## WATER POLLUTION ABATEMENT PLAN

## BAR W – LOT 5

**Prepared For:** 

## CITY OF LEANDER, WILLIAMSON COUNTY, TX

**Prepared By:** 

## CIVIL & ENVIRONMENTAL CONSULTANTS, INC. AUSTIN, TEXAS

CEC Project 323-627

MAY 2023



Civil & Environmental Consultants, Inc.

# 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 <u>30 TAC 213</u>.

#### **Administrative Review**

1. <u>Edwards Aquifer applications</u> 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: <u>http://www.tceq.texas.gov/field/eapp</u>.

- 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

1. Regulated Entity N	ame:	3ar V	V - Lot	5		2. Re	egulat	ed Entity No.:	
3. Customer Name:	RR 29	9 Ret	ail LTI	D		4. Cı	istom	er No.: 6057(	)7702
5. Project Type: (Please circle/check one)	New		Modif	ication	1	Exter	nsion	Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Resider	ntial	Non-r	esiden	tia		8. Sit	e (acres):	1.04 acres
9. Application Fee:	\$4,00	00	10. Po	ermai	nent H	BMP(s	s):	Wet Pond	
11. SCS (Linear Ft.):	N/A	4	12. AS	ST/US	ST (No	o. Tar	ıks):	N/A	
13. County:	Williar	nson	14. W	aters	hed:			North Fork S	an Gabriel River

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

# **Application Distribution**

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

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

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

	Austin	Region	
County:	Hays	Travis	Williamson
Original (1 req.)	—		<u>X</u> _
Region (1 req.)			
County(ies)			
Groundwater Conservation District(s)	Edwards Aquifer Authority Barton Springs/ Edwards Aquifer Hays Trinity Plum Crook	Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	I unit creek Austin Buda Dripping Springs Kyle Mountain City San Marcos Wimberley Woodcreek	Austin Bee Cave Pflugerville Rollingwood Round Rock Sunset Valley West Lake Hills	AustinCedar ParkFlorenceGeorgetownJerrell X_LeanderLiberty HillPflugervilleRound Rock

	S	an Antonio Region			
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)					
Region (1 req.)					
County(ies)					
Groundwater Conservation District(s)	Edwards Aquifer Authority Trinity-Glen Rose	Edwards Aquifer Authority	Kinney	EAA Medina	EAA Uvalde
City(ies) Jurisdiction	Castle Hills Fair Oaks Ranch Helotes Hill Country Village Hollywood Park San Antonio (SAWS) Shavano Park	Bulverde Fair Oaks Ranch Garden Ridge New Braunfels Schertz	NA	San Antonio ETJ (SAWS)	NA

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

Michael Theone

nothe

Print Name of Customer/Authorized Agent

5/22/2023

Signature of Customer/Authorized Agent

Date

**FOR TCEQ INTERNAL USE ONLY	Y**	
Date(s)Reviewed:	Date	Administratively Complete:
Received From:	Corre	ect Number of Copies:
Received By:	Distri	ibution Date:
EAPP File Number:	Comp	plex:
Admin. Review(s) (No.):	No. A	R Rounds:
Delinquent Fees (Y/N):	Revie	w Time Spent:
Lat./Long. Verified:	SOS	Customer Verification:
Agent Authorization Complete/Notarized (Y/N):	Fee	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):	Check	k: Signed (Y/N):
Core Data Form Incomplete Nos.:		Less than 90 days old (Y/N):

# **General Information Form**

**Texas Commission on Environmental Quality** 

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

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

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

# Signature

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

Print Name of Customer/Agent: Michael Theone

Date: <u>5/22/</u>2023

Signature of Customer/Agent:

Maheone

## **Project Information**

- 1. Regulated Entity Name: Bar W Lot 5
- 2. County: <u>Willaimson</u>
- 3. Stream Basin: North Fork San Gabriel River
- 4. Groundwater Conservation District (If applicable): \_\_\_\_\_
- 5. Edwards Aquifer Zone:

Х	Recharge Zone
	Transition Zone

6. Plan Type:

Х	WPAP	AST
	SCS	UST UST
	Modification	Exception Request

7. Customer (Applicant):

 Contact Person: Milo Burdette

 Entity: RR 29 Retail, LTD.

 Mailing Address: 901 S MoPac expressway, Barton Oaks Plaza Two, Suite 550

 City, State: Austin, TX
 Zip: 78746

 Telephone: (512) 632-2452
 FAX: \_\_\_\_\_

 Email Address: milo@barshop-oles.com

8. Agent/Representative (If any):

Contact Person: Michael Theone<br/>Entity: Civil and Environmental Consultants, Inc.Mailing Address: 1221 S MoPac Expressway, Suite 350City, State: Austin, TXZip: 78746<br/>Telephone: (512) 439-0400Email Address: mtheone@cecinc.com

9. Project Location:

X The project site is located inside the city limits of Leander

The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of \_\_\_\_\_\_.

- The project site is not located within any city's limits or ETJ.
- 10. X The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

19376 Ronald Regan Blvd, Leander, Texas 78641; Lot 5 of Bar-W Subdivision

- 11. X Attachment A Road Map. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.
- 12. X Attachment B USGS / Edwards Recharge Zone Map. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:
  - X Project site boundaries.
  - X USGS Quadrangle Name(s).
  - X Boundaries of the Recharge Zone (and Transition Zone, if applicable).

X Drainage path from the project site to the boundary of the Recharge Zone.

- 13. X The TCEQ must be able to inspect the project site or the application will be returned. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.
  - X Survey staking will be completed by this date:  $\frac{11}{19}$

- 14. X Attachment C Project Description. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:
  - X Area of the site
  - X Offsite areas
  - X Impervious cover
  - X Permanent BMP(s)
  - X Proposed site use
  - X Site history
  - X Previous development
  - X Area(s) to be demolished
- 15. Existing project site conditions are noted below:
  - Existing commercial site
  - Existing industrial site
  - Existing residential site
  - X Existing paved and/or unpaved roads
  - X Undeveloped (Cleared)
  - Undeveloped (Undisturbed/Uncleared)
  - Other:

# **Prohibited Activities**

- 16. X I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:
  - (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
  - (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
  - (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
  - (4) The use of sewage holding tanks as parts of organized collection systems; and
  - (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
  - (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.
- 17. X I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:
  - (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
  - (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

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

# Administrative Information

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

#### 

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



0:\320-000\323-627\-CADD\Dwg\EXHBITS\VICINITY MAP.dwgiLAYOUTi} LS:(5/2/2023 - qury) - LP: 5/2/2023 4:22 PM

# ATTACHMENT B – USGS/EDWARDS RECHARGE ZONE MAP



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



LEANDER NE QUADRANGLE TEXAS - WILLIAMSON COUNTY 7.5-MINUTE SERIES





Produced by the United States Geological Survey North American Datum of 1983 (NAD83) World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid:Universal Transverse Mercator, Zone 14R This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.... Roads..... Names..... Hydrography..... Contours.... Boundaries.... Wetlands... ..FWS National Wetlands 1982 Inventory



# NSN. 7643016396982 NGA REF NO. US GS X 24 K 25 239

\_\_\_\_

State Route

# Edwards Aquifer Viewer Custom Print



Edwards Aquifer Boundary

- Edwards Aquifer Boundary central line
- **TX** Counties
  - 7.5 Minute Quad Grid

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, TCEQ

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Edwards Aquifer Boundary

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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, TCEQ

#### ATTACHMENT C

#### **Project Description**

On behalf of RR 26 Commercial LTD, CEC is submitting development plans for the Bar W Ranch – Lot 5 development located at 19376 Ronald Reagan Blvd. in the City of Leander city limits, Williamson County, Texas. The site is approximately 1.04 acres and currently undeveloped with a small section of sidewalk to be demolished and rebuilt with a guardrail.

The proposed development consists of 2907 SF of commercial space with associated parking, drive aisles, utilities and other items addressed in the site data table submitted with the SDP plan set that has been submitted concurrently with this submittal. The site will include 66% of impervious cover. The site lies within the Edwards Aquifer Recharge Zone and therefore a TCEQ Water Pollution Abatement Plan is being submitted.

According to FEMA Panel No. 48491C0275E, dated September 26, 2008, no portion of the site lies within the 100 year floodplain.

The wastewater service for this area is the City of Leander and flows from this site will be conveyed to a lift station located within the existing Bar W subdivision. Those flows will then go to an existing wastewater system manhole located at the southwest corner of the subdivision. The private wastewater collection system has been designed such that all flows within the pipe achieve a minimum velocity of 2.0 feet per second but will not exceed 10.0 feet per second. All vertical and horizontal bends in the gravity line occur at proposed manholes spaced no more than 500 feet apart.

# **Geologic Assessment**

**Texas Commission on Environmental Quality** 

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

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

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

# Signature

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

Print Name of Geologist: James Killian

Telephone: 512-328-2430

Date: 20 May 2019

Fax: 512-328-1804

Representing: <u>Horizon Environmental Services, Inc. and TBPG Firm Registration No. 50488</u> (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



**Regulated Entity Name:** <u>13-acre RR 29 Shopping Center, Ronald Reagan Blvd. and SH 29 West,</u> Leander, Williamson County, Texas

# **Project Information**

- 1. Date(s) Geologic Assessment was performed: 7 May 2019
- 2. Type of Project:

$\ge$	WPAP
$\mathbf{X}$	SCS

AST
UST

3. Location of Project:

$\leq$	Recharge	Zone

Transition Zone

] Contributing Zone within the Transition Zone

- 4. X 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.

Soil Name	Group*	Thickness(feet)
Eckrant cobbly clay, 1 to 8% slopes (EaD)	D	0 to 1
Fairlie clay, 1 to 2% slopes (FaB)	D	2 to 4
Georgetown clay loam, 0 to 2% slopes (GeB)	D	1 to 3

Table 1 - Soil Units, InfiltrationCharacteristics and Thickness

Soil Name	Group*	Thickness(feet)
Georgetown stony clay loam, 1 to 3%		
slopes (GsB)	D	1 to 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. X 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" = <u>300</u>' Site Geologic Map Scale: 1" = <u>300</u>' Site Soils Map Scale (if more than 1 soil type): 1" = <u>300</u>'

TCEQ-0585 (Rev.02-11-15)

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. X Surface geologic units are shown and labeled on the Site Geologic Map.
- 12. Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
  - Geologic or manmade features were not discovered on the project site during the field investigation.
- 13. The Recharge Zone boundary is shown and labeled, if appropriate.
- 14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

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

The wells are not in use and have been properly abandoned.

The wells are not in use and will be properly abandoned.

The wells are in use and comply with 16 TAC Chapter 76.

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

#### Administrative Information

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



#### GEOLOGIC ASSESSMENT RR 29 SHOPPING CENTER RONALD REAGAN BOULEVARD AND STATE HIGHWAY 29 WEST LEANDER, WILLIAMSON COUNTY, TEXAS HJN 190092 GA

#### PREPARED FOR:

RR 29 RETAIL, LTD AUSTIN, TEXAS

#### **PREPARED BY:**

HORIZON ENVIRONMENTAL SERVICES, INC. TBPG FIRM REGISTRATION NO. 50488



MAY 2019

190092 GA

CORPORATE HEADQUARTERS 1507 South IH 35 \* Austin, Texas 78741 \* 512.328.2430 \* Fax 512.328.1804 \* www.horizon-esi.com An LJA Company



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#### II. ATTACHMENTS:

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- B STRATIGRAPHIC COLUMN
- C DESCRIPTION OF SITE GEOLOGY
- D SITE GEOLOGIC MAP
- E SUPPORTING INFORMATION
- F ADDITIONAL SITE MAPS



#### ATTACHMENT A

#### **GEOLOGIC ASSESSMENT TABLE**

GEO	LOGIC ASS	ESSMENT	TABL	u,			PROJI	ECT NAM	ü	<b>RR29</b> 5	Shopping	Cente	ir Ronald F	leagan	/SH29	, Lean	der, Williar	nson Co., TX	
	LOCATIC	N				FE/	ATURE	CHARACTE	ERIST	TICS				EVAL	LUAT	NO	ISYHG	CAL SETTING	
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FEATURE IC	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIME	VSIONS (FEET)	TREND (DEGREES)	DOM	DENSITY (NOIFT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSIT	YTIMI	CATCHMENT AREA (ACRES)	TOPOGRAPHY	<u> </u>
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2A TYPE	4=1	TYPE			2B POINTS	۰				8A IN	<b>JFILLING</b>								Г
U	Cave				30		N NG	ne, exposed be	edrock										
sc	Solution cavity				20	Ĵ	ő	arse - cobbles,	, break	down, s	and, grave	ā							
SF	Solution-enlarge	d fracture(s)			20		C Lo	ίT											
u.	Fault				20		LILL I	ies, compacted	1 clay-ri	tch sedi	ment, soil	profile,	grav or red	colors					
0	Other natural be	drock features			ŵ	-	/ Ve	getation. Give	details	in narra	tive descr	iption	•						_
MB	Man-made featu	ire in bedrock			30		=S Flc	wstone, cemer	nts, cav	ve depo	sits								
SW	Swallow hole				30		ð	her materials:											
ЧS	Sinkhole				20														1
8	Non-karst closed	depression			ŝ							12	TOPOGRAI	λHc					r-
Z	Zone, clustered	or aligned feature	S		30			Ū	liff, F	Hilltop	), Hillsid	de, D	Trainage	, Floc	odpla	in, S	treambe	q	<u> </u>
	SINE OF TE	1 Stal	ł have re	ad, I u	nderstood, an	d i have	s followed	the Texas Con	nmissic	on on Er	nvironmen	tal Qua	lity's Instruc	tions to	Geologi	ists. T			1
1	the the	6.4.1	informati	on prei	sented here c	omplies	i with that	document and	is a tru	are repre-	sentation (	of the c	onditions ob	served i	in the fit	eld.			
	JAMES P. KILL	IAN	My signa	iture ce	srtifies that I æ	m quali	fied as a g	leologist as del	fined by	y 30 TA	C Chapter	-213.							
33	GEOLOGY	151											Date: 20 M	ay 2019	~				

No. 10281

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Sheet 1 of 1

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

4



.

#### ATTACHMENT B

## STRATIGRAPHIC COLUMN

	Geologic Unit	Hydrologic Unit	Approx. Thickness at Project Site (ft)	Elevation (ft msl)	Depth (ft)
	Edwards Formation (Ked)	Edwards Aquifer	40	990	0 40
	Comanche Pe Formation (Kc)	ak	50	900	90 —
	Walnut Formation (Kwa)	Confining Unit	175	725	265
surface elevation of 990 feet on the southwest boundary of the subject site.					
11		Date: 05/07/2	019 A	ttachment B	SINE OF TEACH
Horizon. Environmental Services, Inc.		Urawn: HJN NO: 190092.001	IGA Strat IGA RR 29 Ronald Re Leander, W	Stratigraphic Column RR 29 Shopping Center Ronald Reagan and SH 29 West Leander, Williamson County, Texas	

190092 - RR 29 Shopping Center\Graphics\190092-001GA\_05A\_Strat.mxd



#### ATTACHMENT C

DESCRIPTION OF SITE GEOLOGY



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

A geologic assessment of the approximately 13-acre subject site was conducted pursuant to Texas rules for regulated activities on the Edwards Aquifer Recharge Zone (EARZ) (30 TAC 213). The subject site consists primarily of undeveloped rangeland and woodlands located at Ronald Reagan Boulevard and State Highway (SH) 29 West, Leander, Williamson County, Texas (Attachment F, Figure 1). Assessment findings were used to develop recommendations for site construction measures intended to be protective of water resources at the subject site and adjacent areas.

The entire subject site is located within the Edwards Aquifer Recharge Zone (EARZ), as defined by the Texas Commission on Environmental Quality (TCEQ). The EARZ occurs where surface water enters the subsurface through exposed limestone bedrock containing faults, fractures, sinkholes, and caves.

A review of existing literature shows the subject site is predominantly underlain by undifferentiated Edwards Limestone formation (Ked) (UT-BEG, 1995), with an estimated maximum thickness of about 40 feet. In general, the rock strata beneath the site dip to the southeast at about 10 to 30 feet per mile.

No natural geologic features or man-made features were identified at the subject site.



#### ATTACHMENT D

SITE GEOLOGIC MAP





#### ATTACHMENT E

# SUPPORTING INFORMATION



#### 1.0 INTRODUCTION AND METHODOLOGY

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

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

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

#### 2.0 ENVIRONMENTAL SETTING

#### 2.1 LOCATION AND GENERAL DESCRIPTION

The subject site consists of approximately 13 acres of rangeland and woodlands located immediately southeast of the intersection of Ronald Reagan Boulevard and State Highway (SH) 29 West in Leander, Williamson County, Texas (Appendix F, Figure 1).

#### 2.2 LAND USE

The subject site is currently vacant and has previously been used for raising beef cattle. No habitable structures were observed on the site. Surrounding lands have seen recent rapid residential and commercial development. In the past, these areas were used for rural residences, farming, and raising livestock.

#### 2.3 TOPOGRAPHY AND SURFACE WATER

The subject site is situated on gently sloping terrain within the San Gabriel River watershed. Drainage on the site occurs primarily by overland sheet flow in multiple directions based on location near an unnamed tributary located near the center of the site (Appendix F,

Figures 2 and 3). The unnamed tributary flows east and eventually into the Middle Fork of the San Gabriel River. Surface elevations on the subject site vary from a minimum of approximately 975 feet above mean sea level (amsl) along the eastern property boundary to a maximum of approximately 990 feet amsl near the southwestern property boundary (USGS, 1976).

#### 2.4 EDWARDS AQUIFER ZONE

The subject site is found within the Edwards Aquifer Recharge Zone (TCEQ, 2019) (Attachment F, Figure 2).

#### 2.5 SURFACE SOILS

Five soil units are mapped within the subject site (NRCS, 2019) (Appendix F, Figure 4). Generally, the soil series are similar in their physical, chemical, and engineering properties, with the principal exception being rock fragment content and thickness. The soil units are described in further detail below.

Eckrant cobbly clay, 1 to 8% slopes (EaD). This soil has a surface layer about 13 inches thick. The upper part is dark grayish-brown, cobbly clay and the lower part is dark brown, cobbly clay. The underlying material is coarsely fractured, indurated limestone. This soil is calcareous and moderately alkaline. The surface has about 50% cover of limestone fragments that are mostly 4 to 8 inches across. This soil is well-drained, permeability is moderately slow, and runoff is rapid. The available water capacity is very low.

Fairlie clay, 1 to 2% slopes (FaB): This gently sloping soil is found along broad flats and on the edges of drainageways on uplands. Typically, this soil has a dark gray clay upper layer about 21 inches thick. The layer below that, to 46 inches, is clay that is gray in the upper part and dark grayish-brown in the lower part. The underlying material is weakly cemented limestone interbedded with limy material. This soil is calcareous and moderately alkaline throughout. This soil is moderately well-drained. When dry, this soil cracks extensively, and water enters it rapidly. When this soil is wet and the cracks are closed, water enters the soil very slowly. Runoff is medium. The available water capacity is high. Erosion is a slight hazard.

Georgetown clay loam, 0 to 2% slopes (GeB): This nearly level to gently sloping soil is found on uplands. Most areas are irregular in shape and range from 10 to 50 acres. Typically, the surface layer is slightly acidic, brown clay loam about 7 inches thick. The subsoil extends to about 35 inches; it is neutral to slightly acidic reddish-brown clay in the upper part, and cobbly clay in the lower part. The underlying material is indurated limestone that has limy earth imbedded in the crevices. This soil is well-drained. Permeability is slow. Surface runoff is medium. The available water capacity is low.

Georgetown stony clay loam, 1 to 3% slopes (GsB): This gently sloping soil is mostly found on the higher parts of uplands. Typically, this soil has a slightly acidic, brown stony clay loam surface layer about 7 inches thick, and few to common stones on or near the surface. The

subsoil, which extends down to a depth of about 35 inches, is neutral reddish-brown clay in the upper part and slightly acidic reddish-brown cobbly clay in the lower part. The underlying material is indurated, fractured limestone that has clay loam in crevices and fractures. This soil is well-drained. Permeability is slow, and surface runoff is medium. The available water capacity is low. Reaction is neutral to slightly acidic. The erosion hazard ranges to slight.

#### 2.6 WATER WELLS

A review of TCEQ and Texas Water Development Board (TWDB) records revealed no water wells on the subject site or within 0.5 miles of the subject site (TCEQ, 2005; TWDB, 2019). Horizon did not observe wells on the subject site during field assessment.

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

#### 2.7 GEOLOGY

#### Literature Review

A review of existing literature shows the subject site is underlain by the undifferentiated Edwards Limestone Formation (Ked) (UT-BEG, 1995), with an estimated maximum thickness of approximately 40 feet at higher elevations located along the southern border. In general, the rock strata beneath the site dip to the southeast at 10 to 30 feet per mile.

The subject site is located several miles west of the Balcones Fault Zone, and available geologic reports indicate the immediate area has not been affected by geologically inactive, normal faulting. A normal fault is an inclined fault in which the hanging wall appears to have slipped downward relative to the footwall. The nearest mapped fault is approximately 2.5 miles to the west of the site, and strikes N30°E (UT-BEG, 1995). The figure in Attachment B depicts the stratigraphic relationship and approximate thicknesses of the uppermost geologic unit found at the subject site.

#### Field Assessment

A field survey of the subject site was conducted by a licensed Horizon geologist on 7 May 2019. No geologic or man-made features were identified on the site. Horizon observed no features on the subject site that meet the TCEQ definition of a potential recharge feature. A map detailing site geology is provided in Attachment D.

#### 3.0 CONCLUSIONS AND RECOMMENDATIONS

No suitable geologic or man-made features were identified at the subject site. The site appears generally well-suited to development prospectus. It should be noted that soil and



drainage erosion would increase with ground disturbance. Native grasses and the cobbly content of the soil aid to prevent erosion. Soil and sedimentation fencing should be placed in all appropriate areas prior to any site construction activities.

Because the project site is located over the Edwards Aquifer Recharge Zone, it is possible that subsurface voids underlie the site. The nature of the sub-grade is fault-influenced, which can result in variable-sized voids in materials that may otherwise not be noted as void- or cave-forming. If any subsurface voids are encountered during the proposed development, construction should halt immediately so that a geologist may assess potential for the void(s) to provide meaningful recharge to the Edwards Aquifer.



#### 4.0 **REFERENCES**

- (COA) City of Austin. *GIS Data Sets*, Year 2003 2-foot contours of the City of Austin and ETJ only, <ftp://ftp.ci.austin.tx.us/GIS-Data/Regional/coa\_gis.html>. Updated by City of Austin 2012.
- (NRCS) Natural Resources Conservation Service (formerly the Soil Conservation Service) US Department of Agriculture, Engineering Division. Web Soil Survey, <a href="http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a>. Accessed 16 May 2019.
- (OSM) OpenStreetMap contributors. Open Street Map, <http://www.openstreetmap .org>. Available under the Open Database License (www.opendatacommons.org/ licenses/odbl). Accessed 15 May 2019.
- (TCEQ) Texas Commission on Environmental Quality. Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones. Revised October 2004.
- \_\_\_\_\_. RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices. Revised July 2005.

\_\_\_\_. Edwards Aquifer Protection Program. Edwards Aquifer Viewer, <https://www.tceq.texas.gov/gis/edwards-viewer.html>. Accessed 15 May 2019.

- (TWDB) Texas Water Development Board. Water Information Integration and Dissemination System. TWDB Groundwater Database, <a href="http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer">http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer</a>>. Accessed 15 May 2019.
- (USDA) US Department of Agriculture. National Agriculture Imagery Program, Farm Service Agency, Aerial Photography Field Office. Williamson County, Texas. 2016.
- (USGS) US Geological Survey. 7.5-minute series topographic maps, Leander NE, Texas, quadrangle. 1976.
- (UT-BEG) University of Texas Bureau of Economic Geology, C.V. Proctor, Jr., T.E. Brown, J.H. McGowen, N.B. Waechter, and V.E. Barnes. *Geologic Atlas of Texas*, Austin Sheet, Francis Luther Whitney Memorial Edition. 1974; reprinted 1995.

#### ATTACHMENT F

#### **ADDITIONAL SITE MAPS**




190092 - RR 29 Shopping Center\Graphics\190092-001GA\_02A\_Topo\_Hydro





# 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: Michael Theone

Date: 5/22/2023

Signature of Customer/Agent:

Mheone

Regulated Entity Name: <u>RR 2</u>9 Retail, LTD

# **Regulated Entity Information**

- 1. The type of project is:
  - \_ Residential: Number of Lots:\_\_\_\_\_

] Residential: Number of Living Unit Equivalents:\_\_\_\_\_

- X Commercial
- \_\_\_\_ Industrial

\_\_\_ Other:\_\_\_\_\_

- 2. Total site acreage (size of property): 1.04 acres
- 3. Estimated projected population: 10
- 4. The amount and type of impervious cover expected after construction are shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	2,907	÷ 43,560 =	0.07
Parking	4,332	÷ 43,560 =	0.10
Other paved surfaces	19,272	÷ 43,560 =	0.44
Total Impervious Cover	29,866	÷ 43,560 =	0.61

Table 1 - Impervious Cover Table

Total Impervious Cover 0.61 ÷ Total Acreage 1.04 X 100 = 58.6 % Impervious Cover

- 5. X 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. X Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

## For Road Projects Only

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

7. Type of project:

TXDOT road project.

County road or roads built to county specifications.

City thoroughfare or roads to be dedicated to a municipality.

Street or road providing access to private driveways.

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

```
Concrete
Asphaltic concrete pavement
Other:
```

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

Width of R.O.W.: \_\_\_\_\_ feet. L x W = \_\_\_\_\_ Ft<sup>2</sup>  $\div$  43,560 Ft<sup>2</sup>/Acre = \_\_\_\_\_ acres.

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

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

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

A rest stop will not be included in this project.

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

### Stormwater to be generated by the Proposed Project

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

### Wastewater to be generated by the Proposed Project

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

% Domestic	Gallons/day
% Industrial	Gallons/day
100 % Commingled	1089 Gallons/day
TOTAL gallons/day 1089	

15. Wastewater will be disposed of by:

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

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

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

X Sewage Collection System (Sewer Lines):

- X Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
- Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.
- **X** The SCS was previously submitted on  $\frac{1}{17}$ , 2020
  - The SCS was submitted with this application.
  - ] The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

**x** The sewage collection system will convey the wastewater to the <u>Liberty</u> Hill Wastewater Treatment Plant. The treatment facility is:

Х	Existing.		
	Proposed		

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

### Site Plan Requirements

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

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

Site Plan Scale: 1" = <u>20</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.

X 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): <u>FEMA FIRM Map No. 48491C0275E</u>, September 26, 2008

19. X 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.

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

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

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

] The wells are not in use and have been properly abandoned.

The wells are not in use and will be properly abandoned.

The wells are in use and comply with 16 TAC §76.

X 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.
  - X No sensitive geologic or manmade features were identified in the Geologic Assessment.
  - X 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. X The drainage patterns and approximate slopes anticipated after major grading activities.
- 23. X Areas of soil disturbance and areas which will not be disturbed.
- 24. X Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- 25. X Locations where soil stabilization practices are expected to occur.
- 26. Surface waters (including wetlands).

X N/A

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

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

28. X Legal boundaries of the site are shown.

# Administrative Information

- 29. X 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. X 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 Surface Water Quality

#### Possible factors that could affect ground water quality during construction:

Activities include sediment laden storm water and pollutants from construction materials and equipment including concrete, petroleum, oil, diesel, detergents, lubricants, fertilizers, lead based paint, solvents, cleaners, concrete wash water, concrete curing compound, pip joint lubrication and sanitary waste from onsite portable units.

#### Possible factors that could affect ground water quality post construction:

Activities include pollutants from oil, petroleum, and diesel spills, landscape fertilizers, concrete wash water, solvents and cleaners.

#### ATTACHMENT B

#### Volume and Character of Stormwater

All proposed flows from offsite drainage area basins match existing drainage patterns. The entire site is included in a regional drainage area that will be conveyed to a regional wet pond designed to treat up to 85% impervious cover from the 1.04 acre site. For all flows exiting the site, the peak proposed flows will be less than the pre-developed flows. Please reference the drainage area maps included on the construction documents included with this submittal and the documents submitted under a separate cover for additional calculations.

Breakdown of drainage areas by lots to the existing facilities:

Impervious Cover Lot Accounting Table for Bar W Subdivision Stormwater Treatement Facilities							
Subdivision Lots	Drainage Area Acreage	Existing Land Use	Exisitng Impervious Cover (SF)	%	Proposed Land Use	Proposed Impervious Cover (SF)	%
1	19.52	Commercial	574,105	68%	Commercial	574,105	68%
2	1.21	Undeveloped	1,486	3%	Undeveloped	1,486	3%
3	1.25	Undeveloped	-	0%	Undeveloped	-	0%
4	1.08	Undeveloped	-	0%	Undeveloped	-	0%
5*	1.05	Undeveloped	-	0%	Commercial	26,511	58%
6	2.05	Undeveloped	548	1%	Undeveloped	548	1%
7	1.56	Undeveloped	3,500	5%	Undeveloped	3,500	5%
8	1.35	Undeveloped	511	1%	Undeveloped	511	1%
9	4.29	WQ and Drainage	1,960	1%	WQ and Drainage	1,960	1%
10	10.21	Commercial	249,669	56%	Commercial	249,669	56%
11	6.19	Commercial	230,069	85%	Commercial	230,069	85%
Total	49.74	Total	1,061,847	49%		1,088,358	50%
Total Allowed         1,841,675         85%         1,841,675         85							85%
Impervious cover from lots 1, 9, 10, & 11 are to be covered under the Bar W Subdivision Water Pollution Abatement Plan and Organized Sewage Collection System Plan							
(WPAP-MOD ID No. 11002037 and SCS-MOD ID No. 11002038, RN No. 110866175) This total is 40.203 acres.							
* Imponious covo	r from Lot E is courored up	a al a u			DNING	1	

Impervious Cover Pond Accounting Table for Bar W Subdivision Stormwater Treatment Facilitites							
Subdivision Lots	Existing Impervious Cover			Proposed Impervious Cover			
	Treated by Pond A (AC)	Treated By Pond B (AC)	Total (AC)	Treated By Pond A (AC)	Treated By Pond B (AC)	Total (AC)	
1	13.18	0.00	13.18	13.18	0.00	13.18	
2	0.03	0.00	0.03	0.03	0.00	0.03	
3	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.00	0.00	0.00	0.00	0.00	0.00	
5*	0.00	0.00	0.00	0.61	0.00	0.61	
6	0.01	0.00	0.01	0.01	0.00	0.01	
7	0.00	0.08	0.08	0.00	0.08	0.08	
8	0.00	0.01	0.01	0.00	0.01	0.01	
9	0.04	0.00	0.04	0.04	0.00	0.04	
10	5.73	0.00	5.73	5.73	0.00	5.73	
11	5.28	0.00	5.28	5.28	0.00	5.28	
Total Overall	24.24	0.09	24.33	24.85	0.09	24.94	

<u>ATTACHMENT C</u> Sustainability Letter from Authorized Agent

An on-site sewage facility is not proposed for this development and a Suitability Letter from an Authorized Agent will not be necessary.

#### ATTACHMENT D

Exception to the Required Geologic Assessment Site Plan

A Geological Assessment has been submitted with this application. No exception to the Geological Assessment is being requested for this project.

# **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: Michael Theone

Date: 5/22/2023

Signature of Customer/Agent:

Mheore

Regulated Entity Name: Bar W - Lot 5

# **Project Information**

# Potential Sources of Contamination

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

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

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

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

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

Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
 Aboveground storage tanks with a cumulative storage capacity of 500 gallons or

- more will be stored on the site. An Aboveground Storage Capacity of Soo galons of application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
- **X** Fuels and hazardous substances will not be stored on the site.
- 2. X 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. X Attachment B Potential Sources of Contamination. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

# Sequence of Construction

- 5. X 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.
  - **X** For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
  - X 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. X 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>North</u> Fork San Gabriel River

# Temporary Best Management Practices (TBMPs)

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

7. X 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:

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

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

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

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

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

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

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

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

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

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

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

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

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

X 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.
  - X N/A
- 12. X 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. X 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. X 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. X 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. X Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

# Soil Stabilization Practices

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

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

# Administrative Information

- 20.  $\mathbf{x}$  All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
- 21. X 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. X 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

In the event of a hydrocarbon or hazardous substance spill, the owner or operator of the vessel or facility from which the spill originated, herein referred to as "the responsible person", shall immediately abate and contain the spill or discharge and cooperate fully with the executive director and local law enforcement. Reasonable response actions include but are not limited to:

- 1. Arrival of the responsible person or response personnel hired by the responsible person at the site of the discharge or spill;
- 2. Initiating efforts to stop the discharge or spill;
- 3. Minimizing the impact to the public health and environment;
- 4. Neutralizing the effects of the incident;
- 5. Removing the discharged or spilled substance;
- 6. Managing the wastes;
- 7. Notify the regional agency office during normal business hours or the agency 24-hour spill reporting number (1-800-832-8224) as soon as possible and within 24 hours after the discovery of the spill or discharge.

The information provided upon the initial notification to the agency shall include but is not limited to:

- 1. The name, address and telephone number of the responsible person and/or the person reporting the spill;
- 2. The date, time and location of the spill or discharge;
- 3. A specific description or identification of the oil, petroleum product, hazardous substances or other discharged substance;
- 4. An estimate of the quality discharged or spilled;
- 5. The duration of the incident;
- 6. The name of the surface water or a description of the waters affected or threatened by the discharge or spill;
- 7. The source of the discharge or spill;
- 8. A description of the extent of actual or potential water pollution or harmful impacts to the environment and an identification of any environmentally sensitive areas or natural resources at risk;
- 9. A description of any actions that have been taken, are being taken, and will be taken to contain and response to the discharge or spill;
- 10. Any known anticipated health risks;
- 11. The identity of any governmental representatives, including local authorities or third parties, responding to the discharge or spill.

The responsible person shall submit a letter describing details of the discharge or spill and supporting and adequacy of the response action, to the appropriate TCEQ regional manager within 30 working days of the discovery of the discharge or spill.

If the discharge or spill creates an imminent health threat, the responsible person shall immediately notify an cooperate with local emergency authorities (fire department, fire marshal, law

enforcement authority, health authority or Local Emergency Planning Committee (LEPC) as appropriate). The responsible person will cooperate with local emergency authority in providing support to implement appropriate notification and response actions.

As soon as possible, but no later than two weeks after discovery of the spill or discharge, the responsible person shall reasonably attempt to notify the owner or occupant of the property that the responsible person reasonably believes is adversely affected.

#### **Reportable Quantities:**

- 1. The Final Reportable Quantity (RQ) for crude oil other than that defined as petroleum product or used oil shall be:
  - a. For spills or discharges onto land -210 gallons (five barrels); or
  - b. For spills or discharges directly into water in the state quantity sufficient to create a sheen
- 2. The RQ for petroleum product and used oil shall be:
  - a. Except as noted in subparagraph (B) of this paragraph, for spills or discharges onto land 25 gallons;
  - b. For spills or discharges to land from PST exempted facilities 210 gallons ( five barrels); or
  - c. For spills or discharges directly into water in the state quantity sufficient to create a sheen.
- 3. Industrial solid waste or other substances. The RQ for spills or discharges into water in the state shall be 100 pounds.

#### ATTACHMENT B

#### Potential Sources of Contamination

Potential pollutants from construction activities include sediment laden storm water and pollutants from construction materials and equipment including concrete, petroleum, oil, diesel, detergents, lubricants, fertilizers, lead-based paint, solvents, cleaners, concrete wash water, concrete curing compound, pipe joint lubrication and sanitary waste from onsite portable units.

#### ATTACHMENT C

#### Sequence of Major Activities

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

The sequence of major construction activities shall be as follows:

- 1. Install stabilized construction entrances where required.
- 2. Install tree protection.
- 3. Install temporary erosion controls.
- 4. Demolish existing structures and impervious cover as described in the construction plans.
- 5. Clear and strip the topsoil. Stockpile the topsoil for later use.
- 6. Site grading.
- 7. Rough cut roads.
- 8. Install proposed utilities.
- 9. Construct building slabs and foundations.
- 10. Paving improvements and building construction.
- 11. After the completion of construction and prior to the removal of temporary erosion controls, the Project Engineer must inspect the job and write a concurrence letter to the city. Final inspection is scheduled upon receipt of the letter.
- 12. Revegetation.
- 13. Maintain vegetative watering to establish permanent grasses.
- 14. Remove and dispose of temporary erosion controls when respiration has been accepted.

#### ATTACHMENT D

#### Temporary Best Management Practices and Measures

The following are the Temporary Best Management Practices and Measures proposed to minimize adverse environmental impact throughout construction.

#### 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, sidewalk or parking area. Access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected where access is not necessary. A rock stabilized construction entrance is proposed at the single ingress/egress location on site.

#### Materials:

- 1. The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
- 2. The aggregate should be placed with a minimum thickness of 8 inches.
- 3. The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd<sup>2</sup>, a mullen burst rating of 140 lb/in<sup>2</sup>, and an equivalent opening size greater than a number 50 sieve.
- 4. If a washing facility id required, a level area with a minimum of 4-inch diameter washed stone or commercial roack should be included in the plans. Divert wastewater to a sediment trap or basin.

#### Installation:

- 1. Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
- 2. The minimum width of the entrance/exit should be 12 feet or the full width of the exit roadway, whichever is greater.
- 3. The construction entrance should be at least 50 feet long.
- 4. If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 side slope, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.
- 5. Place geotextile fabric and grade foundation to improve stability. Especially where wet conditions are anticipated.
- 6. Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
- 7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
- 8. Install pipe under pad as needed to maintain proper public drainage.

#### Silt Fence

The purpose of 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 perimeter or a disturbed area to intercept sediment while allowing water to percolate through and shall be installed immediately following the installation of a stabilized construction entrance. The 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 rick 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.

#### Materials:

- 1. Silt fence material should be polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in<sup>2</sup>, ultraviolet stability exceeding 70%, and a minimum apparent opening size of US Sieve No. 30.
- 2. Fence Posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/in<sup>2</sup>, and Brindell hardness exceeding 140.
- 3. Woven wire backing to support the fabric should be galvanized 2"x4" welded wire, 12 gauge minimum.

#### Installation:

- 1. Steel posts, which support the silt fence, should be installed on slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1-foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.
- 2. Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is <sup>1</sup>/<sub>4</sub> acre/100 ft of fence.
- 3. The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.
- 4. The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.
- 5. Silt fence should be securely fastened to each steel support post or woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

6. Silt fence should be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

#### Inlet Protection

Storm sewers that are made operational prior to the stabilization of the associated drainage areas can convey large amounts of sediment to natural drainage ways. Inlet protection will be used on the existing area inlet that lies at the northeast corner of the lot, as well as an existing inlet that lies in the northwest corner of the lot along Ronald Reagan Blvd.

#### Materials:

- Filter fabric should be a nylon reinforced polypropylene fabric which meets the following minimum criteria: tensile strength, 90 lbs.; Puncture rating, 60 lbs.; Mullen Burst Rating, 280 psi; Apparent Opening Size, US Sieve No. 70.
- 2. Posts for fabric should be 2"x4" pressure treated wood stakes or galvanized steel, tubular in cross-section or they may be standard fence "T" posts.
- 3. Concrete blocks should be standard 8"x 8" x 16" concrete masonry units.
- 4. Wire mesh should be standard hardware cloth or comparable wire mesh with opening size not to exceed ½ inch.

#### **Guidelines for Installation:**

#### Bagged Gravel Inlet Filter

Sandbags filled with pea gravel can also be used to construct a sediment barrier around curb and drain inlets. The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier about 1 foot high around the inlets. The bags should be tightly abutted against each other to prevent runoff from flowing between the bags. This measure should be installed as shown in Figure 1-38,39.





Figure 1-38 Diagram of Bagged Gravel Grate Inlet Protection (Pape-Dawson)



Figure 1-39 Diagram of Bagged Gravel Curb Inlet Protection (Pape-Dawson).

#### Hydraulic Mulching

Hydraulic mulch is suitable for soil disturbed areas requiring temporary protection until permanent stabilization is established, and disturbed areas that will be re-disturbed following an extended period of inactivity. It is not appropriate for slopes of 3:1 or steeper or for use in channels. Disturbed areas in which each construction activity has ceased shall be stabilized within fourteen days unless activities are scheduled to resume and do so within 21 days.

#### Materials:

1. Wood fiber mulch can be applied alone or as a component of hydraulic matrices. Wood fiber applied alone is typically applied at the rate of 2,000 to 4,000 lb/acre. Wood fiber mulch is manufactured from wood or wood waste from lumber mills or from urban sources.

#### Installation:

- 1. Prior to application, roughen embankment and fill areas by rolling with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical.
- 2. To be effective, hydraulic matrices require 24 hours to dry before rainfall occurs.
- 3. Avoid mulch over spray onto roads, sidewalks, drainage channels, existing vegetation, etc.

#### ATTACHMENT E

Request to Temporarily Seal a Feature

There will be no request to temporarily seal a feature for the purposes of this project.

# ATTACHMENT F Structural Practices

Inlet protection for newly constructed and existing inlets are proposed and silt fence will line the downstream boundary of the limits of construction to remove construction sediment from runoff.

The contractor shall supply a concrete truck wash out area in an area as set forth by the construction plans.

A stabilized construction entrance will prevent sediment from vehicles from leaving the site.

# ATTACHMENT G Drainage Area Map

Please see attached construction documents submitted under separate cover for the Drainage Area Map. The proposed wet pond will serve as a temporary sediment basin for the drainage area basin to the south of channel running through the site during construction.

#### ATTACHMENT H

### Temporary Sediment Pond(s) Plans and Calculations

The existing regional wet pond will serve as a temporary sediment pond. Reference Sheet 14 of the Site Development Plans submitted under a separate cover.

#### ATTACHMENT I

#### Inspection and Maintenance for BMPs

Each contractor will designate a qualified person or persons to perform the following inspections:

- 1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
- 2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
- 3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- 4. Locations where vehicles enter or exit the site will be inspected for evidence of off-site sediment tracking.

The inspection will ne conducted by the responsible person at least once every 14 calendar days and within 24 hours after a storm of 0.5 inches or greater.

After a portion of the site is finally stabilized, inspection will be conducted at least once every month.

#### Temporary Construction Entrance/Exit

#### **Inspection and Maintenance Guidelines:**

- 1. The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- 2. All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
- 3. When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
- 4. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- 5. All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

#### <u>Silt Fence</u>

#### **Inspection and Maintenance Guidelines:**

- 1. Inspect all fencing weekly, and after any rainfall.
- 2. Remove sediment when buildup reaches 6 inches.
- 3. Replace any torn fabric or install a second line of fencing parallel to the torn section.

- 4. Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
- 5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

#### Inlet Protection

#### **Inspection and Maintenance Guidelines:**

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

#### Hydraulic Mulching

#### **Inspection and Maintenance Guidelines:**

- 1. Mulched areas should be inspected weekly and after each rain event to locate and repair any damage.
- 2. Areas damaged by storms or normal construction activities should be regraded and hydraulic mulch reapplied as soon as practical.

#### ATTACHMENT J

#### Schedule of Interim and Permanent Soil Stabilization Practices

The maximum length of time between clearing and final revegetation shall not exceed 18 months, unless extended by the jurisdictional review authority. The contractor shall hydro mulch or sod between all exposed cuts and fills upon completion of construction except where cuts are made in solid rock. Seeding shall be applied at the rate specified in the plans. Seeding shall be watered until uniform growth is stablished and the watering shall be applied in a manner that will not cause erosion of the topsoil. Watering shall be applied at least every 10 days during the first two months. Rainfall occurrences of  $\frac{1}{2}$  inch or greater shall postpone the watering schedule for one week.

# **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: Michael Theone

Date: 5/22/2023

Signature of Customer/Agent

Maheone

**Regulated Entity Name**: Bar W - Lot 5

# Permanent Best Management Practices (BMPs)

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

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



- 2. X These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.
  - X 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. X Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

\_\_\_\_ N/A

- 4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.
  - The site will be used for low density single-family residential development and has 20% or less impervious cover.
  - The site will be used for low density single-family residential development but has more than 20% impervious cover.
  - X 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.
  - X The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
  - The site will not be used for multi-family residential developments, schools, or small business sites.
- 6. X Attachment B BMPs for Upgradient Stormwater.
|   | <ul> <li>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.</li> <li>No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.</li> <li>X Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.</li> </ul> |
|---|---|
| X | Attachment C - BMPs for On-site Stormwater.   |
|   | <ul> <li>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.</li> <li>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.</li> </ul>   |
| X | <b>Attachment D - BMPs for Surface Streams</b> . 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   |
| X | The applicant understands that to the extent practicable, BMPs and measures must<br>maintain flow to naturally occurring sensitive features identified in either the geologic<br>assessment, executive director review, or during excavation, blasting, or construction.  |
|   | <ul> <li>X 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.</li> <li>X 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.</li> </ul>  |
| x | 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:   |
|   | <ul> <li>x Design calculations (TSS removal calculations)</li> <li>x TCEQ construction notes</li> <li>X All geologic features</li> <li>x All proposed structural BMP(s) plans and specifications</li> </ul>   |

🗌 N/A

7.

8.

9.

10.

11. X	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:
	<ul> <li>X Prepared and certified by the engineer designing the permanent BMPs and measures</li> <li>X Signed by the owner or responsible party</li> <li>Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit</li> <li>A discussion of record keeping procedures</li> </ul>
	N/A
12. X	<b>Attachment H - Pilot-Scale Field Testing Plan</b> . 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.
X	N/A
13. X	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

N/A

degradation.

## Responsibility for Maintenance of Permanent BMP(s)

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

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

N/A

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

N/A

## ATTACHMENT A

20% or Less Impervious Cover Waiver

The proposed impervious cover is approximately 66%, which exceeds the maximum impervious cover eligible for a waiver from the permanent Best Management Practices requirements.

## ATTACHMENT B

## BMPs for Upgradient Stormwater

Upgradient stormwater flows are conveyed through a channel onsite, matching existing drainage patterns. These flows are not treated or detained. The drainage area maps are provided in the Site Development Plans as Sheets 12, 13.

### ATTACHMENT C

## BMPs for On-Site Stormwater

There are no permanent BMPs proposed for on-site treatment, rather the stormwater will be conveyed through drains located on site to a regional wet pond designed to take up to 80% impervious cover drainage from the site.

## ATTACHMENT D BMPs for Surface Streams

There are no surface streams located on the site. All surface flows will be conveyed to stormwater infrastructure.

## ATTACHMENT E

## Request to Seal Features

The Geologic Assessment found no sensitive feature on site. There is no request to seal any features for this project.

ATTACHMENT F Request to Seal Features

Construction plans have been included and submitted with this WPAP under a separate cover.

## **ATTACHMENT G** Inspection and Maintenance for Permanent BMPs

## <u>Wet Basin</u>

A clear requirement for wet basins is that a firm commitment be made to carry out both routine and non-routine maintenance tasks. The nature of the maintenance requirements are outlined below, along with design tips that can help to reduce the maintenance burden (modified from Young et al., 1996).

## Routine Maintenance.

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

• *Inspections.* Wet basins 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 the 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. The adequacy of upstream and downstream channel erosion protection measures should be checked. 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. Tree and root systems should be removed to prevent growth in cracks and joins that can cause structural damage. The inspections should be carried out with as-built pond plans in hand.

• **Debris and Litter Removal.** As part of periodic mowing operations and inspections, debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the riser, and the outlet should be checked for possible clogging.

• *Erosion Control.* The basin side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion. Corrective measure such as regrading and revegetation may be necessary. Similarly, the riprap protecting the channel near the outlet may need to be repaired or replaced.

• *Nuisance Control.* 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. If the ponds are properly sized and vegetated, these problems should be rare in wet ponds except under extremely dry weather conditions.

Bar W – Wells Fargo CEC Project 323-627 Page 2 5/2/2023

Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.)

### Non-routine Maintenance.

• Structural Repair and Replacement. Eventually, the various inlet/outlet and riser works in the wet basin will deteriorate and must be replaced. Some public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 yr, while concrete barrels and risers may last from 50 to 75 yr. The actual life depends on the type of soil, pH of runoff, and other factors. Polyvinyl chloride (PVC) pipe is a corrosion resistant alternative to metal and concrete pipes. Local experience typically determines which materials are best suited to the site conditions. Leakage or seepage of water through the embankment can be avoided if the embankment has been constructed of impermeable material, have been compacted, and if antiseep collars are used around the barrel. Correction of any of these design flaws is difficult.

• Sediment Removal. Wet ponds will eventually accumulate enough sediment to significantly reduce storage capacity of the permanent pool. As might be expected, the accumulated sediment can reduce both the appearance and pollutant removal performance of the pond. Sediment accumulated in the sediment forebay area should be removed from the facility every two years to prevent accumulation in the permanent pool. Dredging of the permanent pool should occur at least every 20 years, or when accumulation of sediment impairs functioning of the outlet structure.

• *Harvesting.* 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 form filling with decaying organic matter.

Proposed Development For: RR 29 Retail, LTD

Inspection and Maintenance of the Wet Basin will be the responsibility of RR 29 Retail, LTD, in accordance with the aforementioned Wet Basin Inspection and Maintenance Plan.

Owner Name: RR 29 Retail, Ltd., by	BOO AR 29 GP, LLC
Owner Signature: Mil Budette, V.P.	
Date: May 11, 2023	

## ATTACHMENT H

## Pilot-Scale Field Testing Plan

The TCEQ Technical Guidance Manual (TGM) was used to design the existing regional water quality facilities. Therefore, no Pilot-Scale Testing Plan was necessary.

## ATTACHMENT I Measures for Minimizing Surface Stream Contamination

There are no surface streams located on the site. All surface flows will be conveyed to stormwater infrastructure.

	Agent Authorization Form For Required Signature	4 <sup>3</sup> - 1
	Relating to 30 TAC Chapter 213 Effective June 1, 1999	e a strategi
I	Milo Burdette	
	Print Name	
	VP Development	
	Title - Owner/President/Other	
of	RR 29 Retail,LTD	1. 19 1. 19
	Corporation/Partnership/Entity Name	
have authorized	Michael Theone, P.E.	
	Print Name of Agent/Engineer	
of	Civil and Environmental Consultants, In	с.
÷.	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: RR 29 Retail, Ltd., by Bto RR 29 GP, LLC by Milo Burdette, Vice President

Applicant's Signature

THE STATE OF Texas § County of Travis &

BEFORE ME, the undersigned authority, on this day personally appeared Mile Burdette 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 <u><u>//+</u> day of <u>May</u></u> 2023 In Beth Be BETH O BETH O SP DE OF TET O E OF TET O E OF TET NOTARY PUBLIC

Tlsz Bynd Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 05-20-2023

## **Application Fee Form**

Texas Commission on Environmental Quality         Name of Proposed Regulated Entity: Bar W - Lot 5         Regulated Entity Location: 19376 Ronald Reagan Blvd, Leander, TX 78641         Name of Customer: Michael Theone         Contact Person: Michael Theone         Customer Reference Number (if issued):CN 605707702         Regulated Entity Reference Number (if issued):RN         Austin Regional Office (3373)								
Hays San Antonio Regional Office (336	Travis		XW	illiamson				
Bexar Comal Application fees must be paid by Commission on Environmental C form must be submitted with yo	Medina Kinney check, certified check, o Quality. Your canceled o ur fee payment. This p	or money ordo check will serv ayment is bei	Uver, payab ve as you ng submi	valde le to the <b>Texas</b> r receipt. <b>This</b> itted to:				
<ul> <li>Austin Regional Office</li> <li>Mailed to: TCEQ - Cashier</li> <li>Revenues Section</li> <li>Mail Code 214</li> <li>P.O. Box 13088</li> <li>Austin, TX 78711-3088</li> <li>San Antonio Regional Office</li> <li>San Antonio Regional Office</li> <li>Overnight Delivery to: TCEQ - Cashier</li> <li>12100 Park 35 Circle</li> <li>Building A, 3rd Floor</li> <li>Austin, TX 78753</li> <li>(512)239-0357</li> </ul>								
Site Location (Check All That App	oly):							
X Recharge Zone	Contributing Zone		Transi	tion Zone				
Type of Pla	าก	Size		Fee Due				
Water Pollution Abatement Plan, Plan: One Single Family Residenti Water Pollution Abatement Plan, Plan: Multiple Single Family Resid		Acres Acres	\$					
Water Pollution Abatement Plan, Plan: Non-residential	Contributing Zone	1 04	Acres	\$ 4 000				
Sewage Collection System	1.04	L.F.	\$					
Lift Stations without sewer lines		Acres	\$					
Underground or Aboveground St		Tanks	\$					
Piping System(s)(only)			Each	\$				
Exception			Each	\$				
Extension of Time			Each	\$				

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

Date: <u>5/22/</u>2023

## **Application Fee Schedule**

## Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

## Water Pollution Abatement Plans and Modifications

## Contributing Zone Plans and Modifications

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

## **Organized Sewage Collection Systems and Modifications**

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

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

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

### **Exception Requests**

Project	Fee
Exception Request	\$500

## **Extension of Time Requests**

Project	Fee
Extension of Time Request	\$150



## **TCEQ Core Data Form**

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

## **SECTION I: General Information**

<b>1. Reason for Submission</b> (If other is checked please describe in space provided.)									
		ha ann an tha tha A							
New Permit, Registration or Authorization (Core Data P	-orm snould be submitted with	ne program application.)							
Renewal (Core Data Form should be submitted with the	e renewal form)	🗍 Other							
	<i>,</i>								
2 Customor Deference Number (if issued)		2 Regulated Entity Reference Number (if issued)							
2. Customer Reference Number (ij issued)	Follow this link to search	5. Regulated Entity Relefence Number (i) issued)							
	for CN or RN numbers in								
CN 605707702									
	1								

## **SECTION II: Customer Information**

4. General Cu	4. General Customer Information         5. Effective Date for Customer Information Updates (mm/dd/yyyy)         5/22/2023								5/22/2023				
New Custor	New Customer     Dedate to Customer Information     Change in Regulated Entity Ownership     Change in Logal Name (Verifiable with the Texas Secretary of State or Texas Comptreller of Public Accounts)												
	egal Name	(vermable		kas secretary			iption		Accour	1(5)			
The Custome	r Name su	ıbmittea	l here may l	be updated	automatical	ly base	ed on	what is c	urrent	and active	with th	e Texas Secr	etary of State
(SOS) or Texa	s Comptro	oller of P	Public Accou	ints (CPA).									
6. Customer	Legal Nam	ne (If an i	ndividual, prii	nt last name j	ïrst: eg: Doe, J	lohn)			<u>If nev</u>	v Customer,	enter pre	evious Custom	er below:
RR 29 RETAIL, L	TD.												
7. TX SOS/CP	A Filing N	umber		8. TX State	<b>e Tax ID</b> (11 d	igits)			9. Fe	deral Tax II	D	10. DUNS I	Number (if
32058158083									(9 dig	its)		applicable)	
									47-49	921344			
11. Type of C	11. Type of Customer: Corporation Individual Partnership: General Limited												
Government:	City 🗌 🤇	County 🗌	] Federal 🗌	Local 🗌 Sta	te 🗌 Other			Sole Pr	roprieto	orship	🗌 Otl	ner:	
12. Number o	of Employ	ees							13. lı	ndepender	ntly Ow	ned and Ope	erated?
⊠ 0-20 □ 2	21-100 [	101-25	50 🗌 251-	500 🗌 50	1 and higher				🛛 Ye	es [	No No		
14. Customer	<b>Role</b> (Pro	posed or	Actual) – as i	t relates to th	e Regulated Ei	ntity list	ted on	n this form.	Please d	check one of	the follo	wing	
Owner		Оре	erator		wner & Opera	itor				Other:			
	al Licensee	L Re	esponsible Pai	rty L	J VCP/BSA App	olicant							
15 Mailing	801 Cong	gress Aver	nue, Suite 300	D									
15. Walling													
Address:	City	Austin			State	ТХ		ZIP	7870	1		ZIP + 4	
16. Country Mailing Information (if outside USA)					17. E-Mail Address (if applicable)								
							milo@barshop-oles.com						
18. Telephone Number 19. Extension or C					on or C	ode			20. Fax N	umber	(if applicable)		

## **SECTION III: Regulated Entity Information**

21. General Regulated Entity Information (If 'New Regulated Entity" is selected, a new permit application is also required.)								
New Regulated Entity Dpdate to Regulated Entity Name Dpdate to Regulated Entity Information								
The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).								
22. Regulated Entity Nam	22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)							
Bar W - Lot 5								
23. Street Address of the Regulated Entity:								
(No PO Boyes)								
	City	Leander	State	ТХ	ZIP	78641	ZIP + 4	
24. County	Williamson							

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

25. Description to       Southeast Corner of Ronald Reagan Blvd and State Highway 29         Physical Location:       Southeast Corner of Ronald Reagan Blvd and State Highway 29									
26. Nearest City						State		Nea	rest ZIP Code
Leander						ТХ		7862	8
Latitude/Longitude are r used to supply coordinat	equired and es where no	l may be added/ one have been p	updated to meet rovided or to gain	TCEQ Core D accuracy).	ata Standa	rds. (Geocodin	ng of the Ph	hysical .	Address may be
27. Latitude (N) In Decim	al:	30.635		28. Lo	ongitude (W	/) In Decimal:	97	7.826	
Degrees	Minutes		Seconds	Degre	es	Minute	2S		Seconds
30		38	6		97		49		34
29. Primary SIC Code (4 digits)	30. Secondary SIC Code     31. Primary NAICS Code     32. Secondary NAICS Code       (4 digits)     (5 or 6 digits)     (5 or 6 digits)					S Code			
602	602	9		52211		52	22110		
33. What is the Primary I	Business of	this entity? (Do	o not repeat the SIC o	r NAICS descri	iption.)				
Bank									
24 Mailing	19376 Roi	nald Reagan Blvd.							
Addross									
Address.	City	Leander	State	тх	ZIP	78628	ZI	P + 4	
35. E-Mail Address:						1			I
36. Telephone Number	36. Telephone Number     37. Extension or Code     38. Fax Number (if applicable)								
()-									

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

Dam Safety	Districts	Edwards Aquifer	Emissions Inventory Air	Industrial Hazardous Waste
		Nos. 11002037, 11002038		
Municipal Solid Waste	New Source Review Air	OSSF	Petroleum Storage Tank	D PWS
Sludge	Storm Water	🔲 Title V Air	Tires	Used Oil
Voluntary Cleanup	UWastewater	Wastewater Agriculture	Water Rights	Other:

## **SECTION IV: Preparer Information**

40. Name:	Name: Michael Theone, P.E.			41. Title:	Project Manager
42. Telephone	Number	ber 43. Ext./Code 44. Fax Number 45. E-Mail Address		Address	
( 512 ) 439-0400			( ) -	mtheone@co	ecinc.com

## **SECTION V: Authorized Signature**

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

Company:	Civil and Environmental Consultants, Inc.	Job Title:	Project M	anager	
Name (In Print):	Michael Theone, P.E.			Phone:	( 512 ) 439- <b>400</b>
Signature:	Mtheone			Date:	

## CONSTRUCTION PLANS

	ANY BUILDING OR SITE IMPROVEMENTS ON ANY LOT IN THIS SUBDIVISION.
З.	NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO THE CITY OF
	LEANDER WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITIES, OR OTHER
	PROVIDERS AS APPROVED BY THE CITY OF LEANDER
4.	ALL EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE PROPERTY OWNER
	OR HIS OR HER ASSIGNS.
<i>5</i> .	BUILDING SETBACKS NOT SHOWN HEREON COMPLY WITH PUD NO. 16-005-00, OR THE
	MOST CURRENT ZONING ORDINANCE OF THE CITY OF LEANDER.
6.	ALL UTILITIES MUST BE LOCATED UNDERGROUND.
7.	BASE ON CITY TRANSPORTATION PLAN AND EXISTING ROADWAY CONDITION, ROADWAY
	ADEQUACY FEES ARE NOT REQUIRED.
<i>8</i> .	THE TIA, DATED 11/16/2015, HAS BEEN COMPLETED FOR THE OVERALL DEVELOPMENT OF
	THE BAR W RANCH COMMERCIAL PROPERTY. AT THE TIME OF SITE PLAN APPLICATION FOR

NOTES:

CITY OF LEANDER, TEXAS.

### MOST CURRENT ZONING ORDINANCE OF THE CITY OF LEANDER. ALL UTILITIES MUST BE LOCATED UNDERGROUND. BASE ON CITY TRANSPORTATION PLAN AND EXISTING ROADWAY CONDITION, ROADWAY ADEQUACY FEES ARE NOT REQUIRED. THE TIA, DATED 11/16/2015, HAS BEEN COMPLETED FOR THE OVERALL DEVELOPMENT OF

THE BAR W RANCH COMMERCIAL PROPERTY. AT THE TIME OF SITE PLAN APPLICATION FOR THE BAR W RANCH COMMERCIAL PROPERTY, OR A SUBSECTION THEREIN, THE TIA AND THE CORRESPONDING IMPROVEMENTS SHALL BE UPDATED TO REFLECT THE CURRENT CONDITIONS. ANY CHANGES TO THE TIA AND CORRESPONDING IMPROVEMENTS WILL TAKE PRECEDENT OVER WHAT IS LISTED BELOW.

THIS SUBDIVISION IS WHOLLY CONTAINED WITHIN THE CURRENT CORPORATE LIMITS OF THE

. A BUILDING PERMIT IS REQUIRED FROM THE CITY OF LEANDER PRIOR TO CONSTRUCTION OF

- 9. ALL DRIVE LANES, FIRE LANES, AND DRIVEWAYS WITHIN THIS SUBDIVISION SHALL PROVIDE RECIPROCAL ACCESS FOR INGRESS AND EGRESS TO ALL OTHER LOTS WITHIN THIS SUBDIVISION AND TO ADJACENT PROPERTIES. 10. MAINTENANCE OF THE DRAINAGE AND WATER QUALITY IMPROVEMENTS CONTAINED IN OPEN
- CHANNELS, DETENTION PONDS, AND WATER QUALITY AREAS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. 11. THE WATER UTILITIES SHOWN IN THIS PLAN WILL BE OWNED AND OPERATED BY THE CITY
- OF LEANDER. 12. THE LIFT STATION AND WASTEWATER UTILITIES WILL BE OWNED AND OPERATED BY RR 29 RETAIL LTD.
- 13. PER APPROVED PUD. THE HOURS OF OPERATION FOR ANY GROCERY OR DRY GOODS SALES SHALL BE BETWEEN 5:00 AM AND 1:00 AM, SEVEN (7) DAYS A WEEK. THE FUEL PUMPS AND CAR WASH SHALL BE ALLOWED TO OPERATE TWENTY-FOUR (24) HOURS A DAY, SEVEN (7) DAYS A WEEK.
- 14. FOR GARBAGE HANDLING, THE TENANT HAS ELECTED TO USE THEIR OWN PRIVATE GARBAGE DISPOSAL SERVICE FOR THE SITE. GARBAGE WILL BE REMOVED FROM THE BUILDING DAILY, THEREFORE NO ADDITIONAL STORAGE WILL BE REQUIRED ON SITE.
- A. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181. GAS PROVIDER MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA
- B. THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48 HOURS PRIOR TO EXCAVATION. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY PLANT DURING CONSTRUCTION.
- C. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROTECTING THE INTEGRITY OF THE POWER POLES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED AT THEIR EXPENSE TO PROVIDE ACCEPTABLE BRACING OF SPECIFIC UTILITIES POLES DURING THE CONSTRUCTION OF THIS PROJECT AND/OR PROVIDE AT THEIR EXPENSE FOR THE ELECTRIC PROVIDER TO PROVIDE BRACING. IN ADDITION IT IS CRITICAL THE CONTRACTOR WORK CLOSELY WITH THE ELECTRIC PROVIDER'S CONSTRUCTION FORMAN FOR THE SAKE OF SAFETY TO ISOLATE AND/OR PROTECT CONTRACTOR FROM ENERGIZED ELECTRIC CONDUCTORS ABOVE AREAS OF PROPOSED EXCAVATION.

## **RELATED PERMITS**

SITE DEVELOPMENT PLAN: 19-SD-023

PUBLIC IMPROVEMENT CONSTRUCTION PLAN: 19-PICP-029

- FINAL PLAT: DOC# 2020096319
- PLANNED UNITE DEVELOPMENT: 15-Z-012

## ORIGINAL SUBMITTAL DATE : MARCH 28, 2023

## FLOODPLAIN INFORMATION:

THERE ARE NO IDENTIFIED FLOOD HAZARD AREAS IN THE PLANNED AREA ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FLOOD INSURANCE RATE MAP (FIRM) NO. 48491C0275E, DATED SEPTEMBER 26, 2008.

## LEGAL DESCRIPTION:

LOTS 5, BLOCK 1 OF BAR W RANCH COMMERCIAL, A SUBDIVISION OF RECORD IN DOCUMENT NO. 2020096319

## **BENCHMARKS:**

ELEVATIONS HERON ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) UTILIZING WESTERN DATA SYSTEMS CONTINUALLY OPERATING REFERENCE STATION (CORS) NETWORK AT THE TIME OF THIS SURVEY.

TBM 100: 1/2" IRON ROD WITH RED CAP IN BETWEEN RONALD REAGAN BOULEVARD FRONTAGE ROADS AT NORTH SIDE OF INTERSECTION WITH KAUFFMAN LOOP. ELEV=1027.30' TBM 102: PK NAIL WITH WASHER SET NEAR EDGE OF ASPHALT ON SOUTH SIDE OF KAUFFMAN LOOP, ACROSS THE STREET FROM SOUTHEAST CORNER OF SITE, ±200' WEST OF A DRIVEWAY. ELEV=1015.62' TBM 103: PK NAIL WITH WASHER SET NEAR EDGE OF CULVERT ON THE WEST SIDE OF DRIVEWAY ON SOUTH SIDE OF KAUFFMAN LOOP, ACROSS THE STREET FROM GATE IN SOUTH LINE OF SITE. ELEV=1018.29' TBM 104: PK NAIL WITH WASHER SET IN PAVEMENT ±1' EAST OF EDGE OF SHOULDER ON WEST SIDE OF NORTHBOUND RONALD REAGAN BOULEVARD, ±110' SOUTH OF END OF SHOULDER. ELEV=1005.55' TBM 200: PK NAIL WITH WASHER SET IN CONCRETE U-TURN MEDIAN ON SOUTH SIDE OF STATE HIGHWAY 29 AND WEST SIDE OF NORTHBOUND FRONTAGE ROAD ON RONALD REAGAN BLVD. ELEV=994.27'

TBM 201: ALUMINUM DISK IN CONCRETE FOUND ON SOUTH SIDE OF STATE HIGHWAY 29, ON EAST SIDE OF DRIVEWAY LOCATED JUST EAST OF THE NORTHEASTERLY CORNER OF SITE. ELEV=978.82' NOTE: CONTRACTOR TO VERIFY BENCHMARK LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

LAND USE TABLE EXISTING ZONING PROPOSED ZONING PROPOSED USE 

FUTURE LAND USE	ACTIVITY CEN
SITE AREA	45487 SF
SITE ACREAGE	1.04 ACRE
IMPERVIOUS COVER ALLOWED	38,664 SF (8
IMPERVIOUS COVERAGE: AREA	26,511 SF
IMPERVIOUS COVERAGE: PERCENT	58%
BUILDING SQUARE FOOTAGE	2875 SF

REVISIONS REVISION # DESCRIPTION APPROVAL

## **OWNER/TEAM INFORMATION**

### **CIVIL ENGINEER & LAND SURVEYOR** OWNER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 1221 S MOPAC EXPRESSWAY, STE. 350 AUSTIN, TX 78746 PH: (512) 439-0400 CONTACT: MICHAEL THEONE, PE

CEC JOB NO.

ARCHITECT/LANDSCAPE

SG DESIGN, INC. 3311 ELM ST., SUITE 105 DALLAS, TX 75226 PH: (214) 683-2769 CONTACT: JOHN SCHLUETER

323–627

**ADDRESS**:

RR 29 RETAILS, LTD.

PH: (512) 637-0482

CONTACT: MILO BURDETTE

AUSTIN, TX 78701

801 CONGRESS AVENUE, SUITE 300



# SITE DEVELOPMENT PLANS **PROJECT # SD-23-0066**

Û NORTH W STATE HWY 29 -SITE VICINITY MAP SCALE: 1" = 2000'

19376 RONALD W. REAGAN BLVD LEANDER. TEXAS 78641

> PUD - GC PUD - GC RETAIL ACTIVITY CENTER 487 SF ACRES SF (85%) 511 SF 58%

SUBMITTED BY:

MICHAEL A. THEONE, PE CEC 1221 S. MOPAC EXPY SUITE 350 AUSTIN, TEXAS 78746 (512) 439-0400

NOTE: ALL RESPONSIBILITY FOR THE ACCURACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

> LIMITATION OF LIABILITY - CEC ASSUMES NO LIABILITY FOR ANY DESIGN OR DRAWINGS IN THESE PLANS THAT ARE NOT SIGNED AND SEALED BY A PROFESSIONAL ENGINEER EMPLOYED BY THE FIRM. OTHER CONSULTANTS' WORK SHOWN IN THESE PLANS IS THE RESPONSIBILITY OF THE CONSULTANT WHO PREPARED SUCH WORK, AND IS INCLUDED IN THIS PLAN SET FOR REVIEW REQUIREMENTS ONLY.

SITE PLAN COMPONENTS - ALL BUILDING AND STRUCTURAL IMPROVEMENTS SHOWN HEREON ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. CEC IS NOT RESPONSIBLE OR LIABLE FOR THE DESIGN OF BUILDING AND STRUCTURAL IMPROVEMENTS BY OTHERS.

STRUCTURAL COMPONENTS - ALL STRUCTURAL DESIGN IS THE RESPONSIBILITY OF THE OWNER'S STRUCTURAL ENGINEER. STRUCTURAL DESIGN SHOWN HEREON IS THE DESIGN OF THE OWNER'S STRUCTURAL ENGINEER.

PAVEMENT DESIGN - PAVEMENT DESIGN SHOWN HEREON IS THE DESIGN OF THE OWNER'S GEOGRAPHICAL CONSULTANT. CEC MAKES NO WARRANTY OR GUARANTEE AS TO ITS SUITABILITY, AND ASSUMES NO LIABILITY THEREFOR.



APPROVED BY:	
ROBIN M. GRIFFIN, AICP, EXECUTIVE DIRECTOR OF DEVELOPMENT SERVICES	DATE
EMILY TRUMAN, P.E., CFM, CITY ENGINEER	DATE
MARK TUMMONS, CPRP, DIRECTOR OF PARKS AND RECREATION	DATE
CHIEF JUSHUA DAVIS, FIRE MARSHAL	DATE

TRENCH EXCAVATION SAFETY PRO CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY EMPLOYEE OR STRUCTURAL DESIGN/GEOGRAPHICAL/SA CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND GEOGRAPHICAL INFORMATION AND THE ANTICIPATED INSTA WITHIN THE PROJECT AREA IN ORDER TO IMPLEMENT COI EXCAVATION SAFETY PROTECTION SYSTEMS PROGRAMS PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR AL EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH JOSHUA STANDARDS FOR TRENCH EXCAVATION. SPECIFIC AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGR WITH JOSHUA STANDARDS GOVERNING THE PRESENCE AN INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVAT

DATE: May 23, 2023

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01	COVER SHEET		
02	PLAT 1 OF 3		
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06	EXISTING & DEMOLITION PLAN		
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19	PROPOSED INLET DAM & CALCULATIONS		_
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21	WATER QUALITY & DETENTION DETAILS		• <b>I</b> ]
22	STORM A PLAN & PROFILE		<b>its</b> 7874
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		WELLS FARGO	<ul> <li>BAR W - LOT 5</li> <li>19376 RONALD W. REAGAN BLVD</li> <li>CITY OF LEANDER, WILLIAMSON COUNTY, TX</li> </ul>
		WELLS FARGO	JED       Dar W - LOT 5         JED       19376 RONALD W. REAGAN BLVD         323-627       CITY OF LEANDER, WILLIAMSON COUNTY, TX
		COVER SHEET WELLS FARGO	May, 2023       DRAWN BY:       JED       BAR W - LOT 5         May, 2023       DRAWN BY:       JED       19376 RONALD W. REAGAN BLVD         NTS       CHECKED BY:       SR       19376 RONALD W. REAGAN BLVD         323-627       S23-627       CITY OF LEANDER, WILLIAMSON COUNTY, TX
		COVER SHEET	May, 2023       DRW BY:       JED       BAR W - LOT 5         May, 2023       DRW BY:       JED       19376 RONALD W. REAGAN BLVD         NTS       CHECKED BY:       S23-627       CITY OF LEANDER, WILLIAMSON COUNTY, TX
N: IPMENT STE(S) 'S TRENCH M'S TRENCH		COVER SHEET	DATE:May, 2023DRAW BY:JEDDATE:May, 2023DRAW BY:JEDDWG SCALE:NTSCHECKED BY:STDWG SCALE:NTSCHECKED BY:STPROJECT NO:NTSCHECKED BY:STPROJECT NO:MAKSTSTPROJECT NO:MAKMILLIAMSON COUNTY, TX

- NOTE: BELOW IS GENERAL SEQUENCE OF CONSTRUCTION. THE ENGINEER OF RECORD SHALL UPDATE BELOW WITH NOTES SPECIFIC TO THE PROJECT.
- 1. REACH OUT TO THE CITY FOR PRE-CONSTRUCTION MEETING AND CONSTRUCTION PERMIT. 2.SET-UP E/S CONTROLS AND TREE PROTECTION AND REACH OUT TO CITY FOR INSPECTION.
- 3.SET UP TEMPORARY TRAFFIC CONTROLS.
- 4.CONSTRUCT THE DRAINAGE PONDS AND STORM WATER FEATURES.
- 5. START UTILITY, ROAD, GRADING, FRANCHISE UTILITY AND ALL NECESSARY INFRASTRUCTURE
- CONSTRUCTION. [NOTE: PLEASE UPDATE AS PER THE PROJECT] 6.REQUEST FINAL WALKTHROUGH AND CONDUCT WALKTHROUGH WITH ENGINEER OF RECORD
- AND CITY DEPARTMENT.
- 7. ENGINEER OF RECORD IS RESPONSIBLE TO PREPARE AND SUBMIT CLOSEOUT DOCUMENTS FOR PROJECT CLOSEOUT

GENERAL NOTES

REVISED JUNE 22, 2022

- 1. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.
- 2. THE CONTRACTOR SHALL CONTACT THE TEXAS EXCAVATION SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES THAT ARE TO BE EXTENDED, TIED TO, CROSSED, OR
- ALTERED; OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. 3. CONTACT THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT FOR EXISTING WATER AND WASTEWATER
- LOCATIONS 48 HOURS PRIOR TO CONSTRUCTION. a.LOCATE REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. THE CITY OF LEANDER IS ALLOWED UP TO 48 HOURS TO COMPLY WITH YOUR REQUEST, EXCLUDING WEEKENDS AND DESIGNATED CITY HOLIDAYS. b. REFRESH ALL LOCATES BEFORE 14 DAYS - LOCATE REFRESH REQUESTS MUST INCLUDE A COPY OF YOUR 811
- TICKET. SUBMIT ALL REQUESTS TO LOCATES@LEANDERTX.GOV. TEXAS PIPELINE DAMAGE PREVENTION LAWS REQUIRE THAT A LOCATE REFRESH REQUEST BE SUBMITTED BEFORE 14 DAYS, OR IF LOCATION MARKERS ARE NO LONGER
- VISIBLE. c. REPORT PIPELINE DAMAGE IMMEDIATELY - IF YOU WITNESS OR EXPERIENCE PIPELINE EXCAVATION DAMAGE, PLEASE CONTACT THE CITY OF LEANDER BY PHONE AT 512-2592640.
- 4. ANY CHANGES OR REVISIONS TO THESE PLANS MUST FIRST BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION OF THE REVISION.
- 5. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SHALL BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO ANY PARTIAL OR COMPLETE ROADWAY CLOSURES. TRAFFIC CONTROL PLANS SHALL BE SITE SPECIFIC AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. LANE
- CLOSURES ON ARTERIALS AND ANY FULL ROAD CLOSURES REQUIRE MESSAGE BOARDS NOTIFYING THE PUBLIC ONE WEEK PRIOR TO THE CLOSURE. 6.NO WORK IS TO BE PERFORMED BETWEEN THE HOURS OF 9:00 P.M. AND 7:00 A.M. THE
- CITY INSPECTOR RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO UNCOVER ALL WORK PERFORMED WITHOUT INSPECTION FURTHER, THERE IS A NOISE ORDINANCE IN EFFECT FOR CONSTRUCTION ACTIVITY BETWEEN THE HOURS OF 9:00 PM AND 7:00 AM.
- REQUESTS FOR EXCEPTIONS TO THE ORDINANCE MUST BE MADE TO LEANDER CITY COUNCIL. 7. CONTACT THE CITY INSPECTOR 4 DAYS PRIOR TO WORK TO SCHEDULE ANY INSPECTIONS ON WEEKENDS OR CITY
- HOLIDAYS. 8.NO STREET LIGHTS OR SIGNS OF ANY KIND ARE TO BE PLACED WITHIN ANY SIDEWALKS. 9.NO BLASTING IS ALLOWED.
- 10. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER. 11. THE CONTRACTOR SHALL GIVE THE CITY OF LEANDER 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF
- CONSTRUCTION. CONTACT ASSIGNED CITY INSPECTOR. 12. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND THE CITY OF LEANDER REPRESENTATIVES PRIOR TO
- INSTALLATION OF EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION MEASURES AND PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER PLANNING DEPARTMENT PLANNING COORDINATOR AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.
- 13. THE CONTRACTOR AND ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LEANDER ACCURATE "RECORD DRAWINGS" FOLLOWING THE COMPLETION OF ALL CONSTRUCTION. THESE "RECORD DRAWINGS" SHALL MEET THE SATISFACTION OF THE ENGINEERING
- DEPARTMENTS PRIOR TO FINAL ACCEPTANCE 14. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. PRIOR TO ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS
- WITHIN THE PERMANENT EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER. 15. CONTRACTOR TO LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS,
- CONTROL POINTS AND PROJECT ENGINEERING REFERENCE POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO OWNER.
- 16. THE CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. IN THE EVENT THAT A FENCE MUST BE REMOVED, THE CONTRACTOR SHALL REPLACE SAID FENCE OR PORTION THEREOF WITH THE SAME TYPE OF FENCING TO A QUALITY OF EQUAL OR BETTER THAN THE ORIGINAL FENCE.
- 17. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH
- APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 1033 LA POSADA DR. SUITE 375, AUSTIN, TEXAS 78752-3832.
- 18. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL CITY OF LEANDER DETAILS AND CITY OF AUSTIN STANDARD SPECIFICATIONS.
- 19. PROJECT SPECIFICATIONS TAKE PRECEDENCE OVER PLANS AND SPECIAL CONDITIONS GOVERN OVER TECHNICAL SPECIFICATIONS.
- 20. HOT MIX ASPHALTIC CONCRETE PAVEMENT SHALL BE MINIMUM THICKNESS OF 2 INCHES WITH NO RECYCLED ASPHALT SHINGLES CONTENT.
- 21. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY RISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR THE CONSTRUCTION OF THIS
- PROJECT. 22. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
- 23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION BETWEEN HIMSELF AND OTHER CONTRACTORS AND UTILITIES IN THE VICINITY OF THE PROJECT. THIS INCLUDES GAS, WATER, WASTEWATER, ELECTRICAL, TELEPHONE, CABLE TV AND STREET DRAINAGE WORK.
- ONCE THE CONTRACTOR BECOMES AWARE OF A POSSIBLE CONFLICT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER WITHIN TWENTY-FOUR (24) HOURS.
- 24. THE CONTRACTOR MUST OBTAIN A CONSTRUCTION WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
- 25. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS AND DRIVES ADJACENT TO AND NEAR THE SITE FREE FROM SOIL. SEDIMENT AND DEBRIS. CONTRACTOR WILL NOT REMOVE SOIL, SEDIMENT OR DEBRIS FROM ANY AREA OR VEHICLE BY MEANS OF WATER. ONLY SHOVELING AND
- SWEEPING WILL BE ALLOWED. CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL FROM THE SITE. 26. THE CITY OF LEANDER SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
- 27. AN ENGINEER'S CONCURRENCE LETTER AND RECORD DRAWINGS SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT PRIOR TO THE ISSUANCE OF CERTIFICATE OF COMPLETION OR SUBDIVISION ACCEPTANCE. THE ENGINEER AND CONTRACTOR SHALL VERIFY THAT ALL FINAL REVISIONS AND CHANGES HAVE BEEN MADE TO THE DIGITAL COPY PRIOR TO CITY
- SUBMITTAL. RECORD CONSTRUCTION DRAWINGS, INCLUDING ROADWAY AND ALL UTILITIES SHALL BE PROVIDED TO THE CITY IN DIGITAL FORMAT AS AUTOCAD ".DWG" FILES,
- MICROSTATION ".DGN" FILES OR ESRI ".SHP" FILES ON CD ROM. LINE WEIGHTS, LINE TYPES AND TEXT SIZE SHALL BE SUCH THAT IF HALF-SIZE PRINTS (11"X17") WERE PRODUCED, THE
- PLANS WOULD STILL BE LEGIBLE. ALL REQUIRED DIGITAL FILES SHALL CONTAIN A MINIMUM
- OF TWO CONTROL POINTS REFERENCED TO THE STATE PLANE GRID COORDINATE SYSTEM -TEXAS CENTRAL ZONE (4203), IN US SURVEY FEET AND SHALL INCLUDE ROTATION
- INFORMATION AND SCALE FACTOR REQUIRED TO REDUCE SURFACE COORDINATES TO GRID COORDINATES IN US SURVEY FEET
- 28. TREES IN EXISTING ROW SHOULD BE PROTECTED OR NOTED IN THE PLANS TO BE REMOVED.

EROSION CONTROL NOTES

- 1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTIVE FENCING PRIOR TO ANY WORK (CLEARING, GRUBBING OR EXCAVATION). CONTACT
- STORMWATER INSPECTOR FOR ON SITE INSPECTION PRIOR TO BEGINNING CONSTRUCTION.
- 2. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING
- PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED

- 8. TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WH
- DOES NOT ALREADY EXIST.
- 9.IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION,

- REMOVE INLET PROTECTION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS

- WATER AND WASTEWATER NOTES

<ul> <li>WHEN THE DEPTH REACHES SIX (6) INCHES.</li> <li>THE TEMPORARY SPOILS DISPOSAL SITE IS TO BE SHOWN IN THE EROSION CONTROL MAP.</li> <li>ANY ON-SITE SPOILS DISPOSAL SHALL BE REMOVED PRIOR TO ACCEPTANCE UNLESS</li> <li>SPECIFICALLY SHOWN ON THE LANS. THE DEPTH OF SPOIL SHALL NOT EXCEED 10 FEET IN ANY AREA.</li> <li>S.ALL AREA DISTURBED OR EVANSE. DURING CONSTRUCTION SHALL BE RESTORED WITH A</li> <li>MINIMUM OF 6 INCHES OF TOPSOIL AND COMPOST BLEND. TOPSOIL ON SINGLE FAMILY LOTS MAY BE INSTALLED WITH HOME CONSTRUCTION. THE TOPSOIL AND COMPOST BLEND SHALL CONSIST OF 75% TOPSOIL AND 25% COMPOST.</li> <li>SEEDING FOR REESTABLISHING VEGETATION SHALL COMPLY WITH THE AUSTIN GROW GREEN GUIDE OR WILLIAMSON COUNTY'S PROTOCOL FOR SUSTAINABLE ROADSIDES (SPEC 164-WC001 SEEDING FOR EROSION CONTROL). RESEEDING FOR REDSION CONTROL). RESEEDING VARIETIES OF BERMUDA SHALL ROMSTRUCTION TRAFFIC IS EXTING THE PROJECT ONTO ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXTING THE PROJECT ONTO EXISTING PAVEMENT. LINEAR CONSTRUCTION PROJECTS MAY REQUIRE SPECIAL CONSIDERATION. ROADWAYS SHALL REMAIN CLEAR OF SILT AND MUD.</li> <li>TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WHERE A STOP CONDITION DOES NOT ALREADY EXIST.</li> <li>IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL REMOVE INLET PROTECTION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS PASSED.</li> <li>ATERA AND WASTEWATER NOTES</li> <li>I. PRESSURE TAPS SHALL BE IN ACCORDANCE WITH CITY OF LEANDER STANDARD SPECIFICATIONS.</li> <li>THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, ETC. AND SHALL FURNISH, INSTALL AND AR TEST THE SLEEVE AND VALVE. A CITY OF LEANDER INSPECTOR MUST BE PRESENT WHEN THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, ETC. AND SHALL FURNISH, INSTALL AND AR TEST THE SLEEVE A TAP, AND/OR ASSOCIATED TESTS. A MINIMUM OF 24 HOUDS SPRING TO THE BRANCHE</li></ul>	1/2"       0         3/8"       0.2         #4       40-85         #10       95-100         30       0.5-100         30       0.5-100         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         31       0.10         32       0.11         33       0.10         34       0.10         35       0.10         36       0.10         37       0.10         38       0.10         39       0.10         39       0.10         30       0.10         310       0.10         3110       0.10         312       0.110         312       0.110         312	<ol> <li>January Service Source of Construction activity and the submitted to the teep ore streament of the service of the</li></ol>		
<ul> <li>4. THRUST BLOCKING OR RESTRAINTS SHALL BE IN ACCORDANCE WITH THE CITY OF LEANDER</li> <li>STANDARD SPECIFICATIONS AND REQUIRED AT ALL FITTINGS PER DETAIL OR MANUFACTURER'S</li> <li>RECOMMENDATION. ALL FITTINGS SHALL HAVE BOTH THRUST BLOCKING AND RESTRAINTS.</li> <li>5. MANDREL TESTING WILL BE REQUIRED ON ALL WASTEWATER PIPE. PER TCEQ, THIS TEST MUST BE CONDUCTED</li> <li>AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.</li> <li>6. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN</li> <li>NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD</li> <li>61 AND MUST BE CERTIFIED BY AND ORGANIZATION ACCREDITED BY ANSI</li> <li>7. DURING PERIODS OF EXTENDED DRY WEATHER, TRENCH BACKFILL MUST BE COMPACTED BY FLOODING THE TRENCHES AS DIRECTED BY THE CITY ENGINEER.</li> <li>8. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY STAMPED AS FOLLOWS:</li> <li>WATER SERVICE "W" ON TOP OF CURB</li> <li>WASTEWATER SERVICE "S" ON TOP OF CURB</li> <li>VALVE "V" ON TOP OF CURB</li> </ul>	<ul> <li>4.BACKRILL BERNIND THE CORB SHALL BE COMPACTED TO BETAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 6" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR</li> <li>WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 6" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE</li> <li>5. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED BETWEEN THE CURB AND RIGHT-OF-WAY AND IN ALL DRAINAGE CHANNELS EXCEPT CHANNELS CUT IN STABLE ROCK.</li> <li>6. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT, INCLUDING GAS, ELECTRIC TELEPHONE, CABLE TV, ETC., SHALL BE A MINIMUM OF 36" BELOW SUBGRADE.</li> <li>7. STREET RIGHT-OF-WAY SHALL BE GRADED AT A SLOPE OF ¼" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY</li> <li>AT ¼" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT.</li> <li>8.BARRICADES BUILT TO THE CITY OF LEANDER STANDARDS SHALL BE ERECTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.</li> <li>9. ALL REINFORCED CONCRETE PIPE SHALL BE MINIMUM CLASS III OF TONGUE AND GROOVE OR O-RING JOINT DESIGN.</li> <li>10. THE CONTRACTOR IS TO NOTIFY THE ENGINEERING INSPECTOR 48 HOURS PRIOR TO THE</li> </ul>	<ul> <li>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.</li> <li>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 21 ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.</li> <li>11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:         <ul> <li>THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;</li> <li>THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION</li> <li>OF THE SITE; AND</li> <li>THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.</li> </ul> </li> <li>12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:         <ul> <li>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;</li> </ul></li></ul>		eering Firm F-38 aering Firm F-38 <b>d Consultants, Inc.</b> Suite 350 · Austin, TX 78746 x: 512.329.0096
<ul> <li>9. TOOLS FOR STAMPING THE CURBS SHALL BE PROVIDED BY THE CONTRACTOR. OTHER</li> <li>APPROPRIATE MEANS OF STAMPING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN</li> <li>AREAS WITHOUT CURBS. SUCH MEANS OF STAMPING SHALL BE SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LEANDER</li> <li>10. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION</li> <li>FOUNDATION SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 200 PSI.</li> <li>11. NO PIPE OR FITTING WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY.</li> <li>12. TYPICAL DEPTH OF COVER FOR ALL WASTEWATER LINES SHALL BE 48" MINIMUM, WATER LINES SHALL BE 36" MINIMUM UNDER BOTH PAVEMENT AND NATURAL GROUND. STORM SEWER SHALL BE 24" MINIMUM UNDER NATURAL GROUND</li> <li>13. THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY AWWA FORMULAS.</li> <li>14. ALL WATER MAINS, DISTRIBUTION LINES AND SERVICE LINES SHALL BE INSTALLED IN ENCASEMENT PIPE UNDERNEATH EXISTING STREETS AND OTHER PAVED SURFACES UNLESS APPROVED WITH PLANS.</li> </ul>	<ul> <li>FOLLOWING TESTING: PROOF ROLLING SUB-GRADE AND EVERY LIFT OF ROADWAY</li> <li>EMBANKMENT, IN-PLACE DENSITY TESTING OF EVERY BASE COURSE, AND ASPHALT CORES. ALL OF THIS TESTING MUST BE WITNESSED BY A CITY OF LEANDER REPRESENTATIVE.</li> <li>11. THE CONTRACTOR MUST PROVIDE A PNEUMATIC TRUCK PER TXDOT SPEC FOR PROOF ROLLING.</li> <li>12. AT INTERSECTIONS WHICH HAVE VALLEY DRAINAGE, THE CROWNS OF THE INTERSECTING STREETS WILL CULMINATE IN A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.</li> <li>13. AT THE INTERSECTION OF TWO 44' STREETS OR LARGER, THE CROWNS OF THE INTERSECTING STREETS WILL CULMINATE IN A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.</li> <li>14. A CURB LAYDOWN IS REQUIRED AT ALL POINTS WHERE THE PROPOSED SIDEWALK INTERSECTS THE CURB.</li> <li>15. ALL STRIPING, WITH THE EXCEPTION OF STOP BARS, CROSS WALKS, WORDS AND ARROWS, IS TO BE TYPE II (WATER BASED). STOP BARS, CROSS WALKS, WORDS AND ARROWS REQUIRE TYPE I THERMOPLASTIC.</li> <li>16. MANHOLE FRAMES, COVERS, VALVES, CLEAN-OUTS, ETC. SHALL BE RAISED TO GRADE PRIOR TO FINAL PAVEMENT CONSTRUCTION.</li> <li>17. CONTRACTOR SHALL NOTIFY THE LEANDER ENGINEERING DEPARTMENT AT 528-2700 AT LEAST 48 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET ROW. THE METHOD OF PLACEMENT AND COMPACTION OF BACKEUL IN THE CITY'S ROW MUST BE APPROVED PRIOR TO THE</li> </ul>	<ul> <li>B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;</li> <li>C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.</li> <li>SEQUENCE OF CONSTRUCTION <ol> <li>INSTALL EROSION CONTROLS AS INDICATED ON APPROVED SITE PLAN.</li> <li>CONTRACTOR TO CONTACT ENVIRONMENTAL INSPECTION AT LEAST 72-HOURS PRIOR TO PRE-CONSTRUCTION MEETING.</li> <li>EVALUATION OF TEMPORARY EROSION CONTROL INSTALLATION. REVIEW CONSTRUCTION SCHEDULE WITH THE WATER QUALITY PLAN REQUIREMENTS AND THE EROSION CONTROL PLAN.</li> <li>CONSTRUCTION PHASE BMP'S WILL BE MAINTAINED EVERY 2 WEEKS.</li> </ol> </li> </ul>		In the second se
<ol> <li>ALL MECHANICAL RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTORNS.</li> <li>ALL DEAD-END WATER MAINS SHALL HAVE THRUST RESTRAINTS INSTALLED ON THE LAST THREE PIPE-LENGTHS (STANDARD 20' LAVING LENGTH), AT MINIMUM, AND THRUST BLOCKS INSTALLED ON THE PLUG. ADDITIONAL THRUST RESTRAINTS MAY BE REQUIRED BASED UPON THE MANUFACTURER'S RECOMMENDATIONS AND/OR CALCULATIONS BY THE ENGINEER OF RECORD.</li> <li>WHERE WATER LINES CROSS WASTEWATER LINES AND THERE IS LESS THAN 9 FEET CLEARANCE BETWEEN LINES, THE WASTEWATER LINE SHALL BE PLACED SO THAT THE WASTEWATER PIPE SECTION IS CENTERED ON THE WATER LINE AND CONSTRUCTED IN ACCORDANCE WITH TCEQ CHAPTERS 217.53(b) AND 290.44(e).</li> <li>PIPE MATERIAL FOR WATER MAINS SHALL BE POLYETHYLENE TUBING (BLACK, 200PSI, SDR(9)). DUCTILE IRON PIPE (AWWAC 115/C15), MIN. PRESSURE CLASS 250) MAY BE USED FOR WATER MAINS WITH THE EXPRESS APPROVAL OF CITY OF LEANDER ENGINEERING.</li> <li>PIPE FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C900-16), GREEN AND MARKED FOR SEWER. PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241, D3034 MAX. SDR-26 OR PS115 F679) OR FIBERGLASS WITH PIPE STIFFNESS OF 72 PSI PER COA SPL WW-509.</li> <li>ALL FIRE HYDRANT LEADS SHALL BE DUCTLE IRON PIPE (AWWA C115/C151 PRESSURE CLASS 350).</li> <li>INTERIOR SURFACES OF ALL DUCTLIE IRON PIPE STIFFNESS OF 72 PSI PER SCAA SPL WW-509.</li> <li>ALL FIRE HYDRANT LEADS SHALL BE OUCHLE IRON POTABLE OR RECLAIMED WATER PIPE SHALL BE CEMENT-MORTAR LINED AND SEL COATED AS REQUIRED BY AWWA C104.</li> <li>ALL RON PIPE AND FITTINGS SHALL BE OUCHLE IRON POTABLE OR RECLAIMED WATER PIPE SHALL BE CEMENT-MORTAR LINED AND SEL CONTRECT SHALL BE OUTHE FINIG DEPARTMENT INSPECTOR AT 528-2700 AT LEAST 48 HOURS PRIOR TO CONNECTING TO THE EXISTING WATER LINES.</li> <li>ALL RION NPICE AND FITTINGS SHALL BE CONCRETE WITH CAST IRON RING AND COVER. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.</li> <li>EXISTING MANHOLES MODIFIED BY CONSTRUC</li></ol>	<ul> <li>MEINDO PAGLEMENT NOT BALKHELL OPERATIONS.</li> <li>A STOP BAR SHALL BE PLACED AT ALL STOP SIGN LOCATIONS.</li> <li>MINIMUM OF SEVEN DAYS OF CURE TIME IS REQUIRED FOR HMAC PRIOR TO THE INTRODUCTION OF PUBLIC VEHICULAR TRAFFIC TO ANY STREETS.</li> <li>THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING REPRATATION OF THE SOLS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISIONS OF THE CONSTRUCTION PLANS.</li> <li>THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING REPRATATION OF THE SOLS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISIONS OF THE CONSTRUCTION PLANS.</li> <li>GEOTECHNICAL INVESTIGATION INFORMATION AND PAVEMENT RECOMMENDATIONS WERE PROVIDED BY TERRACON CONSULTATS, INC. PAVEMENT RECOMMENDATIONS ARE AS FOLLOWS:</li> </ul> <b>Asphaltic Concrete</b> (HMAC) <ul> <li>2.0</li> <li>2.0</li> <li>2.5</li> <li>Crushed Limestone Base</li> <li>9.0</li> <li>10.0</li> </ul> <b>Portiand Concrete Design</b> <ul> <li>Thickness (inches)</li> <li>Moisture Conditioned Subgrade</li> <li>6.0</li> <li>6.0</li> </ul> <b>Notice Conditioned Subgrade</b> <ul> <li>1.1</li> <li>(No recommend that drupping ranks and bading docts must be conducted of all head 7 inches of methored roor reprovement. Thickness (inches)</li> <li>Thickness (inches)</li> <li>Thickne</li></ul>	<ul> <li>SAUGHSI UUT ALL REQURED OR NECESSARY POINS. STIFTER THE PERMANENT OUTLET STOTULE GA A TRADOGRAPY ORDER DATE CONSTRUCTION TOREY TO EXECUTIVE DEVELOPMENT OF YELE ONLIFET AND AN EXERANTICE THAT LADS TO FORMUNG CONDITIONS. THE CONTROL TOREY TO EXECUTIVE DEVELOPMENT OF YELE ONLIFET AND AN EXERCISION VERTICAL AS REQURED. THE PROURBENTS OF THE DRAINAGE CRITERIA ANAULA. NAV/OR THE ENVIRONMENTAL CRITERIA MANUAL. SA REQURED. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSIGN AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL FINAL RESTORATION IS ACHIEVED. (CONSTRUCTION, CONTRACTOR TO ADJUST SCHEDULE, AS NEEDED, PRIOR TO CONSTRUCTION, CONTRACTOR TO ADJUST SCH</li></ul>		WELLS FARGO       WELLS FARGO         WELLS FARGO       WELLS FARGO         BAR W - LOT 5       BAR W - LOT 5         19376 RONALD W. REAGAN BLVD       Ci         CITY OF LEANDER, WILLIAMSON COUNTY, TX       Ci
<ol> <li>SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY</li> <li>SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY</li> <li>ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTORS' REQUEST, AND IN HIS PRESENCE,</li> <li>SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LEANDER NOT LESS THAN 24 HOURS</li> <li>AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH</li> <li>WATER APPROVED BY THE CITY.</li> <li>TESTING SHALL BE PERFORMED FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE</li> <li>HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED. THE OWNER'S CONTRACTOR</li> <li>SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR</li> <li>NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER</li> <li>ENGINEERING DEPARTMENT NO LESS THAN 48 HOURS PRIOR TO PERFORMING STERILIZATION,</li> <li>QUALITY TESTS, OR PRESSURE TESTS. A CITY OF LEANDER INSPECTOR SHALL BE PRESENT FOR ALL TESTS AND SHALL</li> <li>BE PAID FOR BY THE OWNER/CONTRACTOR. THESE SERVICES ARE PAID FOR AT THE TIME OF CONSTRUCTION PLAN</li> <li>SUBMITTAL.</li> <li>THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVE UNLESS AUTHORIZED BY THE CITY OF LEANDER.</li> <li>ALL WATER VALVE COVERS ARE TO BE PAINTED BLUE.</li> <li>ALL WATER METER BOXES SHALL BE:</li> <li>a. SINGLE, 1" METER AND BELOW DFW39F-12-1CA, OR EQUAL</li> <li>b.DUAL, 1" METERS AND BELOW DFW39F-12-1CA, OR EQUAL</li> <li>c.1.5" SINGLE METER</li> <li>DFW65C-14-12A, OR EQUAL</li> <li>DFW65C-14-12A, OR EQUAL</li> </ol>	<ol> <li>2. THE CONTRACTOR SHALL CONSTRUCT EARTHEN EMBANKMENTS WITH SLOPES NO STEEPER THAN 3:1 AND COMPACT SOIL TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS.</li> <li>3. AREAS OF SOIL DISTURBANCE ARE LIMITED TO GRADING AND IMPROVEMENTS SHOWN. ALL OTHER AREAS WILL NOT BE DISTURBED.</li> </ol>		MICHAEL A. THEONE 142972 CENSEP	GENERAL NOTES May, 2023 DRAWN BY: JED NTS CHECKED BY: 323-627 MT
a.2 SINGLE METER       DFW1/30F-12-1CA, OR EQUAL         35.       SAND, AS DESCRIBED IN AUSTIN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS         BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE         BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE         MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION         SPECIFICATION:         SIEVE SIZE       PERCENT RETAINED BY WEIGHT				DATE: DWG SCALE: PROJECT NO: APPROVED BY:

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OWNER/DEVELOPER: RR 29 RETAIL, LTD. 801 CONGRESS AVENUE, SUITE 300 AUSTIN, TX 78701 ATTN: MILO BURDETTE

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ENGINEER: KBGE, PART OF CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 3711 S. MOPAC EXPRESSWAY, BUILDING 1, SUITE 550 AUSTIN, TX 78746 ATTN: JENNIFER GARCIA, P.E.

SURVEYOR: KBGE, PART OF CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 3711 S. MOPAC EXPRESSWAY, BUILDING 1, SUITE 550 AUSTIN, TX 78746 ATTN: FRANK W. FUNK, R.P.L.S.

LINE	BEARING	DISTANCE		LIN
L1	N79'21'54"E	25.58		L2
L2	N60'46'59"W	16.99		L2
L3	N01'02'05"W	7.91		L2
L4	S20'31'09"E	52.33	2 2	L2
L <b>5</b>	N60'03'54"W	75.34		L2
L6	N16°19'53"W	41.10		L2
L7	N02°23'53"W	42.10		L2
L8	N04'51'35"W	50.23		L2
L9	N04'51'35"W	27.04		L2
L10	N04'49'35"W	63.47		L3
L11	N04 <b>*</b> 55'54"W	27.03		L3
L12	N87'48'44"E	245.81		L3
L13	N03*53'21"W	51.00		L3
L14	N26'24'27"E	75.63		L3
L15	S01'54'19"E	100.70		L3
L16	N84'04'29"E	51.94		L3
L17	N36'54'09"W	25.84		- A-0 A
L18	N05*38'09"W	85.89		
L19	N02*20'48"W	28.71		
L20	N40'52'50"W	31.32	L .	

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# BAR W RANCH COMMERCIAL FINAL PLAT

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49.737 ACRES OUT OF THE GREENLEAF FISK SURVEY, ABSTRACT NO. 5 WILLIAMSON COUNTY, TEXAS



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BEARING	DISTANCE				
S89*55'34"E	56.56				
S02'20'48"E	154.50				
S36'54'09"E	44.53				
N84'46'19"E	128.19				
S41°35'03"E	94.54				
S79'43'28"E	53.73				
N85'44'15"E	101.38				
S02'11'16"E	90.50				
N87'48'44"E	22.50				
S65'49'00"E	21.76				
N49'33'33"E	48.63				
N02 11 16"W	74.67				
N84'58'12"E	23.14				
N88'12'02"E	200.43				
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N87'48'24"E	208.03				

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LAND USE TABLE

LAND USE LOT ACRES

Doc #2020096319



STATE OF TEXAS § COUNTY OF TRAVIS § KNOW ALL MEN BY THESE PRESENTS: THAT RR 29 RETAIL, LTD., A TEXAS LIMITED PARTNERSHIP, BEING THE OWNER OF THAT CERTAIN 3.552 ACRE TRACT OF LAND, AS CONVEYED BY DEED OF RECORD IN DOCUMENT NO. 2015080652 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS; THAT CERTAIN 10.291 ACRE TRACT OF LAND, AS CONVEYED BY DEED OF RECORD IN DOCUMENT NO. 2015080651 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS: AND THAT CERTAIN 35.894 ACRE TRACT OF LAND, AS CONVEYED BY DEED OF RECORD IN DOCUMENT NO. 2017006827 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS; ALL OUT OF THE GREENLEAF FISK SURVEY, ABSTRACT NO.5, WILLIAMSON COUNTY, TEXAS; DOES HEREBY SUBDIVIDE 49.737 ACRES OF LAND IN ACCORDANCE WITH THE ATTACHED MAP OR PLAT SHOWN HEREON, PURSUANT TO CHAPTER 212 OF THE LOCAL TEXAS GOVERNMENT CODE TO BE KNOWN AS: BAR W RANCH COMMERCIAL AND DO HEREBY DEDICATE TO THE PUBLIC, THE USE OF THE R.O.W., STREETS, ALLEYS, EASEMENTS, PARKS, AND OTHER OPEN SPACES TO PUBLIC USE, OR WHEN THE SUBDIVIDER HAS MADE PROVISION FOR PERPETUAL MAINTENANCE THEREOF, TO THE INHABITANTS OF THE SUBDIVISION. Mil Budet MILO BURDETTE RR 29 RETAIL, LTD. 801 CONGRESS AVENUE, SUITE 300 AUSTIN, TX 78701 STATE OF TEXAS § COUNTY OF Travis - 30 DAY OF JULY, 2020 THIS INSTRUMENT ACKNOWLEDGED BEFORE ME ON NOTARY PUBLIC, IN AND FOR KIMBERLY DATIN frimberly Dati Notary ID #131857775 MY COMMISSION EXPIRES: 1-16-23 My Commission Expires January 16, 2023 BY SIGNING THIS PLAT, FOR AND IN CONSIDERATION OF THE SUM OF TEN (\$10.00) DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION, THE SUFFICIENCY AND RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, THE UNDERSIGNED HEREBY RELEASES THE RIGHTS-OF-WAY, STREETS, ALLEYS, EASEMENTS, PARKS, AND OTHER OPEN SPACES DEDICATED TO THE CITY OR TO PUBLIC USE SET FORTH ON THIS PLAT, FROM ANY DEED OF TRUST, VENDOR'S LIEN, OR OTHER TYPE OF LIEN OR NOTE ON THE PROPERTY OWNED BY THE LIEN HOLDER, INCLUDING BUT NOT LIMITED TO THE NOTE AND LIEN DESCRIBED IN THE INSTRUMENT ENTITLED RENEWAL DEED OF TRUST, SECURITY AGREEMENT - FINANCING STATEMENT, DATED JULY 27, 2020, FILED OF RECORD IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS AT DOCUMENT NUMBER 2020084658. LIENHOLDER NAME: FROST BANK, A TEXAS STATE BANK NAME: ANDREW GRIMM TITLE: ASSISTANT VICE PRESIDENT DATE: 7/30/2020 STATE OF TEXAS § COUNTY OF WILLIAMSON STRAVIS BEFORE ME, THE UNDERSIGNED AUTHORITY, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS THE DAY OF JULY, 2020 PERSONALLY APPEARED ANDREW GRIMM, DID SAY THAT HE IS ASSISTANT VICE PRESIDENT OF FROST BANK, A TEXAS STATE BANK, A DULY AUTHORIZED AGENT WITH AUTHORITY TO SIGN SAID DOCUMENT, PERSONALLY KNOWN TO ME (AND PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION EXPRESSED THEREIN. GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE 30" DAY OF NOTARY PUBLIC-STATE OF TEXAS LEGAL DESCRIPTION: BEING 49.737 ACRES OUT OF THE GREENLEAF FISK SURVEY, ABSTRACT NO. 5, SITUATED IN WILLIAMSON COUNTY, TEXAS; BEING COMPRISED OF THAT 3.552 ACRE TRACT DESCRIBED IN THAT SPECIAL WARRANTY DEED TO RR 29 RETAIL, LTD., A TEXAS LIMITED PARTNERSHIP, RECORDED IN DOCUMENT NO. 2015080652, THAT 10.291 ACRE TRACT DESCRIBED IN THAT SPECIAL WARRANTY DEED TO SAID RR 29 RETAIL, LTD., RECORDED IN DOCUMENT NO. 2015080651, AND THAT 35.894 ACRE TRACT DESCRIBED IN THAT SPECIAL WARRANTY DEED TO SAID RR 29 RETAIL, LTD., RECORDED IN DOCUMENT NO. 2017006827, ALL IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS; SAID 49.737 ACRES BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS: BEGINNING AT A 1/2 INCH IRON ROD WITH CAP FOUND AT THE SOUTHEASTERLY END OF A RIGHT-OF-WAY CUT-BACK LINE AT THE NORTHEASTERLY CORNER OF THE INTERSECTION OF THE EASTERLY RIGHT-OF-WAY LINE OF RONALD REAGAN BOULEVARD (RIGHT-OF-WAY VARIES) AND THE NORTHERLY RIGHT-OF-WAY LINE OF KAUFFMAN LOOP (100 FOOT RIGHT-OF-WAY); THENCE ALONG SAID RIGHT-OF-WAY CUT-BACK LINE, N60'03'54"W, A DISTANCE OF 75.34 FEET TO A 1/2 INCH IRON ROD WITH "CEC" CAP SET IN THE EAST RIGHT-OF-WAY LINE OF RONALD REAGAN BOULEVARD; THENCE, ALONG THE COMMON LINE OF THE EASTERLY RIGHT-OF-WAY LINE OF RONALD REAGAN BOULEVARD AND THE WESTERLY LINE OF SAID 49.737 ACRE TRACT THE FOLLOWING FIVE (5) COURSES AND DISTANCES: 1. N16'19'53"W, A DISTANCE OF 41.10' TO A FOUND 1/2 INCH IRON ROD WITH CAP; 2. NO7'07'14"W, A DISTANCE OF 593.93 FEET, TO A FOUND 1/2 INCH IRON ROD WITHOUT A CAP: 3. NO2'23'37"W, A DISTANCE OF 213.79 FEET, TO A FOUND 1/2 INCH IRON ROD WITHOUT A CAP; 4. NO4'51'35"W, A DISTANCE OF 376.64 FEET, TO A FOUND 1/2 INCH IRON ROD WITH CAP: 5. NO4'55'54"W, A DISTANCE OF 706.89 FEET, TO A 1/2 INCH IRON ROD WITHOUT A CAP FOUND AT THE SOUTHWESTERLY END OF A RIGHT-OF-WAY CUT-BACK LINE LOCATED AT THE SOUTHEASTERLY CORNER OF THE INTERSECTION WITH THE SOUTHERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 29; THENCE, ALONG THE LAST SAID RIGHT-OF-WAY CUT-BACK LINE, BEING THE NORTHWESTERLY LINE OF SAID 49.737 ACRE TRACT, N42'29'15"E, A DISTANCE OF 104.02 FEET, TO A 1/2 INCH IRON ROD WITH ILLEGIBLE CAP FOUND ON THE SOUTHERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 29, BEING THE NORTHERLY LINE OF SAID 49.737 ACRE TRACT: THENCE, ALONG THE COMMON LINE OF THE SOUTHERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 29 AND SAID NORTHERLY LINE OF THE 49.737 ACRE TRACT THE FOLLOWING FIVE (5) COURSES AND DISTANCES: 1. S89'52'40"E, A DISTANCE OF 122.00 FEET TO A SET 1/2 INCH IRON ROD WITH "CEC" CAP; 2. N79'21'54"E, A DISTANCE OF 25.58 FEET TO A SET 1/2 INCH IRON ROD WITH "CEC" CAP; 3. N60'46'59"W, A DISTANCE OF 16.99 FEET TO A SET 1/2 INCH IRON ROD WITH "CEC" CAP; 4. NO1'02'05"W, A DISTANCE OF 7.91 FEET, TO A FOUND 1/2 INCH IRON ROD WITH CAP: 5. S89'55'34"E, A DISTANCE OF 611.18 FEET, TO A 1/2 INCH IRON ROD WITH "CEC" CAP SET AT THE NORTHERLY COMMON CORNER OF SAID 49.737 ACRE TRACT AND THE REMAINDER OF A 30.30 ACRE TRACT DESCRIBED IN EXHIBIT A OF THE SPECIAL WARRANTY DEED RECORDED IN DOCUMENT NO. 2017003357, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS: THENCE, ALONG THE COMMON LINE OF SAID 49.737 ACRE TRACT AND SAID REMAINDER OF THE 30.30 ACRE TRACT S27'58'19"E, A DISTANCE OF 531.42 FEET TO A SET 1/2 INCH IRON ROD WITH "CEC" CAP: THENCE, CONTINUING PARTLY ALONG THE COMMON LINE OF SAID 49.737 ACRE TRACT AND SAID REMAINDER OF THE 30.30 ACRE TRACT AND THEN ALONG THE COMMON LINE OF SAID 49.737 ACRE TRACT AND A 4.650 ACRE TRACT DESCRIBED IN EXHIBIT C OF THAT PARTITION DEED RECORDED IN DOCUMENT NO. 2017003352, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS S20'42'46"E, A DISTANCE OF 1,197.86 FEET TO A 1/2 INCH IRON ROD WITH "CEC" CAP SET AT THE WESTERLY COMMON CORNER OF SAID 4.650 ACRE TRACT AND A 0.12 ACRE TRACT DESCRIBED IN SAID EXHIBIT A OF DOCUMENT 2017003357:



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THENCE, ALONG THE COMMON LINE OF SAID 49.737 ACRE TRACT AND SAID 0.12 ACRE TRACT, S20'31'09"E, A DISTANCE OF 52.33 FEET TO A 1/2 INCH IRON ROD WITH "CEC" CAP SET ON THE NORTHERLY RIGHT-OF-WAY LINE OF KAUFFMAN LOOP

THENCE, ALONG THE COMMON LINE OF THE SOUTHERLY LINE OF SAID 49.737 ACRE TRACT AND THE NORTHERLY. RIGHT-OF-WAY LINE OF KAUFFMAN LOOP THE FOLLOWING THREE (3) COURSES AND DISTANCES: 1. ALONG A NON-TANGENT CURVE TO THE LEFT WITH A RADIUS OF 1,250.00 FEET, PASSING AT 19.06 FEET A

- FOUND 1/2 INCH IRON ROD WITH CAP, CONTINUING AN ADDITIONAL 237.70 FEET FOR A TOTAL ARC LENGTH OF 256.76 FEET, PASSING THROUGH A DELTA ANGLE OF 11"46'09", A CHORD BEARING S68"17'52"W. AND A CHORD DISTANCE OF 256.31 FEET TO A FOUND 1/2 INCH IRON ROD WITH CAP FOR THE END OF THIS CURVE AND THE BEGINNING OF A NON-TANGENT REVERSE CURVE TO THE RIGHT:
- 2. ALONG SAID REVERSE CURVE WITH A RADIUS OF 2,500.00 FEET, AN ARCH LENGTH OF 583.29 FEET THROUGH A DELTA ANGLE OF 13'22'05", AND HAVING A CHORD BEARING S69'08'39"W, AND A CHORD DISTANCE OF 581.97
  - FEET TO A 1/2 INCH IRON ROD WITH CAP FOUND FOR THE END OF THIS CURVE;
- 3. S76'13'53"W, A DISTANCE OF 484.75 FEET TO THE POINT OF BEGINNING AND CONTAINING 49.737 ACRES OF LAND, MORE OR LESS.

## SURVEY NOTES:

- 1. THE SURVEY SHOWN HEREON HAS BEEN PREPARED AS THE RESULT OF AN ON-THE-GROUND SURVEY COMPLETED ON MAY 23, 2019.
- 2. THE BASIS OF BEARINGS SHOWN HEREON IS THE TEXAS COORDINATE SYSTEM, NAD 83(2012A), CENTRAL ZONE, UTILIZING THE LEICA SMARTNET CONTINUALLY OPERATING REFERENCE NETWORK.
- 3. THE RECORDED EASEMENTS, SETBACKS, AND ENCUMBRANCES SHOWN HEREON ARE FROM SCHEDULE B OF THE COMMITMENT FOR TITLE INSURANCE ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY, GF NO. 201901024, EFFECTIVE DATE MAY 3, 2019, ISSUE DATE MAY 14, 2019. THE SURVEYOR HAS RELIED UPON THE ACCURACY AND COMPLETENESS OF THE INFORMATION DESCRIBED ABOVE AND HAS MADE NO INDEPENDENT INVESTIGATION OR SEARCH FOR THIS INFORMATION.
- SURVEYOR HAS NOT IDENTIFIED ANY GEOLOGICAL OR ENVIRONMENTAL CONDITIONS IN CONNECTION WITH THE SUBJECT PROPERTY AND SURVEYOR FULLY DISCLAIMS ANY AND ALL RESPONSIBILITY RELATED TO ISSUES OR CLAIMS RELATED THERETO OR RESULTING THERE FROM.
- 5. THE ORIGINAL TEXAS LAND SURVEY REFERENCE WAS SCALED FROM THE TEXAS GENERAL LAND OFFICE GIS WEB.

## NOTES:

- 1. THIS SUBDIVISION IS WHOLLY CONTAINED WITHIN THE CURRENT CORPORATE LIMITS OF THE CITY OF LEANDER, TEXAS, 2. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED OF THE CITY OF LEANDER WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITIES.
- 3. A BUILDING PERMIT IS REQUIRED FROM THE CITY OF LEANDER PRIOR TO CONSTRUCTION OF ANY BUILDING OR SITE IMPROVEMENTS ON ANY LOT IN THE SUBDIVISION,
- 4. NO BUILDINGS, FENCES, LANDSCAPING, OR OTHER STRUCTURES ARE PERMITTED WITHIN DRAINAGE EASEMENTS SHOWN, EXCEPT AS APPROVED BY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT.
- 5. PROPERTY OWNERS SHALL PROVIDE FOR ACCESS TO DRAINAGE EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY THE CITY OF LEANDER.
- 6. ALL EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE PROPERTY OWNER OR HIS OR HER ASSIGNS.
  - IN ADDITION TO THE EASEMENTS SHOWN HEREON, A TEN (10) FOOT WIDE PUBLIC UTILITY EASEMENT IS DEDICATED ALONG AND ADJACENT TO ALL RIGHT-OF-WAY AND TWO AND A HALF (2.5) FOOT WIDE PUBLIC UTILITY EASEMENT IS DEDICATED ALONG ALL SIDE LOT LINES.
  - THE TRACT SHOWN HEREON LIES WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), AS IDENTIFIED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP NO. 48491C0275E, DATED SEPTEMBER 26, 2008. FOR WILLIAMSON COUNTY, TEXAS AND INCORPORATED AREAS.
  - 9. BUILDING SETBACK LINES ARE PER THE COMPOSITE ZONING ORDINANCE FROM THE CITY OF LEANDER UPDATED 04/06/2017.
  - 10. LOT 9, WATER QUALITY AND DRAINAGE LOT, TO BE MAINTAINED BY P.O.A.
  - 11. AN EIGHT (8) FOOT WIDE CONCRETE SIDEWALK, BUILT TO THE CITY OF LEANDER STANDARDS, IS REQUIRED ALONG KAUFFMAN LOOP AND SHALL BE IN PLACE PRIOR TO THE LOT BEING OCCUPIED. A TEN (10) FOOT WIDE CONCRETE SIDEWALK, BUILD TO THE CITY OF LEANDER STANDARDS, IS REQUIRED ALONG RONALD REAGAN BOULEVARD AND STATE HIGHWAY 29 AND SHALL BE IN PLACE PRIOR TO THE ADJACENT LOT BEING OCCUPIED. THE SIDEWALK ALONG STATE HIGHWAY 29 IS SUBJECT TO THE APPROVAL OF THE TEXAS DEPARTMENT OF TRANSPORTATION AT THE SITE PLAN PHASE.
  - 12. ALL PROPOSED UTILITY LINES MUST BE LOCATED UNDERGROUND
  - 13. ALL DRIVES LANES, FIRE LANES AND DRIVEWAYS WITHIN THIS SUBDIVISION SHALL PROVIDE FOR RECIPROCAL ACCESS FOR INGRESS AND EGRESS TO ALL OTHER LOTS WITHIN THE SUBDIVISION AND TO ADJACENT PROPERTIES.
  - 14. THIS PLAT CONFORMS WITH THE PRELIMINARY PLAT APPROVED BY THE PLANNING AND ZONING COMMISSION ON JANUARY 7, 2016.
  - 15. APPROVAL OF THE FINAL PLAT DOES NOT CONSTITUTE THE APPROVAL OF VARIANCES OR WAIVERS TO ORDINANCES. REQUIREMENTS.
  - 16. THE TIA, DATED 11/16/2015, HAS BEEN COMPLETED FOR THE OVERALL DEVELOPMENT OF THE BAR W RANCH COMMERCIAL PROPERTY. THE TIA HAS OUTLINED THE IMPROVEMENTS LISTED BELOW FOR TWO (2) CONDITIONS. CONDITION 1 IMPROVEMENTS ARE RECOMMENDED IF STATE HIGHWAY (SH) 29 IS IMPROVED. CONDITION 2 IMPROVEMENTS ARE RECOMMENDED IF SH 29 IS NOT IMPROVED. AT THE TIME OF THE SITE PLAN APPLICATION FOR THE BAR W RANCH COMMERCIAL PROPERTY, OR SUBSECTION THEREIN. THE TIA AND THE CORRESPONDING IMPROVEMENTS SHALL BE UPDATED TO REFLECT CURRENT CONDITIONS. ANY CHANGES TO THE TIA AND CORRESPONDING IMPROVEMENTS WILL TAKE PRECEDENT OVER WHAT IS LISTED BELOW.

## CONDITION 1 IMPROVEMENTS

INTERSECTION	IMPROVEMENTS
KAUFFMAN LOOP & RONALD REAGAN BLVD.	SIGNAL INSTALLATION
KAUFFMAN LOOP & SH 29	SIGNAL INSTALLATION
DRIVEWAY	DECELERATION LANE
DRIVEWAY	DECELERATION LANE
DRIVEWAY E	DECELERATION LANE
DRIVEWAY F	DECELERATION LANE
DRIVEWAY G	DECELERATION LANE

Doc#2020096319 CONDITION 2 IMPROVEMENTS INTERSECTION **IMPROVEMENTS** KAUFFMAN LOOP & RONALD REAGAN BLVD. SIGNAL INSTALLATION KAUFFMAN LOOP & SH 29 SIGNAL INSTALLATION KAUFFMAN LOOP & SH 29 DUEL LEFT TURN BAY AT WB APPROACH DRIVEWAY DECELERATION LANE DRIVEWAY D DECELERATION LANE DRIVEWAY E DECELERATION LANE DRIVEWAY F DECELERATION LANE DRIVEWAY G DECELERATION LANE ENGINEER'S CERTIFICATION THIS IS TO CERTIFY THAT: I AM AUTHORIZED TO PRACTICE THE PROFESSION OF ENGINEERING IN THE STATE OF TEXAS; I AM RESPONSIBLE FOR THE PREPARATION OF THE ENGINEERING PORTION THE PLAT SUBMITTED HEREWITH: ALL ENGINEERING INFORMATION SHOWN ON THE PLAT IS ACCURATE AND CORRECT; AND WITH REGARD TO THE ENGINEERING PORTIONS THEREOF, THE PLAT COMPLIES WITH THE SUBDIVISION ORDINANCE AND THE DESIGN AND CONSTRUCTION STANDARDS ADOPTED BY THE CITY OF LEANDER, TEXAS. Ē ( MARX) 30 A020 汝 JENNIFER GARCIA DATE JENNIFER M. GARCIA P.E. NO. 106000 KBGE. PART OF CIVIL & ENVIRONMENTAL CONSULTANTS 106000 3711 S. MOPAC EXPRESSWAY, BUILDING 1, SUITE 550 AUSTIN, TX 78746 CENSED .. ΌΝΔ SURVEYOR'S CERTIFICATION THIS IS TO CERTIFY THAT: I AM AUTHORIZED TO PRACTICE THE PROFESSION OF SURVEYING IN THE STATE OF TEXAS AND THAT I PREPARED THIS PLAT FROM AN ACTUAL AND ACCURATE ON-THE-GROUND SURVEY OF THE LAND AND THAT THE CORNER MONUMENTS SHOWN HEREON SHALL BE PROPERLY PLACED UNDER MY SUPERVISION, AND THAT ALL RECORDED EASEMENTS NOTED IN THE MOST RECENT TITLE INSURANCE POLICY, ISSUED BY FIRST AMERICAN TITLE B INSURANCE COMPANY (DATED MAY 3, 2019, FILE NO. 201901024) ARE SHOWN AND/OR NOTED HEREON, AND TRUE AND CORRECT, IN ACCORDANCE WITH THE CITY OF LEANDER SUBDIVISION 2 ORDINANCE. 5 03/23/2020 FRANK WILLIAM FUNK DATE FRANK WILLIAM FUNK R.P.L.S. 6803 KBGE. PART OF CIVIL & ENVIRONMENTAL CONSULTANTS 6803 3711 S. MOPAC EXPRESSWAY, BUILDING 1, SUITE 550 × AUSTIN, TX 78746 APPROVED THIS THE 13 DAY OF August 2020, A.D. AT A PUBLIC MEETING OF THE PLANNING AND ZONING COMMISSION OF THE CITY OF LEANDER, TEXAS AND AUTHORIZED BLVD OUNT TO BE FILED FOR RECORD BY THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS. Ζ Ũ NO ΟuΩ -IAMS( LEVECA H POSS CHAIRMAN (**5** – ŘOŘ -ELLEN COUFAL, SECRETARY PLANNING AND ZONING COMMISSION PLANNING AND ZONING COMMISSION CITY OF LEANDER, TEXAS CITY OF LEANDER, TEXAS LL . MIL STATE OF TEXAS § COUNTY OF WILLIAMSON § ER, KNOWN ALL MEN BY THESE PRESENTS: RON/ , NANCY E. RISTER, CLERK OF THE COUNTY COURT OF WILLIAMSON COUNTY, TEXAS, DO ANDI HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT IN WRITING AND ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE 1974 DAY OF AUGUST ,2020, A.D., AT 915 O'CLOCK P.M. DULY RECORDED ON THE 1974 DAY OF AUGUST, 2020, A.D. AT 9:38 O'CLOCK A.M. IN DOCUMENT NUMBER Ш 9 . 6 0 F WITNESS MY HAND AND SEAL OF OFFICE OF THE COUNTY CLERK AT THE COUNTY COURT OF WILLIAMSON COUNTY, AT MY OFFICE IN GEORGETOWN, TEXAS, THE DATE LAST SHOWN ABOVE WRITTEN NANCY E. RISTER, CLERK, COUNTY COURT OF WILLIAMSON COUNTY, TEXAS Ū ED ED inaa marini DEPUTY Brenda Miskentic APPROVED BY: FWF JOB NUMBER: ISSUE DATE: 192-031 07/29/20 SHEET: A CIRP Part of Civil & Environmental Consultants, Inc. OF J 3711 S. Mopac Expy Bidg I, Suite 550, Austin, Tx 78746 T (512) 439-0400 www.cecinc.com SUBMITTAL DATE: က TBPE Firm No: F-38 & TBPLS Firm No:10194419 08/01/19 DRAWING NO .: 05 05 OF 39 HFFT SD-23-0066















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		<ul> <li>GENERAL NOTES:</li> <li>1. THIS STANDARD IS APPICABLE FOR RAMP CONEASEMENT ONLY.</li> <li>2. THIS STANDARD REPRESENTS A TYPICAL CUPSTRUCTED INTERSECTION WITH A 6 m (20') LIMITED SIGHT DISTANCES, STREET CLASSIFIC MAY REQUIRE THE ENGINEER OR DESIGNATED STANDARD. SUFFICIENT RIGHT-OF-WAY SHALL CURB RAMP, INCLUDING LANDING, AND THE INTWITHIN THE RIGHT-OF-WAY.</li> <li>3. THE CURB, GUTTER AND RAMP SYSTEM SHAL RUNOFF FROM A 25 YEAR FREQUENCY STOF CRITERIA MANUAL SECTION 1.2.2.B) WHEN TH THE BOTTOM OF RAMPS (IE. ELEVATION RAMP POSITIVE RAMP SLOPE OF 1:12 IN ACCORDAN AND 432S-5B.</li> <li>4. STANDARD ASSIGNMENT OF SIDEWALKS IS 60 AS INDICATED ON THE DRAWINGS.</li> <li>5. ALTHOUGH CURB RAMPS MAY BE PLACED WI OUTSIDE OF THE RADIUS WILL ALLOW FOR BETWEEN THE RAMPS.</li> <li>6. WINGS ARE REQUIRED ONLY IF PEDESTRIANS 7. LANDINGS SHALL BE FLAT AND MATCH PT, P</li> <li>8. CURB RAMPS WILL BE PERPENDICULAR TO R WITH EACH OTHER.</li> <li>9. GRADES ON SIDEWALKS LEADING TO OR FRC GRADES.</li> <li>10. THE SLOPE OF THE SIDEWALK WHICH IS LO TWO CURB RAMPS SHALL NOT EXCEED 1:20 RAMP INSTALLATION, SHALL CONSTRUCT THIS</li> <li>11. STRIPING AND SIGNAGE NOT REQUIRED IN AL SHALL BE LOCATED 1:2 m (4') FROM CROSS</li> <li>12. IF A MEDIAN EXTENDS INTO THE CROSSWAL IN THE MEDIAN THE SAME WIDTH AS THE (13. CURB INLETS SHALL NOT BE LOCATED WITH 14. GUTTER SHALL PROVIDE SMOOTH TRANSITIC</li> </ul>
		CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS THE ADOPTED THE ADOPTED
		<ol> <li>PAVERS WITH A DIAMETER OF 0.9" (23 mm), A NOMINAL CENTER TO CENTER SPACING OF 2.35 VISUALLY WITH ADJOINING SURFACES, EITHER LI ADAAG SECTION 4.29.2). MATERIAL USED TO PI PART OF THE WALKING SURFACE. PAVER PATT UNLESS DIRECTED OTHERWISE BY THE ENGINEE</li> <li>TYPICAL SIDEWALK WIDTHS AND CURB RADII ARE REFER TO THE TRANSPORTATION CRITERIA MAN AND CURB BASIS.</li> <li>THE PERMISSIBLE CONSTRUCTION JOINT BETWEE SURFACE SHALL BE LIMITED TO '/4" (6 mm) JO (6 mm) MUST BE APPROVED BY THE ENGINEER JOINTS BETWEEN BRICKS AND ADJOINING SURFA DIRECTED OTHERWISE BY THE ENGINEER OR DE</li> <li>MORTAR SHALL CONFORM TO STD. SPECIFICATIO GROUT. ALL OTHER CONCRETE SHALL CONFORM CONCRETE FOR STRUCTURES, UNLESS OTHERWIS</li> <li>CURB RAMPS WITH RETURNED CURB MAY ONLY NOT NORMALLY WALK DIAGONALLY ACROSS TH</li> </ol>
		CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS Bill Bardner 6/21/07 ADOPTED OF THIS S













23-627\-CADD\Dwg\CV01\323627-CV01-C200-SITE DETAILS.dwg{SITE DETAILS - 4} LS:(5/15/2023 - tkincode) - LP: 5/23/2023




	PROPOSED		DESCRIPTION LOT BOUNDARY	DESCRIPTION DATE	MOVED TO PHAGE/20/20	ON:10/17/2022 - 5:14pm
		© • • • • • • • • • • • • •	IRON PIPE IRON ROD NAIL UTILITY VALVE UTILITY VALVE UTILITY METER FIRE HYDRANT FENCE SANITARY MANHOLE CLEANOUT STORM SEWER MANHOLE ELECTRIC MANHOLE ELECTRIC MANHOLE STORM SEWER LINE AREA INLET CURB INLET CURB INLET CURB AND GUTTER POWER POLE GUY WIRE LIGHT FIXTURE UTILITY PULLBOX OVERHEAD ELEC LINE	CLIENT INFORMATION REV REVISION /	RR 29 RETAIL, LTD. 901 S MOPAC EXPY. BARTON OAKS PLAZA II SUITE 550 AUSTIN, TEXAS 78701	CONTACT: MILO BURDETTE PHONE: (512) 637-0482 EMAIL: MILO@BARSHOP-OLES.COM PROPOSED ING PLOTTED BY: KINCADE. TREY PLOTTED
		UE FO G SAN W F 	UNDERGROUND ELEC LINE FIBER OPTIC LINE GAS LINE SANITARY SEWER LINE WATER LINE FIRE LINE EASEMENT MAJOR CONTOUR MINOR CONTOUR FIRE LANE STRIPING LIMITS OF CONSTRUCTION CONCRETE TREE HERITAGE TREE DRAINAGE BOUNDARY DRAINAGE FLOW ARROW			3711 S. Mopac Expy Bldg I, Suite 550, Austin, Tx 78746 T (512) 439-0400 www.cecinc.com TBPE Firm No: F-38 & TBPLS Firm No:10194419 Fil F. P.\ 2019\192-031\-CADD\DWG\CV01\192031-CV01-C400-DAM-
	FOR REF	ERENCE ( NORTH SCALE IN FEE			BAR W RANCH COMMERCIAL SE CORNER OF RONALD REAGAN BLVD. AND RR 29 CITY OF LEANDER, WILLIAMSON COUNTY, TX	PROPOSED DRAINAGE AREA MAP - Detention
NOTES: 1. OF 2. DF NG BC JU 3. AL SC 4. DF RA	FSITE FLOWS ARE RAINAGE AREAS ANI 50, N60A, N70, N7 DULEVARD CONSTRU JLY 8, 2005. LL DRAINAGE CALCU CS METHOD (TR-55 RAINAGE CALCULATIO NINFALL DATA FROM	FOR EXISTING CON D CALCULATIONS FO YOA ARE PER TXDC JCTION PLANS DON JLATIONS HAVE BEE 5) ONS HAVE BEEN D 1 THE NOAA ATLAS	NDITIONS OR DRAINAGE AREAS N50, OT RONALD REAGAN IE BY TCB AECOM, DATED EN DETERMINED VIA THE ETERMINED USING UPDATED 14 STUDY		October 17,	2022
		5			CHECKED SRB JOB NUMBER: 192-031 SHEET 180F SD-23-	BY: ISSUE DATE: 10/17/ 2022

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Runoff Calculatio         Event       2-yr         A (ac)       0.25         C       0.58         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio       Event         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         Q (acis)       0.1	IO-yr         0.25         0.65         5.0         8.57         1.4         Ins (Eq 2-1)         10-yr         0.30         0.56         5.0         8.57         1.4         Ins (Eq 2-1)         10-yr         0.30         0.56         5.0         8.57         1.4         Ins (Eq 2-1)         10-yr         0.08         0.32         5.0         8.57         0.2	25-yr 0.25 0.70 5.0 10.11 1.7 25-yr 0.30 0.60 5.0 10.11 1.8 25-yr 0.08 0.36 5.0 10.11 0.3	100-yr         0.25         0.78         5.0         12.54         2.4             100-yr         0.30         0.68         5.0         12.54         2.6	"C" Value Area (ac) 0.00 0.08 0.00 0.17 0.25 "C" Value Area (ac) 0.00 0.14 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.17 0.00 0.17 0.25	Calculations         % of Area         0%         31%         0%         69%         100%         *         Calculations         % of Area         0%         47%         0%         53%         100%         *         Calculations         % of Area         0%         88%         0%         0%	(Table 2-1) Pasture Grass Forest/Wood Concrete (Table 2-1) Pasture Grass Forest/Wood Concrete Jaction (Concrete) Pasture Forest/Wood Concrete Grass Forest/Wood Grass Forest/Wood Goncrete	2-yr 0.33 0.21 0.31 0.75 2-yr 0.33 0.21 0.31 0.75 2-yr 0.22	10-yr 0.38 0.25 0.36 0.83 0.83 0.83 0.25 0.36 0.83 0.83	25-yr 0.42 0.29 0.40 0.88 25-yr 0.42 0.29 0.40 0.88 1	100-yr 0.49 0.36 0.47 0.97
Event       2-yr         A (ac)       0.25         C       0.58         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         Q (cfs)       0.1	10-yr         0.25         0.65         5.0         8.57         1.4         In-yr         0.30         0.56         5.0         8.57         1.4         IO-yr         0.30         0.56         5.0         8.57         1.4         IO-yr         0.08         0.32         5.0         8.57         0.2	25-yr 0.25 0.70 5.0 10.11 1.7 25-yr 0.30 0.60 5.0 10.11 1.8 25-yr 0.08 0.36 5.0 10.11 0.3	100-yr         0.25         0.78         5.0         12.54         2.4         100-yr         0.30         0.68         5.0         12.54         2.4	Area (ac) 0.00 0.08 0.00 0.17 0.25 "C" Value Area (ac) 0.00 0.14 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.17 0.00 0.17 0.00 0.17 0.00 0.17 0.25	% of Area         0%         31%         0%         69%         100%         * Calculations         % of Area         0%         47%         0%         53%         100%         * Calculations         % of Area         0%         53%         100%         * Calculations         % of Area         0%         88%         0%	Pasture         Grass         Forest/Wood         Concrete         Image: Concrete	2-yr 0.33 0.21 0.31 0.75 2-yr 0.33 0.21 0.31 0.75 2-yr 0.22	10-yr 0.38 0.25 0.36 0.83 0.83 0.25 0.38 0.25 0.36 0.83 0.25 0.36 0.83	25-yr 0.42 0.29 0.40 0.88 25-yr 0.42 0.29 0.40 0.88 0.88	100-yr 0.49 0.36 0.47 0.97 0.97 0.49 0.36 0.47 0.36 0.47 0.97 0.97
A (ac)       0.25         C       0.58         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         Q (ac)       0.05	0.25 0.65 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.30 0.56 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.08 0.32 5.0 8.57 0.2 <b>ns (Eq 2-1)</b>	0.25 0.70 5.0 10.11 1.7 <b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	0.25 0.78 5.0 12.54 2.4 <b>100-yr</b> 0.30 0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.00 0.08 0.00 0.17 0.25 "C" Value Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.16 0.30	0% 31% 0% 69% 100% 69% 100% Calculations % of Area 0% 47% 0% 53% 100% 53% 100% 53% 0% Karea K	PastureGrassForest/WoodConcreteIIIIIPastureGrassForest/WoodConcreteIIPastureIPastureII	0.33 0.21 0.31 0.75 2-yr 0.33 0.21 0.31 0.75 2-yr 0.22	0.38 0.25 0.36 0.83 0.83 0.83 0.25 0.36 0.83	0.42 0.29 0.40 0.88 25-yr 0.42 0.29 0.40 0.88	0.49 0.36 0.47 0.97 100-yr 0.49 0.36 0.47 0.97
C       0.58         Ic (min)       5.0         (in/hr)       5.76         Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         Ic (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Ic (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Ic (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         Q (ac)       0.21	0.65 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.30 0.56 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.08 0.32 5.0 8.57 0.2 <b>ns (Eq 2-1)</b>	0.70 5.0 10.11 1.7 <b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	0.78 5.0 12.54 2.4 <b>100-yr</b> 0.30 0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.08 0.00 0.17 0.25 <b>"C" Value</b> <b>Area (ac)</b> 0.00 0.14 0.00 0.16 0.30 <b>"C" Value</b> <b>Area (ac)</b> 0.00 0.16 0.30 <b>"C" Value</b> <b>Area (ac)</b> 0.00 0.17 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.17 0.25	31% 0% 69% 100% Calculations % of Area 0% 47% 0% 53% 100% 53% 100% 53% 100% 53% 0% 60%	Grass Forest/Wood Concrete Concrete Concrete Called Forest/Wood Grass Forest/Wood Concrete Concrete Concrete Concrete Forest/Wood	0.21 0.31 0.75 2-yr 0.33 0.21 0.31 0.75 2-yr 0.22	0.25 0.36 0.83 0.83 0.25 0.36 0.83	0.29 0.40 0.88 25-yr 0.42 0.29 0.40 0.88	0.36 0.47 0.97 0.97 0.49 0.36 0.47 0.97
Ic (min)       5.0         (in/hr)       5.76         Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         Ic (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Ic (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Ic (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         Q (cfs)       0.1	5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.30 0.56 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.08 0.32 5.0 8.57 0.2 <b>ns (Eq 2-1)</b>	5.0 10.11 1.7 <b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	5.0 12.54 2.4 <b>100-yr</b> 0.30 0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.00 0.17 0.25 "C" Value Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.00 0.07 0.00 0.01	0% 69% 100% <b>Calculations</b> % of Area 0% 47% 0% 53% 100% <b>Saluations</b> % of Area 0% 88% 0%	Forest/Wood Concrete Concrete Concrete Pasture Grass Forest/Wood Concrete Concrete Concrete Pasture A Pasture Grass	0.31 0.75 2-yr 0.33 0.21 0.31 0.75 2-yr 0.22	0.36 0.83 10-yr 0.38 0.25 0.36 0.83	0.40 0.88 25-yr 0.42 0.29 0.40 0.88	0.47 0.97 100-yr 0.49 0.36 0.47 0.97
(in/hr)       5.76         Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	8.57 1.4 ns (Eq 2-1) 10-yr 0.30 0.56 5.0 8.57 1.4 10-yr 0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	10.11 1.7 <b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	12.54 2.4 <b>100-yr</b> 0.30 0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.17 0.25 "C" Value Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.00 0.07 0.00 0.00 0.01	69% 100% Calculations % of Area 0% 47% 0% 53% 100% 53% 100% 53% 0% 6 Calculations % of Area 0% 88% 0%	Concrete Concrete Concrete Cable 2-1) Pasture Grass Forest/Wood Concrete Concrete	0.75 <b>2-yr</b> 0.33 0.21 0.31 0.75 <b>2-yr</b> 0.22	0.83 10-yr 0.38 0.25 0.36 0.83 10-yr	0.88 25-yr 0.42 0.29 0.40 0.88	0.97 <b>100-yr</b> 0.49 0.36 0.47 0.97 
Q (cfs)       0.8         Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         C (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1	1.4         ns (Eq 2-1)         10-yr         0.30         0.56         5.0         8.57         1.4         Ins (Eq 2-1)         10-yr         0.08         0.32         5.0         8.57         0.2	1.7 <b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	2.4 <b>100-yr</b> 0.30 0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.25 "C" Value Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.07 0.00 0.01	100% Calculations % of Area 0% 47% 0% 53% 100% 53% 100% Calculations % of Area 0% 88% 0%	Image: Image	<b>2-yr</b> 0.33 0.21 0.31 0.75	<b>10-yr</b> 0.38 0.25 0.36 0.83	<b>25-yr</b> 0.42 0.29 0.40 0.88	<b>100-yr</b> 0.49 0.36 0.47 0.97
Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         C (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1	IO-yr         0.30         0.56         5.0         8.57         1.4         IO-yr         0.08         0.32         5.0         8.57         1.4	<b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	100-yr         0.30         0.68         5.0         12.54         2.6             100-yr         0.08         0.44         5.0         12.54	"C" Value Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.07 0.00 0.01	<ul> <li>Calculations</li> <li>% of Area</li> <li>0%</li> <li>47%</li> <li>0%</li> <li>53%</li> <li>100%</li> <li>Calculations</li> <li>% of Area</li> <li>0%</li> <li>88%</li> <li>0%</li> </ul>	(Table 2-1)         Pasture         Grass         Forest/Wood         Concrete         Image: Concrete <t< td=""><td><b>2-yr</b> 0.33 0.21 0.31 0.75</td><td><b>10-yr</b> 0.38 0.25 0.36 0.83</td><td><b>25-yr</b> 0.42 0.29 0.40 0.88</td><td><b>100-yr</b> 0.49 0.36 0.47 0.97</td></t<>	<b>2-yr</b> 0.33 0.21 0.31 0.75	<b>10-yr</b> 0.38 0.25 0.36 0.83	<b>25-yr</b> 0.42 0.29 0.40 0.88	<b>100-yr</b> 0.49 0.36 0.47 0.97
Runoff Calculatio         Event       2-yr         A (ac)       0.30         C       0.50         C (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Tc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1	ns (Eq 2-1) 10-yr 0.30 0.56 5.0 8.57 1.4 ns (Eq 2-1) 10-yr 0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	<b>25-yr</b> 0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	100-yr         0.30         0.68         5.0         12.54         2.6             100-yr         0.08         0.44         5.0         12.54	"C" Value Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.07 0.00 0.01	Calculations         % of Area         0%         47%         0%         53%         100%	<pre>(Table 2-1) Pasture Grass Forest/Wood Concrete Concrete (Table 2-1) Pasture Forest/Wood Concrete</pre>	2-yr 0.33 0.21 0.31 0.75	10-yr 0.38 0.25 0.36 0.83	<b>25-yr</b> 0.42 0.29 0.40 0.88	<b>100-yr</b> 0.49 0.36 0.47 0.97
Event       2-yr         A (ac)       0.30         C       0.50         C (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1	10-yr         0.30         0.56         5.0         8.57         1.4         ns (Eq 2-1)         10-yr         0.08         0.32         5.0         8.57         0.2	25-yr 0.30 0.60 5.0 10.11 1.8 25-yr 0.08 0.36 5.0 10.11 0.3	100-yr         0.30         0.68         5.0         12.54         2.6             100-yr         0.08         0.44         5.0         12.54	Area (ac) 0.00 0.14 0.00 0.16 0.30 "C" Value Area (ac) 0.00 0.07 0.00 0.01	% of Area         0%         47%         0%         53%         100%         Same         % of Area         0%         88%         0%	Pasture Grass Forest/Wood Concrete (Table 2-1) Pasture Grass	2-yr 0.33 0.21 0.31 0.75	10-yr 0.38 0.25 0.36 0.83	25-yr 0.42 0.29 0.40 0.88	<b>100-yr</b> 0.49 0.36 0.47 0.97
A (ac)       0.30         C       0.50         C (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	0.30 0.56 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.08 0.32 5.0 8.57 0.2 <b>ns (Eq 2-1)</b>	0.30 0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	0.30 0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.00 0.14 0.00 0.16 0.30 <b>"C" Value</b> <b>Area (ac)</b> 0.00 0.07 0.00 0.01	0% 47% 0% 53% 100% Calculations % of Area 0% 88% 0%	Pasture         Grass         Forest/Wood         Concrete         Image: Concrete	0.33 0.21 0.31 0.75	0.38 0.25 0.36 0.83	0.42 0.29 0.40 0.88	0.49 0.36 0.47 0.97
C         0.50           C         0.50           C         0.50           Fc (min)         5.0           (in/hr)         5.76           Q (cfs)         0.9           Runoff Calculatio           Event         2-yr           A (ac)         0.08           C         0.28           Fc (min)         5.0           (in/hr)         5.76           Q (cfs)         0.1           Runoff Calculatio           Event         2-yr           A (ac)         0.05           C (ac)         0.05           C (ac)         0.21	0.56 5.0 8.57 1.4 <b>ns (Eq 2-1)</b> <b>10-yr</b> 0.08 0.32 5.0 8.57 0.2 <b>ns (Eq 2-1)</b>	0.60 5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	0.68 5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.14 0.00 0.16 0.30 <b>"C" Value</b> <b>Area (ac)</b> 0.00 0.07 0.00 0.01	47% 0% 53% 100% Calculations % of Area 0% 88% 0%	Grass Forest/Wood Concrete (Table 2-1) Pasture Grass	0.21 0.31 0.75	0.25 0.36 0.83	0.29 0.40 0.88	0.36 0.47 0.97
Tc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Tc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	5.0 8.57 1.4 ns (Eq 2-1) 10-yr 0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	5.0 10.11 1.8 <b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	5.0 12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.00 0.16 0.30 <b>"C" Value</b> Area (ac) 0.00 0.07 0.00 0.01	0% 53% 100% Calculations % of Area 0% 88% 0%	Forest/Wood Concrete (Table 2-1) Pasture Grass	0.31 0.75 2-yr	0.36 0.83	0.40 0.88	0.47 0.97
(in/hr)       5.76         Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Fc (min)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	8.57 1.4 ns (Eq 2-1) 10-yr 0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	10.11         1.8 <b>25-yr</b> 0.08         0.36         5.0         10.11         0.3	12.54 2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.16 0.30 <b>"C" Value</b> Area (ac) 0.00 0.07 0.00 0.01	53% 100% Calculations % of Area 0% 88% 0%	Concrete (Table 2-1) Pasture Grass	0.75	0.83	0.88	0.97
Q (cfs)       0.9         Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Tc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	1.4         ns (Eq 2-1)         10-yr         0.08         0.32         5.0         8.57         0.2	1.8 <b>25-yr</b> 0.08         0.36         5.0         10.11         0.3	2.6 <b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	0.30 "C" Value Area (ac) 0.00 0.07 0.00 0.01	100% Calculations % of Area 0% 88% 0%	(Table 2-1) Pasture Grass	<b>2-yr</b>	10		
Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Tc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	ns (Eq 2-1) 10-yr 0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	<b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	<b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	"C" Value Area (ac) 0.00 0.07 0.00 0.01	Calculations % of Area 0% 88% 0%	(Table 2-1) Pasture Grass	2-yr	10		
Runoff Calculatio         Event       2-yr         A (ac)       0.08         C       0.28         Tc (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	ns (Eq 2-1) 10-yr 0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	<b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	<b>100-yr</b> 0.08 0.44 5.0 12.54 0.4	"C" Value Area (ac) 0.00 0.07 0.00 0.01	Calculations % of Area 0% 88% 0%	(Table 2-1) Pasture Grass	2-yr	10		
Current     2-yr       A (ac)     0.08       C     0.28       C (min)     5.0       (in/hr)     5.76       Q (cfs)     0.1         Runoff Calculatio       Event     2-yr       A (ac)     0.05       C     0.21	IO-yr         0.08         0.32         5.0         8.57         0.2	<b>25-yr</b> 0.08 0.36 5.0 10.11 0.3	100-yr           0.08           0.44           5.0           12.54           0.4	Area (ac) 0.00 0.07 0.00 0.01	Calculations           % of Area           0%           88%           0%	Pasture Grass	2-yr	10		
Z-yr       A (ac)     0.08       C     0.28       Tc (min)     5.0       (in/hr)     5.76       Q (cfs)     0.1         Runoff Calculatio       Event     2-yr       A (ac)     0.05       C     0.21	0.08 0.32 5.0 8.57 0.2 ns (Eq 2-1)	25-yr       0.08       0.36       5.0       10.11       0.3	0.08 0.44 5.0 12.54 0.4	Area (ac) 0.00 0.07 0.00 0.01	0% Area 0% 88% 0%	Pasture Grass	<u>2-yr</u>		25	100
C       0.00         C       0.28         C (min)       5.0         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	0.32 5.0 8.57 0.2 ns (Eq 2-1)	0.36 5.0 10.11 0.3	0.44 5.0 12.54 0.4	0.00	88% 0%	Grass		10-yr 0.29	2 <b>3-yr</b>	0.40
0.28           Fc (min)         5.0           (in/hr)         5.76           Q (cfs)         0.1           Runoff Calculatio           Event         2-yr           A (ac)         0.05           C         0.21	5.0       8.57       0.2	5.0       10.11       0.3	5.0 12.54 0.4	0.00	0%	101855	0.33	0.58	0.42	0.49
(in/hr)       5.76         (in/hr)       5.76         Q (cfs)       0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	8.57 0.2 ns (Eq 2-1)	10.11       0.3	3.0 12.54 0.4	0.00	U70	Eomost AVIa - 1	0.21	0.23	0.29	0.30
(in/hr)         5.76           Q (cfs)         0.1           Runoff Calculatio           Event         2-yr           A (ac)         0.05           C         0.21	8.57 0.2 ns (Eq 2-1)	0.3	12.54	10.01	120/	rorest/wood	0.31	0.30	0.40	0.47
2 (cts)        0.1         Runoff Calculatio         Event       2-yr         A (ac)       0.05         C       0.21	0.2	0.3	10.4	0.01	13%	Concrete	0.75	0.83	0.88	0.97
Runoff CalculatioEvent2-yrA (ac)0.05C0.21	ns (Eq 2-1)		•••	0.08	100%					
Runoff CalculatioEvent2-yrA (ac)0.05C0.21	ns (Eq 2-1)									
Event         2-yr           A (ac)         0.05           C         0.21		T		"C" Value	Calculations	(Table 2-1)	1			
<b>A (ac)</b> 0.05	<u>10-yr</u>	25-yr	100-yr	Area (ac)	% of Area		2-yr	<u>10-yr</u>	25-yr	<u>100-yr</u>
$\Box = 10.21$	0.05	0.05	0.05	0.00	0%	Pasture	0.33	0.38	0.42	0.49
	0.25	0.29	0.36	0.05	100%	Grass	0.21	0.25	0.29	0.36
<b>Fc (min)</b> 5.0	5.0	5.0	5.0	0.00	0%	Forest/Wood	0.31	0.36	0.40	0.47
(in/hr) 5.76	8.57	10.11	12.54	0.00	0%	Concrete	0.75	0.83	0.88	0.97
<b>Q (cfs)</b> 0.1	0.1	0.1	0.2	0.05	100%					
Runoff Calculatio	ns (Eq 2-1)			"C" Value	Calculations	(Table 2-1)		_	_	
Event 2-yr	10-yr	25-yr	100-yr	Area (ac)	% of Area		2-yr	10-yr	25-yr	100-yr
<b>A (ac)</b> 0.10	0.10	0.10	0.10	0.00	0%	Pasture	0.33	0.38	0.42	0.49
C 0.32	0.37	0.41	0.48	0.08	80%	Grass	0.21	0.25	0.29	0.36
<b>Fc (min)</b> 5.0	5.0	5.0	5.0	0.00	0%	Forest/Wood	0.31	0.36	0.40	0.47
(in/hr) 5.76	8.57	10.11	12.54	0.02	20%	Concrete	0.75	0.83	0.88	0.97
<b>Q (cfs)</b> 0.2	0.3	0.4	0.6	0.10	100%					
Runoff Calculatio	ns (Eq 2-1)	25	100 yr	"C" Value	Calculations	(Table 2-1)	2_111	10	25 J.	100
$\frac{2-yr}{17}$	0.17	0.17	0 17		0%	Pastura	<u>2-yı</u> 0 33	0.38	0 42	0 40
$\frac{1}{2}  (ac)  0.17$	0.17	0.17	0.17		0%	Grass	0.55	0.38	0.72	0.49
$\frac{0.75}{\text{Fe} (\text{min}) 5.0}$	5.0	5.0	5.0	0.00	0%	Forest/Wood	0.21	0.25	0.29	0.30
(in/hr) 5.76	8 57	10.11	12 54	0.00	100%	Concrete	0.51	0.30	0.40	0.7
1000000000000000000000000000000000000	1 2	1 5	2.57	0.17	100%		0.15	0.05	0.00	0.77
	unoff Calculatio         (ac)       0.10         0.32       0.32         c (min)       5.0         (in/hr)       5.76         (cfs)       0.2         unoff Calculatio         /ent       2-yr         (ac)       0.17         0.75       0.75         c (min)       5.76         (cfs)       0.7	unoff Calculations (Eq 2-1)           /ent         2-yr         10-yr           (ac)         0.10         0.10           0.32         0.37           c (min)         5.0         5.0           (in/hr)         5.76         8.57           (cfs)         0.2         0.3           unoff Calculations (Eq 2-1)         //ent         2-yr         10-yr           (ac)         0.17         0.17           0.75         0.83         2           c (min)         5.0         5.0           (in/hr)         5.76         8.57           (cfs)         0.17         0.17           0.75         0.83         2           c (min)         5.0         5.0           (in/hr)         5.76         8.57           (cfs)         0.7         1.2	unoff Calculations (Eq 2-1)           /ent         2-yr         10-yr         25-yr           (ac)         0.10         0.10         0.10           0.32         0.37         0.41           e (min)         5.0         5.0         5.0           (in/hr)         5.76         8.57         10.11           (cfs)         0.2         0.3         0.4	unoff Calculations (Eq 2-1)/ent2-yr10-yr25-yr100-yr(ac) $0.10$ $0.10$ $0.10$ $0.10$ $0.32$ $0.37$ $0.41$ $0.48$ c (min) $5.0$ $5.0$ $5.0$ (in/hr) $5.76$ $8.57$ $10.11$ $12.54$ (cfs) $0.2$ $0.3$ $0.4$ $0.6$	unoff Calculations (Eq 2-1) $2 ent$ $2 -yr$ $10 -yr$ $25 -yr$ $100 -yr$ $(ac)$ $0.10$ $0.10$ $0.10$ $0.10$ $0.00$ $0.32$ $0.37$ $0.41$ $0.48$ $0.08$ $0.00$ $c (min)$ $5.0$ $5.0$ $5.0$ $0.00$ $0.00$ $(in/hr)$ $5.76$ $8.57$ $10.11$ $12.54$ $0.02$ $0.02$ $(cfs)$ $0.2$ $0.3$ $0.4$ $0.6$ $0.10$ $0.10$ unoff Calculations (Eq 2-1) $2 ent$ $10 - yr$ $25 - yr$ $100 - yr$ $0.10$ unoff Calculations (Eq 2-1) $2 ent$ $10 - yr$ $25 - yr$ $100 - yr$ $0.00$ $0.10$ $2 ent$ $0.75$ $0.83$ $0.88$ $0.97$ $0.00$ $0.00$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$ $0.17$	"C" Value Calculations(ent2-yr10-yr25-yr100-yr(ac) $0.10$ $0.10$ $0.10$ $0.10$ $0.00$ $0\%$ of Area $0.32$ $0.37$ $0.41$ $0.48$ $0.00$ $0\%$ $c$ (min) $5.0$ $5.0$ $5.0$ $0.00$ $0\%$ (in/hr) $5.76$ $8.57$ $10.11$ $12.54$ $0.02$ $20\%$ (cfs) $0.2$ $0.3$ $0.4$ $0.6$ $0.10$ $100\%$ unoff Calculations (Eq 2-1)/'ent2-yr10-yr25-yr100-yr(ac) $0.17$ $0.17$ $0.17$ $0.17$ $0.00$ $0\%$ $0.75$ $0.83$ $0.88$ $0.97$ $0.00$ $0\%$ c (min) $5.0$ $5.0$ $5.0$ $5.0$ $0.17$ $100\%$ (cfs) $0.7$ $1.2$ $1.5$ $2.1$ $0.17$ $0.17$	"C" Value Calculations (Table 2-1)         Yent       2-yr       10-yr       25-yr       100-yr         (ac) $0.10$ $0.10$ $0.10$ $0.10$ $0.10$ $0.32$ $0.37$ $0.41$ $0.48$ $0.00$ $0\%$ of Area $c.min$ $5.0$ $5.0$ $5.0$ $0.00$ $0\%$ of Area $c.min$ $5.0$ $5.0$ $5.0$ $0.00$ $0\%$ of Area $(in/hr)$ $5.76$ $8.57$ $10.11$ $12.54$ $0.02$ $20\%$ Concrete $(cfs)$ $0.2$ $0.3$ $0.4$ $0.6$ $0.10$ $100\%$ "C" Value Calculations (Eq 2-1)         vent $2$ -yr $10$ -yr $25$ -yr $100$ -yr $(cfs)$ $0.17$ $0.17$ $0.17$ $0.17$ $0.75$ $0.83$ $0.88$ $0.97$ $0.00$ $0\%$ Grass $0.00$ $0\%$ Grass $0.00$ $0\%$ Grass $0.00$ $0\%$ Grass $0.00$ $0.7$ $1.2$ $1.5$ $2.1$ $100\%$ $0.17$ $100\%$ $0.17$ <td>unoff Calculations (Eq 2-1)         yent       2-yr       10-yr       25-yr       100-yr         (ac)       0.10       0.10       0.10       0.10         0.32       0.37       0.41       0.48         c (min)       5.0       5.0       5.0         (in/hr)       5.76       8.57       10.11       12.54         (cfs)       0.2       0.3       0.4       0.6         "C" Value Calculations (Table 2-1)         <math>(n/hr)</math>       5.76       8.57       10.11         12.54       <math>(cfs)</math>       0.2       0.3       0.4       0.6</td> <td>unoff Calculations (Eq 2-1)         "C" Value Calculations (Table 2-1)           Area (ac)         % of Area         2-yr         10-yr           (ac)         0.10         0.10         0.10         0.10           0.32         0.37         0.41         0.48           (min)         5.0         5.0         5.0           (in/hr)         5.76         8.57         10.11         12.54           (cfs)         0.2         0.3         0.4         0.6</td> <td>"C" Value Calculations (Table 2-1)         Area (ac)       % of Area       2-yr       10-yr       25-yr         (ac)       0.10       0.10       0.10       0.10       0.10       0.10         0.32       0.37       0.41       0.48       0.08       80%       Grass       0.21       0.25       0.29         (in/hr)       5.76       8.57       10.11       12.54       0.00       0%       Forest/Wood       0.31       0.36       0.40         (rfs)       0.2       0.3       0.4       0.6       0.00       0%       Forest/Wood       0.31       0.36       0.40         unoff Calculations (Eq 2-1)       ////////////////////////////////////</td>	unoff Calculations (Eq 2-1)         yent       2-yr       10-yr       25-yr       100-yr         (ac)       0.10       0.10       0.10       0.10         0.32       0.37       0.41       0.48         c (min)       5.0       5.0       5.0         (in/hr)       5.76       8.57       10.11       12.54         (cfs)       0.2       0.3       0.4       0.6         "C" Value Calculations (Table 2-1) $(n/hr)$ 5.76       8.57       10.11         12.54 $(cfs)$ 0.2       0.3       0.4       0.6	unoff Calculations (Eq 2-1)         "C" Value Calculations (Table 2-1)           Area (ac)         % of Area         2-yr         10-yr           (ac)         0.10         0.10         0.10         0.10           0.32         0.37         0.41         0.48           (min)         5.0         5.0         5.0           (in/hr)         5.76         8.57         10.11         12.54           (cfs)         0.2         0.3         0.4         0.6	"C" Value Calculations (Table 2-1)         Area (ac)       % of Area       2-yr       10-yr       25-yr         (ac)       0.10       0.10       0.10       0.10       0.10       0.10         0.32       0.37       0.41       0.48       0.08       80%       Grass       0.21       0.25       0.29         (in/hr)       5.76       8.57       10.11       12.54       0.00       0%       Forest/Wood       0.31       0.36       0.40         (rfs)       0.2       0.3       0.4       0.6       0.00       0%       Forest/Wood       0.31       0.36       0.40         unoff Calculations (Eq 2-1)       ////////////////////////////////////

- NOTES: 1. 85% IMPERVIOUS COVER WAS ASSUMED FOR DRAINAGE AREAS ASSOCIATED WITH PAD SITES. THIS IS THE MAXIMUM IMPERVIOUS COVER THAT CAN BE PROPOSED AT BUILD-OUT FOR THESE SITES.
- 2. ANALYSIS OF DRAINAGE AREAS D1-D6 ARE INCLUDED IN THE PUBLIC IMPROVEMENT CONSTRUCTION PLANS (#19-PICP-029) AND ARE SHOWN IN THESE PLANS FOR REFERENCE ONLY.





	e se se se River merg		For D	evelopme	nt Permits			-	5 1 1
DRAINAGE	AREA DAT	TA:				1977 - 19 1977 - 19		11 ( 12 ( 17)) All 12 ( 17)	
Drainage Area	a to Control (DA	vv				44,89	ac.		1
Drainage Area impervious Co	a Impervious Ca over %	ower		1 a a + 114		38,15	8C,	***	-
Recharge Zon Annual Runoff	ie (enter 1) Nor Coefficient (Ri	-recharge Zone 1) Table 1-9	(enter 0)		and the second second	0 703			
Liner Type (Cl	lay or Geomerni	brane)	1	1	Bomirod	CLAY	LINER	1	 1
Depen or Lines		1 1 1 1 1 1			Provided:	12	in. (mm.)		
WATER Q	UALITY CO	NTROL CAL	CULATION	S:		Required		Provided	
The Water Qu	ality Control is I	obe a WETPO	ND					100 000	
Permanent Po Permanent Po Permanent Po	col Area (PPA) col Elevation (PI	V = 0,162 NF (		19 1		21,780	cf sf(min)	198,379 41,942 979,00	cf sf ft.msl
Forebay Volu Elevation of Fr	me (15% to 25% crebay Separat	6 of PPV) ion Wall or Bem	n(PPE-201t)	29,322	15%	48,870	25%	34,773 977.00	ct ft.msl
Main Pool Vol	lume							163,605	cf
BIOLOGIC	AL ELEMEN	NTS CALCU	LATIONS:						
Area of Veget Weitend Plant	ative Bench (59	6 to 15% of PP/ PA * 0.035	N	2,097	5%	8,291	15%	4,173	sf
Gambusie All	inis (200 (PPA	/ 43560 ()				192.57	individuals	179	individuals
EXTENDE	DETENT	ON CALCUL	ATIONS:	ini ya san Latana			· · · · · · · · · · · · · · · · · · ·		
Extended Det	ention Peak Flo	i w 1-year, 3-hou	r Storm	1 		166,1	cfs		
Extended Data Elevation of S.	ention Volume allet a IDVC Dia				ac-t	304,920	ef	306,408	cf
Diameter of P	VC Pipe				min.	6	in .	6	in .
/2 Hour Draw Extended Date	cown Time Orif ention Drawdov	ice Opening Dia vn Time	uneter (inches)	(	min.	72	hrs	8.00 16.80	in hrs
	Forebay P	ond:							
	Elevation*	Depth	Area	Avg Area	ins. Vol.	Total Vol.	Total Vol.		
(	972.00	0.00	9,5,	9.7.			0.00		
	973.00 974.00	1.00	1,967.00 2,968.00	993.50 2,477.50	662.35 2,461.20	662 3,124	0.02	-	
	975.00	1.00	4,097.00	3,532.50	3,517.44	6,641 11 363	0.15		
	977,00	1.00	6,802.00	6,068.50	6,074.84	17,437	0.40	al de la companya e servica. Al de la companya e servica	
	978.00	1.00	8,379.00	7,590.50	7,576.96	25,014	0.57		
	Main Real	Band						1 7 1 7	
(*************************************	Bevasion *	Depth	Area	Avg. Area	inc. Val.	Total Vol.	Total Vol.		
	Ft.msi	FL	S.F.	S.F.	G, F.	G.F.	Ac. FL		
	972.00	1,00	15,898 00	7,944.00	5,296.11	5,296	0.12		
199 199	973.00	1.00	17,659.32	16,773.66	16,768.20 18,573.90	22,062	0.51	•	
ni na tanàna Mini ka	975.00	1.00	21,418.00	20,460.50	20,453,44	61,090	1.40		n
en les an	976.00	1.00	23,406.00 25,467.00	22,412.00 24,436,50	22,405,10	83,495 107,924	1.92	An is set of the	
	978.00	1.00	27,600.00	26,533.50	26,526,88	134,451	3.09		
	era.00		39,735.00	L 23,197.50	1. 67,794,03	1608,691	1./6	···· · · · · · ·	
10	Extended	Detention P	ond:						HEC-H
	Elevation * Ft. msl	Depth FL	Aves S.F.	Avg Area S.F.	Inc. Vol.	Total Vol.	Total Vol. Ac. Ft		Area Ar
	979.00	0.00	andra a	Serve IT a		-		and and a loss of the second s	
	980.00	1.00	45,331 00 48,217 00	22,665.50	15,110.64 46,767.51	15,110.64 61,878	0.35		1
	982.00	1.00	51.165.00	49,691.00	49,684.70	111,563	2.56	<ul> <li>a stratige and it</li> </ul>	1
	984.00	1.00	57,250.00	55,713.00	55,707.05	219,934	5.05	en op aan de deel proses waar de le	1
11 11 12 1	985.00 985.50	1.00	54,968.00 96,689.00	56,109.00 60,828.50	56.106.25 30.367.70	276,041	6.34 7.03	ana an - 474 1	1
	Detertion	Bond						annan statistica tat novo	
and the second	Devention *	Depth	Area	Avg. Area	hc. Vol.	Total Vol	Total Vol.		Area
	Ft.msi 982.50	FL 0.00	-8. F.	S. F.	G.F.	0.F.	Ac. Pt.	(* * 11±1	Ac.
n and the second second	963.00	0.50	1,785.00	892.50	297.51	297.51	0.01		0
	985.00	1/00	9,100.00 18,167.00	5,442.50 13,633.50	4,971.87	5,269.38 18,644.54	0.12	- <u>1</u>	0
a)	986.00	1.00	90,663.00	54,415.00	49,805.72	68,450.26	1.57	in the second second second	0
in 1972 i An maint	963.00	1.00	91,974.00	91,628.50	91,630,12	251,055.02	5.76		2
· · · · · · · · · · · · · · · · · · ·	989.00 990.00	1.00	92,736.00 93,569.00	92,355.00 93,152.50	92,356.59 93,154.05	343,411.60	7.88	1.40 - 4.00	2
	991.00	1.00	94,471,00	94,020.00	94,021.52	530,587.17	12.18	1	2
Orawelowa	Time in We	at Pond	(1999) - (1997) - (1997) (1997) - (1997) - (1997)					(*** 1823) ¥ - 286. A	
Volume	72 hr.		Flow Out			aranan ini dan biri d		analorida otra i I	
(cf)	Rate (cfs)	W.S.E.L.	Elev.	i Terrar		• • • • • • • •		an insissi	- 
219934	0.85	984.00	979.00				s	• • • • •	
Diameter of Opening	Diameter of Opening	Colulated	Area of Opening	Q	Drauelman				
(in)	(11)	Head (ft)	(ft^2)	(cfs)	Time (hrs.)		ग्रा करते. के काला		17-1 - 1 - 1
8.00	0.667	4.7	0.350	3.64	16.80		· · · · · · · · · · · · · ·		
DETENTIO	N POND W	EIR CALCUI					(		
Height of O	pening =	120	<u>ft</u>					······································	
Q = Q (100) =		375.0 361.6	cfs cfs	(FROM HEC	-HMS)	· · · · · · · · · ·		1 -	
		2.5			(10.00 million (10.00	•			1
PMF - DE	TENTION P	OND WEIR	CALCULAT	ION					1.000
Height of O	pening =	1	R	e inter de la composition de l	1 F 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	• • • • • • • • • • • • • • • • • • •		a second a second	× - 4
Q (75% PN	1F) =	795.0 585.3	crs cfs						
Ch d d changed and	1.07%	700 (	ala	ICDON USC	LBION		P		

D

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A

### DETENTION POND VOLUMES

Elevation *	Depth	Aree	Area	Aree So M	Avg Area	hc. Vol.	Total Vol.
882.50				Old lier	0.1.	WEF.	- W. C.
983.00	0.50	1,785.00	0.041	0.0000640281	893	298	298
984.00	1.00	9,100.00	0.209	0.0003264176	5,443	4,972	5,269
985.00	1.00	18,167.00	0.417	0.0006516515	13,634	13,375	18.645
\$85.00	1.00	90,663.00	2.081	0.0032520876	54,415	49,805	68,450
987.00	1.00	91,283.00	2.096	0.0032743271	90,973	90,975	159,425
988.00	1.00	91,974.00	2111	0.0032991133	91,629	91,630	251,065
989.00	1.00	92,736.00	2.129	0.0033264463	92,355	92,357	343,412
990.00	1.00	93,569.00	2.148	0.0033563260	93,153	93,154	436,566
991.00	1.00	94,471.00	2.169	0.0033886808	94,020	94.022	530,587

### DETENTION POND ORIFICE AND WEIR CALCULATIONS

	ORFICE#1	ORIFICE#1	ORIFICE #2	ORIFICE#2	ORFICE #3	ORFICE #3	WERFI	WER#1	WER#3	WER#3	TOTAL
Bevation *	h	Q	h	Q	h	Q	h	Q	h	a	Q
Pt. msi	n	cfs	n.	cfs	n	cfs	n.	cfs	ft	cfs.	cfs
982.50	0.00	· · · · · · · · · · · · · · · · · · ·	0.00	•	0.00	-	0.00	-	0.00	-	
983,00	0.00		0.00		0.00	-	0.00		0.00	-	
984,00	0.75	7.37	0.00	-	0.00	-	0.00		0.00	-	7.37
985.00	1.75	11.26	0.00	-	0.00	-	0.00	-	0.00	-	11.26
986.00	2.75	14.11	0.00	-	0.00	-	0.00	-	0.00	-	14.11
987.00	3.75	16.48	0.00	*	0,00	-	1.00	15.00	0.00	-	31.49
968.00	4.75	18,54	0.00	•	0.00	-	2.00	42.43	0.00		60.97
989.00	5.75	20.40	0.00	-	0.00		3.00	77.94	0.00	-	98.35
990,00	6.75	22.11	0.00	-	0.00	-	4.00	120.00	1.00	72.00	214.11
991.00	7.75	23.69	0.00	-	0.00	-	5.00	167.71	2.00	203.65	395.04

	DA.	AREA
ORIFICE#1 (ORCULAR)	1.50	1.77
	WOTH	B.EV.
WER#1	WDTH 5.00	B.EV. 986.00

Beriert DEVELOPED TO WET PO	002	10000 (MARCH 100)			
PERSTONED TO MELLY	100 M	161.29	013ar0015.01:00 2.46		
	Men.   010107-999-	MB454 ]	0.086033, 93704	2.40	
	Project: 2020052	8 Bar W; Simulat	ion Run: 2 YEAR		
Shart of Rue	e . 011an 2000 . 190	-00 Basin M	lodel Dusnos	ert	
Stirl of Russ	0712m2000,00	HOS Molectry	Nonir Medal: 2 VD-3	8 HICH 10	
Commente T	ma-017-m-2020, 45	-28 21 Control	Coordinations: Control		
Constituents in	meanineese, m	AZEAZI COMPICE	( shore water of the first of the		
show Elements: All	Elements Volu	ame Units: () IN-	ACRE-FT Sorting	: Alphabetic	
Billing)	Let +		The later la	Links the same of	
Hydrologic	Dramage Area	Peek Discharge	Time of Peak	volisme	
Element	(MI2),	(CPS)		(ACRE-FT)	
-50	0.0537500	34.0	01Jan2090, 12:50	7.2	
-60	0.1814063	136.2	011an2090, 12:40	24.4	
-60A	0.0093750	10.0	01Jan2000, 12:25	1.5	
-70	0.3437500	177.8	01Jan2000, 13:20	50.0	
-70A	0.0114063	10.2	01Jan2000, 12:30	1.6	
60_N60-A	0.1907813	143.9	01Jan2000, 12:40	25.9	
/0_N/0A	0.3551563	181.1	01Jan2060, 13:20	51.6	
151151	0.0091906	1.0	011an/080, 12:30	1.1	
CONTE 2	0.0012513	42	011802080, 12:10	1 12	
ALCITLA	0.0022100	3.5	013a02000, 12:10	0.4	
AISTE-1	0.0040394	1911	011an2000, 12:45	14.0	
NSTIE-2	0.0075781	13.0	011an2000 12:05	14	
-IN	0.5585783	282.5	01Jan2000, 12:50	792	
-оп	0.6949054	353.2	01Jan2000, 13:05	102.6	
-1	0.6171877	319.6	01Jan2000, 12:55	87.1	
2	0.6949064	353.8	Dillan2000, 13:00	1 102.7	
	0.5585783	281.8	01Jan2000, 12:55	79.1	
	the second se	3400	011an2600.13:00	87.0	
2	0.6171877	310.0		2 100 UK	
1 2 3	0.6171877 0.6949064	353.2	01Jan2000, 13:05	102,6	
1 2 3 30FTL	0.6171877 0.6949064 0.0075781	353.2 10.8	01Jan2000, 13:05 01Jan2000, 12:15	102.6	

# Volume Units: () IN () ACRE-ET Computed Results

131.1 (CFS)	Date,	Time of Peak Inflow:	D1Jan2000, 12:00
41.1 (CFS)	Date,	Time of Peak Dischar	ge:01Jan2000, 12:30
14.4 (ACRE-FT)	Peak	Storage:	4.3 (ACRE-FT)
E14.4 (ACRE-FT)	Peak	Elevation:	987.3 (FT)
Project: 20200528	Bar W	Simulation Run: 10 YE	AR
Project:20200528	Bar W	Simulation Run: 10 YE	AR
i: 013an2000, 00:0	16	Basin Model:	Proposed
CTab 2009 0069	15	Meteomonic Mariel	10 YR-24 HOUR
a expansion, out	<b>1</b>	Contraction of the Price of the Price of	WALLET AND A STREET
	131.1 (CFS) 41.1 (CFS) 14.4 (ACRE-FT) e:14.4 (ACRE-FT) Project:20200528 c 01Jan2000, 00:0	131_1 (CFS) Date, 41.1 (CFS) Date, 14.4 (ACRE-FT) Peak e:14.4 (ACRE-FT) Peak Project:20200528 Bar W a: 01Jan2000, 00:00	131.1 (CFS)       Date/Time of Peak Inflow:         41.1 (CFS)       Date/Time of Peak Dischar         14.4 (ACRE-FT)       Peak Storage:         e:14.4 (ACRE-FT)       Peak Elevation:         Project:20200528 Bar W       Simulation Run: 10 YE         a:       01Jan2000, 00:00       Basin Model;

w.Elements: 📶	Elements	Valume Units: (	)in 🕥
Hydrologic	Drainage .	vrea Peak Disch	ia

Hydrologic Element	Drainage Area (MI2)	Peak Discha (CFS)	Time of Peak	Volume (ACRE-FT)
V-50	0.0537500	64.3	01Jan2000, 12:50	13.6
4-60	0.1814063	256.3	01Jan2000, 12:40	46.2
1-50A	0.0093750	17.7	01Jan2000, 12:25	2.6
1-70	0.3437500	323.4	01Jan2000, 13:20	92.0
-70A	0.0114063	18.9	013an2000, 12:30	3.0
160 N60-A	0.1907813	269.8	01Jan2000, 12:40	48.8
70 N70A	0.3551563	329.2	012an2060, 13:20	95.0
XEPSITE 1	1 0.6091406	14.8	01Jan2000, 12:30	22
XFFSITE-2	0.0012813	3.7	013an2000, 12:10	0.4
XFSITE 3	0.0022188	6.0	01Jan2000, 12:10	0.6
XFSITE4	0.0048594	7.1	013an2000, 12:45	1.4
WSITE-1	0.0701406	213.4	013an2000, 12:05	23.5
XNSITE-2	0.0075781	22.1	01Jan2000, 12:05	2.3
6-1N	0.5585783	524.9	01Jan2000, 12:50	147.1
1-OUT	0.6949064	656.1	01Jan2000, 13:05	187.3
-1	0.6171877	594.7	01Jan2000, 12:55	161.9
12	0.6949064	656.5	01Jan2000, 13:00	187.5
11	0.5585783	524.2	01Jan2000, 12:55	146.9
2	0.6171877	593.8	01Jan2000, 13:00	161.7
3	0.6949064	656.1	011an2000, 13:05	197.3
ADFIL	0.0075781	18.4	01Jan2000, 12:15	2.3
MEIPOND	0.0701406	83.0	01Jan2000, 12:25	23.5

### Reservoir: WETPOND Start of Run: 013an2000, 00:00 Basin Mode End of Run: 02Jan2000, 00:05 Meteorolog Compute Time: 01Jun2020, 11:26:50 Control Spe

Volume Units: () IN () ACRE Computed Results Peak Inflow: 213.4 (CFS) Date/Time of Peak I Peak Discharge: 83.0 (CFS) Date/Time of Peak I Inflow Volume: 6.28 (IN) Peak Storage:

Discharge Volume;6.28 (IN) Peak Elevation:

2 - 2 C - 7		
- P		

# BLEV. 982.50

ic Model: 10 YR-24 HOUR	4:	Proposed
offications Control 1	ic Model:	10 YR-24 HOUR
Countries and a second part of the second	ecifications	s:Control 1

Inflow:	011an2000, 12:0	Ò.
Discharg	e:01Jan2000, 12:7	5
an airse i <del>n</del>	6.9 (ACRE-FT)	11. 1.
	988.6 (FT)	

	Project: Bar W Market	place Exclet Situation	Run: LYR3HR	
5 6 0	iartof Runs (13an3054, nd of Runs (12an2514, Ampute Time (25an2529,	00:00 Basin Modil 00:05 Netwoolog 15:46:46 Control Spic	t DEVELOPED IcModel: 11R-31R diffusions:Combol 1	
Show Elements: Ad Elem	vents 👾 V	olume Unites () IN 🛞 A	CFT Sorting:	
hydrologi; Benent	Orwinige Acea (ML2) Project: 202005	Pask Okoharge (CPS) 28 Bar W STmulation	Tune of Peak	Voluce (ACED)
Start of End of R Compute	Run: 013an2000, 0 Bun: 021an2000, 0 e Time:011un2020, 1	0:00 Basin Rot 0:05 Neteorolo 1:25:40 Control S	del: Proposed agic Model: 25 YR-24 HQ peoficialians:Coebral 1	UR
iów Bemenis: Alt Eler	Venits Ve	slume theits: OTN (9	ACRE-FT Sont	ing: Alphabetic
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CPS)	Time of Peak	Volume (ACRE-F1
50	0.0537500	85.9	01Jan2000, 12:50	18.5
60	0.1814063	345.4	01Jan2000, 12:40	8.50
60A	0.0093750	23.4	01 km2001, 12:25	
70	0.3437360	490.5	01 km/040 13:20	1/3/
0 N60-A	0 1907813	3614	01 Jan 2060 12:35	65 3
0 N70A	0.3551563	438.2	0Uen2000, 13:20	127.7
FSTIE 1	0.0091405	20.1	013an2000, 12:30	3.0
ESITE-2	0.0012613	4.8 (	01Jan2000, 12:10	0.5
SIL-3	0.0022188	7.9	01Jan2000, 12:10	0.9
INIT-4	0.00985599	93	011an2000, 12:45	1.9
STE2	0.0075281	78.8	01 Jan 2000, 12:05	10
IN I	0.5585783	704.2	01.lan2000, 12:50	198.4
ΟUT	0.6949064	876.7	01Jan2000, 13:05	251.3
	0.6171877	798.3	011an2000, 12:55	218.5
1	0.6949064	8/6.9	013an2000, 13:00	251.6
	0.0121017	A03.0	UDan2000, 12:55	190./
	0.6440/64	8767	01 Jan 200 11:05	2513
DELL	0.0075761	210	011ao2000_12:15	10
TPOND	0.0701406	136,8	01Jan2000, 12:25	30.2
2 DEL ETPOND Start of Run: End of Run: Commute Tim	0.6449084 0.5585783 0.6171877 0.6949064 0.0075781 0.0701406 Project: 20200528 Re 01Jan2000, 00: 02Jan2000, 00:	876.9 793.6 797.5 876.7 21.6 136.8 8 Bar W Simulati servoir: WETPON 00 Basin Mi 05 Meteoro 25:40 Centrol	01Jan/2000, 13:00 01Jan/2000, 13:00 01Jan/2000, 13:00 01Jan/2000, 13:05 01Jan/2000, 13:05 01Jan/2000, 12:15 01Jan/2000, 12:25 on Run: 25 YEAR D adel: Propose logic Model: 25 YR-2 Specifications Control	251.1 198.7 218.4 251.1 30 30.2 30.2 30.2

	And Table 5 and and	Dates Thine of Peak Bliow.	WINGHEWUN, FRAM
Peak Discharge:	136.8 (CFS)	Date/Time of Peak Discharge	2:01Jan2000, 12:25
Jaflow Volume:	30.2 (ACRE-FT)	Peak Storage:	8.5 (ACRE-FT)
Discharge Volume:	30.2 (ACRE-FT)	Peak Elevation:	989.3 (FT)

Start of Run;	01Jan2008, 00:00	Basin Model:	Proposed
End of Ren:	02Jan2060, 00:05	Meteorologic Model:	100 YR-24 HOUR
Compute Tim	e:01Jun2020, 11:21:26	<b>Control Specifications</b>	s:Control 1

how Elements: MI Elements Volume Units: O IN @ ACRE-FT Sorting: Alphabetic ~						
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CF5)	Time of Peak	Volume (ACRE-FT)		
F50	0.0537500	128.5	011an7000, 12:50	27.8		
160	0.1814063	510.0	013an2000, 12:40	94.1		
-60A	0.0093750	23.9	013an2090, 12:25	5.2		
-70	0.3437500	627.8	01Jan 2000, 13:20	183.1		
1-70A	0.0114063	37.0	01Dan2000, 12:30	6.1		
160 M60-A	0.1907813	537.1 ;	013an2000, 12:35	99.2		
170 N/0A	0.3551563	638.9 i	01Jan2000, 13:20	189.1		
HASTE 1	0.0091406	30.0	013an2000, 12:25	4.6		
HISTE2	0.0012813	6.8	013an2660, 12:10	0.9		
DHSITE-3	0.0022188	11.4	013an2090, 12110	1.2		
IFFSLTE-4	0.0648594	133 1	012an2000, 12:40	2.2		
MSITE-1	0.0701406	386.5	013an2000, 12:05	42.7		
MSHE-2	0.0075781	41.1	011sa2000, 17:05	4.4		
-IN	0.5585783	1034.9	011m2000, 12:50	295.0		
100-	0.6949864	1267.4	01Jan2000, 13505	371.4		
13	0.5171977	1173.9	01Jan2000, 12:55	325.2		
2	0.5949064	1267.8	012an2000, 13:00	321.8		
1	0.5585783	1034.4	01Jan2000, 12:55	3.20		
2	0.6171877	1173.1	012m200D 13:00	324.8		
8	0.5949064	1267.4	Cllan2000, 13:05	371.4		
EDE	0 0075781	34.4	01102060 12:15	44		
<b>TETPOND</b>	0.0701406	259.1	01Jan2000, 12:15	42.7		

### Project: 20200528 Bar W Simulation Run: 100 YEAR

### Reservoir: WETPOND

Start of Run:01Jan2000, 00:00Basin Model:ProposedEnd of Run:02Jan2000, 00:05Meteorologic Model:100 YR-24 HOURCompute Time:01Jun2020, 11:21:26Control Specifications: Control 1 Volume Units: O IN 
ACREFT

Computed Results Discharge Volume:42.7 (ACRE-FT) Peak Elevation:

 
 Peak Inflow:
 386.5 (CFS)
 Date/Time of Peak Inflow:
 01Jan2000, 12:00

 Peak Discharge:
 259.1 (CFS)
 Date/Time of Peak Discharge: 01Jan2000, 12:15

 Inflow Volume:
 42.7 (ACRE-FT)
 Peak Storage:
 10.5 (ACRE-FT)
 990.2 (FT)



## 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:

The second s	and a second
where:	where:
	2 E
ere and a second se	2
Site Data: Determine Required Load Removal Based on th	Site Data:
Total project area inclu	
Predevelopment impervious area within the limit Total post-development impervious area within the limit Total post-development impervious co	Total
	1 (4.1)
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values entered in these fields should be for the total ;	<ul> <li>The values er</li> </ul>
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The values for BMP Types not selected in cell C45 will show NA. 11. Wet Basins





E. BIOLOGICAL ELEMENTS - BIOLOGICAL ELEMENTS ARE AN IMPORTANT ASPECT TO THE FUNCTION AS WELL AS THE AESTHETICS OF THE WET POND SYSTEM. HE FOLLOWING CRITERIA MUST BE FOLLOWED TO ENHANCE POLLUTANT REMOVAL AND MINIMIZE UNDESIRABLE ACTIVITY.

1. WETLAND PLANTINGS - THE FUNCTIONS OF PLANTS IN A WET POND ARE TO 1) PHYSICALLY SLOW THE FLOW OF WATER AND CAUSE SUSPENDED PARTICLES TO FALL OUT; 2) PROVIDE A SUBSTRATE ON WHICH ASSOCIATED MICROBES ASSIMILATE ORGANICS, METALS, AND NUTRIENTS; 3) TAKE UP POLLUTANTS FROM THE SEDIMENT INTO THE ROOTS; AND 4) OXYGENATE THE WATER. USE WETLAND PLANTS AS SPECIFIED BELOW.

TO DETERMINE THE MINIMUM REQUIREMENT FOR WETLAND PLANT QUANTITY, MULTIPLY THE SURFACE AREA (IN SQUARE FEET) OF THE PERMANENT POOL BY TWO PERCENT (.02).

SURFACE AREA OF PERMANENT POOL = 0.963 ACRES (41.942 SQ FT)

WET POND -

D

A

41,942 X 0.03 = 1,258 NUMBER OF PLANTS REQUIRED (MINIMUM)

WETLAND PLANTS MAY BE PROVIDED IN BARE-ROOT FORM OR IN CONTAINERS. ROOT MASS OF BARE-ROOT PLANTS MUST BE EQUAL IN MASS TO THE EQUIVALENT CONTAINER SIZES. FOR THE PURPOSE OF FULFILLING THE REQUIRED MINIMUM PLANT QUANTITY, IT IS ASSUMED THAT THE PLANTS TO BE INSTALLED WILL BE 1 GALLON SIZE. OTHER SIZES ARE ACCEPTABLE BUT OVERALL THE QUANTITY MUST BE EQUIVALENT TO THE REQUIRED MINIMUM ONE GALLON PLANTS. SEE TABLE 1-90 FOR EQUIVALENCY.

PLANT SIZE EQUIVALENTS - TABLE 1-90

PROPOSED SUBS	TITUTE	EQUIVALENT TO	
QUANTITY'	PLANT SIZE	QUANTITY	PLANT SIZE
1	TWO-GALLON	2	ONE-GALLON
2	4" POTS	1	ONE-GALLON
4	PLUGS	1	ONE-GALLON

ALL WETLAND PLANTS WHICH FULFILL THE MINIMUM LANDSCAPE REQUIREMENTS SHALL BE PROPAGATED FROM, OR HARVESTED FROM, REGIONALLY ADAPTED STOCK. THESE ARE PLANT SPECIES OR GENOTYPES WHICH ARE NATIVE TO A RANGE OF WITHIN 200 MILES OF THE PROJECT SITE. WETLAND PLANTS GROWN OUTSIDE THE STATE OF TEXAS ARE NOT ACCEPTABLE. THE DESIGNER IS NOT LIMITED TO THE SPECIES DESCRIBED. ADDITIONAL SPECIES USED FOR AESTHETIC REASONS, ETC. MAY BE USED. PLANTS NOT INTENDED TO MEET MINIMUM REQUIREMENTS DO NOT NEED TO BE NATIVE OR REGIONALLY ADAPTED STOCK. PLANTS THAT ARE PROHIBITED FROM WET PONDS IN THE CITY OF AUSTIN INCLUDE THOSE IN THE FOLLOWING LISTS: TEXAS PARKS AND WILDLIFE DEPARTMENT: PROHIBITED EXOTIC SPECIES:

tttp://wew.tpwd.state.tx.us/huntwiid/wiid/species/exotic/#plant TEXAS DEPARTMENT OF AGRICULTURE: NOXIOUS PLANT LIST:

http://info.sos.state.tx.us/fids/04\_0019\_0300-1.html

TEXASINVASIVES.ORG: INVASIVE PLANTS DATABASE:

http://www.texasinvasives.org/invasives\_database/index.php

CATTAILS (TYPHA SPP.) TEND TO INVADE ALMOST ALL WETLANDS AND AGGRESSIVELY COLONIZE SHALLOW WATER. THEREFORE CATTAILS SHALL NOT BE SPECIFIED ON THE PLANTING PLAN. OTHER PLANTS THAT MUST NOT BE PLANTED ARE THOSE PLANTS LISTED AS INVASIVE BY THE TEXAS PARKS AND WILDLIFE DEPARTMENT. THIS LIST INCLUDES: 1) WATER HYACINTH (EICHORNIA SPP.) 2) HYDRILLA (HYDRILLA VERTICILLATA) AND 3) EURASIAN WATER-MILFOIL (MYRIOPHLLUM SPP.).

A MINIMUM OF 90% OF THE VEGETATION SHALL BE ALIVE AND VIABLE FOR ONE YEAR FOLLOWING INSTALLATION.

TABLE 1-9D LISTS WETLAND PLANT CATEGORIES AND THEIR RESPECTIVE RATIOS. SPECIFIC PLANTS FOR USE IN WET PONDS ARE LISTED IN TABLES 1-9E 1-9F AND 1-9G

### PLANT CATEGORY RATIOS - TABLE 1-9D

PLANT CATEGORY	COMMENTS	7 OF TOTAL	# OF PLANTS
POND EDGE ZONE	PLANT ROOTED PLANTS AT OR NEAR THE POND EDGE	40%	504
MARSH ZONE	PLANT ROOTED PLANTS ON THE VEGETATED BENCH	40%	504
DEEP WATER ZONE	PLANT ROOTED PLANTS ON THE DEEPEST PORTION OF THE VEGETATED BENCH	20%	250
Contraction of the second second second		100%	1258

WETLAND PLANTS ARE ADAPTED TO SPECIFIC WATER DEPTHS. THESE CRITERIA IDENTIFY POND PLANTING ZONES BASED ON THE DEPTH OF THE PERMANENT POOL. INSTALL PLANTS AT WATER DEPTHS APPROPRIATE TO THE SPECIES. THE WATER DEPTHS NOTED IN THE FOLLOWING TABLES SHOW THE RANGE OF DEPTHS IN WHICH THESE PLANTS MUST BE PLANTED. THE PLANTS WILL OFTEN COLONIZE DEEPER WATER THAN THAT IN WHICH THEY ARE PLANTED. TAKEN TOGETHER, THE FOLLOWING ZONES COMPRISE THE VEGETATED BENCH.

POND EDGE ZONE - THE POND EDGE ZONE IS AN AREA OF SATURATED SOIL SURROUNDING THE PERIMETER OF THE POND, THE ZONE EXTENDS FROM AN ELEVATION 6" ABOVE THE PERMANENT POOL LEVEL TO AN ELEVATION 3" BELOW THE PERMANENT POOL LEVEL. WHILE A PORTION OF THIS ZONE IS ABOVE THE ELEVATION OF THE VEGETATED BENCH, PLANTS LISTED IN TABLE 1-9E THAT ARE INSTALLED IN THIS AREA WILL COUNT TOWARDS FULFILLING THE REQUIRED MINIMUM NUMBER OF PLANTS, USE AT LEAST FOUR OF THE FOLLOWING SPECIES IN THIS ZONE. SPECIES NOTED AS REQUIRED MUST BE INCLUDED IN THIS ZONE.

POND EDGE ZONE PLANTS - TABLE 1-9E

COMMON NAME	LATIN NAME	HEIGHT	REQUIRED	COMMENTS AND PLANTING INFORMATION (PERMANENT POOL ELEVATION = 0")
BIG MUHLY	MUHLENBERGIA LINDHEIMERI	3'		0" TO +6", CLUMP GRASS
BURHEAD	ECHINODORUS CORDIFOLIUS	2'		-3" TO O", FOLIAGE SIMILAR TO
	(ROSTRATA)			ARROWHEAD
BURR MARIGOLD	BIDENS LAEVIS	3'		-3" TO O", YELLOW FLOWERS
BUSHY BLUESTEM	ANDROPOGON GLOMERATUS	3'		0" TO +3", CLUMP GRASS
CARDINAL FLOWER	LOBELIA CARDINALIS	3'		-3" TO O", RED FLOWERS
CARIC-SEDGE	CAREX FRANKII (HYSTRICINA,	2'		-3" TO +3" ORNAMENTAL
	CHEROKEENSIS)			SEDGE
CRINUM	CRINUM AMERICANUM	3'		-3" TO O", WHITE FLOWERS
EASTERNGAMA GRASS	TRIPSACUM DACTYLOIDES	4'		0" TO +6", CLUMP GRASS
EMORY SEDGE	CAREX EMORYII (MICRODANTA)	2'		0" TO +6", GRASS-LIKE FOLIAGE
FLATSEDGE	CYPERUS ODORATUS (OCHRACEUS,	2'		-3" TO +3" PLANTING DEPTH
	ALTERNIFOLIUS, PSEUDOVEGETUS)			
HORNED RUSH	RHYNCHOSPORA CORNICULATA	18*		-3" TO O", ORNAMENTAL RUSH
	(COLORATA)			
HORSETAIL	EQUISETUM LAEVIGATUM (HYEMALE)	2'		-3" TO +3", DEER-RESISTANT
INLAND SEA DATS	CHASMANTHIUM LATIFOLIUM	2'		0" TO +3", GRASS, TAKES SHADE
JAMICAN SAW CRASS	CLADRUM MARISCUS SSP. JAMAICENSE	7'		-3" TO O", DENSE EVERGREEN,
			-	SHARP LEAF EDGES
MALLOW	HIBISCUS LASIOCARPOS (LAEVIS),	3'		-3" TO O", PINK FLOWERS
	ALSO KOSTELETZKYA VIRGINICA			
OBEDIENT PLANT	PHYSOSTEGIA ANGUSTIFOLIA	4'		O" TO +3", PINK FLOWERS
PALMETTO	SABAE MINOR	6'		-3" TO C", TROPICAL EVERGREEN
SOFT RUSH	JUNCUS EFFUSUS	4'	4	-3" TO +3", EVERGREEN CLUMP
SPIKERUSH (SHORT)	ELEOCHARIS MACROSTACHYA	1'	X	-3" TO +3", COLONIZES FOR
	(PALUSTRIS, MONTEVIDENSIS)			SHORELINE EROSION CONTROL
UMBRELLA SEDGE	FURENA SIMPLEX	2'		-3" TO C", ORNAMENTAL SEDGE
WATER CLOVER	MARSILEA MACROPODA (TENUIFOLIA)	6*	X	-3" TO +6", CLOVER-LIKE FERN
WATER DAISY	SPILANTHES AMERICANA	6*		-3" TO +6", YELLOW FLOWERS

\* THE GENUS WHICH WAS FORMERLY KNOWN AS SCIRPUS IS NOW KNOWN AS SCHOENOPLECTUS

MARSH ZONE - THE MARSH ZONE IS THE SHALLOW WATER AREA WITHIN THE POND. THE ZONE EXTENDS FROM AN ELEVATION 3" BELOW THE PERMANENT POOL LEVEL TO AN ELEVATION 12" BELOW THE PERMANENT POOL LEVEL, USE AT LEAST FOUR OF THE FOLLOWING SPECIES IN THE MARSH ZONE. SPECIES NOTED AS REQUIRED MUST BE INCLUDED IN THIS ZONE.

MANAGE COME COMES - TABLE 1-BE				
COMMON NAME	LATIN NAME	HEIGHT	REQUIRED	COMMENTS AND PLANTING INFORMATION (PERMANENT POOL ELEVATION = 0")
AMERICAN WATER-WILLOW	JUSTICIA AMERICANA	3*	x	-J" TO -12", FORMS SOUD MASS
ARROWHEAD	SAGITTARIA PLATYPHYLLA (LANCIFOLIA, LATIFOLIA, GRAMINAE)	2*	x	$\sim 3^{\circ}$ to $\sim 12^{\circ}$ , wildlife value, white flowers
CANNA LILY (NATIVE)	CANNA, FLACCIDA	2.5		-3" TO -12", YELLOW FLOWERS
HARD-STEM BULRUSH	SCHOENOPLECTUS ACUTUS*	6		-3" TO -12"
IRIS	IRIS (FULVA, HEXAGONA, VIRGINICA)	3*		-3" TO -12", COLORFUL FLOWERS
PICKERELWEED	PONTEDERIA CORDATA	3"		6" TO -12", FLOWER SPIKES
POWDERY THALA	THALIA DEALBATA	5'		-3" TO -12", PURPLE FLOWERS
SPIKERUSH (TALL)	ELEOCHARIS (ROSTELLATA, QUADRANGULATA, CELLULOSA)	2.5'	x	-3" TO -12", COLONIZING EVERGREEN
THREE-SOLIARE BUILDISH	SCHOENOPI ECTUS AMERICANUS*	4"		-3" TO -12" TRIANCHILAR STENS

MARSH ZONE PLANTS - TABLE 1-9F

\* THE GENUS WHICH WAS FORMERLY KNOWN AS SCIEPUS IS NOW KNOWN AS SCHOENOPLECTUS

DEEP WATER ZONE - THE DEEP WATER ZONE EXTENDS FROM AN ELEVATION 12" BELOW THE DESIGN POOL LEVEL DOWN TO AN ELEVATION 24" BELOW THE DESIGN POOL LEVEL. THIS ZONE INCLUDES SUBMERGENT PLANTS (WHICH GROW UNDERWATER), FLOATING-LEAVED AQUATIC PLANTS, AND TALL EMERGENT PLANTS. THE LIST INCLUDES A FEW PLANTS THAT MAY BE USED ONLY IN VERY LARGE PONDS (2 ACRES OR GREATER) DUE TO THEIR ACCRESSIVE GROWTH HABIT. INSTALL SUBMERCENT AND FLOATING-LEAVED AQUATIC PLANTS THROUGHOUT THE POND TO ENCOURAGE COLONIZATION IN A VARIETY OF LOCATIONS. INSTALL AT LEAST THREE SPECIES OF THE FOLLOWING:

### DEEP WATER ZONE PLANTS - TABLE 1-9G

COMMON NAME	LATIN NAME	HEIGHT	REQUIRED	COMMENTS AND PLANTING INFORMATION (PERMANENT POOL ELEVATION = $0^{\circ}$ )
AMERICAN WATERWEED	ELODEA CANADENSIS	8'		SUBMERGENT OXYGENATOR
COONTAIL	CERATOPHYLLUM DEMERSUM	6'		SUBMERGENT FOR NUTRIENTS
FANWORT	CABOMBA CARCLINIANA	6'		SUBMERGENT OXYGENATOR
GIANT BULRUSH	SCHOENOPLECTUS* (TABERNAEMONTANI, CALIFORNICUS)	8"		EMERGENT 8 HT. EVERGREEN; 2 ACRE MIN. POND SIZE
PONDWEED	POTAMOGETON PECTINATUS (NODOSUS, DIVERSIFOLIA, ILLINOENSIS)	4'	×	FLOATING-LEAVED AQUATIC, BENEFITS WILDLIFE
WATER LILY	NYMPHAEA (ODORATA, ELEGANS, MEXICANA)	8'		FLOATING-LEAVED AQUATIC; 2 ACRE MIN. POND SIZE
WATERNAJAD	NAJAS GUADALUPENSIS	4'	x	COMMON SUBMERGENT
WATER STAR GRASS	HETERANTHERA DUBIA (LIEBMANNII)	5"		SUBMERGENT OXYGENATOR

\* THE GENUS WHICH WAS FORMERLY KNOWN AS SCIRPUS IS NOW KNOWN AS SCHOENOPLECTUS

2 MICROBIAL INITIATION - A SUBSTANTIAL PORTION OF THE POLLUTANT REMOVAL IN WET PONDS IS DUE TO BIOLOGICAL PROCESSES. BACTERIA IN THE POND SUBSTRATE REMOVE NUTRIENTS THROUGH A PROCESS OF DENITRIFICATION. THESE MICROBIAL PROCESSES REQUIRE AN ORGANIC FOOD SOURCE, SUCH AS DECAYING PLANT UTTER, BECAUSE IT IS THE SUPPLY OF ORGANIC CARBON THAT DETERMINES NUTRIENT REMOVAL - MORE THAN UPTAKE BY LIVING PLANTS - DENITRIFICATION CAN BE EXPECTED TO CONTINUE EVEN DURING COLD-WEATHER PLANT DORMANCY. IN MATURE PONDS WITH ABUNDANT VEGETATION, AQUATIC PLANTS SUPPLY THE NECESSARY LITTER LAYER AND AEROBIC ZONE FOR MICROBIAL ACTIVITY. HOWEVER, SINCE NEW PONDS LACK A SUFFICIENT SOURCE OF ORGANIC MATTER, AN APPROPRIATE AMOUNT OF CARBON (STRAW, HAY, LEAF CUIPPINGS, SOIL, AND OTHER NON-WOODY MATERIAL) SHALL BE INSTALLED DURING CONSTRUCTION. AFTER THE POND LINER IS IN PLACE, YET PRIOR TO ALLOWING THE POND TO BE FILLED, SPREAD THE PLANT LITTER EVENLY ON THE SIDES OF THE POND (BELOW THE PERMANENT POOL LEVEL). TREAT THE ENTIRE SHALLOW WATER BENCH IN THIS MAINNER, AND ALL POND SLOPES (RANGING FROM 3:1 TO 10:1). THE MINIMUM REQUIRED AMOUNT OF PLANT LITTER IS 45 POUNDS PER 1,000 SQUARE FEET OF SLOPE. WHEN USING COASTAL HAY, THIS REQUIREMENT CAN BE EXPRESSED AS 1.5 BALES AT 30 LB./BALE ENSURE THAT THE PLANT LITTER WILL NOT FLOAT BY ATTACHING THE UTTER TO THE SLOPES (WITH STAPLES OR OTHER APPROPRIATE METHODS). COVER A MINIMUM OF 40% OF THE SLOPE SURFACE AREA.

### 3. INTEGRATED PEST MANAGEMENT - AS WITH ANY LANDSCAPE, THERE IS A NEED FOR PEST MANAGEMENT IN WET PONDS. TO THE EXTENT POSSIBLE, THESE CRITERIA ARE DESIGNED TO MINIMIZE THE POTENTIAL FOR PESTS WITHIN A WET POND.

ALGAE - HIGH NUTRIENT LOADS IN WET PONDS MAY CAUSE ALGAE BLOOMS TO OCCUR. PUNGENT ODOR IS OFTEN ASSOCIATED WITH THESE ALGAL BLOOMS. HOWEVER, TREATING WITH AN ALGAECIDE IS NOT RECOMMENDED BECAUSE BLOOMS ARE USUALLY SHORT LIVED AND ARE CONSIDERED DESIRABLE FOR NUTRIENT REMOVAL. THE USE OF SUBMERGENTS AND FLOATING-LEAFED AQUATICS CAN REDUCE THE EXTENT OF ALGA BLOOMS BY REDUCING NUTRIENT LOADS AND SHACING THE WATER.

WILDLIFE - WILDLIFE SUCH AS NUTRIA AND DEER ARE OCCASIONALLY A PEST OF WET PONDS IN THE AUSTIN AREA. EVALUATION OF THE POTENTIAL OF SUCH WILDLIFE INHABITING OR BEING ATTRACTED TO THE PROPOSED POND SITE IS REQUIRED. WHEN THERE IS A POTENTIAL FOR SUCH ACTIVITY, FENCING OR SIMILAR EXCLUSIONARY METHOD MUST BE PROVIDED.

MOSQUITO CONTROL - MOSQUITOES ARE PROBLEMATIC IN URBAN AREAS. THERE IS THE POTENTIAL FOR STANDING WATER IN WET PONDS TO BECOME IDEAL BREEDING LOCALITIES. THE WET POND SHOULD BE STOCKED WITH THE LOCAL NATIVE FISH SPECIES GAMBUSIA AFFINIS TO SERVE AS A BIOLOGICAL CONTROL. FOR MOSQUITOES. GAMBUSIA PROVIDE EFFECTIVE CONTROL FOR MOSQUITOES, ELIMINATING THE NEED FOR CHEMICAL CONTROL. GAMBUSIA SHOULD BE STOCKED AT THE INITIAL DENSITY OF 200 INDIVIDUALS PER SURFACE ACRE.

BAR W RANCH COMMERCIAL WET POND -

SURFACE AREA OF PERMANENT POOL = 0.963 ACRES 0.963 X 200 = 193 NUMBER OF GAMBUSIA AFFINIS REQUIRED (MINIMUM)

DOMESTIC WATERFOWL - DOMESTIC WATERFOWL, INCLUDING GEESE AND SWANS CAN DESTROY VEGETATION AND INCREASE POLLUTANT LOADING IN WET POND SYSTEMS. IN ADDITION, WATERFOWL CAN BECOME NUISANCES TO PROPERTY OWNERS NEAR THE POND, FOR THESE REASONS, DOMESTIC WATERFOWL SHOULD NOT BE INTRODUCED INTO THESE SYSTEMS.

CARP AND GOLDFISH - CARP AND GOLDFISH ARE BOTTOM-FEEDERS THAT CAN CAUSE TURBIDITY AND OTHER PROBLEMS. THEY SHOULD NOT BE INTRODUCED INTO A WET POND.

4. WATER - AFTER THE POND LINER IS COMPLETED, THE BASIN MUST FILL UP WITH WATER WITHIN A REASONABLE TIME PERIOD, PREFERABLY WITHIN ONE WEEK. SAFETY CONCERNS AND POND LINER INTEGRITY CONCERNS MUST BE PROPERLY ADDRESSED DURING POND CONSTRUCTION.

AERATION AND RECIRCULATION UNIT (OPTIONAL) - PRIVATELY MAINTAINED WET PONDS MAY INCLUDE SOME TYPE OF AERATION DEVICE (SUCH AS A FOUNTAIN) WHICH COULD ENHANCE THE DISSOLVED OXYGEN CONCENTRATION, INCREASED DISSOLVED OXYGEN PREVENTS THE POND FROM BECOMING ANAEROBIC, HENCE MINIMIZING PROBLEMS WITH ODOR FROM BACTERIAL DECOMPOSITION.

MAKE-UP WATER - A NEARBY SOURCE FOR MAKE-UP (SUPPLEMENTAL) WATER IS RECOMMENDED AS A WAY TO MAINTAIN AN ADEQUATE PERMANENT POOL LEVEL SHOULD THE LEVEL DROP TO A SEVERE DROUGHT. THIS COULD INCLUDE A WELL, A HOSE SIBS, OR A NEARBY FIRE HYDRANT. DEMONSTRATE THAT THE QUALITY OF THE MAKE-UP WATER IS IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND WELL NOT HARM THE POND BIOLOGY.

	6" CROSS SECTIO	N OF A TYPICAL AQUATIC BENCI	H AREA:	
	3	RAR BERGER	100799P COP	PERMANENT
3:1 SLOPE				24"
	4:1 SLOPE	4:1 SLOPE	CLAY LINER	MIN. 12" TOPSOIL
	REFERENCE POND LI	NER QA/QC PLA	AN ON SHEETS	

113 AND 114 FOR ALL POND LINER SPECIFICATIONS

	DATE DATE
YOND MAINTENANCE NOTES: URING SITE CONSTRUCTION - THE SEDIMENT LOAD TO THE SEDIMENT FOREBAY SHALL BE CLOSELY IONITIORED AFTER EVERY STORM EVENT. IF HEAVY SEDIMENT LOADS ARE DETECTED DURING AN INSPECTION, HE SOURCES SHOULD BE CORRECTED. SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT FOREBAY WHEN NIE-THIRD OF THE FOREBAY VOLUME IS LOST. HEOM COMPLETION OF SITE REVERENTION - ANY SEDIMENT BUILD UP (GREATER THAN 5% VOLUME LOSS) HALL BE REMOVED FROM THE FOREBAY UPON COMPLETION OF SITE REVERENTION. THE SEDIMENT IDD-UP IN THE MAIN POOL SHALL BE CHECKED IF MORE THAN TEN-PERCENT OF THE VOLUME LOSS) HALL BE REMOVED AT THAT TIME. VERY THREE MONTHS - TURF AREAS AROUND THE POND SHOULD BE MOWED. ACCUMULATED PAPER, TRASH, ND DEBRIS SHALL BE REMOVED EVERY THREE MONTHS IN IS LOST, IT SHALL BE CLEANED AT THAT IME. VERY THREE MONTHS - TURF AREAS AROUND THE POND SHOULD BE MOWED. ACCUMULATED PAPER, TRASH, ND DEBRIS SHALL BE REMOVED EVERY THREE MONTHS OR AS NECESSARY. CATALLS, COTTONNOODS, AND MILLOWS CAN QUICKLY COLONIZE SHALLOW ANT MARE AND THE EDGE OF THE POND, THESE SPECIES OR ANY IREAS OF PLANT DIVERGROWTH MAY BE THINNED AT THIS TIME OR AS NEEDED. INVIDULLY - THE BASIN SHOULD BE INSPECTED ANNUALLY FOR SIDE SLOPE EROSION AND DETERIORATION INVIDULTY - THE BASIN SHOULD BE INSPECTED ANNUALLY FOR SIDE SLOPE EROSION AND DETERIORATION INVIDULY OF THE SEDIMENT BUILD-UP IN THE SEDIMENT FOREBAY SHALL BE CHECKED. THE EDMENT FOREBAY SHALL BE CLEANED IF MORE THAN ONE-THIRD OF THE FOREBAY SHALL BE CHECKED, THE EDMENT FOREBAY SHALL BE CLEANED IF MORE THAN ONE-THIRD OF THE FOREBAY SHALL BE CHECKED. THE EDMENT FOREBAY SHALL BE CLEANED IF MORE THAN ONE-THIRD OF THE FOREBAY SHALL BE CHECKED. THE EDMENT FOREBAY SHALL BE CLEANED IF MORE THAN ONE-THIRD OF THE FOREBAY SHALL BE CHECKED. THE EDMENT FOREBAY SHALL BE CLEANED IF MORE THAN ONE-THIRD OF THE FOREBAY SHALL BE CHECKED. THE EDMENT FOREBAY SHALL BE CLEANED IF MORE THAN ONE-THIRD OF THE FOREBAY SHALL BE CHECKED. SEDIMENT SHALL BE EDMOVED FROM THE MAIN POOL WHEN TWENTY PERCENT	CLIENT INFORMATION     REV     REVISION / DESCRIPTION       RR 29 RETAIL, LTD.     901 S MOPAC EXPY.     POID       901 S MOPAC EXPY.     POID     PLOTED BY: MOULTY, SEAN
	3711 S. Mopac Expy Bldg I, Suite 550, Austin, Tx 78746 TBPE Firm No: F-38 & TBPLS Firm No:10194419 FILE: P:\2019\192-031\-CADD\DWG\CV01\192031-CV01-C44
FOR REFERENCE ONLY	BAR W RANCH COMMERCIAL SE CORNER OF RONALD REAGAN BLVD. AND RR 29 CITY OF LEANDER, WILLIAMSON COUNTY, TX WET POND NOTES
	August 24, 2020
APPROVED Rend Peng	CHECKED BY: #### JOB NUMBER: ISSUE DATE: 192-031 08/24/20 SHEET: 22 OF 39 SD-23-0066





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PROPOSED EXISTING BENCHMARK IRON ROD	
<ul> <li>IHON HOD</li> <li>IRON ROD W/ CAP</li> <li>NAIL</li> <li>PIPE CAP</li> <li>REDUCER</li> <li>UTILITY VALVE</li> <li>UTILITY METER</li> <li>BACKFLOW PREVENTER</li> <li>FLUSH CONNECTION</li> <li>FIRE HYDRANT</li> <li>MON HOD</li> <li>FIRE HYDRANT</li> <li>(MON HOD WELL</li> <li>(MON FOR MARKED)</li> <li>SANITARY M.H.</li> <li>CLEANOUT</li> <li>DRAINAGE M.H.</li> <li>DOWN SPOUT</li> <li>AREA INLET</li> <li>CURB INLET</li> </ul>	REVISION RECORD DESCRIPTION
HEADWALL SAFETY END TREATMENT DRAINAGE FLOW ELEC. M.H. CONTRACTOR CONTRAC	DATE
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T       T       TELEPHONE         COMMUNICATIONS LINE       CABLE TELEVISION         FO       FO       FO         G       G       G         OU       OU       OU         UG       UG       VERHEAD UTILITY         UG       UG       VERHEAD UTILITY         UG       UG       VATELINE         W       W       FIRE LINE         F       F       FIRE LINE         ROAD CENTERLINE       CUB & GUTTER         STHIPING       H.C. ACCESSIBLE ROUTE         LIMITS OF CONSTRUCTION       RAL ROAD         FLOO       ST       ST         ST       ST       ST	WELLS FARGO         WELLS FARGO         BAR W - LOT 5         19376 RONALD W. REAGAN BLVD         ZITY OF LEANDER, WILLIAMSON COUNTY, TX
NORTH         SCALE IN FEET         0       20	STORM B PLAN & PROFILE       STORM B PLAN & PROFILE       DATE:     MAWN BY:       DATE:     May, 2023     DRAWN BY:     CEC       DWG SCALE:     1" = 20'     CHECKED BY:     S23-627       PROJECT NO:     APPROVED BY:     323-627
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	REVISION RECORD DESCRIPTION	
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	Civil & Environmental Consultants, Inc.	1221 South MoPac Expressway · Suite 350 · Austin, TX 78746 Ph: 512.439.0400 · Fax: 512.329.0096 www.cecinc.com
	WELLS FARGO BAR W - LOT 5 19376 RONALD W. REAGAN BLVD	CITY OF LEANDER, WILLIAMSON COUNTY, TX
	CEC	SRB 323-627 MT
STATE OF TETTS	NG DETAILS :	NTS CHECKED BY:
MICHAEL A. THEONE 142972 CENSER MALENCE	GRADI <sup>May, 2</sup>	
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![](_page_122_Figure_0.jpeg)

Public	-

PROJECT:	22227.
DATE:	5/12/2023

6

Fixture	Minimum Trap Arm Size	Fixture Units	Quantity	Fixture Unit Subtotal
Appliances, Appurtinances or Fixtures				
Automatic clothes washer, commercial	2"	3	0	0
Automatic clothes washer, residential	2"	2	0	0
Bathroom Group as defined in Section 202 (1.6gpf)	-	5	0	0
Bathroom Group as defined in Section 202 (1.6gpf <)	-	6	0	0
Bathtub (with/out overhead shower/whirpool)	1-1/2"	2	0	0
Bidet	1-1/4"	1	0	0
Combination sink and tray	1-1/2"	2	0	0
Dental Lavatory	1-1/4"	1	0	0
Dental Unit or Cuspidor)	1-1/4"	1	0	0
Dishwasher (Domestic)	1-1/2"	2	0	0
Drinking Fountain or Watercooler	1-1/4"	0.5	1	0.5
Floor Drain/Sink (recieves only clear-water waste)	2"	0.5	0	0
Trap Size	1-1/4"	1	0	0
Trap Size	1-1/2"	2	0	0
Trap Size	2"	3	2	6
Trap Size	2-1/2"	4	0	0
Trap Size	3"	5	1	5
Trap Size	4"	6	0	0
Kitchen, Domestic (w/o DW or FWG)	1-1/2"	2	0	0
Kitchen, Domestic (w/ DW or FWG)	1-1/2"	2	0	0
Laundry tray (1 or 2 compartments)	1-1/2"	2	0	0
Lavatory	1-1/4"	1	2	2
Shower			0	
5.7 gpm or less	1-1/2"	2	0	0
Greater than 5.7 gpm to 12.3 gpm	2"	3	0	0
Greater than 12.3 gpm to 25.8 gpm	3"	5	0	0
25.8 gpm to 55.6 gpm	4"	6	0	0
Service Sink	1-1/2"	2	1	2
Sink	1-1/2"	2	1	2
Urinal	2"	4	0	0
Urinal, 1 GPF or less	2"	2	0	0
Urinal, non-water supplied	2"	0.5	0	0
Wash sink (each set of faucets)	1-1/2"	2	0	0
Water Closet Flushometer Tank	4"	4	0	0
Water Closet Private (1.6 GPF Flushometer Valve)	4"	3	2	6
Water Closet Private (>1.6 GPF Flushometer Valve)	4"	4	0	0
Water Closet Public (1.6 GPF Flushometer Valve)	4"	4	0	0
Water Closet Public (>1.6 GPF Flushometer Valve)	4"	6	0	0
	 	otal Fixt	ure Units	23.5

![](_page_122_Figure_4.jpeg)

PER TABLE 710.1(1) OF THE 2015 IPC THE REQUIRED PIPE SIZE SHALL BE A 4" PIPE.

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	TV       TV       CABLE TELEVISION         F0       F0       F0         G       G       GAS LINE         OU       OU       OU         UC       UC       UNDERGROUND UTILITY         UC       UC       UC         W       W       WATER LINE         F       FIRE LINE       ROAD CENTERLINE         CURB & GUTTER       STRIPING         FIRE       FIRE       FIRE LANE STRIPING         H.C. ACCESSIBLE ROUTE       IMITS OF CONSTRUCTION         MAIL ROAD       ST       ST         ST       ST       ST         ST       ST       ST         ST       ST       ST		WELLS FARGO BAR W - LOT 5	19376 RONALD W. REAGAN BLVD	CITY OF LEANDED WILLLAMSON COLINITY -			
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31 OF 39 SD-23-0066

![](_page_123_Figure_0.jpeg)

Fixture	Type of Supply Control	Public, Private, or Assembly	Fixture Units	Quantity	Fixture Unit Subtotal
ixture					
Bathroom group	Flush tank	Private	3.6	0	0
Bathroom group	Flush valve	Private	8.0	0	0
Bathtub	Faucet	Private	1.4	0	0
Bathtub	Faucet	Public	4.0	0	0
Bidet	Faucet	Private	2.0	0	0
Combination fixture	Faucet	Private	3.0	0	0
Dishwashing machine	Automatic	Private	1.4	0	0
Drinking fountain	3/8" Valve	Offices, etc.	0.3	1	0.25
útchen sink	Faucet	Private	1.4	1	1.4
útchen sink	Faucet	Hotel, restaurant	4.0	0	0
aundry trays (1 to 3)	Faucet	Private	1.4	0	0
avatory	Faucet	Private	0.7	2	1.4
avatory	Faucet	Public	2.0	0	0
ervice sink	Faucet	Offices, etc.	3.0	1	3
hower head	Mixing Valve	Public	4.0	0	0
hower head	Mixing Valve	Private	1.4	0	0
Irinal	1" flush valve	Public	10.0	0	0
Irinal	3/4" flush valve	Public	5.0	0	0
Irinal	Flush tank	Public	3.0	0	0
Vashing machine (8 lb)	Automatic	Private	1.4	0	0
Vashing machine (8 lb)	Automatic	Public	3.0	0	0
Vashing machine (15 lb)	Automatic	Public	4.0	0	0
Vater closet	Flush valve	Private	6.0	2	12
Vater closet	Flush tank	Private	2.2	0	0
Vater closet	Flush valve	Public	10.0	0	0
Vater closet	Flush tank	Public	5.0	0	0
Vater closet	Flushometer tank	Public or Private	2.0	0	0
		Т	otal Fixt	ure Units	18.05

![](_page_123_Figure_5.jpeg)

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10/ 999 " PVC		$ \begin{array}{c}                                     $	ELECTRIC LINE OVERHEAD ELECTRIC WIRE UNDERGROUND ELECTRIC LINE TELEPHONE COMMUNICATIONS LINE CABLE TELEVISION FIBER OPTIC LINE GAS LINE OVERHEAD UTILITY UNDERGROUND UTILITY SANITARY SEWER LINE WATER LINE FIRE LINE ROAD CENTERLINE CURB & GUTTER STRIPING FIRE LANE STRIPING FIRE LANE STRIPING OH.C. ACCESSIBLE ROUTE LIMITS OF CONSTRUCTION RAIL ROAD FLOODWAY CWQZ STORM SEWER DRAINAGE CHANNEL	WELLS FARGO BAR W - LOT 5 19376 RONALD W. REAGAN BLVD CITY OF LEANDER, WILLIAMSON COUNTY, TX
99	ELEVATION	Image: constraint of the section of	MICHAEL A. THEONE 142972 142972 1/CENSED	DOMESTIC WATERLINE PLAN & PROFILE       DOMESTIC WATERLINE PLAN & PROFILE       DOMESTIC WATERLINE PLAN & PROFILE     Image: Colspan="2">Image: Colspan="2" Colspan="2">Image: Colspan="2" Colspan="2">Image: Colspan="2" Colspan="2" Colspan="2">Image: Colspan="2" Colspa="2" Colspa="
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![](_page_125_Figure_0.jpeg)

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![](_page_128_Picture_1.jpeg)

![](_page_129_Figure_0.jpeg)

![](_page_129_Figure_3.jpeg)

PLANT SCH	EDULE		NOTE: ALL TREES SHALE BE A MINIMUM 3" CAL	IPER AS MEASURED	O AT 48" ABOVE FINISH GR
KEY	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
со	03	CHINKAPIN OAK	Quercus muehlenbergii	3-3.5"CAL.	10' HT. MIN., PLANT WHER INDICATED. MUST HAVE BRANCH CLEARANCE 6' A FG.
CE	11	CEDAR ELM	Ulmnus crassifolia	3-3.5"CAL.	10' HT. MIN., PLANT WHEF INDICATED. MUST HAVE BRANCH CLEARANCE 6' A FG.
LO	03	SOUTHERN LIVE OAK	Quercus virginiana	3-3.5"CAL.	10' HT. MIN., PLANT WHER INDICATED. MUST HAVE BRANCH CLEARANCE 6' A FG.
нм	04	HONEY MESQUITE	Prosopis glandulosa	65 GAL	PLANT WHERE INDICATED
VT	06	VITEX	Vitex agnus-castus	30 GAL	PLANT WHERE INDICATED FULL CANOPY, UNIFORM HEIGHT AND WIDTHS.
СМ	06	CREPE MYRTLE 'NATCHEZ'	Lagerstroemia indica x fauriei 'Natchez'	30 GAL	SINGLE TRUNK, W/ FULL CANOPY & UNIFORM CAN EVENLY SPACED
ĸw	01	KIDNEYWOOD	Eysenhardtia texana	65 GAL	PLANT CENTERED, WHEF
EN	03	EVE'S NECKLACE	Sophora affinis	65 GAL	PLANT WHERE INDICATED FULL CANOPY & UNIFORM CANOPY. EVENLY SPACE
RBP	08	RED BIRD OF PARADISE	Caesalpinia pulcherrima	15 GAL	PLANT WHERE INDICATE
TDP	09	TEXAS DWARF PALMETO	Sabal minor	15 GAL	PLANT WHERE INDICATE
DAB	00	ROSE CREEK ABELIA	Abelia x Grandiflora 'Rose Creek'	5 GAL.	PLANT 36" O.C., FULL AND UNIFORM CANOPY TO GROUND.
DWM	/11	DWARF WAX MYRTLE	Myrica pusilla	7 GAL	PLANT 48" O.C., MUST BE AT PLANTING
DTS	A 28	DWARF EXAS SAGE	Leucophyllum frutescens 'Compacta'	7 GAL	PLANT 48" O.C., MUST BE AT PLANTING
wc	<u> </u>	WINTERCREEPER	Euonymous fortunei	1 GAL	PLANT 18" O.C., MIN. W -W UNIFORM SIZE. PLANT IN SEE DETAIL
AG	98	AZTEC GRASS	Variegated Liriope Ophiopogon Intermedius Argenteomarginatus	1 GAL	PLANT 18" O.C., UNIFORM PLANT IN GRID, SEE DET/
TL	08	NEW GOLD LANTANA	Lantana horrida 'New Gold'	2-3 GAL	PLANT 36" O.C., UNIFORM PLANT IN GRID, SEE DETA
TURF GRASS	SF	ST. AUGUSTINE	Stenotaphrum secundatum	SOD	STAGGER GRASS PAD PLACEMENT, OVER FINE GRADING FREE OF DEBF

![](_page_129_Picture_5.jpeg)

![](_page_130_Figure_0.jpeg)

SHOULD BE VERIFIED PRIOR TO BIDDING. CONTRACTOR IS RESPONSIBLE FOR BIDDING AND PROVIDING QUANTITY OF PLANTS REQUIRED AT SPACING DESIGNATED FOR BED SIZES AND CONFIGURATIONS SHOWN ON PLANS REGARDLESS OF QUANTITIES DESIGNATED ON PLANT

UNLABELED PLANTS ON PLANS PRIOR TO BID SUBMITTAL. IF ANY OF THESE IS NOT CLARIFIED BY LANDSCAPE ARCHITECT PRIOR TO BID SUBMITTAL DATE, CONTRACTOR SHALL

TECHNOLOGY, OR APPROVED EQUAL. INSTALL 5" OF TOPSOIL WITHIN ALL PLANTING AREAS.

FILL WITH 1/2 EXISTING SOIL AND 1/2 COMPOST AS NOTED INN#3 ABOVE. THOROUGHLY

5. SHRUB PIT SHALL BE EXCAVATED 12" GREATER THAN BALL DIAMETER AND 6" DEEPER.

3" DEPTH LAYER, SHREDDED HARDWOOD BARK MULCH, UNIFORMLY SPREAD ON ALL SHRUB

7. BED EDGING TO BE STEEL EDGING 12G, X 5.5" AS MANUFACTURED BY COL-MET, (COLOR: BLACK) OR APPROVED EQUAL. ALL HOLES FOR TREES AND LARGE SHRUBS SHALL BE TESTED FOR WATER RETENTION PRIOR TO TREE OR SHRUB PLANTING. AFTER HOLE IS EXCAVATED, IT IS TO BE FILLED WITH WATER TO THE TOP OF THE EXCAVATION. IF, AFTER 24 HOURS, THE HOLE STILL HOLDS WATER, THE CONTRACTOR SHALL EXCAVATE AND ADDITIONAL 6" FROM THE BOTTOM OF THE HOLE. THE LANDSCAPE CONTRACTOR SHALL THEN INSTALL 6" OF NATIVE WASHED GRAVEL COVERED ON THE TOP (AND UP TO A MINIMUM OF 12" ON THE SIDES OF THE HOLE) WITH FILTER FABRIC. THE CONTRACTOR SHALL ALSO INSTALL A CAPPED 3" DIAMETER PVC SUMP WHICH WILL EXTEND FROM NEAR THE BOTTOM OF THE ROCK LAYER TO 3" ABOVE THE PROPOSED FINISH GRADE SO THE HOLE CAN BE EXCAVATED

8. ALL PLANTING (TREES, SHRUBS, GROUND COVER, AND/OR GRASS APPLICABLE) SHALL BE

10. ANY LARGE OR SMALL TREE SHALL BE PLANTED AT LEAST 48" MIN. FROM THE EDGE OF

AT ALL TIMES. THE PROPERTY OWNER IS RESPONSIBLE REGULAR WEEDING, MOWING OF GRASS, IRRIGATING, FERTILIZING, PEST PREVENTION, PRUNING AND OTHER MAINTENANCE OF ALL PLANTINGS AS NEEDED. ANY PLANT THAT DIES SHALL BE REPLACED WITH ANOTHER LIVING PLANT THAT IS COMPARABLE TO THE EXISTING PLANT MATERIALS SPECIFIED IN THE

EFFICIENT LANDSCAPE" WITHIN NINETY (90) DAYS AFTER NOTIFICATION BY THE CITY. 13. THE LOCATION OF ALL UTILITIES, INDICATED ON THESE PLANS, WERE PROVIDED BY OTHERS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES SHOULD BE DETERMINED BY

14. RYBA INC. ASSUMES NO RESPONSIBILITY FOR ANY EXCAVATION OR GRADING INDICATED IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO MAKE HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES, STRUCTURES, AND LINE RUNS, PRIOR TO — 15. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DEMOLITION. ADJUSTMENTS. OR

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