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TBPELS F-1386  
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7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735

June 20, 2024

Sarah Patterson  
Edwards Aquifer Protection Program  
Texas Commission on Environmental Quality – Region 11  
PO Box 13087  
Austin, Texas 78711-3087

Re: The Sanctuary at Spanish Oaks CZP  
LJA Project No.: A263-404

Dear Sarah,

Please find enclosed the response to the administrative Comments dated June 11, 2024, for The Sanctuary at Spanish Oaks CZP.

1. The application now lists 2 applicants. If the application does now have 2 applicants, this does not need to be changed. However, both property owners do not have to be listed as applicants. All that is needed from the non-applicant land owner is one Owner Authorization Form stating they have given the applicant the right to control and possess the land.  
[Response: The application has been updated to reflect 1 applicant.](#)

**Owner Authorization Form**

2. Please ensure the Applicant Name / Plan Holder information reflects the plan holder and not the engineer.  
[Response: See updated Owners Authorization Form.](#)
3. Please see administrative NOD #1.  
[Response: The application has been updated to reflect 1 applicant](#)

**Agent Authorization Form (TCEQ-0599)**

4. Please see administrative NOD #1 above. If there are now 2 applicants for this application, both forms can remain. If not, please only provide one Agent Authorization Form from the applicant.  
[Response: The application has been updated to reflect 1 applicant](#)

If you have any questions, please do not hesitate to call.

Sincerely,

Lauren Crone, P.E.



**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
CONTRIBUTING ZONE PLAN**

**FOR**

**THE SANCTUARY AT SPANISH OAKS**

**JANUARY 2024**

**PREPARED FOR**

**THE SANCTUARY AT SPANISH OAKS, L.P.  
2121 LOHMAN'S CROSSING RD.  
SUITE 504-295  
AUSTIN, TEXAS 78734  
(512) 910-8778**

**PREPARED BY**

**LJA ENGINEERING, INC.  
7500 RIALTO BLVD, BUILDING II, SUITE 100  
AUSTIN, TEXAS 78735  
(512) 439-4700  
FIRM NO. F-1386**



# Texas Commission on Environmental Quality

## Edwards Aquifer Application Cover Page

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### Our Review of Your Application

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

### Administrative Review

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

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

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

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

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

### Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.
2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

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

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

### Mid-Review Modifications

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

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

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

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

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

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

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

<b>1. Regulated Entity Name:</b> The Sanctuary at Spanish Oaks					<b>2. Regulated Entity No.:</b>				
<b>3. Customer Name:</b> The Sanctuary at Spanish Oaks, L.P.					<b>4. Customer No.:</b>				
<b>5. Project Type:</b> (Please circle/check one)	<input checked="" type="radio"/> New	Modification			Extension		Exception		
<b>6. Plan Type:</b> (Please circle/check one)	WPAP	<input checked="" type="radio"/> CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
<b>7. Land Use:</b> (Please circle/check one)	<input checked="" type="radio"/> Residential		Non-residential			<b>8. Site (acres):</b>		21.80	
<b>9. Application Fee:</b>	\$4,000		<b>10. Permanent BMP(s):</b>				N/A		
<b>11. SCS (Linear Ft.):</b>	N/A		<b>12. AST/UST (No. Tanks):</b>				N/A		
<b>13. County:</b>	Travis		<b>14. Watershed:</b>				Little Barton Creek Watershed		



# 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](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.)	—	<u>X</u>	—
County(ies)	—	<u>X</u>	—
Groundwater Conservation District(s)	<u>—</u> Edwards Aquifer Authority <u>—</u> Barton Springs/ Edwards Aquifer <u>—</u> Hays Trinity <u>—</u> Plum Creek	<u>—</u> Barton Springs/ Edwards Aquifer <u>X</u> SW Travis County GCD	NA
City(ies) Jurisdiction	<u>—</u> Austin <u>—</u> Buda <u>—</u> Dripping Springs <u>—</u> Kyle <u>—</u> Mountain City <u>—</u> San Marcos <u>—</u> Wimberley <u>—</u> Woodcreek	<u>—</u> Austin <u>X</u> Bee Cave <u>—</u> Pflugerville <u>—</u> Rollingwood <u>—</u> Round Rock <u>—</u> Sunset Valley <u>—</u> West Lake Hills	<u>—</u> Austin <u>—</u> Cedar Park <u>—</u> Florence <u>—</u> Georgetown <u>—</u> Jerrell <u>—</u> Leander <u>—</u> Liberty Hill <u>—</u> Pflugerville <u>—</u> Round Rock

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

*Lauren Crone*

Print Name of Customer/Authorized Agent

*Lauren Crone*

Signature of Customer/Authorized Agent

*11/13/2023*

Date

**\*\*FOR TCEQ INTERNAL USE ONLY\*\***

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

# Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), 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.*

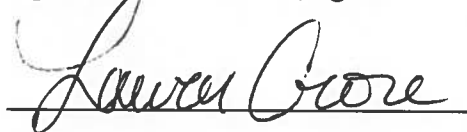
## Signature

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 **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Lauren Crone, P.E.

Date: 6/20/24

Signature of Customer/Agent:



Regulated Entity Name: The Sanctuary at Spanish Oaks

## Project Information

1. County: Travis
2. Stream Basin: Little Barton Creek Watershed
3. Groundwater Conservation District (if applicable): SW Travis County GCD
4. Customer (Applicant):

Contact Person: Chris Little

Entity: The Sanctuary at Spanish Oaks, L.P.

Mailing Address: 2121 Lohman's Crossing Rd., Suite 504-295

City, State: Austin, Texas

Zip: 78734

Telephone: 512-910-8778

Fax: \_\_\_\_\_

Email Address: chris@elev8builders.com

5. Agent/Representative (If any):

Contact Person: Lauren Crone, P.E.

Entity: LJA Engineering, Inc.

Mailing Address: 7500 Rialto Blvd., Building II, Suite 100

City, State: Austin, Texas

Zip: 78735

Telephone: 512-439-4737

Fax: \_\_\_\_\_

Email Address: lcrone@lja.com

6. Project Location:

- ☒ The project site is located inside the city limits of Bee Cave.
- ☐ 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.

7. ☒ The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

The project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd.

8. ☒ **Attachment A - Road Map.** A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

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

- ☒ Project site boundaries.
- ☒ USGS Quadrangle Name(s).

10. ☒ **Attachment C - Project Narrative.** A detailed narrative description of the proposed project is attached. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

11. Existing project site conditions are noted below:

- ☐ Existing commercial site
- ☐ Existing industrial site

- ☐ Existing residential site  
☐ Existing paved and/or unpaved roads  
☐ Undeveloped (Cleared)  
☒ Undeveloped (Undisturbed/Not cleared)  
☐ Other: \_\_\_\_\_

12. The type of project is:

- ☒ Residential: # of Lots: 8  
☐ Residential: # of Living Unit Equivalents: \_\_\_\_\_  
☐ Commercial  
☐ Industrial  
☐ Other: \_\_\_\_\_

13. Total project area (size of site): 21.80 Acres

Total disturbed area: 4.69 Acres

14. Estimated projected population: 32

15. The amount and type of impervious cover expected after construction is complete is shown below:

**Table 1 - Impervious Cover**

<i><b>Impervious Cover of Proposed Project</b></i>	<i><b>Sq. Ft.</b></i>	<i><b>Sq. Ft./Acre</b></i>	<i><b>Acres</b></i>
Structures/Rooftops	120,000	÷ 43,560 =	2.75
Parking		÷ 43,560 =	
Other paved surfaces	53,138	÷ 43,560 =	1.22
Total Impervious Cover	173,138	÷ 43,560 =	3.97

**Total Impervious Cover  $3.97 \div \text{Total Acreage } 21.80 \times 100 = 18.23\%$  Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

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

### ***For Road Projects Only***

***Complete questions 18 - 23 if this application is exclusively for a road project.***

☒ N/A

18. 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.

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

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: \_\_\_\_\_

20. Right of Way (R.O.W.):

Length of R.O.W.: \_\_\_\_\_ feet.

Width of R.O.W.: \_\_\_\_\_ feet.

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

21. Pavement Area:

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

Width of pavement area: \_\_\_\_\_ feet.

$L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$

Pavement area \_\_\_\_\_ acres  $\div$  R.O.W. area \_\_\_\_\_ acres  $\times 100 = \text{_____ \%}$  impervious cover.

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

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

23. ☐ 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***

24. ☒ **Attachment E - 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 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***

25. ☐ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☒ N/A

26. Wastewater will be disposed of by:

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

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

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

☒ Sewage Collection System (Sewer Lines):

The sewage collection system will convey the wastewater to the Lake Pointe (name) Treatment Plant. The treatment facility is:

☒ Existing.

☐ Proposed.

☐ N/A

### ***Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons***

***Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.***

☒ N/A

27. Tanks and substance stored:

**Table 2 - Tanks and Substance Storage**

<b><i>AST Number</i></b>	<b><i>Size (Gallons)</i></b>	<b><i>Substance to be Stored</i></b>	<b><i>Tank Material</i></b>
1			
2			
3			
4			
5			

**Total x 1.5 = \_\_\_\_\_ Gallons**

28. ☐ The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than

5 of 11



one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

- ☐ **Attachment G - Alternative Secondary Containment Methods.** Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

**Table 3 - Secondary Containment**

<i>Length (L)(Ft.)</i>	<i>Width(W)(Ft.)</i>	<i>Height (H)(Ft.)</i>	<i>L x W x H = (Ft3)</i>	<i>Gallons</i>

**Total: \_\_\_\_\_ Gallons**

30. Piping:

- ☐ All piping, hoses, and dispensers will be located inside the containment structure.
- ☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
- ☐ The piping will be aboveground
- ☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: \_\_\_\_\_.

32. ☐ **Attachment H - AST Containment Structure Drawings.** A scaled drawing of the containment structure is attached that shows the following:

- ☐ Interior dimensions (length, width, depth and wall and floor thickness).
- ☐ Internal drainage to a point convenient for the collection of any spillage.
- ☐ Tanks clearly labeled
- ☐ Piping clearly labeled
- ☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

- ☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

- ☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

## **Site Plan Requirements**

**Items 34 - 46 must be included on the Site Plan.**

34. ☒ The Site Plan must have a minimum scale of 1" = 400'.  
Site Plan Scale: 1" = 80'.
35. 100-year floodplain boundaries:
- ☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
- ☐ No part of the project site is located within the 100-year floodplain.  
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): \_\_\_\_\_.
36. ☒ 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, etc. are shown on the site plan.
- ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.
38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
39. ☒ Areas of soil disturbance and areas which will not be disturbed.
40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
41. ☒ Locations where soil stabilization practices are expected to occur.
42. ☒ Surface waters (including wetlands).  
☐ N/A
43. ☒ Locations where stormwater discharges to surface water.  
☐ There will be no discharges to surface water.
44. ☐ Temporary aboveground storage tank facilities.  
☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.  
☒ Permanent aboveground storage tank facilities will not be located on this site.
46. ☒ Legal boundaries of the site are shown.

### ***Permanent Best Management Practices (BMPs)***

#### ***Practices and measures that will be used during and after construction is completed.***

47. ☐ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.  
☒ N/A
48. ☐ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.  
☐ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.  
☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: \_\_\_\_\_.  
☒ N/A
49. ☐ 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
50. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.  
☒ The site will be used for low density single-family residential development and has 20% or less impervious cover.  
☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.  
☐ The site will not be used for low density single-family residential development.

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

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

52. ☒ **Attachment J - BMPs for Upgradient Stormwater.**

- ☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
- ☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
- ☒ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

53. ☒ **Attachment K - BMPs for On-site Stormwater.**

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

54. ☐ **Attachment L - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

☒ N/A

55. ☐ **Attachment M - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☒ N/A

56. ☐ **Attachment N - Inspection, Maintenance, Repair and Retrofit Plan.** A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

- ☐ Prepared and certified by the engineer designing the permanent BMPs and measures
- ☐ Signed by the owner or responsible party
- ☐ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
- ☐ Contains a discussion of record keeping procedures

☒ N/A

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

☒ N/A

58. ☒ **Attachment P - 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 result in water quality degradation.

☐ N/A

***Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.***

59. ☒ 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.
60. ☒ 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,

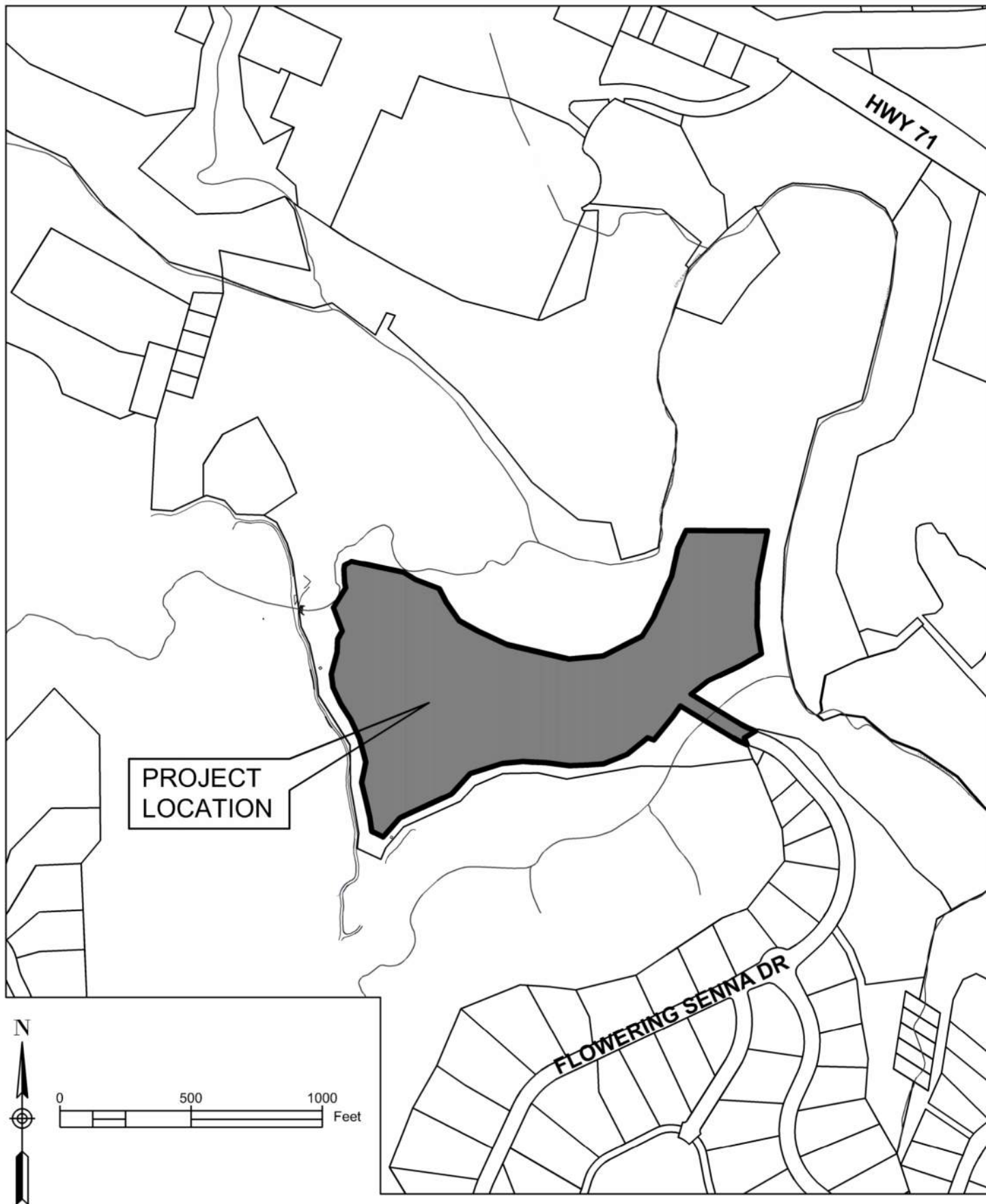
or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

### ***Administrative Information***

- 61. ☒ 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.
- 62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.
- 63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.
- ☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

## **ATTACHMENT A – Road Map**





**THE SANCTUARY AT SPANISH OAKS**  
**BEE CAVE, TEXAS**  
**ROAD MAP**

**ATTACHMENT B – USGS Quadrangle Map**

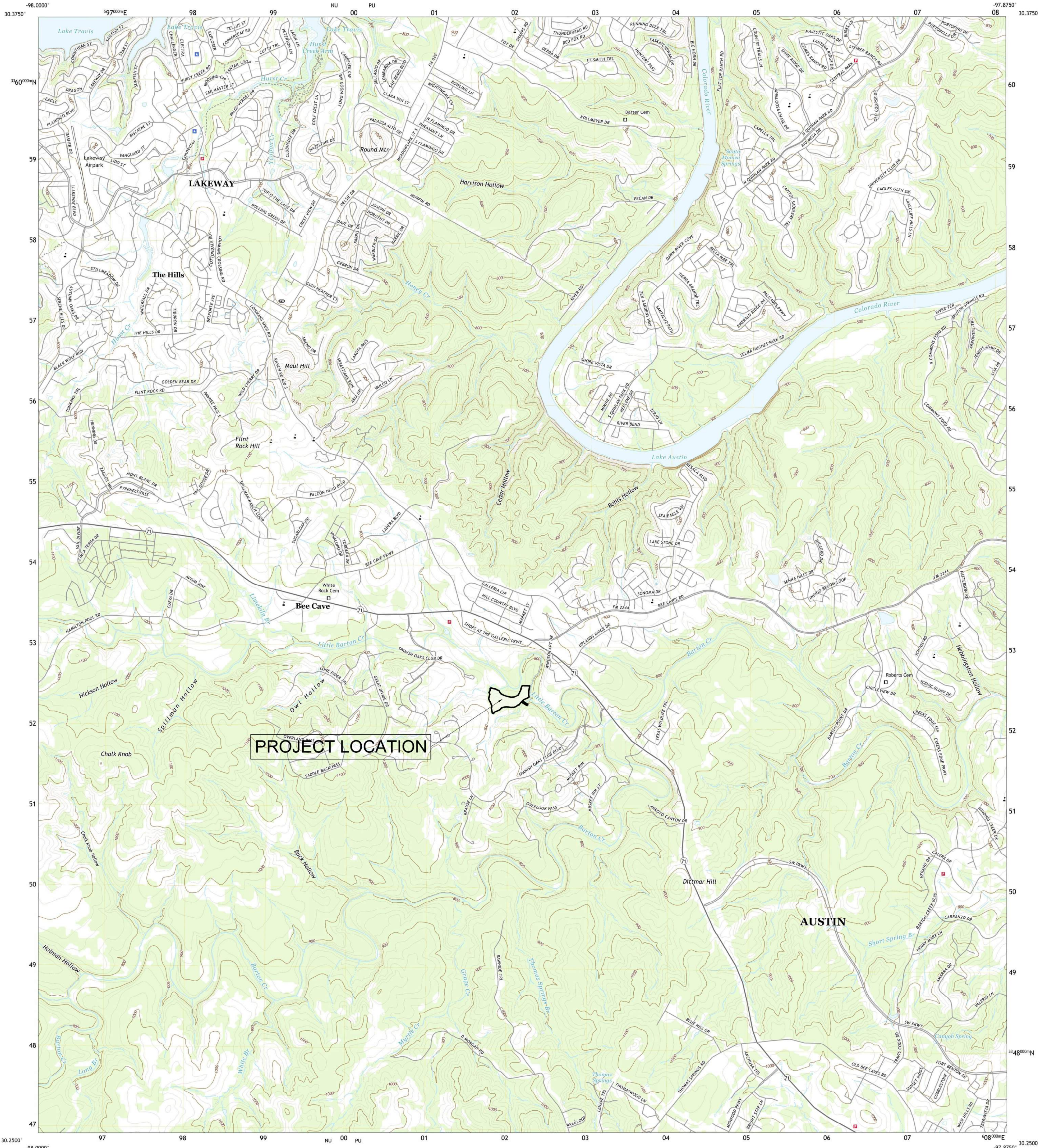




U.S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

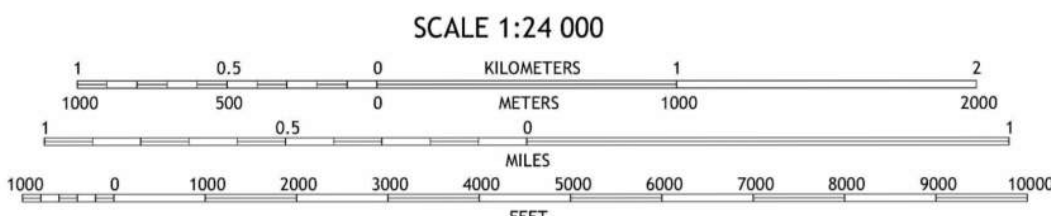
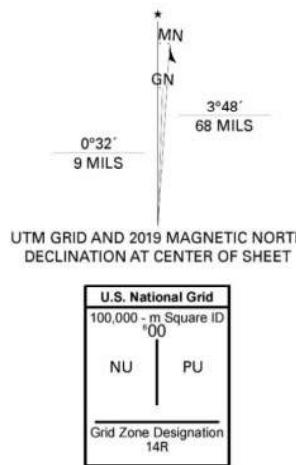


BEE CAVE QUADRANGLE  
TEXAS - TRAVIS COUNTY  
7.5-MINUTE SERIES



Produced by the United States Geological Survey  
North American Datum of 1983 (NAD83). 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.....NAP, September 2016 - November 2016  
Roads.....U.S. Census Bureau, 2015  
Names.....GNIS, 1979 - 2018  
Hydrography.....National Hydrography Dataset, 2002  
Contours.....National Elevation Dataset, 2002  
Boundaries.....Multiple sources; see metadata file 2016 - 2017  
Wetlands.....FWS National Wetlands Inventory 1982



CONTOUR INTERVAL 20 FEET  
NORTH AMERICAN VERTICAL DATUM OF 1988  
This map was produced to conform with the  
National Geospatial Program US Topo Product Standard, 2011.  
A metadata file associated with this product is draft version 0.6.18



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

ROAD CLASSIFICATION

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

BEE CAVE, TX  
2019



FOR PLANNING PURPOSES ONLY

OF 1 SHEETS	SHEET NO. 1	JOB NUMBER A456	<b>LJA Engineering, Inc.</b> 7500 Rialto Boulevard Building II, Suite 100 Austin, Texas 78735 Phone 512.439.4700 Fax 512.439.4716
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DATE: _____	NO. _____	REVISIONS	BY _____	DATE _____
DESIGNED BY: _____		DESCRIPTION		
DRAWN BY: _____				
CHECKED BY: _____				
Attachment B				
DRAWING NAME: USGS QUAD.dwg				

**SANCTUARY AT SPANISH OAKS**  
CONTRIBUTING ZONE PLAN  
ATTACHMENT B - BEE CAVE QUADRANGLE



## **ATTACHMENT C – Project Narrative**

The Sanctuary at Spanish Oaks is a proposed 21.80 acre single-family development that will consist of 8 single family lots, 1 private street lot, and 1 open space/drainage lot. The development will include paved roads, utilities that will include water, wastewater, and dry utilities. The limits of construction consists of 4.69 acres. The proposed impervious cover equals 3.97 acres or 18.23 percent of the site area.

The project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd. The site is located in the Little Barton Creek Watershed. The property drains north and east into Little Barton Creek.

## **ATTACHMENT D – Factors Affecting Surface Water Quality**

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping operation

Potential sources other than sediment:

- small fueling activities
- minor equipment maintenance
- sanitary facilities
- solvents, adhesives, paints, etc.
- paving materials, concrete, mortar

## **ATTACHMENT E – Volume and Character of Stormwater**

The property drains toward the north and the east with overland conditions. The proposed development will cause an increase in runoff due to impervious cover and reduced time of concentration. However, the total impervious cover of the development remains under 20% and therefore does not require Permanent Best Practices (BMPs) or measures to account for the increased runoff.

As a result of the land usage, the volume and character of the stormwater runoff from the site will be effectively unchanged from predevelopment levels.

## **ATTACHMENT F – Suitability Letter from Authorized Agent (if OSSF is proposed)**

Not Applicable.

## **ATTACHMENT G – Alternative Secondary Containment Methods (if AST with an alternative method of secondary containment is proposed)**

Not Applicable.

## **ATTACHMENT H – AST Containment Structure Drawings (if AST is proposed)**

Not Applicable.

## **ATTACHMENT I – 20% or Less Impervious Cover Waiver**

Not Applicable.

## **ATTACHMENT J – BMPs for Upgradient Stormwater**

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 because the site will be used for low density single-family residential development and has less than 20% impervious cover.

## **ATTACHMENT K – BMPs for On-Site Stormwater**

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas. Permanent BMPs 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 because the site will be used for low density single-family residential development and has less than 20% impervious cover.

## **ATTACHMENT L – BMPs for Surface Streams**

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas. Permanent BMPs are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site because the site will be used for low density single-family residential development and has less than 20% impervious cover.

#### **ATTACHMENT M – Construction Plans**

Copies of the construction plans are included with this submittal.

#### **ATTACHMENT N – Inspection, Maintenance, Repair, and Retrofit Plan**

Not Applicable.

#### **ATTACHMENT O – Pilot-Scale Field Testing Plan, if BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs**

Not Applicable

#### **ATTACHMENT P – Measures for Minimizing Surface Stream Contamination**

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing and rock berms will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. The water quality ponds will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas. Permanent BMPs are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site because the site will be used for low density single-family residential development and has less than 20% impervious cover.

**Maintenance Plan  
For Permanent Best Management Practices  
The Sanctuary at Spanish Oaks**

PROJECT NAME *The Sanctuary at Spanish Oaks*

ADDRESS: *The project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd.*

CITY, STATE ZIP *Austin, Texas 78738*

*The Best Management Practices associated with Water Quality for this project includes the use of vegetative filter strips and batch detention ponds.*

**MAINTENANCE FOR SENSITIVE FEATURES AND BUFFER AREAS**

***Routine Maintenance for All Sensitive Features and Buffer Areas***

*All sensitive features and buffer areas shall be inspected twice annually for erosion or damage to vegetation or the feature itself. Additional inspections after periods of heavy runoff is most desirable.*

*Bare spots and areas of erosion or damage to the feature identified during semi-annual inspections must be replanted and restored to natural conditions. Excessive sediment build up must also be removed during semi-annual inspections. Debris and litter accumulated must also be removed.*

*Protective fences around buffer areas shall be inspected during semi-annual inspections to ensure damage has not occurred.*



RECORD KEEPING OF INSPECTIONS, MAINTENANCE AND REPAIRS SHALL BE MAINTAINED BY THE RESPONSIBLE PARTY.

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

Responsible Party for Maintenance: The Sanctuary at Spanish Oaks, L.P.

Address: 2121 Lohman's Crossing Rd. Ste 504-295

City, State Zip: Austin, Texas 78734

Telephone Number: 512-910-8778



\_\_\_\_\_  
Signature of Responsible Party

10/27/23  
Date

**Texas Commission on Environmental Quality  
Contributing Zone Plan  
General Construction Notes**

**Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer**

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

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any ground disturbance or construction activities. This notice must include:
  - the name of the approved project;
  - the activity start date; and
  - the contact information of the prime contractor.
2. All contractors conducting regulated activities associated with this project should be provided with complete copies of the approved Contributing Zone Plan (CZP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractor(s) should keep copies of the approved plan and approval letter on-site.
3. No hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
4. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
5. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
6. Sediment must be removed from the sediment traps or sedimentation basins when it occupies 50% of the basin’s design capacity.
7. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.
8. All excavated material that will be stored on-site must have proper E&S controls.
9. If portions of the site will have a cease in construction activity lasting longer than 14 days, soil

stabilization in those areas shall be initiated as soon as possible prior to the 14<sup>th</sup> day of inactivity. If activity will resume prior to the 21<sup>st</sup> day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14<sup>th</sup> day, stabilization measures shall be initiated as soon as possible.

10. The following records should be maintained and made available to the TCEQ upon request:
  - the dates when major grading activities occur;
  - the dates when construction activities temporarily or permanently cease on a portion of the site; and
  - the dates when stabilization measures are initiated.
11. The holder of any approved CZP must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
  - A. any physical or operational modification of any best management practices (BMPs) or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;
  - B. any change in the nature or character of the regulated activity from that which was originally approved;
  - C. any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer; or
  - D. any development of land previously identified as undeveloped in the approved contributing zone plan.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329
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**THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.**

**THE SANCTUARY AT SPANISH OAKS**

**TEXAS POLLUTANT DISCHARGE  
ELIMINATION SYSTEM**

**STORMWATER POLLUTION  
PREVENTION PLAN**

**NOVEMBER 2022**

***Prepared for:***

**THE SANCTUARY AT SPANISH OAKS, L.P.  
2121 LOHMANS CROSSING RD  
SUITE 504-295  
AUSTIN, TX 78734**

***Prepared by:***

**LJA ENGINEERING, INC.  
7500 RIALTO BLVD  
BUILDING II, SUITE 150  
AUSTIN, TEXAS 78735  
(512) 439-4700  
FRN-F-1386**

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## THE SANCTUARY AT SPANISH OAKS

### TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

#### STORMWATER POLLUTION PREVENTION PLAN

##### A. SITE DESCRIPTION

1. Project Name: THE SANCTUARY AT SPANISH OAKS
2. Location: The project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd. The site is located in the Little Barton Creek Watershed. (see *Exhibit 1*)
3. Facility Operators: The Sanctuary at Spanish Oaks, L.P. (Plans and Specifications)  
2121 Lohman's Crossing Rd., Suite 504-295  
Austin, TX 78734  
512-910-8778  
Date N.O.I. submitted: \_\_\_\_\_  
General Permit Authorization No.: \_\_\_\_\_  
  
\_\_\_\_\_ (Contractor)  
\_\_\_\_\_  
\_\_\_\_\_  
  
Date N.O.I. submitted: \_\_\_\_\_  
General Permit Authorization No.: \_\_\_\_\_
4. Property Owner: The Sanctuary at Spanish Oaks, L.P. & Synchro Realty L.L.C.  
(Plans and Specifications)  
2121 Lohman's Crossing Rd., Suite 504-295  
Austin, TX 78734  
512-910-78734

Project Description: The Sanctuary at Spanish Oaks project is a 21.80-acre single family subdivision located within the city limits of Bee Cave and within Travis County. More specifically, the project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd. The site is located in the Little Barton Creek Watershed. The proposed project consists of the construction of infrastructure for 8 single family houses, including streets, water, wastewater and dry utilities.

5. Site Area: The construction limits and disturbance caused by construction will include approximately 4.69 acres.
6. Runoff Coefficient: Currently, the site area for The Sanctuary at Spanish Oaks property is represented by a composite 25-year and 100-year runoff coefficient of 0.36 and 0.46, respectively. After construction is completed, the composite 25-year and 100-year runoff coefficient will remain unchanged.

7. Existing Soils: According to the USDA Soil Survey of Travis County, the soil classifications within the proposed subdivision are Brackett-Rock outcrop complex (BID), Eckrant very stony clay (TaD), and Volente silty clay loam (VoD).

*Brackett-Rock outcrop complex (BID)*: These soils occupy gently undulating to rolling topography, generally on benches 100 to 500 feet wide that are separated by outcrops of the underlying limestone and marl. Slope is dominantly 5 to 12 percent, but it ranges from 1 to 12 percent. These soils developed over interbedded limestone and marl. Individual areas are more than 1,000 acres in size.

*Eckrant very stony clay (TaD)*: The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock. These nearly level to very steep soils formed in residuum derived from limestone and occur on summits, shoulders, and backslopes of ridges on dissected plateaus. Slope is dominantly 5 to 18 percent, but it ranges from 1 to 60 percent. In a representative profile, the surface layer is very dark gray very cobbly clay, 20 percent limestone gravel, 15 percent limestone cobbles, about 4 inches thick over very dark gray very cobbly clay, 20 percent limestone gravels, 35 percent limestone gravels, about 8 inches. Coarsely fractured indurated limestone bedrock underlies the clay 18 inches, to a depth of 30 inches.

*Volente silty clay loam (VoD)*: The Volente series consists of deep, well-drained soils that developed in slope alluvium. These soils occupy long and narrow valleys. Most valleys are 200 to 400 feet wide, but some are as wide as 1,000 to 1,500 feet. Slopes are concave and dominantly 2 to 7 percent. Volente soils developed under a cover of mid and tall grasses and a scattered overstory of trees. In a representative profile, the surface layer is dark grayish-brown silty clay loam about 22 inches thick over dark-brown silty clay about 14 inches thick. The next layer is brown silty clay that extends to a depth of about 46 inches. The underlying material, to a depth of 54 inches, is reddish-yellow clay loam. The soil is calcareous and moderately alkaline.

9. Factors Affecting Surface Water Quality:

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping operations

Potential sources other than sediment:

- Small fueling activities
- Minor equipment maintenance
- Sanitary facilities
- Solvents, adhesives, paints, etc.
- Paving materials, concrete, mortar

10. Location of Receiving Waters: The Sanctuary at Spanish Oaks project is located within the Little Barton Creek Watershed. Based on boundary maps prepared by the Texas



Commission on Environmental Quality, the property is not located in the Edward's Aquifer Recharge Zone, but it is located in the Edwards Aquifer Contributing Zone. There are no wetlands associated with this project.

11. Off-Site Operations: Disposal of spoil material will be the responsibility of the Contractors. Spoil shall be temporarily disposed of at the designated onsite temporary disposal area and permanently removed to a permitted off-site spoil disposal area. The Contractors shall be independently responsible as Operators for obtaining necessary permits in conjunction with the off-site disposal of spoil material or acquisition of borrow material.
12. Endangered Species: There are no known endangered species within the boundaries of the project.

## **B. POLLUTION PREVENTION CONTROLS**

1. Sequence of Construction:
  - a. Install tree protection. (1 week) (0.8 acres)
  - b. Install temporary erosion and sedimentation controls. (1 week) (8.0 acres)
  - c. Clear and grub for roadways and underground utilities. (1 week) (1.0 acres)
  - d. Excavate and place embankment to roadway subgrade. (4 weeks) (1.0 acres)
  - e. Construct all underground utilities. (2 months) (4.2 acres)
  - f. Test utilities. (2 weeks)
  - g. Assure all utilities have been placed within roadway. (1 week) (4.2 acres)
  - h. Once all utilities below subgrade have been tested, finish subgrade and test. (1 Month) (1.0 acres)
  - i. Lay first coarse of base (2 weeks) (1.2 acres)
  - j. Lay curb and gutter and sidewalk ramp turn downs. (4 weeks) (0.2 acres)
  - k. Dress up behind back of curb. (2 weeks) (0.2 acres)
  - l. Lay second coarse base. (2 weeks) (1.2 acres)
  - m. After base has been tested and passed, lay asphalt. (2 weeks) (1.5 acres)
  - n. Finish grading behind curb and revegetate. (2 weeks) (0.4 acres)
  - o. After vegetation is established, remove temporary erosion controls. (1 week)
2. Erosion and Sedimentation Controls:

Temporary vegetative stabilization:

1. From September 15 to March 1, seeding shall be with cool season cover crops (Wheat at 0.5 pounds per 1000 SF, Oats at 0.5 pounds per 1000 SF, Cereal Rye Grain at 0.5 pounds per 1000 SF) with a total rate of 1.5 pounds per 1000 SF. Cool season cover crops are not permanent erosion control.
2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF.
  - a. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of ½ pound per 1000 SF.
  - b. Hydromulch shall comply with Table 1, below.
  - c. Temporary erosion control shall be acceptable when the grass has grown at least 1 ½ inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
  - d. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Table 1 Hydromulching for Temporary Vegetative Stabilization

Material	Description	Longevity	Typical Applications	Applications Rates
100% or any blend of wood, cellulose, straw, and/or cotton plant material (except no mulch shall exceed 30% paper)	70% or greater wood/straw 30% or less paper or natural fibers	0-3 Months	Moderate slopes From flat to 3:1	1500 to 2000 lbs per acre

Permanent vegetative stabilization:

1. From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetation stabilization is desired, the grasses shall be mowed to a height of less than one half (1/2) inch and the area shall be re-seeded in accordance with 2. below.
2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF with a purity of 95% with 85% germination. Bermuda grass is a warm season grass and is considered permanent erosion control.
  - a. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of ½ pound per 1000 SF.
  - b. Hydromulch shall comply with table 2, below.
  - c. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil, but will sufficiently soak the soil to a depth of six inches. The irrigation shall occur at daily intervals (minimum) during the first two months. Rainfall occurrences of ½ inch or more shall postpone the watering schedule for one week.
  - d. Permanent erosion control shall be acceptable when the grass has grown at least 1 ½ inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.

- e. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Table 2 Hydromulching for Permanent Vegetation Stabilization

Material	Description	Longevity	Typical Applications	Applications Rates
Bonded Fiber Matrix (BFM)	80% Organic Defibrated Fibers 10% Tackifier	6 Months	On slopes up to 2:1 and erosive soil conditions	2500 to 4000 lbs per acre (see manufacturers recommendations)
Fiber Reinforced Matrix (FRM)	65% Organic Defibrated Fibers 25% Reinforcing Fibers or less 10% Tackifier	Up to 12 Months	On slopes up to 1:1 and erosive soil conditions	3000 to 4500 lbs per acre (see manufacturers recommendations)

b. Structural Controls:

- (i) Erosion and sediment structural controls have been designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.
- (ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.
- (iii) The Sanctuary at Spanish Oaks, L.P. will be the facility operator with control over the construction plans and specifications, including the ability to make modifications in the plans and specifications. Prior to site clearing, grading and excavation, stabilized construction entrances will be installed, tree protection/limit of construction fencing will be installed, and silt fences will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed downstream of the areas where concentrated runoff occurs. To insure that no additional areas are disturbed other than those included in the limits of construction, orange mesh fences will be placed on the upstream side of the limits of construction to keep construction activity out of areas not designated for construction. The Contractor will install the stabilized construction entrance and silt fence prior to the start of any construction and be responsible for maintenance of those facilities throughout construction. The Contractor will be responsible for stabilization (revegetation). The Contractor will also be responsible for removing the temporary controls once the revegetation is established.

3. Stormwater Management Controls:

- a. Temporary Sediment Controls: A stabilized construction entrance will be place as shown on the *Erosion/Sedimentation Control & Tree Protection Plan* and silt fences will be constructed at the downstream edge of the disturbed areas. Silt fence will also be used at selected locations of significant fill, around material stockpile sites, and around any other area that would be a pollutant source during storm events. The rock berms will be placed immediately downstream of areas where concentrated runoff occurs, and within

defined channels downstream from development, as appropriate. Additionally, silt fence will typically be utilized on the downstream side of rock berms to supplement sediment removal. The utility trenches will also be utilized as temporary sediment traps to the extent feasible during construction.

The contractor will install the erosion/sedimentation controls prior to the start of any construction. The contractor will be responsible for maintaining the erosion control measures and removing the controls once the revegetation is established. The locations of such controls are shown in *the Erosion/Sedimentation Control & Tree Protection Plan*.

- b. Permanent Stormwater Controls: Once construction associated with this project is completed, the site will be revegetated in accordance with the stabilization practices identified in this plan.

4. Other Controls:

- a. Waste Disposal: All construction-related waste materials will be collected and stored at a temporary onsite spoil disposal site. The Contractors will be independently responsible as Operators for controlling and preventing offsite migration of litter, construction debris, and construction materials.
- b. Sanitary Waste: The Contractors will be responsible for placing portable units onsite during construction, and waste will be collected and disposed of in accordance with state and local regulations.
- c. Off-site Vehicle Tracking: Stabilized construction entrances will be provided at the entry location to the construction project. The Contractors will be responsible for maintaining the entrances, and removing any sediment deposited onto adjacent streets. Vehicles leaving the site will be washed, as required.
- d. Dust Control: Contractors will spray water on disturbed areas and spoils areas, and apply mulch, as required, to control dust.
- e. Dewatering: When it becomes necessary to pump standing water from the site, the Contractors shall utilize the methods depicted in the Dewatering Detail included with this plan. Standing water removed via open channel will be routed through silt fence and/or rock berm before leaving the site.

- 5. Timing of Controls and Measures: Erosion and sediment structural control measures will be in place prior to clearing, grading or construction of any portion of the site. Construction phasing may occur, but in all instances erosion and sedimentation control measures will be in place in those areas prior to start of construction. Disturbed areas will be restored as described under Stabilization Practices. Temporary erosion and sediment controls will be removed only after all disturbed areas have been restored.

## C. STATE AND LOCAL REQUIREMENTS

The stormwater pollution prevention plan complies with the requirements of the City of Bee Cave, Travis County, and the Texas Commission on Environmental Quality (TCEQ) in effect at the time of permitting.

#### **D. INSPECTION AND MAINTENANCE PROCEDURES**

The Sanctuary at Spanish Oaks, L.P. (and/or their qualified agents) and Contractors, as Operators, shall be independently responsible for inspection of the controls, and for required record keeping (reference Appendix A). All Operators will be responsible for revisions to the controls, as necessary, based on inspections. The Contractors will be responsible for maintenance of the controls.

##### **1. Inspection of Controls:**

- a. Personnel provided by the Operators shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, discharge locations, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Personnel conducting these inspections must be knowledgeable of TPDES General Permit No. TXR150000, familiar with the construction site, and knowledgeable of this plan. Sediment and erosion control measures identified in this plan shall be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.
- b. Where sites have been finally or temporarily stabilized, inspections shall be conducted at least once every month.
- c. In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.
- d. This plan must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the plan must be completed within seven (7) calendar days following the inspection. If existing controls are modified or if additional controls are necessary, an implementation schedule must be described in this plan and/or Inspection and Maintenance Report, and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.
- e. An Inspection and Maintenance Report summarizing the scope of the inspection, the dates of the inspection, and major observations relating to the implementation and/or revision of this plan must be made and retained as part of the plan. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of controls that need to be maintained; locations of controls that failed to operate as designed or proved inadequate for a particular location; and locations where additional controls are needed. Reports must identify any incidents of non-compliance.

##### **2. Maintenance of Controls:**

- a. All protective measures and controls identified in this plan shall be maintained in effective operating condition. If, through inspections or other means, it is determined that controls are not operating effectively, then the Contractors, as Operators, shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the plan and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.
- b. If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the Operators shall replace or modify the control as soon as practicable after making the discovery.
- c. Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%.
- d. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.
- e. If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event if feasible. If the Operators do not own or operate the off-site conveyance, then the Operators must work with the owner or operator of the property to remove the sediment.

## **E. POLLUTION PREVENTION MEASURES**

1. Non-Storm Water Discharges: The following non-stormwater discharges may occur from the site during the construction period:
  - a. discharges from fire fighting activities;
  - b. uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);
  - c. water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local, state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;
  - d. uncontaminated water used to control dust;
  - e. potable water sources including waterline flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not

expected to adversely affect aquatic life);

- f. uncontaminated air conditioning condensate;
- g. uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and
- h. lawn watering and similar irrigation drainage.

2. Material Inventory: The materials or substances listed below are expected to be present onsite during construction:

- Concrete and concrete products
- Asphalt and asphalt products
- Metal reinforcing materials - rebar, welded wire fabric
- Fertilizers
- Petroleum based products
- Wood
- Plastic (PVC) and metal pipe and fittings
- Rock, gravel, sand, and soil
- Paint

3. Material Management Practices: The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff:

- a. Good Housekeeping: The following good housekeeping practices will be followed onsite during the construction project:
  - An effort will be made to store only enough product required to do the job.
  - All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers.
  - Materials will be stored in the temporary spoils disposal area as shown on erosion/sedimentation control plan, or an area as may otherwise be approved by The Sanctuary at Spanish Oaks, L.P. and Engineer.
  - Products will be kept in their original containers with the original manufacturers' labels.
  - Whenever possible, all of a product will be used before disposing of the container.

- Manufacturers' recommendations for proper use and disposal will be followed.
  - The Contractor will inspect daily to ensure proper use and disposal of materials onsite.
- b. Hazardous Products: These practices are used to reduce the risks associated with hazardous materials (if applicable):
- Products will be kept in original containers unless they are not resealable.
  - Original labels and material safety data will be retained, as they contain important product information.
  - If surplus product must be disposed of, manufacturers' and/or local and state recommended methods for proper disposal will be followed.
- c. The following product specific practices will be followed onsite:
- Petroleum Products: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphaltic substances used onsite will be applied according to the manufacturers' recommendations.
  - Fertilizers: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer or as otherwise indicated on the plans. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. The contents of any partially used bags of fertilizer will be stored in a manner so as to avoid spills.
  - Concrete: Onsite concrete truck wash out is allowed but is restricted as noted below. Excess dried concrete will be removed from the site and transported to a permitted off-site spoil disposal area.
    - Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited.
    - Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measure to prevent runoff from the construction site.
    - Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete truck washout water is prohibited at all times, and the Operators shall insure that controls are sufficient to prevent the discharge of concrete truck wash out as the result of rain.



- The discharge of wash out water shall not cause or contribute to groundwater contamination.
4. Spill Control Practices: In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:
- Site personnel will be made aware of the manufacturers' recommended methods for spill cleanup and the location of the information and cleanup supplies.
  - Materials and equipment necessary for spill cleanup will be kept onsite in an accessible location known to site personnel.
  - All spills will be cleaned up immediately upon discovery.
5. Releases of Reportable Quantities (RQ): The EPA has issued regulations that define what reportable quantity levels are for oil and hazardous substances. These regulations can be found at 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302. The TCEQ has issued similar regulations under 30 TAC Chapter 327. If there is an RQ release during the construction period, then the following steps must be taken:
- For quantities less than the reportable quantity\* – The contractor will contain and isolate the spilled substance. The remaining spilled substance and contaminated soil will be removed and disposed of properly.
  - For quantities more than the reportable quantity\* – The contractor will contain and isolate the spilled substance in accordance with 30 TAC Chapter 327. The contractor will then contact the appropriate spill response team and the TCEQ Austin Regional Office (512)339-2929 or the State Emergency Response Center at 1 (800)832-8224 and the National Response Center immediately at (800) 424-8802. The remaining spilled substance and contaminated soil will be removed and disposed of in an using approved emergency response methods. The proper authorities shall be kept informed during the cleanup process. Within 14 days, modify the SWPPP with a written description of the release providing the date and circumstances of the release and the steps to be taken to prevent another release.
- \* Reportable quantity (RQ) is defined in 30 TAC Chapter 327. The RQ for petroleum products, oil, and industrial solid waste are shown below. For hazardous substances see 30 TAC Chapter 327.4 and 40 CFR Chapter 302.4.

The RQ for *oil, petroleum product and used oil* is as follows:

- (1) The RQ for crude oil and 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 or used oil shall be:
  - (A) except as noted under (B) below, 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.

The RQ for spills or discharges into water in the state for *industrial solid waste or other substances* shall be 100 pounds.

6. Spill Response Handbook: The TCEQ Small-Business Handbook for Spill Response (RG-285) is provided as a supplementary resource and can be found in *Appendix D*.

## F. POLLUTION PREVENTION PLAN CERTIFICATION

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

Facility Operator (*Plans and Specifications*):

By: \_\_\_\_\_  
Name Title Date

Printed Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_

## F. POLLUTION PREVENTION PLAN CERTIFICATION

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

Facility Operator (Contractor):

By: \_\_\_\_\_  
Name Title Date

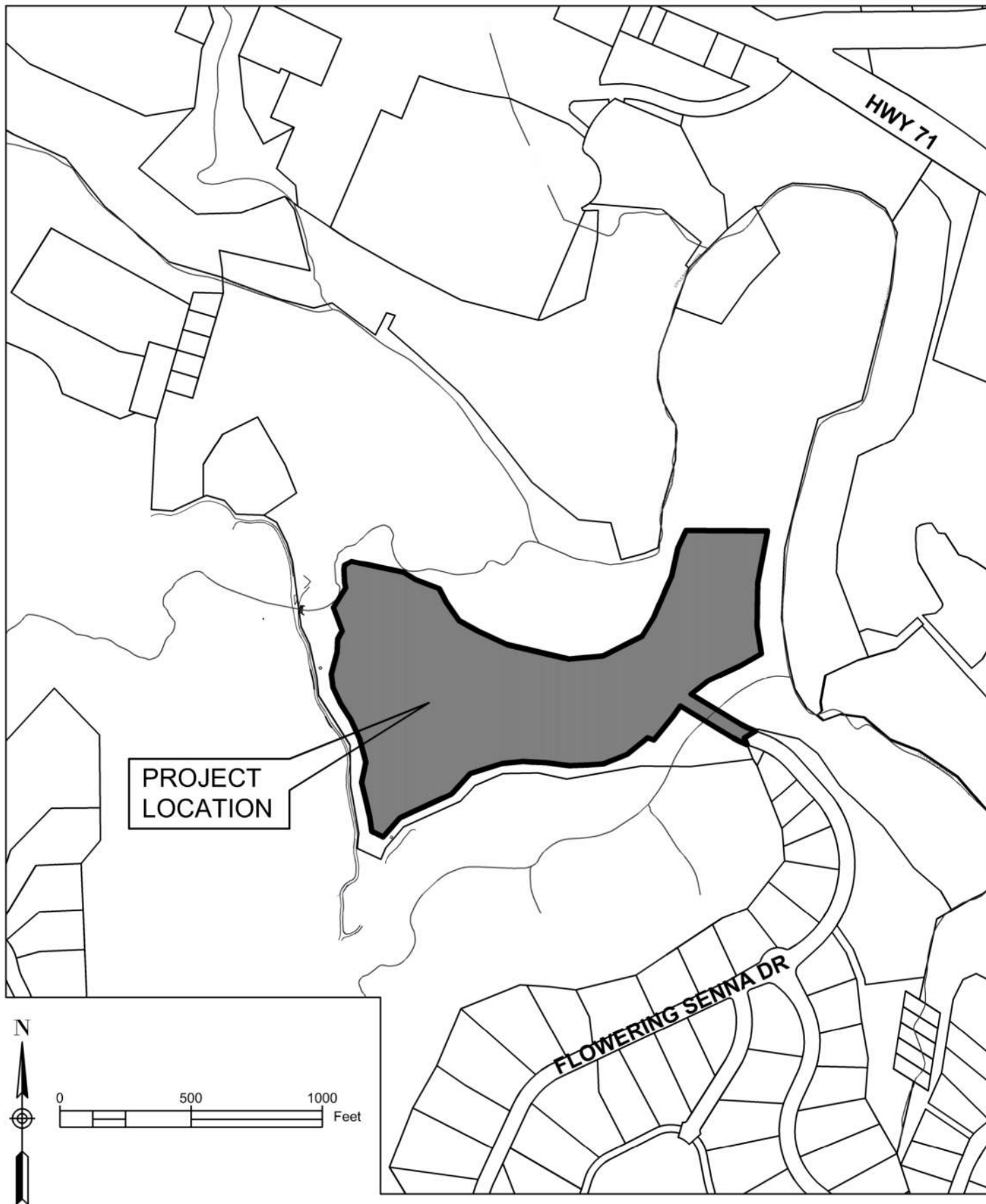
Printed Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

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**EXHIBIT 1**

**PROJECT LOCATION MAP**

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**THE SANCTUARY AT SPANISH OAKS**  
**BEE CAVE, TEXAS**  
**ROAD MAP**

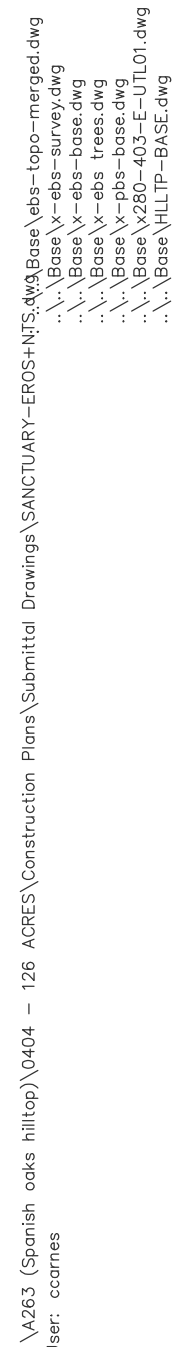
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**EXHIBIT 2**

**SITE MAP / TEMPORARY  
EROSION/SEDIMENTATION CONTROL & TREE  
PROTECTION PLAN**

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[illegible]

DATE: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DRAWING  
NAMESANCTUARY-EROS+NTS.dwg

DB NUMBER:  
A263-404

SHEET NO.



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**APPENDIX A**

**SAMPLE INSPECTION AND MAINTENANCE  
REPORT FORM**

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# **TPDES Construction Inspection and Maintenance Report Form**

**Project Name:** The Sanctuary at Spanish Oaks

**Permit Number:** \_\_\_\_\_

**Facility Operators:** \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

**Inspector's Name:** \_\_\_\_\_  
 (attach qualifications  
 summary for each  
 inspector) \_\_\_\_\_

**Date of Last Rainfall:** \_\_\_\_\_

**Amount of Last Rainfall:** \_\_\_\_\_

**Date of Inspection:** \_\_\_\_\_

## **Inspection Notes**

Condition Code*	Area Inspected	Changes Required (if any)
<input type="checkbox"/>	Stabilized Construction Entrance(s)	_____ _____
<input type="checkbox"/>	Silt fencing and rock berms downstream of improvements	_____ _____
<input type="checkbox"/>	Severe service rock berm and silt fencing downstream of detention pond	_____ _____
<input type="checkbox"/>	Severe service rock berm and silt fencing inside Vega Avenue right-of-way	_____ _____
<input type="checkbox"/>	Sediment Trap (Water Quality Pond)	_____ _____
<input type="checkbox"/>	Silt fencing downstream of Temporary Spoils/ Construction Staging Areas	_____ _____
<input type="checkbox"/>	Areas temporarily and/or finally stabilized (inspect at least once every month)	_____ _____
<input type="checkbox"/>		_____ _____

## **\*Condition Codes**

01 - In compliance with the storm water pollution prevention plan and permit  
 02 - To be repaired or replaced within 24 hours.  
 03 - To be repaired or replaced within 48 hours.  
 04 - To be repaired or replaced within 7 days.

Please note major construction activities taking place. Include dates when major grading activities and/or disturbances occur, dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of controls that need to be maintained; locations of controls that failed to operate as designed or proved inadequate for a particular location; and locations where additional controls are needed. (Attach additional pages as required and/or attach daily construction reports.)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

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

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

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## **APPENDIX B**

### **NAMES AND QUALIFICATIONS OF PERSONNEL MAKING INSPECTIONS**

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## **APPENDIX C**

### **CERTIFIED NOTICES OF INTENT AND ACKNOWLEDGEMENT CERTIFICATES**

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# Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

## IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly.

**Incomplete applications delay approval or result in automatic denial.**

Once processed your permit authorization can be viewed by entering the following link into your internet browser: [http://www2.tceq.texas.gov/wq\\_dpa/index.cfm](http://www2.tceq.texas.gov/wq_dpa/index.cfm) or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

## ePERMITS

**Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).**

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: <https://www3.tceq.texas.gov/steers/index.cfm>

## APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is \$325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is \$225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: <http://www.tceq.texas.gov/epay>.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
  - Check/Money Order Number:
  - Name printed on Check:
- If payment was made via ePay, provide the following:
  - Voucher Number:
  - A copy of the payment voucher is attached to this paper NOI form.

**RENEWAL** (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? ☐ Yes ☐ No

If Yes, provide the authorization number here: TXR15

NOTE: If an authorization number is not provided, a new number will be assigned.

**SECTION 1. OPERATOR (APPLICANT)**

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

The Sanctuary at Spanish Oaks, L.P.

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss): Mr.

First and Last Name: Chris Little Suffix:

Title: President Credentials:

Phone Number: (512) 910-8778 Fax Number:

E-mail: chris@elev8builders.com

Mailing Address: 2121 Lohmans Crossing Rd. Ste. 504-295

City, State, and Zip Code: Austin, TX 78734

Mailing Information if outside USA:

Territory:

Country Code:

Postal Code:

d) Indicate the type of customer:

☐ Individual

☒ Limited Partnership

☐ General Partnership

☐ Trust

☐ Sole Proprietorship (D.B.A.)

☐ Corporation

☐ Estate

☐ Federal Government

☐ County Government

☐ State Government

☐ City Government

☐ Other Government

☐ Other:

e) Is the applicant an independent operator? ☒ Yes ☐ No



- b) Name of project or site (the name known by the community where it's located): The Sanctuary at Spanish Oaks
- c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Construction of roads and associated utilities
- d) County or Counties (if located in more than one): Travis County
- e) Latitude: 30.298661 Longitude: -97.939428
- f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*.  
Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

*Section A:*

Street Number and Name:

City, State, and Zip Code:

*Section B:*

Location Description: Located about 1.5 miles East and 0.8 miles South of the intersection of SH71 and Hamilton Pool Rd.

City (or city nearest to) where the site is located: Bee Cave

Zip Code where the site is located: 78738

#### SECTION 4. GENERAL CHARACTERISTICS

- a) Is the project or site located on Indian Country Lands?
- ☐ Yes, do not submit this form. You must obtain authorization through EPA Region 6.
- ☒ No
- b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?
- ☐ Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.
- ☒ No
- c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? 1611
- d) What is the Secondary SIC Code(s), if applicable? 1623
- e) What is the total number of acres to be disturbed? 4.69



f) Is the project part of a larger common plan of development or sale?

☒ Yes

☐ No. The total number of acres disturbed, provided in e) above, must be 5 or more.  
If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project? 2024

h) What is the estimated end date of the project? 2025

i) Will concrete truck washout be performed at the site? ☒ Yes ☐ No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? Little Barton Creek

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach?

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

☐ Yes ☒ No

If Yes, provide the name of the MS4 operator:

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

☒ Yes, complete the certification below.

☐ No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. ☐ Yes

## SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☒ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☒ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☒ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). ☒ Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

#### SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name:

Operator Signatory Title:

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

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): \_\_\_\_\_ Date: \_\_\_\_\_

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**APPENDIX D**  
**SPILL NOTIFICATION PROCEDURE**

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## **APPENDIX D – SPILL NOTIFICATION PROCEDURE**

To report an environmental emergency, discharge, spill or air release, contact:

### **STATE**

- State of Texas Spill-Reporting Hotline and the SERC: 1-800-832-8224 (24 hours)
- TCEQ Regional Office – Austin Region 512-339-2929 (M-F 8:00 am – 5:00 pm)

### **FEDERAL**

- National Response Center: 1-800-424-8802 (notifying NRC does not constitute notice to the state.)

When making a report of a spill or pollution complain, please have the following information at hand:

- The date and time of the spill or release.
- The identity of chemical name of any material released or spilled, as well as whether the substance is extremely hazardous.
- The estimate of the quantity of material released or spilled and the time or duration of the event.
- The exact location of the spill, including the name of receiving waters. Receiving waters for this project include Barton Creek.
- The extent of actual and potential water pollution.
- The source of the release or spill.
- The name, address, and phone number of the party in charge of, or responsible for, the facility, vessel, or activity associated with the release or spill.
- The name and phone number of the party at the site who is in charge of operations.
- The steps being taken or proposed to contain and clean up the released or spilled material and any precautions taken to minimize impacts, including evacuation.
- The extent of any injuries.
- Any known or anticipated health risks associated with the incident and where appropriate, advice regarding medical attention necessary for persons exposed.
- Possible hazards to the environment (air, soil, water, wildlife, etc.) This assessment may include references to accepted chemical databases, material safety data sheets, and health advisories. The TCEQ may request estimated or measured concentrations of contaminant for the state's hazard assessment.
- The identities of any government or private sector representative responding at the scene.

### **IMPORTANT WEBSITES:**

Emergency Response Home (<https://www.tceq.texas.gov/response/index.html>)

Spills, Discharges, and Releases (<https://www.tceq.texas.gov/response/spills/spills.html>)

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**APPENDIX E**

**GENERAL PERMIT TO DISCHARGE UNDER THE  
TEXAS POLLUTANT DISCHARGE ELIMINATION  
SYSTEM**

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# Texas Commission on Environmental Quality

P.O. Box 13087 Austin, Texas 78711-3087



## GENERAL PERMIT TO DISCHARGE WASTES

under provisions of Section 402 of the Clean Water Act  
and Chapter 26 of the Texas Water Code

This permit supersedes and replaces  
TPDES General Permit No. TXG340000, issued October 24, 2012.

Facility wastewater, contact stormwater, and stormwater associated with industrial activities may be discharged from petroleum bulk stations and terminals, located in the State of Texas,

into or adjacent to water in the state, including exceptional, high, intermediate, limited, or minimal aquatic life use receiving waters as designated in the *Texas Surface Water Quality Standards*,

only according to effluent limitations, monitoring requirements and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or commission), the laws of the State of Texas, and other orders of the commission. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route. This includes property belonging to, but not limited to, any individual, partnership, corporation or other entity. Neither does this general permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This general permit and the authorization contained herein will expire at midnight on October 24, 2022.

EFFECTIVE DATE: October 24, 2017

DATE SIGNED: October 10, 2017

Signed by Bryan W. Shaw

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For the Commission

**GEOTECHNICAL INVESTIGATION**  
**SPANISH OAKS - SANCTUARY**  
**AUSTIN, TEXAS**

**Synchro Realty**  
**Bee Cave, Texas**

***Balcones***  
***Geotechnical***





Mr. Jack Creveling  
Synchro Realty  
13225 Highway 71 West  
Bee Cave, Texas 78738

Report No. 0121-055  
January 25, 2023

**Report of Geotechnical Investigation  
Spanish Oaks - Sanctuary  
Austin, Texas**

Submitted herewith is our Report of Geotechnical Investigation for the above referenced project. In brief, the report includes a plan of borings, boring logs, laboratory test results and descriptions of subsurface conditions. Based on the findings, recommendations are set forth for the design and construction of bridge foundations, pavements, and associated earthwork.

Balcones Geotechnical, LLC (Balcones) appreciates the opportunity to provide these geotechnical engineering services to Synchro Realty and we look forward to our continued association throughout final design and construction phases.

Sincerely,

**BALCONES GEOTECHNICAL, LLC**  
TBPE Firm Registration No. F-15624



Rebecca A. Russo, PE  
Senior Geotechnical Engineer

John A. Wooley, PE  
Principal Engineer

Attachments





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## **INTRODUCTION**

The project will consist of approximately 1,500 LF of new roadway construction, extending the terminus of Flowering Senna Bend in the Spanish Oaks Subdivision in Austin, Texas. The roadway extension will also include a 235-ft bridge over a tributary to Little Barton Creek. The project alignment is shown on the Vicinity Map, Plate 1. Currently, the project area is mostly undeveloped with trees, grassed areas, shrubs and jeep trails.

Balcones Geotechnical, LLC (Balcones) was retained by Synchro Realty to provide geotechnical engineering services. Civil engineering design services are being provided by LJA Engineering and Surveying, and structural design services are being provided by Pickett, Kelm & Associates (PKA).

## **AUTHORIZATION AND SCOPE**

The geotechnical investigation was authorized by Jack Creveling with Synchro Realty. The scope of services was performed as outlined in our Proposal for Geotechnical Investigation dated January 10, 2022. This report contains all the data collected and used to develop bridge foundation design, pavement thickness design, and construction recommendations.

The scope of the investigation included 1) drilling of six (6) borings to determine subsurface conditions along the project alignment for obtaining representative samples for laboratory testing; 2) laboratory testing to determine classification and index properties of site soils, and unconfined compressive strength of rock samples; and 3) preparation of this report.

Field sampling and laboratory testing were performed in general accordance with methods, procedures, and practices set forth by the American Society for Testing and Materials, latest version of Annual Book of ASTM Standards, where applicable.

## **FIELD INVESTIGATION**

The field investigation consisted of drilling six (6) borings, designated B-1 through B-6, to depths of 10 to 50 ft below existing grade. Borings B-1 and B-2 were drilled near the proposed bridge abutments, and borings B-3 through B-6 were drilled along the proposed roadway alignment. Boring locations are shown on the Boring Location Plan, Plate 2, and should be considered approximate. A summary of boring information is given in the table below.



Boring Summary Table					
Boring	Drill Date	Drilled Depth	GPS Coordinates		Location
B-1	2/12/2022	50	30.297989	-97.937104	Bridge
B-2	2/11/2022	50	30.298293	-97.937620	Bridge
B-3	2/11/2022	10	30.298593	-97.938277	Pavement
B-4	2/11/2022	10	30.298776	-97.939655	Pavement
B-5	2/11/2022	10	30.298614	-97.940685	Pavement
B-6	2/12/2022	10	30.297782	-97.936567	Pavement

Detailed descriptions of subsurface materials encountered at the boring locations are presented on the Logs of Borings, presented on Plates 3 through 8. Keys to Terms and Symbols used on the logs are set forth on Plates 9 and 10.

Pocket penetrometer values in tons per square foot, Standard Penetration Test N-values in blows per foot, and Core Recovery and Rock Quality Designation (RQD) values in percent (ASTM D6032), are also shown on the logs of borings at the respective test depth.

Groundwater and/or drilling fluid observations made during drilling are presented on the boring logs. Latitude and longitude GPS coordinates were obtained at boring locations using a hand-held GPS device accurate to about 3 horizontal meters, are shown at the top of the boring logs and should be considered approximate.

The borings were drilled with a truck-mounted drill rig equipped with 1) continuous flight augers for advancing the holes dry and recovering disturbed samples (ASTM D 1452), 2) seamless push tubes for obtaining relatively undisturbed soil samples of cohesive strata (ASTM D 1587), 3) split-barrel samplers and drive weight assembly for obtaining representative samples and measuring the penetration resistance (N values) of non-cohesive soil strata (ASTM D 1586), and 4) double-tube wireline core barrels equipped with diamond bits for obtaining 2-inch diameter rock cores (ASTM D 2113). After boring completion, boreholes were backfilled with a mixture of soil cuttings and bentonite.

## LABORATORY INVESTIGATION

The laboratory testing program included identification and classification testing of strata encountered in the subsurface. Soil classification tests, including Atterberg limit determinations (ASTM D4318) and partial grain-size analyses (ASTM D422), were conducted on representative



samples of the soil strata. Unconfined compression tests of rock core specimens (ASTM D7012) were conducted on selected rock samples. The classification and compressive strength tests included natural water content determinations (ASTM D2216). The compressive strength tests also included unit dry weight determinations. The results of the tests are tabulated on the boring logs at the sample recovery depths.

Descriptions of strata made in the field at the time the borings were drilled were modified in accordance with results of laboratory tests and visual examination. All recovered soil samples were classified in general accordance with ASTM D2487 and described as recommended in ASTM D2488. Classifications of the soils and finalized descriptions of soil strata are shown on the boring logs.

## **SITE AND SUBSURFACE CONDITIONS**

### **Physiography**

The topography of the project site is generally defined by the tributary to Little Barton Creek which flows west to east near the east end of the project alignment. The USGS Topographic Map is shown on Plate 11.

Existing ground surface elevations range from about El. 855 ft at the east end of the alignment, go down to about El. 805 ft at the creek crossing, and back up to approximate El. 885 ft at the west end of the project at the cul-de-sac. Currently, the site is mostly undeveloped with scattered trees and brush, and a jeep trail. The area within the creek crossing is mostly wooded.

### **Geology**

According to the Geologic Atlas of Texas, Llano Sheet,<sup>1</sup> the site is underlain by limestone of the Upper Glen Rose Formation (Kgru). A Geologic Map of the site and vicinity is presented on Plate 12.

The Glen Rose is a Cretaceous limestone comprised typically of alternating hard and soft layers of limestone, dolomite, dolomitic limestone, and marl (weathered limestone). Surface expressions of the formation are readily identifiable by its stair-stepped topography that is caused by the differential weathering of the interbedded layers of soft and hard rock. Unweathered portions of the Glen Rose tend to be gray in color and become tan upon weathering. Surficial weathered soil remnants are often described as brown and tan fat and lean clay, and clayey sand.

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<sup>1</sup> Barnes, V.E. (1986), "Geologic Atlas of Texas, Llano Sheet," Bureau of Economic Geology, The University of Texas at Austin, map and accompanying bulletin.



## **Stratigraphy and Engineering Properties**

Subsurface conditions can best be understood by a thorough review of the Boring Logs presented on Plates 3 through 8. In general, the borings encountered 0 to 2 feet of surficial clay, underlain by weathered limestone and limestone to the boring termination depths. A brief description of subsurface conditions at the bridge and pavement alignment are provided in the following sections.

**Bridge Borings.** Borings B-1 and B-2 were drilled at the proposed bridge structure. The borings encountered surficial soils consisting of lean clay and clayey sand (completely weathered limestone), underlain by highly to moderately weathered limestone of the Glen Rose formation.

Boring B-1 encountered highly to completely weathered limestone to the 13 ft depth. Boring B-2 encountered about 2 ft of surficial clay over moderately weathered limestone. The limestone stratum had rock core recovery of 72 to 100 percent (average 96), and the RQD (Rock Quality Designation) ranged from 58 to 100 percent (average 89). Measured unconfined compressive strengths of representative limestone core samples ranged from 24 to 187 tsf (average 112 tsf).

**Pavement Borings.** Borings B-3 through B-6 were drilled along the proposed roadway alignment. The borings encountered 2 to 6 ft of surficial soils underlain by highly to moderately weathered limestone of the Glen Rose formation. The surficial soils are described as brown to tan lean clay and clayey sand (completely weathered limestone). The surficial soils had measured plasticity indices ranging from 5 to 37 (average 14), and measured percent fines (material passing the No. 200 sieve) ranged from 14 to 48 with an average of 31.

## **Groundwater**

Groundwater was not encountered in the borings at the time of drilling. Drilling fluid was introduced to help promote rock coring operations in borings B-1 and B-2; therefore, groundwater may have been present but not detected during drilling within the limestone stratum. The presence of groundwater is based on antecedent rainfall conditions and may be different at the time of construction.

The Glen Rose limestone is known to exhibit weathered clay layers, joints and fractures where seepage conditions could develop. In these areas, groundwater travels laterally through softer, fractured or jointed, and/or weathered limestone layers within the stratum. The origin of groundwater may be from up-gradient sources, recharged at higher elevations and discharging at lower elevation surface outcropping of relatively softer or fractured limestone layers, and near streams or creeks. Balcones should be consulted if groundwater conditions are encountered



during construction, which may necessitate permanent below grade drainage provisions. This is discussed further in the Pavement Recommendations section of this report.

## **BRIDGE FOUNDATION RECOMMENDATIONS**

Based on our understanding of the proposed construction, and subsurface conditions encountered in the borings, we recommend that bridge foundations consist of straight-sided drilled shafts penetrating the limestone stratum. Recommendations for bridge foundations, abutment retaining walls, and the site seismic coefficient are presented in the following sections.

### **Drilled Shafts**

Based on anticipated drilled shaft column loads on the order of 200 kips to 500 kips, we offer the following straight-sided drilled shaft design and construction recommendations.

1. Straight sided drilled shafts should penetrate tan limestone a minimum of 5 feet, and be sized using an allowable end bearing of 50 ksf. Minimum shaft lengths should be 20 feet below the ground surface.
2. Should additional capacity be required, an allowable skin friction of 4.0 ksf may be used below a depth of 5 ft penetration into the limestone stratum.
3. Maintain a minimum clear spacing between drilled shafts of at least three shaft diameters. If the minimum spacing cannot be maintained, the geotechnical engineer should be retained to consider the group effect of the closely spaced shafts.
4. Settlement of individual drilled shafts should be less than one inch. Differential settlement between adjacent drilled shafts designed as recommended herein should not be greater than ½ inch.
5. Axial loads may be resisted using an allowable skin friction as indicated above for compressive loads. For uplift loads, use 70% of the values stated for compressive loads over the same penetration range.
6. Contract documents should provide for the possible use of temporary casing for proper installation of drilled shafts should detrimental groundwater conditions and/or collapsing soils be encountered. A separate unit price for the use of casing should be identified on the bid tabulation form in the contract documents such that the contractor will be paid for casing only if it is actually used. No more than 2 inches of water should be in the bottom of the shaft excavation prior to the placement of concrete.
7. If casing is used, when it is extracted, the head of the concrete must be maintained at a level well above the bottom of the casing. To facilitate casing extraction, the slump



of the concrete and the cleanness of the inside of the casing are critical items that the contractor must control. The top 10 feet of the shaft concrete should be vibrated following placement.

8. In order to promote shaft-to-soil bonding, drilled-shaft concrete should be specified as a high slump concrete (7- to 8-inch slump, preferably superplasticized), which still has the proper characteristics of normal concrete such as workability, durability, cohesiveness, and strength.
9. Centralizing chutes, tremies, and/or concrete pumps may be necessary to prevent the concrete from striking the sides of reinforcement and thus segregating. The desired maximum free fall of concrete should be about 10 ft, but greater heights are allowable if segregation can be eliminated and if the shaft excavation is dry.
10. The drilled shaft operations should be inspected, on a full-time basis, by a qualified representative of the geotechnical engineer to a) verify desired penetration into the bearing stratum, b) verify shaft dimensions and proper reinforcement, c) monitor cleanness of the shaft sidewalls and bottom and amount of water in shaft excavations, d) monitor placement of concrete and use of tremie or pumps, e) monitor the extraction of casing, if used, and f) maintain accurate records.
11. As the design of any foundation relies heavily on generalizations drawn from subsurface conditions determined at a limited number of boring locations, verification of these generalizations at any given location should not be dictated by criteria based on depth or drilling resistance. Instead, the sides and bottoms of shafts should be examined by the geotechnical engineer of record to assure that shaft bottoms bear in the desired stratum.
12. In addition to construction recommendations contained herein, the shafts should be constructed in general accordance with ACI 336.3R, Chapters 4 and 5.

## **Abutments**

As currently designed, the two abutment bents will be supported by 42-inch diameter drilled shafts. Beyond the bent caps, the roadway will be supported by 50-ft long Mechanically Stabilized Earth (MSE) walls on both sides of the roadway at the east and west abutment approaches. According to provided bridge layout sheet prepared by Picket Kelm and Associates, Inc. (PKA) dated 1/7/2023, the MSE wall will be about 18 ft tall at the east abutment. The MSE foundation will extend 2 ft below current grade and will therefore be founded in variably weathered limestone. Behind the wall on the east abutment roadway, several feet of select fill will be required to make the transition to final roadway grade. Select fill will also be placed in front of the walls on a 3H:1V slope downwards towards the dry creek. The fill used behind and in front of the MSE



walls should consist of select fill meeting the requirements set forth in a following Pavement Recommendations section of this report. The select fill should extend horizontally at least 5 ft beyond the toe of the MSE wall, and sloped no steeper than 3H:1V to tie into existing grade.

We have used the computer program SLIDE (by RocScience) to determine the minimum factor of safety for Global Stability of the MSE walls at the abutments, where the east abutment is the most critical case. The resulting factors of safety ranged from 2.1 to 2.2 for wall sections perpendicular and parallel to the roadway profile. A minimum factor of safety of 1.5 is recommended.

The results of the analysis are presented in Appendix A. These strength parameters used in the analysis were based on correlations with measured blowcounts, select fill specifications given herein, and our experience with similar construction. Based on these global stability analyses, we recommend using a minimum reinforcing ratio of 0.7H for the MSE wall heights, for walls founded in weathered limestone. Balcones should be consulted to re-evaluate global stability if MSE walls are designed to bear in select fill.

We understand that PKA, the structural engineer of record, will be performing MSA analyses as part of their MSE wall design. The following recommendations and parameters may be used by PKA in their design.

1. The foundation for the MSE wall should extend at least 2 ft below final grade, and be founded in tan weathered to highly weathered limestone. An allowable net bearing pressure of 3,500 psf may be used for foundations prepared as stated herein.
2. We recommend a minimum footing width of 2 ft for bearing pads beneath the MSE panels.
3. For embedment into weathered to highly weathered limestone, we recommend an effective friction angle of 35 degrees and effective cohesion of 500 psf and a wet density of 125 pcf. If needed for analyses, an equivalent friction angle of 38 degrees may be used in lieu of using cohesion.
4. The free-draining backfill material behind the wall and within the strap zone should consist of a free-draining backfill consisting of clean, coarse-grained material with no more than 5% passing the No. 200 sieve. Acceptable backfill would be crushed material with a gradation in general conformance with ASTM C 33, No. 57 or 67 aggregate, or other similar material specified by PKA..
5. The free-draining material should be placed in maximum 6 inch lifts and compacted with a minimum of four complete, overlapping passes over the entire surface with a



hand operated vibratory plate compactor, until further passes will not result in greater densification.

6. Use a coefficient of horizontal earth pressure of 0.50 for any uniform surcharge on the backfill adjacent to the wall. A surcharge of 240 psf is suggested for site retaining walls supporting the roadway.
7. The footing bottom may be counted on the resist sliding by friction upon its base. Use a coefficient of 0.60 for this calculation. This parameter is also affected by the free draining material properties.
8. Should additional parameters be required by PKA to perform their MSEW analyses, we are available to assist.

### Seismic Design

Referring to Section 1613 of the International Building Code (2015), we have assigned a site classification based on the soil profile encountered in the borings and extrapolated to the 100-ft depth as Site Class B. Seismic design coefficients were determined using online software developed by USGS Seismic Design Web Service (<http://earthquake.usgs.gov/ws/designmaps/>), using the 2015 International Building Code. For input coordinates (30.298593°N, 97.938277°W) and a site classification B, resulting seismic design parameters are summarized in the following table.

IBC Site Classification and Seismic Design Parameters				
Site Classification	Fa	Fv	Ss	S1
B	1.0	1.0	0.062 g	0.032 g
<b>Where:</b> Fa = Site coefficient Fv = Site coefficient Ss = Mapped spectral response acceleration for short periods S1 = Mapped spectral response acceleration for a 1-second period				



## PAVEMENT RECOMMENDATIONS

### Traffic

The proposed pavements have right-of-way widths of 60 feet. Because the roadway services a limited number of properties and is of limited length, and using the City of Austin Transportation Criteria Manual (TCM) as a guide, we have assumed that these roads will be considered as Local Streets with a design 18-kip equivalent of 20,000 ESALs.

Traffic Design Criteria		
Street Classification	ADT	20-year Design ESALs
Local	500	20,000

### Subgrade and Select Fill Beneath MSE Walls

Natural subgrade conditions consist primarily of residual soil and/or CWLS. Because the residual soil cover is thin and may contain fat clay constituents, **we recommend that this brown surficial layer be removed in its entirety**, thereby resulting in a CWLS or weathered limestone subgrade condition in cut areas, and select derivative limestone compacted fill material, as described below, in fill areas.

Pavement areas and areas beneath the MSE walls should be undercut a minimum depth to remove the surficial fat and lean (CH/CL) clay, and should be brought to grade using select fill material consisting of either site generated limestone derivative excavation spoil, or imported select fill materials. Areas beneath the footings for the MSE walls should be undercut a minimum of 2 ft.

All select fill and the subgrade should be compacted to a minimum dry density equivalent to 95% of the maximum dry density determined using TxDOT Test Procedure TEX 113-E at a moisture content within +/- 2% of the Optimum Moisture Content. The Select Fill materials should conform to the following gradation and plasticity criteria:

Retained on 3" sieve	0%
Retained on 7/8" sieve	5-45%
Retained on No. 4 sieve	35-75%
Retained on No. 40 sieve	60-90%
Retained on No. 200 sieve	65-95%



Material passing the No. 40 sieve should generally meet the following plasticity requirements:

25-40% passing No. 40 sieve

PI 3-15%

10-25% passing No. 40 sieve

PI 4-20%

An alternate select fill, generally complying with the intent of this specification (having a PI between 5 and 20, a maximum particle size of 2 inches, able to maintain open excavations and offering good trafficability when wet) may be proposed by the contractor for review by the geotechnical engineer.

### **Flexible Pavement Design**

We understand that most of the new roadway will consist of a flexible pavement, with the possible exception of the cul de sac, where concrete pavers are being considered. Based on the subgrade conditions encountered in the borings and the specification for select fill presented above, an estimated Texas Triaxial Classification of 4.7 (CWLS or limestone derivative fill) with corresponding resilient modulus of 6,000 psi was used for this pavement thickness design.

The designs were developed using the CAPEC Pavement Design Manual (2017), 1993 AASHTO procedure and checked using TxDOT FPS21. The resulting thicknesses derived from these procedures were comparable. The recommended pavement thicknesses are presented in the following table. Supporting computer output are presented in Appendix B.

<b>Recommended Flexible Pavement Thickness</b>			
<b>Street Classification</b>	<b>18-kip ESAL</b>	<b>CLBM Thickness (inches)</b>	<b>HMAC Thickness (inches)</b>
Local	20,000	8	2
<b>Special Notes:</b> <ol style="list-style-type: none"><li>1. Actual subgrade conditions should be verified by the geotechnical engineer in the field once final subgrade has been established.</li><li>2. These recommended HMAC thicknesses should be considered minimum values, not average values. All bidding contractors should be aware of this change prior to bid submittal. Test cores will be taken to assure these minimums have been satisfied throughout the section.</li><li>3. Interlocking concrete pavers may be used in lieu of HMAC. Refer to the Rigid Pavement Section for recommendations.</li></ol>			



### Flexible Pavement Construction

Construction of the flexible pavement should proceed in accordance with the City of Austin Standard Specifications as cited below:

- Item No. 102S, Clearing and Grubbing;
- Item No. 132S, Embankment;
- Item No. 201S, Subgrade Preparation;
- Item No. 210S, Flexible Base;
- Item No. 236S, Proofrolling; and
- Item No. 340, Hot Mix Asphaltic Concrete Pavement.

Project specifications should dictate that the recommended CLBM and HMAC thicknesses are minimums, not averages.

### Rigid Pavement Design

As an alternate to flexible pavements, consideration may be given to using ornamental pavers on concrete, rigid pavement in intersections, at steep slopes, and any areas subjected to heavy truck traffic, tight maneuvering, or other high static loads such as bus stops and garbage dumpster aprons.

Using the AASHTO and Portland Cement Association procedures, rigid pavement sections consisting of Portland cement concrete (PCC) over crushed limestone base material (CLBM) were developed for the selected traffic category and anticipated subgrade condition. Our recommended rigid pavement section is provided in the following table.

Recommended Rigid Pavement Thicknesses			
Traffic Category	18-kip ESAL	CLBM Thickness (inches)	PCC* Thickness (inches)
Urban Local	20,000	4	6 <sup>1</sup>
<p>* Note: The Portland cement concrete pavement should have a 28-day compressive strength of at least 4,000 psi and be reinforced with a minimum of No. 4 bars on 18-inch centers, each way.</p> <p>1. Interlocking concrete pavers placed on a 1-inch thick sand cushion may be used in lieu of 2 inches of concrete with a minimum thickness of 5 inches of concrete. Follow manufactures recommendations for installation and maintenance.</p>			



Construction of the rigid pavement should proceed in accordance with the pertinent City of Austin Standard Specifications listed above for the flexible pavement, Item 360 "Concrete Pavement", and the following recommendations:

1. Space transverse and longitudinal contraction joints (induced cracks) at intervals not exceeding 12 feet. The contraction joint pattern should divide the pavement into panels that are approximately square, with the length of any panel no more than 20 percent greater than its width. Depth of joints must be at least one-quarter of the slab thickness. The joints must be saw cut as soon as the concrete has hardened and will not tear or ravel when cut, and not more than 16 hours after placement. Frequent depth checks of the joints is recommended by an independent quality control agency during the saw cutting operation.
2. Support reinforcement steel with chairs or precast concrete blocks about 1 inch below the bottom of the planned contraction joints.
3. Provide load transfer at the interface between areas of concrete placed at different times using tied and keyed construction joints. Place construction joints at planned contraction joint locations. (See ACI Manual of Concrete Practice, Part 2, for further guidance.)
4. All joints should be sealed in accordance with Item 360 of the current City of Austin Standard Specifications.
5. Stage pavement construction such that construction traffic, including concrete trucks, do not travel on newly placed concrete pavement until the concrete achieves at least 75 percent of the design strength, usually 7 days.

### **Drainage and Groundwater Control**

The control of surface drainage and groundwater is important to the performance and life of pavements. Infiltration of water into the pavement subgrade and pavement structure will result in premature loss of serviceability. Accordingly, adequate surface drainage provisions should be included in the pavement design. Placement of curbs and islands and irrigation systems should be carefully planned in a manner that will not lead to ponding and saturation of base materials that extend into island areas.

Consideration should be given to installation of edge drains (french drains), trench drains, or blanket drains beneath or along the edge of pavements in areas where groundwater is suspected or encountered during construction. The decision to implement such measures should be made by the geotechnical engineer at the time of construction based on actual subgrade conditions, or the civil engineer could include edge drains at likely locations in cut areas, or an



allowance or provisional bid item could be included in the bid documents. Balcones can provide additional details for such drainage measures at the appropriate time.

## **ROADWAY CONSTRUCTION CONSIDERATIONS**

### **Embankment Fill Placement and Compaction**

Fill slopes may be placed at a maximum slope ratio of 3H:1V, provided the following material selection and placement specifications are followed. The roadway embankment fill should be constructed in lifts such that all lifts are bonded together, the specific densities are met throughout each lift, the moisture content is uniform throughout the fill, and clods are broken down and bonded into the rest of the lift without nesting and voids.

Maximum particle size and plasticity criteria should conform with the limestone derivative material criteria set out on page 10 of this report. The embankment material should be compacted to at least 95% of the maximum dry density as determined by TxDOT Test Method TEX-113-E. Hold moisture contents to within +/- 2% percent of optimum and compacted lift thickness to 6 inches.

### **Excavation Potential**

Excavation through the surficial overburden soils should proceed without significant difficulty. Advancement through the tan limestone will proceed with greater difficulty. Measured unconfined compressive strengths of intact limestone cores ranged from 24 to 187 tsf with an average of 112 tsf.

Assessments of rippability, based on inspection of cores, measured unconfined compressive strengths and estimated P-wave velocities indicate that the tan slightly weathered limestone and gray limestone is rippable to marginally with a Caterpillar D8 or equivalent, equipped with a multi or single shank ripper.<sup>2</sup> As a result of weathering and jointing and the presence of occasional soft layers, portions of the limestone may be more easily ripped or excavated. Generally, heavy-duty excavators will need to be equipped with rock teeth and/or a hydraulic hammer.

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<sup>2</sup> Caterpillar Performance Handbook, Edition 34, October 2003, published by Caterpillar, Inc., Peoria, Illinois.





## **CONDITIONS**

Since some variation was found in subsurface conditions at boring locations, all parties involved should take notice that even more variation may be encountered between boring locations. Statements in the report as to subsurface variation over given areas are intended only as estimations from the data obtained at specific boring locations.

The professional services that form the basis for this report have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers practicing in the same locality. No other warranty, expressed or implied, is made as the professional advice set forth. The results contained in this report are directed at, and intended to be utilized within, the scope of work contained in the agreement executed by Balcones Geotechnical, LLC and client. This report is not intended to be used for any other purposes.

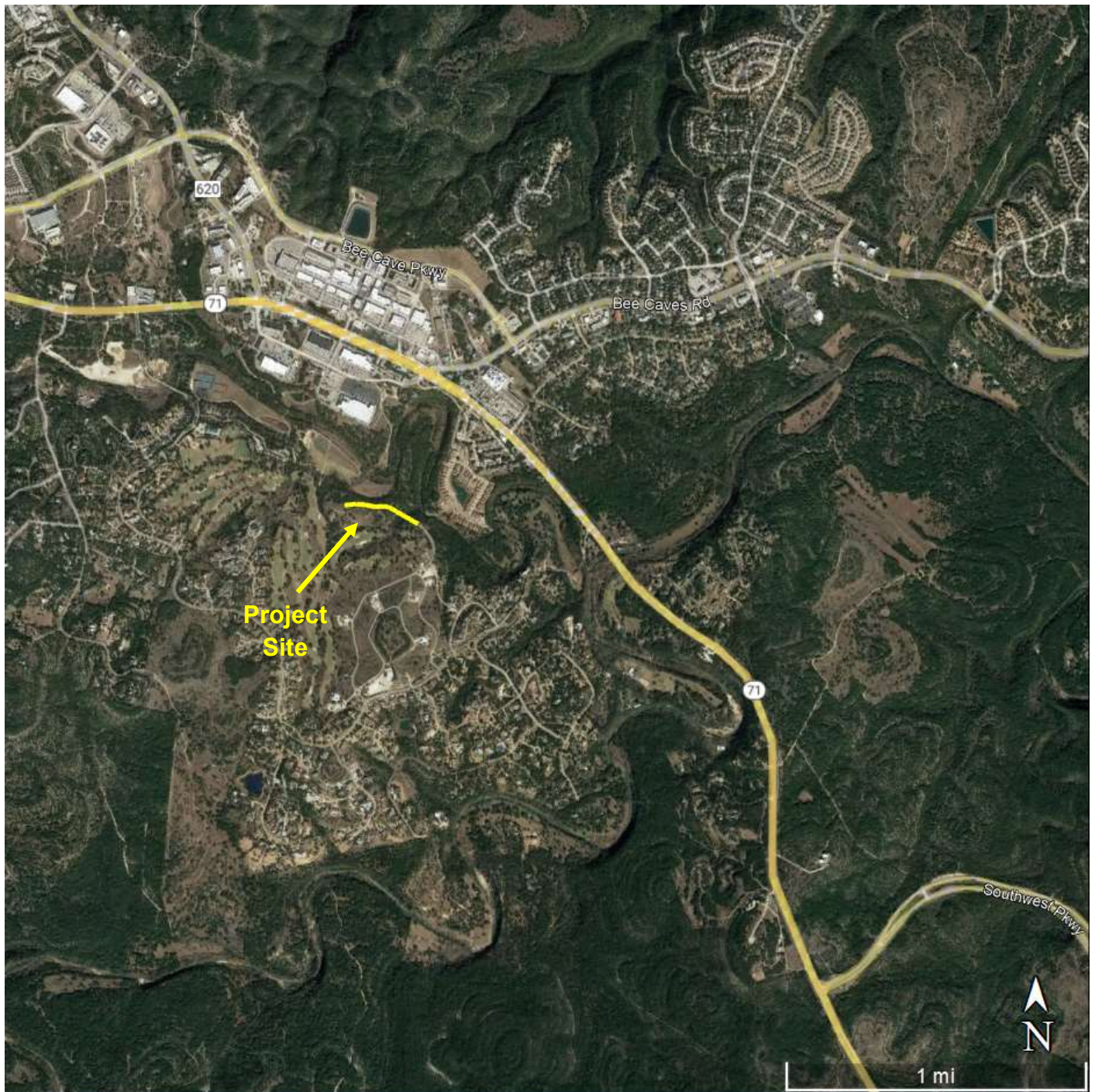
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\*

\*



## PLATES



Source: Google Earth Professional, Aerial Imagery dated 1/2022

## VICINITY MAP

Spanish Oaks - Sanctuary  
Austin, Texas





Source: Site Plan prepared by LJA Engineering & Surveying, superimposed into Google Earth Professional

## BORING LOCATION PLAN

Spanish Oaks - Sanctuary  
Austin, Texas

# LOG OF BORING NO. B-1

LATITUDE: 30.297989  
LONGITUDE: -97.937104

Spanish Oaks - Sanctuary  
Austin, Texas  
PROJECT NO. 0121-055

DEPTH, FT	SYMBOL	SAMPLES	POCKET PEN, tsf Blows/ft. REC/RQD, %	STRATUM DESCRIPTION	LAYER ELEV./ DEPTH	WATER CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %	PASSING NO. 4 SIEVE, %	PASSING NO. 200 SIEVE, %	UNIT DRY WEIGHT, PCF	COMPRESSIVE STRENGTH TSF
				SURF. ELEVATION: 850.0 ft								
			N=37-13-10	Tan LIMESTONE, highly weathered, w/clay seams and layers. (Glen Rose)								
			N=50/5.5			13						
5			N=7-10-14	Tan CLAYEY SAND, medium dense, w/limestone seams and layers. SC (Completely Weathered Limestone)	846.0 4.0							
			N=9-13-5									
10			N=5-3-6			14						
			N=50/1"	Tan LIMESTONE, moderately hard, highly to slightly weathered. (Glen Rose)	837.0 13.0							
15			REC=72 RQD=58									
				-pitted from 17.5 to 28 ft							136	96(U)
20			REC=95 RQD=60									
25			REC=98 RQD=93			12					121	41(U)
				-gray layer from 29 to 32.2 ft								

**Balcones  
Geotechnical**

Austin, TX 78731  
512.380.9969

COMPLETION DEPTH: 50.0  
DATE DRILLED: 2-12-22  
WATER LEVEL / SEEPAGE:  
UPON COMPLETION:

KEY:  
P = Pocket Penetrometer  
N = Standard Penetration Test (bpf)  
U = Unconfined Compression (tsf)  
Q = Unconsolidated Undrained (tsf)

**Plate 3a**



# LOG OF BORING NO. B-2

LATITUDE: 30.298293  
LONGITUDE: -97.937620

Spanish Oaks - Sanctuary  
Austin, Texas  
PROJECT NO. 0121-055

DEPTH, FT	SYMBOL	SAMPLES	POCKET PEN, tsf Blows/ft. REC/RQD, %	STRATUM DESCRIPTION	LAYER ELEV./ DEPTH	WATER CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %	PASSING NO. 4 SIEVE, %	PASSING NO. 200 SIEVE, %	UNIT DRY WEIGHT, PCF	COMPRESSIVE STRENGTH TSF
				SURF. ELEVATION: 860.0 ft								
			P=4.5+	Brown to tan LEAN CLAY, hard, calcareous, w/sand and limestone fragments. CL								
			N=17-7-13		858.0	7						
				Tan LIMESTONE, highly weathered, w/clay seams and layers. (Glen Rose)	2.0							
5			N=50/1"									
			N=50/3"			10						
			N=50/1"									
			N=50/3"									
10			N=50/3"			11						
				Tan LIMESTONE, moderately hard, highly to slightly weathered. (Glen Rose)	850.0 10.0							
			REC=88 RQD=77									
						13					123	158(U)
15												
			REC=100 RQD=100	-gray layer from 17 to 20 ft								
20												
				-fossils from 20 to 22 ft								
			REC=97 RQD=92									
				-inclined joint w/slickensides at 22.5 ft		9					126	90(U)
				-inclined joint w/slickensides at 24 ft								
25					835.0 25.0							
				Gray LIMESTONE, moderately hard, slightly weathered. (Glen Rose)								
			REC=100 RQD=100									

**Balcones  
Geotechnical**

Austin, TX 78731  
512.380.9969

COMPLETION DEPTH: 50.0  
DATE DRILLED: 2-11-22  
WATER LEVEL / SEEPAGE:  
UPON COMPLETION:

KEY:  
P = Pocket Penetrometer  
N = Standard Penetration Test (bpf)  
U = Unconfined Compression (tsf)  
Q = Unconsolidated Undrained (tsf)

**Plate 4a**



# LOG OF BORING NO. B-2

LATITUDE: 30.298293  
LONGITUDE: -97.937620

Spanish Oaks - Sanctuary  
Austin, Texas  
PROJECT NO. 0121-055

DEPTH, FT	SYMBOL	SAMPLES	POCKET PEN, tsf Blows/ft. REC./RQD, %	STRATUM DESCRIPTION	LAYER ELEV./ DEPTH	WATER CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX, %	PASSING NO. 4 SIEVE, %	PASSING NO. 200 SIEVE, %	UNIT DRY WEIGHT, PCF	COMPRESSIVE STRENGTH TSF
				SURF. ELEVATION: 860.0 ft								
				Gray LIMESTONE, moderately hard, slightly weathered. (Glen Rose) (continued)								
			REC=97 RQD=88	-clay seam at 30 ft								
35						9					135	187(U)
			REC=100 RQD=100									
40												
			REC=100 RQD=100			9					133	24(U)
45												
			REC=100 RQD=100	-fossils from 46 to 48 ft								
50					810.0 50.0	9					132	137(U)
				NOTES: 1. The boring was advanced dry to the 10-ft depth, and groundwater was not encountered. Wet rotary core methods were used below this depth to sample the limestone stratum. 2. The borehole was backfilled with a mixture of soil cuttings and bentonite.								
55												
										</		

**Balcones  
Geotechnical**

Austin, TX 78731  
512.380.9969

COMPLETION DEPTH: 50.0  
DATE DRILLED: 2-11-22  
WATER LEVEL / SEEPAGE:  
UPON COMPLETION:

KEY:  
P = Pocket Penetrometer  
N = Standard Penetration Test (bpf)  
U = Unconfined Compression (tsf)  
Q = Unconsolidated Undrained (tsf)

**Plate 4b**









# TERMS AND SYMBOLS USED ON BORING LOGS FOR SOIL

## SOIL TYPES



CLAY (CH)



SHALY CLAY (CH)



CLAY (CL)



SANDY CLAY (CL)



Well-Graded  
SAND (SW)



Poorly-Graded  
SAND (SP)



SILTY SAND (SM)



CLAYEY SAND (SC)



Well-Graded  
GRAVEL (GW)



Poorly-Graded  
GRAVEL (GP)



SILTY GRAVEL (GM)



FILL  
Material

## SOIL GRAIN SIZE

U.S. STANDARD SIEVE

12"	3"	3/4"	4	10	40	200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		
304	76.2	19.1	4.76	2.00	0.420	0.074		0.002
SOIL GRAIN SIZE IN MILLIMETERS								

## STRENGTH OF COHESIVE SOILS <sup>(2)</sup>

CONSISTENCY	UNDRAINED COMPRESSIVE STRENGTH Tons Per Sq. Ft.
Very Soft	Less Than 0.25
Soft	0.25 to 0.50
Firm	0.5 to 1.00
Stiff	1.00 to 2.00
Very Stiff	2.00 to 4.00
Hard	greater than 4.00

## DENSITY OF GRANULAR SOILS <sup>(2)</sup>

NUMBER OF BLOWS PER FT., N	RELATIVE DENSITY
0-4	Very Loose
4-10	Loose
10-30	Medium
30-50	Dense
Over 50	Very Dense

















## DESCRIPTIVE TERMS FOR SOIL <sup>(1)</sup>

DESCRIPTION	CRITERIA	MOISTURE	
Stratified	Alternating layers of varying material or color with layers at least 6 mm thick.	Dry	No water evident in sample; fines less than plastic limit.
Laminated	Alternating layers of varying material or color with the layers less than 6 mm thick.	Moist	Sample feels damp; fines near the plastic limit
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.	Very Moist	Water visible on sample; fines greater plastic limit and less than liquid limit
Slickensided	Fracture planes appear polished or glossy, sometimes striated.	Wet	Sample bears free water; fines greater than liquid limit.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.	INCLUSIONS <sup>(1)</sup>	
Lensed	Inclusions of small pockets of different soils.	Parting	Inclusion <1/8" thick extending through sample
		Seam	Inclusion 1/8" to 3" thick extending through sample.
		Layer	Inclusion >3" thick extending through sample.
		Trace	<5% of sample.
		Few	5% to 10% of sample.
		Little	15 to 25% of sample.
		With	15% to 29% of sample.

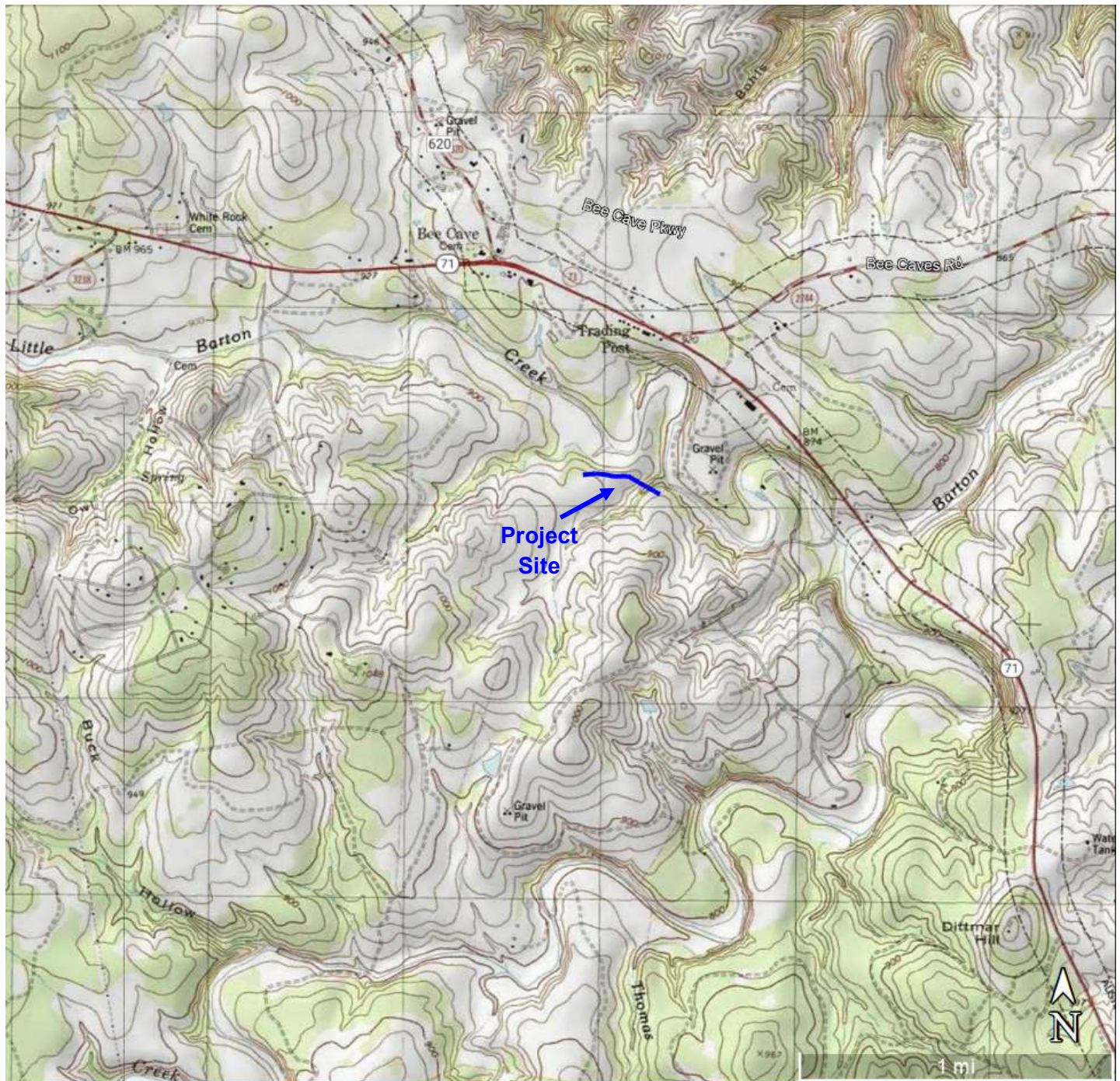
NOTE: Information on each boring log is a compilation of subsurface conditions and soil and rock classifications obtained from the field as well as from laboratory testing of samples. Strata have been interpreted from commonly accepted procedures. The stratum lines on the logs may be transitional and approximate in nature. Water level measurements refer only to those observed at the times and places indicated, and may vary with time, geologic condition or construction activity.

REFERENCES: 1) ASTM D 2488 2) Peck, Hanson and Thornburn, (1974), Foundation Engineering.

# TERMS AND SYMBOLS USED ON BORING LOGS FOR ROCK

ROCK TYPES			SAMPLER TYPES			
	LIMESTONE		SHALE		SANDSTONE	
	WEATHERED LIMESTONE		WEATHERED SHALE		WEATHERED SANDSTONE	
	HIGHLY WEATHERED LIMESTONE		ARGILLACEOUS LIMESTONE		MARL	
				Thin-walled Tube		Rock Core
				Standard Penetration Test		Auger Sample
				THD Cone Penetration Test		Bag Sample
SOLUTION & VOID CONDITIONS			WEATHERING GRADES OF ROCKMASS <sup>(1)</sup>			
Void	Interstice; a general term for pore space or other openings in rock.		Slightly	Discoloration indicates weathering of rock material and discontinuity surfaces.		
Cavities	Small solutional concavities.		Moderately	Less than half of the rock material is decomposed or disintegrated to a soil.		
Vuggy	Containing small cavities, usually lined with a mineral of different composition from that of the surrounding rock.		Highly	More than half of the rock material is decomposed or disintegrated to a soil.		
Vesicular	Containing numerous small, unlined cavities, formed by expansion of gas bubbles or steam during solidification of the rock.		Completely	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.		
Porous	Containing pore, interstices, or other openings which may or may not interconnect.		Residual Soil	All rock material is converted to soil. The mass structure and material fabric are destroyed.		
Cavernous	Containing cavities or caverns, sometimes quite large. Most frequent in limestones and dolomites.					
HARDNESS			BEDDING THICKNESS <sup>(2)</sup>			
Friable	Crumbles under hand pressure		Very Thick	>4'		
Low Hardness	Can be carved with a knife		Thick	2'-4'		
Moderately Hard	Can be scratched easily with a knife		Thin	2"-2'		
Very Hard	Cannot be scratched with a knife		Very Thin	1/2"-2"		
			Laminated	0.08"-1/2"		
			Thinly-Laminated	<0.08"		
JOINT DESCRIPTION						
SPACING		INCLINATION		SURFACES		
Very Close	<2"	Horizontal	0-5	Slickensided	Polished, grooved	
Close	2"-12"	Shallow	5-35	Smooth	Planar	
Medium Close	12"-3'	Moderate	35-65	Irregular	Undulating or granular	
Wide	>3'	Steep	65-85	Rough	Jagged or pitted	
		Vertical	85-90			
<div><div><div><div><div>Balcones</div><div>Geotechnical</div><div>Austin, TX 78731</div><div>512.451.8600</div></div><div></div></div></div><div><p>NOTE: Information on each boring log is a compilation of subsurface conditions and soil and rock classifications obtained from the field as well as from laboratory testing of samples. Strata have been interpreted by commonly accepted procedures. The stratum lines on the logs may be transitional and approximate in nature. Water level measurements refer only to those observed at the times and places indicated, and may vary with time, geologic condition or construction activity.</p><p>REFERENCES: 1) British Standard(1981) <u>Code of Practice for Site Investigation</u> BS 5930. 2) The Bridge Division, Texas Highway Dept. <u>Foundation Exploration &amp; Design Manual</u>, 2nd Edition, revised June, 1974.</p></div></div>						
PLATE 10						





Source: 2023 Earth Point USGS Topographic Maps by ESRI superimposed into Google Earth Professional

## USGS TOPOGRAPHIC MAP

Spanish Oaks - Sanctuary  
Austin, Texas



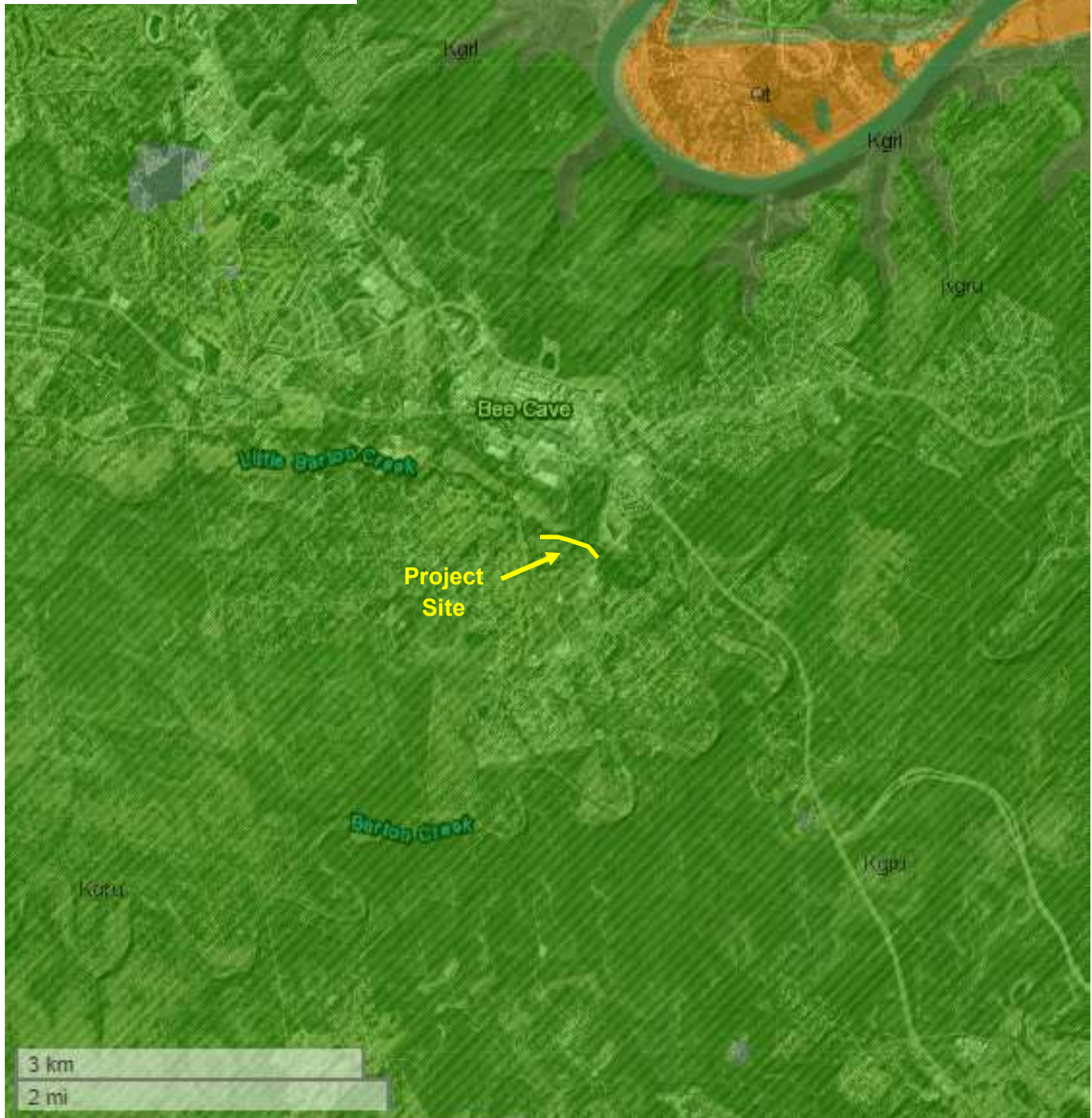
**LEGEND (Youngest to Oldest)**

Project No. 0121-055

**Qt** – Terrace Deposits

**Kgru** – Upper Glen Rose Limestone

**Kgrl** – Lower Glen Rose Limestone



Source: <https://txpub.usgs.gov/txgeology/>

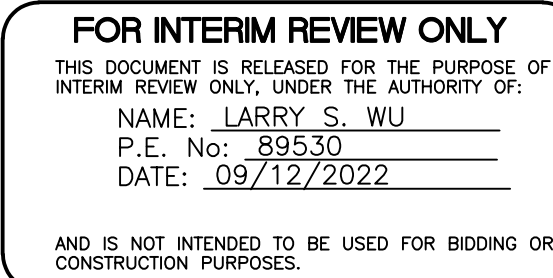
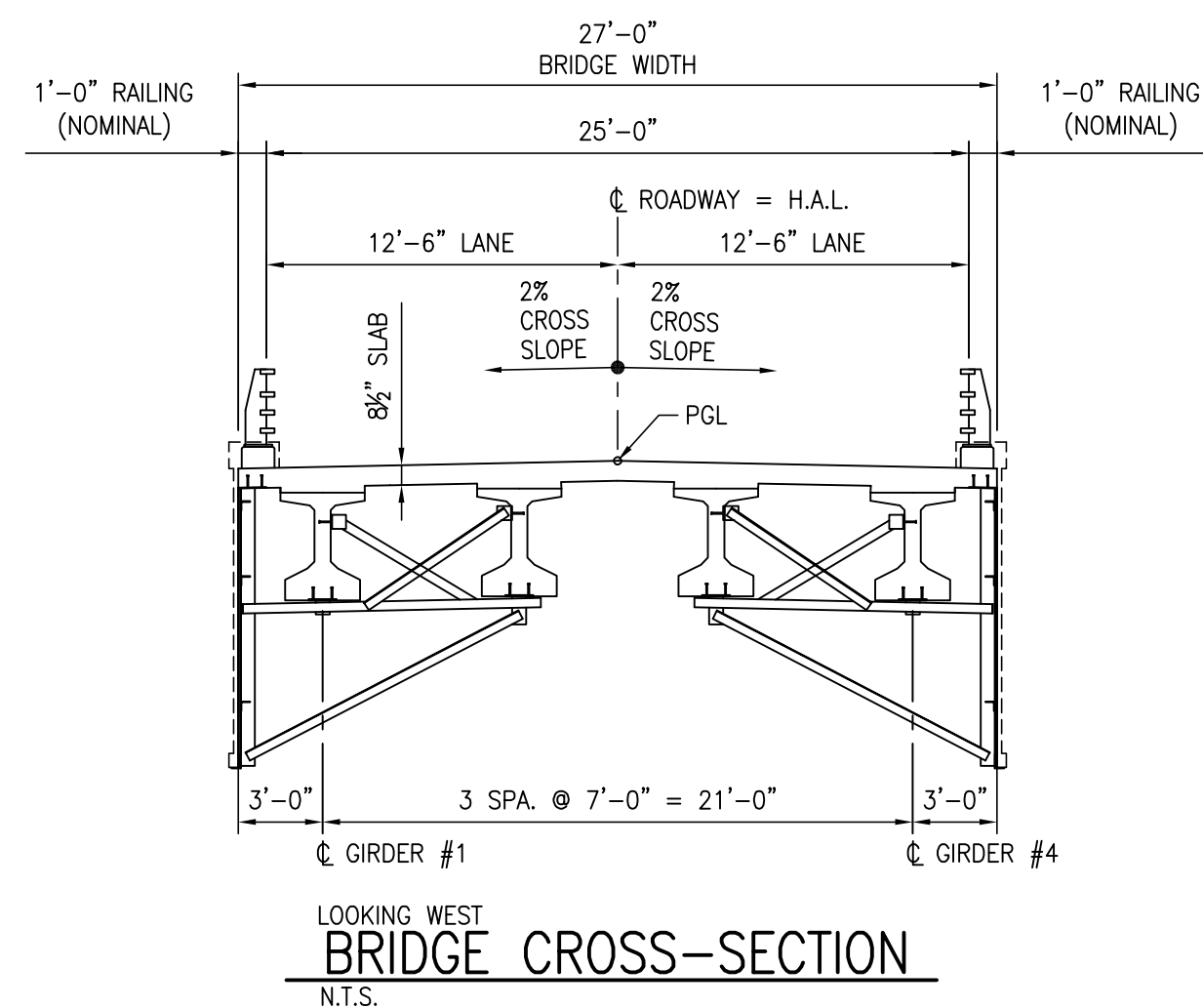
**GEOLOGIC MAP**

Spanish Oaks - Sanctuary  
Austin, Texas



## **APPENDIX A**

### **Global Stability Output**



SANCTUARY  
126 ACRE TRACT  
BRIDGE LAYOUT

DATE:	6/5/2022
DESIGNED BY:	ARB
DRAWN BY:	ARB
CHECKED BY:	LSW
DRAWING NAME:	4265-52.dwg

**LJA Engineering & Surveying, Inc.**  
5316 Highway 290 West  
Suite 150  
Austin, Texas 78735  
Phone 512.439.4700  
Fax 512.439.4716  
FRN-F-1386

JOB NUMBER: A263
SHEET NO.
OF SHEETS

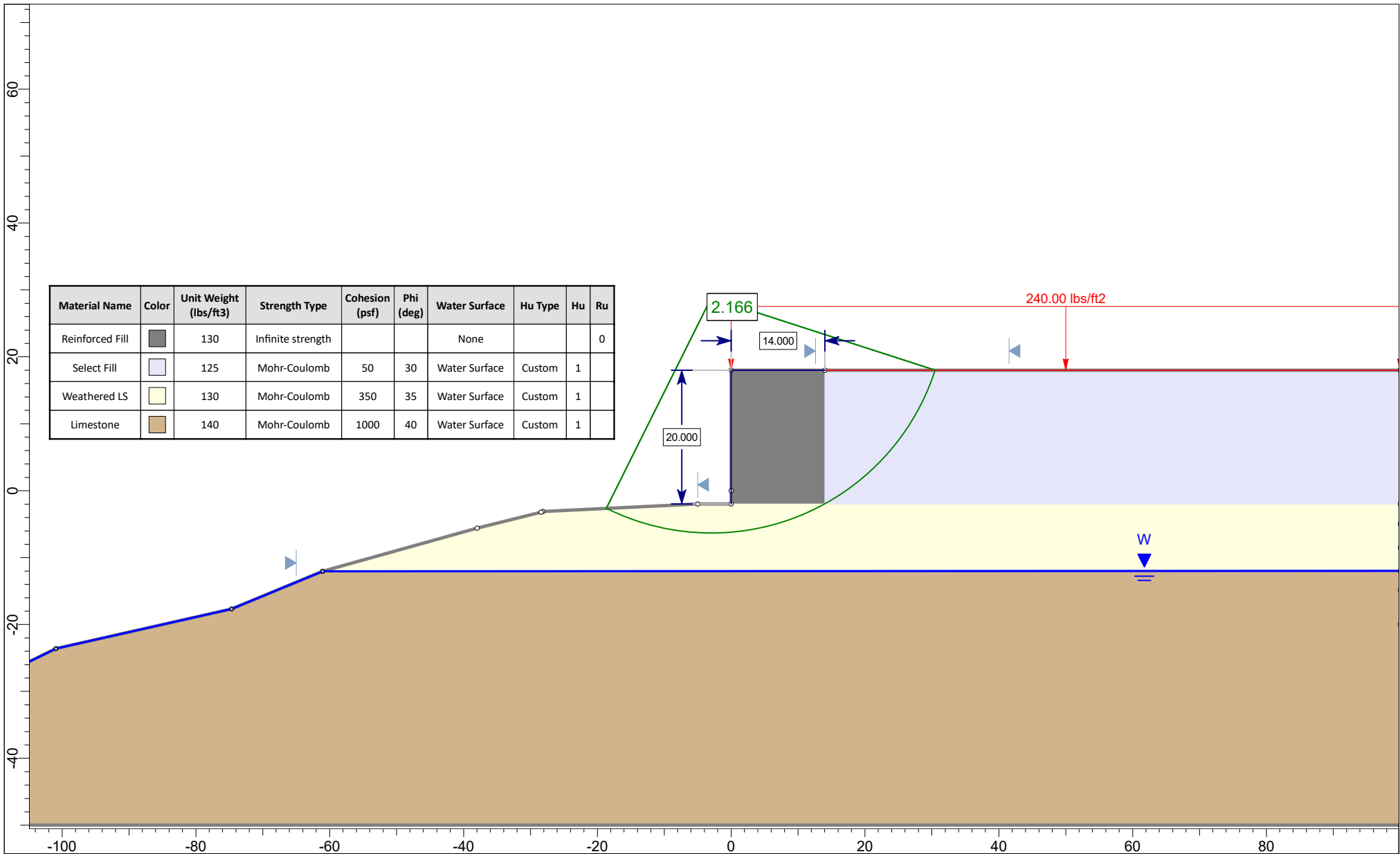
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User: lru  
Last Modified: Aug. 31, 22 - 11:27  
Plot Date/Time: Sep. 12, 22 - 15:08:20  
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i. X-Plan-20.dwg


A PROJECT NO. 011-5596 COPYRIGHT 202

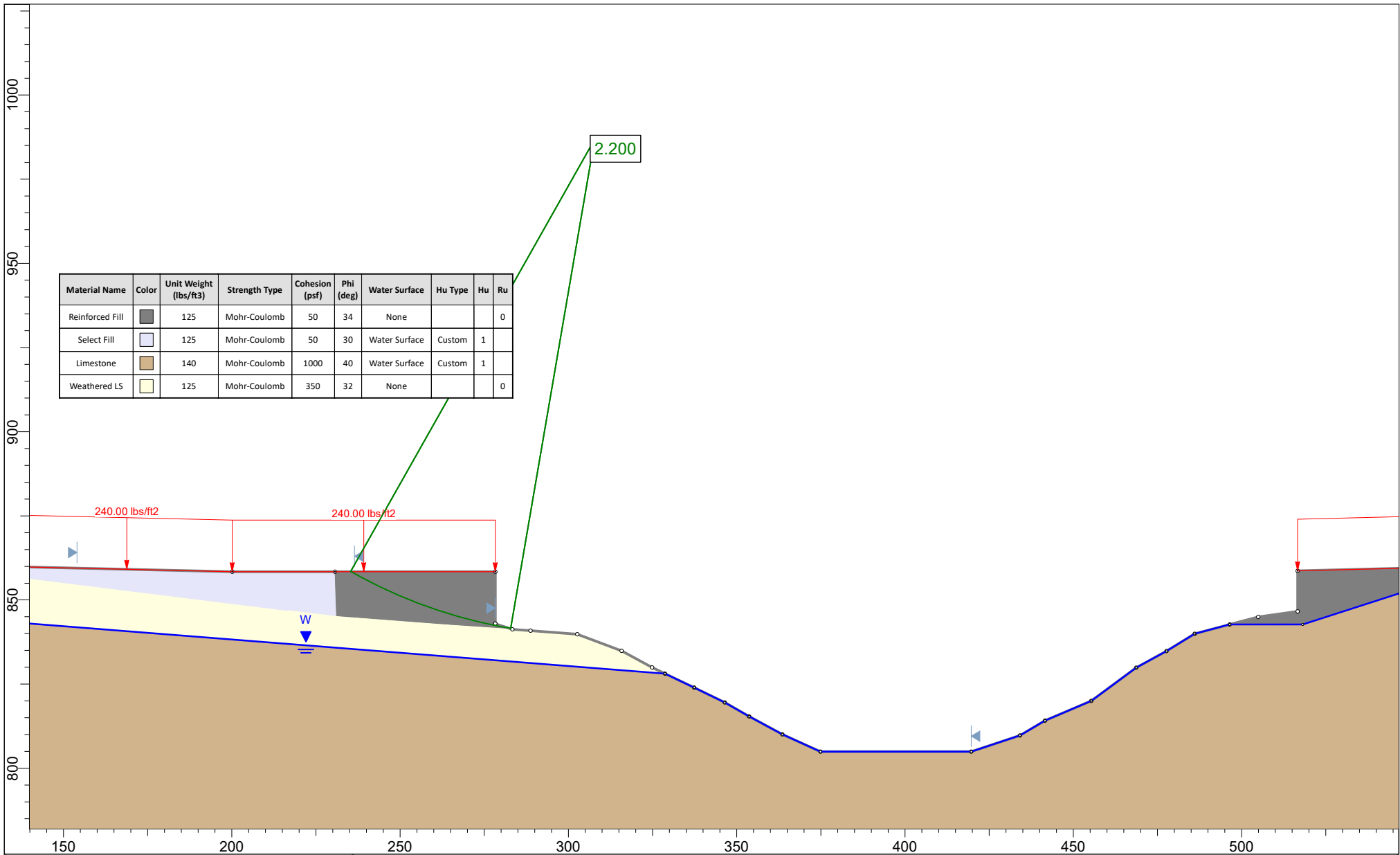


**Pickett, Kelm & Associates, Inc.**  
Consulting Structural Engineers


4100 Duval Road, Bldg. 4, Suite 103  
Austin, Texas 78759 • Phone 512-345-5538  
Texas Registration No. F-1491



 <small>SLIDEINTERPRET 6.032</small>	Project					Sanctuary at Spanish Oaks						
	Analysis Description					MSE Wall						
	Drawn By		RAR		Scale		1:238		Company		Balcones	
	Date		1/16/2023		File Name		Sanctuary MSE Run - 18 ft 7HR1.slim					



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu	Ru
Reinforced Fill	Grey	125	Mohr-Coulomb	50	34	None			0
Select Fill	Light Blue	125	Mohr-Coulomb	50	30	Water Surface	Custom	1	
Limestone	Brown	140	Mohr-Coulomb	1000	40	Water Surface	Custom	1	
Weathered LS	Yellow	125	Mohr-Coulomb	350	32	None			0

	Project		
	Analysis Description		
	Drawn By	Scale 1:474	Company
	Date	File Name Sanctuary MSE Run - Initial Check - Bridge Profile2.slim	



## **APPENDIX B**

### **Pavement Design Output**



Year	ADT	Percent Trucks	Truck Factor	Lane Distribution Factor	Directional Distribution Factor	ESALs	Cumulative ESALs
2023	500	0.02	0.48	0.9	0.5	788	788
2024	515	0.02	0.48	0.9	0.5	812	1,600
2025	530	0.02	0.48	0.9	0.5	836	2,437
2026	546	0.02	0.48	0.9	0.5	862	3,298
2027	563	0.02	0.48	0.9	0.5	887	4,186
2028	580	0.02	0.48	0.9	0.5	914	5,100
2029	597	0.02	0.48	0.9	0.5	941	6,041
2030	615	0.02	0.48	0.9	0.5	970	7,011
2031	633	0.02	0.48	0.9	0.5	999	8,009
2032	652	0.02	0.48	0.9	0.5	1,029	9,038
2033	672	0.02	0.48	0.9	0.5	1,060	10,098
2034	692	0.02	0.48	0.9	0.5	1,091	11,189
2035	713	0.02	0.48	0.9	0.5	1,124	12,313
2036	734	0.02	0.48	0.9	0.5	1,158	13,471
2037	756	0.02	0.48	0.9	0.5	1,193	14,663
2038	779	0.02	0.48	0.9	0.5	1,228	15,892
2039	802	0.02	0.48	0.9	0.5	1,265	17,157
2040	826	0.02	0.48	0.9	0.5	1,303	18,460
2041	851	0.02	0.48	0.9	0.5	1,342	19,802
2042	877	0.02	0.48	0.9	0.5	1,382	21,185
2043	903	0.02	0.48	0.9	0.5	1,424	22,609
Cumulative 20 year ESALs						22,609	

Growth      3.0      %

W18	20,000
ZR	-1.037
So	0.45
PSli	4.2
PSlf	2.0
MR*	6,000
dPSI	2.2

Reliability	ZR
75%	-0.674
80%	-0.841
85%	-1.037
90%	-1.282
95%	-1.645
99%	-2.327

SN	1.873
----	-------

4.3010 Left side of AASHTO equation\*\*

4.3010 Right side of AASHTO equation

0.00 Left-Right balance of AASHTO equation

Material	Thickness	Coeff	Structural Capacity
HMAC	2.0	0.44	0.88
CLBM	8	0.18	1.44
CTB		0.3	0.00
CTS	0	0.23	0
LTS		0.11	0

SN	2.32
SN req'd	1.87

**Design OK**

\*Design Subgrade CBR=2.4 (Correlation from Witczak & Yoder)

\*\*Solves 1993 AASHTO equation (see report text)

	Thickness (inches)	Modulus (ksi)	Poisson's Ratio	Material Name
AC	2.00	450.00	0.35	ASPH CONC PVMT
Base	8.00	45.00	0.35	FLEXIBLE BASE
Subgrade	200.00	12.00	0.40	SUBGRADE(200)

**Fatigue Crack Model:**

$$N_f = f_1 (\epsilon_t)^{f_2} (E_t)^{f_3}$$

$f_1 = 7.96E-02$   
 $f_2 = 3.291$

**Rutting Model:**

$$N_d = f_4 (\epsilon_v)^{f_5}$$

$f_3 = .854$   
 $f_4 = 1.37E-09$   
 $f_5 = 4.477$

TFO(Traffic to 1st Overlay): 0.02 (million)

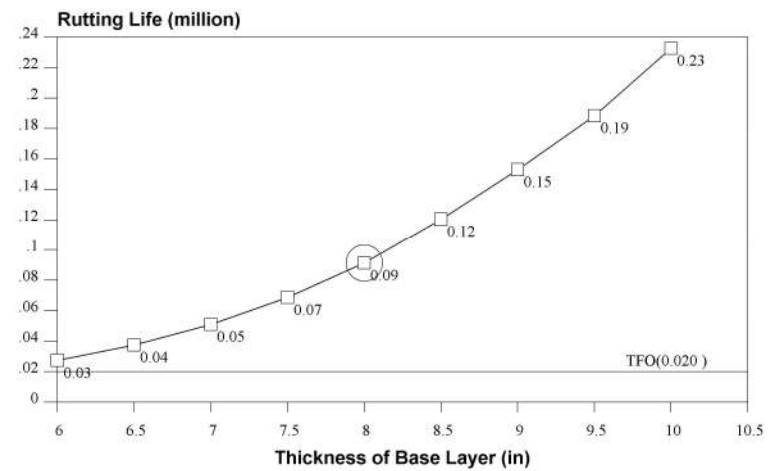
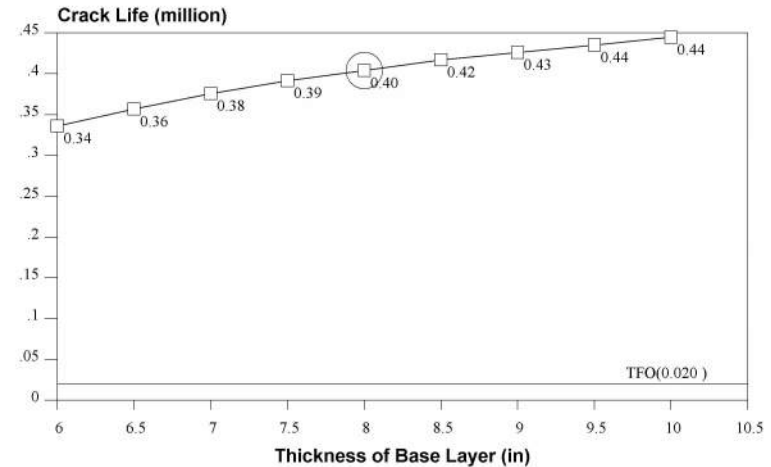
Crack Life: 0.40 (million)  $\epsilon_t = 313.00 (\mu\epsilon)$

Rut Life: 0.09 (million)  $\epsilon_v = -817.00 (\mu\epsilon)$

Traffic to 1st Overlay is calculated by analysis period: 40years and 18 kips:02millions.  
Also the start ADT:500.0 and ending ADT:903.0

**Mechanistic Check Conclusion:**

The design is OK !



**FPS 21 Mechanistic Design Check Output (FPS21-1.5Release:12-12-2018)**

Highway	VSO Sanctu	Problem	001
C-S-J	1234 - 2 - 123	Date	1/24/2023
District	Austin	County	TRAVIS

Design Type: Asphalt concrete + Flexible Base over Subgrade

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

I Chris Little,  
Print Name  
President,  
Title - Owner/President/Other  
of The Sanctuary at Spanish Oaks, L.P.,  
Corporation/Partnership/Entity Name  
have authorized Lauren Crone, P.E.  
Print Name of Agent/Engineer  
of LJA Engineering, Inc.  
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

  
Applicant's Signature

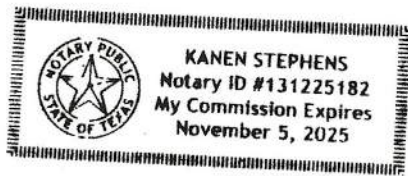
10/27/2023  
Date

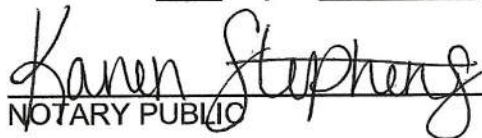
THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Chris Little 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 27th day of October, 2023.



  
NOTARY PUBLIC

Kanen Stephens  
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: November 5, 2025

# Owner Authorization Form

for Required Signature for submitting and signing an application for an Edwards Aquifer Protection Plan (Plan) and conducting regulated activities in accordance with an approved Plan.

**Texas Commission on Environmental Quality**  
**Edwards Aquifer Protection Program**  
Relating to the Edwards Aquifer Rules of  
Title 30 of the Texas Administrative Code  
(30 TAC), Chapter 213  
*Effective June 1, 1999*

## Land Owner Authorization

I, Daniel Porter of Synchro Realty, LLC  
Land Owner Name (Individual) Firm (applicable to Legal Entities)

am the Owner of Record or Title Holder of the property located at:  
PROPERTY ID: 563801; ABS 2109 SUR 57 VAR SUR I & G N RR CO ABS 823 SUR 900 WILLIAMS M ACR 63.7865  
(Legal description of the property referenced in the application)

and being duly authorized under 30 TAC § 213.4(c)(2) and § 213.4(d)(1) or § 213.23(c)(2) and § 213.23(d) to submit and sign an application for a Plan, do hereby authorize:  
The Sanctuary at Spanish Oaks, L.P.  
(Applicant Name / Plan Holder (Legal Entity or Individual))

to conduct:  
The Sanctuary at Spanish Oaks Subdivision  
(Description of the proposed regulated activities)

on the property described above or at:  
  
(If applicable to a precise location for the authorized regulated activities)

## Land Owner Acknowledgement

I, Daniel Porter of Synchro Realty, LLC  
Land Owner Name (Individual) Firm (applicable to Legal Entities)

understand that while The Sanctuary at Spanish Oaks, L.P.  
Applicant Name / Plan Holder (Legal Entity or Individual)

is responsible for compliance with the approved or conditionally approved Plan and any special conditions of the approved Plan through all phases of Plan implementation,

I, Daniel Porter of Synchro Realty, LLC  
Land Owner Name (Individual) Firm (applicable to Legal Entities)

as Owner of Record or Title Holder of the property described above, I am ultimately responsible for ensuring that compliance with the approved or conditionally approved Plan and any special conditions of the approved Plan, through all phases of Plan implementation, is achieved even if the responsibility for compliance and the right to possess and control of the property referenced in the application has been contractually assumed by another legal entity.

I, Daniel Porter of Synchro Realty, LLC  
Land Owner Name (Individual) Firm (applicable to Legal Entities)

further understand that any failure to comply with any condition of the Executive Director's approval is a violation and is subject to administrative rule or orders and penalties as provided under 30 TAC § 213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

**Land Owner Signature**

[Signature]  
Land Owner Signature

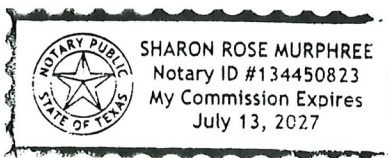
May 20, 2024  
Date

THE STATE OF § Texas

County of § \_\_\_\_\_

BEFORE ME, the undersigned authority, on this day personally appeared 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 20th day of May



Sharon Murphree  
NOTARY PUBLIC  
Sharon Murphree  
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: July 13th, 2027

Attached: (Mark all that apply)

- ☐ Lease Agreement
- ☐ Signed Contract
- ☐ Deed Recorded Easement
- ☐ Other legally binding document



## ***Applicant Acknowledgement***

I, Chris Little of The Sanctuary at Spanish Oaks, L.P.  
Applicant Name (Individual) Firm (applicable to Legal Entities)

acknowledge that Synchro Realty, LLC  
Land Owner Name (Legal Entity or Individual)


has provided The Sanctuary at Spanish Oaks, L.P.  
Applicant Name (Legal Entity or Individual)

with the right to possess and control the property referenced in the Edwards Aquifer Protection Plan (Plan).

I understand that The Sanctuary at Spanish Oaks, L.P.  
Applicant Name (Legal Entity or Individual)

is responsible, contractually or not, for compliance with the approved or conditionally approved Plan and any special conditions of the approved Plan through all phases of Plan implementation. I further understand that failure to comply with any condition of the Executive Director's approval is a violation and is subject to administrative rule or orders and penalties as provided under § 213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

## ***Applicant Signature***

  
Applicant Signature

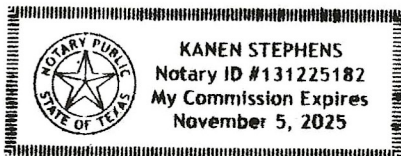
6/21/24  
Date

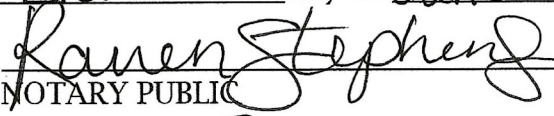
THE STATE OF § Texas

County of § Travis

BEFORE ME, the undersigned authority, on this day personally appeared known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 21st day of June



  
NOTARY PUBLIC  
Kanen Stephens  
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: November 5, 2025



TCEQ Use Only

# TCEQ Core Data Form

For detailed instructions regarding completion of 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.)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
<b>2. Customer Reference Number (if issued)</b>	<a href="#">Follow this link to search for CN or RN numbers in Central Registry**</a>	<b>3. Regulated Entity Reference Number (if issued)</b>
CN		RN

## SECTION II: Customer Information

<b>4. General Customer Information</b>		<b>5. Effective Date for Customer Information Updates</b> (mm/dd/yyyy)			
<input checked="" type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information		<input type="checkbox"/> Change in Regulated Entity Ownership	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<b>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</b>					
<b>6. Customer Legal Name</b> (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
The Sanctuary at Spanish Oaks, L.P.					
<b>7. TX SOS/CPA Filing Number</b>		<b>8. TX State Tax ID</b> (11 digits)		<b>9. Federal Tax ID</b> (9 digits)	<b>10. DUNS Number</b> (if applicable)
0804634348		32085277112			
<b>11. Type of Customer:</b>		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
		<input type="checkbox"/> Partnership: <input type="checkbox"/> General <input checked="" type="checkbox"/> Limited			
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
<b>12. Number of Employees</b>		<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<b>13. Independently Owned and Operated?</b>	
				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>14. Customer Role</b> (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator		<input checked="" type="checkbox"/> Owner & Operator	
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party		<input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:	
<b>15. Mailing Address:</b>	2121 Lohmans Crossing Rd				
	Ste 504-295				
	City	Austin	State	TX	ZIP 78734
<b>16. Country Mailing Information</b> (if outside USA)		<b>17. E-Mail Address</b> (if applicable)			
		Chris@elev8builders.com			
<b>18. Telephone Number</b>		<b>19. Extension or Code</b>		<b>20. Fax Number</b> (if applicable)	
( 512 ) 910-8778				( ) -	

## SECTION III: Regulated Entity Information

<b>21. General Regulated Entity Information</b> (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information	
<b>The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).</b>	
<b>22. Regulated Entity Name</b> (Enter name of the site where the regulated action is taking place.)	
The Sanctuary at Spanish Oaks	

23. Street Address of the Regulated Entity: (No PO Boxes)							
	City		State		ZIP		ZIP + 4
24. County	Travis						

**Enter Physical Location Description if no street address is provided.**

25. Description to Physical Location:	The project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd.										
26. Nearest City	Bee Cave				State	TX		Nearest ZIP Code	78738		
27. Latitude (N) In Decimal:	30.298661			28. Longitude (W) In Decimal:	-97.939428						
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds						
30	17	55.17	-97	56	21.94						
29. Primary SIC Code (4 digits)	1611		30. Secondary SIC Code (4 digits)	1623		31. Primary NAICS Code (5 or 6 digits)	23721		32. Secondary NAICS Code (5 or 6 digits)	23711	
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)											
Construction of roads and associated utilities.											
34. Mailing Address:	2121 Lohmans Crossing Rd										
	Ste 504-295										
	City	Austin		State	TX	ZIP	78734		ZIP + 4		
35. E-Mail Address:	Chris@elev8builders.com										
36. Telephone Number	( 512 ) 910-8778		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.


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

#### **SECTION IV: Preparer Information**

40. Name:	Lauren Crone		41. Title:	Senior Project Manager	
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
( 512 ) 439-4737		( ) -	lcrone@lja.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:	The Sanctuary at Spanish Oaks, L.P.		Job Title:	President	
Name (In Print):	Chris Little			Phone:	( 512 ) 910- 8778
Signature:				Date:	10/27/2023

# Application Fee Form

## Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: The Sanctuary at Spanish Oaks

Regulated Entity Location: The project is located about 1.52 miles East and 0.81 miles South of the intersection of State Hwy 71 and Hamilton Pool Rd.

Name of Customer: The Sanctuary at Spanish Oaks, L.P.

Contact Person: Chris Little

Phone: 512-910-8778

Customer Reference Number (if issued):CN \_\_\_\_\_

Regulated Entity Reference Number (if issued):RN \_\_\_\_\_

### Austin Regional Office (3373)

☐ Hays

☒ Travis

☐ Williamson

### San Antonio Regional Office (3362)

☐ Bexar

☐ Medina

☐ Uvalde

☐ Comal

☐ Kinney

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

☒ Austin Regional Office

☐ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

### Site Location (Check All That Apply):

☐ Recharge Zone

☒ Contributing Zone

☐ Transition Zone

<i><b>Type of Plan</b></i>	<i><b>Size</b></i>	<i><b>Fee Due</b></i>
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	21.80 Acres	\$ 4000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: Lawrence Grose

Date: 4/13/2023

## 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**

<b>Project</b>	<b>Project Area in Acres</b>	<b>Fee</b>
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, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

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

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

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

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

#### **Exception Requests**

<b>Project</b>	<b>Fee</b>
Exception Request	\$500

***Extension of Time Requests***

<b><i>Project</i></b>	<b><i>Fee</i></b>
Extension of Time Request	\$150