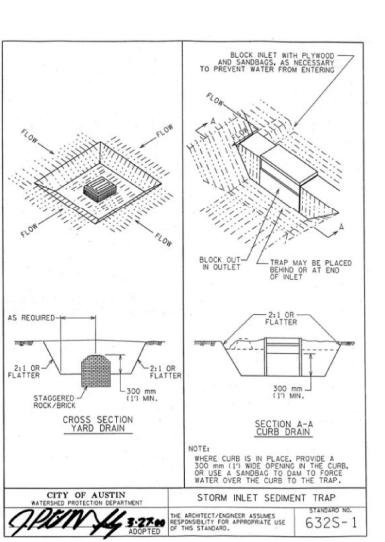
 INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
 REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.

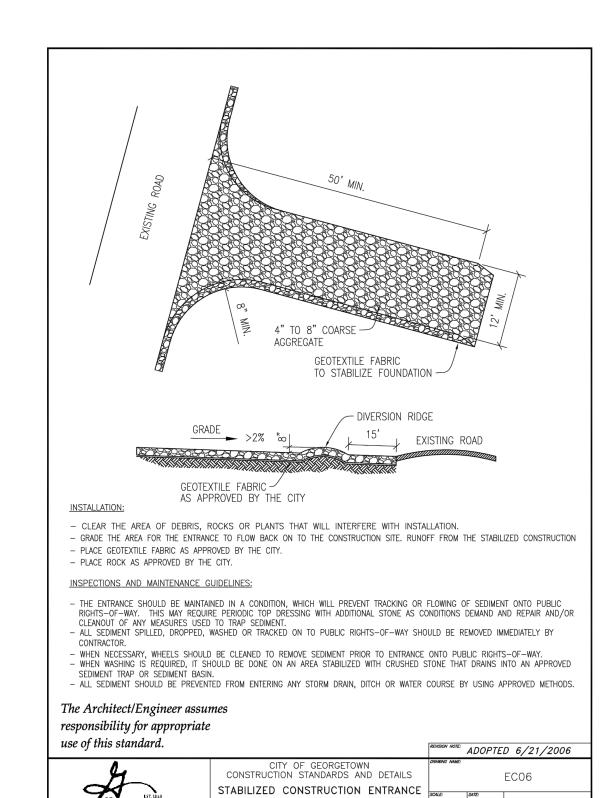
REPAIR ANY LOOSE WIRE SHEATHING.

THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.

THE BERM SHOULD BE REPLACES WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

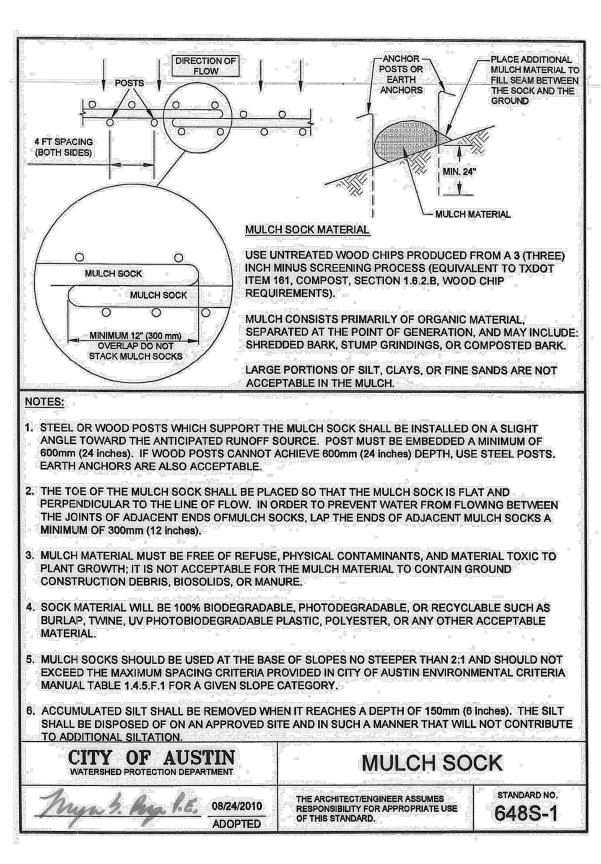
		REVISION NOTE:	ADOPTE	D 6/21/2006
4	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS HIGH SERVICE ROCK BERM DETAIL	DRAWING NAME:		EC04
GEORGETOWN TEXAS Georgetown Utility Systems Your Community Owned Utility	THOM SERVICE ROOK BERM BETAIL	NTS DRAWN BY: MRS	1/2003 APPROVED BY: TRB	

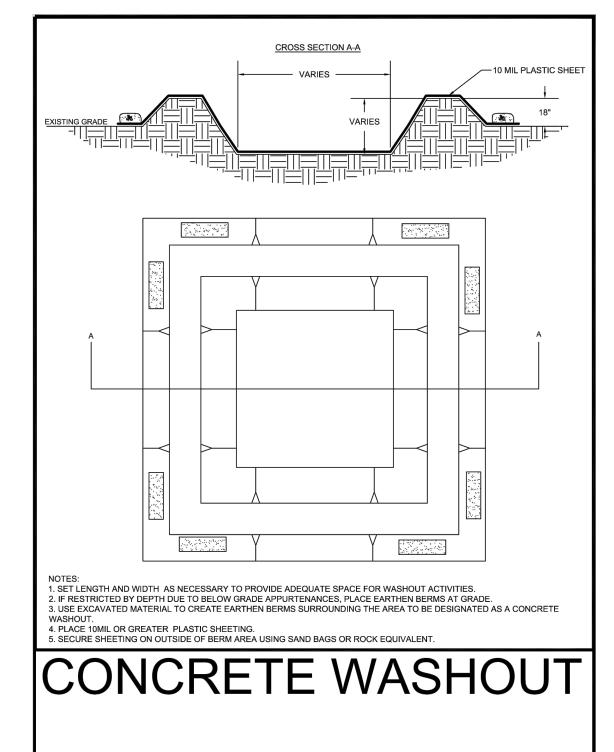




DRAWN BY: APPROVED BY:

MRS TRB





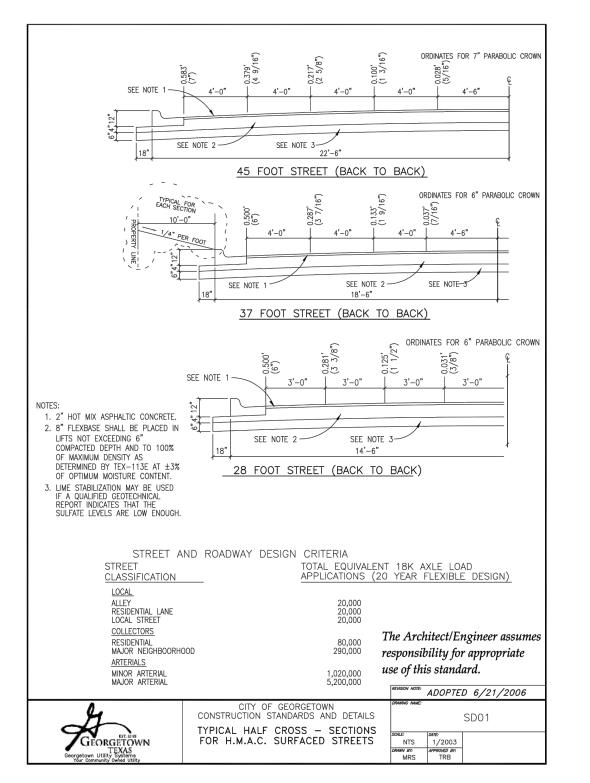
JACOB KONDO

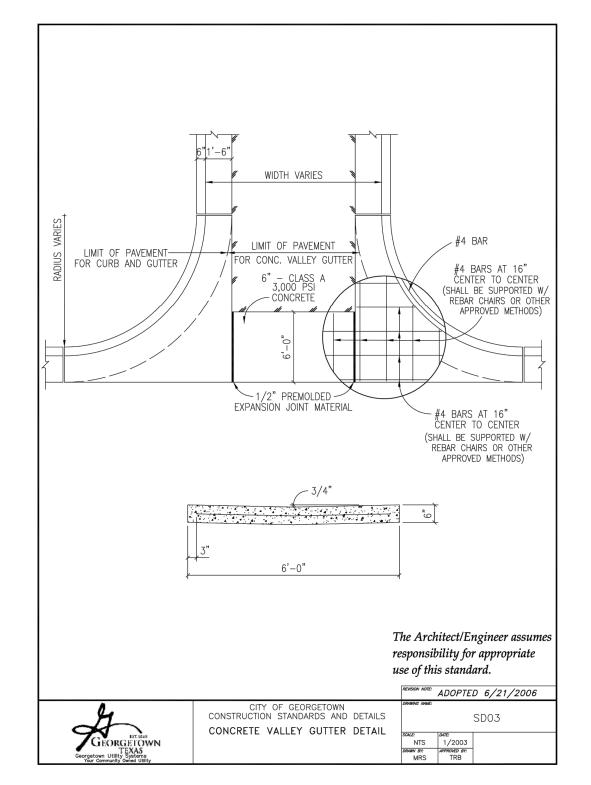
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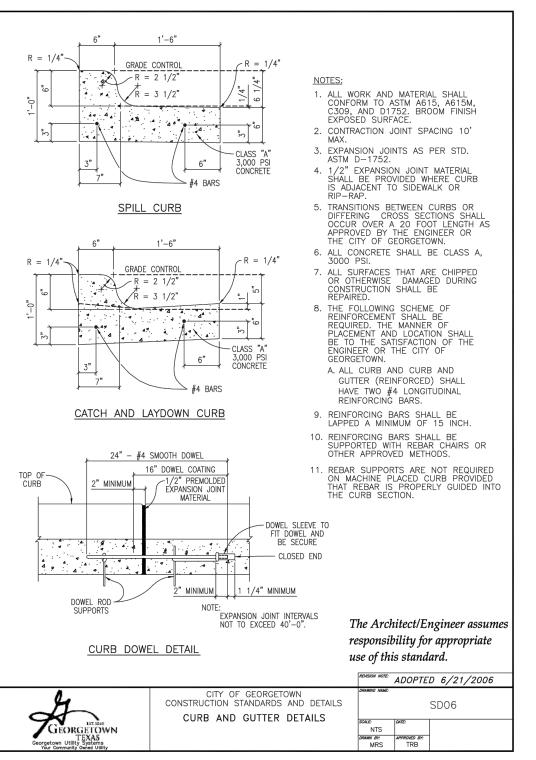
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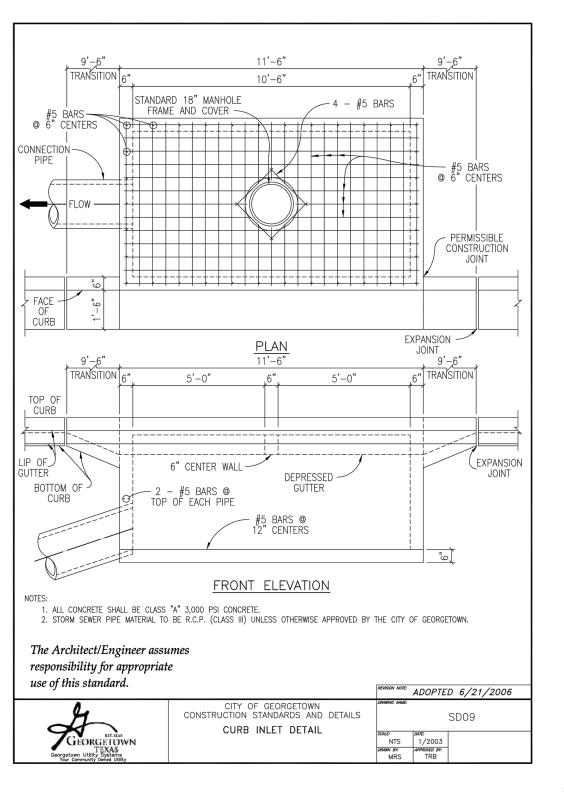
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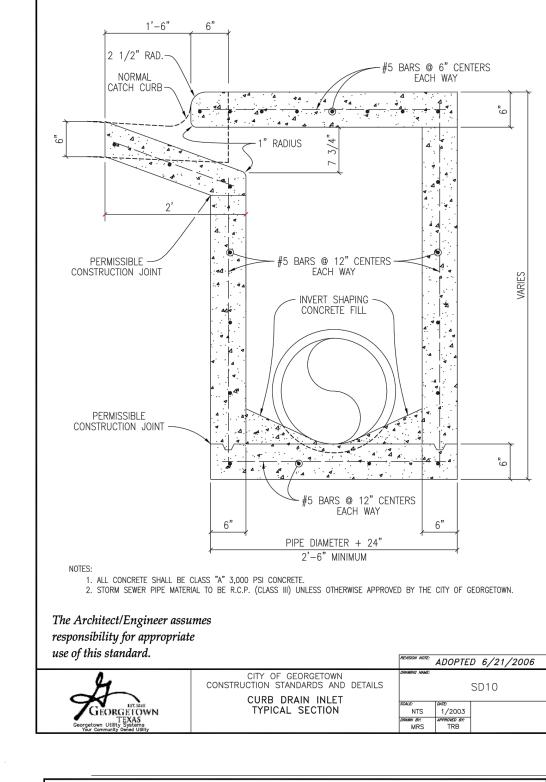
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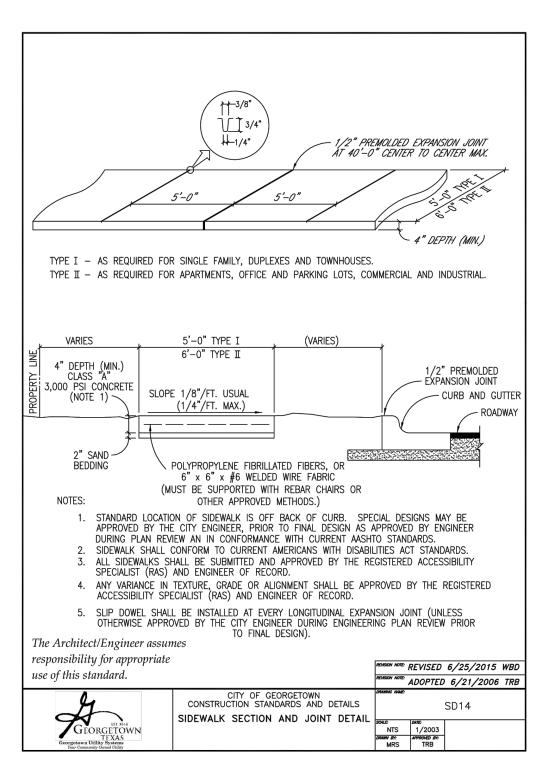


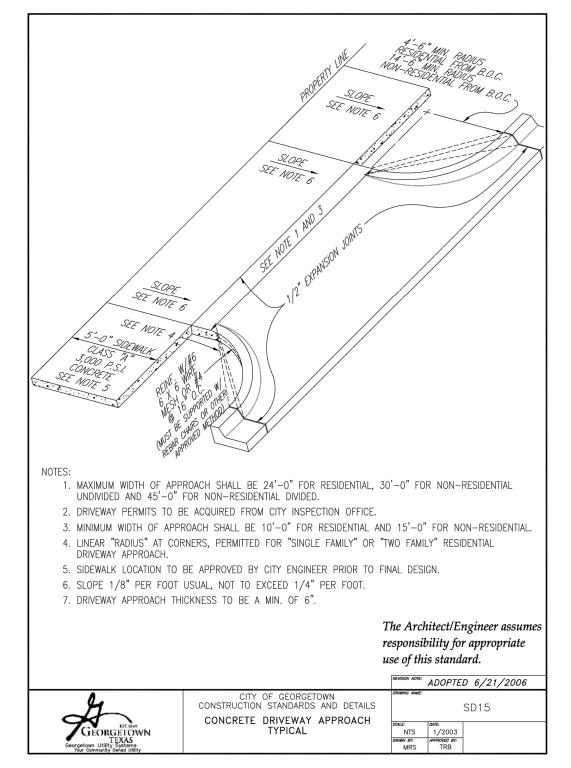


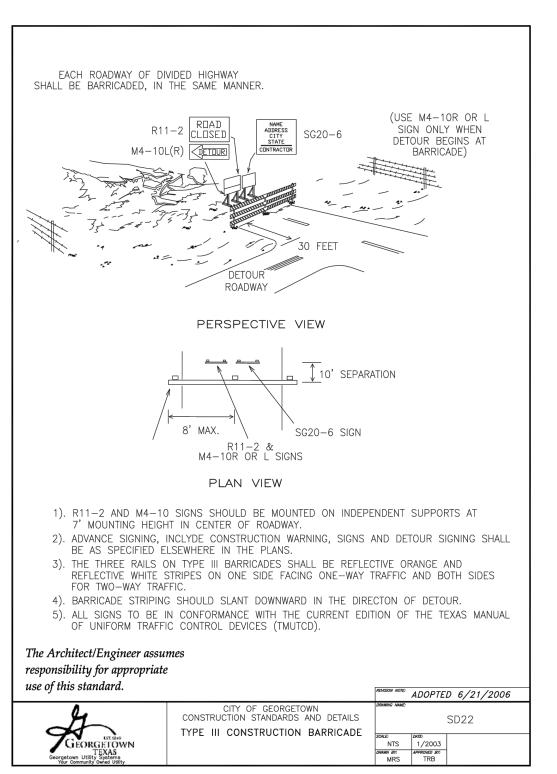


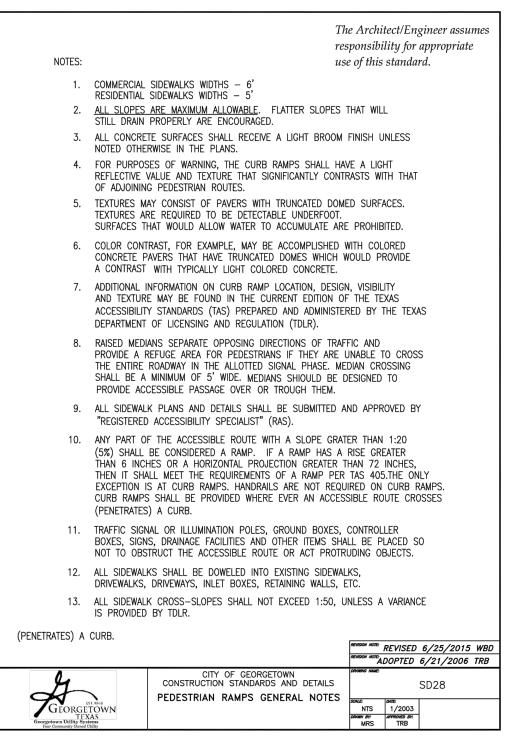


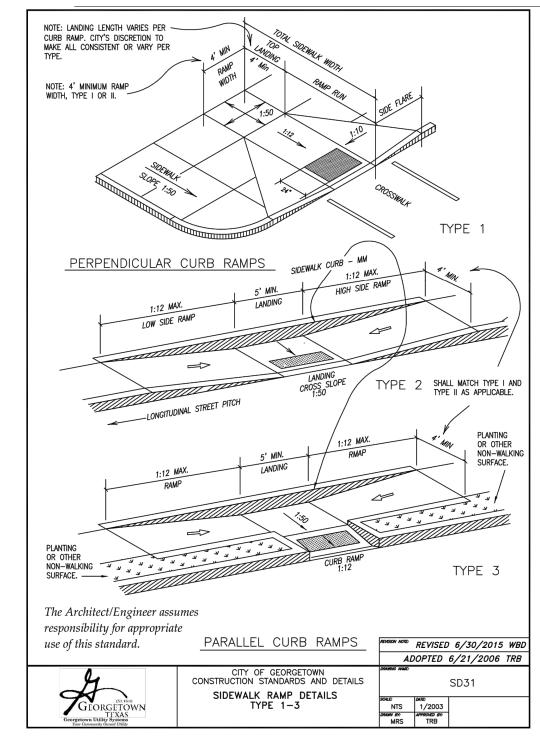


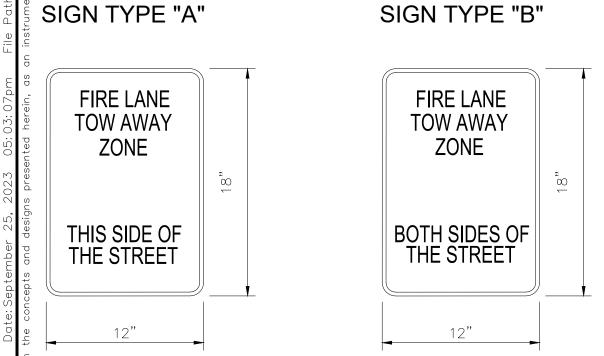








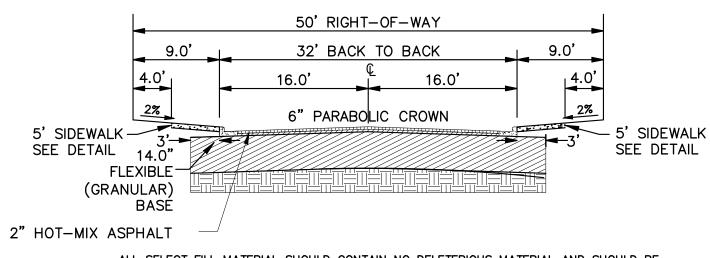




FIRE LANE SIGNS

SIGN SHALL BY 12" WIDE AND 18" IN HEIGHT WITH RED LETTERING ON A WHITE REFLECTIVE BACKGROUND AND BORDER IN RED.

SIGNS SHALL BE MOUNTED CONSPICUOUSLY ALONG THE EDGE OF THE FIRE LANE. SIGN MUST BE AT THE BEGINNING OF A STREET AND SPACED NO MORE THAN 250 FEET APART AT A MINIMUM HEIGHT OF 7 FEET ABOVE FINISHED GRADE.

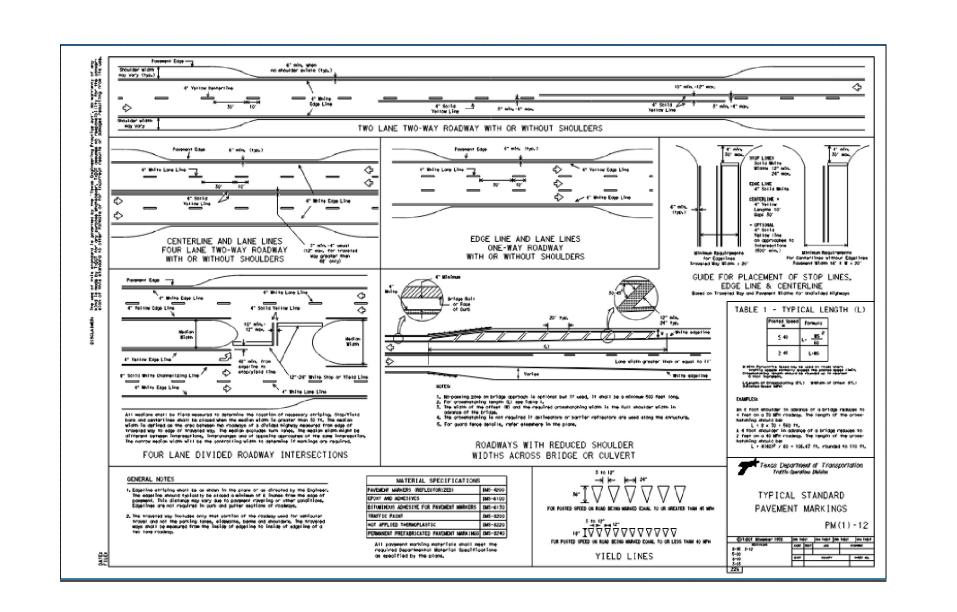


ALL SELECT FILL MATERIAL SHOULD CONTAIN NO DELETERIOUS MATERIAL AND SHOULD BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% STD. PROCTOR TEST.

REFERENCE GEOTECHNICAL REPORT PSI PROJECT# _22101103.001 DATED OCTOBER 2022. BY MLA, STREET CROSS SLOPE NOT TO EXCEED 2%

ALL EMBANKMENT, SUBGRADE, FLEXIBLE BASE, ASPHALT AND TESTING WILL FOLLOW ALL REQUIREMENTS OF THE GEORGETOWN CONSTRUCTION STANDARDS AND SPECIFICATIONS.

LOCAL ROADWAY

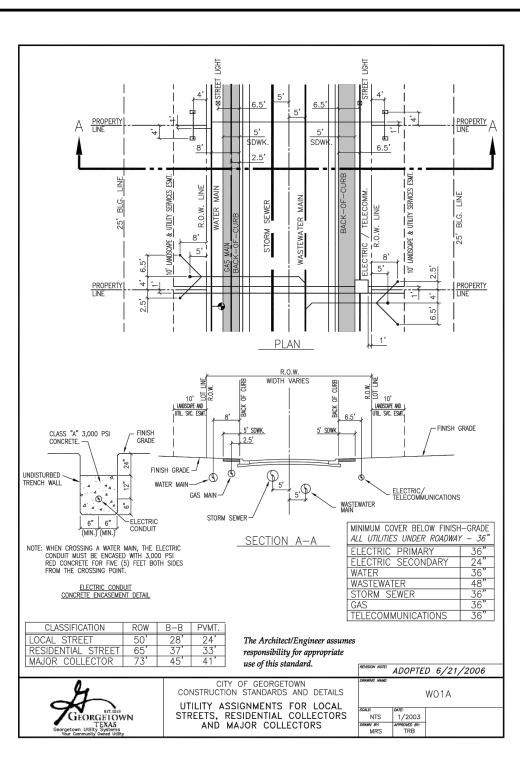


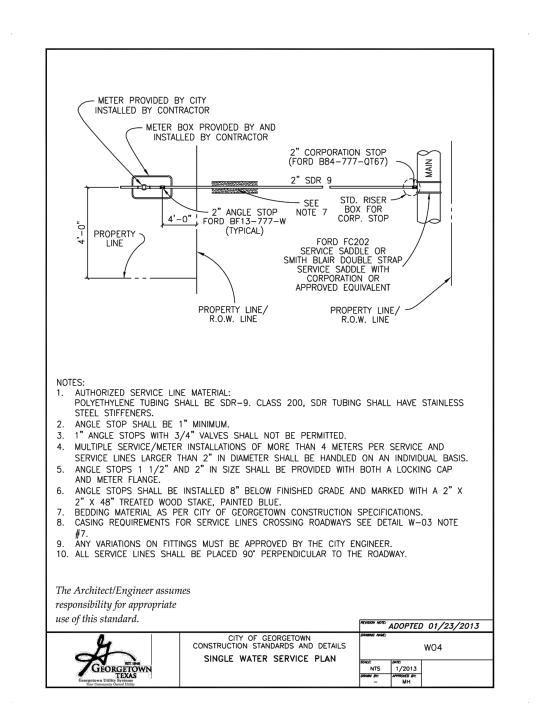


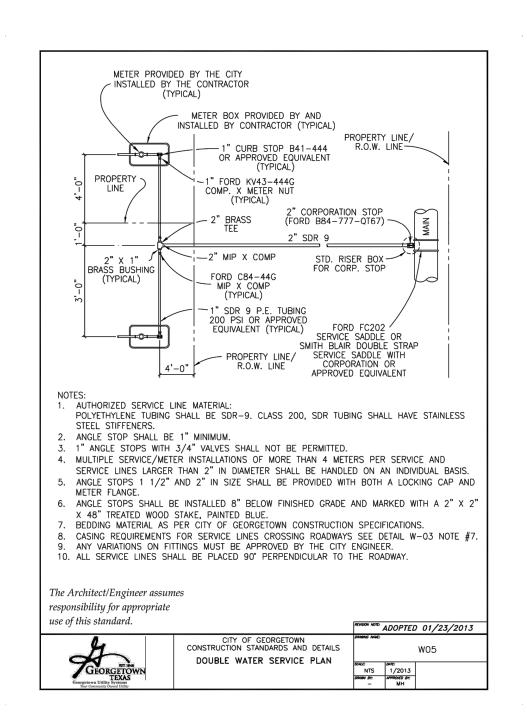
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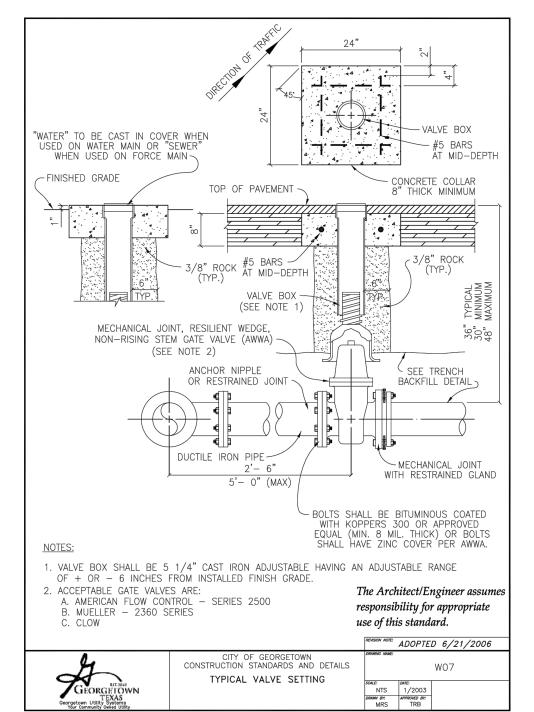
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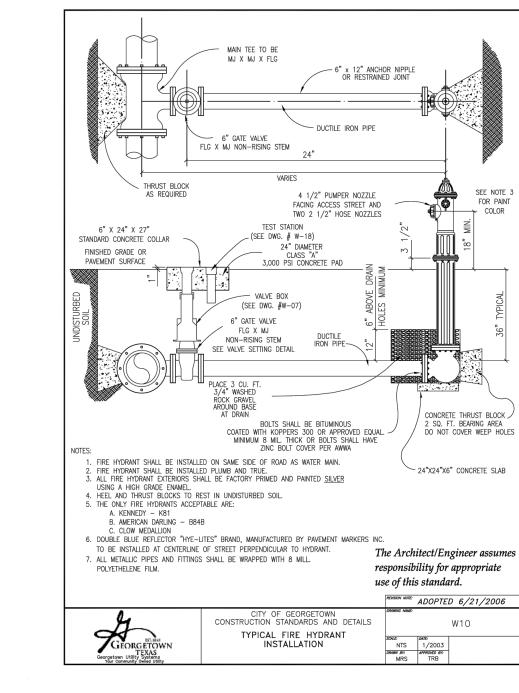
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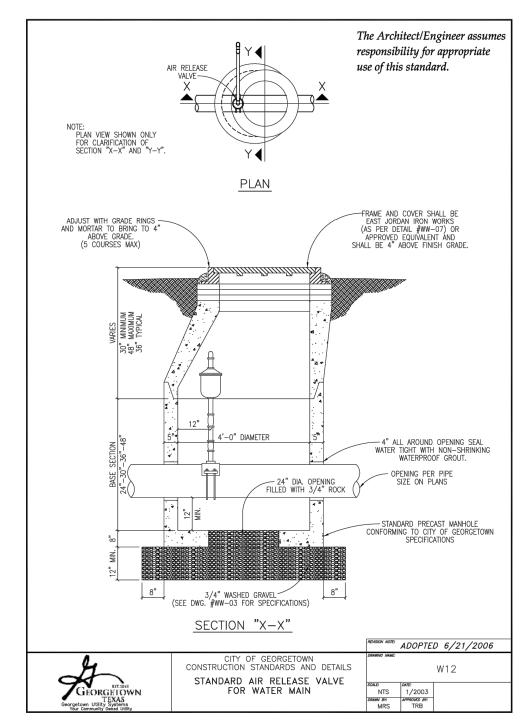


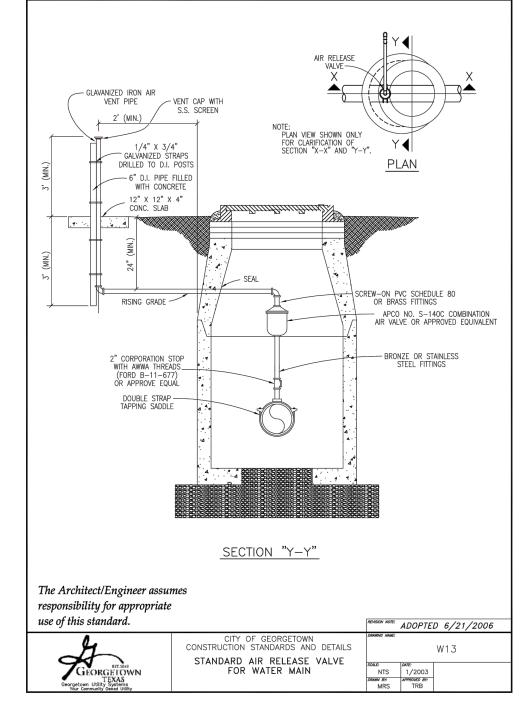


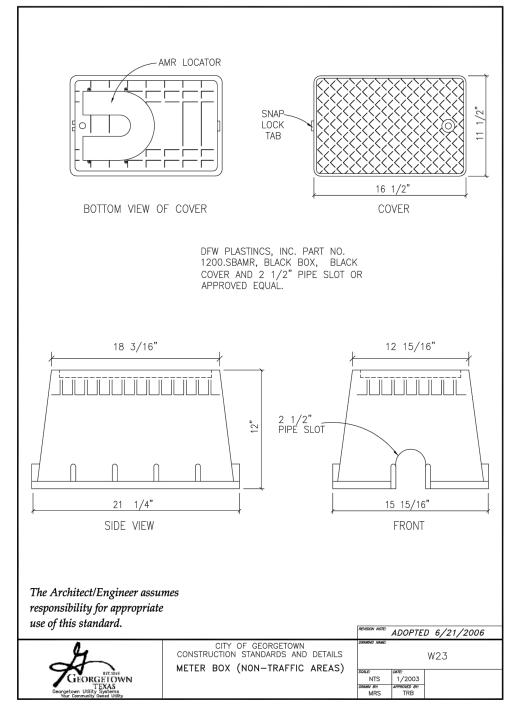


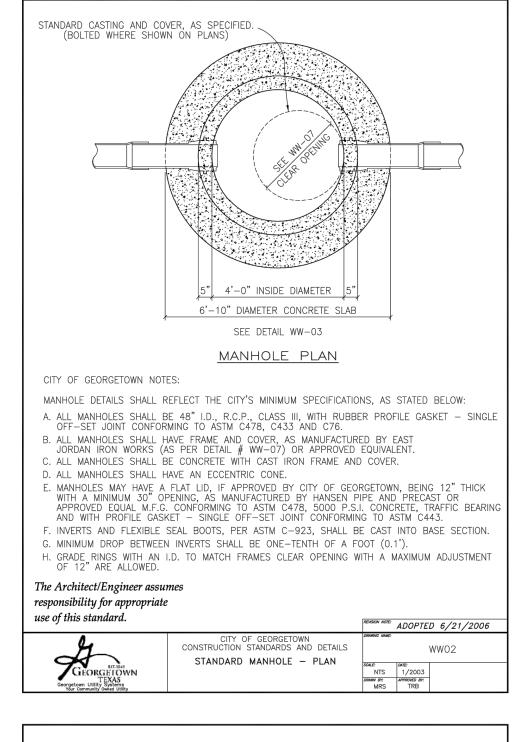


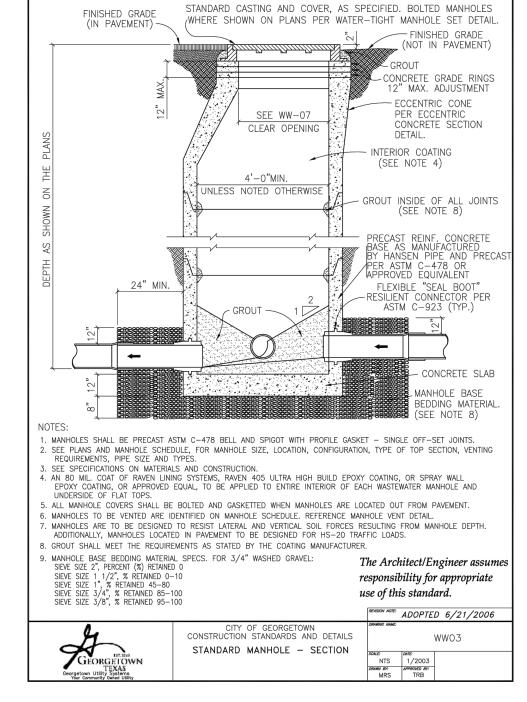


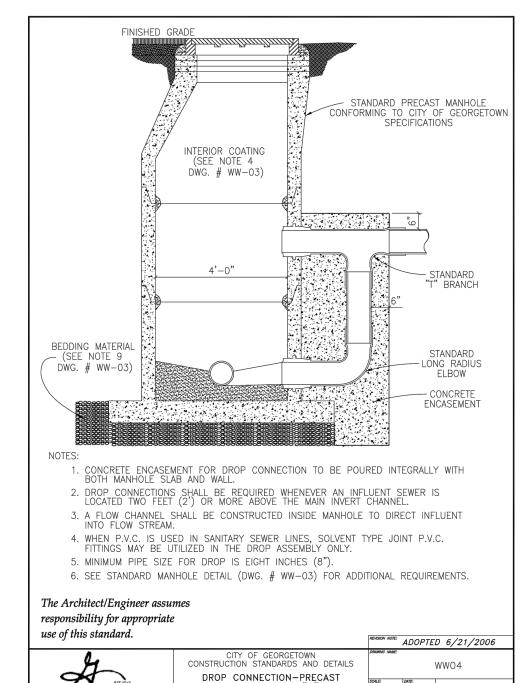


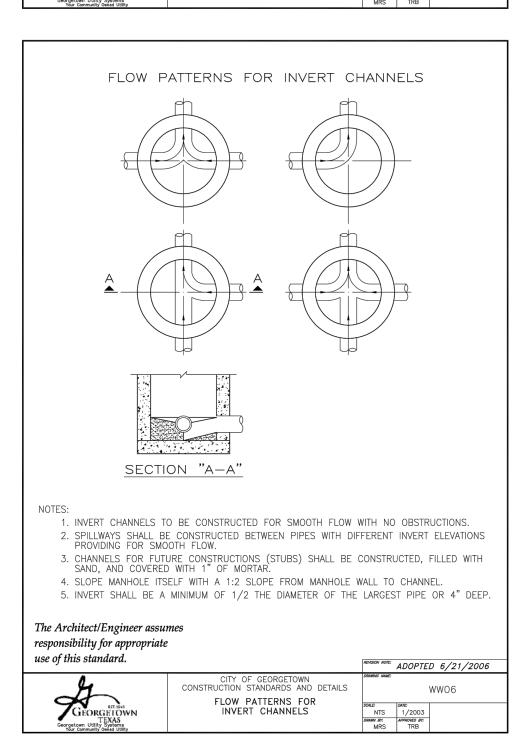


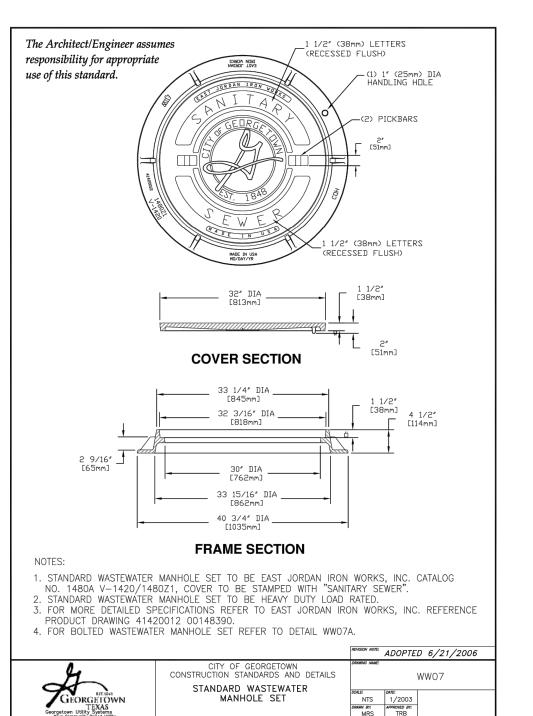


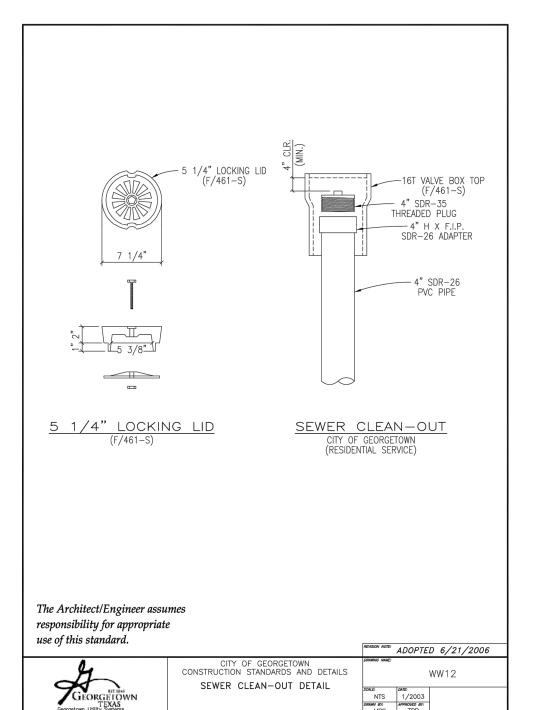


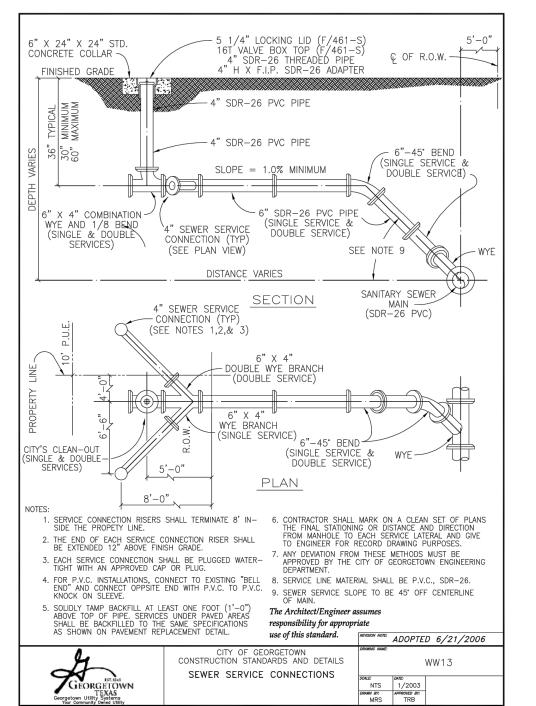














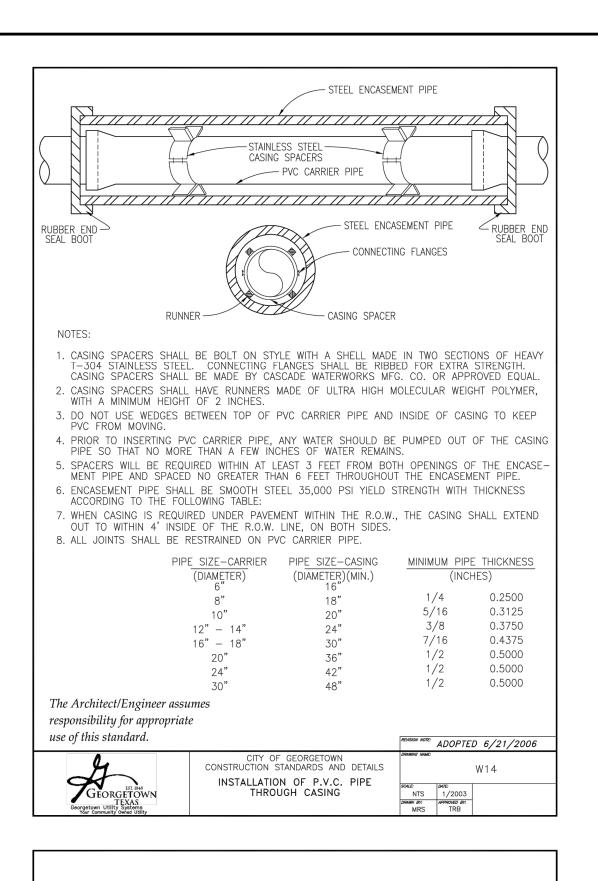
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➤ SUBBASE

The Architect/Engineer assumes

responsibility for appropriate

REVISION NOTE: ADOPTED 6/21/2006

use of this standard.

(SEE SURFACED

ROADWAY FLEXIBLE BASE COURSE SEE SURFACED STREETS DETAILS -

COMPACTED SELECT FIL OF GEORGETOWN SPECIFICATIONS.

UNDISTURBED TRENCH WALL -

AS PER TYPICAL BEDDING SPECIFICATIONS IN CITY OF GEORGETOWN

CONSTRUCTION SPECIFICATIONS.

CONSTRUCTION SPECIFICATIONS AND STANDARDS.

(SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

STORM SEWER LINE -

1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN

2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL

TRENCH WIDTHS

*PIPE LESS THAN 20" DIAMETER

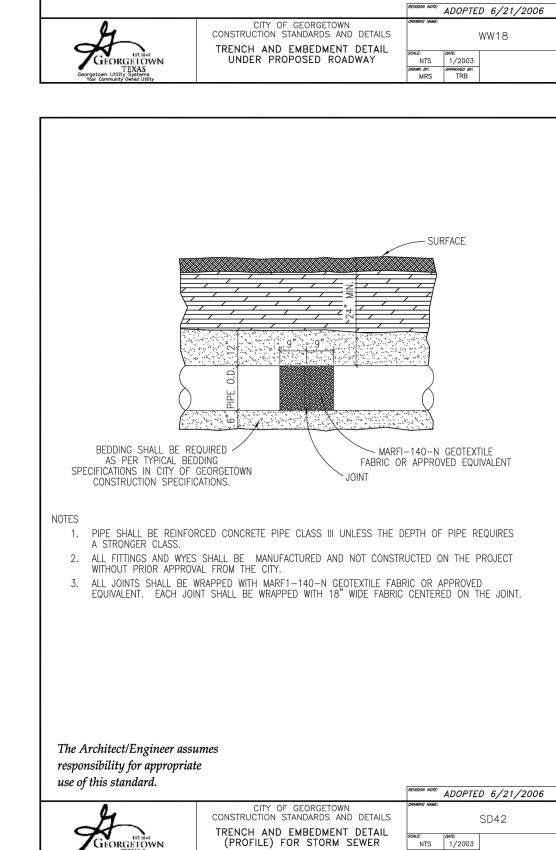
1'-0" + PIPE O.D.

*20" DIAMETER PIPE AND LARGER 2'-0" + PIPE O.D.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY FOR STORM SEWER

AND SPECIFICATIONS)



ROADWAY FLEXIBLE BASE COURSE

AND SPECIFICATIONS)

SEE SURFACED STREETS DETAILS

UNDISTURBED TRENCH WALL -

AS PER TYPICAL BEDDING
SPECIFICATIONS IN CITY OF GEORGETOWN

CONSTRUCTION SPECIFICATIONS.

WASTFWATER LINE -

|PIPE O.D. + 12"|

TRENCH WIDTHS

*PIPE LESS THAN 20" DIAMETER

1'-0" + PIPE O.D.

*20" DIAMETER PIPE AND LARGER

2'-0" + PIPE O.D.

CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL

. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN

(SDR-26 PVC)

CONSTRUCTION SPECIFICATIONS AND STANDARDS.

(SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

COMPACTED SELECT FI IN ACCORDANCE WITH CIT

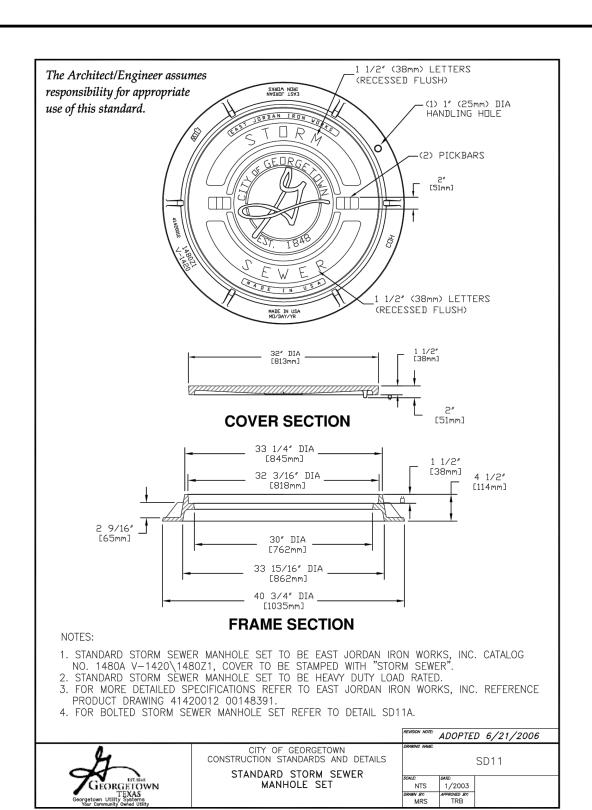
OF GEORGETOWN SPECIFICATIONS.

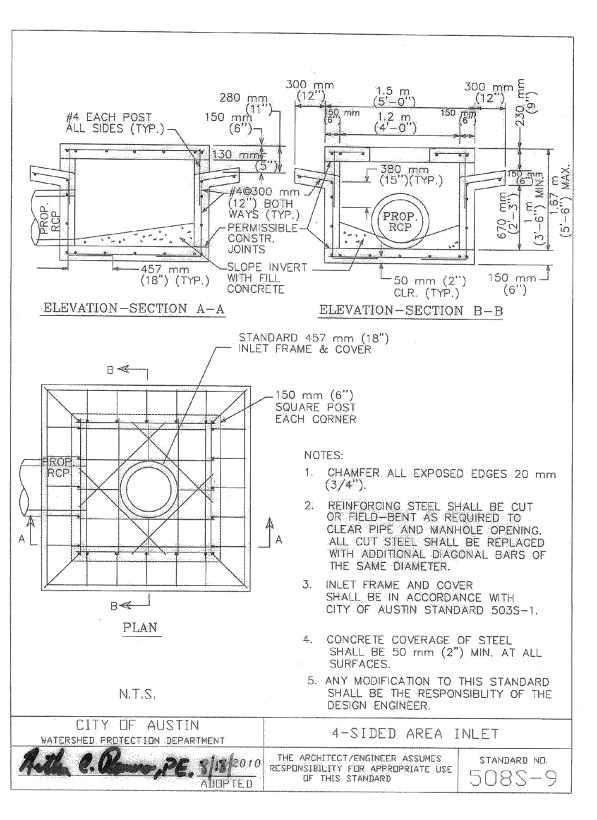
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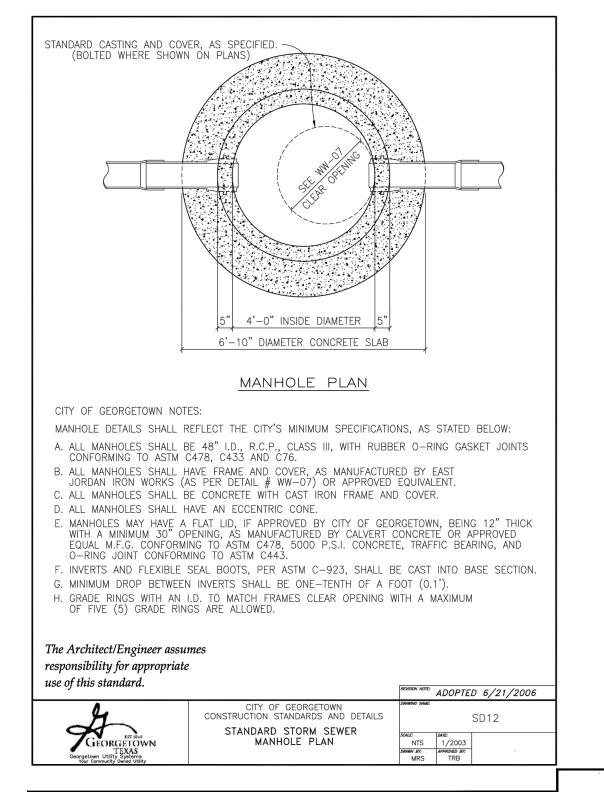
The Architect/Engineer assumes

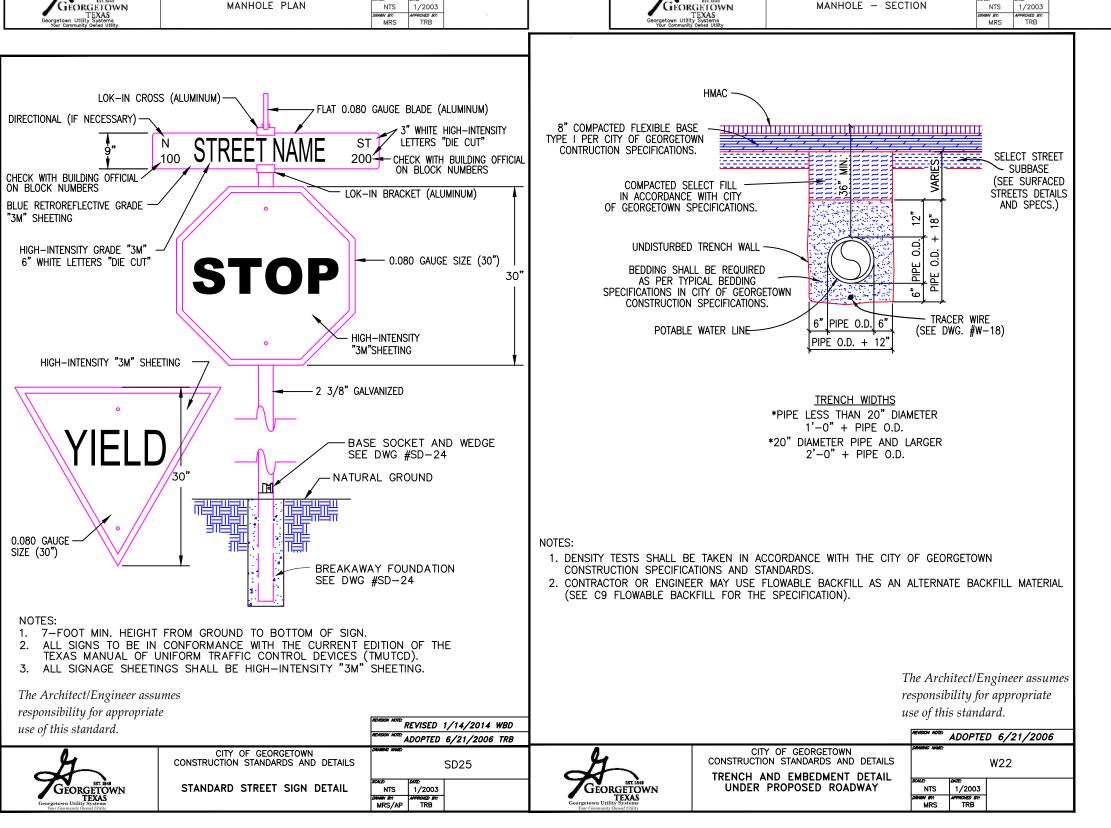
responsibility for appropriate

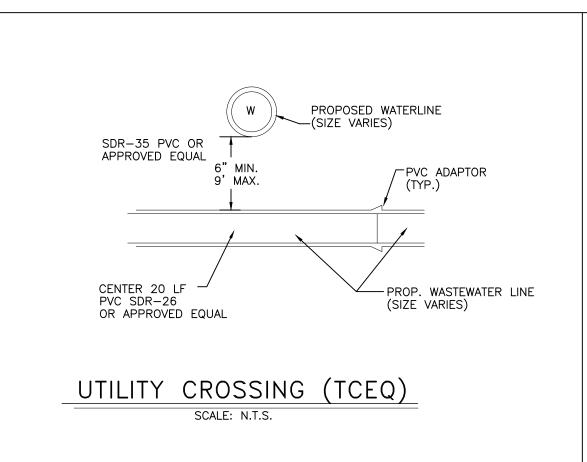
use of this standard.

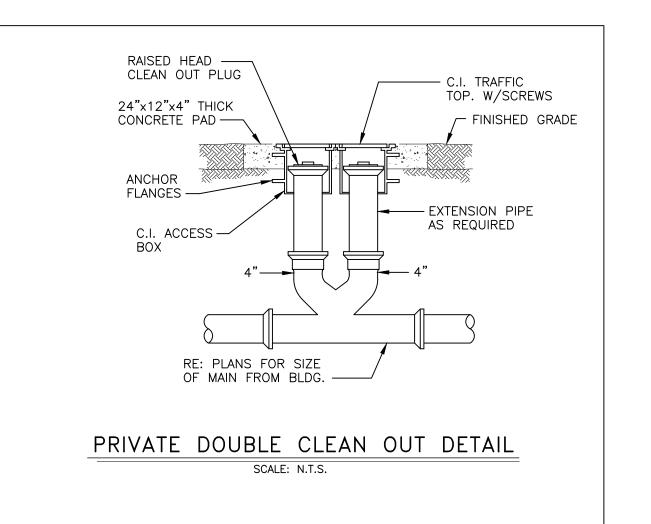




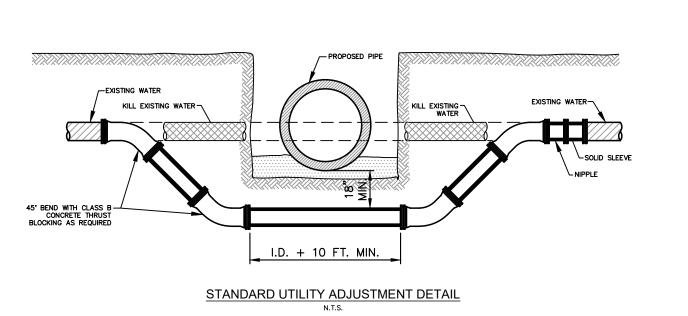


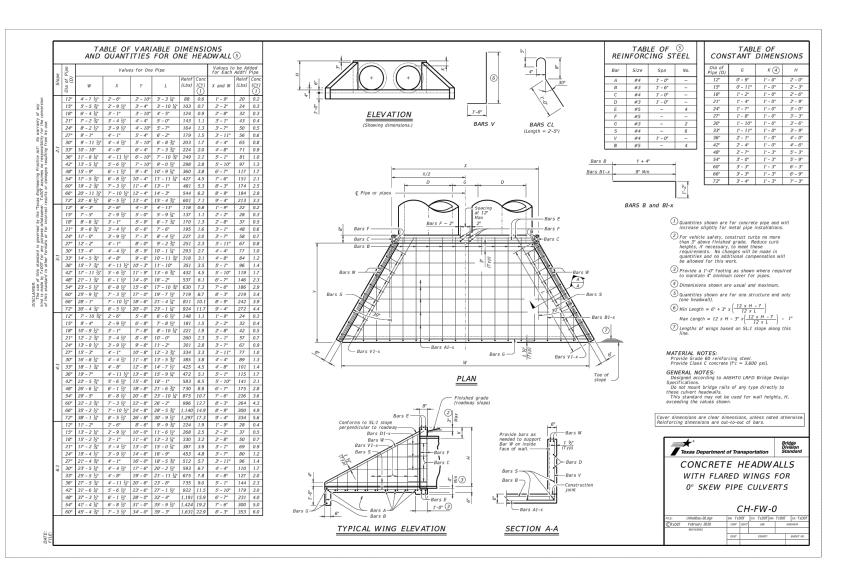






(PROFILE) FOR STORM SEWER





STANDARD CASTING AND COVER, AS SPECIFIED. BOLTED MANHOLES WHERE SHOWN ON PLANS PER WATER-TIGHT MANHOLE SET DETAIL. (IN PAVEMENT) (NOT IN PAVEMENT) ONCRETE GRADE RINGS PER ECCENTRIC CONCRETE SECTION CLEAR OPENIN INTERIOR COATING (SEE NOTE 4) UNLESS NOTED OTHERWISE GROUT INSIDE OF ALL JOINTS (SEE NOTE 8) FLEXIBLE "SEAL BOOT"

RESILIENT CONNECTOR PER ASTM C-923 (TYP.) **←** - CONCRETE SLAB MANHOLE BASE BEDDING MATERIA . MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET - SINGLE OFF-SET JOINTS. 8. MANHOLE BASE BEDDING MATERIAL SPECS. FOR 3/4" WASHED GRAVEL: . SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION. SIEVE SIZE 1", % RETAINED 45–80 SIEVE SIZE 3/4", % RETAINED 85– . AN 80 MIL COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY SIEVE SIZE 3/4", % RETAINED 85–10 SIEVE SIZE 3/8", % RETAINED 95–1 COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH STORM SEWER MANHOLE AND UNDERSIDE OF FLAT TOPS. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETTED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT. . MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE. REFERENCE MANHOLE MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES MANHOLES ARE TO BE DESIGNED TO RESIST EMERAL AND VERTICAL SOIL FORCES
RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO
BE DESIGNED FOR HS—20 TRAFFIC LOADS. The Architect/Engineer assume responsibility for appropriate . GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER. use of this standard. REVISION NOTE: ADOPTED 6/21/2006 CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS SD13 GEORGETO STANDARD STORM SEWER



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Texas Commission on Environmental Quality Organized Sewage Collection System General Construction Notes

Edwards Aquifer Protection Program Construction Notes - Legal Disclaimer The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approv by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 21 as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases or "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title

- 1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications. 2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific
- conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include
- the name of the approved project; - the activity start date; and the contact information of the prime contractor.
- 4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval including the payment of appropriate fees and all information necessary for its review and
- 5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.
- 6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

TCEQ-0596 (Rev. July 15, 2015)

Texas Commission on Environmental Quality Lift Station and Force Main General Construction Notes

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

- 1. This lift station and/or force main must be constructed in accordance with 30 Texas (TCEQ) Edwards Aquifer Rules, and any local government standard specifications.
- 2. Any modification to the activities described in the referenced Lift Station/Force Main (LSFM) System application following the date of approval may require the submittal of a LSFM System application to modify this approval, including the payment of appropriate fees and all
- 3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
 - the name of the approved project; the activity start date; and the contact information of the prime contractor.
- 4. Upon completion of any lift station excavation, a geologist must certify that the excavation has been inspected for the presence of sensitive features. The certification must be signed sealed, and dated by the geologist preparing the certification. Certification that the excavation has been inspected must be submitted to the appropriate regional office. If sensitive feature(s) are identified, all regulated activities near the sensitive feature must be suspended immediately and may not proceed until the executive director has reviewed nd approved the methods proposed to protect any sensitive feature and the Edwards Aguifer from potentially adverse impacts to water quality from the lift station. tion may continue if the geologist certifies that no sensitive feature or features were
- 5. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovery. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing within two working days. The applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially

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- executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.
- Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches
- Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are
- All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole. The diameter of the manholes must be a minimum of four feet and the manhole for entry must
- have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer ine/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet __ of __. It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited
- 10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer

- pipe must be achieved by the following procedure which is recommended by the pipe If pipe flexure is proposed, the following method of preventing deflection of the joint must be Specific care must be taken to ensure that the joint is placed in the center of the trench and
- 12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs mus be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were no anticipated at the time of original construction or that are to be connected to an existing sewe line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

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adverse impacts to water quality while maintaining the structural integrity of the line 6. All force main lines must be tested in accordance with 30 TAC §217.68. Testing method will - A pressure test must use 50 pounds per square inch above the normal operating pressure of a force main.

- A temporary valve for pressure testing may be installed near the discharge point of a force main and removed after a test is successfully complete - A pump isolation valve may be used as an opposite termination point. - A test must involve filling a force main with water. - A pipe must hold the designated test pressure for a minimum of 4.0 hours. The leakage rate must not exceed 10.0 gallons per inch diameter per mile of pipe per

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

THESE LIFT STATION AND FORCE MAINS CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals) The private service lateral stub-outs must be installed as shown on the plan and profile sheets

Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. ligid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes

on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan

- 14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E)
- 15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be: For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must (1) Low Pressure Air Test
 - (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph. (B) For sections of collection system pipe less than 36 inch average inside

tested as required by paragraph (2) of this subsection.

A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is

diameter, the following procedure must apply, unless a pipe is to be

computed from the following equation: Equation C.3 $0.085 \times D \times K$

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- T = time for pressure to drop 1.0 pound per square inch gauge in
- 0.000419 X D X L, but not less than 1.0 D = average inside pipe diameter in inches

13.676 17.309

(seconds)

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time. (E) If any pressure loss or leakage has occurred during the first 25% of a

length of line of same size being tested, in feet

time for each pipe diameter is shown in the following Table C.3:

rate of loss, 0.0015 cubic feet per minute per square foot internal

Minimum Time (feet) Longer Length

Since a K value of less than 1.0 may not be used, the minimum testing

- testing period, then the test must continue for the entire test duration as outlined above or until failure. Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section. A testing procedure for pipe with an inside diameter greater than 33
- (2) Infiltration/Exfiltration Test. The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an

inches must be approved by the executive director.

(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level. The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a

minimum test head of two feet above the crown of a pipe at an upstream

- PVC CARRIER PIPE

STEEL ENCASEMENT PIPE

- STEEL ENCASEMENT PIPE

- CONNECTING FLANGES

- CASING SPACER

- manhole, or at least two feet above existing groundwater level, whichever is greater. (D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24
- hours at the same minimum test head as in subparagraph (C) of this (E) If the quantity of infiltration or exfiltration exceeds the maximum quantity

specified, an owner shall undertake remedial action in order to reduce TCEQ-0596 (Rev. July 15, 2015)

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action. (b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed: (1) For a collection pipe with inside diameter less than 27 inches, deflection

measurement requires a rigid mandrel.

A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix. (ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD

- controlled pipe and the average inside diameter for ID controlled pipe. All dimensions must meet the appropriate standard. Mandrel Design. (i) A rigid mandrel must be constructed of a metal or a rigid plastic
- material that can withstand 200 psi without being deformed (ii) A mandrel must have nine or more odd number of runners or A barrel section length must equal at least 75% of the inside
- diameter of a pipe. Each size mandrel must use a separate proving ring. Method Options.
- An adjustable or flexible mandrel is prohibited. A test may not use television inspection as a substitute for a (iii) If requested, the executive director may approve the use of a
- deflectometer or a mandrel with removable legs or runners on a case-by-case basis. (2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection
- A deflection test method must be accurate to within plus or minus 0.2% (4) An owner shall not conduct a deflection test until at least 30 days after the final
- Gravity collection system pipe deflection must not exceed five percent (5%). If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.
- 16. All manholes must be tested to meet or exceed the requirements of 30 TAC \$217.58. All manholes must pass a leakage test. An owner shall test each manhole (after assembly and backfilling) for leakage,

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separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director. (1) Hydrostatic Testing

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth To perform a hydrostatic exfiltration test, an owner shall seal all

wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour. A test for concrete manholes may use a 24-hour wetting period before

testing to allow saturation of the concrete. (2) Vacuum Testing. To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole. No grout must be placed in horizontal joints before testing.

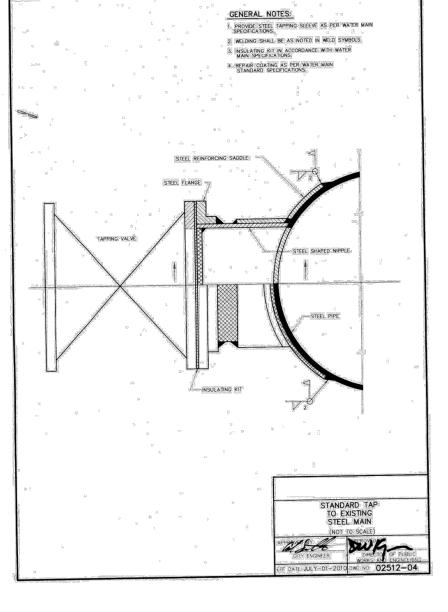
- Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn. An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole. A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's
- ecommendations. There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test. A test does not begin until after the vacuum pump is off A manhole passes the test if after 2.0 minutes and with all valves
- 17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved

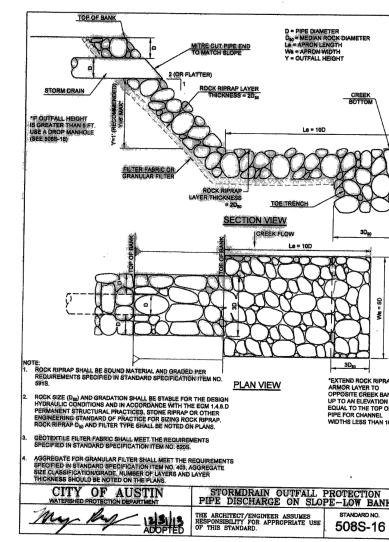
closed, the vacuum is at least 9.0 inches of mercury.

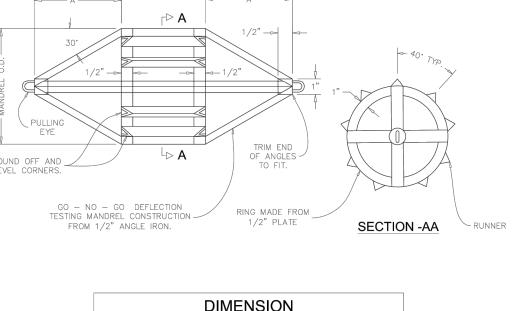
Austin Regional Office San Antonio Regional Office 12100 Park 35 Circle, Building A 14250 Judson Road San Antonio, Texas 78233-4480 Austin, Texas 78753-1808 Phone (210) 490-3096 Fax (512) 339-3795 Fax (210) 545-4329

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

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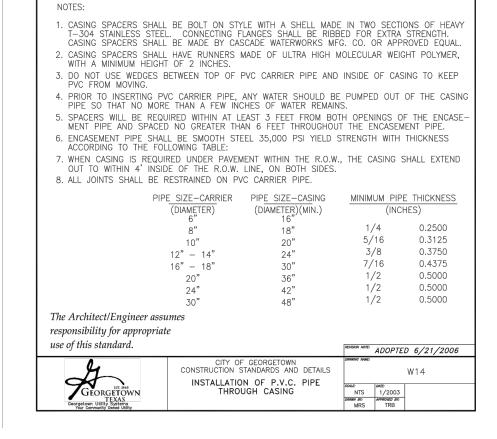


DIMENSION							
PIPE SIZE A B MANDREL O.D. WALL THINNE							
6" SDR 26	3.5"	5.0"	5.503"	6.275"	0.214"		
8" SDR 26	R 26 4.5" 6.0" 7.366" 8.400"		0.323"				
10" SDR 26	SDR 26 5.5" 7.5" 9.207" 10.500"		0.404"				
12" SDR 26	7.0"	9.0"	10.961"	12.500"	0.481"		
15" SDR 26	9.0"	11.5"	13.418"	15.300"	0.588"		

NOTES:

- 1. AFTER WELDING IS COMPLETED, TRUE THE OUTSIDE DIAMETER DIMENSION. FOR THE FULL LENGTH OF "B" TO 0.010" . MANDREL OD MUST BE EQUAL TO 95% OF THE ID OF THE PIPE
- 3. ADJUSTABLE MANDREL NOT ACCEPTABLE. 4. REFERENCE THE PIPE MANUFACTURER'S SPECIFICATIONS FOR MANDREL SIZE AND SUPPLY CALCULATED DIMENSIONS IN A SUBMITTAL. 5. A PROVING RING IS REQUIRED
- 6. MANDREL WILL HAVE AN ODD NUMBER OF RUNNERS (9 OR MORE).

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- This water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems 30 Texas Administrative Code (TAC) Chapter 290 Subchapter D. When conflicts are noted with local standards, the more stringent requirement shall be applied. At a minimum, construction for public water systems must always meet TCEQ's
- All newly installed pipes and related products must conform to American National Standards Institute (ANSI)/NSF International Standard 61 and must be certified by an
- Plastic pipe for use in public water systems must bear the NSF International Seal of Approval (NSF-pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less [§290.44(a)(2)].
- water shall be accepted or relocated for use in any public drinking water supply [§290.44(a)(3)].
- Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be located below the frost line and in no case shall the top of the water line be less than 24 inches below
- fixtures is 0.25 percent [§290.44(b)].
- The contractor shall install appropriate air release devices with vent openings to the atmosphere covered with 16-mesh or finer, corrosion resistant screening material or an acceptable equivalent [§290.44(d)(1)].
- body of water the waterline shall be installed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to allow the underwater portion of the system to be isolated and tested $[\S290.44(f)(2)]$.

11. Pursuant to 30 TAC §290.44(a)(5), the hydrostatic leakage rate shall not exceed the amount allowed or recommended by the most current AWWA formulas for PVC pipe, cast iron and ductile iron pipe. Include the formulas in the notes on the plans.

o The hydrostatic leakage rate for polyvinyl chloride (PVC) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

- L = the length of the pipe section being tested, in feet,
- D = the nominal diameter of the pipe in inches, and
- o The hydrostatic leakage rate for ductile iron (DI) pipe and appurtenances shall not exceed the amount allowed or recommended by formulas in America Water Works Association (AWWA) C-600 as required in 30 TAC §290.44(a)(5). Please ensure that the formula for this calculation is correct and most current formula is in use;

$L = \frac{1}{148,000}$

Revised February 2019

- L = the quantity of makeup water in gallons per hour,
- P = the average test pressure during the hydrostatic test in pounds per square
- 13. The separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine-foot separation 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. The space around the carrier pipe shall be supported at five-foot intervals with spacers or be filled to the springline with washed sand. The encasement pipe shall be centered on the crossing and both ends sealed with cement grout or manufactured sealant [§290.44(e)(5)].

- 15. Suction mains to pumping equipment shall not cross wastewater mains, wastewater laterals, or wastewater service lines. Raw water supply lines shall not be installed within five feet of any tile or concrete wastewater main, wastewater lateral, or wastewater service line [§290.44(e)(7)].
- [§290.44(e)(8)].
- 651-14 or most recent, then flush and sample the lines before being placed into service. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed waterline will be required or at the next
- 18. Dechlorination of disinfecting water shall be in strict accordance with current AWWA

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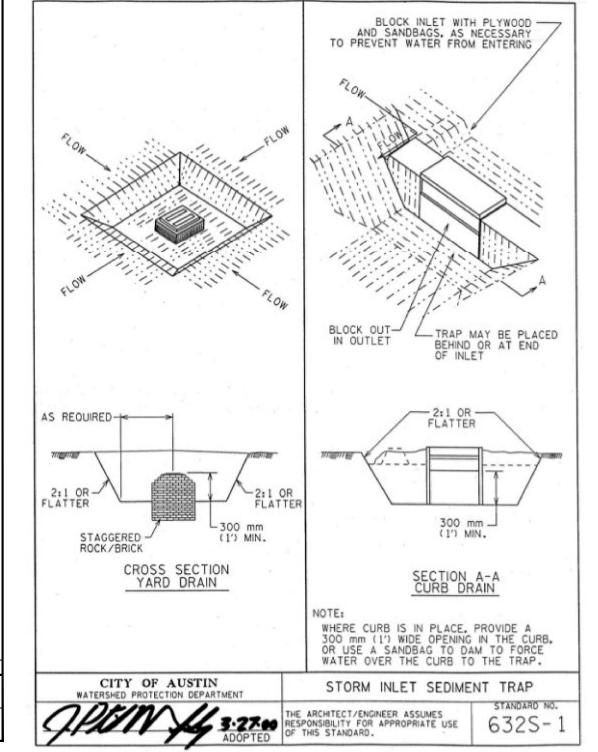
3

SHEET NUMBER C-37

TYPICAL SECTION ALL THRUST BLOCKS SHALL BE FORMED. LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER. CONCRETE SHALL HAVE 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS, AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH VISQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK. PIPE THRUST BLOCK PIPE THRUST BLOCK SIZE AREA REQUIRED SIZE AREA REQUIRED REMARKS 24" 53.0 SQ. FT. 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 33% SAFETY 27" 80.0 SQ. FT. FACTOR FOR OTHER SOILS AND PRESSURES, 30" 98.0 SQ. FT. THE AREA REQUIRED IS IN DIRECT * THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE. *The Architect/Engineer assumes* esponsibility for appropriate use of this standard. ADOPTED 6/21/2006 CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS W11 TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN

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PAINT BEFORE ASSEMBLY



TCEQ WATER DISTRIBUTION SYSTEM **GENERAL CONSTRUCTION NOTES**

- organization accredited by ANSI [§290.44(a)(1)].
- No pipe which has been used for any purpose other than the conveyance of drinking
- All water line crossings of wastewater mains shall be perpendicular [§290.44(e)(4)(B)].
- The maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and
- The contractor shall not place the pipe in water or where it can be flooded with water or sewage during its storage or installation [§290.44(f)(1)].
- When waterlines are laid under any flowing or intermittent stream or semi-permanent

- "Rules and Regulations for Public Water Systems."

- ground surface [§290.44(a)(4)].

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$Q = \frac{1}{148,000}$

- Q = the quantity of makeup water in gallons per hour,
- P = the average test pressure during the hydrostatic test in pounds per square

- S = the length of the pipe section being tested, in feet, D = the nominal diameter of the pipe in inches, and
- 12. The contractor shall maintain a minimum separation distance in all directions of nine feet between the proposed waterline and wastewater collection facilities including manholes. If this distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet §290.44(e)(1)-(4).
- distance cannot be achieved, the potable waterline shall be encased in a joint of at least
- 14. Fire hydrants shall not be installed within nine feet vertically or horizontally of any wastewater line, wastewater lateral, or wastewater service line regardless of construction [§290.44(e)(6)].

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- 16. Waterlines shall not be installed closer than ten feet to septic tank drainfields
- 17. The contractor shall disinfect the new waterlines in accordance with AWWA Standard Cavailable sampling point beyond 1,000 feet as designated by the design engineer
- Standard C655-09 or most recent.

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2023-XX-CON



RE: Texas Commission on Environmental Quality Engineer's Certificate of Completion of Water District Project for:

Berry Creek Highlands Phase 1B Construction Plans (City Project No. 2021-7-CON)

Name of District: Berry Creek Highlands Municipal Utility District

Owner of Property if other than District: Berry Creek (Georgetown) ASLI IX, LLC

Kind of project, contract identification: **Drainage, Water, Wastewater and Paving Infrastructure Plans**

Name of Contractor: CC Carlton Industries

Name of Consulting Engineer: Kimley-Horn and Associates, Inc.

Address of Consulting Engineer: 5301 Southwest Parkway, Building 3, Suite 100, Austin, TX 78735

I certify that this project was 100% complete on 4/26/2022; that the project was under continual observation; that all observation of the work performed by or under the supervision of Harrison M. Hudson, Registered Professional Engineer; that to the best of my knowledge the project was in accordance with and includes all the items and specifications approved by all authorities having jurisdictions; and "record drawings" will be furnished to the district.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

Harrison M. Hudson, P.E.

Project Manager

TBPE F-928

CIVIL CONSTRUCTION PLANS PAVING, GRADING & UTILITIES

BERRY CREEK HIGHLANDS PHASE 1

CITY OF GEORGETOWN, WILLIAMSON COUNTY, TEXAS CITY PROJECT NO. 2019-53-CON

> BERRY CREEK HIGHLANDS MUNICIPAL UTILITY DISTRICT

REVIEW OF THE PLANS BY THE DISTRICT IS LIMITIED TO WATER, WASTEWATER, AND DRA

- 12. FIRE FLOW REQUIREMENT OF 1500 GALLONS PER MINUTE ARE BEING MET BY THIS PLAN. 13. ANY HERITAGE TREE NOTED ON THIS SUBDIVISION CONSTRUCTION PLAN IS SUBJECT. IN PERPETUITY. TO THE MAINTENANCE, CARE, PRUNING AND REMOVAL
- REQUIREMENTS OF THE UNIFIED DEVELOPMENT CODE 14. THE CONSTRUCTION PORTION OF THESE PLANS WERE PREPARED, SEALED, SIGNED AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE CONSTRUCTION PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY. STATE AND FEDERAL REQUIREMENTS AND CODES
- 15. THE PROJECT IS SUBJECT TO ALL CITY STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO
- 16. THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.

17. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON MARCH 31, 2016. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREIN.

ENGINEER/APPLICANT

2600 VIA FORTUNA STATE OF TEXAS TERRACE I, SUITE 300 **REGISTRATION NO. F-928** AUSTIN, TEXAS 78746 PH. (512) 646-2237 CONTACT: HARRISON M. HUDSON, P.E.

OWNER/DEVELOPER

BERRY CREEK (GEORGETOWN) ASLI IX, LLC 923 N. PENNSYLVANIA AVENUE WINTER PARK, FLORIDA 32789

EMAIL: harrison.hudson@kimley-horn.com

GAS SERVICE

ATMOS ENERGY CORPORATION 3110 N INTERSTATE 35 **ROUND ROCK, TEXAS 78681** TELEPHONE: (512) 310-3855 CONTACT: ALIDA PAINE WEBSITE: www.atmosenergy.com

ELECTRIC SERVICE

CITY OF GEORGETOWN **GEORGETOWN UTILITY SYSTEMS** 300-1 INDUSTRIAL AVENUE GEORGETOWN, TEXAS 78626 TELEPHONE: (512) 930-6117 CONTACT: JIMMY SIKES WEBSITE: https://gus.georgetown.org/

SURVEYOR

WEBSITE: http://www.kimley-horn.com/ 601 NW LOOP 410, SUITE 350 SAN ANTONIO, TEXAS 78216 TELEPHONE: (210) 541-9166 CONTACT: JOHN G. MOSIER EMAIL: greg.mosier@kimley-horn.com

PROJECT INFORMATION

WASTEWATER SERVICE

ACREAGE: 46.42 ACRES

WATER SERVICE

CITY OF GEORGETOWN **GEORGETOWN UTILITY SYSTEMS** 300-1 INDUSTRIAL AVENUE GEORGETOWN, TEXAS 78626 TELEPHONE: (512)930-3555 CONTACT: DAVID MUNK WEBSITE: https://gus.georgetown.org/

CITY OF GEORGETOWN

300-1 INDUSTRIAL AVENUE

GEORGETOWN, TEXAS 78626

TELEPHONE: (512)930-3555

CONTACT: DAVID MUNK

GEORGETOWN UTILITY SYSTEMS

WEBSITE: https://gus.georgetown.org/

2ND SUBMITTAL TO CITY 3RD SUBMITTAL TO CITY 4TH SUBMITTAL TO CITY CONTINGENT ON APPROVAL BY GITY OF Georgetown 017

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER. REVIEW OF THE SUBMITTED MATERIALS 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 HIS/HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR ORDINANCE COMPLIANCE BY THE CITY ENGINEER.

12/04/2019

01/08/2020

03/11/2020

APRIL 2020

VICINITY MAP

SCALE: 1" = 2,000'

PLAN SUBMITTAL/REVIEW LOG

1ST SUBMITTAL TO CITY

SHEET IN	IDEX		
SHEET NO.	DESCRIPTION		
C-01	COVER SHEET	LN-1	NOTES
C-02	GENERAL NOTES (SHEET 1 OF 2)	FP-1	FENCE PLAN
C-03	GENERAL NOTES (SHEET 2 OF 2)	LD-1	DETAILS
C-04	EROSION CONTROL PLAN (SHEET 1 OF 4)	LPN-1	LANDSCAPE NOTES
C-05	EROSION CONTROL PLAN (SHEET 2 OF 4)	LP-1	OVERALL PLANTING PLAN
C-06	EROSION CONTROL PLAN (SHEET 3 OF 4)	LP-2	PLANTING PLAN
C-07	EROSION CONTROL PLAN (SHEET 4 OF 4)	LP-3	PLANTING PLAN
C-08	TREE PRESERVATION PLAN (SHEET 1 OF 3)	LP-4	PLANTING PLAN
C-09	TREE PRESERVATION PLAN (SHEET 2 OF 3)	LP-5	PLANTING PLAN
C-10	TREE PRESERVATION PLAN (SHEET 3 OF 3)	LP-6	PLANTING PLAN
C-11	GRADING PLAN (SHEET 1 OF 2)	LP-6	PLANTING PLAN
C-12	GRADING PLAN (SHEET 2 OF 2)	LP-7	PLANTING PLAN
C-13	ALTERNATE ACCESS PLAN	LP-8	PLANTING PLAN
C-14	PAVING PLAN & PROFILE - SHELL SPUR ROAD	LP-9	PLANTING PLAN
C-15	PAVING PLAN & PROFILE - SHELL SPUR ROAD	LP-10	WETLAND PLANTING PLAN
C-16	PAVING PLAN & PROFILE - SHELL SPUR ROAD & COWBOY CANYON DRIVE	LPD-1	DETAILS
C-17	PAVING PLAN & PROFILE - COWBOY CANYON DRIVE	LPD-2	DETAILS
C-18	PAVING PLAN & PROFILE - COWBOY CANYON DRIVE		
C-19	PAVING PLAN & PROFILE - STREET C		
C-20	PAVING PLAN & PROFILE - STREET C & STREET I		
C-21	PAVING PLAN & PROFILE - STREET F		
C-22	PAVING PLAN & PROFILE - STREET K & STREET G		
C-23	PAVING PLAN & PROFILE - STREET H		
C-24	PAVING PLAN & PROFILE - STREET J		
C-25	EXISTING DRAINAGE AREA MAP		
C-26	PROPOSED DRAINAGE AREA MAR		

	,	
C-03	GENERAL NOTES (SHEET 2 OF 2)	LD-1
C-04	EROSION CONTROL PLAN (SHEET 1 OF 4)	LPN-1
C-05	EROSION CONTROL PLAN (SHEET 2 OF 4)	LP-1
C-06	EROSION CONTROL PLAN (SHEET 3 OF 4)	LP-2
C-07	EROSION CONTROL PLAN (SHEET 4 OF 4)	LP-3
C-08	TREE PRESERVATION PLAN (SHEET 1 OF 3)	LP-4
C-09	TREE PRESERVATION PLAN (SHEET 2 OF 3)	LP-5
C-10	TREE PRESERVATION PLAN (SHEET 3 OF 3)	LP-6
C-11	GRADING PLAN (SHEET 1 OF 2)	LP-6
C-12	GRADING PLAN (SHEET 2 OF 2)	LP-7
C-13	ALTERNATE ACCESS PLAN	LP-8
C-14	PAVING PLAN & PROFILE - SHELL SPUR ROAD	LP-9
C-15	PAVING PLAN & PROFILE - SHELL SPUR ROAD	LP-10
C-16	PAVING PLAN & PROFILE - SHELL SPUR ROAD & COWBOY CANYON DRIVE	LPD-1
C-17	PAVING PLAN & PROFILE - COWBOY CANYON DRIVE	LPD-2
C-18	PAVING PLAN & PROFILE - COWBOY CANYON DRIVE	
C-19	PAVING PLAN & PROFILE - STREET C	
C-20	PAVING PLAN & PROFILE - STREET C & STREET I	
C-21	PAVING PLAN & PROFILE - STREET F	
C-22	PAVING PLAN & PROFILE - STREET K & STREET G	
C-23	PAVING PLAN & PROFILE - STREET H	
C-24	PAVING PLAN & PROFILE - STREET J	
C-25	EXISTING DRAINAGE AREA MAP	
C-26	PROPOSED DRAINAGE AREA MAP	
C-27	INLET DRAINAGE AREA MAP	
C-28	DRAINAGE CALCULATIONS	
C-29	OVERALL STORM SEWER PLAN (SHEET 1 OF 2)	
C-30	OVERALL STORM SEWER PLAN (SHEET 2 OF 2)	
C-31	STORM DRAIN PROFILE - LINE SD-A	
C-32	STORM DRAIN PROFILE - LINE SD-A & B	
C-33	STORM DRAIN PROFILE - LINE SD-C,D,E,F,G & H	
C-34	STORM DRAIN PROFILE - LINE SD-H,I & J	
C-35	STORM DRAIN PROFILE - LINE SD-K & M	
C-36	STORM DRAIN PROFILE - LINE SD-N & O	
C-37	STORM PROFILES - LATERALS (SHEET 1 OF 5)	
C-38	STORM PROFILES - LATERALS (SHEET 2 OF 5)	
C-39	STORM PROFILES - LATERALS (SHEET 3 OF 5)	
C-40	STORM PROFILES - LATERALS (SHEET 4 OF 5)	
C-41	STORM PROFILES - LATERALS (SHEET 5 OF 5)	
C-42	POND PLAN	
C-43	POND SECTIONS	
C-44	DETENTION AND WATER QUALITY POND CALCS	
C-45	WATER PLAN (SHEET 1 OF 2)	
C-46	WATER PLAN (SHEET 2 OF 2)	
C-47	WATER PROFILES (SHEET 1 OF 3)	
C-48	WATER PROFILES (SHEET 2 OF 3)	
C-49	WATER PROFILES (SHEET 3 OF 3)	
C-50	WASTEWATER PLAN (SHEET 1 OF 2)	
C-51	WASTEWATER PLAN (SHEET 2 OF 2)	
C-52	WASTEWATER PROFILES (SHEET 1 OF 7)	
C-53	WASTEWATER PROFILES (SHEET 2 OF 7)	
C-54	WASTEWATER PROFILES (SHEET 3 OF 7)	
C-55	WASTEWATER PROFILES (SHEET 4 OF 7)	
C-56	WASTEWATER PROFILES (SHEET 5 OF 7)	
C-57	WASTEWATER PROFILES (SHEET 6 OF 7)	
C-58	WASTEWATER PROFILES (SHEET 7 OF 7)	
C-59	STRIPING, STREET LIGHT & SIGN PLAN (SHEET 1 OF 2)	
C-60	STRIPING, STREET LIGHT & SIGN PLAN (SHEET 2 OF 2)	
C-61	EROSION CONTROL DETAILS	
C-62	PAVING DETAILS	
C-63	UTILITY DETAILS (SHEET 1 OF 3)	DE
C-64	UTILITY DETAILS (SHEET 2 OF 3)	
C-65	UTILITY DETAILS (SHEET 3 OF 3)	1
		· • • • • • • • • • • • • • • • • • • •

LIFT STATION SITE PLAN

STRUCTURAL DETAILS

SITE PLAN ELECTRICAL

SINGLE LINE DIAGRAM

LIFT STATION MECHANICAL PLAN

ELECTRICAL LADDER DIAGRAM

ELECTRICAL LADDER DIAGRAM 2

ELECTRICAL LADDER DIAGRAM 3

CONTROL PANEL WIRING ONTROL PANEL WIRING 2 ONTROL PANEL WIRING CONTROL PANEL WIRING 4

RTU CONTROL PANEL WIRING

CONDUIT AND FEEDER GENERATOR SCHEDULE

CONTROL PANEL WIRING 5

FLECTRICAL DETAILS

ELECTRICAL DETAILS 2

ELECTRICAL SERVICE SHELTER PANEL SPECIFICATIONS

RTH WIRING

E-13

F-14

E-15

E-16

E-17

LIFT STATION DETAILS (SHEET 1 OF 2)

LIFT STATION DETAILS (SHEET 2 OF 2)

ECORD DRAWINGS BY: Harrison Hudson, P.E. DATE: 4/21/2022



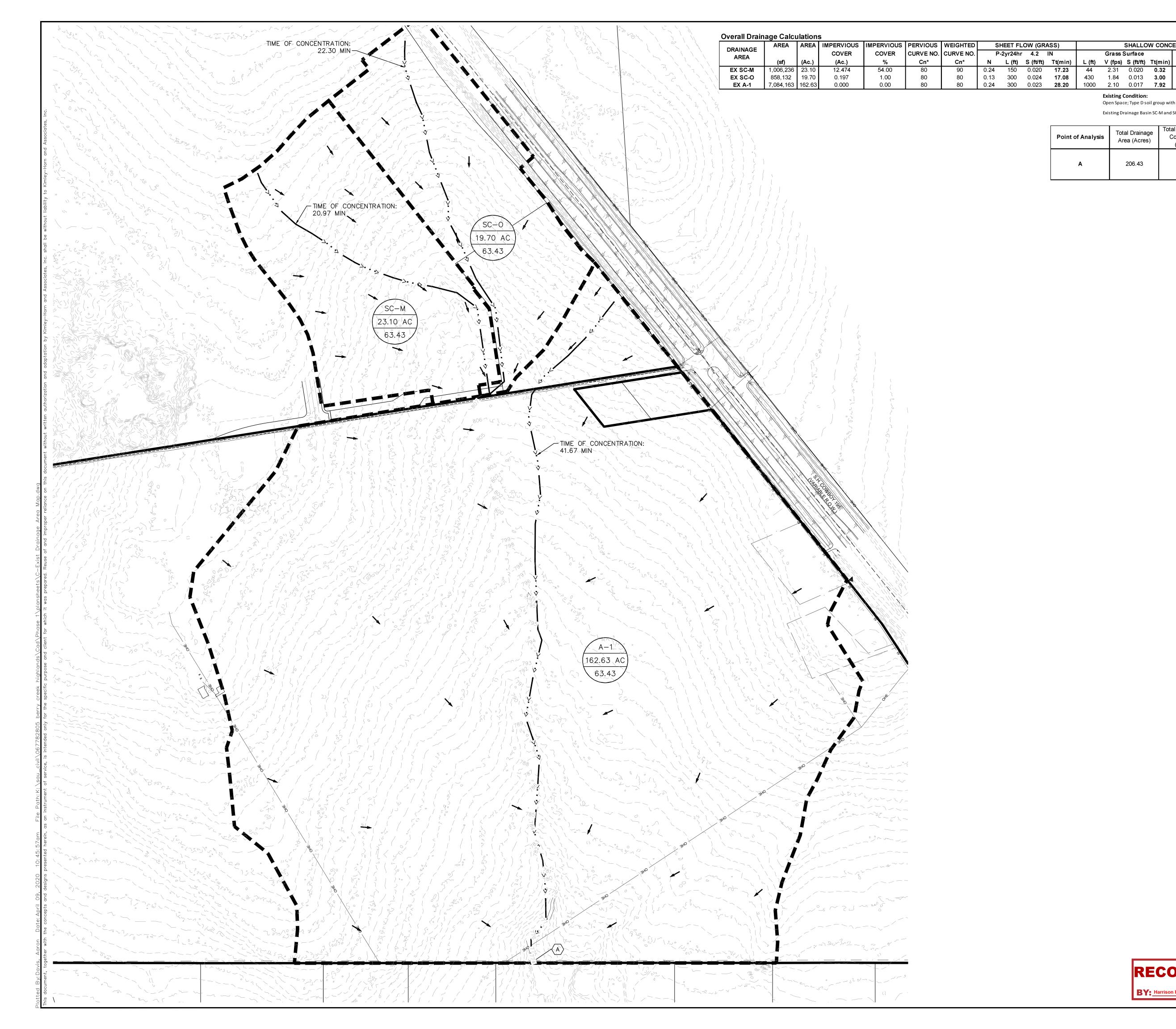
VERIFY PRESENCE AND EXACT

LOCATION OF ALL UTILITIES

C-01

2019-53-CON

HIGHL



Existing Condition: Open Space; Type D soil group with a CN OF 77.

Grass Surface

SHALLOW CONCENTRATED FLOW

Existing Drainage Basin SC-M and SC-O confrom to previously approved drainage analysis within the Sun City Neighborhood development.

Paved Surface

	Point of Analysis	Total Drainage Area (Acres)	Total Impervious Cover Area (acres)	Impervious Area (%)	Time of Concentration (min)	Storm Event	Existing Runor (cfs)
	А	206.43 12	12.79	6.19%	22.28	2	215.49
						10	499.99
			12.79		22.20	25	667.12
						100	951.60



CHANNEL FLOW

- 2.21

5.54

L V (fps) S Tt(min) L (ft) V (fps) S (ft/ft) Tt(min)

1060 8.0

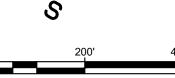
1995 6.0

TOTAL Tc**

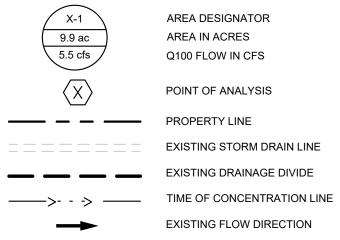
20.97

22.28

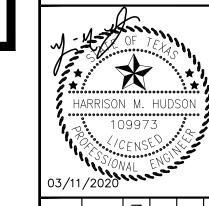
41.67



LEGEND



EXISTING CONTOUR PROPOSED CONTOUR

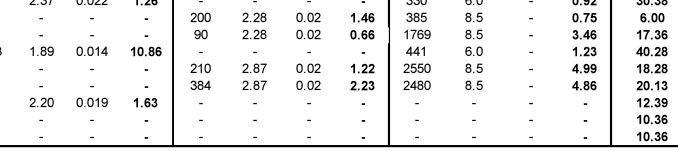


SHEET NUMBER C-25 OF C-69

WARNING: CONTRACTOR IS TO
VERIFY PRESENCE AND EXACT
LOCATION OF ALL UTILITIES
PRIOR TO CONSTRUCTION.

RECORD DRAWINGS





L V (fps) S Tt(min) L (ft) V (fps) S (ft/ft) Tt(min

oposed Condition:

Grass Surface

L (ft) V (fps) S (ft/ft) Tt(min)

1.84 0.013 **3.00**

Pervious: Open space (lawns, parks, golf courses, cemeteries, etc.): Fair condition (grass cover 50% to 75%), Type D soil group with a CN of 83.

Impervious: Paved parking lots, roofs driveways, etc. (excluding right of way): CN of 98

Paved Surface

Proposed drainage basins assumed to have a CN value of 90 based on Residential Districts 1/8 acre or less from the City of Georegtown DCM.

*Cn Values based on the City of Georgetown Drainage Criteria Manual

**The minimum Tc is 6 minutes per the City of Georgetown Drainage Criteria Manual

SHALLOW CONCENTRATED FLOW

	Point of Analysis	Total Drainage Area (Acres)	Total Impervious Cover Area (acres)	Impervious Area (%)	Time of Concentration (min)	Storm Event	Developed Runoff (With Detention) (cfs)
	A	231.84 65.40	65.40	28.21%		2	215.31
					23.43	10	475.32
			20.2170	25.45	25	651.40	
						100	949.33

Point of Analysis	Storm Event	Storm Event Existing Runoff Developed F		Runoff Difference at Point of Analysis (cfs)	Is Developed ≤ Existing?
	2	215.49	215.31	0.18	YES
А	10	499.99	475.32	24.67	YES
	25	667.12	651.40	15.72	YES
	100	951.60	949.33	2.27	YES

Note: All detention runoff calculations were analyzed using the Soil Conservation Services Method as documented in the Technical Release 55. Pond Pack V8i was used to calculate the runoff and design the pond volume and outlet structure.



GRAPHIC SCALE 200'

LEGEND

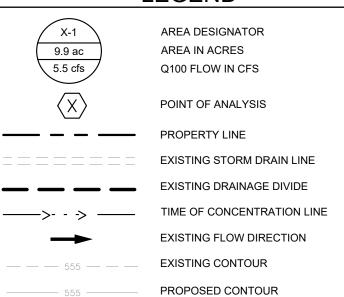
CHANNEL FLOW

Channel Flow

TOTAL Tc**

22.28

2.21



POSED MARC SCALE:

PROPOSED DRAINAGE AR

CREEK HIGHLANDS
PHASE 1

Know what's below.
Call before you dig.

ARNING: CONTRACTOR IS TO

SHEET NUMBER

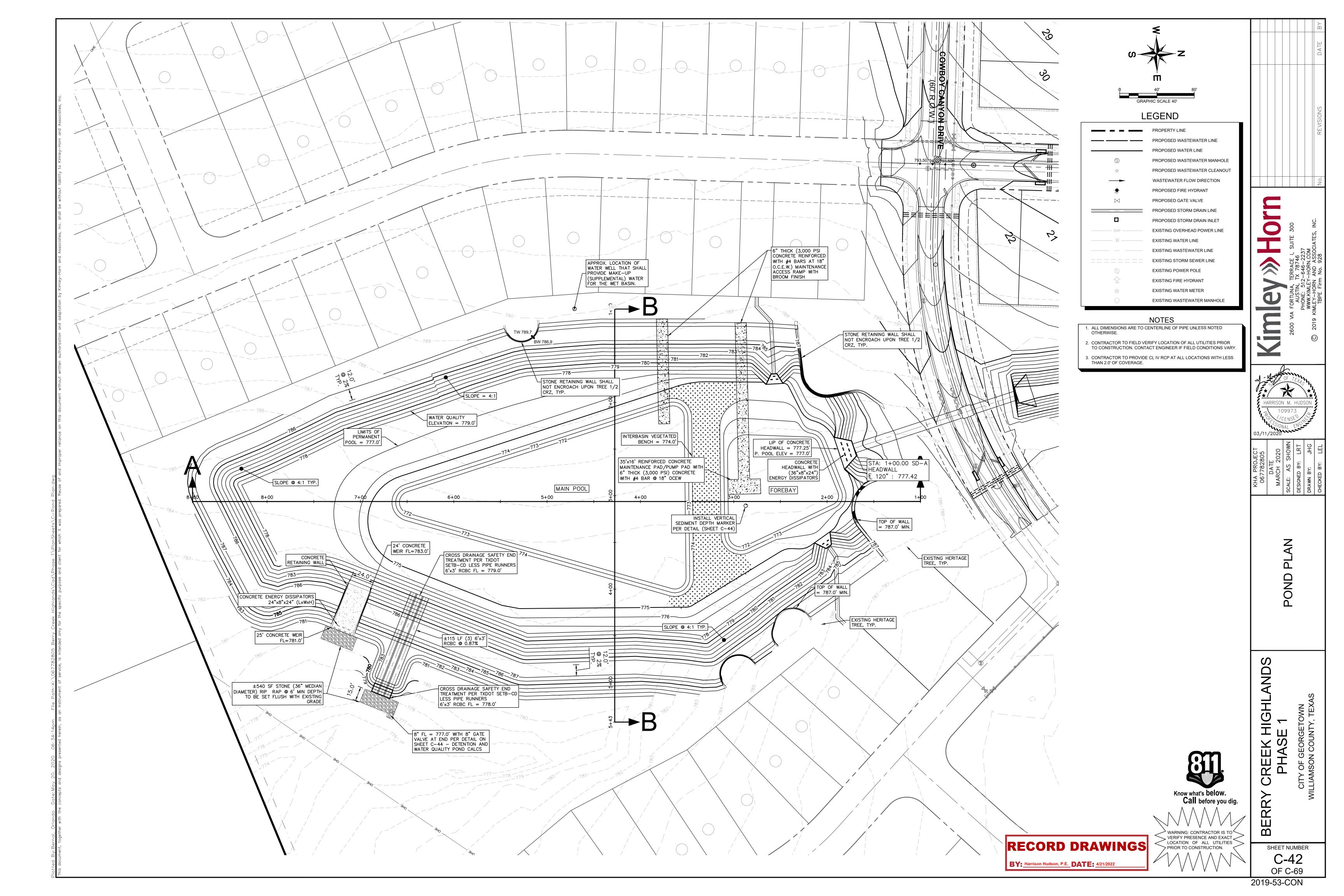
C-26

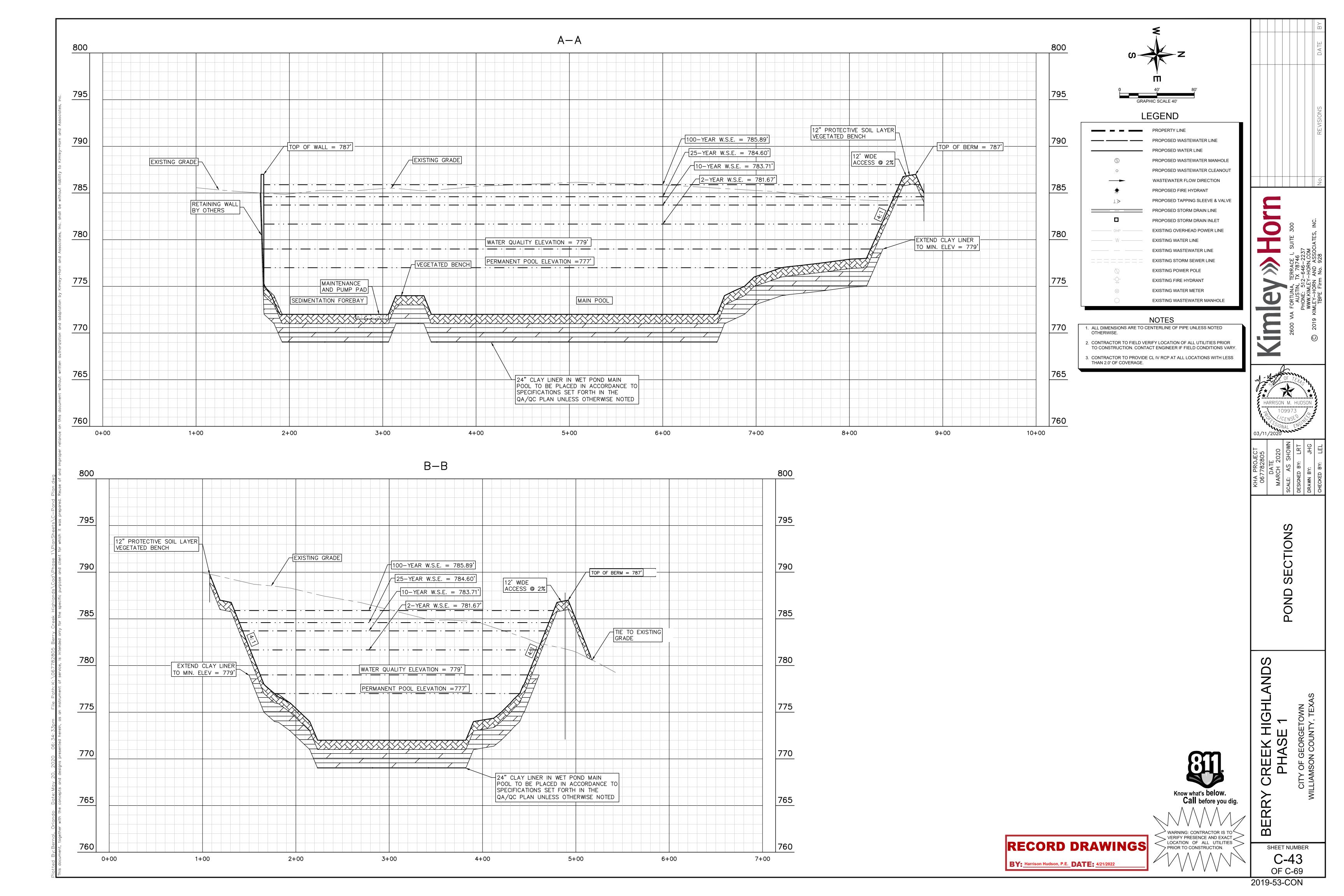
OF C-69

RECORD DRAWINGS

BY: Harrison Hudson, P.E. DATE: 4/21/2022

WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.





TCEQ SPREADSHEET Texas Commission on Environmental Quality TSS Removal Calculations 04-20-2009 Characters shown in red are data entry fields. 1. The Required Load Reduction for the total project:

Project Name: Berry Creek Highlands Phase 1 Date Prepared: 2/6/2020

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet. Calculations from RG-348 Pages 3-27 to 3-30

P = Average annual precipitation, inches

L_{M TOTAL PROJECT} = Required TSS removal resulting from the proposed development = 85% of increased load A_N = Net increase in impervious area for the project

Site Data: Determine Required Load Removal Based on the Entire Project County = Williamson Total project area included in plan * = 194.51 Predevelopment impervious area within the limits of the plan * = 18.46 acres

L_{M TOTAL PROJECT} = 47317 lbs. *NOTE: CALCULATION HAS BEEN

REVISED TO REQUIRE 85% REMOVAL * The values entered in these fields should be for the total project area

Page 3-29 Equation 3.3: $L_{M} = 27.2(A_{N} \times P)$

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

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

Drainage Basin/Outfall Area No. =

Total drainage basin/outfall area = 222.91 acres Predevelopment impervious area within drainage basin/outfall area = 12.79 acres Post-development impervious area within drainage basin/outfall area = Post-development impervious fraction within drainage basin/outfall area = 46661 $L_{M THIS BASIN} =$

Total post-development impervious area within the limits of the plan* = 69.63 acres Total post-development impervious cover fraction * =

3. Indicate the proposed BMP Code for this basin.

where:

Proposed BMP = Wet Basin Removal efficiency = 93

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

RG-348 Page 3-33 Equation 3.7: $L_R = (BMP \text{ efficiency}) \times P \times (A_1 \times 34.6 + A_2 \times 0.54)$

A_C = Total On-Site drainage area in the BMP catchment area A_I = Impervious area proposed in the BMP catchment area A_P = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C = **179.11** acres **128.65** acres

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

Desired $L_{M THIS BASIN} = 47317$ lbs.

F = **0.88**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348

> Rainfall Depth = Post Development Runoff Coefficient = On-site Water Quality Volume = 242473 cubic feet

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

Off-site area draining to BMP = 43.80 acres Off-site Impervious cover draining to BMP = 0.00 Impervious fraction of off-site area = Off-site Runoff Coefficient = **0.02**

Storage for Sediment = 49448

Off-site Water Quality Volume = 4770 cubic feet

11. Wet Basins Pages 3-66 to 3-71 Designed as Required in RG-348

> Required capacity of Permanent Pool = 296691 cubic feet Permanent Pool Capacity is 1.20 times the WQV Required capacity at WQV Elevation = 539164 cubic feet Total Capacity should be the Permanent Pool Capacity

*NOTE: REF. STAGE STORAGE TABLE FOR PROVIDED CAPACITY

Total Capture Volume (required water quality volume(s) x 1.20) = 296691 cubic feet

STAGE STORAGE TABLES

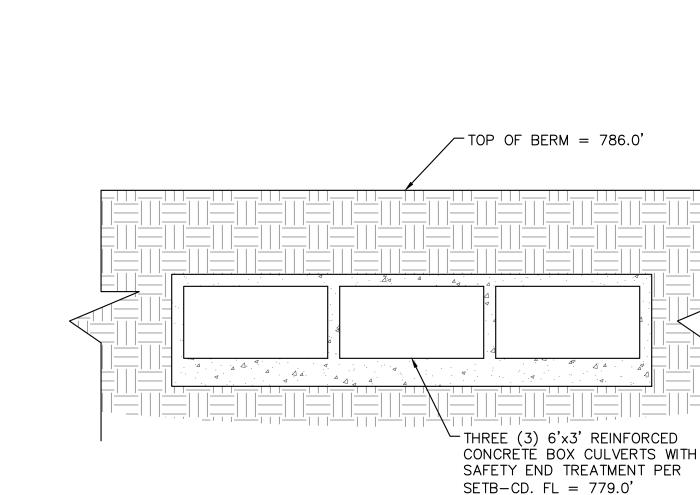
Forebay						
Stage (ft msl)	Area	Storage				
(Elevation)	(sf)	Volume (cf)				
772	9,789	0				
773	11,428	10,598				
774	13,168	22,886				
775	20,716	39,686				
776	24,508	62,271				
777	27,831	88,423				
778	33,354	118,974				
779	35,356	153,324				

Main Pool				
Stage (ft msl)	Area	Storage	Combined Pond	
(Elevation)	(sf)	Volume (cf)	Volumes (cf)	
772	33,919	0	0	
773	37,319	35,605	46,204	
774	40,820	74,662	97,548	Veg. Bench
775	63,303	126,314	166,000	
776	71,380	193,615	255,886	
777	84,216	271,324	359,748	P.P. Elev
778	103,460	364,997	483,972	
779	107,826	470,633	623,957	W.Q.E.

Detention Volume							
Stage (ft msl)	Area	Volume	Storage				
(Elevation)	(sf)	(cf)	Volume (cf)				
778	144,654	0	0				
779	151,510	148,069	148,069				
780	158,175	154,831	302,900				
781	164,940	161,546	464,445				
782	171,805	168,361	632,806				
783	178,770	175,276	808,082				
784	185,831	182,289	990,372				
785	192,993	189,401	1,179,772				

ELEVATION - FLOW TABLE

Water Surface	Storage Volume	Flow	
Elevation (ft)	(cf)	(ft³/s)	
779.00	0	0	
779.50	72,968	17.2	
780.00	145,935	48.8	
780.50	221,929	89.6	
781.00	297,923	137.8	
781.50	376,972	192.6	
781.67	403,068	213.0	2yr
782.00	456,021	252.9	
782.50	538,153	318.7	
783.00	620,285	361.7	
783.50	705,530	433.4	
783.71	740,753	472.0	10yr
784.00	790,775	525.2	
784.50	879,161	626.5	
784.60	896,687	649.1	25yr
785.00	967,547	735.8	
785.50	1,059,105	852.1	
785.89	1,130,181	947.9	100yr
786.00	1,150,663	974.9	
786.50	1,249,682	1,103.7	
787.00	1,348,700	1,238.3	



BARS J

Permiss Const Jt

Bars J & C ~ Eq Spa

TYPICAL WINGWALL ELEVATION

(Pipe Runners not shown for clarity)

BARS R

SECTION A-A

(Showing typical Wingwall and Wing Slab reinforcing) (Pipe Runners not shown for clarity)

1'-10"

BARS K

(Length = 4'-3")

perpendicular to Roadway (1)

— G or F

REINFORCING BAR SIZES & SPACING

or Size Spacing

#4 10" Max

#4 match F & E #4 1'- 0" Max #4 1'- 3" Max

#6 Shown #4 10" Max

#4 1'- 0" Max

#4 Shown

INTERIOR WINGWALL

PLAN VIEWS OF CORNER DETAILS

1) Recommended values of slope are: 3:1, 4:1, & 6:1. Slope shall be 3:1 or flatter.

2 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to ECD standard.

adjacent culvert wall and slab thicknesses (7" Minimum)
If thicknesses greater than the minimum (7") are used,

no changes will be made in quantities and no additional compensation will be allowed.

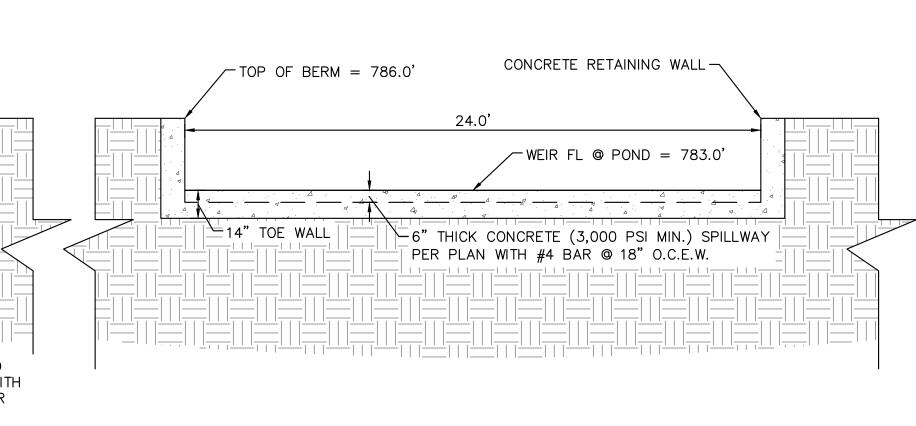
4 For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) For Culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into Wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the "Wingwall Connection Detail" on the SCP-MD standard.

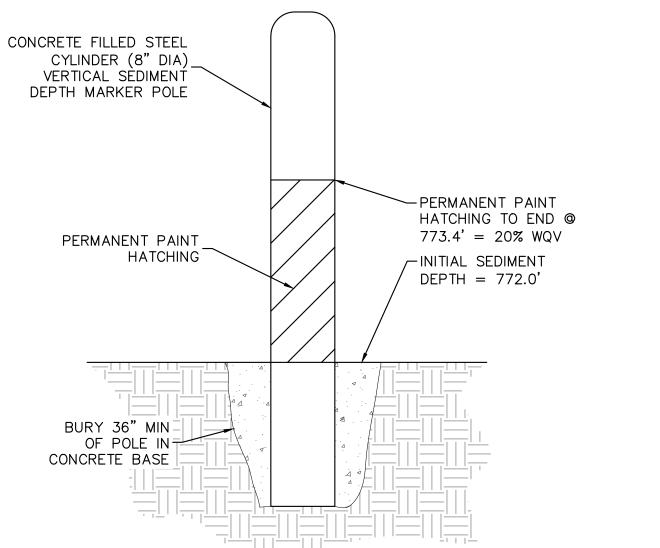
(3) Wingwall and slab thicknesses may be the same as the

AT TOP OF

EXTERIOR WINGWALL



BY: Harrison Hudson, P.E. DATE: 4/21/2022



N.T.S.

8" GATE VALVE ON CONCRETE BLOCK 8" FL = 777.0'\(\tag{7} 8" SCH 80 PVC INVERTED STONE RIP RAP UNDERDRAIN, REF. POND PER PLAN PLAN FOR CONTINUATION CONCRETE BLOCKING TO EXTEND PAST STONE RIP RAP LAYER

> INVERTED DRAIN OUTFALL DETAIL N.T.S.

VERTICAL SEDIMENT DEPTH MARKER DETAIL RECORD DRAWINGS

OUTLET CONTROL STRUCTURE DETAIL

N.T.S.

Formulas: (All values are in Feet) Lw = (Hw - 0.333') (SL) For Cast-in-place culverts: A+w = (N) (S) + (N+1) (U)For Precast culverts: A+w = (N) (2U+S) + (N-1) (0.500')Total Wingwall Area (S.F.) = (0.5) (Hw + 0.333') (Lw) (N+1) Pipe Runner Length = (Lw) (K1) - (1.917') = Height of Curb above top of Top Slab = Height of Wingwall = Constant Value for use in formulas Slope SL:1 K1 K2 3:1 ~ 1.054 ~ 7.45 4:1 ~ 1.031 ~ 8.49 6:1 ~ 1.014 ~ 10.30 Atw = Anchor Toewall Length
Lw = Length of Wingwall
N = Number of Culvert Barrels
SL:1 = Side Slope Ratio (Horizontal : 1 Vertical) ISOMETRIC VIEW OF TYPICAL INSTALLATION See applicable box culvert standard for H, S, GENERAL NOTES: Designed according to AASHTO LRFD pecifications.
The Safety End Treatments shown herein are Bottom Slab of Culvert -

Optional Full Width

AT INTERIOR WINGWALL

intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the ipe Runners. Pipe Runners are designed for a traversing Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

All reinforcing steel shall be Grade 60. All reinforcing shall be adjusted as necessary to provide a minimum clear cover of 1 ½".

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi. The quantities for Pipe Runners, reinforcing steel, and concrete, resulting from the formulas given herein are for Contractor's information only. only.
Pipe Runners, Cross Pipes, and Anchor Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52. Bolts and nuts shall conform to ASTM A307. All steel components, except the concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications. See BCS standard sheet for additional dimensions and information.

Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the Safety End Treatments.

SHEET 1 OF 2 Texas Department of Transportation SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0")TYPE I ~ CROSS DRAINAGE

SETB-CD

HARRISON M. HUDSO 109973

WA1 CAL N AND POND DETENTION QUALITY F

HIGHLAND

REEK ERRY

Know what's **below**.

WARNING: CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES

> PRIOR TO CONSTRUCTION.

SHEET NUMBER C-44

2019-53-CON

OF C-69

February 27, 2020

Mr. Marvin Shapiro Berry Creek ASLI IX, LLC 923 North Pennsylvania Avenue Winter Park, Florida 32789

Re: <u>Edwards Aquifer</u>, Williamson County

Berry Creek Highlands, Phase 1; South of Bonnet Lane at SH 195, Georgetown, Texas Request for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer Protection Program ID No. 11001800, RN110889862

Dear Mr. Shapiro:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the Austin Regional Office by Kimley-Horn & Associates on behalf of Berry Creek ASLI IX, LLC on November 7, 2019. Final review of the WPAP submittal was completed after additional material was received on February 4 and 14, 2020. 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 WPAP. 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% of the construction has commenced on the project or an extension of time has been requested.

PROJECT DESCRIPTION

The proposed project will add a new area of 111 single family residential homes to an existing master planned area. The new Phase 1 is contained within the Berry Creek Highlands subdivision within the City of Georgetown to include streets construction, driveways, sidewalks, utilities and other ancillary impervious cover, and which connect to water quality devices via storm sewer. The project site contains approximately 28.5 acres within the Berry Creek watershed as defined by the limits of construction for Phase 1, and to include the connection of Shell Spur Road to SH 195. In addition, SH 195 improvement are pranned within an order of 12.8 acres to include a new turn lane and interest in a. A large wet basin (WB) is to be constructed to drain future buildouts besides Phase 1. These phases are to be completed as they are planned.

Company of the contract of the

Forebay						
Stage (ft msl)	Area	Storage				
(Elevation)	(sf)	Volume (cf)				
772	9,789	0				
773	11,428	10,598				
774	13,168	22,886				
775	20,716	39,686				
776	24,508	62,271				
777	27,831	88,423				
778	33,354	118,974				
779	35,356	153,324				

Main Pool				
Stage (ft msl)	Area	Storage	Combined Pond	
(Elevation)	(sf)	Volume (cf)	Volumes (cf)	
772	33,919	0	0	
773	37,319	35,605	46,204	
774	40,820	74,662	97,548	Veg. Bench
775	63,303	126,314	166,000	
776	71,380	193,615	255,886	
777	84,216	271,324	359,748	P.P. Elev
778	103,460	364,997	483,972	
779	107,826	470,633	623,957	W.Q.E.

Proposed Berry Creek Highlands

56.840

Table 1 - Impervious Cover per Phase

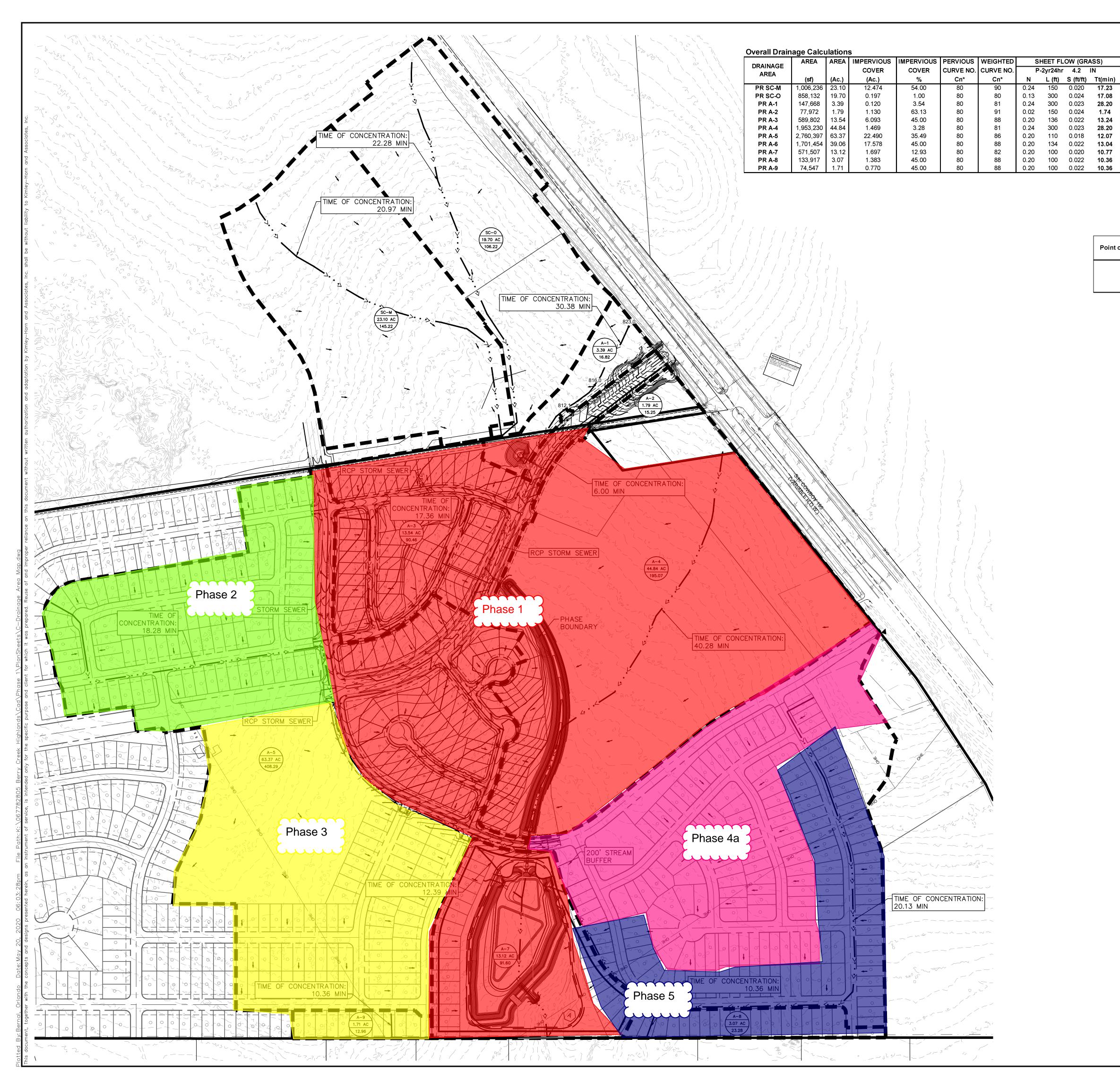
DRAINAGE	AREA	AREA	IMPERVIOUS COVER	IMPERVIOUS COVER	TSS Removal Required
AREA	(sf)	(Ac.)	(Ac.)	%	(lbs)
Phase 1	4,037,576	92.69	17.770	19.17	12163.00
Phase 2	883,397	20.28	7.200	35.50	7362.00
Phase 3	1,254,092	28.79	10.380	36.05	8148.00
Phase 4	1,065,042	24.45	12.240	50.06	9987.00
Phase 5	766,220	17.59	9.250	52.59	9659.00

^{*} Phase 1 includes portions of Drainage Area A-1 through A-5, A-7; Phase 2 includes portion of Drainage Area A-5; Phase 3 includes portion of Drainage Area A-5 and A-9; Phase 4 includes portion of Drainage Area A-6; Phase 5 includes portion of Drainage Area A-6 and A-8. See sheet C-26 of Proposed Drainage Area Map for Phase 1b



Table 2 - BMP Treatment Requirements

	- Billi Treatment requirements								
Project Area			Drainage Basin		BMP Treatment Provided				
Total (ac)	Impv Area (ac)	Required TSS Removal (lbs.)	Total (ac)	Impv Area (ac)	Permanent Poc	ıl (cf)	Capacity at W Volume		
		•			Required	Provided	Required	Provided	
Wet Basin for BCH Ph 1-5									
194.51	56.84	47319	183.80	56.84	296,691	359,748	539,164	623,957	



Grass Surface

L (ft) V (fps) S (ft/ft) Tt(min)

1.84 0.013 **3.00**

Pervious: Open space (lawns, parks, golf courses, cemeteries, etc.): Fair condition (grass cover 50% to 75%), Type D soil group with a CN of 83. Impervious: Paved parking lots, roofs driveways, etc. (excluding right of way): CN of 98

SHALLOW CONCENTRATED FLOW

Proposed drainage basins assumed to have a CN value of 90 based on Residential Districts 1/8 acre or less from the City of Georegtown DCM. *Cn Values based on the City of Georgetown Drainage Criteria Manual

**The minimum Tc is 6 minutes per the City of Georgetown Drainage Criteria Manual

	Point of Analysis	Total Drainage Area (Acres)	Total Impervious Cover Area (acres)	Impervious Area	Time of Concentration (min)	Storm Event	Developed Runoff (With Detention) (cfs)
	A	231.84	65.40	28.21%	23.43	2	215.31
						10	475.32
						25	651.40
						100	949.33

Paved Surface

Point of Analysis	Storm Event	Existing Runoff (cfs)	Developed Runoff (cfs)	Runoff Difference at Point of Analysis (cfs)	Is Developed ≤ Existing?
	2	215.49	215.31	0.18	YES
	10	499.99	475.32	24.67	YES
A	25	667.12	651.40	15.72	YES
	100	951.60	949.33	2.27	YES

Note: All detention runoff calculations were analyzed using the Soil Conservation Services Method as documented in the Technical Release 55. Pond Pack V8i was used to calculate the runoff and design the pond volume and outlet structure.



LEGEND

CHANNEL FLOW

Channel Flow

L V (fps) S Tt(min) L (ft) V (fps) S (ft/ft) Tt(min

TOTAL Tc**

22.28

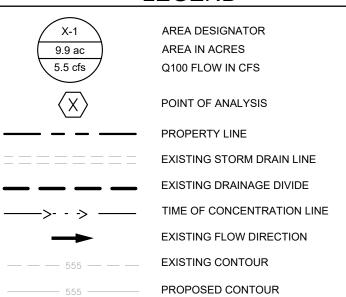
20.13

12.39

10.36

10.36

2.21



PROPOSED DRAINAGE AREA MAP

CREEK HIGHLANDS PHASE 1

Know what's below.

Call before you dig. WARNING: CONTRACTOR IS TO
VERIFY PRESENCE AND EXACT
LOCATION OF ALL UTILITIES
PRIOR TO CONSTRUCTION.

SHEET NUMBER C-26 OF C-69

BY: Harrison Hudson, P.E. DATE: 4/21/2022

RECORD DRAWINGS

2019-53-CON

Jon Niermann, Chairman Emily Lindley, Commissioner Bobby Janecka, Commissioner Toby Baker, Executive Director



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 12, 2020

Mr. Marvin Shapiro Berry Creek ASLI IX, LLC 923 North Pennsylvania Avenue Winter Park, Florida 32789

Re:

Edwards Aquifer, Williamson County

Berry Creek Highlands, Phase 1; South of Bonnet Lane at SH 195, Georgetown, Texas Request for Approval of an Organized Sewage Collection System (SCS) 30 Texas Administrative Code (TAC) Chapter 213 and Chapter 217 Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11001827, RN110889862

Dear Mr. Shapiro:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the SCS Application for the above-referenced project submitted to the Austin Regional Office by Kimley-Horn & Associates on behalf of Berry Creek ASLI IX, LLC on December 3, 2019. Final review of the SCS submittal was completed after additional material was received on February 25, and March 12, 2020. 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

This project is associated with Water Pollution Abatement Plan EAPP ID 11001800.

The proposed wastewater system serves Phase 1 contained within the Berry Creek Highlands residential subdivision. The proposed sewage collection system consists of 12,145 feet of line, comprised of SDR 26 PVC pipe with ASTM D-3212 fittings, a 10-inch force main, and pipe for lateral stub outs, double service laterals, manholes, and appropriate appurtenances.

Mr. Marvin Shapiro March 12, 2020 Page 2

The lift station will consist of a new 8-foot diameter wet well with an approximate depth of 29.5 feet, two submersible wastewater pumps, and will be provided with an existing emergency power generator. Each pump will have a pumping capacity of 802 gallons per minute (gpm) at a total dynamic head (TDH) of 62 feet with two pumps in operation. Additional equipment will include a control panel, an audio-visual alarm, auto-dial telemetry, hoisting equipment, level pump controllers, pump supports and discharge piping with valves, and a security fence with controlled access.

The system will be connected to an existing Sun City Neighborhood 84 (EAPP ID 11000166) wastewater line for conveyance to the San Gabriel WWTP for treatment and disposal. The project is located within the City of Georgetown and will conform to all applicable codes, ordinances, and requirements of the City of Georgetown.

Separate submittals will occur and require executive director approval for any future SCS phases.

GEOLOGY

According to the geologic assessment included with the application, the site is entirely underlain by Edwards Limestone Group (Ked) upgradient to Berry Creek. The site is covered in vegetation and trees as a former pasture. No sensitive features were identified on that portion of the site to be constructed. An Austin Regional Office site assessment of January 8 and 23, 2020 concurs the site is generally as described by the geologic assessment and slopes primarily to the northeast to the creek.

SPECIAL CONDITIONS

- It is emphasized that where wastewater lines must bridge faults, caverns, sinkholes, or solution features the lines shall be constructed in a manner that will maintain the structural integrity of the pipe. When such sensitive features area encountered, 30 TAC §213.5(f)(2) requires that all regulated activities near the feature must be immediately suspended and the owner/developer shall immediately notify the Austin Regional Office. Additionally, when such geologic features are encountered which are bridged by construction, the location and extend of those features must be assessed by a geologist and must be reported to the Austin Regional Office in writing within two working days of discovery as required by 30 TAC §213.5(c)(3)(K). Construction may not resume in the area of the feature until the executive director has reviewed and approved the methods proposed to protect the aquifer from any potential adverse impacts.
- II. Upon completion of any lift station excavation, a geologist shall certify that the excavation has been inspected for the presence of sensitive features. Certification that the excavation has been inspected must be submitted to the Austin Regional Office.

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 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.

Mr. Marvin Shapiro March 12, 2020 Page 3

- 3. 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.
- 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 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:

- 6. 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 217. 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.
- 7. 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.
- 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.
- 9. 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.
- 10. 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.

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

Independence Title/GF# 2223622-COM/GMI-SPECIAL WARRANTY DEED

THE STATE OF TEXAS §
COUNTY OF WILLIAMSON §

("Grantor"), for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration to Grantor, in hand paid FR BERRY HILLS, LLC, a Delaware limited liability company ("Grantee"), whose mailing address is 11 Dupont Circle NW, Suite 900, Washington, DC 20036, the receipt and sufficiency of which are hereby acknowledged by Grantor, has GRANTED, SOLD, AND CONVEYED and, by these presents, does GRANT, SELL, AND CONVEY unto Grantee, subject to the exceptions and other matters stated or referred to herein, the real property described on Exhibit A-1 and Exhibit A-2 attached hereto and made part hereof for all purposes, together with all improvements thereon, if any, and all appurtenances pertaining thereto, including but not limited to, all right, title, and interest of Grantor in and to adjacent streets, easements, and rights-of-way; strips and gores; rights of ingress and egress thereto; all permits, approvals, privileges and entitlements appurtenant thereto; and utility capacities, including prepaid impact fees, associated therewith (collectively, the "Property").

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereto in anywise belonging unto Grantee, and Grantee's successors or assigns, forever; and, subject to all of the matters set forth or referred to herein, Grantor does hereby bind itself and its successors to WARRANT AND FOREVER DEFEND all and singular the Property unto Grantee, Grantee's successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof, by, through, or under Grantor, but not otherwise; provided, however, that this conveyance is made by Grantor and accepted by Grantee subject to (a) the validly existing and enforceable rights, interests, and estates of third parties in connection with the items described in Exhibit B attached hereto and made part hereof for all purposes; and (b) all liens securing the payment of taxes or assessments for the current and all subsequent years, except for any taxes or other assessments based on change in use or ownership, including, without limitation, rollback taxes, which remain the obligation of Grantor.

Ad valorem taxes with respect to the Property for the current year have been prorated as of the date hereof.

EXECUTED AND DELIVERED effective this ____ day of July, 2022.

	GRANTOR:
	ASHTON AUSTIN RESIDENTIAL L.L.C., a Texas limited liability company
	By: Mame: Mumpy y. Proyer
	Title: VP OF FINANCE
STATE OF TEXAS	§
COUNTY OF TRAVIS	§ § §
This instrument was acknowld. Amel. VP & L.L.C., a Texas limited liability com	owledged before me on the 25 day of July, 2022, by 7 Finance of ASHTON AUSTIN RESIDENTIAL pany, on behalf of said entity.
(seal)	
CARRIE GARRETT Notary Public, State of Texa Comm. Expires 03-08-2024 Notary ID 130572245	Notary Public, State of Texas

EXHIBIT A-1

DESCRIPTION OF TRACT 1

Kimley-Horn and Associates, No. TBPLS Firm No. 10193973 601 NW Loop 410, Suite 350 San Antonio, Texas 78218

A METES AND BOUNDS DESCRIPTION OF A 16,885 ACRE TRACT OF LAND

BEING a 16.885 acre (735,512 square feet) tract of land situated in the Burrell Eaves Survey, Abstract No. 216, City of Georgetown, Williamson County, Texas; and containing a portion of that certain 208.33 acre tract as described in Special Warranty Deed to BERRY CREEK (GEORGETOWN), ASLI IX, LLC, as recorded in Document No. 2018106292, a portion of that certain 314.54 acre tract as described in Quitclaim Deed to BERRY CREEK (GEORGETOWN), ASLI IX, LLC, as recorded in Document No. 2018106293, and a portion of that certain 1.02 acre tract (Director Lot) Termination of Notes Document described in instrument to BERRY CREEK (GEORGETOWN), ASLI IX, LLC, as recorded in Document No. 2022027439, all recorded in the Official Public Records of Williamson County; and being more particularly described as follows:

COMMENCING at a 1/2 inch iron rod (with cap) found on the southwestern right-of-way line of S.H. 195 (variable width right-of-way), marking the southeast comer of that certain 16.737 acre tract described in instrument to Alta Berry Creek LP, recorded in Document No. 2021 87536 of the Official Public Records of Williamson County, and of said 208.33 acre tract, also the north corner of that certain 5.116 acres described in instrument to Shell Storage LLC, recorded in Document No. 2018081331 of the Official Public Records of Williamson County;

THENCE, along the southeasterly boundary of the said 208.33 acre tract, the following twelve (12) courses and distances:

- 1. South 68°47'58" West, 72.66 feet to a 1/2-inch iron rod found for corner:
- South 68°51'02" West, 808.80 feet to a 1/2-inch iron rod with a cap found; marking the
 northwestern corner of that certain 15.114 acres described in instrument to Round Rock 732
 Building LLC & Shell GT OS LLC, recorded in Document No. 2020116166 of the Official Public
 Records of Williamson County, and the northeastern corner of that certain 10.0016 acres
 described in instrument to Feliberto Garza, III ET UX, recorded in Document No. 2000014422 of
 the Official Public Records of Williamson County;
- 3. South 68°58'18" West, 108.51 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set marking the south corner of said 16.737 acre tract;
- 4. South 68°58'18" West, 57:15 feet to a 1/2-inch Iron rod with a plastic cap stamped "KHA" set for corner;
- 5. South 68°35'51" West, 314.42 feet to a 1/2-inch iron rod found marking the northwest corner of said 10.0016 acretract, and the northeast corner of that certain 10.0 acres described in instrument to Ekram Sharif Mezayek ET UX, recorded in Document No. 2004040065 of the Official Public Records of Williamson County;
- South 68°49'58" West, 457.10 feet to a 1/2-Inch iron rod found marking the northwest corner of said 10.0 acre tract, and the northeast corner of that certain 19.317 acre tract described in instrument to Jupiter Rentals LLC, recorded in Document No. 2019020852 of the Official Public Records of Williamson County;
- 7. South 68°47'03" West, 790.08 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner.
- 8. South 68*45'16" West, 43.72 feet to a 1/2-inch iron rod found marking the northwest corner of said 19/317 acre tract, and the northeast corner of that certain 10.00 acre tract described in instrument to Bryan Threlkeld ET UX, recorded in Document No. 2014039677 of the Official Rublic Records of Williamson County;
- South 68°42'04" West, at 143.78 feet passing a 1/2-inch iron rod with a plastic cap stamped "FOREST" found marking the southeast corner of said 1.02 acre tract (Director Lot), for a total distance of 214.93 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set marking the POINT OF BEGINNING of herein described tract;

ÉERRY CREEK HIGHLANDS PHASE 3

Job No. 067782813 – January 21, 2022 – Page 1 of 3

Kimley-Horn and Associates, Inc. TBPLS Firm No. 10193973 601 NW Loop 410, Suite 350 San Antonio, Texas 78216

- 10. South 68°42'04" West, at 281.56 feet passing a 1/2-inch iron rod with a plastic cap stamped "FOREST" found marking the southwest corner of said Tract 2, 1.102 acre tract, for a total distance of 327.32 feet to a 1/2-inch iron rod found on the northwest line of that certain 10:00 acre tract described in instrument to Paul W. Landreth, recorded in Document No. 2013082663 of the Official Public Records of Williamson County;
- 11. South 68°42'39" West, 261.92 feet to a 1/2-inch iron rod found marking the northwest corner of said 10.00 acre tract, and the northeast corner of that certain 14.998 acre tract described in instrument to Chas Witt ET AL, recorded in Document No. 2012022314 of the Official Public Records of Williamson County;
- 12. South 68°46'14" West, 247.37 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set marking the southwest corner of herein described tract;

THENCE, crossing the said 208.33acre tract the following twenty-two (22) courses and distances:

- 1. North 21°09'52" West, 123.98 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 2. North 20°35'09" West, 50.00 feet to a 1/2-inch fron rod with a plastic cap stamped "KHA" set for corner:
- 3. North 21°09'52" West, 246.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 4. North 21°44'36" West, 50.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 5. North 21°09'52" West, 123.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 6. North 68°50'08" East, 243.22 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 7. North 02°56'16" East, 546.77 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set marking the northwest corner of herein described tract;
- 8. In a southeasterly direction, along a non-tangent curve to the left, a central angle of 11°25'34", a radius of 500.00 feet, a chord bearing and distance of South 79°41'20" East, 99.55 feet, and a total arc length of 99.71 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set on a point of reverse curve;
- 9. In a southeasterly direction, along a reverse curve to the right, a central angle of 88°20'22", a radius of 25.00 feet, a chord bearing and distance of South 41°13'56" East, 34.84 feet, and a total arc length of 38.55 feet to a 1/2-inch fron rod with a plastic cap stamped "KHA" set for corner;
- 10. South 86° 48' 35" East 50.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 11. In a northeasterly direction, along a non-tangent curve to the right, a central angle of 90°00'00", a radius of 25.00 feet, a chord bearing and distance of North 47°56'16" East, 35.36 feet, and a total arc length of 39.27 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set to a point of tangency;
- 12. South 87°03'44" East, 198.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for a point of curvature;
- 13. In a southeasterly direction, along a tangent curve to the right, a central angle of 90°00'00", a radius of 25.00 feet, a chord bearing and distance of South 42°03'44" East, 35.36 feet, and a total arc length of 39.27 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 14 South 87°03'44" East, 50.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 15. in a northeasterly direction, along a non-tangent curve to the right, a central angle of 90°00'00", a radius of 25.00 feet, a chord bearing and distance of North 47°56'16" East, 35.36 feet, and a total arc length of 39.27 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for a point of tangency;

BERRY CREEK HIGHLANDS PHASE 3 Job No. 067782813 – January 21, 2022 – Page 2 of 3

Kimley-Horn and Associates, Inc. TBPLS Firm No. 10193973 601 NW Loop 410, Suite 350 San Antonio, Texas 78216/>

- 16. South 87°03'44" East, 20.58 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for a point of curvature:
- 17. In a northeasterly direction, along a tangent curve to the left, a central angle of 09°00'06", a radius of 530.00 feet, a chord bearing and distance of North 88°26'12" East, 83.18 feet, and a total arc length of 83.27 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set marking the northeast corner of herein described tract;
- 18. South 13°11'05" West, 30.94 feet to a 1/2-inch fron rod with a plastic cap stamped (KHA* set for corner;
- 19. South 02°56'16" West, 300.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 20. South 02°51'59" East, 97.17 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 21. South 18°49'01" East, 98.27 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 22. South 21°09'52" East, 349.93 feet to the POINT OF BEGINNING and containing 16.885 acres of land in Williamson County, Texas, as shown in the document saved in the office of Kimley-Horn and Associates, Inc. in San Antonio, Texas. The basis of bearing for this description is the Texas State Plane Coordinate System Grid, Central Zone (FIPS 4203) (NAD 83). All distances are on the Grid and shown in U.S. Survey Feet. This document was prepared in the office of Kimley-Horn and Associates, Inc. in San Antonio, Texas.



EXHIBIT A-2

DESCRIPTION OF TRACT 2

Kimley-Horn and Associates, inc. TBPLS Firm No. 10193973 601 NW Loop 410, Suite 350 San Antonio, Texas 78216

A METES AND BOUNDS DESCRIPTION OF A 17.606 ACRE TRACT OF LAND

BEING a 17.606 acre (766,929 square feet) tract of land situated in the Burrell Eaves Survey, Abstract No. 216, City of Georgetown, Williamson County, Texas; and being a portion of that certain 208.33 acre tract as described in Special Warranty Deed to BERRY CREEK (GEORGETOWN), ASLI IX, LLC, as recorded in Document No. 2018106292, also being a portion of that certain 314.54 acre tract as described in Quitclaim Deed to BERRY CREEK (GEORGETOWN), ASLI IX, LLC, as recorded in Document No. 2018106293 both of the Official Public Records of Williamson County; and being more particularly described as follows:

COMMENCING at a 1/2 inch fron rod (with cap) found on the southwestern right-of-way line of S.H. 195 (variable width right-of-way), marking the southeast corner of that certain 16.737 acre tract described in instrument to Alta Berry Creek LP, recorded in Document No. 2021 187536 of the Official Public Records of Williamson County, and of said 208.33 acre tract, also the north corner of that certain 5.116 acres described in instrument to Shell Storage LLC, recorded in Document No. 2018081331 of the Official Public Records of Williamson County;

THENCE, along the southeasterly boundary of the said 208.33 acre tract the following seven (7) courses and distances:

- 1. South 68*47'58" West, 72.66 feet to a 1/2-inch iron rod found for corner:
- 2. South 68*51'02" West, 808.80 feet to a 1/2-inch fron rod with a cap found; marking the northwestern corner of that certain 15.114 acres described in instrument to Round Rock 732 Building LLC & Shell GT OS LLC, recorded in Document No. 2020116166 of the Official Public Records of Williamson County, and the northeastern corner of that certain 10.0016 acres described in instrument to Feliberto Garza, III ET UX, recorded in Document No. 2000014422 of the Official Public Records of Williamson County;
- 3. South 68*58'18" West, 106.51 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for the POINT OF BEGINNING of herein described tract;
- 4. South 68°58'18" West, 57(15 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner.
- South 68°35'51" West, 314.42 feet to a 1/2-inch iron rod found marking the northwest corner of said 10.0016 acre tract, and the northeast corner of that certain 10.0 acres described in instrument to Ekram Sharif Mezayek ET UX, recorded in Document No. 2004040065 of the Official Public Records of Williamson County;
- 6. South 68*49/58" West, 457/10 feet to a 1/2-inch Iron rod found marking the northwest corner of said 10.0 acre tract, and the northeast corner of that certain 19.317 acre tract described in instrument to Jupiter Rentals LLC, recorded in Document No. 2019020852 of the Official Public Records of Williamson County;
- 7. South 68°47'03" West, 395.04 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set marking the southwest corner of herein described tract;

THENCE, crossing the said 208.33 acre tract the following thirty-two (32) courses and distances:

- North 44*59'49" West, 190.24 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- North 38°46'24" West, 133.11 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 3. North 26°21'06" West, 140.39 feet to a 1/2-inch iron rod with a plastic cap stamped *KHA" set for corner:

BERRY CREEK HIGHLANDS PHASE 5-revised Job No. 067782813 – January 21, 2022 – Page 1 of 3

Kimley-Horn and Associates, Inc. TBPLS Firm No. 10193973 601 NW Loop 410, Suite 350 San Antonio, Texas 78216

- North 37°39'18" West, 32.04 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- North 50°46'38" East, 144.30 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set (for corner:
- 6. in a southeasterly direction, along a non-tangent curve to the right, a central angle of 01°57'25", a radius of 275.00 feet, a chord bearing and distance of South 38°14'40" East, 9.39 feet, and a total arc length of 9.39 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- North 52°44'03" East, 50.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 8. North 52°44'03" East, 124.71 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- South 32°15'45" East, 144.11 feet to a 1/2-inch Iron rod with a plastic cap stamped "KHA" set for corner;
- South 50°25'08" East, 121.25 feet to a 1/2-inch fron rod with a plastic cap stamped "KHA" set for corner;
- 11. North 76°29'15" East, 84.05 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for
- 12. North 67°42'23" East, 135.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 13. North 16°03'10" East, 24.18 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for
- 14. North 67°42'23" East, 450.00 feet to a 1/2-inch from rod with a plastic cap stamped "KHA" set for corner:
- 15. North 22°17'37" West, 191.96 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 16. South 67°42'23" West, 19.49 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 17. North 22°17'37" West, 201.51 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 18. North 23°29'59" West, 45.38 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 19. North 40°29'28" West, 326.23 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 20. North 46°51'59" West, 89.74 feet to a 1/24inch iron rod with a plastic cap stamped "KHA" set for corner;
- 21. North 52*56'59" West, 48.14 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 22. North 39°18'53" East, 124'90 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 23. North 39°18'53" East, 50.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 24. North 50"41'07" West, 20:89 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 25. North 39°18'53" East, 123.00 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 26. South 58*41'07" East, 12.38 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner:
- 27. South 50°41'07" East, 123.84 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for
- 28. South 49° 19'37" East, 23.94 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner.
- South 44°33'50" East, 34.56 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;

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- 30. South 40°29'28" East, 378.78 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for corner;
- 31. South 25°54'11" East, 55.89 feet to a 1/2-inch iron rod with a plastic cap stamped "KHA" set for
- 32. South 22°17'42" East, 775.08 feet to the POINT OF BEGINNING and containing 17.686 acres of land in Williamson County, Texas, as shown in the document saved in the office of Kimley-Horn and Associates, Inc. in San Antonio, Texas. The basis of bearing for this description is the Texas State Plane Coordinate System Grid, Central Zone (FIPS 4203) (NAD'83). All distances are on the Grid and shown in U.S. Survey Feet. This document was prepared in the office of Kimley-Horn and Associates, Inc. in San Antonio, Texas.

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{W1150450.2} Exhibit A-2

EXHIBIT B

PERMITTED EXCEPTIONS

- 1. The following restrictive covenants of record itemized below: Document No. 2012080146, Document No. 2022026998, Document No. 2022026699, Document No. 2022030966 (Notice of Applicability for Phase 3), Document No. 2022030968 (Notice of Applicability for Phase 5), Document No. 2022027280, Document No. 2022027281, Document No. 2022027282, and Document No. 2022026999, Official Public Records, Williamson County, Texas.
- 2. Covenants, conditions and restrictions and other instruments recorded in Document No. 2022026999, Official Public Records, Williamson County, Texas and purporting to impose a community enhancement fee or conveyance fee payable upon the conveyance of an interest in real property or payable for the right to make or accept such a transfer, and any and all fees, liens or charges, whether recorded or unrecorded, if any, currently due payable or that will become due or payable, and any other rights deriving therefrom, that are assessed pursuant thereto.
- 3. Adoption of Working Capital Assessment:

Recorded: Document No. 2022027282, Official Public Records, Williamson County, Texas.

- 4. Building setback lines as set forth in the Master Design Guidelines recorded in Document No. 2022027280, Official Public Records, Williamson County, Texas.
- 5. Maintenance charges and/or assessments secured by a lien as set out in instrument(s) recorded in Document No. 2022026699, Official Public Records, Williamson County, Texas and as amended, supplemented, re-filed or re-stated. Said lien for charges and assessments is subordinate to a recorded first mortgage or first lien deed of trust as set out therein.
- 6. Easements for installation, maintenance, repair and replacement of utilities, drainage, encroachments and protrusions, together with rights and remedies of Declarant, including but not limited to terms, conditions, covenants, options, provisions and other matters contained in Master Covenant recorded in Document No. 2022026699, Official Public Records, Williamson County, Texas.
- 7. Easement:

Recorded: Volume 964, Page 539, as affected by Volume 2168, Page 44, Deed Records, Williamson County, Texas.

To: Chisholm Trail Water Supply Corporation Purpose: Potable water pipeline (blanket-type)

{W1150450.2} Exhibit B

8. Easement:

Recorded: Volume 988, Page 310, as affected by Volume 2168, Page 44, Deed Records, Williamson County, Texas.

To: Chisholm Trail Water Supply Corporation Purpose: Potable water pipeline (blanket-type)

9. Easement:

Recorded: Volume 1006, Page 661, Deed Records, Williamson County, Texas.

To: Pedernales Electric Cooperative, Inc.

Purpose: Electric and telephone line(s) (blanket-type)

10. Easement:

Recorded: Volume 1218, Page 658, Deed Records, Williamson County, Texas.

To: General Telephone Company of the Southwest

Purpose: Communication lines (blanket-type)

11. Easement:

Recorded: Document No. 9643570, Official Records, Williamson County, Texas.

To: GTE Southwest Incorporated

Purpose: Communication lines (blanket-type)

12. Terms, Conditions, and Stipulations in the Consent Agreement:

Recorded: Document Numbers 2019034428, 2019034429, 2019101325, 2019101326, Official Public Records, Williamson County, Texas. Further affected by that certain Amended and Restated Consent Agreement in Document No. 2019040583 as affected by Document No. 2019101328, Official Public Records, Williamson County, Texas.

13. Terms, Conditions, and Stipulations in the Easement and Developmental Matters Agreement:

Recorded: Document No. 2018106301, Official Public Records, Williamson County, Texas.

14. Terms, Conditions, and Stipulations in the Waiver of Special Appraisal for the benefit of Berry Creek Highland MUD:

Recorded: Document No. 2020099751, Official Public Records, Williamson County, Texas.

15. Terms, Conditions, and Stipulations in the Deed Recordation Affidavit re: Edwards Aquifer Protection Plan:

Recorded: Document No. 2020111396, Official Public Records, Williamson County, Texas.

16. Terms, Conditions, and Stipulations in the Memorandum of Post Closing Agreement: Recorded: Document No. 2021187537, Official Public Records, Williamson County, Texas.

17. Tract 2: Easement:

Recorded: Document No. 2022010762, Official Public Records, Williamson County, Texas, and as shown on survey dated 1/28/2022 and last revised 3/7/2022, prepared by John G. Mosier, RPLS No. 6330.

Purpose: Wastewater Easement

18. Terms, Conditions, and Stipulations in the Memorandum of Post-Closing Development Agreement:

Recorded: Document No. 2022031156, Official Public Records, Williamson County, Texas.

19. Tract 2: Easement rights, if any, related to the overhead electric lines and power poles over and across subject property, as shown on survey dated 1/28/2022 and last revised 3/7/2022, prepared by John G. Mosier, RPLS No. 6330.

ELECTRONICALLY RECORDED OFFICIAL PUBLIC RECORDS

2022090595

Fee: \$66.00 Pages: 12 07/29/2022 01:51 PM **OSALINAS**



Nancy E. Rister, County Clerk Williamson County, Texas