Innovative approaches
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TCEQ Contributing Zone Plan (CZP) Modification for

San Gabriel Parkway Phase 2

March 2025

Prepared for:

City of Leander
Attn: Emily Truman, PE, CFM, PMP.
201 N. Brushy Street
Leander, Texas 78641
Phone: (512) 528-2766
Fax: (512) 690-2227

Prepared by:

FREESE AND NICHOLS, INC.
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

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

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

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

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: San Gabriel Parkway Phase 2					**2. Regulated Entity No.: RN110456332**				
3. Customer Name: City of Leander					**4. Customer No.: CN600646012**				
5. Project Type: **(Please circle/check one)**	New		Modification		Extension		Exception		
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**		6.99	
. Application Fee:	$5,000		**10. Permanent BMP(s):**					Underground detention with jellyfish filtration units, seeding, retention blankt	
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**					N/A	
13. County:	Williamson		**14. Watershed:**					Brushy Creek	

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Tam Tran
Print Name of Customer/Authorized Agent  March 18, 2025 Signature of Customer/Authorized Agent Date

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

Modification of a Previously Approved Contributing Zone Plan

Texas Commission on Environmental Quality

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

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

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

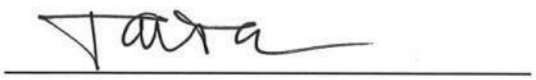
Signature

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

Print Name of Customer/Agent: Tam Tran

Date: 03/18/2025

Signature of Customer/Agent:



Project Information

1. Current Regulated Entity Name: San Gabriel Parkway Phase 2
   Original Regulated Entity Name: San Gabriel Parkway Phase 1
   Assigned Regulated Entity Number(s) (RN): 110456332
   Edwards Aquifer Protection Program ID Number(s): 11001201
   ☒ The applicant has not changed and the Customer Number (CN) is: 600646012
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

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

3. A modification of a previously approved plan is requested for (check all that apply):

☐ Any physical or operational modification of any best management practices or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;
☒ Any change in the nature or character of the regulated activity from that which was originally approved;
☐ A change that would significantly impact the ability to prevent pollution of the Edwards Aquifer and hydrologically connected surface water; or
☐ Any development of land previously identified in a contributing zone plan as undeveloped.

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

CZP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	5.30	6.99
Type of Development	Roadway	Roadway
Number of Residential Lots	0	0
Impervious Cover (acres)	1.91	2.29
Impervious Cover (%)	36.1	32.7
Permanent BMPs	detention basin, VFS	seeding, storm sewers, jellyfish filter
Other	_____	soil retention blanket

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	N/A	N/A
Other	N/A	N/A

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	N/A	N/A
Other	N/A	N/A

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

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

7. ☐ Acreage has not been added to or removed from the approved plan.
   ☒ Acreage has been added to or removed from the approved plan and is discussed in *Attachment B: Narrative of Proposed Modification*.

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

TCEQ CZP Modification Application

ATTACHMENT A

San Gabriel Parkway Phase 2

Williamson County, Texas

Original Approval Letter

TCEQ CZP Modification Application

ATTACHMENT B

San Gabriel Parkway Phase 2

Williamson County, Texas

Original Approval Letter:

The City of Leander is resubmitting the CZP Modification originally submitted to the TCEQ EAPP on June 10, 2022 and approved by the TCEQ EAPP on September 9, 2022. The City was unable to begin construction until Spring 2025, after the original CZP Modification had expired on September 9, 2024. The updated CZP Modification has been revised with new City contact person and dates.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 9, 2022

Mr. Ross Blackketter, P.E.
City of Leander
201 North Brushy Street
Leander, Texas 78641

Re: Edwards Aquifer, Williamson County
San Gabriel Parkway Phase 2; Leander ETJ, Texas
Request for Approval of a Modification to a Contributing Zone Plan (CZP-MOD)
30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer
Edwards Aquifer Protection Program (EAPP) ID No. 11003149; RN110456332

Dear Mr. Blackketter:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP application for the above-referenced project submitted to the Austin Regional Office by Freese and Nichols, Inc. on behalf of the City of Leander on June 27, 2022. Final review of the CZP submittal was completed after additional materials were received on August 22, 2022. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas licensed professional engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas licensed professional engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Contributing Zone Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10% of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The project extends the constructed Phase 1 section of San Gabriel Parkway East eastward to connect with Ronald Reagan Boulevard. The proposed roadway consists of 4 lanes with sidewalk from the terminus of the San Gabriel Parkway East Phase 1 (EAPP ID 11001201) for approximately 400 feet, and then narrows to 2 lanes and onto the intersection with Ronald Reagan Boulevard. The modification increases the impervious cover to 2.3 acres. The project ROW is approximately 7.0 acres within the South Fork of the San Gabriel River watershed.

In addition to the described activities, temporary erosion and sedimentation controls will be installed prior to commencing site disturbance and maintained during construction. No wastewater will be generated by this roadway project.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, two Jellyfish storm treatment units (STU) will be installed to treat IC using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005). The load requirement of 1995 lbs. are treated by the STU.

The approved measures meet the required 80 percent removal of the increased load in total suspended solids caused by the project. Treatment design calculations were sealed by Jerome Scanlon, P.E., on August 19, 2022, to demonstrate the total treatment load removal to equal or exceed the required additional total suspended solids (TSS) loading.

City of Leander will maintain the BMPs.

SPECIAL CONDITIONS

I. Since this is a roadway construction project, deed recordation of this approval letter is not required.

II. All sediment and/or media removed from the STU during maintenance or repair activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

STANDARD CONDITIONS

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

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

Prior to Commencement of Construction:

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

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

5. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the name of the approved plan and file number for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.

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

<u>During Construction</u>:

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

8. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been significantly reduced. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

9. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.

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

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

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

After Completion of Construction:

13. Owners of permanent BMPs and measures must ensure that the 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 Austin Regional Office within 30 days of site completion.

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

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

16. A CZP approval or extension will expire, and no extension will be granted if more than 50% of the total construction has not been completed within ten years from the initial approval of a plan. A new Contributing Zone Plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

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

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Kevin Lee Smith, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/kls

Cc: Tam Tran, Doucet & Associates, Freese and Nichols, Inc.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 19, 2018

Mr. Wayne Watts, P.E.
City of Leander
201 North Brushy Street
Leander, Texas 78641

Re: Edwards Aquifer, Williamson County
San Gabriel Parkway East; Phase 1; From CR 270 to CR 274, Leander ETJ, Texas
Request for Approval of a Contributing Zone Plan (CZP)
30 Texas Administrative Code (TAC) Chapter 213 Subchapter B
Edwards Aquifer Protection Program ID No. 11001201; RN110456332

Dear Mr. Watts:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP application for the above-referenced project submitted to the Austin Regional Office by Freese and Nichols, Inc. on behalf of City of Leander on July 17, 2018. Final review of the CZP submittal was completed after additional materials were received on September 21 and October 8, 2018. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas licensed professional engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas licensed professional engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

San Gabriel Parkway East is designed as a new roadway between existing County Road 270 and Ronald Reagan Boulevard. The roadway will be constructed in three phases. San Gabriel Parkway East Phase 1 is proposed as a new section alongside the Palmera Bluff Section 1 development (EAPP ID 11001143). The proposed project adds a two-lane roadway section with roundabout approximately 1900 feet in length. The site contains 5.3 acres within the Brushy Creek watershed. The project impervious cover (IC) totals approximately 1.9 acres (36.1%).

In addition to the described activities, temporary erosion and sedimentation controls will be installed prior to commencing site disturbance and maintained during construction. No wastewater will be generated by this roadway project.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, a set of small bioretention zones will be constructed to treat the western half of IC using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005). A wet basin (Pond #2475), to be built, was approved by EAPP 1100143 to treat the eastern half of IC. In addition, two interim vegetative filter strips (VFS) will be utilized at both ends of the phase 1 section.

Pond #2475 also combines offsite water. The accounting for Pond #2475 is provided below.

Total Capture of IC (as designed)= 26.60 acres

Project Name	IC allocated to drain to Pond #2475 (ac.)
Palmera Bluff Section 1 (direct flow)	10.39
San Gabriel Parkway East Phase 1	1.36
Other - Offsite in 7.00 acre Basin AIE	2.36
Acreage remaining for other additional construction	12.49

The approved measures meet the required 80 percent removal of the increased load in total suspended solids caused by the project. Treatment design calculations were sealed by Kimberly Patak, P.E., on September 18, 2018 to demonstrate the total treatment load removal to exceed the required additional total suspended solids (TSS) loading.

The City of Leander will maintain the bioretention areas and the interim filter strips. Palmera Bluff Development, Inc. will continue to maintain the wet basin.

SPECIAL CONDITIONS

I. This approval letter is only for construction of the center of the main road, San Gabriel Parkway (East - Phase 1), with sidewalks alongside, listed utility components, and limited drainage infrastructure. New residential or commercial sections or phases will require permanent water quality controls to replace the interim measures and separate CZP approvals.

II. Barriers shall be placed to prevent public traffic until replacement of the interim measures are approved.

III. The top edge of the interim filter strips should be level. The level spreaders must be lined or be constructed of impermeable materials (concrete). The areas to be used for the filter strips should be free of gullies or rills that can concentrate overland flow.

IV. Since this is a roadway construction project, deed recordation of this approval letter is not required.

STANDARD CONDITIONS

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

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

Prior to Commencement of Construction:

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

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

5. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the name of the approved plan and file number for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.

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

During Construction:

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

8. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been significantly reduced. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

9. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.

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

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

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

After Completion of Construction:

13. Owners of permanent BMPs and measures must insure that the 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 Austin Regional Office within 30 days of site completion.

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

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

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

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

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Kevin Lee Smith, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

Robert Sadlier, Water Section Team Leader
Austin Region Office
Texas Commission on Environmental Quality

RCS/kls

TCEQ CZP Modification Application

ATTACHMENT B

San Gabriel Parkway Phase 2

Williamson County, Texas

Narrative of Proposed Modification:

The San Gabriel Parkway is located immediately south of the Palmera Bluff Section 1 development and runs east-west. The Phase 1 section of San Gabriel Parkway connects the Palmera Ridge subdivision with the Palmera Bluffs subdivision. The existing roadway consists of 4 lanes, a roundabout, and a 5,940-square foot (0.139 acre) rain garden in the median. To increase transportation connectivity, the City of Leander is proposing to extend the constructed Phase 1 section of San Gabriel Parkway east to connect with Ronald Regan Boulevard. The proposed roadway would consist of 4 lanes from the intersection of the San Gabriel Parkway Phase 1 for approximately 400 feet, and then narrow to 2 lanes for approximately 1,800 feet to the intersection with Ronald Reagan Blvd.

The proposed modification would increase the project area and impervious cover. The existing project area was 5.30 acres. The proposed modified project area is 6.99 acres. The impervious cover for Phase 1 of San Gabriel Parkway was 1.91 acres (36.1%). The proposed impervious cover for Phase 2 of San Gabriel Parkway is 2.29 acres (32.8%).

Temporary BMPs will include silt fences, rock berms, inlet protection, and stabilized construction entrances. Permanent BMPs will include a vegetation seeding, soil retention blanket, paved flumes, pipe slope drains, stone outlet structures, curbs and gutters, storm sewers, and velocity control devices. Stormwater runoff from the San Gabriel Parkway Phase 2 will drain to underground detention areas with jellyfish filter cartridges. Trash and debris from construction will be disposed of at an offsite area. The site is outside of the 100- year floodplain.

TCEQ CZP Modification Application

ATTACHMENT C

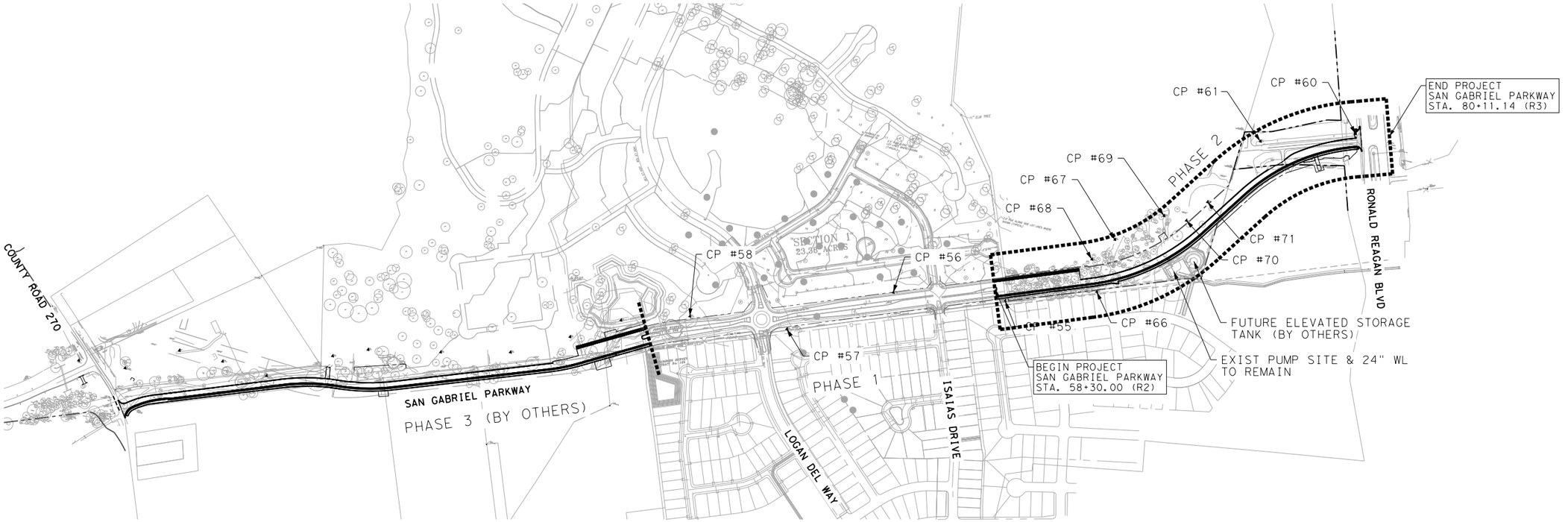
San Gabriel Parkway Phase 2

Williamson County, Texas

Current Site Plan of the Approved and Proposed Project

(Phase 1 and 2)

CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
55	10193325.74	3086777.338	1026.12	5/8" CIRS
56	10193226.64	3086189.406	1023.73	5/8" CIRS
57	10192903.33	3085686.261	1019.23	5/8" CIRS
58	10192846.43	3085169.806	1013.00	5/8" CIRS
60	10194630.18	3088374.864	906.06	5/8" CIRS
61	10194470.70	3087892.768	905.68	5/8" CIRS
66	10193488.03	3087238.359	1018.57	5/8" CIRS
67	10193779.67	3087266.168	966.38	5/8" CIRS
68	10193648.50	3087172.30	1002.46	5/8" CIRS
69	10193964.69	3087489.644	939.71	5/8" CIRS
70	10193968.39	3087610.729	948.87	5/8" CIRS
71	10194090.92	3087696.622	941.01	5/8" CIRS
72	10193259.75	3087067.477	1025.70	5/8" CIRS



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SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED
PROFESSIONAL ENGINEER
10/21/2021

FREESE NICHOLS
2nd Generation
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

PROJECT LAYOUT
START TO END

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN
REVISED
CHECKED MB
FILE NAME CV-TRT-GN-PROJLAYOUT.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 5

SEQ. 214

MicroStation V8 U4 - 02858 - Office - On Site
LND15545 N:\IF\Drawings\Phase 2\1. General\CV-TRT-GN-PROJLAYOUT.SHT
Plot Effective: 10/21/2021 - 01:35:08 PM User: 02858
Plot Scale: 600.0000 ' / In. Model - Default
Date: Oct. 21, 2021 - 01:35:08 PM Project - Freese and Nichols, Inc. GEOPAK SS4

Office - On Site LND15545 Date: Oct. 21, 2021 - 01:35:08 PM User: 02858 File: N:\IF\Drawings\Phase 2\1. General\CV-TRT-GN-PROJLAYOUT.SHT

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: Tam Tran

Date: 03/18/2025

Signature of Customer/Agent:

Regulated Entity Name: San Gabriel Parkway Phase 2

Project Information

1. County: Williamson
2. Stream Basin: Brushy Creek
3. Groundwater Conservation District (if applicable): N/A
4. Customer (Applicant):

   Contact Person: Emily Truman, PE, CFM, PMP.
   Entity: City of Leander
   Mailing Address: 201 N. Brushy Street
   City, State: Leander, Texas Zip: 78641
   Telephone: (512)528-2766 Fax: (512) 690-2227
   Email Address: etruman@leandertx.gov

5. Agent/Representative (If any):

Contact Person: Tam Tran
Entity: Freese and Nichols, Inc.
Mailing Address: 10431 Morado Circle
City, State: Austin, Texas Zip: 78759
Telephone: (512) 381-1830 Fax: (512) 617-3101
Email Address: tam.tran@freese.com

6. Project Location:

☐ The project site is located inside the city limits of _____.
☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Leander, Texas.
☐ 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 roadway is located north of Hero Way, and just north of the Palmera Ridge housing development. The roadway is situated between Ronald Regan Blvd and CR270.

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

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.: 2,181 feet.
Width of R.O.W.: 139.5 feet.
L x W = 304,250Ft² ÷ 43,560 Ft²/Acre = 6.99 acres.

21. Pavement Area:

Length of pavement area: 2,181 feet.
Width of pavement area: 45.7 feet.
L x W = 99,672Ft² ÷ 43,560 Ft²/Acre = 2.29 acres.
Pavement area 2.29 acres ÷ R.O.W. area 6.99 acres x 100 = 32.7% 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 _____ (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

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
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

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

Length (L)(Ft.)	*Width(W)(Ft.)*	*Height (H)(Ft.)*	*L x W x H = (Ft3)*	*Gallons*

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" = 2,000'.

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): FEMA FIRMs map #48491CO455F.

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.

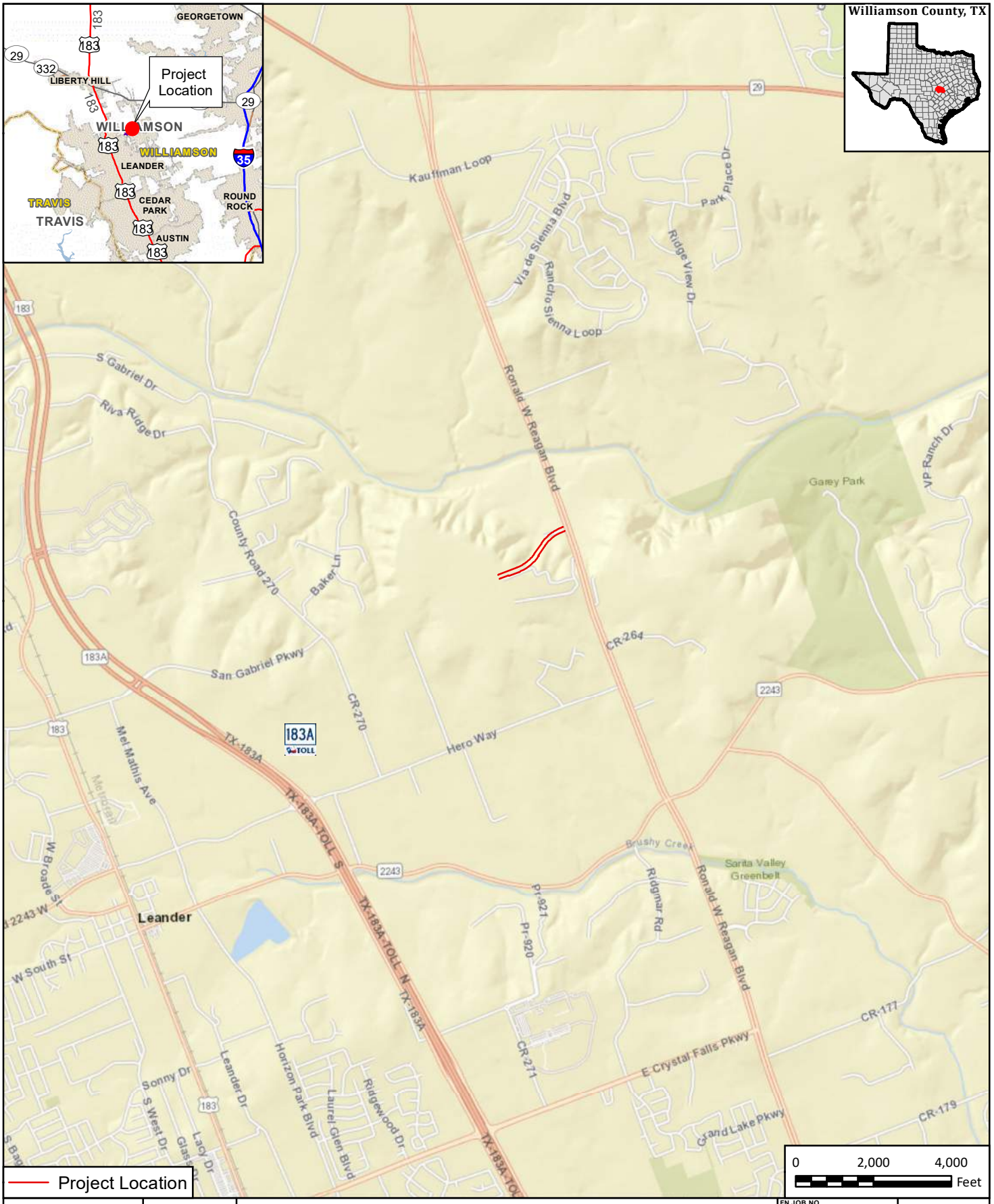
TCEQ CZP Modification Application

ATTACHMENT A

San Gabriel Parkway Phase 2

Williamson County, Texas

Road Map



FREESE AND NICHOLS

FREESE AND NICHOLS, INC
10431 Morado Circle, Suite 300
Austin, TX 78759
512-617-3188

CITY OF LEANDER

San Gabriel Parkway Phase 2

Road Map

FN JOB NO	LND15545
FILE NAME	A_Road_Map.mxd
DATE	11/17/2020
SCALE	1:40,000
DESIGNED	CS
DRAFTED	02285

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ATTACHMENT

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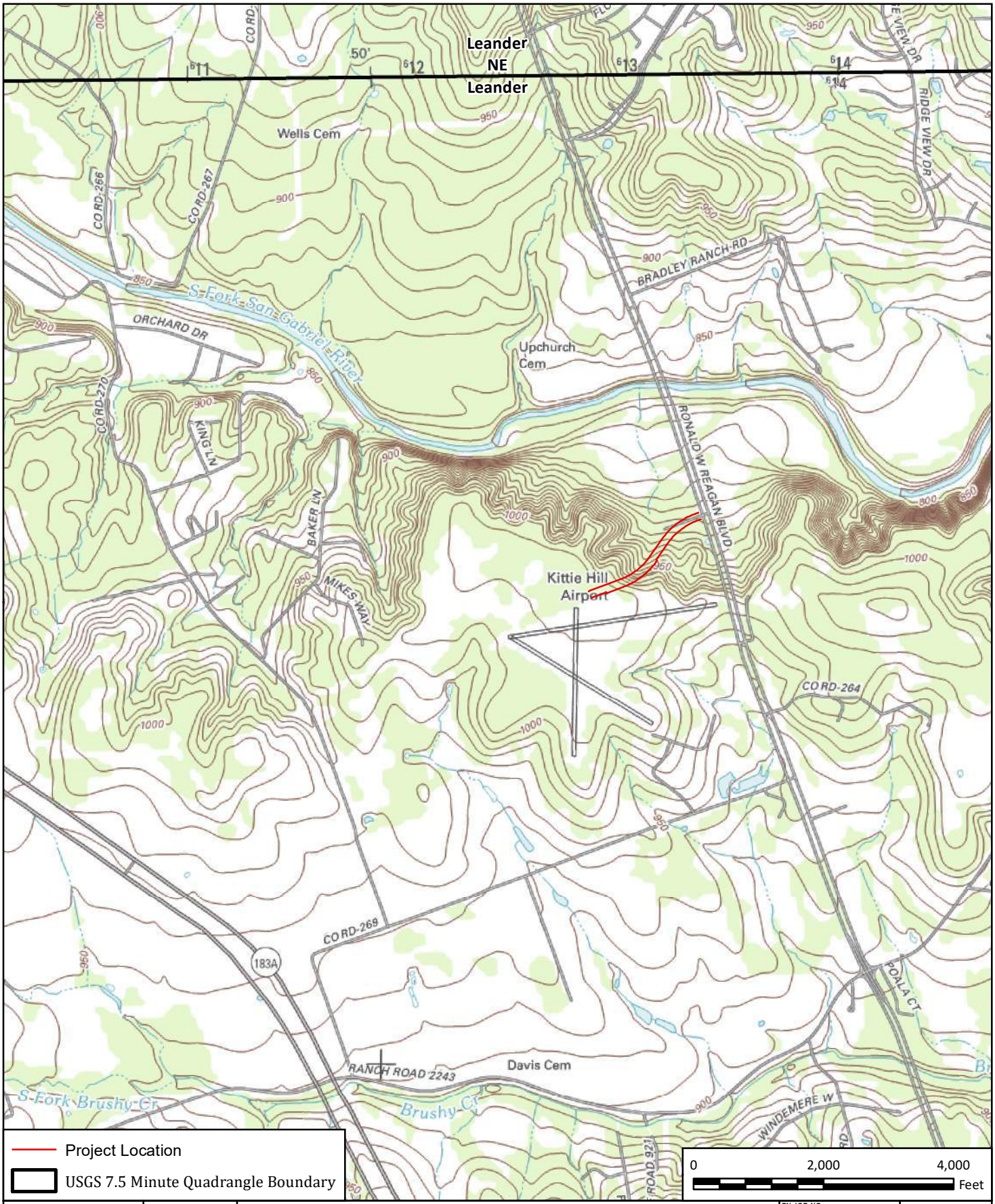
TCEQ CZP Modification Application

ATTACHMENT B

San Gabriel Parkway Phase 2

Williamson County, Texas

USGS Quadrangle Map



FREESE AND NICHOLS
FREESE AND NICHOLS, INC
10431 Morado Circle, Suite 300
Austin, TX 78759
512-617-3188

CITY OF LEANDER

San Gabriel Parkway Phase 2

2013 USGS 7.5 Minute Topographic Quadrangles: Leander, Leander NE

FN JOB NO	LND15545
FILE NAME	B_Topo.mxd
DATE	11/17/2020
SCALE	1:24,000
DESIGNED	CS
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ATTACHMENT

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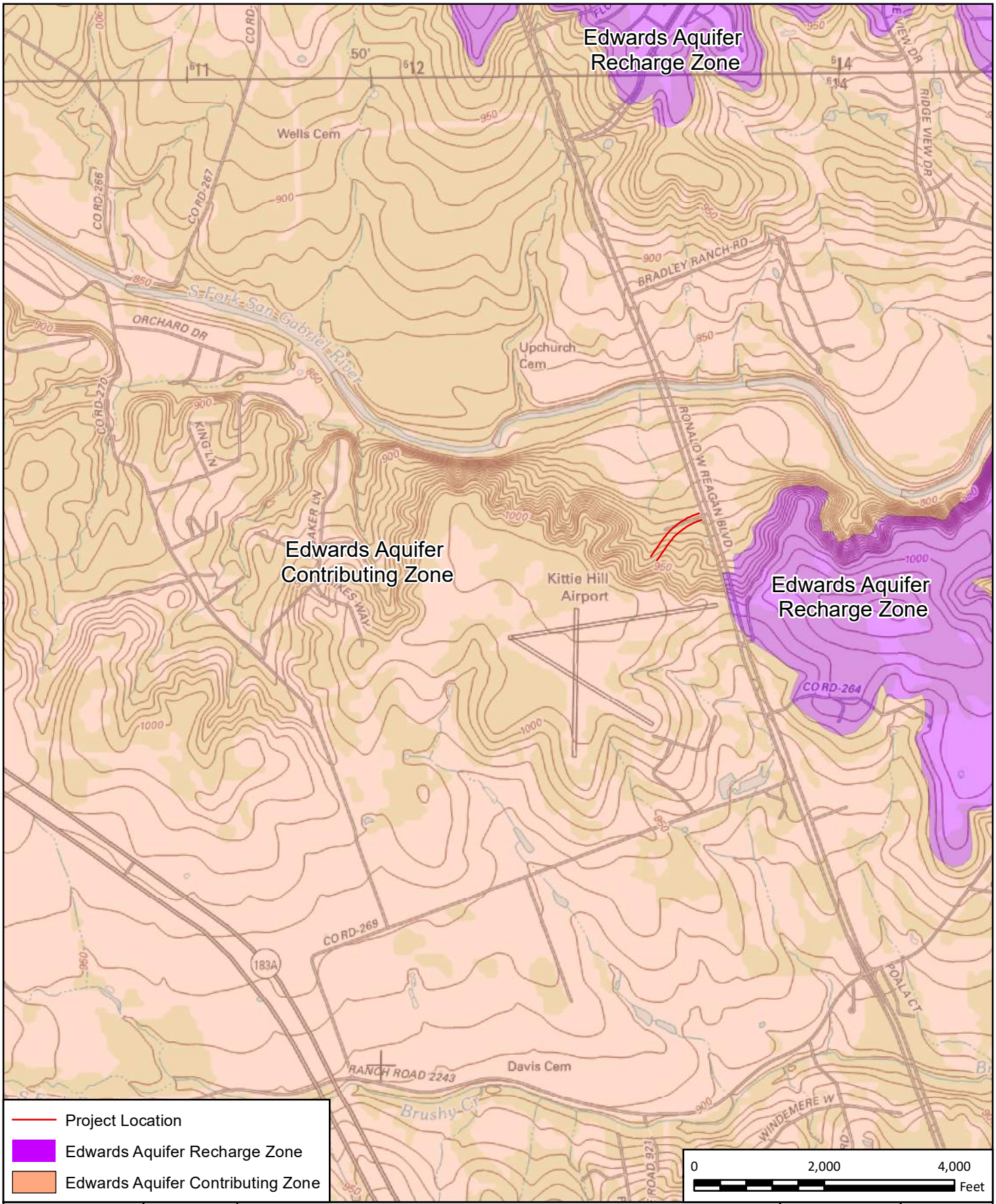

Project Location
Edwards Aquifer Recharge Zone
Edwards Aquifer Contributing Zone

FREESE AND NICHOLS
FREESE AND NICHOLS, INC
10431 Morado Circle, Suite 300
Austin, TX 78759
512-617-3188

CITY OF LEANDER

San Gabriel Parkway Phase 2

USGS/Edwards Recharge Zone Map

FN JOB NO	LND15545
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DATE	6/9/2022
SCALE	1:24,000
DESIGNED	CS
DRAFTED	02285

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ATTACHMENT

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NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

TCEQ CZP Application

ATTACHMENT C

San Gabriel Parkway Phase 1

Williamson County, Texas

Project Narrative:

The site has historically been utilized for cattle grazing, residential development, and a small airport. The proposed site use will be an arterial roadway that would connect two housing developments (Palmera Bluff and Palmera Ridge) to Ronald Reagan Boulevard. The proposed project is adjacent to the existing San Gabriel Parkway, which it will connect and extend to Ronald Reagan Boulevard. The project area is located on undeveloped, cleared land. The total project area for Phase 2 of San Gabriel Parkway is 6.99 acres. The impervious cover will be 2.29 acres. The percent impervious cover will be 32.7% for the proposed project.

Temporary BMPs will include silt fencing, rock berms, inlet protection, stabilized construction entrance, and tree protection. Trash and debris will be disposed of at an offsite area. Permanent BMPs will include a vegetation seeding, soil retention blanket, and underground detention areas with jellyfish filters. Stormwater runoff from the San Gabriel Parkway Phase 2 section will flow to underground detention areas where sediments and contaminants will be filtered through jellyfish filter cartridges.

The site is outside of the 100-year floodplain.

TCEQ CZP Modification Application

ATTACHMENT D

San Gabriel Parkway Phase 2

Williamson County, Texas

Factors Affecting Water Quality:

Non-storm water discharges: The following non-stormwater discharges may occur from the site during the construction period:

- Water from utility line flushing during initial line testing must use uncontaminated water that is not hyperchlorinated.
- Pavement wash water (where no spills or leaks of toxic or hazardous materials have occurred).
- Groundwater (from dewatering of excavation) must be uncontaminated.
- Water used to wash vehicles or control dust must be done using potable water without detergent.

All non-stormwater discharges will be directed to the erosion and sedimentation controls (Best Management Practices) to remove any suspended solids contained.

Permanent factors affecting water quality:

- Fertilizers and pesticides from nearby residential areas
- Used oil
- Mulching
- Sediments

TCEQ CZP Modification Application

ATTACHMENT E

San Gabriel Parkway Phase 2

Williamson County, Texas

Volume and Character of Stormwater

The impacts being evaluated to the proposed San Gabriel Parkway - Phase II construction have a combined site area of 2.99 acres, with an approximate proposed impervious cover total of 2.29 acres. The site consists of rocky soils with moderate to steep slopes and there is approximately 20,500 square feet of existing impervious cover. Because there are no existing water quality controls the site was treated as if there is no impervious cover thus, the water quality calculations account for all impervious cover associated with the proposed roadway surface and infrastructure. Runoff produced from the site area will to be treated by two (2) jellyfish filter units. Runoff is contained within the curbed section of the roadway and captured by the proposed curb inlets routing discharge into the storm drain system. Expected pollutants include oil, grease, sediment, and rubber particles as expected from road use. Once runoff enters the storm drain it will be treated by the Contech Jellyfish units and discharged at the two outfall locations.

Under existing conditions, the study area has a composite curve number (CN) of approximately 83.5. The land use classification used to quantify the composite CN for all existing and proposed land cover was fair conditions under a hydrologic soil group D. The composite CN for the developed conditions is approximately 93.5.

Drainage Pattern Description

Existing runoff generally flows north through mostly undeveloped land towards the South Fork San Gabriel River through two unnamed tributaries. As shown on the Existing Condition Drainage Area Map (see Attachment G), the western portion of the site flows towards Analysis Point 3 with the remainder of the site flowing to Analysis Point 4. Draiange from Analysis Points 3 and 4 continue to flow north to the river. Construction of the road and storm drain system will capture and divert a portion of the flows currently contributing to Analysis Point 3 to Analysis Point 4 as shown in the Proposed Conditions Drainage Area Map in Attachment G). Thus, in additional to the two Jellyfish Filter Units (one at each storm drain discharge point) the project includes an underground detention unit to mitigate increased flow to Analysis Point 4.

Runoff from proposed impervious cover will be routed by the storm drain systems through the Jellyfish Filter Units prior to leaving the site. The storm drain outfalls include energy dissipation and rock riprap to reduce velocity of runoff to the existing natural channels. Offsite runoff from areas south of the site will be conveyed east via a concrete flume to the existing cross culvert along Ronald Reagan Blvd. The cross culvert will convey the storm water to an existing earthen channel along Ronald Reagan, through Analysis Point 4, to the South Fork San Gabriel River.

Jellyfish Filter Units

Runoff from San Gabriel Parkway will be treated by the two above-mentioned Jellyfish units. The jellyfish units consist of filtration cartridges and a high flow backwash chamber treating various stormwater pollutants. As flow enters the jellyfish it is forced down into the treatment chamber. As flow fills the chamber water is forced upwards through a filter cartridge and over a weir plate to the jellyfish outlet. The Jellyfish units can treat high flows and remove various common stormwater pollutants including Trash, TSS, Nitrogen, and Zinc. The published TQEC Addendum of Jellyfish Units allows for a TSS removal efficiency of 86%.

The proposed jellyfish units are located upstream of the discharge points for Strom Drain Lines D and E and have the capacity to remove a total load of 2193 lb. The required load from the two basins is 1995 lb. confirming the jellyfish units are adequate water quality provisions for the site.

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: San Gabriel Parkway
Date Prepared: 8/15/2022

8/19/2022

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by Sara Smith (Contech)
Reviewed by Jerome Scanlon (FNI)

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**2.98**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**2.29**	acres
Total post-development impervious cover fraction * =	**0.77**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1995**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**2**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	**D**	
Total drainage basin/outfall area =	**1.58**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.17**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.74**	
$L_{M\ THIS\ BASIN}$ =	**1020**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86.0**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**1.58**	acres
A_I =	**1.17**	acres
A_P =	**0.41**	acres
L_R =	**1122**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**1020**	lbs.
F =	**0.909**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**1.07**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.237**	cubic feet per second

7. Jellyfish

Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-6-2**	
Jellyfish Treatment Flow Rate =	**1.25**	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: San Gabriel Parkway
Date Prepared: 8/15/2022

8/19/2022

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by Sara Smith (Contech)
Reviewed by Jerome Scanlon (FNI)

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**2.98**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**2.29**	acres
Total post-development impervious cover fraction * =	**0.77**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1995**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**2**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	**E**	
Total drainage basin/outfall area =	**2.03**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.12**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.55**	
$L_{M\ THIS\ BASIN}$ =	**975**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86.0**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
$LR = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**1.40**	acres
A_I =	**1.12**	acres
A_P =	**0.28**	acres
L_R =	**1071**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**975**	lbs.
F =	**0.911**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**1.02**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.18**	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-6-2**	
Jellyfish Treatment Flow Rate =	**1.25**	cfs

Project:	SGPPII
County:	Williamson
P (in.):	32

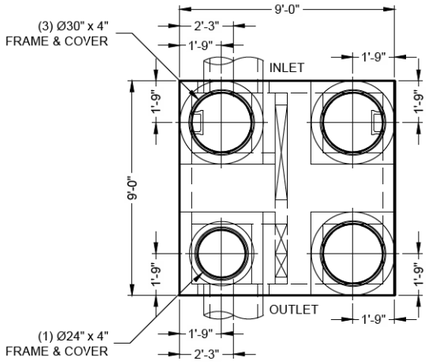
Water Quality Calculations

Discharge Point No.	Drainage Basin/Outfall Area	Proposed BMP Type	Proposed BMP ID	Sub-basins Draining to BMP	TSS Removal Efficiency (%)	Total Contributing Area (ac.)	Pre-Development Impervious Area (ac.)	Post-Development Impervious Area (ac.)	BMP Drainage Basin Information						
									A_C (ac.)	A_I (ac.)	A_P (ac.)	L_M (lb.)	L_R (lb.)	Desired L_M (lb.)	F
OF-D	Line D	Contech Jellyfish Filter	JFD		86	1.58	0.00	1.17	1.58	1.17	0.41	1020	1122	1020	0.91
OF-E	Line E	Contech Jellyfish Filter	JFE		86	1.40	0.00	1.12	1.40	1.12	0.28	975	1071	975	0.91
TOTAL						**2.99**	**0.00**	**2.29**				**1995**	≤	**1995**	

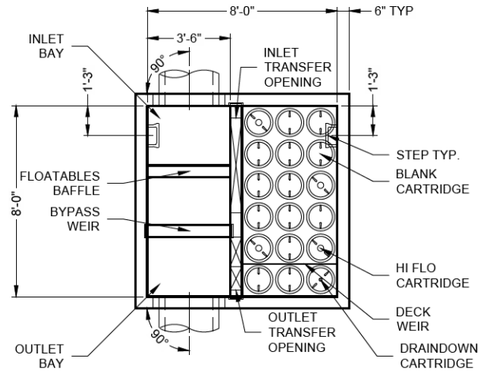
L_M	Required TSS load (lb.) removal from the basin.		A_P	Pervious area (ac.) remaining in the BMP catchment area.	
A_C	Total on-site drainage area (ac.) in the BMP catchment area.		L_R	Maximum TSS load (lb.) available for removal from this catchment area by the proposed BMP.	
A_I	Impervious area (ac.) proposed in the BMP catchment area.		F	Fraction of annual runoff to treat the BMP catchment area.	

STATE OF TEXAS
JEROME W. SCANLON III
82077
REGISTERED
PROFESSIONAL ENGINEER
8/19/2022

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

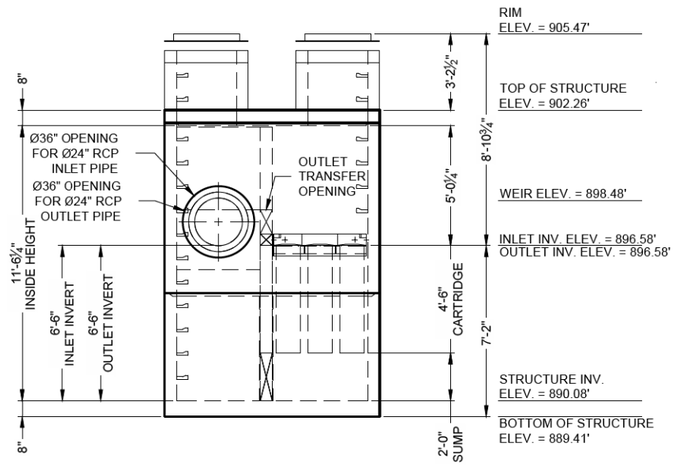


PLAN VIEW



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
4	54" HI-FLO CARTRIDGE (70 mm ORIFICE)	CONTECH
1	54" DRAINDOWN CARTRIDGE (35 mm ORIFICE)	CONTECH
13	CARTRIDGE BLANK (NO ORIFICE)	CONTECH
1	JELLYFISH VAULT 18-CARTRIDGE DECK, STANDARD	CONTECH
1	JOINT SEALANT (BY PRECASTER)	CONTRACTOR
3	Ø30" X 4" FRAME & COVER, EJ #41600484	CONTRACTOR
1	Ø24" X 4" FRAME & COVER, EJ #41600389	CONTRACTOR
4	30" X 30" RISER WITH TOP SLAB	CONTRACTOR
19	STEPS	CONTECH

SITE DESIGN DATA

WATER QUALITY FLOW RATE	0.80 CFS
PEAK FLOW RATE	5.90 CFS
RETURN PERIOD OF PEAK FLOW	25 YRS

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. WWW.ContechES.COM
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 4', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. WHEN ACTIVATED PRIOR TO SITE STABILIZATION, CONTRACTOR TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ACCORDING TO THE PROVISIONS IN THE ACTIVATION CHECKLIST AND THE QUOTED SCOPE OF WORK. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (800) 338-1122.

STRUCTURE WEIGHT

APPROXIMATE HEAVIEST PICK OF (5) PIECES = 30,000 LBS.

CONTECH
PROPOSAL
DRAWING

SLY
LAYOUT 7
CLASS 600

MARK	DATE	REVISION DESCRIPTION	BY

8' X 8' JELLYFISH - 596075-010
SAN GABRIEL PARKWAY PHASE 2A/2B
LEANDER, TX
SITE DESIGNATION: BASIN H1 - LINE E

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
800-338-1122 513-645-7000 513-645-7993 FAX
9025 Centre Pointe Drive, Suite 400, West Chester, OH 45069

Jellyfish Filter
PATENTED TECHNOLOGY
FOLLOWING U.S. PATENT NOS. 8,470,166; 8,671,992; 8,715,495; 8,741,151; 8,961,788; 9,095,792; 9,227,150; 9,382,702; 9,457,302; 9,475,009; 9,504,939; 9,604,154; 9,616,360; 9,861,921; 9,861,922; 9,861,923; 9,895,630; 9,895,631; 9,895,632; 9,901,846; 9,914,078; 9,914,079; 9,919,243; 9,919,244; 9,925,478; 9,925,479; 9,931,587; 9,931,588; 9,937,441; 9,937,442; 9,943,780; 9,943,781; 9,950,279; 9,950,280; 9,956,506; 9,956,507; 9,962,634; 9,962,635; 9,968,870; 9,968,871; 9,975,070; 9,975,071; 9,981,208; 9,981,209; 9,987,576; 9,987,577; 9,993,751; 9,993,752; 10,010,822; 10,010,823; 10,016,705; 10,016,706; 10,022,655; 10,022,656; 10,029,195; 10,029,196; 10,035,088; 10,035,089; 10,040,010; 10,040,011; 10,046,255; 10,046,256; 10,052,576; 10,052,577; 10,058,803; 10,058,804; 10,065,137; 10,065,138; 10,071,331; 10,071,332; 10,076,717; 10,076,718; 10,086,309; 10,086,310; 10,092,862; 10,092,863; 10,099,158; 10,099,159; 10,105,628; 10,105,629; 10,112,134; 10,112,135; 10,118,120; 10,118,121; 10,124,276; 10,124,277; 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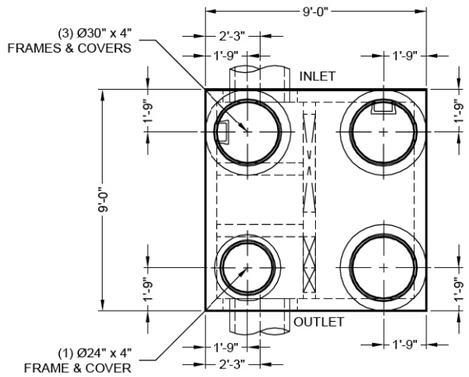
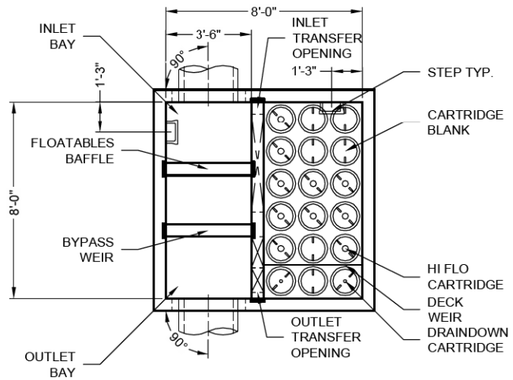
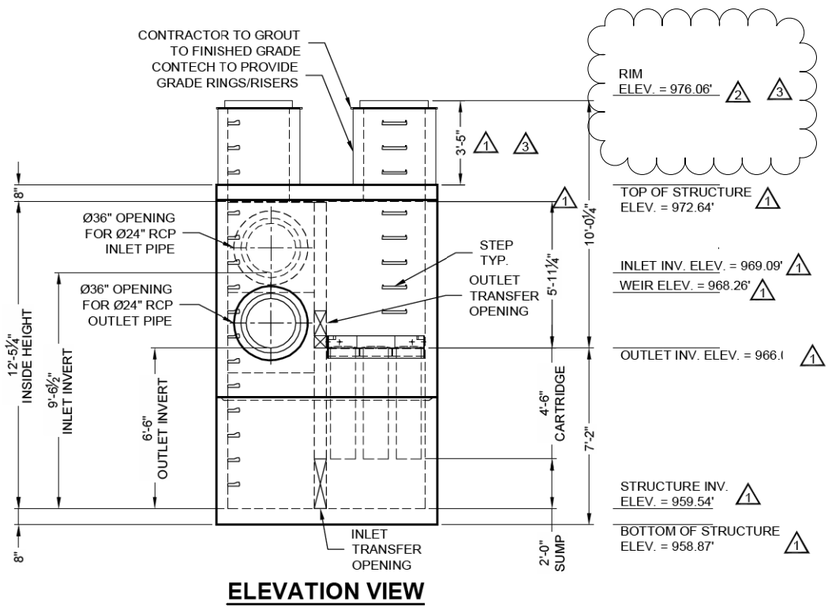


PLAN VIEW



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
10	54" HI-FLO CARTRIDGE (70 mm ORIFICE)	CONTECH
2	54" DRAINDOWN CARTRIDGE (35 mm ORIFICE)	CONTECH
6	CARTRIDGE BLANK (NO ORIFICE)	CONTECH
1	JELLYFISH VAULT 18-CARTRIDGE DECK, STANDARD	CONTECH
1	JOINT SEALANT (BY PRECASTER)	CONTRACTOR
1	Ø24" x 4" FRAME & COVER, EJ#41600389, OR EQUIVALENT	CONTRACTOR
3	Ø30" x 4" FRAME & COVER, EJ#41600484, OR EQUIVALENT	CONTRACTOR
1 PLC.	Ø24" GRADE RING	CONTRACTOR
3 PLCS.	Ø30" GRADE RINGS	CONTRACTOR
1 23	STEPS	CONTECH

SITE DESIGN DATA

WATER QUALITY FLOW RATE	1.96 CFS
PEAK FLOW RATE	8.5 CFS
RETURN PERIOD OF PEAK FLOW	25 YRS

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. WWW.ContechES.COM
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
1 4. STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
2 D. WHEN ACTIVATED PRIOR TO SITE STABILIZATION, CONTRACTOR TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
2 E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ACCORDING TO THE PROVISIONS IN THE ACTIVATION CHECKLIST AND THE QUOTED SCOPE OF WORK. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (800) 338-1122.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK OF (3) PIECES = 29,000 LBS.

CONTECH
PROPOSAL
DRAWING

TRNCO
LAYOUT 7
CLASS 600

MARK	DATE	REVISION DESCRIPTION	BY
3	10/2/2020	RIM ELEVATION	NJC
2	8/25/2020	CHANGES PER EOR/ PRODUCT UPDATES	SLL
1	12/23/2019	CHANGES PER EOR	SLL

CONTECH
ENGINEERED SOLUTIONS LLC
www.ContechES.com
800.338.1122 513.645.7000 513.645.7993 FAX
Jellyfish Filter

DATE: 06/25/19
DESIGNED: SJ
DRAWN: RRB/SLL
CHECKED: SJ
APPROVED: SJ
PROJECT No.: 596075
SEQUENCE No.: 080
SHEET: 1 OF 2

JFPD0808 - 596075-080
SAN GABRIEL PARKWAY PHASE 2A/2B
LEANDER, TX
SITE DESIGNATION: **BASIN G2-LINE D**

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
JENNIFER M. STEPHENSON
82077
LICENSED PROFESSIONAL ENGINEER
11/01/2021

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
STANDARD STORMWATER DETAILS

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME CV-SW-DT-STM01.dgn

BY | DATE | NO. | ISSUES

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0" 1"

SHEET 119
SEQ. 214

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SECTION (33.44.31)
JELLYFISH® MEMBRANE FILTRATION SYSTEM
STORMWATER QUALITY – MEMBRANE FILTRATION SYSTEM STANDARD SPECIFICATION

1. GENERAL
   1.1. The Contractor shall furnish and install the Jellyfish, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents. The water quality treatment flow shall be as determined and approved by the Engineer of Record. The Jellyfish system removes pollutants from stormwater runoff through the unit operations of sedimentation, floatation, and membrane filtration.

   1.2. The Jellyfish shall be of a type that has been installed and in use for a minimum of five (5) consecutive years preceding the date of installation of the system. The manufacturer shall have been, during the same consecutive five (5) year period, engaged in the engineering design and production of systems deployed for the treatment of storm water runoff and which have a history of successful production, acceptable to the Engineer of Record and/or the approving Jurisdiction. The manufacturer of the Jellyfish shall be, without exception:

   Contech Engineered Solutions
   9025 Centre Pointe Drive
   West Chester, OH, 45069
   Tel: 1 800 338 1122

   1.3. Submittals: Shop drawings for the structure and performance are to be submitted with each order to the contractor. Contractor shall forward shop drawing submittal to the consulting engineer for approval. Shop drawings are to detail the structure precast concrete and call out or note the internals/components.

   1.4. Product Substitutions: Any proposed product substitution to this specifications must be submitted for review and approved 10 days prior to project bid date by the Engineer of Record. Review package should include third party reviewed performance data for both flow rate and pollutant removal. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

   1.5. American Society for Testing and Materials (ASTM) Reference Specifications:

      1.5.1. ASTM C891: Standard Specification for Installation of Underground Precast Concrete Utility Structures

      1.5.2. ASTM C478: Standard Specification for Precast Reinforced Concrete Manhole Sections

      1.5.3. ASTM C858: Standard Specification of Underground Precast Concrete Utility Structures

      1.5.4. ASTM C857: Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures 1.5.5.

1.5.5. ASTM C990: Standard Specification for Joints for Concrete Manholes Using Preformed Flexible Joint Sealants

1.5.6. ASTM D4101: Standard Specification for Copolymer steps construction

1.5.7. ASTM D4097: Standard Specification for Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant

2. MATERIALS

2.1. Precast Concrete Structure: The device shall be an all concrete structure (including risers), constructed from precast concrete riser and slab components or monolithic precast structure(s). Precast concrete vault shall be provided according to ASTM C857 and C858 and manholes shall be provided according to ASTM C478. Both structure types shall be installed to conform to ASTM C891 and to any required state highway, municipal or local specifications; whichever is more stringent. All precast concrete components shall be manufactured to a minimum live load of HS-20 truck loading or greater based on local regulatory specifications, unless otherwise modified or specified by the design engineer.

2.2. Gaskets: Gaskets and/or sealants shall be used to seal between concrete joints. Joints shall be sealed with preformed joint sealing compound conforming to ASTM C990.

2.3. Internal Components:

2.3.1. Cartridge Deck: The deck insert shall be bolted and sealed inside the precast concrete chamber. The insert shall serve as: (a) a horizontal divider between the lower treatment zone and the upper treated effluent zone; (b) a deck for attachment of filter cartridges such that the membrane filter elements of each cartridge extend into the lower treatment zone; (c) a platform for maintenance workers to service the filter cartridges; (c) a conduit for conveyance of treated water to the effluent pipe.

2.3.1.1. Fiberglass: In cylindrical configurations, the fiberglass portions of the filter device shall be constructed in accordance with the following standard: ASTM D4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.

2.3.1.2. Aluminum: In rectangular configurations, the aluminum cartridge deck shall be ¼" thick, 5052-H32 Aluminum with all welds to be 100% continuous waterproof weld using 5356 filler.

2.3.2. Membrane Filter Cartridges: Filter cartridges shall be comprised of reusable cylindrical membrane filter elements connected to a perforated head plate. The number of membrane filter elements per cartridge shall be a minimum of eleven 2.75-inch (70-mm) or greater diameter elements. The length of each filter element shall be a minimum 15 inches (381 mm). Each cartridge shall be fitted into the cartridge deck by insertion into a cartridge receptacle that is permanently mounted into the cartridge deck. Each cartridge shall be secured by a cartridge lid that is threaded onto the receptacle, or similar mechanism to secure the cartridge into the deck. The maximum treatment flow rate of a

filter cartridge shall be controlled by an orifice in the cartridge lid, or on the individual cartridge itself, and based on a design flux rate (surface loading rate) determined by the maximum treatment flow rate per unit of filtration membrane surface area. The maximum design flux rate shall be 0.21 gpm/ft2 (0.142 lps/m2).

2.3.3. Each membrane filter cartridge shall allow for manual installation and removal. Each filter cartridge shall contain no less than 7 ft2 of surface area per inch of length and have filtration membrane surface area and dry installation weight as follows (if length of filter cartridge is between those listed below, the surface area and weight shall be proportionate to the next length shorter and next length longer as shown below):

Filter Cartridge Length (in)	Minimum Filtration Membrane Surface Area (ft^2 / m^2)	Maximum Filter Cartridge Dry Weight (lbs / kg)
15 / 381	106 / 9.8	10.0 / 4.5
27 / 686	190 / 17.7	14.5 / 6.6
40 / 1016	282 / 26.2	19.5 / 8.9
54 / 1372	381 / 35.4	25.0 / 11.4

2.3.4. Backwashing Cartridges: The filter device shall have a weir extending above the cartridge deck, or other mechanism, that encloses the high flow rate filter cartridges when placed in their respective cartridge receptacles within the cartridge deck. The weir, or other mechanism, shall collect a pool of filtered water during inflow events that backwashes the high flow rate cartridges when the inflow event subsides. All filter cartridges and membranes shall be reusable and allow for the use of filtration membrane rinsing procedures to restore flow capacity and sediment capacity; extending cartridge service life.

2.3.5. Maintenance Access to Captured Pollutants: The filter device shall contain an opening(s) that provides maintenance access for removal of accumulated floatable pollutants and sediment, removal of and replacement of filter cartridges, cleaning of the sump, and rinsing of the deck. Access shall have a minimum clear height over all of the filter cartridges (length of cartridge + 6 inches), or be accessible by a hatch or other mechanism that provides vertical clear space over all of the filter cartridges such that the cartridges can be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

2.3.6. Baffle: The filter device shall provide a baffle that extends from the underside of the cartridge deck to a minimum length equal to the length of the membrane filter elements. The baffle shall serve to protect the membrane filter elements from contamination by floatables and coarse sediment. The baffle shall be flexible and continuous in cylindrical configurations, and shall be a straight concrete or aluminum wall in rectangular configurations.

2.3.7. Sump: The device shall include a minimum 24 inches (610 mm) of sump below the bottom of the cartridges for sediment accumulation, unless otherwise specified by the design engineer. Depths less than 24 inches may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

2.3.8. Steps: Steps shall be constructed according to ASTM D4101 of copolymer polypropylene, and be driven into preformed or pre-drilled holes after the concrete has cured, installed to conform to applicable sections of state, provincial and municipal building codes, highway, municipal or local specifications for the construction of such devices.

2.3.9. Double-Wall Containment of Hydrocarbons: The cylindrical precast concrete device shall provide double-wall containment for hydrocarbon spill capture by a combined means of an inner wall of fiberglass, to a minimum depth of 12 inches (305 mm) below the cartridge deck, and the precast vessel wall.

2.4. Bend Structure: The device shall be able to be used as a bend structure with minimum angles between inlet and outlet pipes of 90-degrees or less in the stormwater conveyance system.

2.5. Frame and Cover: Frame and covers must be manufactured from cast-iron or other composite material tested to withstand H-20 or greater design loads, and as approved by the local regulatory body. Frames and covers must be embossed with the Contech or the Jellyfish brand name.

2.6. Doors and Hatches: If provided shall meet designated loading requirements or at a minimum for incidental vehicular traffic.

3. PERFORMANCE

3.1. Function: The Jellyfish filter shall function to remove pollutants by the following unit treatment processes; sedimentation, floatation, and membrane filtration.

3.2. Pollutants: The Jellyfish filter shall remove oil, debris, trash, coarse and fine particulates, particulate-bound pollutants, metals and nutrients from stormwater during runoff events.

3.3. Bypass: The Jellyfish filter shall typically utilize an external bypass to divert excessive flows. Where an internal bypass is utilized, systems shall be equipped with a floatables baffle, and bypass water shall not pass through the treatment sump or cartridge filtration zone.

3.4. Treatment Flux Rate (Surface Loading Rate): The Jellyfish filter shall treat 100% of the required water quality treatment flow based on a maximum design flux rate (surface loading rate) across the membrane filter cartridges not to exceed 0.21 gpm/ft2 (0.142 lps/m2).

3.5. Field Testing: At a minimum, the Jellyfish filter shall have been field tested and verified with a minimum 25 qualifying storm events and field monitoring conducted according to the TARP Tier II or TAPE field test protocol, and have received NJCAT verification.

3.6. Suspended Solids Removal: The Jellyfish filter shall have demonstrated a minimum median TSS removal efficiency of 85% and a minimum median SSC removal efficiency of 95%.

3.7. Fine Particle Removal: The Jellyfish filter shall have demonstrated the ability to capture fine particles as indicated by a minimum median removal efficiency of 75% for the particle fraction

less than 25 microns, an effluent d50 of 15 microns or lower for all monitored storm events, and an effluent turbidity of 15 NTUs or lower.

3.8. Nutrient (Total Phosphorus & Total Nitrogen) Removal: The Jellyfish filter shall have demonstrated a minimum median Total Phosphorus removal of 55%, and a minimum median Total Nitrogen removal of 50%.

3.9. Metals (Total Zinc & Total Copper) Removal: The Jellyfish filter shall have demonstrated a minimum median Total Zinc removal of 50%, and a minimum median Total Copper removal of 75%.

4. EXECUTION

4.1. Handling and Storage: Prevent damage to materials during storage and handling.

4.2. Precast Concrete Structure: The installation of the precast concrete device should conform to ASTM C891 and to any state highway, municipal or local specification for the installation of underground precast concrete structures, whichever is more stringent. Selected sections of a general specification that are applicable are summarized below.

4.2.1. The precast concrete device is installed in sections in the following sequence:

- aggregate base
- base slab
- treatment chamber and cartridge deck riser section(s)
- bypass section
- connect inlet and outlet pipes
- concrete riser section(s) and/or transition slab (if required)
- maintenance riser section(s) (if required)
- frame and access cover

4.2.2. The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with Contech's recommendations.

4.2.3. Adjustment of the Jellyfish filter can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary to restore original condition and seals. Once the Jellyfish filter has been constructed, any/all lift holes must be plugged with mortar or non-shrink grout.

4.3. Inlet and Outlet Pipes: Inlet and outlet pipes should be securely set into the device using approved pipe seals (flexible boot connections, where applicable), and such that any pipe intrusion into the device does not impact the device functionality.

4.4. Frame and Cover Installation: Adjustment units (e.g. grade rings) should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of

mortar with successive units being joined using sealant recommended by Contech. Frames for the cover should be set in a full bed of mortar at the elevation specified.

4.5. In some instances the Maintenance Access Wall, if provided, shall require an extension attachment and sealing to the precast wall and cartridge deck at the job site, rather than at the precast facility. In this instance, installation of these components shall be performed according to instructions provided by Contech.

5. ACTIVATION, INSPECTION AND MAINTENANCE

5.1. Filter cartridges shall be installed in the cartridge deck in accordance with the manufacturer's guidelines and recommendations. Contractor to contact the manufacturer to schedule cartridge delivery and review procedures/requirements to be completed to the device prior to installation of the cartridges and activation of the system.

5.2. Manufacturer shall coordinate delivery of filter cartridges and other internal components with contractor. Filter cartridges shall be installed after site is stabilized and/or unit is isolated from construction influent and ready to accept cartridges. Unit is ready to accept cartridges after it has been cleaned out and any standing water, debris, and other materials have been removed. Contractor shall take appropriate action to protect the filter cartridge receptacles and filter cartridges from damage during construction, and in accordance with the manufacturer's recommendations and guidance. For systems with cartridges installed prior to full site stabilization, the contractor shall plug inlet and outlet pipes to prevent stormwater and other influent from entering the device. Plugs are to be removed once the site is stabilized and unit is ready to receive stormwater runoff.

5.3. Durability of membranes are subject to good handling practices during inspection and maintenance (removal, rinsing, and reinsertion) events, and site specific conditions that may have heavier or lighter loading onto the cartridges, and pollutant variability that may impact the membrane structural integrity. Membrane maintenance and replacement shall be in accordance with Contech's recommendations.

5.4. Inspection; which includes trash and floatables collection, sediment depth determination, and visible determination of backwash pool depth; shall be easily conducted from grade (outside the structure).

5.5. Manual rinsing of the reusable filter cartridges shall promote restoration of the flow capacity and sediment capacity of the filter cartridges, extending cartridge service life.

5.6. The filter device shall have a minimum 12 inches (610 mm) of sediment storage depth, and a minimum of 12 inches between the top of the sediment storage and bottom of the filter cartridge tentacles, unless otherwise specified by the design engineer. Variances may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

5.7. Sediment removal from the filter treatment device shall be able to be conducted using a standard maintenance truck and vacuum apparatus, and a minimum one point of entry to the sump that is unobstructed by filter cartridges.

5.8. Maintenance access shall have a minimum clear height over all of the filter cartridges (length of cartridge + 6 inches), or be accessible by a hatch or other mechanism that provides vertical clear space over all of the filter cartridges such that the cartridges can be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

5.9. After construction and installation, and during operation, the device shall be inspected and cleaned as necessary based on Contech's recommended inspection and maintenance guidelines and the local regulatory agency/body.

5.10. When replacement membrane filter elements and/or other parts are required, only membrane filter elements and parts approved by Contech for use with the Jellyfish filter shall be installed.

5.11. Filter cartridges shall be able to be maintained without the use of additional lifting equipment.

5.12. Contech shall provide an Owner's Manual upon request.

6. Measurement and Payment
Payment for completed water quality unit of the type indicated on the Drawings shall be made at the appropriate unit bid price. The unit bid price shall include full compensation for designing, furnishing and installing the system and all labor, equipment, materials, (including all appurtenances), time and incidentals necessary to provide a in-place complete working system.

Payment will be made under the following:

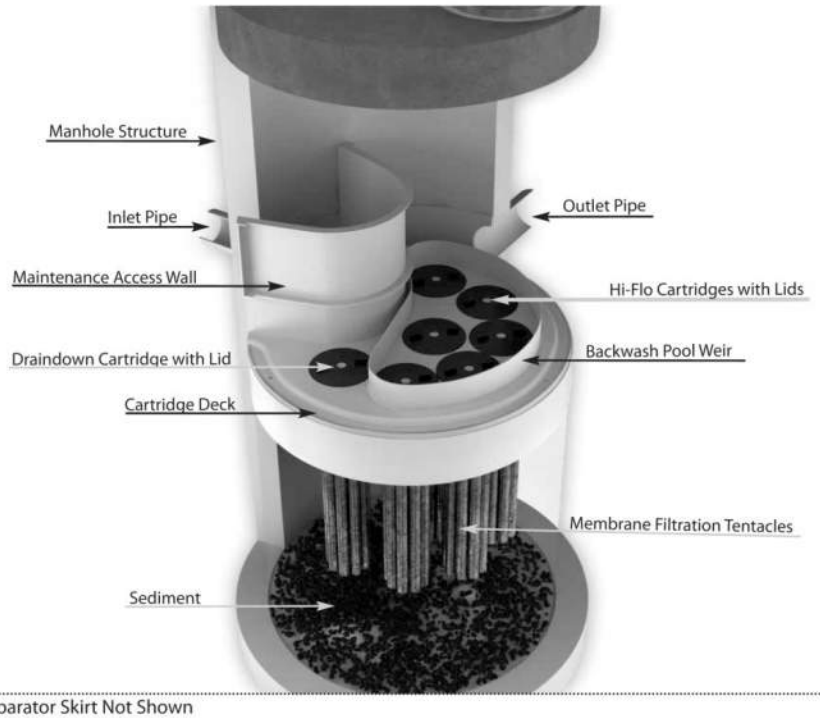
Pay Item No. Contech2:	Jellyfish Filter JFPD0808-596075-080 (in-place complete)	Ea.
Pay Item No. Contech3:	Jellyfish Filter 8'X8' JELLYFISH – 596075-010 (in-place complete)	Ea.

END OF SPECIFICATION

	Maintenance Levels **Model Number** / **Oil Depth** / **Sediment Depth** SWAQ-05 / 12” / 12” SWAQ-10 / 12” / 12” SWAQ-20 / 12” / 12” SWAQ-25 / 12” / 12” SWAQ-40 / 12” / 12” SWAQ-70 / 12” / 12” SWAQ-110 / 12” / 12” It is very useful to keep a record of each inspection. <u>Inspection Procedures</u> 1. Easiest observation and maintenance is best accomplished during non-flow (dry weather) conditions 3-4 days after the most recent rain. 2. Remove interceptor covers or open hatchway to observe conditions. Remove hatchway safety net (“EnterNet”). Observe for trash and debris and remove if necessary. This is the most important maintenance requirement. If absorbent pillows are utilized, observe their condition. Uniform browning or gray color of the pillow means they should be replaced. Observe baffle debris screen and clean if necessary. 3. Coalescing plates are self-cleaning and seldom require maintenance unless damaged. Do not walk on or stand on plate packs. Call ParkUSA (888-611-PARK) for replacement parts. 4. Check of the depth (level) of oil and sediment with a tank sampler device designed for this purpose.	
3.2.22	Jellyfish® Filter The Jellyfish® Filter is an engineered stormwater quality treatment technology featuring unique membrane filtration in a compact stand-alone treatment system that removes a wide variety of stormwater pollutants. The Jellyfish® Filter integrates pre-treatment and filtration with passive self-cleaning mechanisms. The system utilizes membrane filtration cartridges with very high filtration surface area and flow capacity, which provide the advantages of high sediment capacity and low filtration flux rate (flow per unit surface area) at relatively low driving head compared to conventional filter systems. Each lightweight Jellyfish® Filter cartridge consists of multiple detachable membrane-encased filter elements (“filtration tentacles”) attached to a cartridge head plate. The Jellyfish® Filter and components are depicted in Figure 1 (6-ft diameter system shown).	New Innovative Technology

FIGURE 1

Jellyfish Filter and Components



Note: Separator Skirt Not Shown

The Jellyfish® Filter can be used as a stand-alone device to treat stormwater or in a treatment train with other BMPs. Field testing of the Jellyfish® Filter has demonstrated capture of high levels of stormwater pollutants, including:

- 86% of the total suspended solids (TSS) load, including particles less than 5 microns;
- Some Phosphorus Nitrogen; and
- Metals, and additional particulate-bound pollutants such as hydrocarbons, and bacteria, free oil and floatable trash and debris.

Selection Criteria

- Use when space constraints make installation of a surface treatment system infeasible
- Appropriate for space-limited areas
- Appropriate for various size drainage basins
- Requires a minimal amount of land since underground
- Appropriate for retrofits and new development
- Appropriate to combine with low impact development (LID) applications and Green Infrastructure

Limitations

- Typically requires 18 inches of drop across the system (can be as low as 9 inches)
- Requires regular (minimum annually) inspection and/or maintenance

	Cost Considerations Cost of the Jellyfish® Filter is generally equal to or less than that of a sand filter and other granular media-filled cartridge systems, particularly when installation and maintenance costs are included. **Performance Claim** "The Jellyfish® Filter with standard membrane filtration cartridges designed for a maximum treatment flow rate consistent with a filtration flux rate (flow per unit surface area) of 0.21 gpm/ft2 (0.14 Lps/m2) for the hi-flo cartridge and 0.11 gpm/ft2 (0.07 Lps/m2) for the draindown cartridge, demonstrated removal of 86% of TSS, 99% of SSC, 59% of Total Phosphorus, 51% of Total Nitrogen, and greater than 50% of Total Copper and Total Zinc from urban rainfall-runoff, based on median pollutant removal efficiencies developed from the TARP and VTAP field monitoring study with a duration from 28 May 2010 through 27 June 2011."	
3.4.20	**Design Criteria** Design Rainfall Depth – The design rainfall depth is dependent on the characteristics of the contributing drainage area. The method for calculation of the fraction of annual rainfall to be treated and the design rainfall depth is specified in Section 3.3 of this manual. Standard length (54 inches) Jellyfish membrane filtration cartridges have a design treatment flow rate of 80 gpm for the hi-flo cartridge and 40 gpm for the draindown cartridge. A high-flow bypass located upstream of the Jellyfish® Filter is recommended to divert flows in excess of the design storm around the filtration system. A weir 18 inches higher than the outlet pipe invert or deck elevation of the Jellyfish is typically installed in the diversion structure to provide 18 inches of driving head to the treatment unit. In-line systems are also available. Table 1 shows standard manhole configurations and flow rates. Rectangular catch basin models with top inlet or curb inlets are available for small drainage areas as well as large rectangular vaults for drainage areas that exceed the capacity of largest standard manhole model listed. Standard cartridges lengths are 54 inches, 40 inches, 27 inches and 15 inches. **Table 1 Design Flow Capacities of the Jellyfish Filter**	

Table 1
Design Flow Capacities
Standard Jellyfish Filter Manhole Configurations

Manhole Diameter (ft / m)[1]	Model No.	Hi-Flo Cartridges[2] 54 in / 1372 mm	Draindown Cartridges[2] 54 in / 1372 mm	Treatment Flow Rate (gpm / cfs)	Treatment Flow Rate (L/S)
4 / 1.2	**JF4-2-1**	**2**	**1**	**200 / 0.45**	**12.6**
6 / 1.8	**JF6-3-1**	**3**	**1**	**280 / 0.62**	**17.7**
	JF6-4-1	4	1	360 / 0.80	22.7
	JF6-5-1	5	1	440 / 0.98	27.8
	JF6-6-1	6	1	520 / 1.16	32.8
8 / 2.4	**JF8-6-2**	**6**	**2**	**560 / 1.25**	**35.3**
	JF8-7-2	7	2	640 / 1.43	40.4
	JF8-8-2	8	2	720 / 1.60	45.
	JF8-9-2	9	2	800 / 1.78	50.5
	JF8-10-2	10	2	880 / 1.96	55.5
10 / 3.0	**JF10-11-3**	**11**	**3**	**1000 / 2.23**	**63.1**
	JF10-12-3	12	3	1080 / 2.41	68.1
	JF10-12-4	12	4	1120 / 2.50	70.7
	JF10-13-4	13	4	1200 / 2.67	75.7
	JF10-14-4	14	4	1280 / 2.85	80.8
	JF10-15-4	15	4	1360 / 3.03	85.8
	JF10-16-4	16	4	1440 / 3.21	90.8
	JF10-17-4	17	4	1520 / 3.39	95.9
	JF10-18-4	18	4	1600 / 3.56	100.9
	JF10-19-4	19	4	1680 / 3.74	106
12 / 3.6	**JF12-20-5**	**20**	**5**	**1800 / 4.01**	**113.6**
	JF12-21-5	21	5	1880 / 4.19	118.6
	JF12-22-5	22	5	1960 / 4.37	123.7
	JF12-23-5	23	5	2040 / 4.54	128.7
	JF12-24-5	24	5	2120 / 4.72	133.8
	JF12-25-5	25	5	2200 / 4.90	138.8
	JF12-26-5	26	5	2280 / 5.08	143.8
	JF12-27-5	27	5	2360 / 5.26	148.9

[1] Smaller and larger systems may be custom designed
[2] Shorter length cartridge configurations are available

Jellyfish Cartridges and Membrane Properties

The filtration tentacle membranes provide a large amount of surface area, resulting in superior flow capacity and suspended sediment removal capacity. A typical Jellyfish cartridge with eleven 54-inch (1372 mm) long filtration tentacles has 381 ft2 (35.4 m2) of membrane surface area. Hydraulic testing on a clean 54-inch (1372 mm) filter cartridge has demonstrated a flow rate of 180 gpm (11.3 L/s) at 18 inches (457 mm) of driving head. In addition, the filtration tentacle membrane has anti-microbial characteristics that inhibit the growth of bio-film that might otherwise prematurely occlude the pores of the membrane and restrict hydraulic conductivity.

The cylindrical membrane filtration tentacle has a threaded pipe nipple at the top and is

	sealed at the bottom with an end cap. A cluster of tentacles is attached to a head plate by inserting the top pipe nipples through the head plate holes and securing with removable nuts. A removable oil-resistant polymeric rim gasket is attached to the head plate to impart a watertight seal when the cartridge is secured into the cartridge receptacle with the cartridge lid. A Jellyfish membrane filtration cartridge is depicted in Figure 2. The dry weight of a new cartridge is less than 20 pounds (9 kg), and the wet weight of a used cartridge is less than 50 pounds (23 kg), making a cartridge easy to install and remove by hand. No heavy lifting equipment is required. **FIGURE 2** **Jellyfish Membrane Filtration Cartridge**  	
3.5.25	**<u>Jellyfish® Filter Inspection and Maintenance</u>** Jellyfish cartridges are passively backwashed automatically after each storm event, which removes accumulated sediment from the membranes and significantly extends the service life of the cartridges and the maintenance interval. If required, the cartridges can be easily manually backwashed without removing the cartridges. Additionally, the lightweight cartridges can be removed by hand and externally rinsed, and rinsed cartridges then re-installed. These simple maintenance options allow for cartridge regeneration, thereby minimizing cartridge replacement costs and life-cycle treatment costs while ensuring long-term treatment performance. Regular inspection and maintenance are proven, cost-effective ways to maximize water resource protection for all stormwater pollution control practices, and are required to insure proper functioning of the Jellyfish® Filter. Inspection of the Jellyfish® Filter is performed from the surface, while proper maintenance requires a combination of	

procedures conducted from the surface and with worker entry into the structure.

Please refer to the following information and guidelines before conducting inspection and maintenance activities:

- **When is inspection needed?**

Post-construction inspection is required prior to putting the Jellyfish Filter into service.

Routine inspections are recommended quarterly during the first year of operation to accurately assess the sediment and floatable pollutant accumulation, and to ensure that the automatic backwash feature is functioning properly.

Inspection frequency in subsequent years is based on the maintenance plan developed in the first year, but must occur annually at a minimum.

Inspections should also be performed immediately after oil, fuel or other chemical spill.

- **When is maintenance service needed?**

The unit must be cleaned annually. This cleaning includes removal and appropriate disposal of all water, sediment, oil and grease, and debris that has accumulated within the unit. The Jellyfish Filter is inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins. Since some of the maintenance procedures require manned entry into the Jellyfish structure, only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Service provider companies typically have personnel who are trained and certified in confined space entry procedures according to local, state, and federal standards.

Filter cartridges should be tested for adequate flow rate, every 12 months and cleaned and re-commissioned, or replaced if necessary. A manual backflush must be performed on a single draindown cartridge using a Jellyfish Cartridge Backflush Pipe (described in the Jellyfish® Filter Owner's Manual). If the time required to drain 14 gallons of backflush water from the Backflush Pipe (from top of pipe to the top of the open flapper valve) exceeds 15 seconds, it is recommended to perform a manual backflush on each of the cartridges. After the manual backflush, the draindown test should be repeated on a single cartridge to determine if the cartridge can drain 14 gallons of water in 15 seconds. If the cartridge still does not achieve the design flow rate, it must be replaced.

The unit should be cleaned out immediately after an oil, fuel or chemical spill.

- **External Rinsing**

This cartridge cleaning procedure is performed by removing the cartridge from the cartridge deck and externally rinsing the filtration tentacles using a low-pressure water sprayer, as described in the Jellyfish® Filter Owner's Manual. If this procedure is performed within the structure, the cartridge or individual filtration tentacles should be rinsed while safely suspended over the maintenance access wall opening in the cartridge deck, such that rinsate flows into the lower chamber of the Jellyfish® Filter. If the rinsing procedure is performed outside the structure, the cartridge or individual filtration tentacles should be rinsed in a suitable basin such as a plastic barrel or tub, and rinsate subsequently poured into the maintenance access wall opening in the cartridge deck. Sediment is subsequently removed from the lower chamber by standard vacuum service.

Inspection / Maintenance Completion - Summary

Company Name:_____

Company Address:_____

City/State/Zip:_____

Phone:_____

Engineer:_____

Engineers Address:_____

City/State/Zip:_____

Phone:_____

Property Owner:_____

*Jellyfish Model

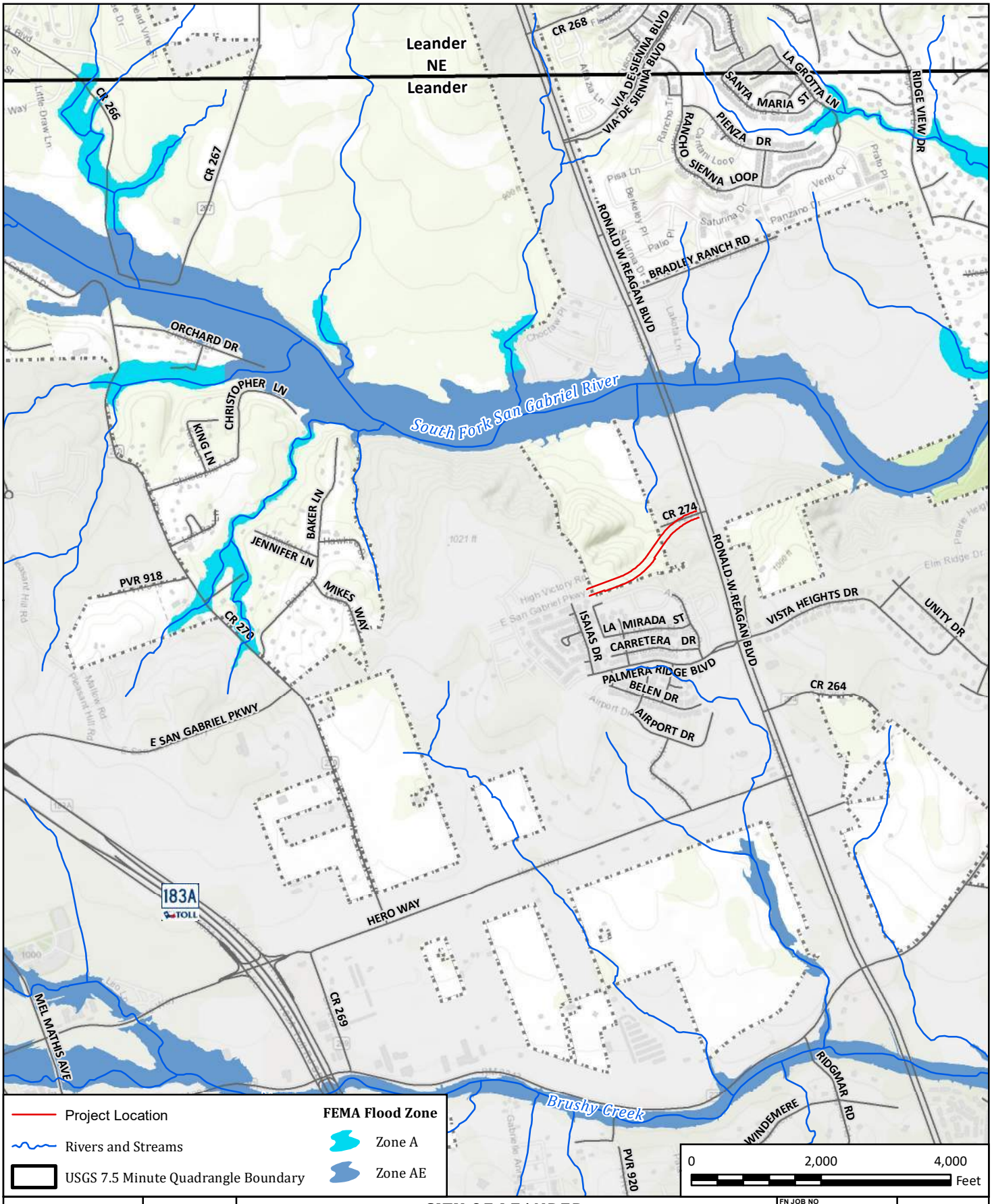
Monitoring / Maintenance Table

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Oil Depth (inches)												
Sediment Depth (inches)												
Completed By												
Date												
Floatables (optional)												

I hereby certify that the monitoring and maintenance of the Jellyfish Filter unit was completed in accordance with the directions of the Jellyfish inspection and maintenance plan.

_____

(Signed by property owner or designee)



FREESE AND NICHOLS
FREESE AND NICHOLS, INC
10431 Morado Circle, Suite 300
Austin, TX 78759
512-617-3188

CITY OF LEANDER

San Gabriel Parkway Phase 2

FEMA Floodplain Map

FN JOB NO	LND15545
FILE NAME	D_Floodplain.mxd
DATE	11/17/2020
SCALE	1:24,000
DESIGNED	CS
DRAFTED	02285

D

ATTACHMENT

Path: H:\ENVIRONMENTAL\Final_Exhibits\Phase II\D_Floodplain.mxd

NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

Attachment G

Inspection, Maintenance, Repair and Retrofit Plan

The following are inspection, maintenance, repair and retrofit guidelines for the selected permanent BMPs as stated in TCEQ RG-348 or manufacturer's instructions:

Vegetative Filter Strips (Seeding):

(1) Inspections should be made at least twice annually for erosion or damage to vegetation, checking the strips for uniformity of grass cover, debris and litter, and areas of sediment accumulation.

(2) Trash and excess sediment accumulated on the strips should be removed during inspections.

(3) Bare spots and areas of erosion found during inspections should be replanted and restored.

(4) The vegetative filter strips should be mowed a minimum of twice annually if planted with native grasses.

Underground Detention with Jellyfish Filtration Units:

(1) Inspections should be conducted quarterly during the first year of operation to assess the quantity of sediment and pollutant accumulation, and to ensure proper functionality of the system.

   a. Inspection frequency for subsequent years should be based on the inspection and maintenance plan developed during the first year. Minimum frequency should be once per year.
   b. Inspection is recommended after each major storm event.
   c. Inspection is required immediately after an upstream oil, fuel or chemical spill.

(2) Inspections are typically conducted from surface observations and include:

   a. observe if surface water is present,
   b. observe if there are physical damage to the deck or cartridge lids, and
   c. observe amount of debris in the maintenance access vault or inlet bay.

(3) Maintenance activities include:

   a. removal of oil, floatable trash and debris,

b. removal of collected sediments,
c. rinsing and reinstalling the filter cartridges, and
d. replace filter cartridge tentacles, as needed.

(4) Accumulated sediment found in stormwater treatment system must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments and water to contain measurable concentrations of heavy metals and organic chemicals. When scheduling maintenance, consideration must be made for the disposal of solid or liquid wastes.

Retention Blankets:

(1) Inspections should be made at least twice annually for erosion or damage to vegetation, checking the blankets for uniformity of grass cover, debris and litter, and areas of sediment accumulation.

(2) Trash and excess sediment accumulated on the blankets should be removed during inspections.

(3) Bare spots and areas of erosion found during inspections should be replanted and restored.

(4) The blankets should be mowed a minimum of twice annually if planted with native grasses.

Inspection Reports:

Completed inspection reports will include the following information:

- scope of the inspection,
- name(s) of personnel making the inspection,
- reference to qualifications of inspection personnel,
- date of the inspection,
- observed major construction activities, and
- actions taken as a result of the inspection.

The inspection report should state inspection report should state whether the site was in compliance or identify any incidents of non-compliance.

Final stabilization of the construction site has been achieved when all soil disturbing activities at the site have been completed, and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. If a vegetative cover cannot be established, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) can be employed. When these conditions have been met, temporary BMPs can be removed from the construction area.

Owner & Responsible Party for Maintenance:	City of Leander
Address:	105 N. Brushy Street
City, State, Zip:	Leander, TX 78641
Telephone Number:	(512) 528-2721

Signature of Responsible Party: _____ Date: 22AUG22

TCEQ CZP Modification Application

ATTACHMENT J

San Gabriel Parkway Phase 2

Williamson County, Texas

Best Management Practices for Upgradient Stormwater:

Stormwater originating upgradient of the project site will flow through temporary and permanent BMPs such as silt fencing, vegetative seeding, rock berms, and soil retention blankets to filter out sediments and pollutants. Post-construction, upgradient stormwater will be captured by the storm sewer system adjacent to the roadway and routed to underground detention basin with jellyfish filters.

TCEQ CZP Modification Application

ATTACHMENT K

San Gabriel Parkway Phase 2

Williamson County, Texas

Best Management Practices of On-Site Stormwater:

Sediments and pollutants from on-site stormwater and run-off will flow to silt fencing and rock berms where it will be filtered out. Post-construction, stormwater will be captured by the roadway storm sewer system and routed through vegetated areas or to the underground detention area where stormwater would be filtered through jellyfish filters.

TCEQ CZP Modification Application

ATTACHMENT L

San Gabriel Parkway Phase 2

Williamson County, Texas

Best Management Practices for Surface Streams Stormwater:

Rock berms and silt fences will be placed perpendicular to the roadway and downgradient of the project area to prevent sediment from traveling down gradient to surface streams. Temporary BMPs will reduce the velocity from heavy floods from eroding downstream channel and filter sediment and pollutants from the stormwater. Permanent BMPs will include soil retention blankets and underground detention with jellyfish filter. Permanent BMPs will collect, filter and prevent soil erosion and sediment-laden runoff from entering surface streams.

APPROVED BY:

Robin M. Griffin — 09/22/2022
ROBIN M. GRIFFIN, AICP, EXECUTIVE DIRECTOR OF DEVELOPMENT SERVICES — DATE

REB — 13 SEP 22
ROSS BLACKKETTER, P.E., CITY ENGINEER — DATE

9-14-22
GINA ELLISON, P.E. PUBLIC WORKS DIRECTOR — DATE

9/26/22
MARK TUMMONS, CPRP, DIRECTOR OF PARKS AND RECREATION — DATE

9/15/22
CHIEF JOSHUA DAVIS, FIRE MARSHAL — DATE

Revision #	Description	Approval

DISTURBED SOIL ACREAGE: 5.18 AC

DOCUMENTS ISSUED FOR CONSTRUCTION

These "Issued for Construction" Contract Documents have been prepared by revising the Bidding Documents to record references to addenda, field orders or change orders issued as of 03/03/2025.

The Bidding Documents may have been revised to incorporate these revisions directly into the "Issued for Construction" Contract Documents. Contractor is responsible for determining that these documents are consistent with their understanding of the Bidding Documents as modified per the appropriate provisions of the Contract Documents. The Bidding Documents, as modified per the appropriate provisions of the Contract Documents, take precedence over these "Issued for Construction" documents.

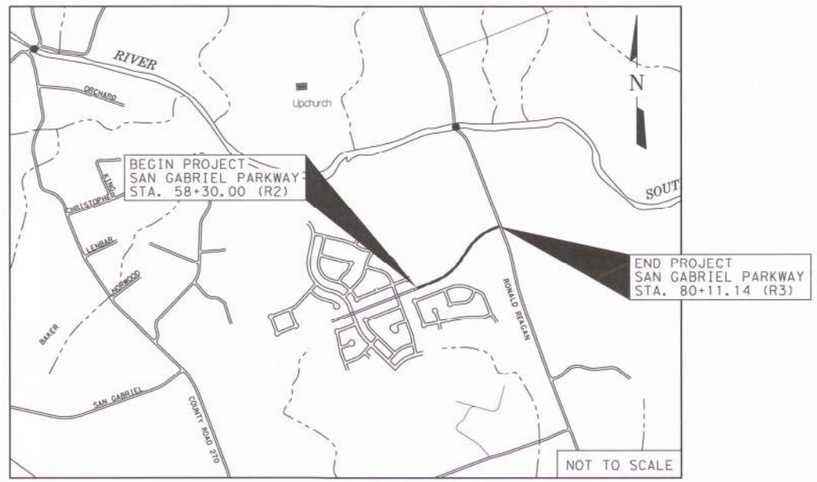
CITY OF LEANDER
PUBLIC WORKS DEPARTMENT

City of Leander

SAN GABRIEL PARKWAY, PHASE 2
CAPITAL IMPROVEMENTS PROJECT CONSTRUCTION PLANS
PROJECT NO. : 20-CIP-007
CIP NO. : T.11

ROADWAY = 2,162.73 FEET = 0.410 MILES
NET LENGTH OF PROJECT = 2,162.73 FEET = 0.410 MILES

LIMITS: 0.2 MILES EAST OF LOGAN DEL WAY
TO RONALD REAGAN BOULEVARD



OWNER: CITY OF LEANDER

ENGINEER: FREESE AND NICHOLS, INC.
10431 MORADO CIRCLE, SUITE 300
AUSTIN, TX 78759
(512) 617-3100

SURVEYOR: GORRONDONA AND ASSOCIATES, INC.
4201 W PARMER LANE, B-100
AUSTIN, TX 78727

SUBMITTAL DATE: NOVEMBER 24, 2020

EXCEPTIONS: NONE
EQUATIONS: STA. 58+68.39 AH (R3) = STA. 58+50.00 BK (R2)
R.R. CROSSINGS: NONE

100% SUBMITTAL

TLDR NO: TABS2021001629

DESIGN SPEED
SAN GABRIEL — 45 MPH

A.D.T.
SAN GABRIEL — (2015) = 6,500
(2035) = 16,500

SEE SHEET 2 FOR DETAILED INDEX OF SHEETS

INDEX

STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED
PROFESSIONAL ENGINEER
8/19/2022

SUBMITTAL PREPARED BY:

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

CONTACT: CHRISTOPHER J. TREVINO, P.E.
PHONE: (210) 298-3817
FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

Approved Copy

20-CIP-007 San Gabriel Parkway Phase 2

CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
55	10193325.74	3086777.338	1026.12	5/8" CIRS
56	10193226.64	3086189.406	1023.73	5/8" CIRS
57	10192903.33	3085686.261	1019.23	5/8" CIRS
58	10192846.43	3085169.806	1013.00	5/8" CIRS
60	10194630.18	3088374.864	906.06	5/8" CIRS
61	10194470.70	3087892.768	905.68	5/8" CIRS
66	10193488.03	3087238.359	1018.57	5/8" CIRS
67	10193779.67	3087266.168	966.38	5/8" CIRS
68	10193648.50	3087172.30	1002.46	5/8" CIRS
69	10193964.69	3087489.644	939.71	5/8" CIRS
70	10193968.39	3087610.729	948.87	5/8" CIRS
71	10194090.92	3087696.622	941.01	5/8" CIRS
72	10193259.75	3087067.477	1025.70	5/8" CIRS

N

0 300' 600'
SCALE IN FEET

APPROVED
RMG

ISSUED FOR CONSTRUCTION
ON 03/03/2025

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

10/21/2021

STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED
PROFESSIONAL ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

PROJECT LAYOUT
START TO END

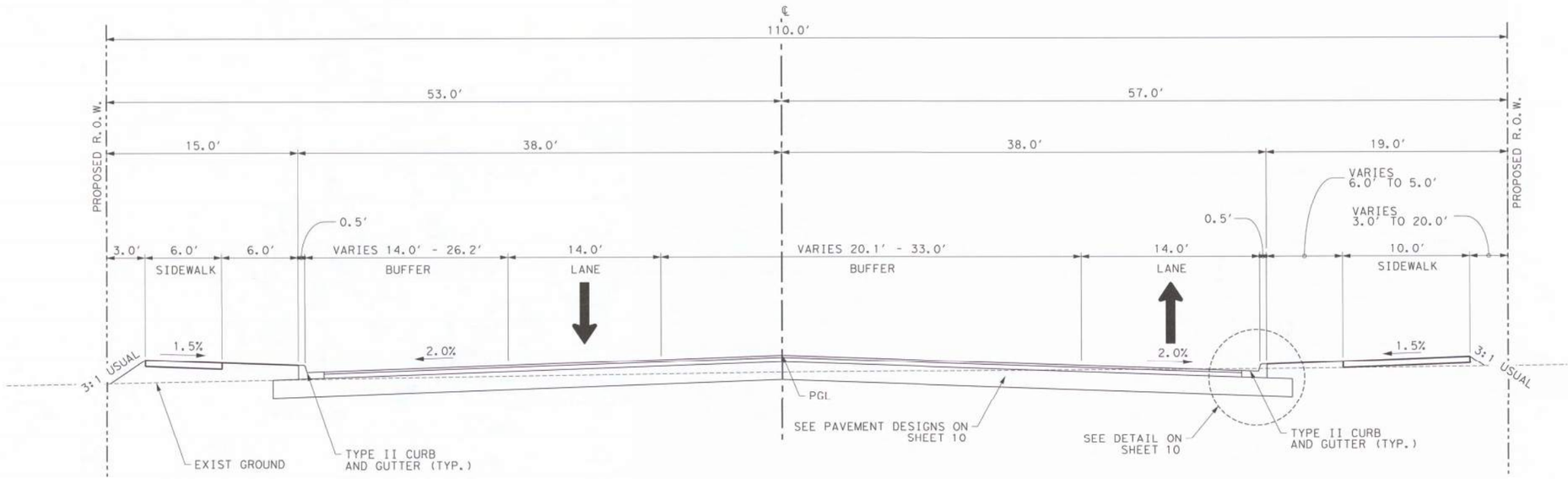
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

FILE NAME: CV-TRT-GN-PROJLAYOUT.SHT

FRN - JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN
REVISED
CHECKED MB

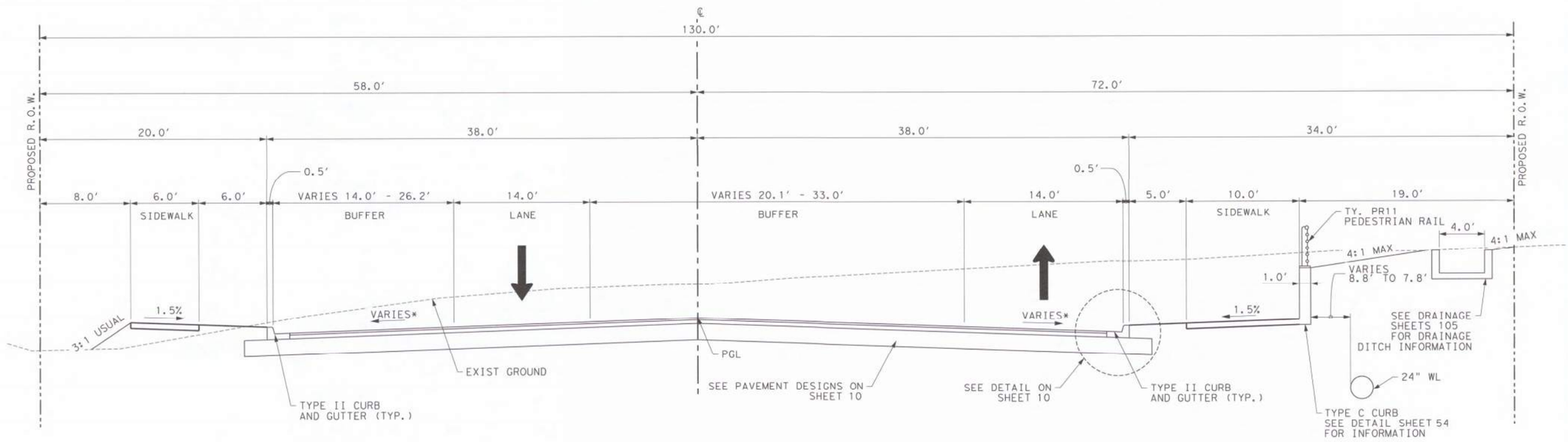
SHEET 5
SEQ. 214



PROPOSED TYPICAL SECTION

STA. 58+30 (R3) TO 60+00 (R3)
(PAVEMENT DESIGN "A")

STA. 60+00 (R3) TO 61+60 (R3)
(PAVEMENT DESIGN "B")



PROPOSED TYPICAL SECTION

STA. 61+60 (R3) TO STA. 63+05 (R3)
(PAVEMENT DESIGN "B")

* SEE PLAN SHEETS FOR LIMITS OF SUPERELEVATION TRANSITION

ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS — CHRISTOPHER L. THOMAS — 102438 — LICENSED PROFESSIONAL ENGINEER — 10/21/2021

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

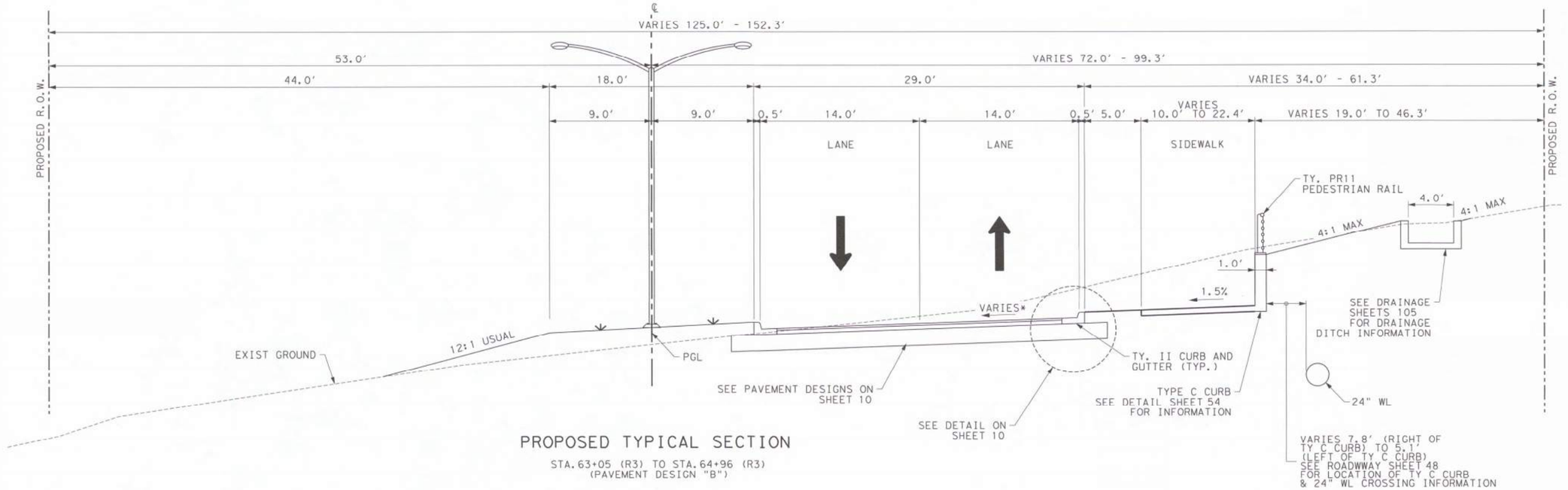
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED NRS
DRAWN REVISED
CHECKED MB
FILE NAME CV-TRT-PL-TYP SECT06.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

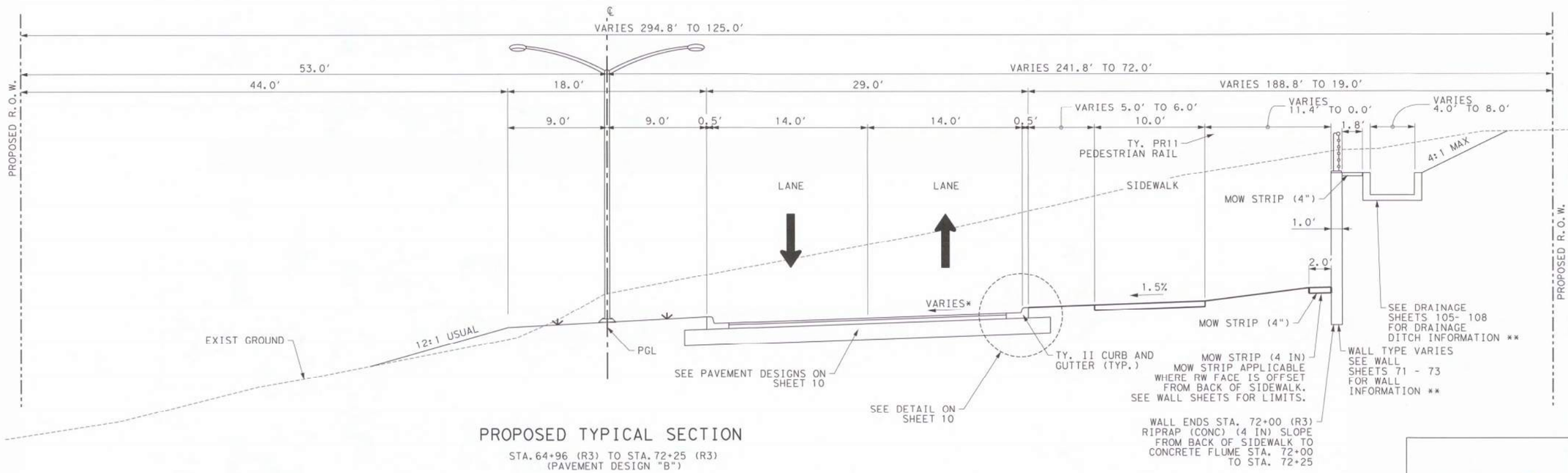
SHEET 6
SEQ. 214



PROPOSED TYPICAL SECTION

STA. 63+05 (R3) TO STA. 64+96 (R3)
(PAVEMENT DESIGN "B")

* SEE PLAN SHEETS FOR LIMITS OF SUPERELEVATION TRANSITION



PROPOSED TYPICAL SECTION

STA. 64+96 (R3) TO STA. 72+25 (R3)
(PAVEMENT DESIGN "B")

* SEE PLAN SHEETS FOR LIMITS OF SUPERELEVATION TRANSITION

** ROCK NAILS, MSE STRAPS, AND FLUME EXTEND ONTO CITY-OWNED PROPERTY STA. 64+96.07 TO 72+00.00 (RIGHT OF CL)

ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED RMG

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING FIRM F-2144
8/19/2022
CHRISTOPHER J. TREVINO
102438
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

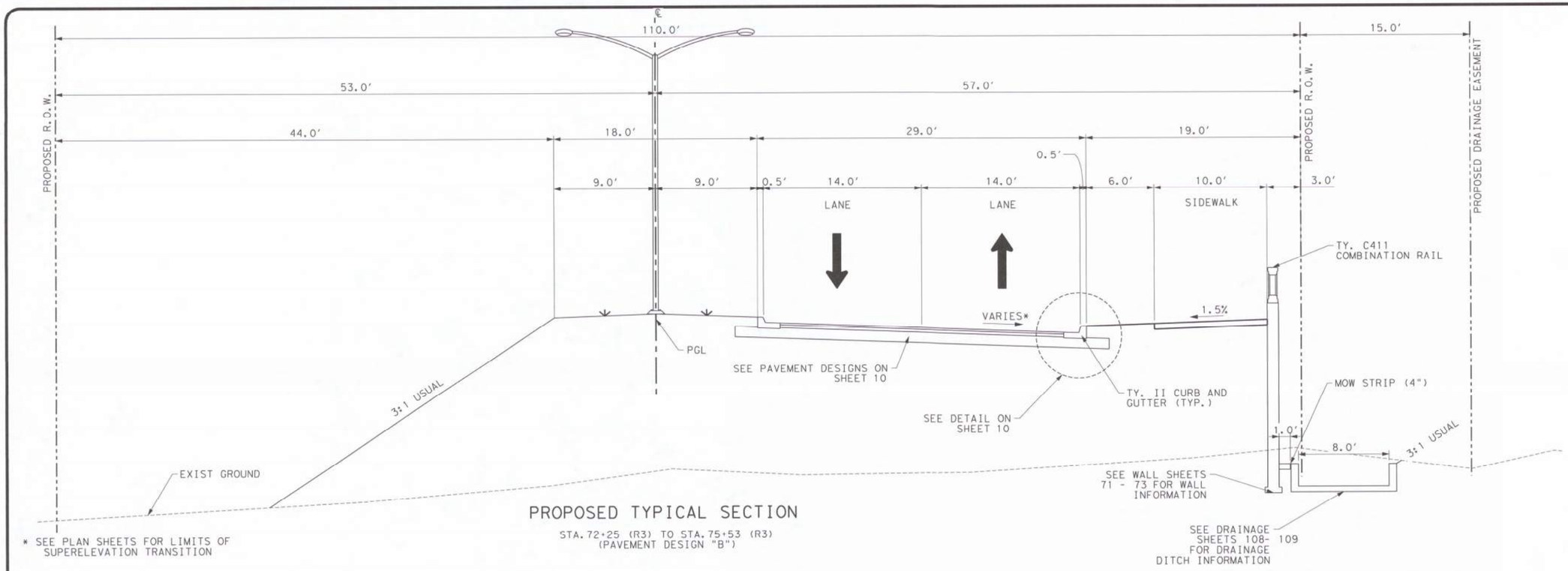
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED NRS
DRAWN
REVISED
CHECKED MB
FILE NAME CV-TRT-PL-TYP SECT07.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

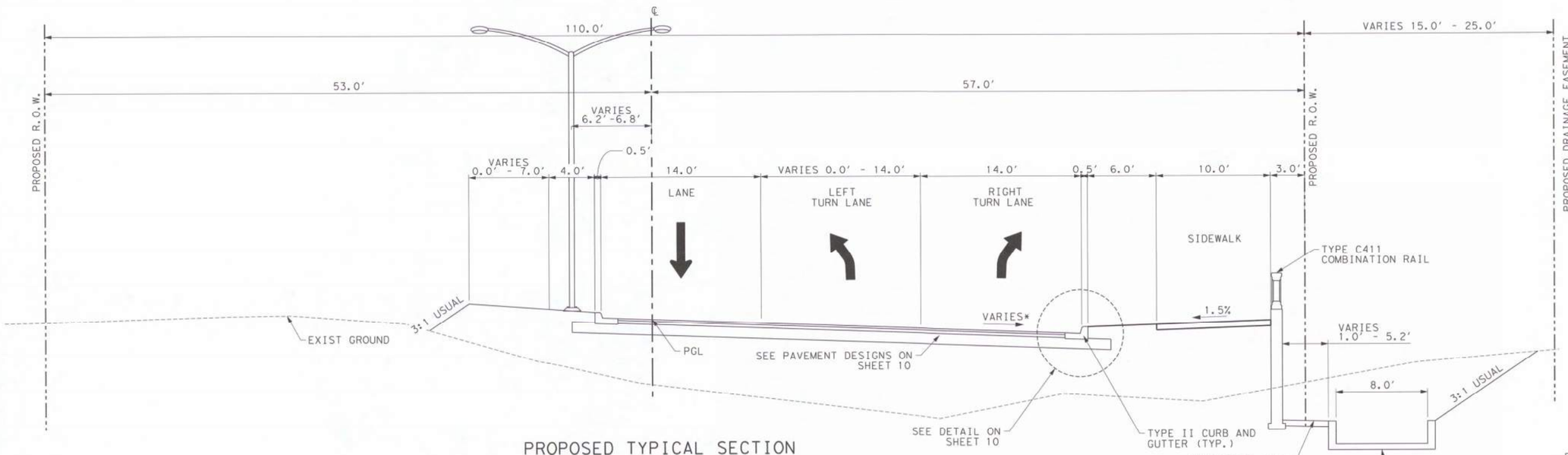
SHEET 7
SEQ. 214



PROPOSED TYPICAL SECTION

STA. 72+25 (R3) TO STA. 75+53 (R3)
(PAVEMENT DESIGN "B")

* SEE PLAN SHEETS FOR LIMITS OF SUPERELEVATION TRANSITION



PROPOSED TYPICAL SECTION

STA. 75+53 (R3) TO STA. 76+75 (R3)
(PAVEMENT DESIGN "B")

* SEE PLAN SHEETS FOR LIMITS OF SUPERELEVATION TRANSITION

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
NATALIE R. GRIFFIN
102438
LICENSED
PROFESSIONAL ENGINEER
8/19/2022

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3300
Fax - (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

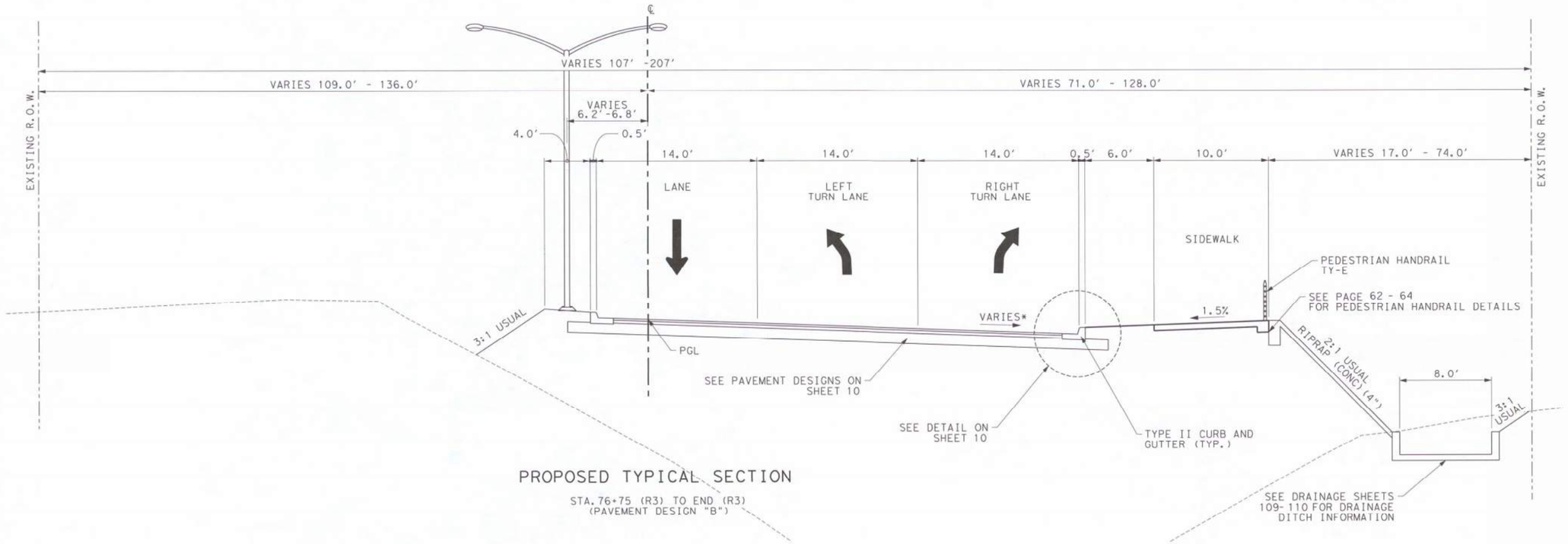
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED NRS
DRAWN
REVISED
CHECKED MB
FILE NAME CV-TRT-PL-TYP SECT08.SHT

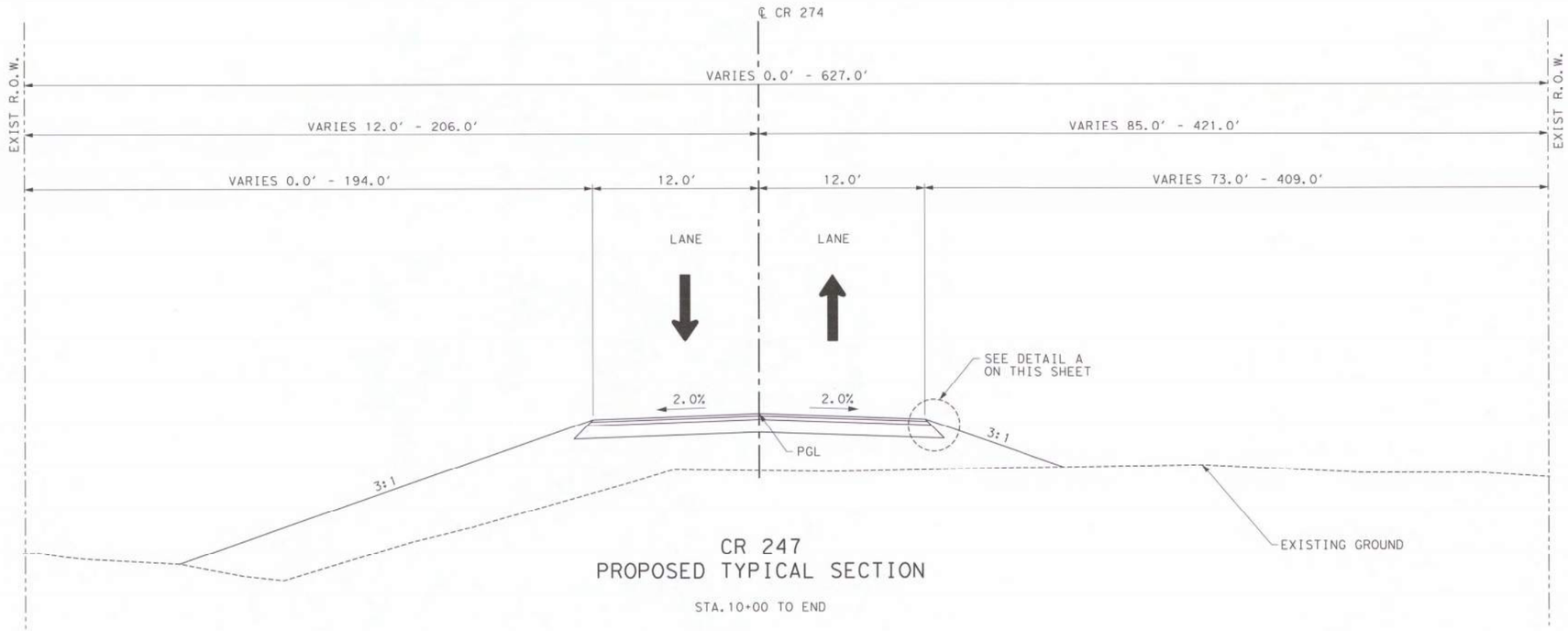
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. CV-TRT-PL-TYP SECT08.SHT

SHEET 8
SEQ. 214



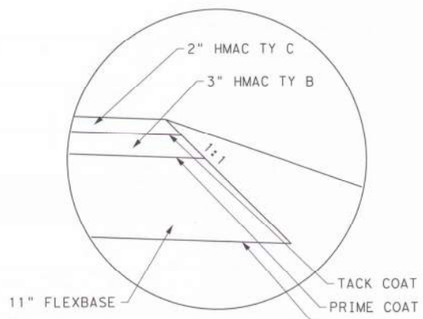
PROPOSED TYPICAL SECTION

STA. 76+75 (R3) TO END (R3)
(PAVEMENT DESIGN "B")



CR 247
PROPOSED TYPICAL SECTION

STA. 10+00 TO END



DETAIL A

NOT TO SCALE

ISSUED FOR CONSTRUCTION ON 03/03/2025

Engineer APPROVED RMG

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS — 10/21/2021 — 102438 — LICENSED PROFESSIONAL ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

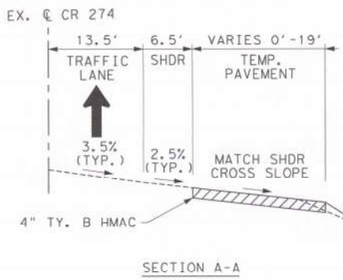
PROPOSED TYPICAL SECTIONS

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN NRS
REVISED
CHECKED MB
FILE NAME CV-TRT-PL-TYP SECT12.SHT

NO. | ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 9
SEQ. 214



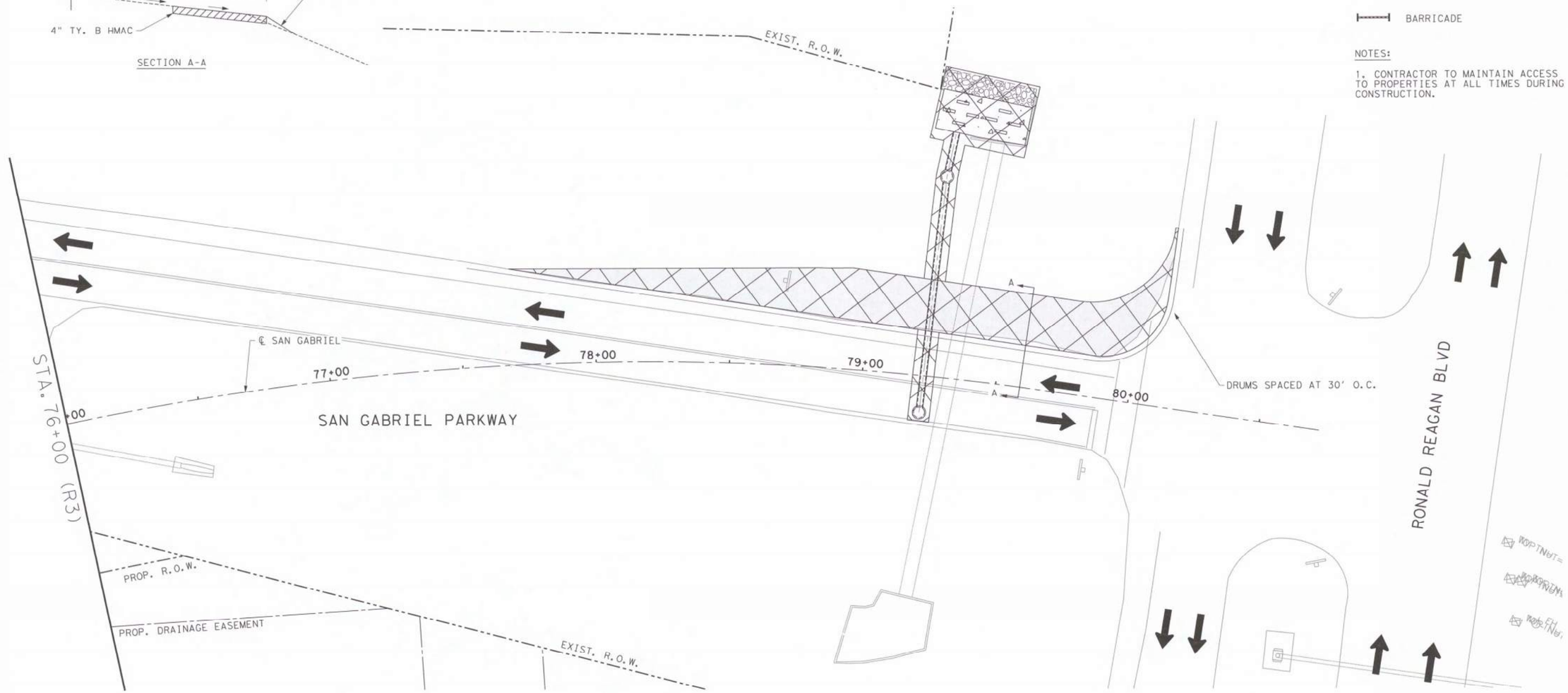
SECTION A-A

LEGEND

- CONSTRUCTION THIS PHASE
- TRAFFIC ARROW
- DRUM
- BARRICADE

NOTES:

1. CONTRACTOR TO MAINTAIN ACCESS TO PROPERTIES AT ALL TIMES DURING CONSTRUCTION.



PHASE 1

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
PMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
ANTHONY CHRISTOPHER MCGINNIS
102438
LICENSED PROFESSIONAL ENGINEER
10/21/2021

FREESE NICHOLS
9601 Amberglen Blvd, Suite 100
Austin, Texas 78729
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

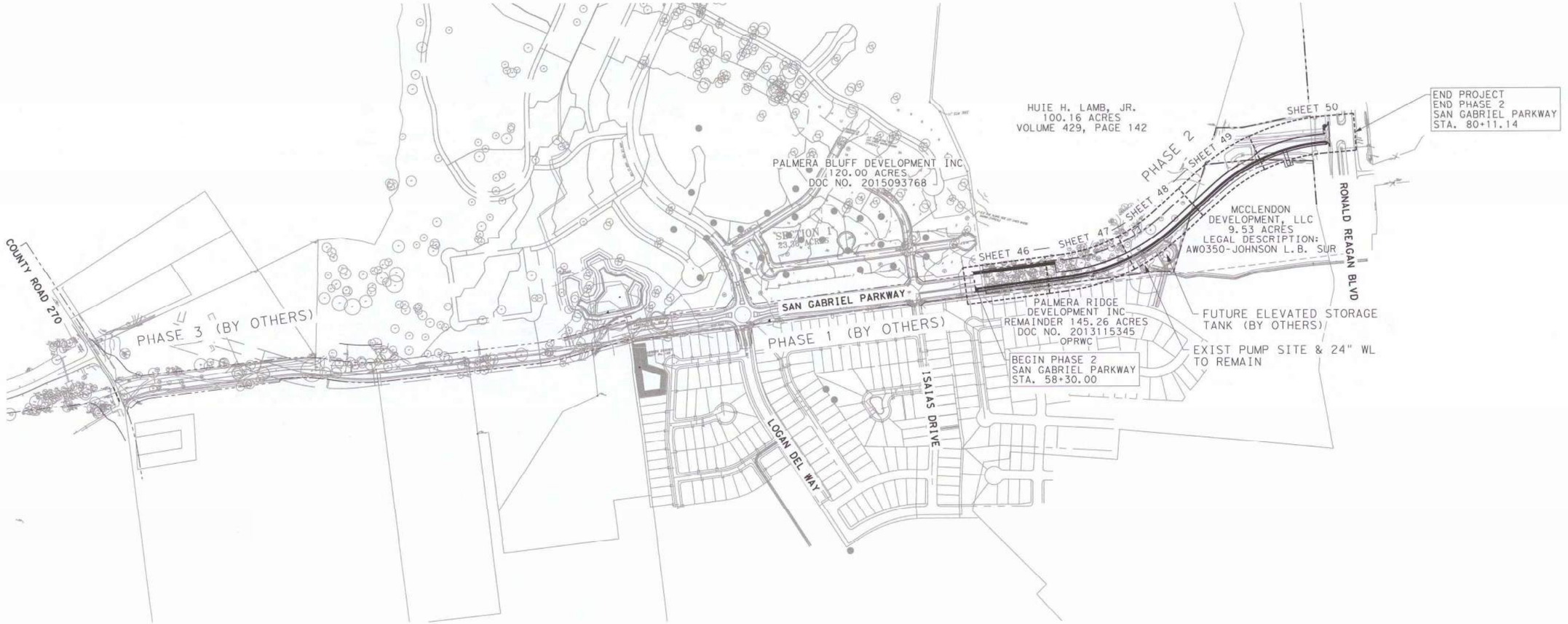
TRAFFIC CONTROL PLAN PHASE 1
STA. 76+00 (R3) TO END (R3)

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED CCM
DRAWN CCM
REVISED XXX
CHECKED CJT
FILE NAME TCP-PL-TRF-CV_TCP#1 SHT01.SHT

SHEET 16
SEQ. 214



APPROVED
RMG

ISSUED FOR CONSTRUCTION
ON 03/03/2025

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
CHRISTOPHER J. TRESEMER
102438
LICENSED
PROFESSIONAL ENGINEER
10/21/2021

FREESE NICHOLS
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Phone - (512) 617-3100
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THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

ROAD KEYMAP

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED SES
DRAWN MJM
REVISED
CHECKED MB
FILE NAME CV-TRT-PL-RD KEYMAP.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 44
SEQ. 214

MicroStation V8 LND15545 Office On Site
LND15545 N:\IF\Drawings\Phase 2\3. Roadway\CV-TRT-PL-RD KEYMAP.SHT
Plot Scale 600.0000 ' / in. Plot Date Oct. 21, 2021 - 01:45:11 PM
Model Default
Project software and Network, Inc. CERPAK SS4

PHASE 1 (CONSTRUCTION BY OTHERS) PHASE 2

BEGIN SIDEWALK (4 IN)
STA. 58+30.00 (R2)
OFF. 50.00' LT

BEGIN CONC. CURB & GUTTER (TY II)
STA. 58+30.00 (R2)
OFF. 37.50' LT

PROP. 6' SIDEWALK (4 IN)

HUIE H. LAMB, JR.
100.16 ACRES
VOLUME 429, PAGE 142

BEGIN SUPERELEVATION TRANSITION
STA. 61+77.00 (R3)

BEGIN LPCB TY. 1
STA. 62+25.56 (R3)
OFF 2.0' RT

PROP. R.O.W.

BEGIN PHASE 2
SAN GABRIEL PARKWAY
STA. 58+30.00 (R2)
MATCH EXISTING CROSS SLOPE AND ELEVATION

POTISTA 58+68.39 AH (R3)
STA. 58+30.00 BK (R2)
EQUATION:

110.00'

CONC. CURB & GUTTER (TY II)

SAN GABRIEL PARKWAY

BEGIN LPCB TY. 1
STA. 59+37.62 (R3)
OFF 3.2' LT

END LPCB TY. 1
BEGIN LPCB TY. 2
STA. 59+57.57 (R3)
OFF 1.7' LT

58+00 59+00 60+00 61+00 N 68° 46' 58.13" E 62+00

300 LF

℄ SAN GABRIEL

240 LF

2.0%

131.70'

2.0%

END LPCB TY. 1
BEGIN LPCB TY. 2
STA. 62+36.74 (R3)
OFF. 19.78' RT

END LPCB TY. 2
BEGIN LPCB TY. 1
STA. 61+00.72 (R3)
OFF 23.0' RT

CONC. CURB & GUTTER (TY II)

END LPCB TY. 1
STA. 61+20.72 (R3)
OFF 23.0' RT

BEGIN LPCB TY. 2
STA. 58+42.33 (R2)
OFF 23.0' RT

PROP. 10' SIDEWALK (6 IN)

PROP. 10' SIDEWALK (14 IN)

PROP. R.O.W.

PROP. 10' SIDEWALK (4 IN)

MATCHLINE STA. 62+50 (R3)

BEGIN CONC. CURB & GUTTER (TY II)
STA. 58+30.00 (R2)
OFF. 37.50' RT

BEGIN SIDEWALK (4 IN)
STA. 58+30.00 (R2)
OFF. 54.00' RT

END LPCB TY. 2
BEGIN LPCB TY. 1
STA. 58+80.70 (R3)
OFF 23.0' RT

EXIST 24" WL TO REMAIN

PALMERA RIDGE
DEVELOPMENT INC
REMAINDER 145.26 ACRES
DOC NO. 2013115345
OPRWC

STA. 61+20.00
OFF 44.0' RT

STA 61+30.00
OFF 43.0' RT

END SIDEWALK (4 IN)
BEGIN SIDEWALK (6 IN)
BEGIN TY C1 CURB (HT=0')
BEGIN CURB HT TRANSITION (0' TO 4')
BEGIN RAIL TYPE PR11
STA. 61+60.00 (R3)
OFF 53.0' RT

END TY C1 CURB (HT=3')
BEGIN TY C2 CURB
STA. 62+20.00 (R3)
OFF 53.0' RT

END SIDEWALK (6 IN)
BEGIN SIDEWALK (14 IN)
END TY C2 CURB (HT=4')
BEGIN TY C3 CURB
END CURB HT TRANSITION (0'-4')
BEGIN CURB HT TRANSITION (4'-6')
STA. 62+40.00 (R3)
OFF 53.0' RT

PROP. R.O.W.

LEGEND

TRAFFIC ARROW

NOTE:
1. ALL DIMENSIONS ARE TAKEN FROM THE FACE OF CURB.
2. TY C CURB WALL MUST BE INTEGRALLY *COLORED CONCRETE IN ACCORDANCE* WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRECONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
3. TY C CURB WALL TALLER THAN THREE FEET MUST BE FORM-LINED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM IN ACCORDANCE WITH TXDOT ITEM 427 SURFACE FINISHES FOR CONCRETE. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
4. SEE TXDOT STANDARD MCPSWMD-19 (AUS) & ROADWAYDETAIL SHEETS FOR TY C1, C2, & C3 CURB DETAILS.

EGL = EXISTING GRADE LINE
PGL = PROPOSED GRADE LINE
EL = PROPOSED TOP OF TY C CURB WALL

BEGIN PHASE 2
SAN GABRIEL PARKWAY
STA. 58+30.00 (R2)
MATCH EXISTING CROSS SLOPE ELEVATION

PGL @ ℄

EXIST. GROUND @ ℄

VPI STA. 61+48.55
EL. 1,029.49

+0.65%

-9.00%

BEGIN TY C CURB WALL
STA 61+60.00
EL = 1022.86'

TOP OF WALL

VPC 58+35.84 EL. 1,027.58

ex = -7.10'
K = 61
588.65' V.C.

MATCHLINE STA. 62+50 (R3)

	58+00	59+00	60+00	61+00	62+00
EGL	1,026.00	1,026.03	1,025.94	1,025.78	1,025.66	1,024.66	1,024.63	1,023.81	1,023.34	1,022.02
PGL	1,027.35	1,027.66	1,027.71	1,027.45	1,026.79	1,025.71	1,024.23	1,022.33	1,020.03	1,017.31
EL									1,022.16	1,022.08

ISSUED FOR CONSTRUCTION ON 03/03/2025

0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

APPROVED
RMG

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING FIRM F-2144
CHRISTOPHER J. TREVINO
102438
LICENSED PROFESSIONAL ENGINEER
8/19/2022

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

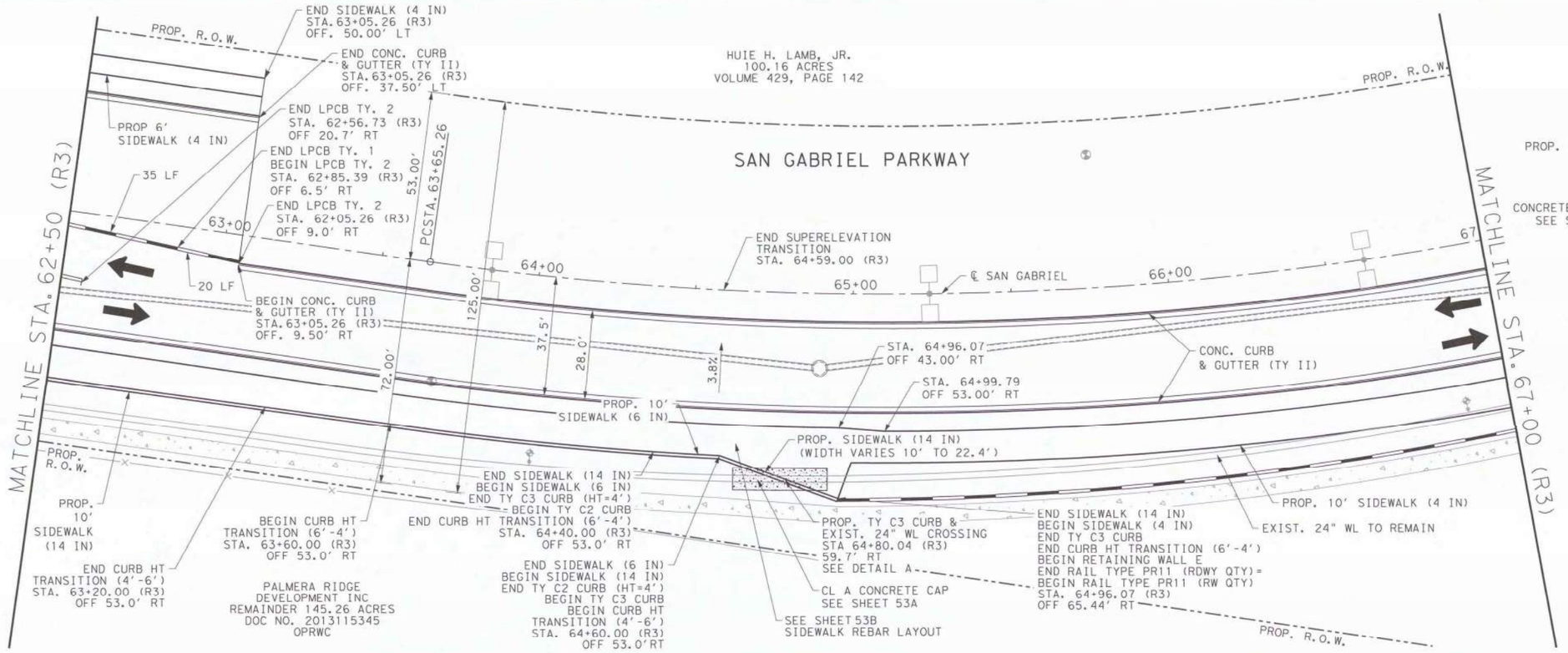
THE CITY OF LEANDER
CIVIL
SAN GABRIEL PARKWAY - PHASE 2
PAVEMENT PLAN & PROFILE SHEETS
STA. 58+50 (R2) TO STA. 62+50 (R3)

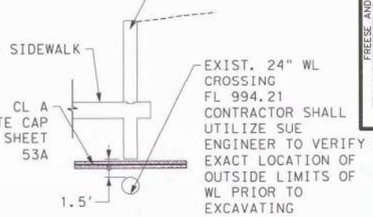
NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED SES
DRAWN JL
REVISED
CHECKED
FILE NAME CV-TRT-PP-ROAD10.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 46
SEQ. 214





DETAIL A
N.T.S.

LEGEND

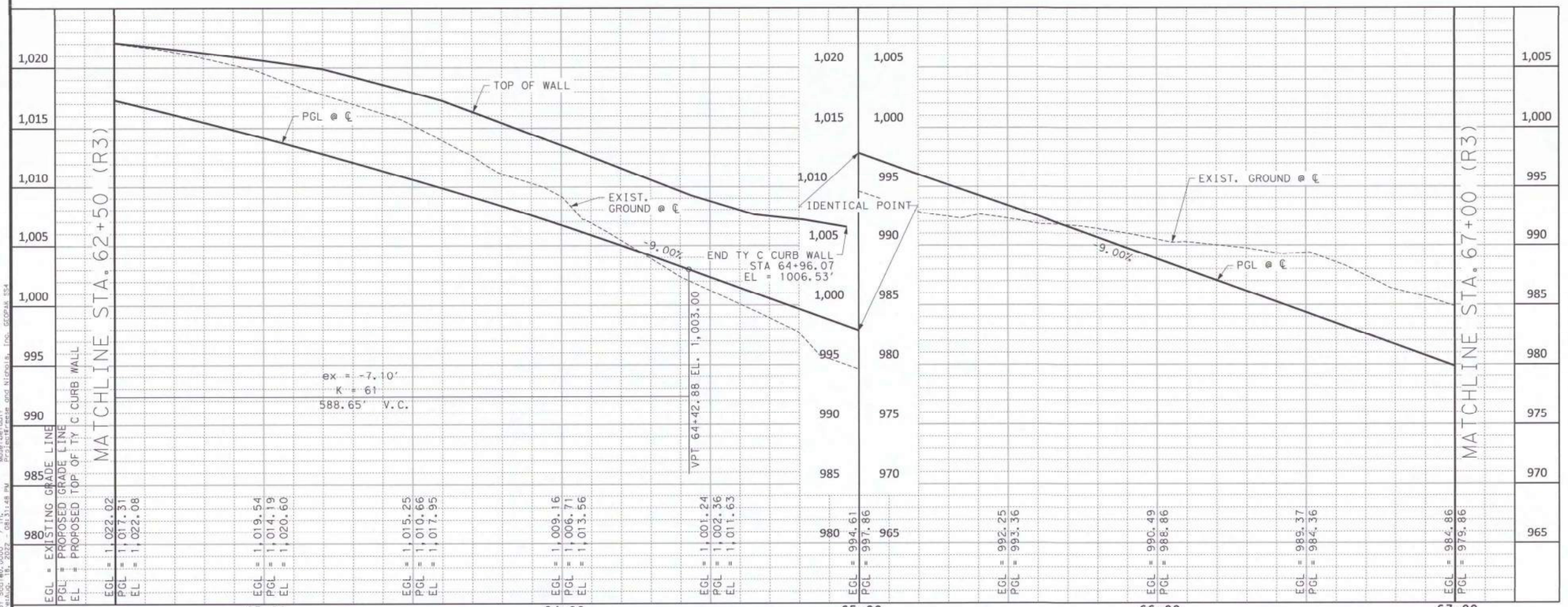
TRAFFIC ARROW

N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

ISSUED FOR CONSTRUCTION
ON 03/03/2025



NOTE:
1. ALL DIMENSIONS ARE TAKEN FROM THE FACE OF CURB.
2. TY C CURB WALL MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRECONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
3. TY C CURB WALL TALLER THAN THREE FEET MUST BE FORM-LINED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM IN ACCORDANCE WITH TXDOT ITEM 427 SURFACE FINISHES FOR CONCRETE. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
4. ROCK NAIL FACIA PANELS MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
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APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

8/19/2022
CHRISTOPHER J. TREVINO
102438
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

FREESE NICHOLS
SUITE 300
AUSTIN, TEXAS 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

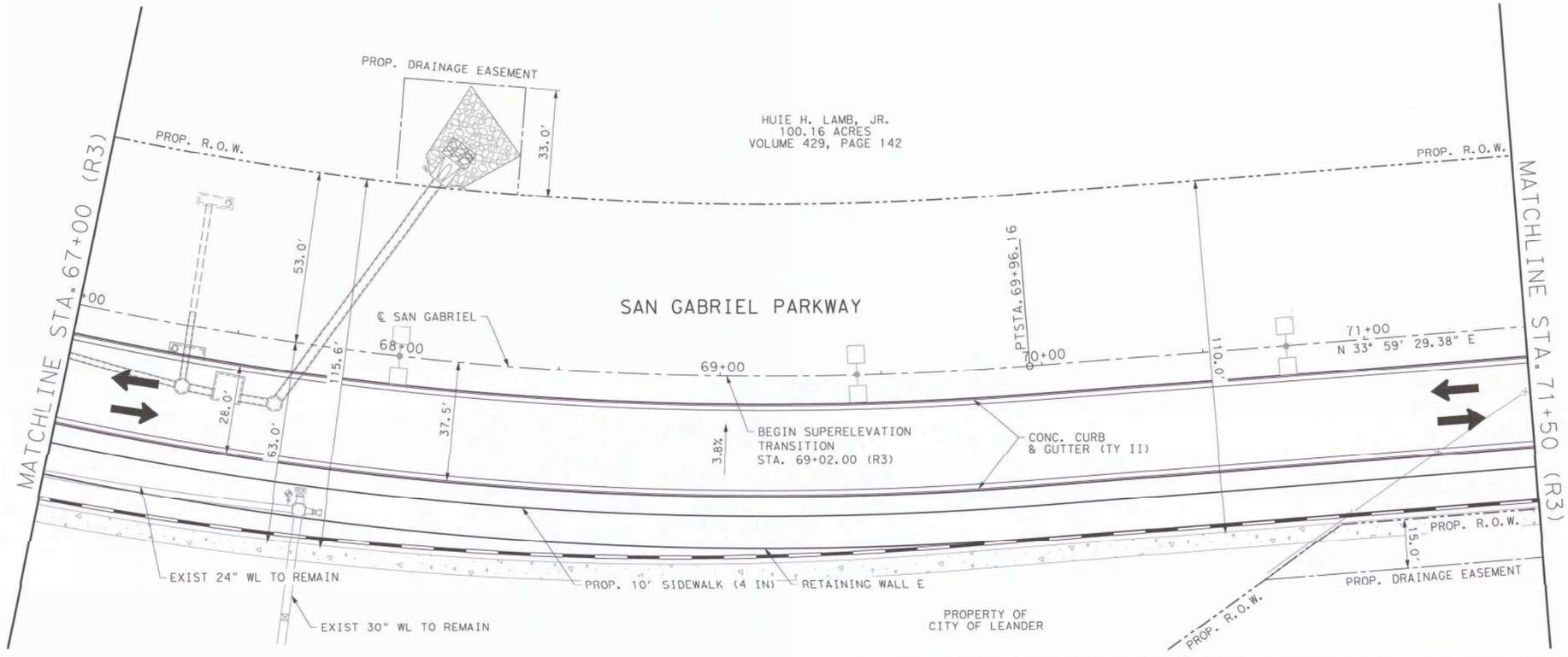
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
PAVEMENT PLAN & PROFILE SHEETS
STA. 62+50 (R3) TO STA. 67+00 (R3)

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED SES
DRAWN JL
REVISED
CHECKED
FILE NAME CV-TRT-PP-ROAD11.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 47
SEQ. 214



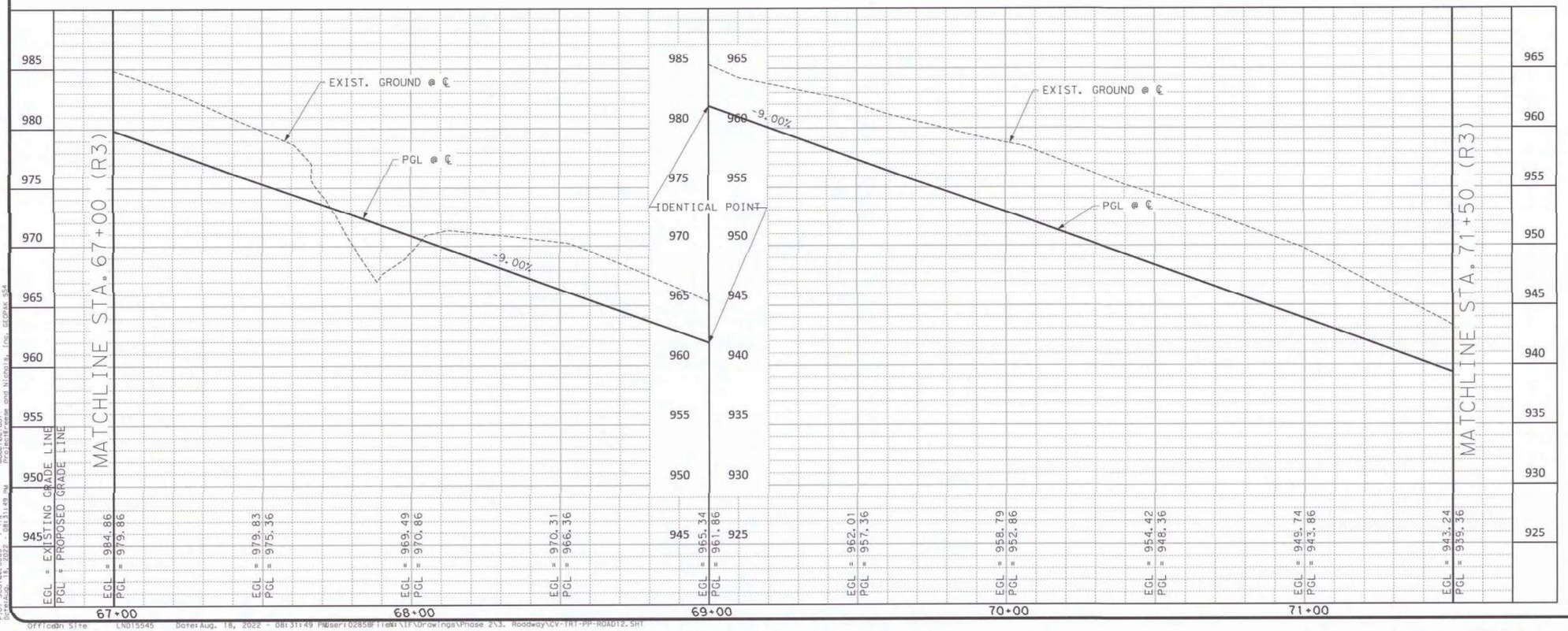
LEGEND

TRAFFIC ARROW

HORIZONTAL SCALE 0 10' 20' 40'

VERTICAL SCALE 0 5' 10'

NOTE:
1. ALL DIMENSIONS ARE TAKEN FROM THE FACE OF CURB.
2. ROCK NAIL FACIA PANELS MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
3. ROCK NAIL FACIA PANELS MUST BE FORM-LINED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM IN ACCORDANCE WITH TXDOT ITEM 427 SURFACE FINISHES FOR CONCRETE. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.



ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED PROFESSIONAL ENGINEER
8/19/2022

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freenich.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

PAVEMENT PLAN & PROFILE SHEETS
STA. 67+00 (R3) TO 71+50 (R3)

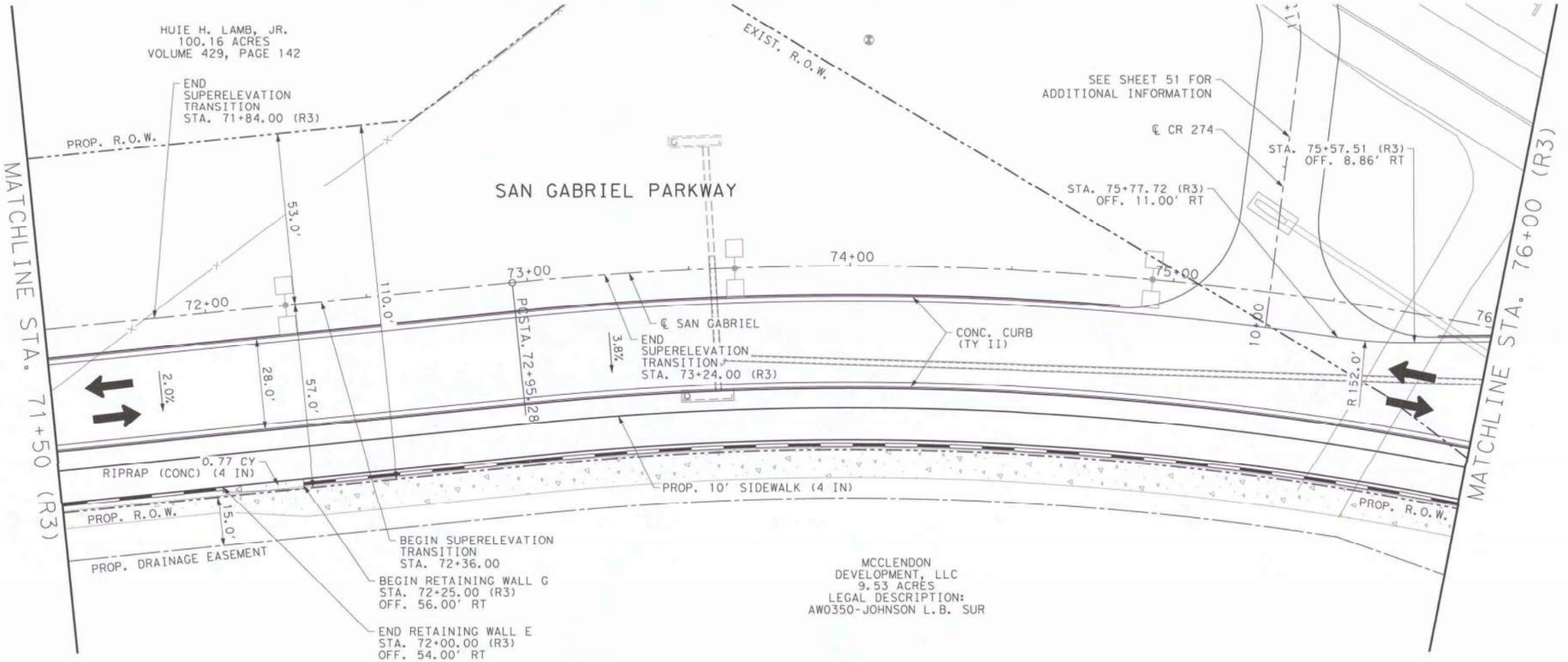
NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED SES
DRAWN JL
REVISED
CHECKED
FILE NAME CV-TRT-PP-ROAD12.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 48

SEQ. 214



LEGEND

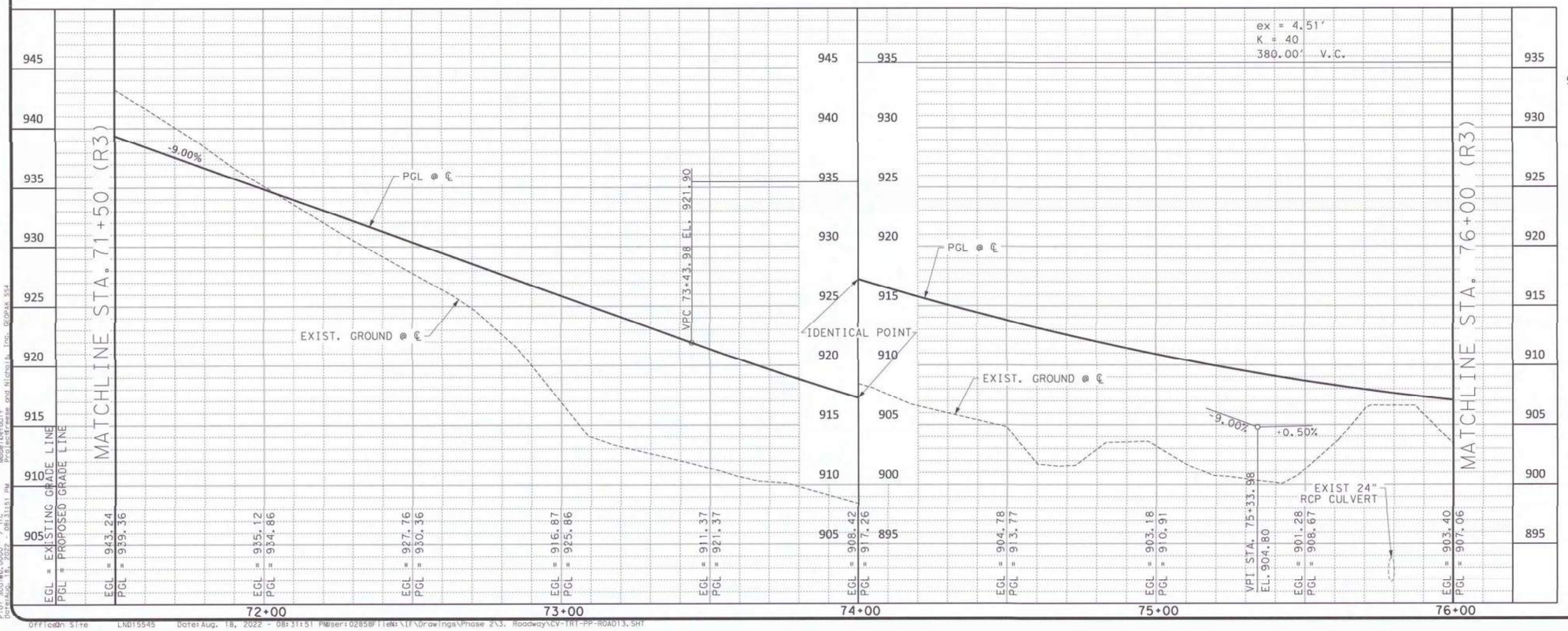
TRAFFIC ARROW

N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

NOTE:
1. ALL DIMENSIONS ARE TAKEN FROM THE FACE OF CURB.
2. ROCK NAIL FACIA PANELS MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
3. ROCK NAIL FACIA PANELS MUST BE FORM-LINED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM IN ACCORDANCE WITH TXDOT ITEM 427 SURFACE FINISHES FOR CONCRETE. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
4. MSE WALL PANELS MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
5. MSE WALL PANELS MUST BE FORM-LINED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM IN ACCORDANCE WITH TXDOT ITEM 427 SURFACE FINISHES FOR CONCRETE. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.



ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
8/19/2022
CHRISTOPHER J. TREVINO
102438
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

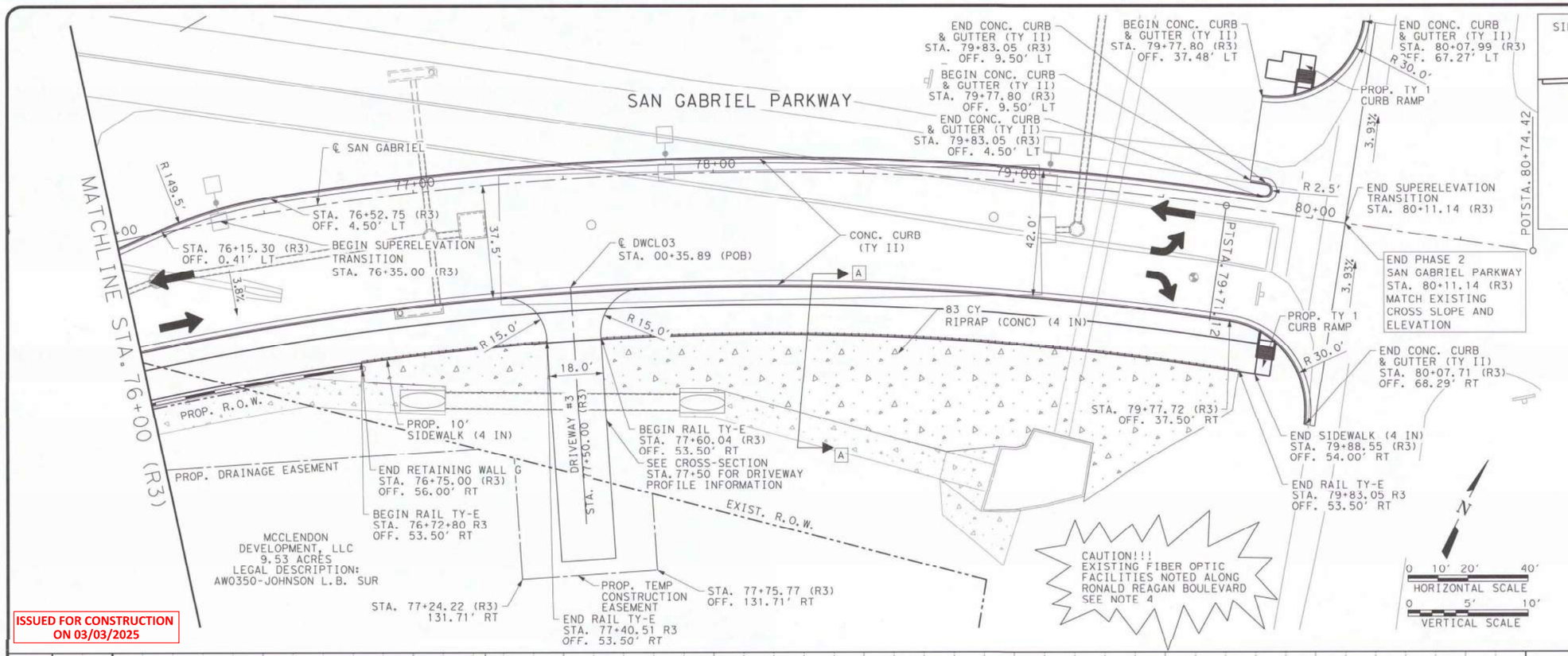
PAVEMENT PLAN & PROFILE SHEETS
STA. 71+50 (R3) TO STA. 76+00 (R3)

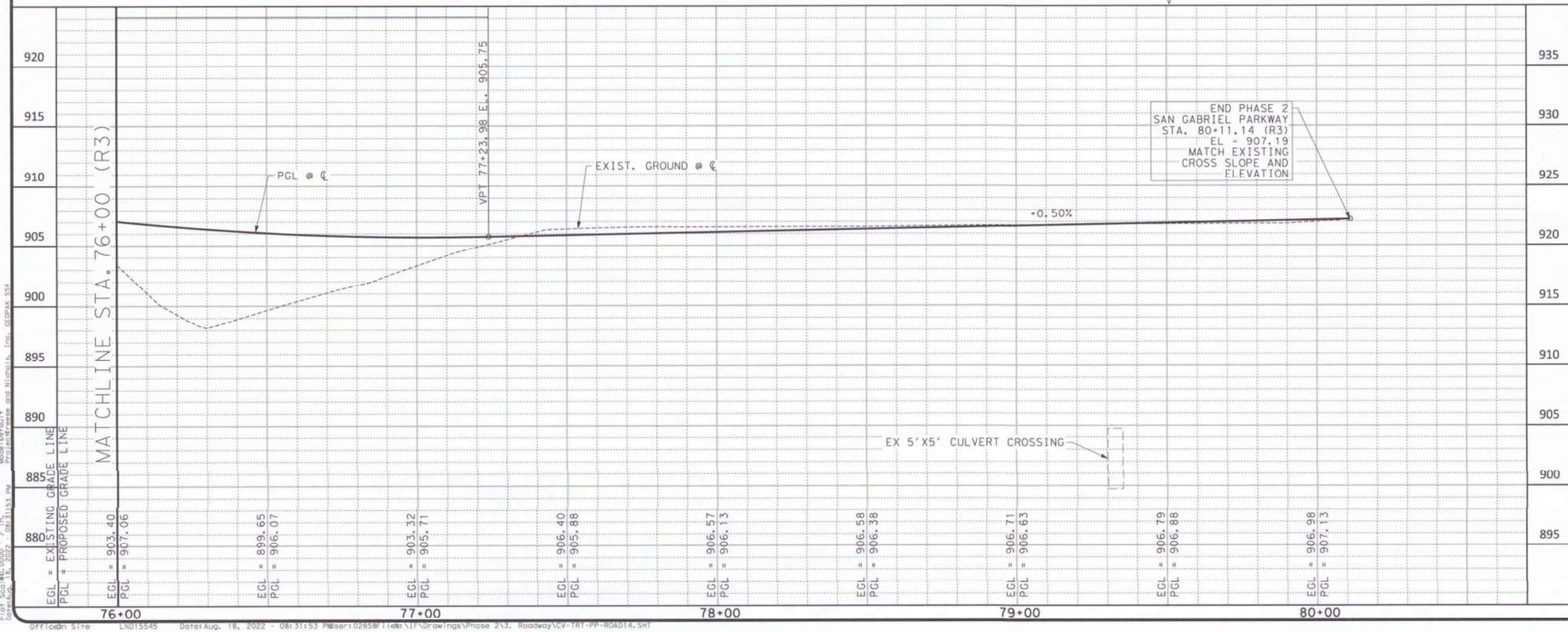
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

P&N JOB NO.	LND15545
DATE	08/18/22
DESIGNED	SES
DRAWN	JL
REVISED	
CHECKED	
FILE NAME	CV-TRT-PP-ROAD13.SHT

SHEET 49
SEQ. 214





ISSUED FOR CONSTRUCTION
ON 03/03/2025

NOTE:
1. ALL DIMENSIONS ARE TAKEN FROM THE FACE OF CURB.
2. MSE WALL PANELS MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
3. MSE WALL PANELS MUST BE FORM-LINED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM IN ACCORDANCE WITH TXDOT ITEM 427 SURFACE FINISHES FOR CONCRETE. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
4. 2:1 CONCRETE RIPRAP SLOPE MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.
5. 2:1 CONCRETE RIPRAP SLOPE MUST BE TEXTURED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM. CONSTRUCTION OF THE TEXTURE SHALL BE IN ACCORDANCE WITH SECTION 3.1 OF TXDOT ITEM 528 COLORED TEXTURED CONCRETE AND LANDSCAPE PAVERS. PAYMENT FOR THE TEXTURE WILL BE SUBSIDIARY TO ITEM 432 RIPRAP.
6. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
8/19/2022
CHRISTOPHER J. TREVINO
103438
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

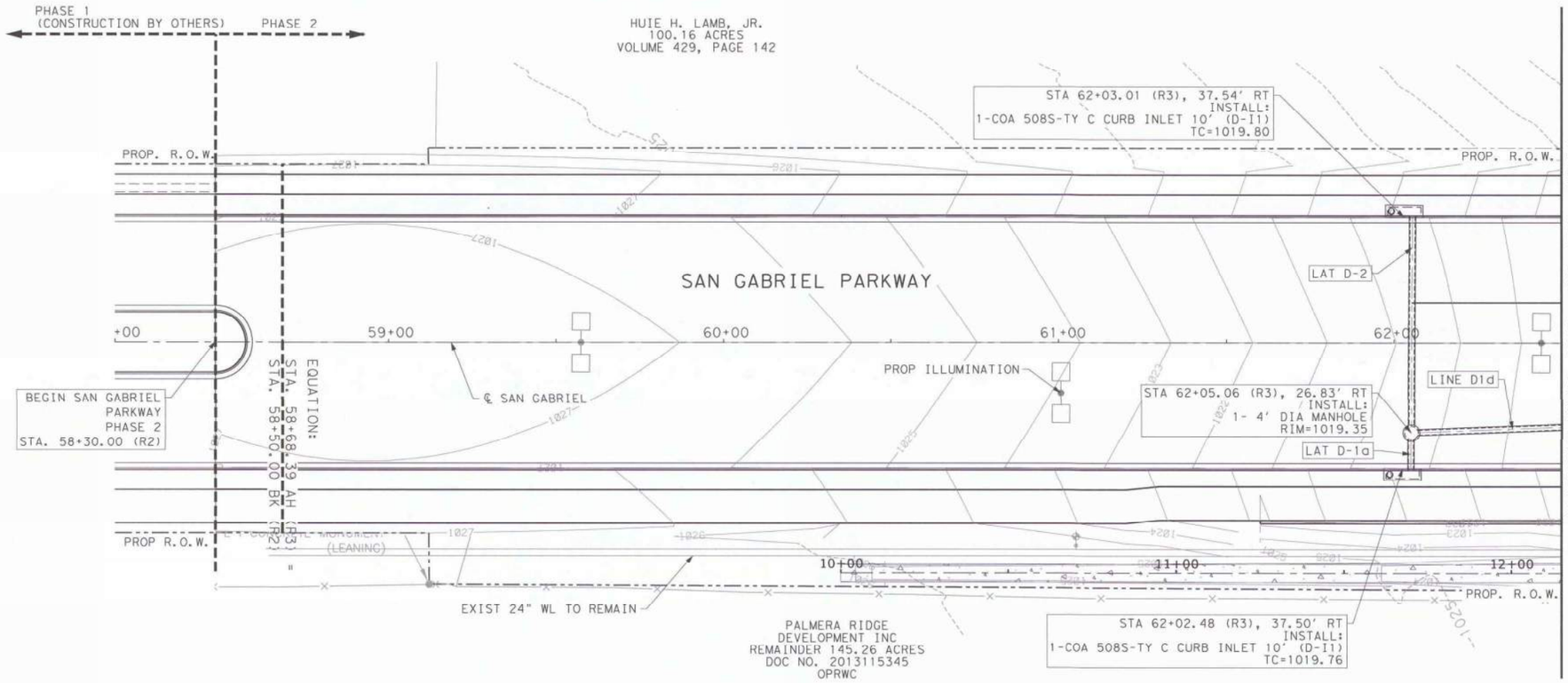
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
PAVEMENT PLAN & PROFILE SHEETS
STA. 76+00 (R3) TO END (R3)

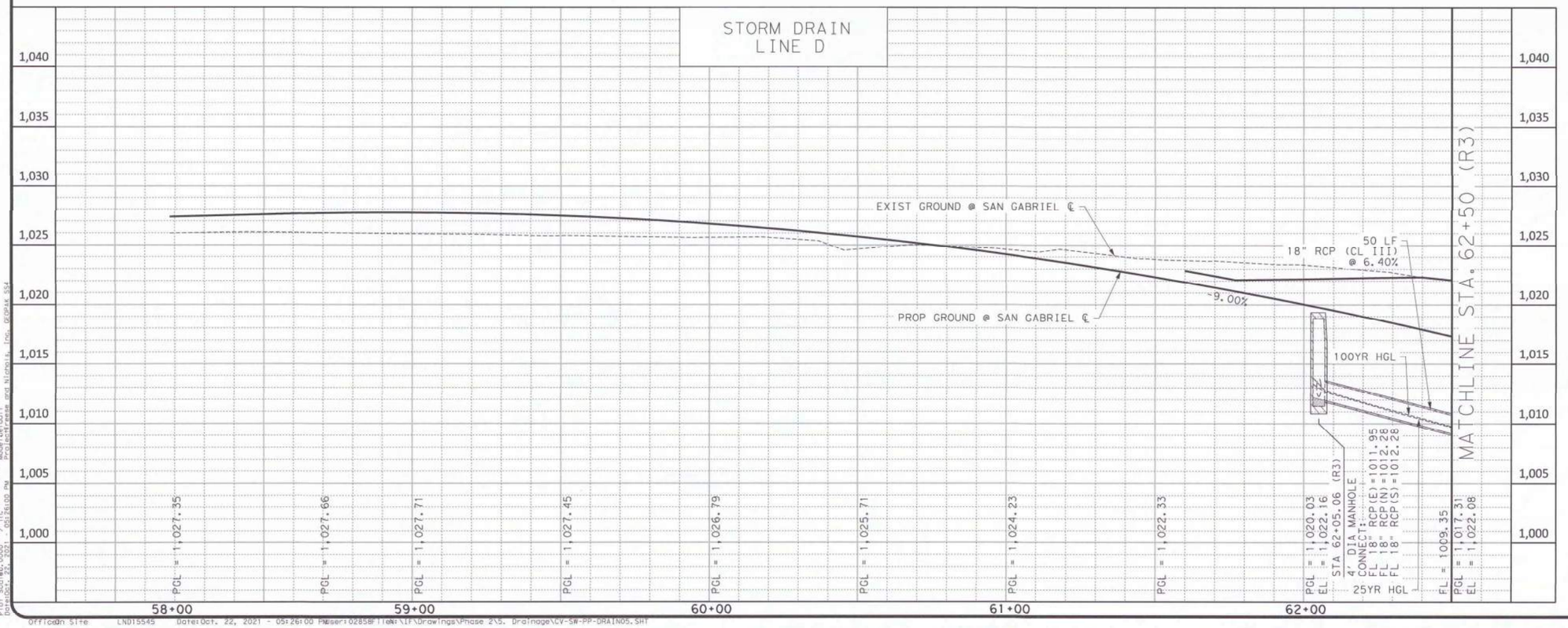
F&N JOB NO.	LND15545
DATE	08/18/22
DESIGNED	SES
DRAWN	JL
REVISED	
CHECKED	
FILE NAME	CV-TRT-PP-ROAD14.SHT

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 50
SEQ. 214





LEGEND

- FUTURE STORM
- ROCK RIPRAP
- CONCRETE STRUCTURE
- —W— PROP. WATER
- —999— EXIST. CONTOURS
- —999— PROP. CONTOURS

NOTE:
1. COST OF CAP AND PLUG AND BENDS SUBSIDIARY TO PIPE COST PER LINEAR FOOT.

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
JEROME W. SCANLON III
82077
REGISTERED
PROFESSIONAL
ENGINEER
STATE OF TEXAS
10/25/2021
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

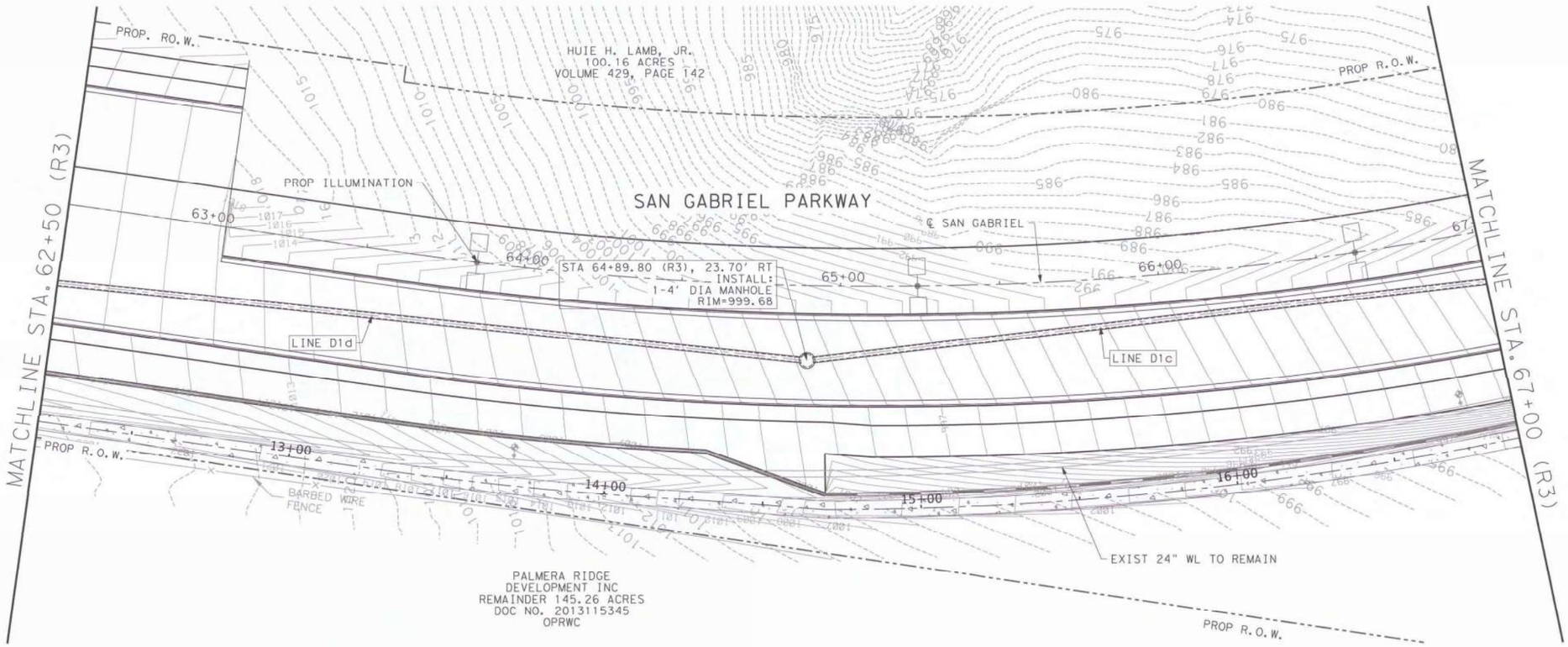
STORM DRAINAGE PLAN AND PROFILE STA. 58+00 (R2) TO STA. 62+50 (R3)

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED CK
DRAWN JL
REVISED
CHECKED
FILE NAME CV-SW-PP-DRAIN05.SHT

NO.	ISSUES	BY	DATE

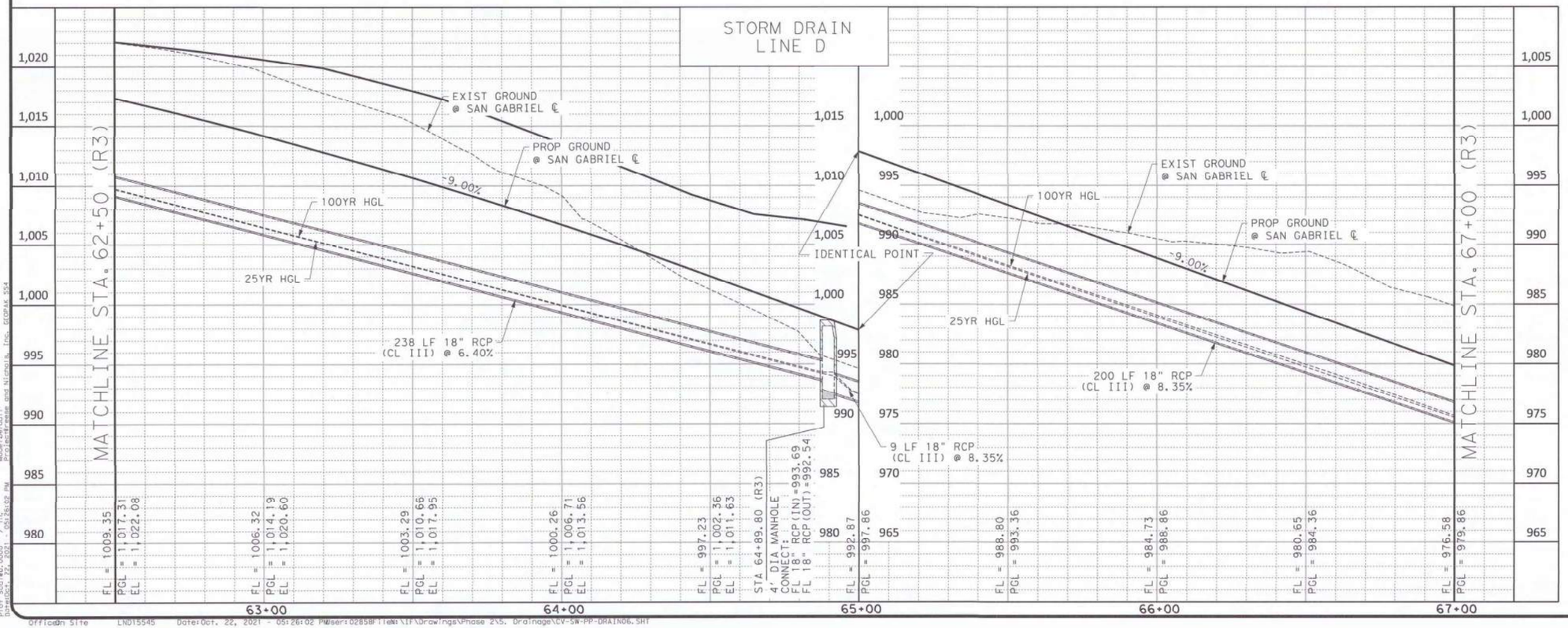
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 98
SEQ. 214



LEGEND

- FUTURE STORM
- ROCK RIPRAP
- CONCRETE STRUCTURE
- —W— PROP. WATER
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS



ISSUED FOR CONSTRUCTION
ON 03/03/2025

0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

APPROVED
RMG

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
JAMES E. LANDRUM
82077
REGISTERED
PROFESSIONAL ENGINEER
10/25/2021

FREESE NICHOLS
2711 North Haskell Ave. Suite 3300
Dallas, Texas 75204
Phone: (214) 217-2200
Fax: (214) 217-2250
Web: www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

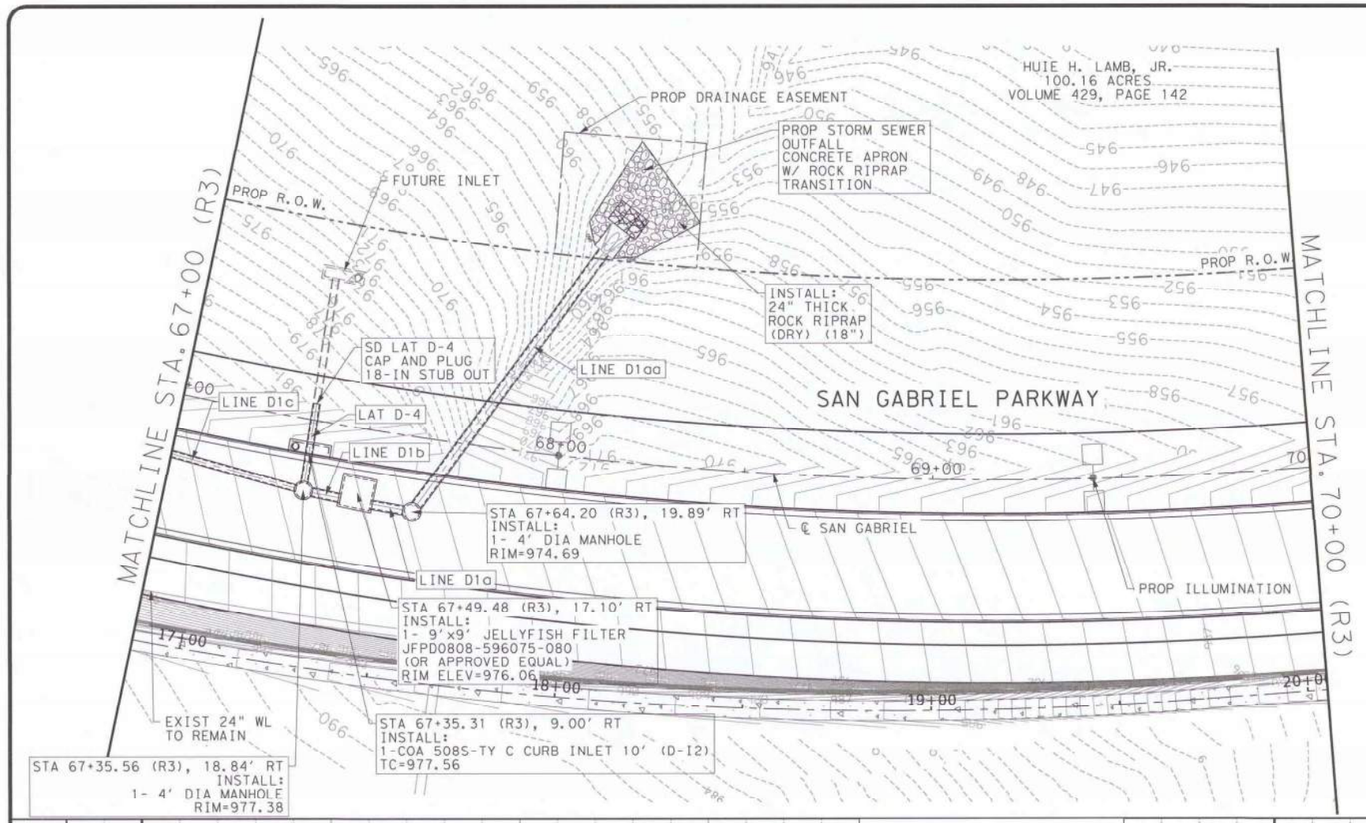
CIVIL

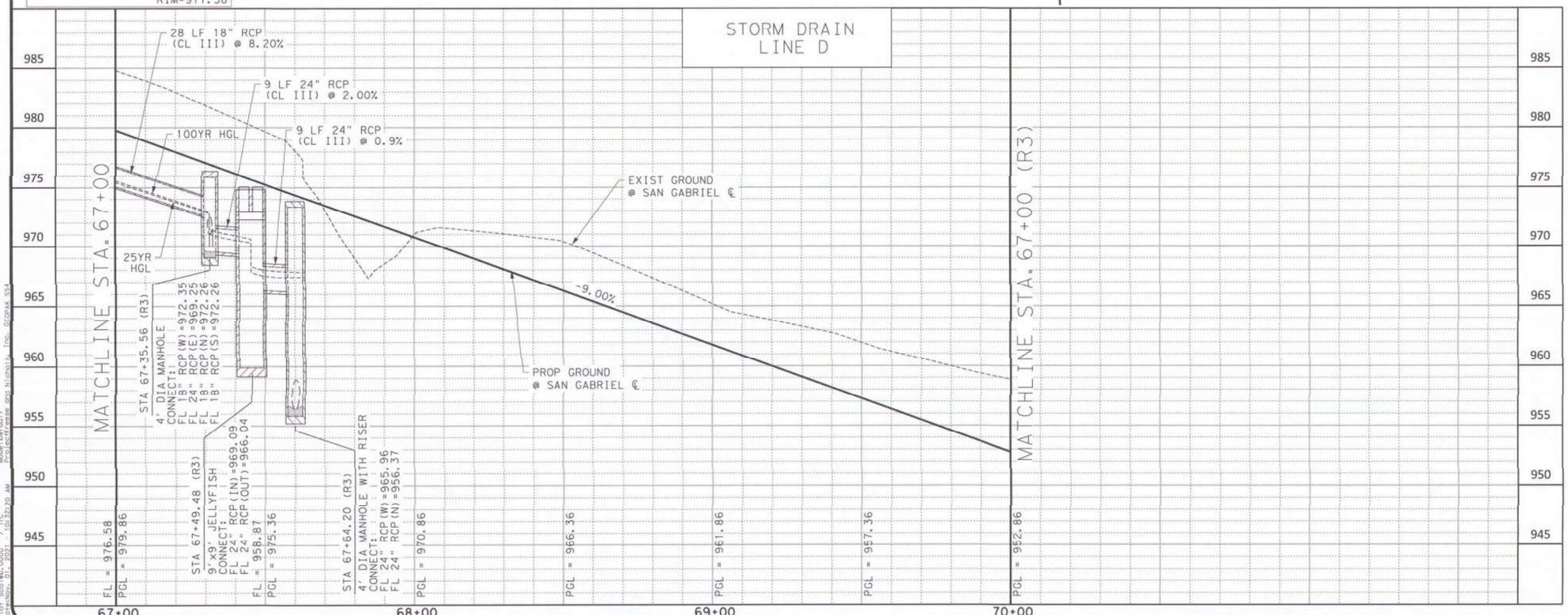
STORM DRAINAGE PLAN AND PROFILE
STA. 62+50 (R3) TO STA. 67+00 (R3)

NO.	ISSUES	BY	DATE

F&N JOB NO. LN015545
DATE 06/04/21
DESIGNED CK
DRAWN JL
REVISED
CHECKED
FILE NAME CV-SW-PP-DRAIN06.SHT

SHEET 99
SEQ. 214





LEGEND

- FUTURE STORM
- ROCK RIPRAP
- CONCRETE STRUCTURE
- —W— PROP. WATER
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS

NOTE:
1. COST OF CAP AND PLUG AND BENDS SUBSIDIARY TO PIPE COST PER LINEAR FOOT.

ISSUED FOR CONSTRUCTION
ON 03/03/2025

0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

APPROVED
RMG

TEXAS REGISTERED ENGINEERING FIRM F-2144
FREESE AND NICHOLS, INC.
STATE OF TEXAS
82077
REGISTERED
PROFESSIONAL
ENGINEER
11/01/2021
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

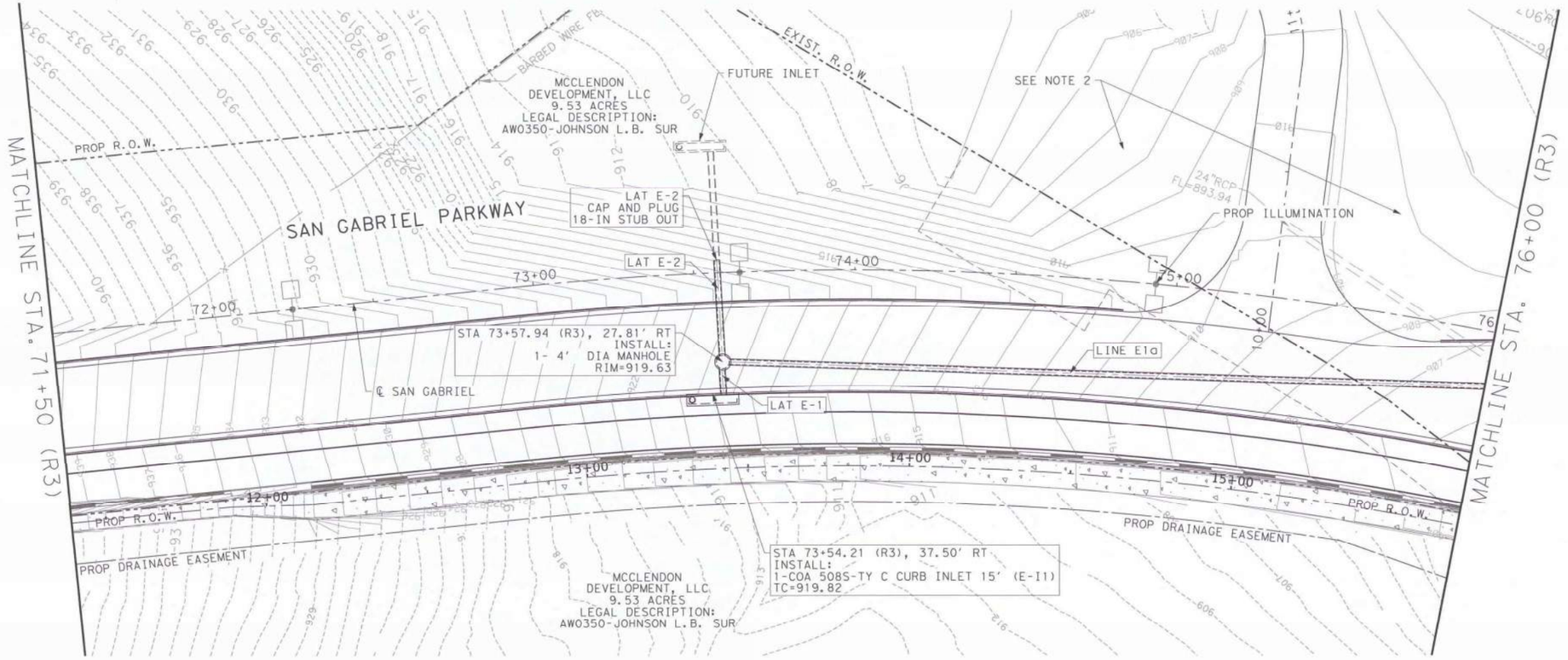
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
STORM DRAINAGE PLAN AND PROFILE
STA. 67+00 (R3) TO 71+50 (R3)

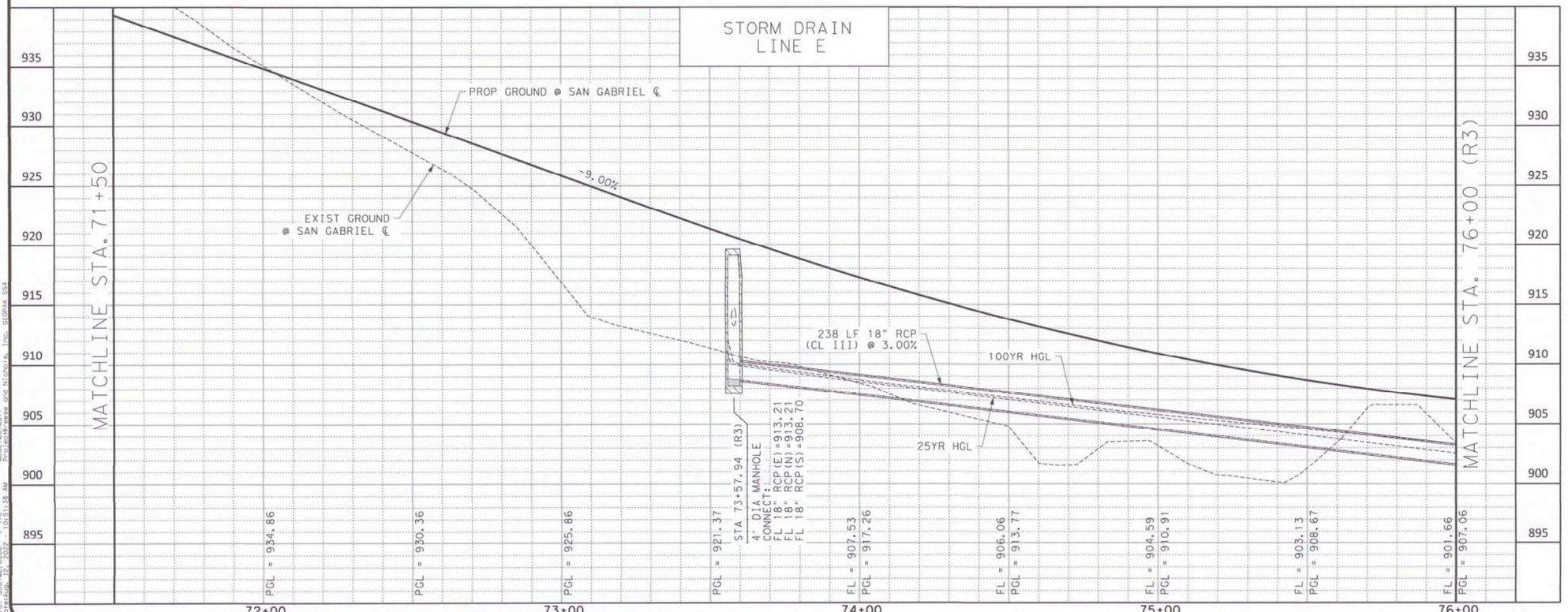
NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/25
DESIGNED CK
DRAWN JL
REVISED
CHECKED
FILE NAME CV-SW-PP-DRAIN07.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 100
SEQ. 214





LEGEND

- FUTURE STORM
- CONCRETE STRUCTURE
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS

NOTE:
1. COST OF CAP AND PLUG AND BENDS SUBSIDIARY TO PIPE COST PER LINEAR FOOT.
2. AREAS ADJACENT TO ROAD AND NEW DRIVEWAY SHALL BE FILLED TO AVOID PONDING. GRADE TO DRAIN AWAY FROM POND.

ISSUED FOR CONSTRUCTION
ON 03/03/2025

0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
JEROME H. SCHALCH III
82077
LICENSED
PROFESSIONAL ENGINEER
8/22/2022
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
STORM DRAINAGE PLAN AND PROFILE
STA. 71+50 (R3) TO STA. 76+00 (R3)

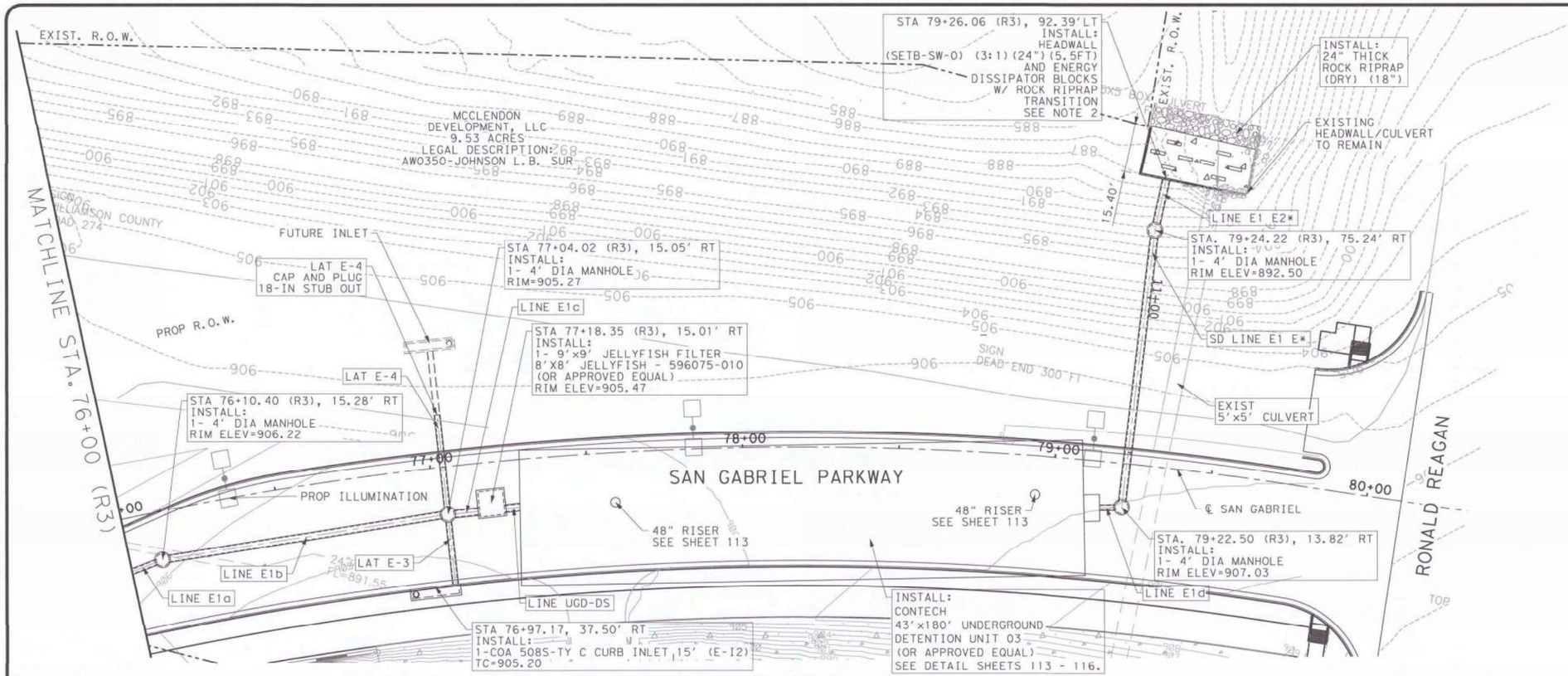
NO.	ISSUES	BY	DATE

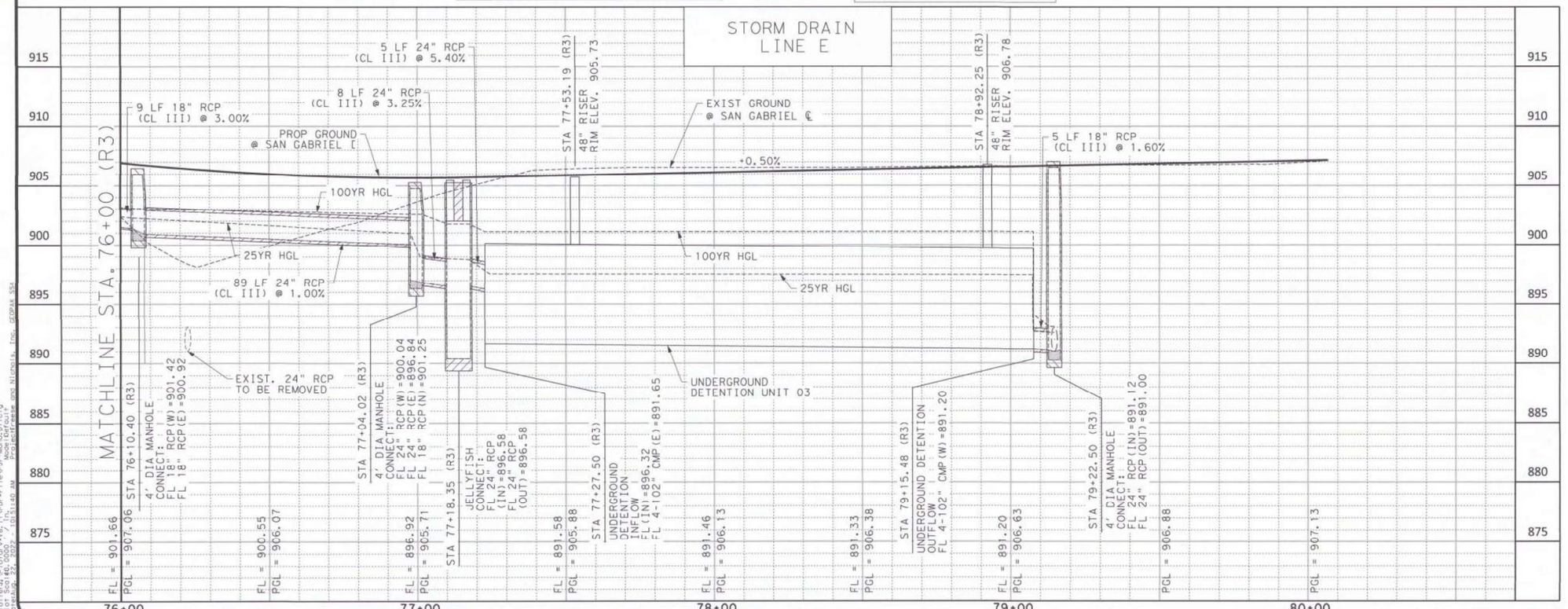
F&N JOB NO. LND15545
DATE 08/22/22
DESIGNED CK
DRAWN JL
REVISED
CHECKED
FILE NAME CV-SW-PP-DRAIN08.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 101
SEQ. 214

MicroStation V8 Used:OfficeOn Site
Plotted By: jlong
Plotted: Aug 22, 2022 - 10:51:18 AM
Plot Scale: 40.0000 '/ In.
Plot Date: 22 Aug 2022 - 10:51:18 AM
Model: Default
Project: Freese and Nichols, Inc. GEORGE SS4





LEGEND

=== FUTURE STORM

CONCRETE STRUCTURE

-- 999 -- EXIST. CONTOURS

— 999 — PROP. CONTOURS

NOTE:
1. COST OF CAP AND PLUG AND BENDS SUBSIDIARY TO PIPE COST PER LINEAR FOOT.
2. CONTRACTOR TO REMOVE EXISTING WEST WING OF HEADWALL AND DOWEL IN TO EXISTING CONCRETE. CONSTRUCT NORTH AND SOUTH SIDE OF PROPOSED HEADWALL. SEE SHEET 111 FOR DETAIL.
3. PLACE NON-WOVEN GEOTEXTILE FILTER FABRIC BETWEEN THE BACKFILL FOR THE UNDERGROUND DETENTION UNIT (BOTTOM, SIDES, AND TOP). OVERLAPS SHALL BE A MINIMUM OF 12 INCHES.

ISSUED FOR CONSTRUCTION
ON 03/03/2025

N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

APPROVED
PMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
JOSEPH R. LISTER
82077
LICENSED PROFESSIONAL ENGINEER
8/22/2022

FREESE NICHOLS
GRAPEVINE
1041 Municipal Circle, Suite 300
Austin, Texas 76678
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

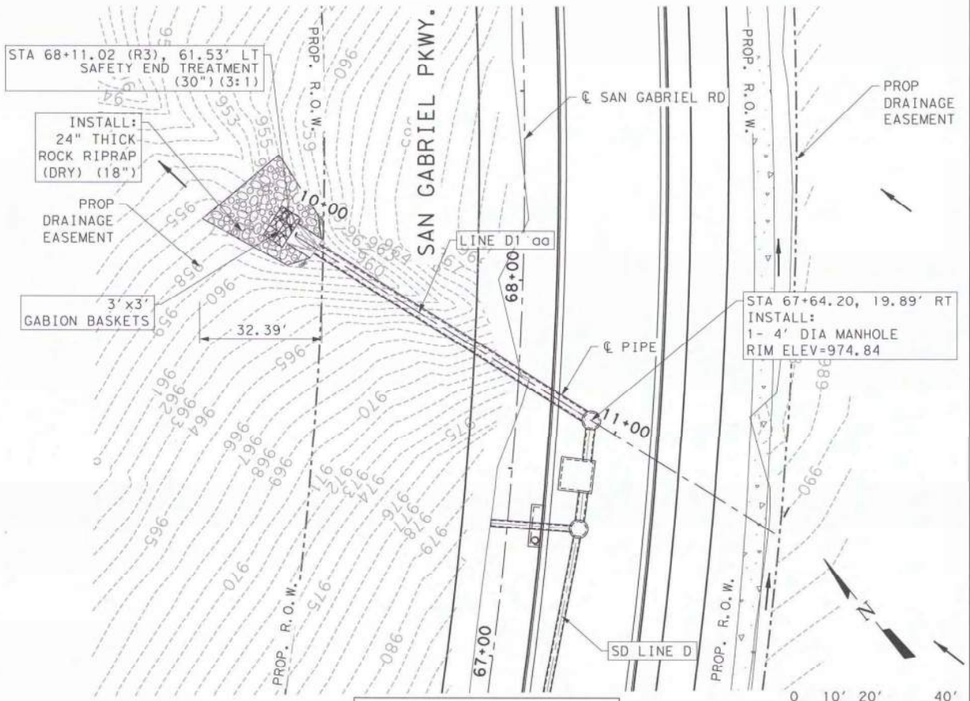
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
STORM DRAINAGE PLAN AND PROFILE
STA. 76+00 (R3) TO STA. 80+00 (R3)

NO.	ISSUES	BY	DATE

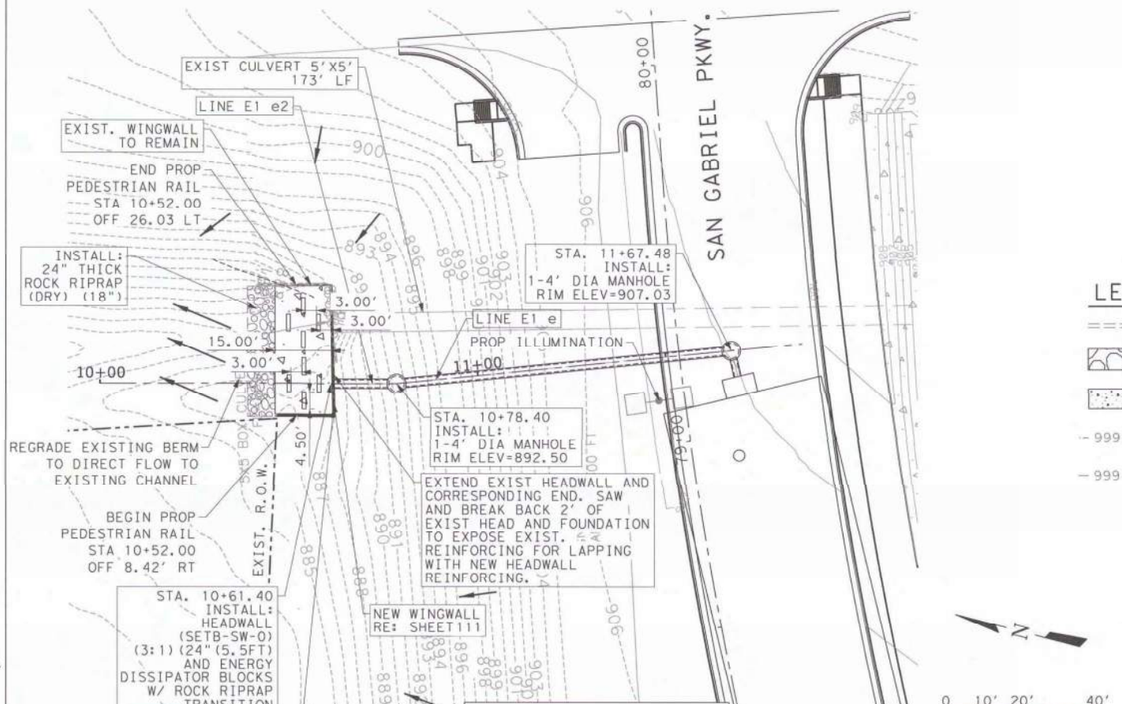
F&N JOB NO. LND15545
DATE 08/22/22
DESIGNED
DRAWN JL
REVISED
CHECKED
FILE NAME CV-SW-PP-DRAIN09.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 102
SEQ. 214



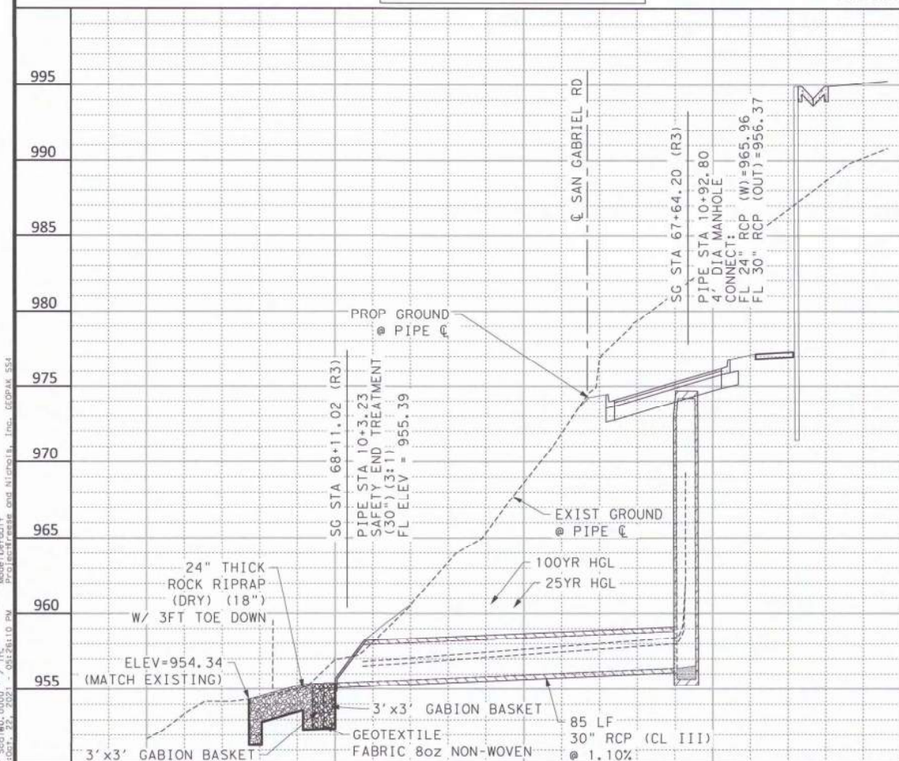
STORM DRAIN
LINE D

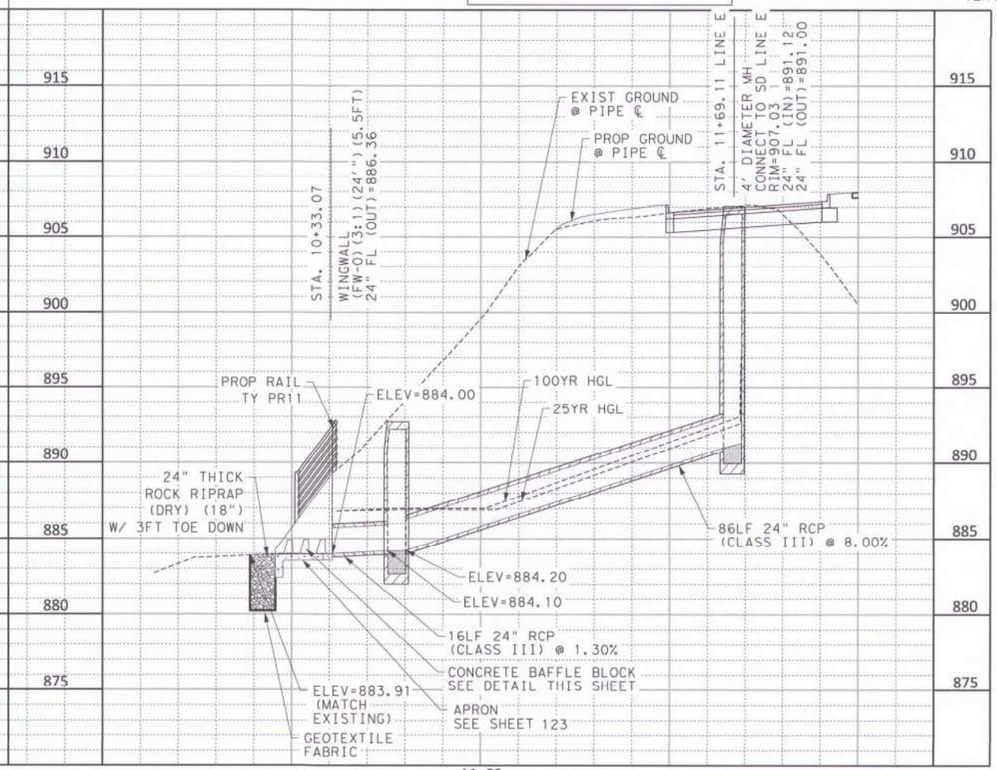


STORM DRAIN
LINE E

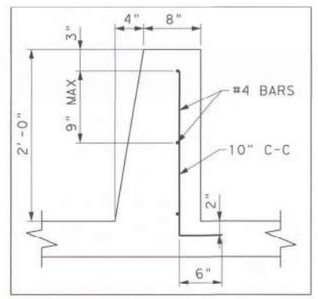
LEGEND

- FUTURE STORM
- ROCK RIPRAP
- CONCRETE STRUCTURE
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS





NOTE:
1. GABIONS SHALL BE CONSTRUCTED USING TWISTED WOVEN MESH WITH 10 GAUGE WIRE SEE DETAIL SHEET 112.



BAFFLE BLOCK DETAIL

NOT TO SCALE

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
JENNIFER R. BOWLDEN
82077
LICENSED PROFESSIONAL ENGINEER
10/25/2021
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

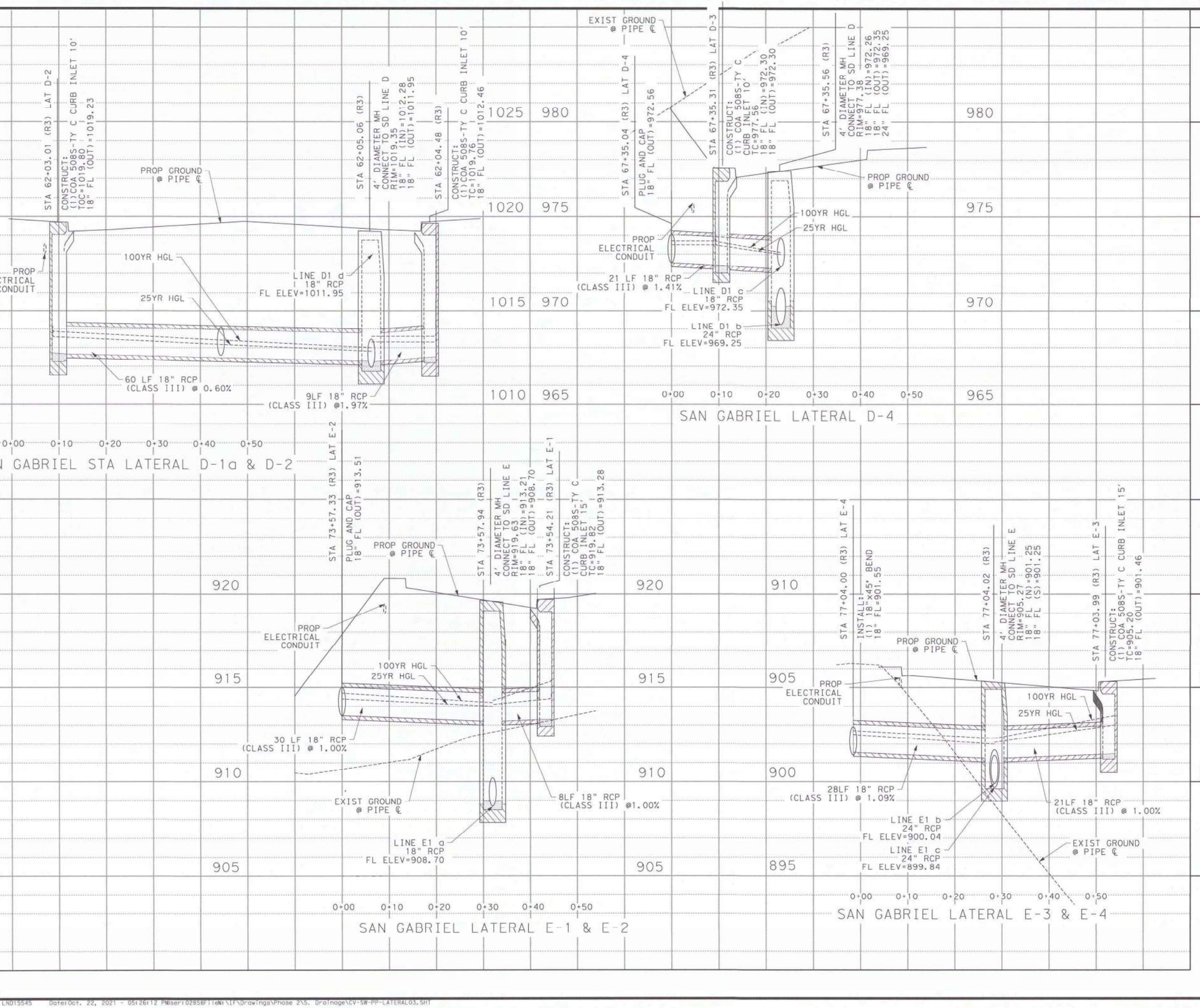
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
STORM DRAINAGE PLAN AND PROFILE
STA 70+14.00

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED JL
DRAWN
REVISED
CHECKED
FILE NAME CV-SW-PP-DRAIN10.SHT

NO. ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 103
SEQ. 214



0 10' 20'
HORIZONTAL SCALE

0 2.5' 5'
VERTICAL SCALE

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
DANIEL R. BRADBURY
82077
LICENSED PROFESSIONAL ENGINEER
10/25/2021

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
STORM SEWER LATERAL PROFILES II

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED CK
DRAWN CK
REVISED XXX
CHECKED JWS
FILE NAME C:\SW-PP-LATERAL03.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 104
SEQ. 214

PHASE 1
(CONSTRUCTION BY OTHERS)
PHASE 2

HUIE H. LAMB, JR.
100.16 ACRES
VOLUME 429, PAGE 142

SAN GABRIEL PARKWAY

PROP. R.O.W.

POTISIA 58+68.39

STA. 58+68.39 AH (R3)
STA. 58+30.00 BK (R2)

EQUATION:

℄ SAN GABRIEL PKWY

PROP ILLUMINATION

57+00 58+00 59+00 60+00 61+00

BEGIN SAN GABRIEL
PARKWAY
PHASE 2
STA. 58+30.00 (R2)

MATCHLINE STA. 11+50 (℄ CL_DITO2)

EXIST. 24"
WL TO REMAIN

BEGIN DITCH 02
STA. 10+00.00 (℄ CL_DITO2)
=STA. 60+35.00 (R3) (℄ SAN GABRIEL)
OFF. 69.00' RT

10+00 11+00

5.3'

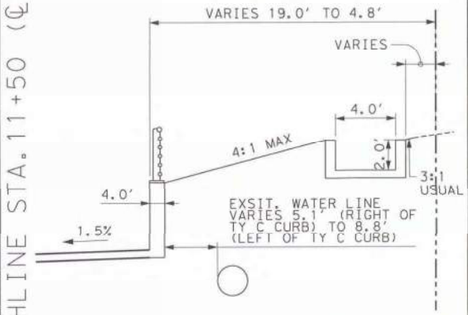
PALMERA RIDGE
DEVELOPMENT INC
REMAINDER 145.26 ACRES
DOC NO. 2013115345
OPRWC

℄ CL_DITO2

TOP OF DITCH

LEGEND

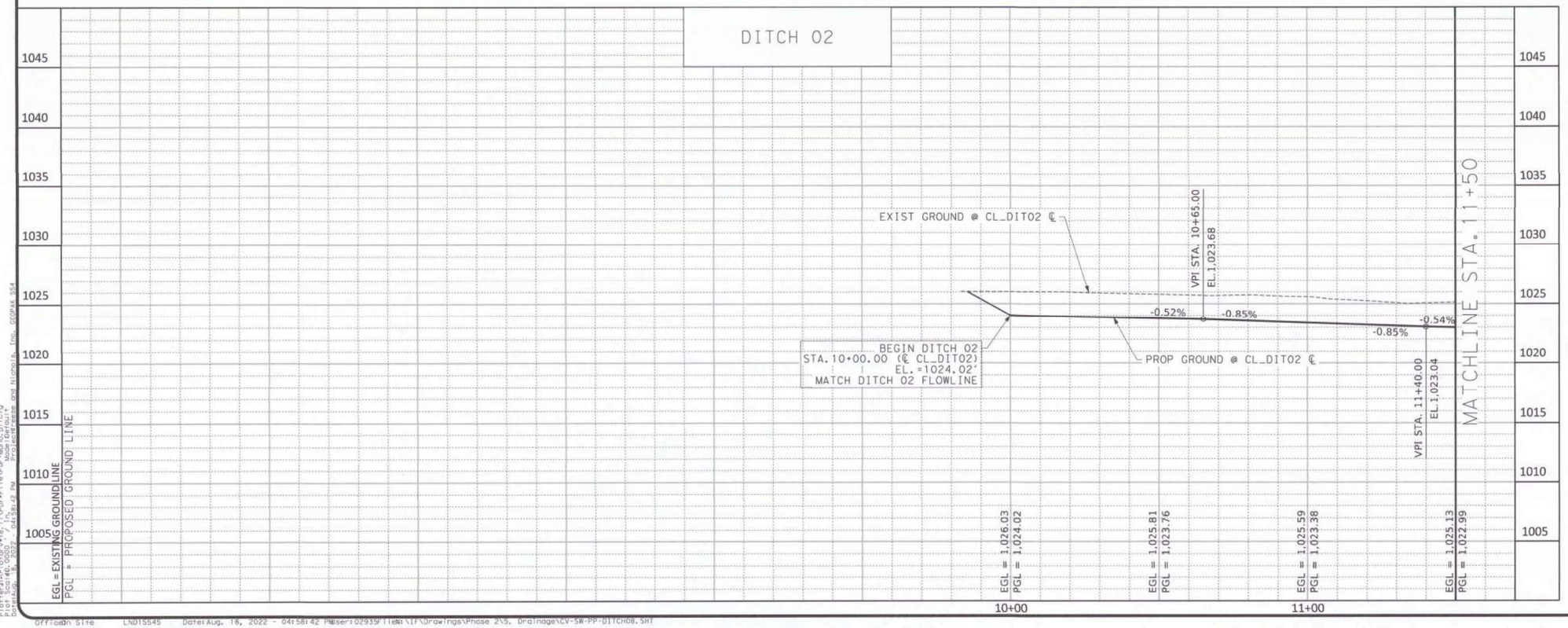
- FUTURE STORM SEWER
- FLOW ARROW
- CONCRETE FLUME
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS



TYPICAL SECTION
STA. 10+00 TO STA. 14+70 (℄ CL_DITO2)

N.T.S

DITCH 02



ISSUED FOR CONSTRUCTION
ON 03/03/2025

N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

APPROVED
RMG

8/19/2022

TEXAS REGISTERED ENGINEERING FIRM F-2144

FREESE AND NICHOLS, INC.
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

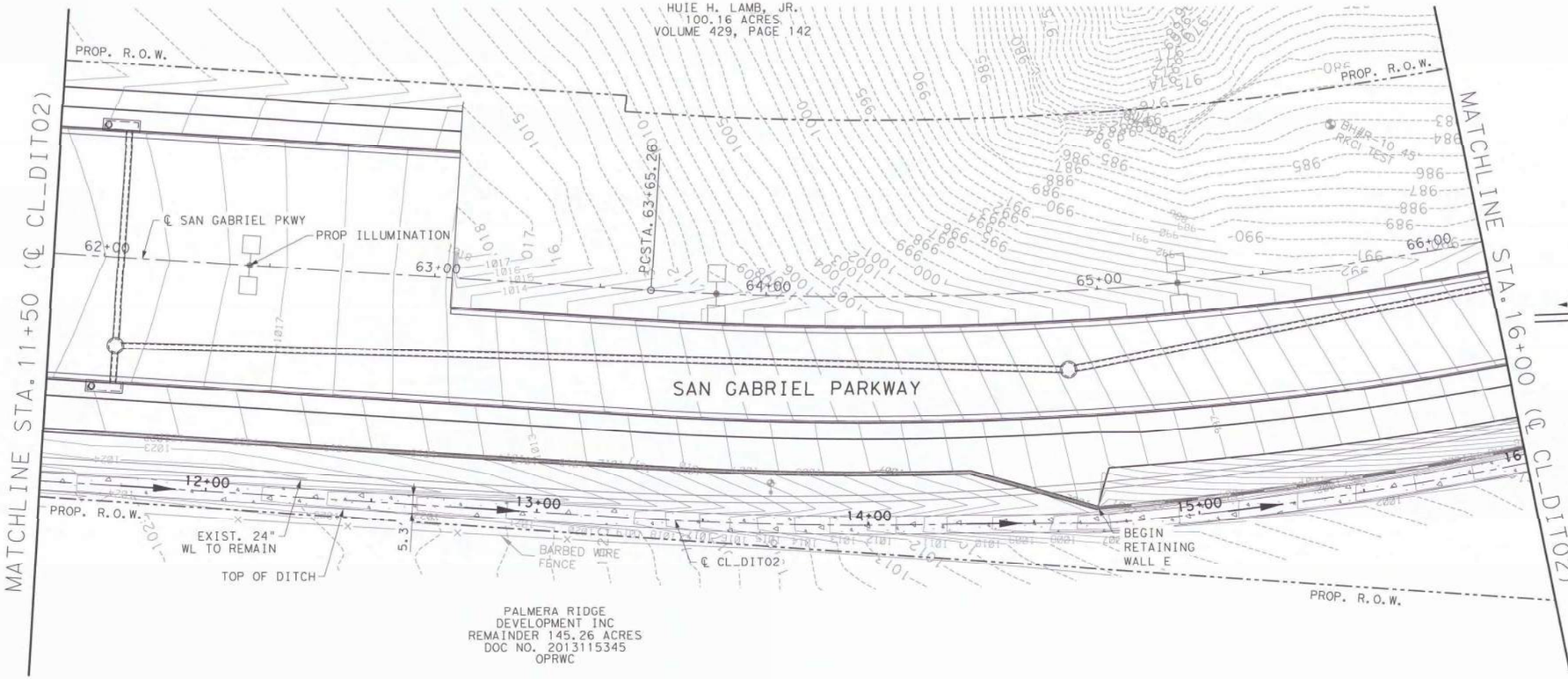
DRAINAGE SWALE PLAN AND PROFILE
DITCH02 BEGIN TO END

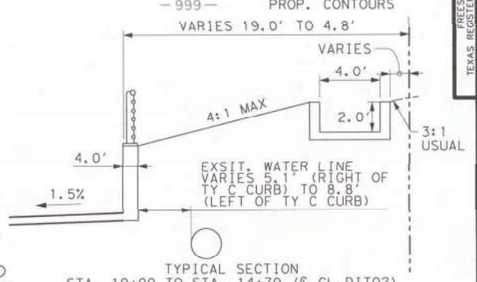
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED
DRAWN NRS
REVISED
CHECKED
FILE NAME CV-SW-PP-DITCH08.SHT

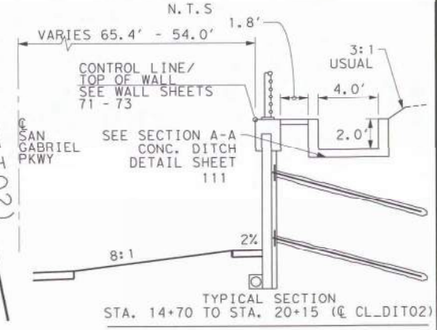
SHEET 105
SEQ. 214





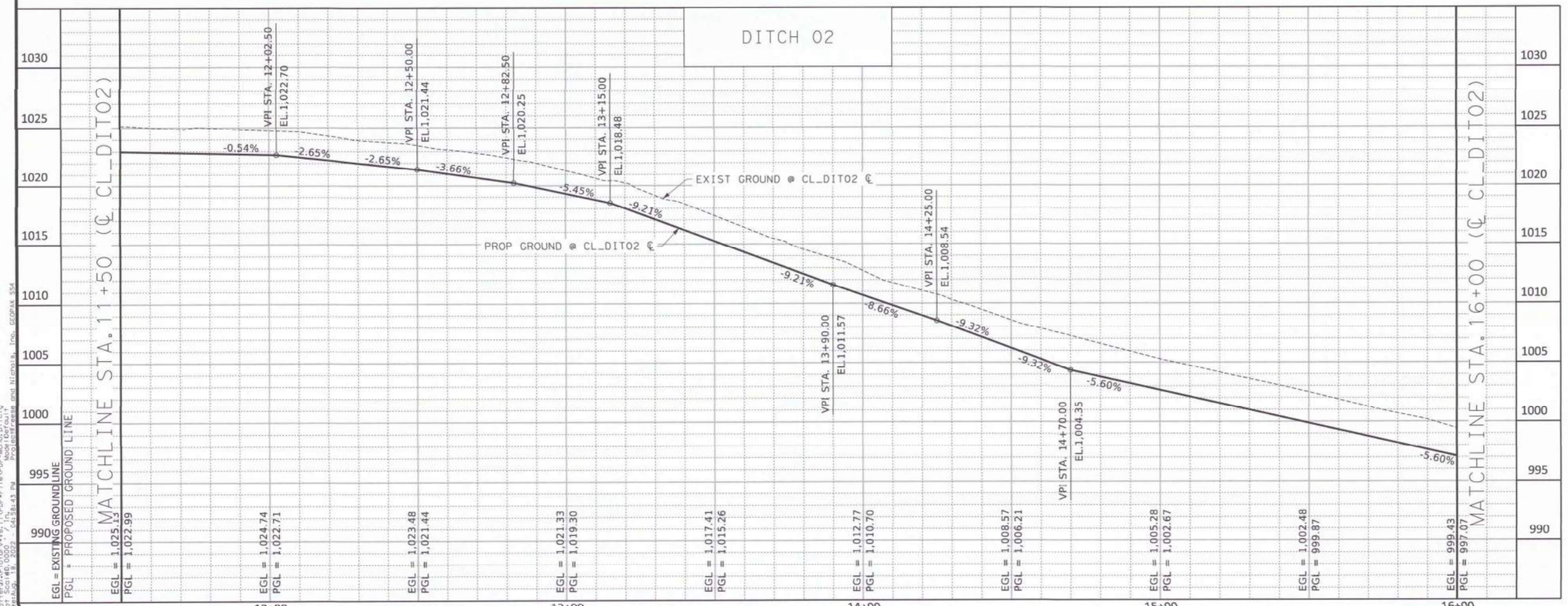
TYPICAL SECTION
STA. 10+00 TO STA. 14+70 (℄ CL_DIT02)

N.T.S



TYPICAL SECTION
STA. 14+70 TO STA. 20+15 (℄ CL_DIT02)

N.T.S



LEGEND

- FUTURE STORM SEWER
- FLOW ARROW
- CONCRETE FLUME
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS

ISSUED FOR CONSTRUCTION
ON 03/03/2025

N
0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

8/19/2022

STATE OF TEXAS
JEROME W. SCANLON III
82017
REGISTERED
PROFESSIONAL ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
(512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

CIVIL

SAN GABRIEL PARKWAY - PHASE 2

DRAINAGE SWALE PLAN AND PROFILE DITCH02 BEGIN TO END

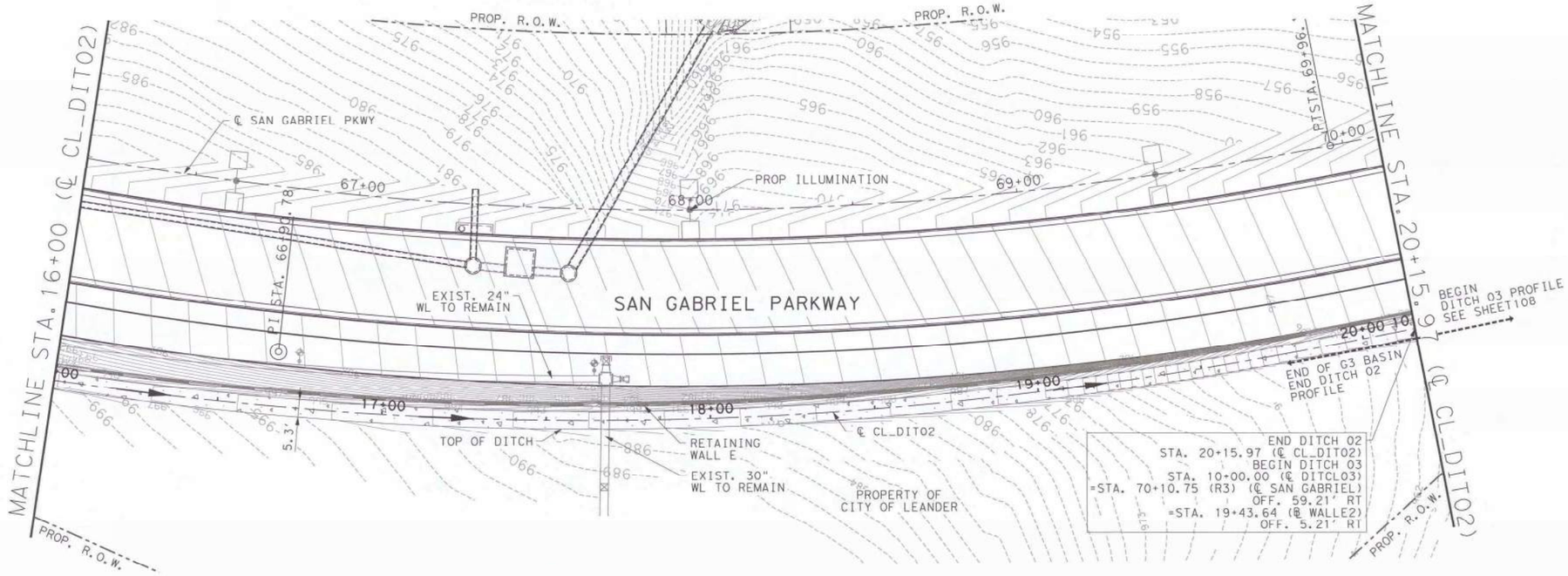
NO.	ISSUES	BY	DATE

FNI JOB NO. LND15545
DATE 08/18/22
DESIGNED
DRAWN NFS
REVISED
CHECKED
FILE NAME CV-SW-PP-DITCH08a.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

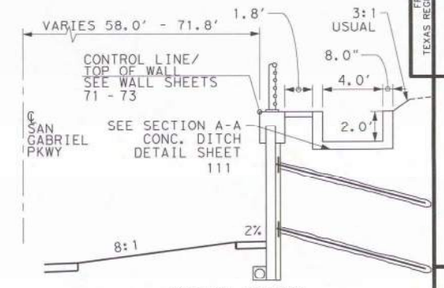
SHEET 106
SEQ. 214

HUIE H. LAMB, JR.
100.16 ACRES
VOLUME 429, PAGE 142

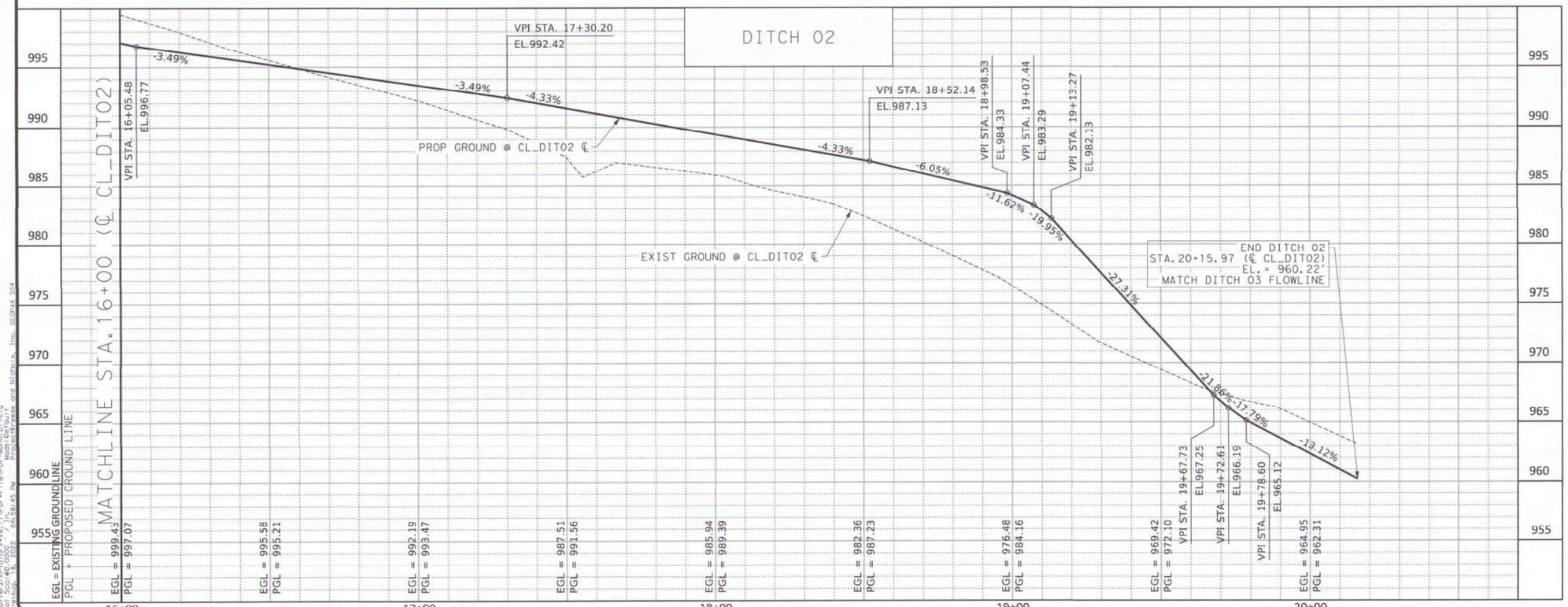


LEGEND

- FUTURE STORM SEWER
- FLOW ARROW
- CONCRETE FLUME
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS



TYPICAL SECTION
STA. 14+70 TO STA. 20+15 (℄ CL_DITO2)
N.T.S



N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED
RMG

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

8/19/2022

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS · ROBERT M. GOSSETT · 82077 · LICENSED PROFESSIONAL ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

DRAINAGE SWALE PLAN AND PROFILE
DITCH02 BEGIN TO END

NO.	ISSUES	BY	DATE

P&W JOB NO. LND15545
DATE 08/18/22
DESIGNED NRS
DRAWN
REVISED
CHECKED
FILE NAME CV-SW-PP-DITCH08b.SHT

SHEET 107
SEQ. 214

HUIE H. LAMB, JR.
100.16 ACRES
VOLUME 429, PAGE 142

MCCLENDON
DEVELOPMENT, LLC
9.53 ACRES
LEGAL DESCRIPTION:
AW0350-JOHNSON L.B. SUR

PROP. ILLUMINATION

℄ SAN GABRIEL PKWY

71+00 72+00 73+00 74+00

END
RETAINING
WALL E
OUTFALL UNDERDRAIN
TO DITCH
SEE DETAIL A

SAN GABRIEL PARKWAY

POST STA. 72+95.28

BEGIN
RETAINING
WALL G

END
DITCH 02
PROFILE
SEE SHEET
107

BEGIN
DITCH 03 PROFILE

STA. 72+00.00(R3) (℄ SAN GABRIEL)
OFF. 56.54'

BEGIN DITCH TRANSITION FROM
SECTION A-A TO SECTION B-B
SEE DRAINAGE SHEET111

STA. 72+25.00(R3) (℄ SAN GABRIEL)
OFF. 56.33' RT

℄ DITCLO3

MATCHLINE STA. 10+00 (℄ DITCLO3)

10+00 11+00 12+00 13+00 14+00

STA. 72+00.00(R3) (℄ SAN GABRIEL)
OFF. 61.87' RT

TOP OF
DITCH

PROP. R.O.W.

5.3'

9.3'

TOP OF DITCH

PROP. R.O.W.

PROP. DRAINAGE EASEMENT

END DITCH TRANSITION
FROM SECTION A-A
TO SECTION B-B SEE
DRAINAGE SHEET111

SEE DRAINAGE SHEET 111
FOR DITCH TYPICAL SECTION A-A

SEE DRAINAGE SHEET 111
FOR DITCH TYPICAL SECTION B-B

STA. 72+25.00 (R3) (℄ SAN GABRIEL)
OFF. 65.67' RT

END DITCH 02
STA. 20+15.97 (℄ CL_DIT02)
BEGIN DITCH 03
STA. 10+00.00 (℄ DITCLO3)
=STA. 70+10.75 (R3) (℄ SAN GABRIEL)
OFF. 59.21' RT

MCCLENDON
DEVELOPMENT, LLC
9.53 ACRES
LEGAL DESCRIPTION:
AW0350-JOHNSON L.B. SUR

MATCHLINE STA. 14+50 (℄DITCLO3)

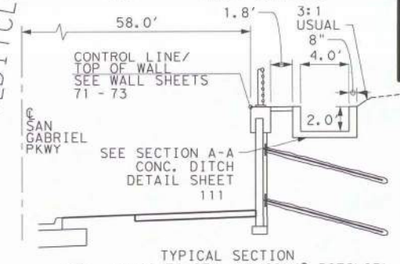
MITER PVC PIPE
AT DITCH 02

COVER OPENING
W/ 1/4" MESH SCREEN
AND BOLT TO
DITCH 02 CONC
RIPRAP LINING

DETAIL A

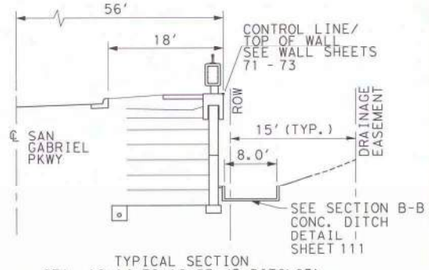
LEGEND

- FUTURE STORM SEWER
- FLOW ARROW
- CONCRETE FLUME
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS



TYPICAL SECTION
STA. 10+00 TO STA. 11+89 (℄ DITCLO3)

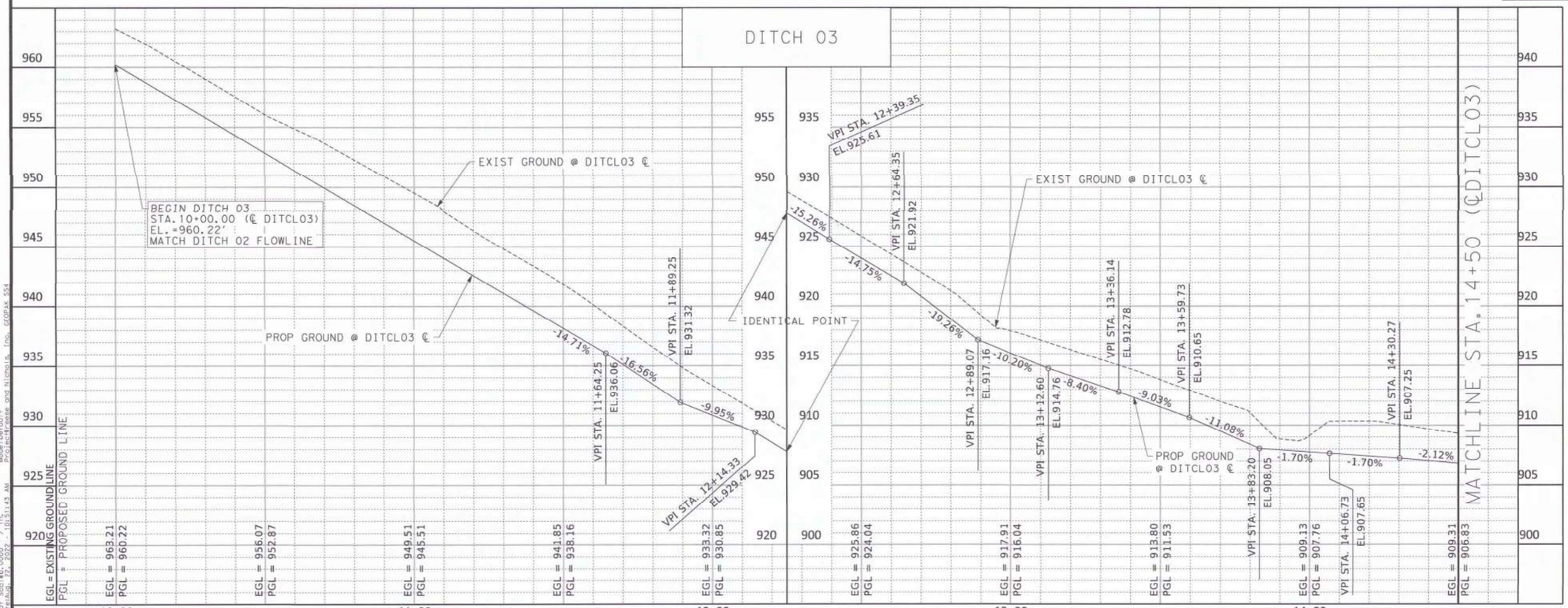
N.T.S



TYPICAL SECTION
STA. 12+14 TO 16+23 (℄ DITCLO3)

N.T.S

DITCH 03



ISSUED FOR CONSTRUCTION
ON 03/03/2025

0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
NICOLE B. SWANSON
82077
REGISTERED
PROFESSIONAL ENGINEER
08/22/2022

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

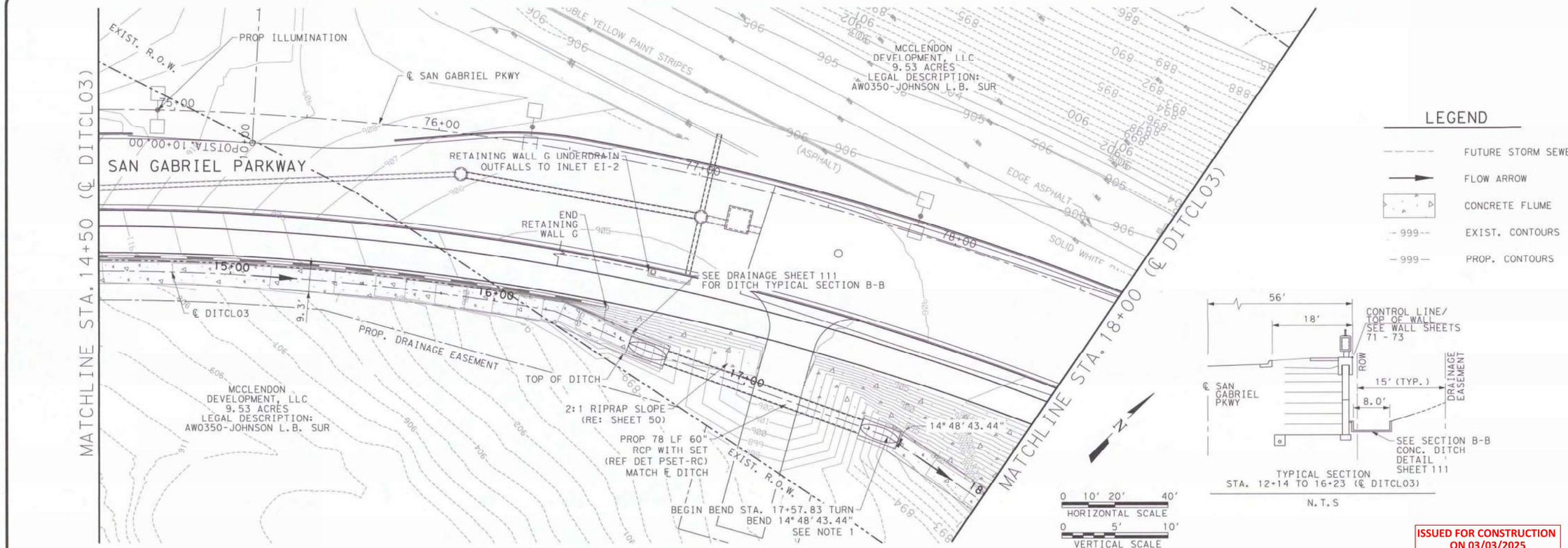
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE SWALE PLAN AND PROFILE
DITCH03 BEGIN TO STA. 14+50

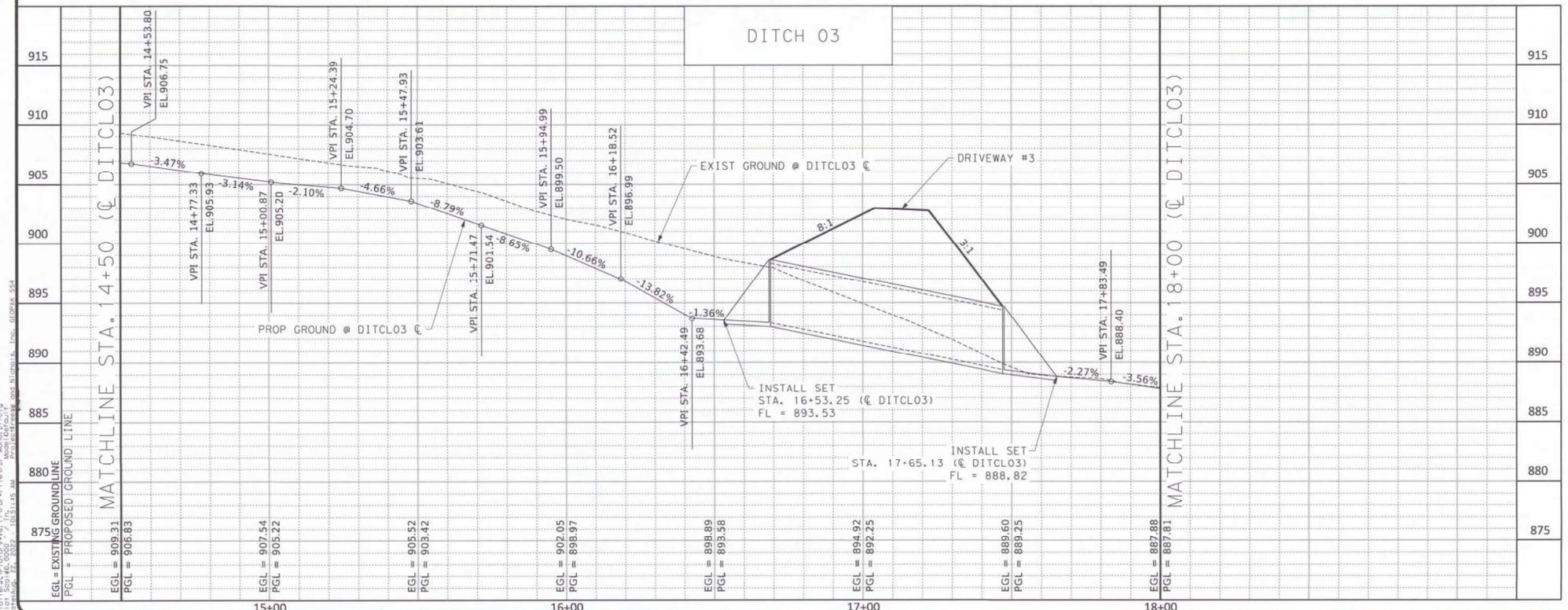
F&N JOB NO. LND15545
DATE 08/22/22
DESIGNED NBS
DRAWN
REVISED
CHECKED
FILE NAME CV-SW-PP-DITCH09.SHT

NO. | ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 108
SEQ. 214





ISSUED FOR CONSTRUCTION ON 03/03/2025

NOTE:
1. CONTRACTOR TO MAINTAIN 8' WIDTH OF CONCRETE CHANNEL AND MATCH EXISTING GRADE GRADE ON BACKSLOPE

2. 2:1 CONCRETE RIPRAP SLOPE MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.

3. 2:1 CONCRETE RIPRAP SLOPE MUST BE TEXTURED TO MATCH PATTERN #167E (ASHALR STONE E) AS MANUFACTURED BY SCOTT SYSTEM. CONSTRUCTION OF THE TEXTURE SHALL BE IN ACCORDANCE WITH SECTION 3.1 OF TXDOT ITEM 528 COLORED TEXTURED CONCRETE AND LANDSCAPE PAVERS. PAYMENT FOR THE TEXTURE WILL BE SUBSIDIARY TO ITEM 432 RIPRAP.

APPROVED RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS · ROBERT M. GOMEZ · 82077 · LICENSED PROFESSIONAL ENGINEER · 8/22/2022
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

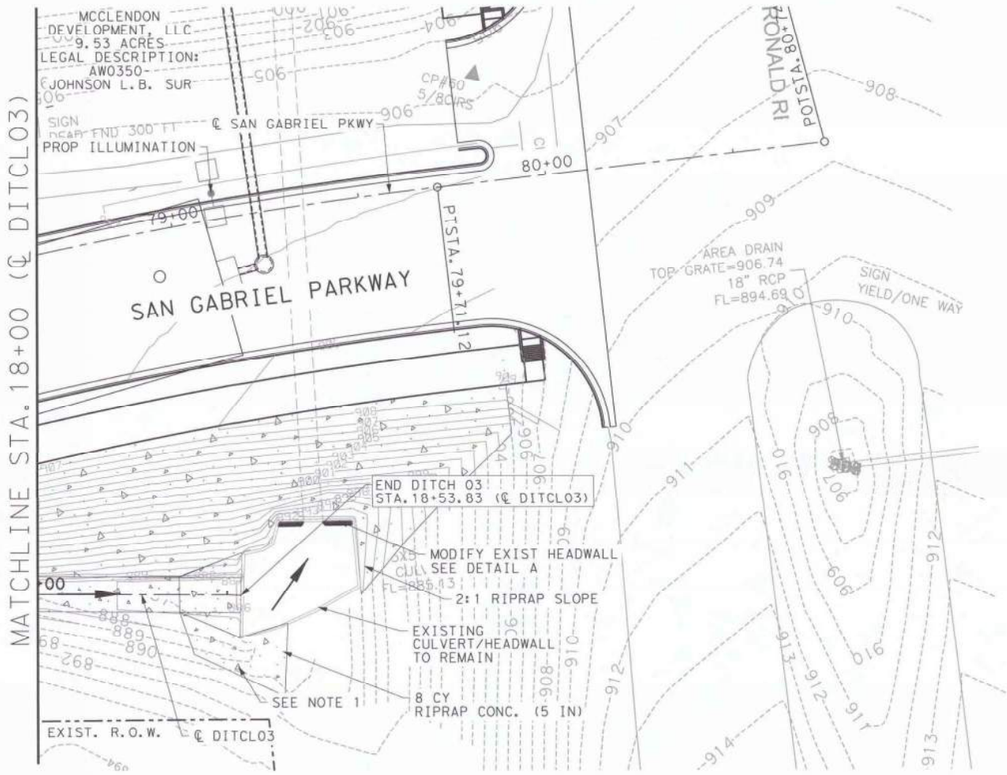
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE SWALE PLAN AND PROFILE
DITCH03 STA. 14+50 TO STA. 18+00

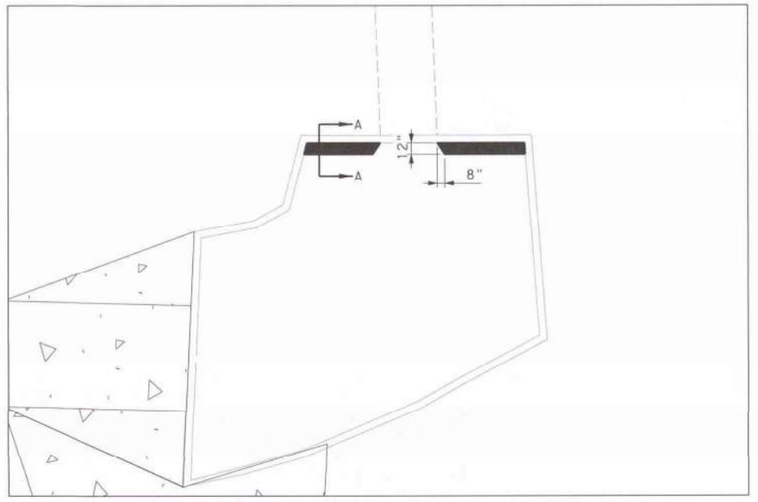
NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/22/22
DESIGNED CK
DRAWN CK
REVISED
CHECKED
FILE NAME CV-SW-PP-DITCH10.SHT

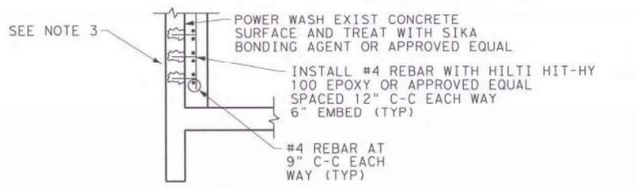
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 109
SEQ. 214

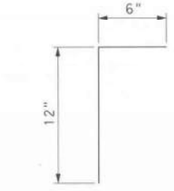




DETAIL A



SECTION A-A



ANCHOR BAR DETAIL

LEGEND

- FUTURE STORM SEWER
- FLOW ARROW
- CONCRETE FLUME
- 999 EXIST. CONTOURS
- 999 PROP. CONTOURS

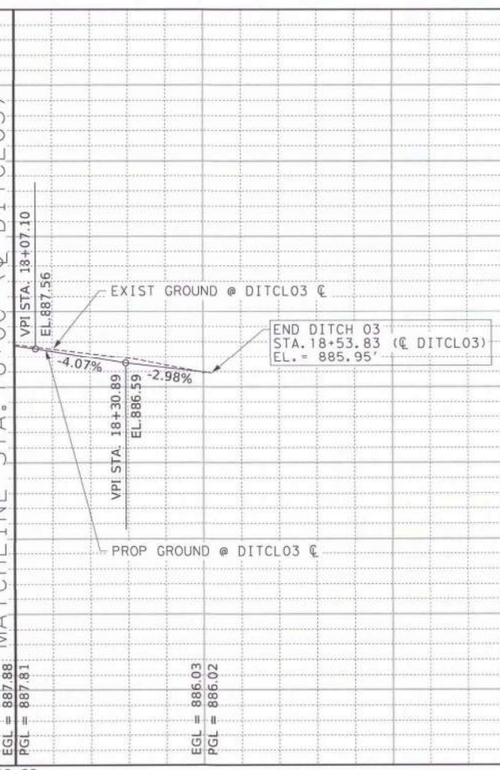
NOTE:
1. CONTRACTOR TO MATCH EXISTING GRADE OF RONALD REAGAN DITCH. ENSURE POSITIVE DOWNHILL DRAINAGE TO TIE IN WITH PROPOSED DITCH 03.

2. 2:1 CONCRETE RIPRAP SLOPE MUST BE INTEGRALLY COLORED CONCRETE IN ACCORDANCE WITH SPECIAL SPECIFICATION 5769 INTEGRALLY COLORED CONCRETE. THE COLOR OF THE CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH THIS SPECIAL SPECIFICATION 5769 AND SHALL BE AN EARTHEN TONE REQUIRING APPROVAL BY THE CITY THROUGH PRE-CONSTRUCTION MOCK-UP PANELS. PAYMENT WILL BE SUBSIDIARY TO PERTINENT ITEMS.

3. 2:1 CONCRETE RIPRAP SLOPE MUST BE TEXTURED TO MATCH PATTERN #167E (ASHLAR STONE E) AS MANUFACTURED BY SCOTT SYSTEM. CONSTRUCTION OF THE TEXTURE SHALL BE IN ACCORDANCE WITH SECTION 3.1 OF TXDOT ITEM 528 COLORED TEXTURED CONCRETE AND LANDSCAPE PAVERS. PAYMENT FOR THE TEXTURE WILL BE SUBSIDIARY TO ITEM 432 RIPRAP.

4. REBAR, EPOXY, AND SURFACE PREPARATION WILL BE SUBSIDIARY TO TXDOT ITEM 420-6002, CL A CONC (MISC).

DITCH 03



0 10' 20' 40'
HORIZONTAL SCALE
0 5' 10'
VERTICAL SCALE

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
PMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
8/19/2022
STATE OF TEXAS
JEROME W. SCANLON III
82077
LICENSED PROFESSIONAL ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web www.freese.com

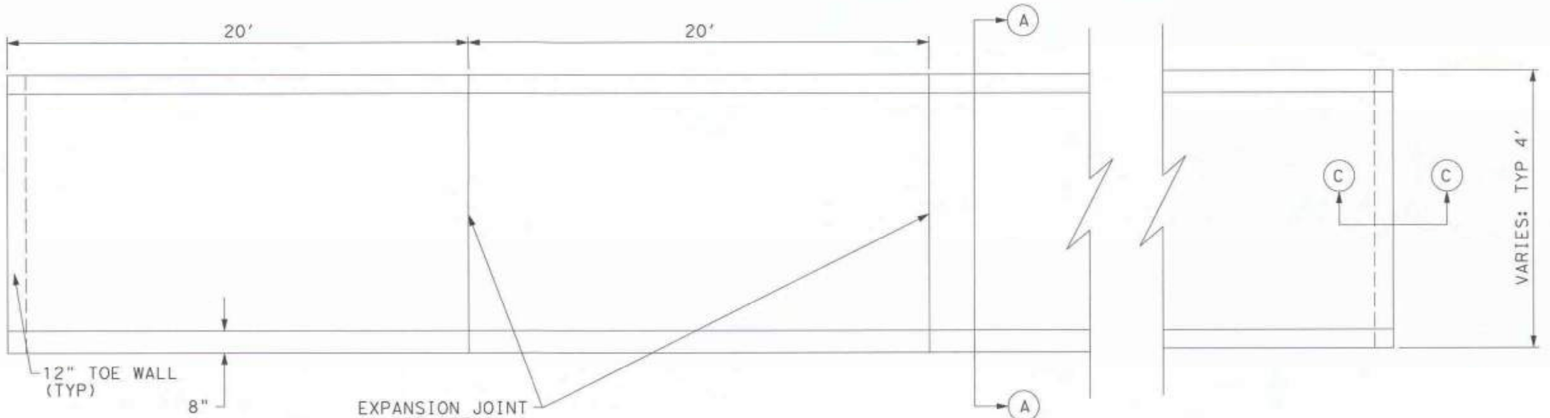
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE SWALE PLAN AND PROFILE
DITCH03 STA.18+00 TO END

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED
DRAWN NRS
REVISED
CHECKED
FILE NAME CV-SW-PP-DITCH11.SHT

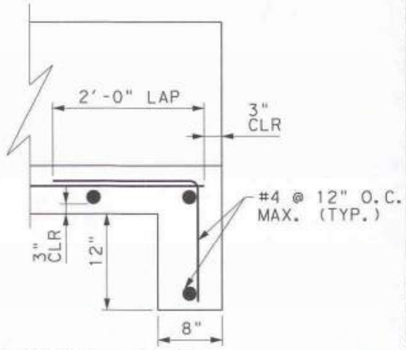
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scales.
0 1"

SHEET 110
SEQ. 214



PLAN

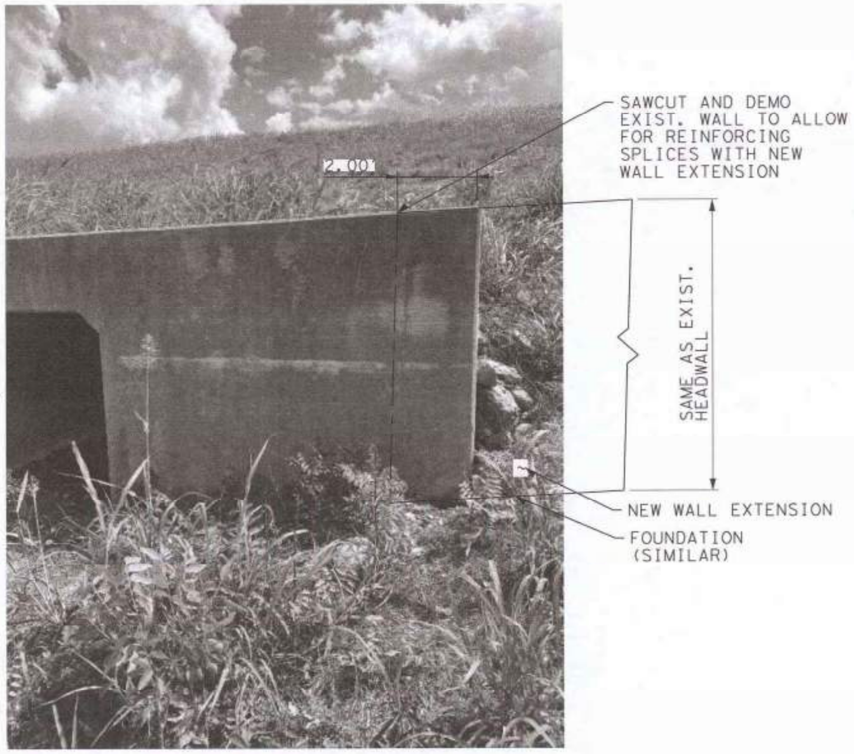
NOT TO SCALE



SECTION C-C

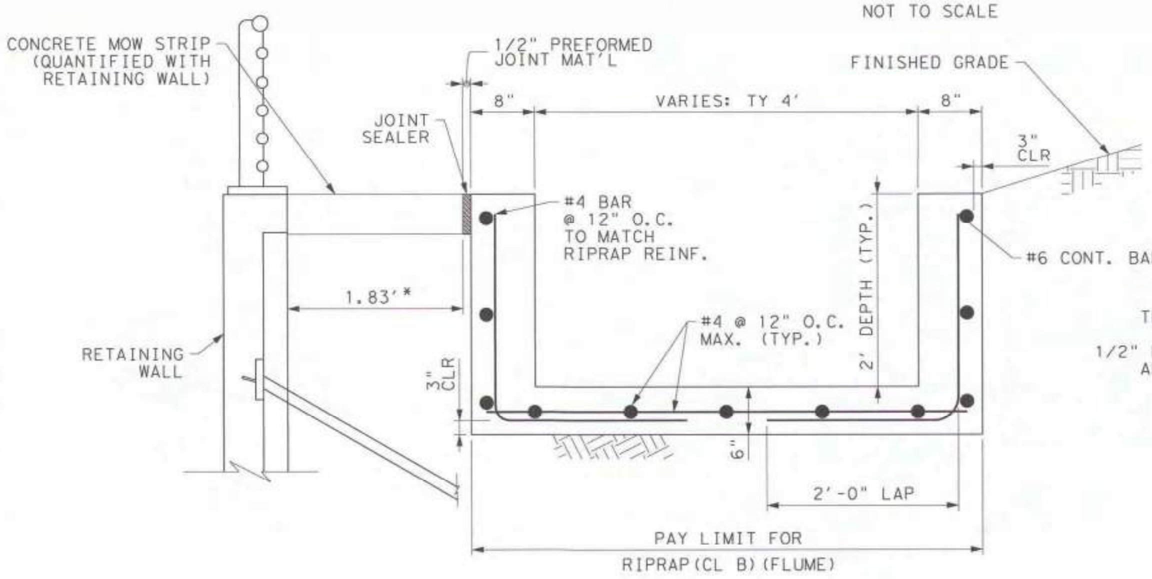
12" TOE WALL

NOT TO SCALE



EXISTING HEADWALL TO REMAIN

NOT TO SCALE



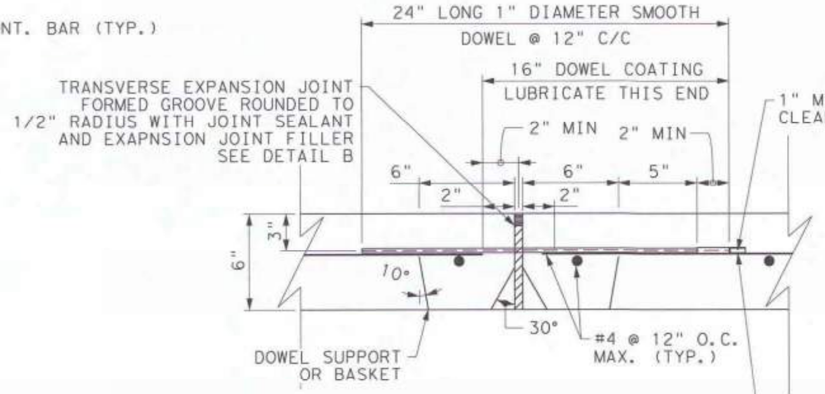
SECTION A-A

6" CONCRETE FLUME IN CUT SECTION

NOT TO SCALE

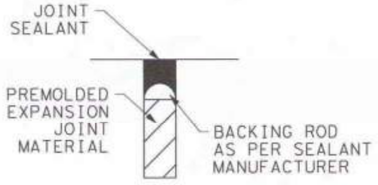
DITCH 02 (STA 10+00 TO 20+15)

DITCH 03 (STA 10+00 TO 11+89)



DETAIL A

NOT TO SCALE



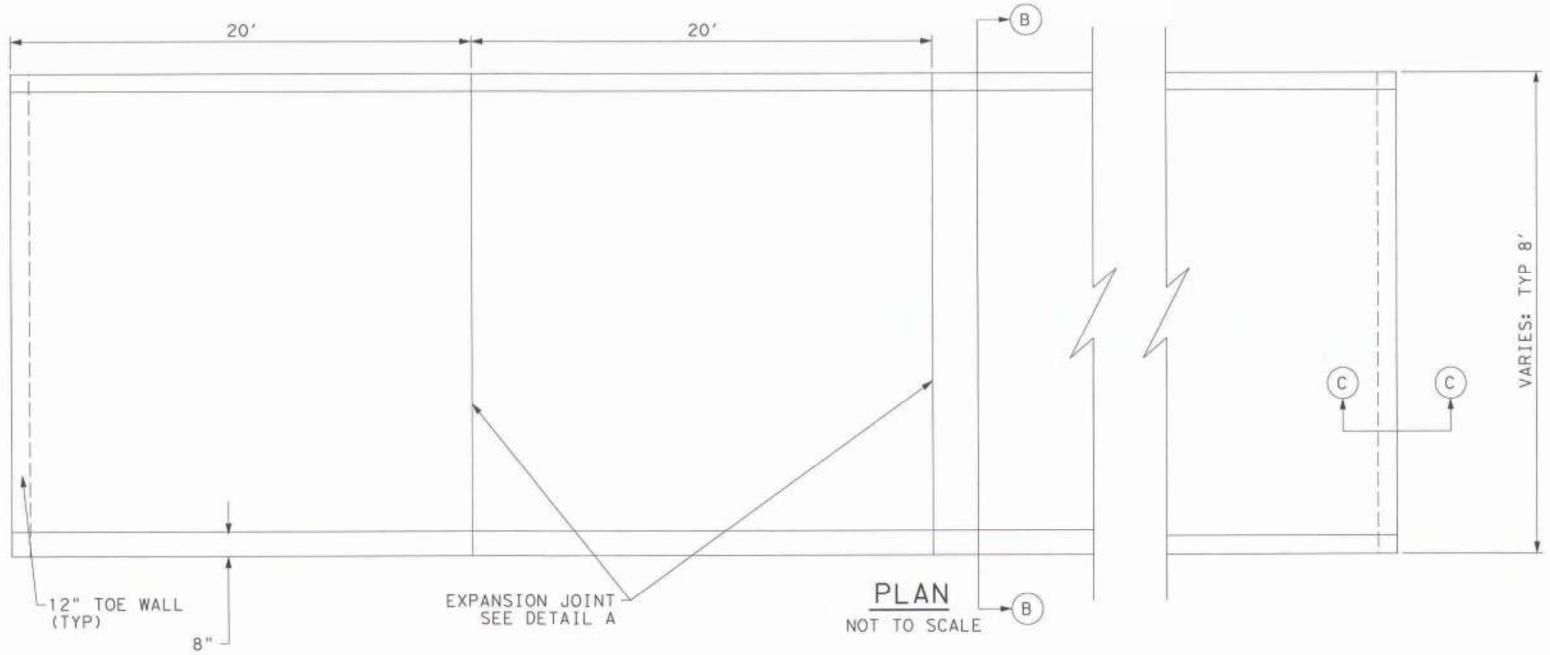
DETAIL B

NOT TO SCALE

NOTES:

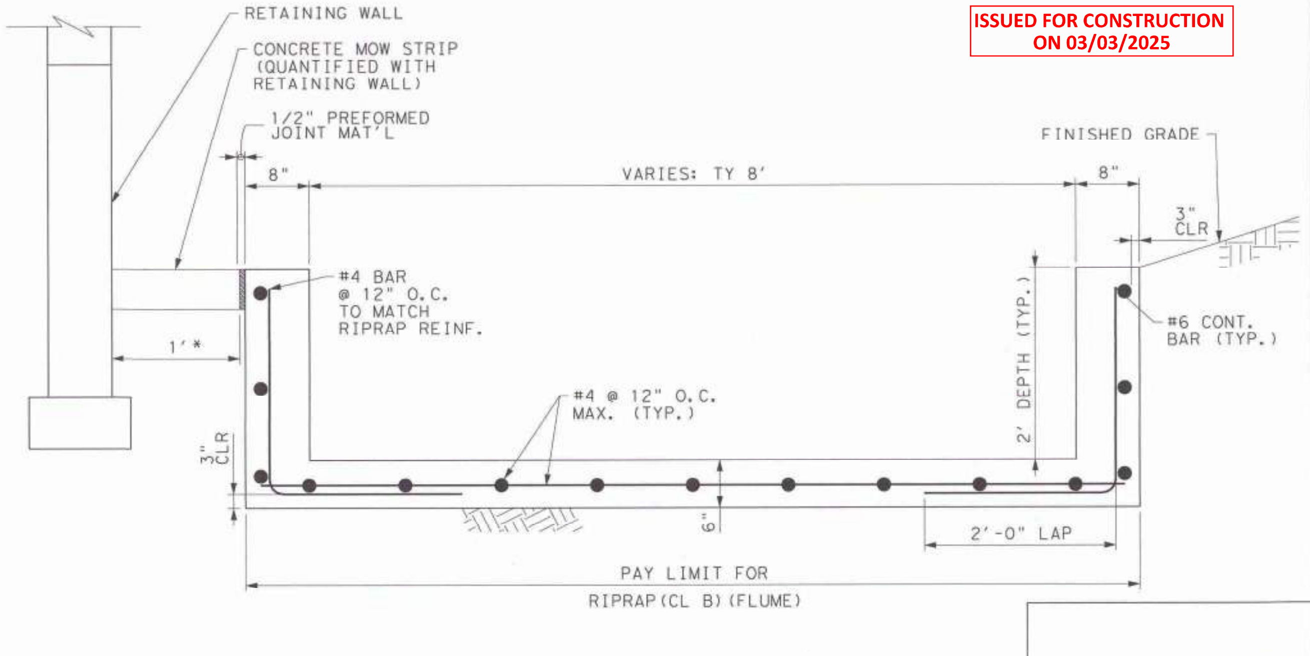
1. REFER TO TXDOT RW (MSE) DETAIL FOR ADDITIONAL COPING INFORMATION.
2. PROVIDE CLASS "B" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI UNLESS NOTED ELSEWHERE IN PLANS. PROVIDE GRADE 60 REINFORCING STEEL.
3. REFER TO DITCH PLAN AND PROFILE SHEETS FOR ADDITIONAL FLUME DETAILS.

ISSUED FOR CONSTRUCTION ON 03/03/2025



PLAN

NOT TO SCALE



SECTION B-B

6" CONCRETE FLUME IN FILL SECTION

NOT TO SCALE

DITCH 03 (STA 12+14 TO 18+53)

*PROVIDE MOW STRIP BETWEEN WALL AND FLUME. NOMINAL WIDTH SHOWN FOR QUANTITY PURPOSES.

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

SHANE RAY TORNO
89499
8-18-2022

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL

CONCRETE FLUME DETAILS
MISCELLANEOUS DETAILS

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED ST
DRAWN
REVISED
CHECKED
FILE NAME CV-SW-DT-MISC DETAIL01.dgn

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1

SHEET 111

SEQ. 214

Note To Designer:
1. Do not alter Sheet Design or Font style, size or weight - match text attributes.
2. If additional space is needed for a numbered section, fence and adjust sections up or down as needed for proportioning and readability but do not relocate from it's relative position.

A. GENERAL SITE DATA

1. PROJECT LIMITS: *San Gabriel Parkway, From Sta 58+30.00 (r2) to Ronald Reagan Blvd*

2. PROJECT SITE MAPS:
   - *Project Latitude 30.603056 Project Longitude 97.822778*
   - *Project Location Map: Shown on Title Sheet*
   - *Drainage Patterns: Shown on Drainage Area Maps (Sheets 91-93)*
   - *Approx. Slopes Anticipated After Major Gradings and Areas of Soil Disturbance: Shown on Typical Sections (Sheets 6-9)*
   - *Major Controls and Locations of Stabilization Practices: Shown on SW3P Sheets (Sheets 127-129)*
   - *Project Specific Locations: Off-site waste, borrow, or storage areas are not part of this SW3P.*
   - *Surface Waters and Discharge Locations: Shown on Drainage and Culvert Layout Sheets (Sheets 98-110)*

3. PROJECT DESCRIPTION: *For the construction of San Gabriel Parkway*

4. FOR MAJOR SOIL DISTURBING ACTIVITIES SEQUENCE OF EVENTS:

   1. *Install controls down-slope of work area and initiate inspection and maintenance activities.*
   2. *Begin phased construction with interim stabilization practices. Adjust erosion and sedimentation controls during construction to meet requirements and changing conditions and as directed/approved by the Engineer.*
   3. *Major soil disturbing activities may include but are not limited to: right-of-way preparation, cut and/or fill to improve roadway profile, final grading and placement of topsoil and the following (if marked):*

      - [X] *Placement of road base*
      - [X] *Exstensive ditch grading*
      - [X] *Upgrading or replacing culverts or bridges*
      - [ ] *Temporary detour road(s)*
      - [ ] *Other: _____*

5. EXISTING AND PROPOSED CONDITIONS:

   Description of existing vegetative cover: (Provide type and description of vegetative cover)
   Percentage of existing vegetative cover: (Provide percentage)
   Existing vegetative cover: (mark one)
   - [X] *Thick or uniformly established*
   - [ ] *Thin and Patchy*
   - [ ] *None or minimal cover*

   Description of soils: (Provide classification and description of soils)
   Site Acreage: 6.99 *Acreage disturbed: 5.18*
   Site runoff coefficient (pre-construction): 0.42 *Site runoff coefficient (post-construction): 0.68*

6. RECEIVING WATERS: *(Mark all that apply)*
   - [X] *A classified stream does not pass through project.*
   - [ ] *A classified stream passes through project. Name _____ Segment Number _____*

   Name of receiving waters that will receive discharges from disturbed areas of the project: _____

   Site is in a Municipal Separate Storm Sewer System (MS4).
   MS4 Operator (name): CITY OF LEANDER

B. BEST MANAGEMENT PRACTICES

General timing or sequence for implementation of BMPs shall be as required and/or as directed/approved by the Engineer to provide adequate controls. BMPs shown on plan sheets are to be considered "proposed" unless/until install date is shown. BMPs are to reduce sediments from road construction activities.

1. SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

   - [P] SEEDING
   - [ ] MULCHING (Hay or Straw)
   - [ ] BUFFER ZONES
   - [ ] PLANTING
   - [ ] COMPOST/MULCH FILTER BERM
   - [ ] SODDING
   - [ ] PRESERVATION OF NATURAL RESOURCES
   - [ ] FLEXIBLE CHANNEL LINER
   - [ ] RIGID CHANNEL LINER
   - [P] SOIL RETENTION BLANKET
   - [ ] COMPOST MANUFACTURED TOPSOIL
   - [ ] OTHER: (Specify Practice)

2. STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

   - [T] SILT FENCES
   - [ ] HAY BALES
   - [T] ROCK FILTER DAMS
   - [ ] DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
   - [ ] DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
   - [ ] DIVERSION DIKE AND SWALE COMBINATIONS
   - [P] PIPE SLOPE DRAINS
   - [P] PAVED FLUMES
   - [T] ROCK BEDDING AT CONSTRUCTION EXIT
   - [ ] TIMBER MATTING AT CONSTRUCTION EXIT
   - [ ] CHANNEL LINERS
   - [ ] SEDIMENT TRAPS
   - [ ] SEDIMENT BASINS
   - [T] STORM INLET SEDIMENT TRAP
   - [P] STONE OUTLET STRUCTURES
   - [P] CURBS AND GUTTERS
   - [P] STORM SEWERS
   - [P] VELOCITY CONTROL DEVICES
   - [ ] OTHER: *(Specify Practice)*

3. STORM WATER MANAGEMENT:

   The proposed facility was designed in consideration of hydraulic design standards to convey stormwater in a manner that is protective of public safety and property. The control of erosion from the facility is inherent to the design. Additional factors affecting post-construction stormwater at the project location include: (mark all that apply)
   - [X] *Existing or new vegetation provides natural filtration.*
   - [X] *The design includes provisions for permanent erosion controls provided by strategically placed pervious and impervious surfaces.*
   - [ ] *Project includes permanent sedimentation controls (other than grass).*
   - [ ] *Velocities do not require dissipation devices.*
   - [X] *Velocity-dissipation devices included in the design.*
   - [ ] *Other : _____*

4. NON-STORM WATER DISCHARGES:

   Off-site discharges are prohibited except as follows:
   1. *Discharges from fire fighting activities and/or fire hydrant flushings.*
   2. *Vehicle, external building, and pavement wash water where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed).*
   3. *Plain water used to control dust.*
   4. *Plain water originating from potable water sources.*
   5. *Uncontaminated groundwater, spring water or accumulated stormwater.*
   6. *Foundation or footing drains where flows are not contaminated with process materials such as solvents.*
   7. *Other: _____*

Concrete truck wash water discharges on the site should be prohibited or minimized. If allowed by the Engineer, they must be managed in a manner so as not to contaminate surface water. They must not be located in areas of concentrated flow. Concrete truck wash-out locations must be shown on the SW3P Layout and included in the inspections.

Hazardous material spill/leak shall be prevented or minimized. At a minimum, this includes asphalt products, fuels, oils, lubricants, solvents, paints, acids, concrete curing compounds and chemical additives for soil stabilization. BMPs shall be implemented to the storage areas of these products. All spills must be cleaned and disposed properly and reported to the Engineer. Report any release at or above the reportable quantity during a 24 hour period to the National Response Center at 1-800-424-8802.

C. OTHER REQUIREMENTS & PRACTICES

1. MAINTENANCE:

   All erosion and sediment controls shall be maintained in good working order. If a repair is necessary, it shall be performed before the next anticipated storm event but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from equipment. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Disturbed areas on which construction activities have ceased, temporarily or permanently, shall be stabilized within 14 calendar days unless they are scheduled to and do resume within 21 calendar days. The areas adjacent to creeks and drainageways shall have priority followed by protecting storm sewer inlets.

2. INSPECTION:

   For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every seven (7) calendar days. An Inspection and Maintenance Report shall be prepared for each inspection and the controls shall be revised on the SW3P within seven (7) calendar days following the inspection.

3. WASTE MATERIALS:

   All non-hazardous municipal waste materials such as litter, rubbish, trash and garbage located on or originating from the project shall be collected and stored in a securely lidded metal dumpster, provided by the Contractor. The dumpster shall be emptied as necessary or as required by local regulation and the trash shall be hauled to a permitted disposal facility. The burying of non-hazardous municipal waste on the project shall not be permitted. Construction material waste sites, stockpiles and haul roads shall be constructed to minimize and control the amount of sediment that may enter receiving waters. Construction material waste sites shall not be located in any wetland, water body or stream bed. Construction staging areas and vehicle maintenance areas shall be constructed in a manner to minimize the runoff of pollutants.

4. OFFSITE VEHICLE TRACKING:

   Off-site vehicle tracking of sediments and the generation of dust must be minimized. Excess sediments on road shall be removed on a regular basis as directed/approved by the Engineer.

5. OTHER:

   See the EPIC sheet for additional environmental information.

ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED RMG

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com
FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

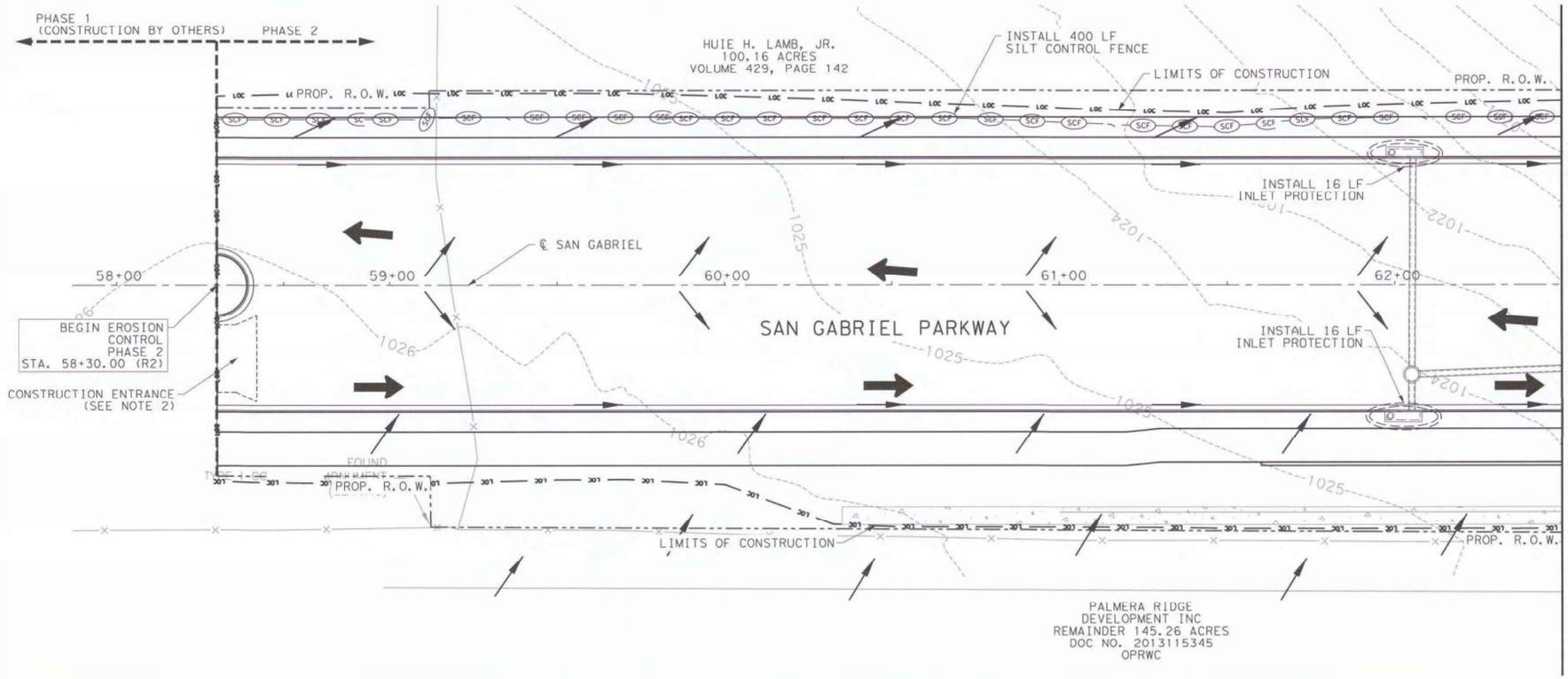
STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED PROFESSIONAL ENGINEER
8/19/2022

STORM WATER POLLUTION PREVENTION PLAN (SW3P)

	HIGHWAY NO.	
	SAN GABRIEL	
STATE	DISTRICT	COUNTY
TEXAS		WILLIAMSON
CONTROL	SECTION	JOB
		LND15545

SHEET NO. 126

REVISION DATE: 10/12



LEGEND

- FLOW ARROW
- SCF — SILT CONTROL FENCE
- INLET PROTECTION
- RB — ROCK BERM
- SOIL RETENTION BLANKETS (CL 2) (TY E)

NOTE:
1. THE CITY OF LEANDER ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD OR MODIFY EROSION/SEDIMENT CONTROLS ON SITE THROUGHOUT THE DURATION OF THE PROJECT.

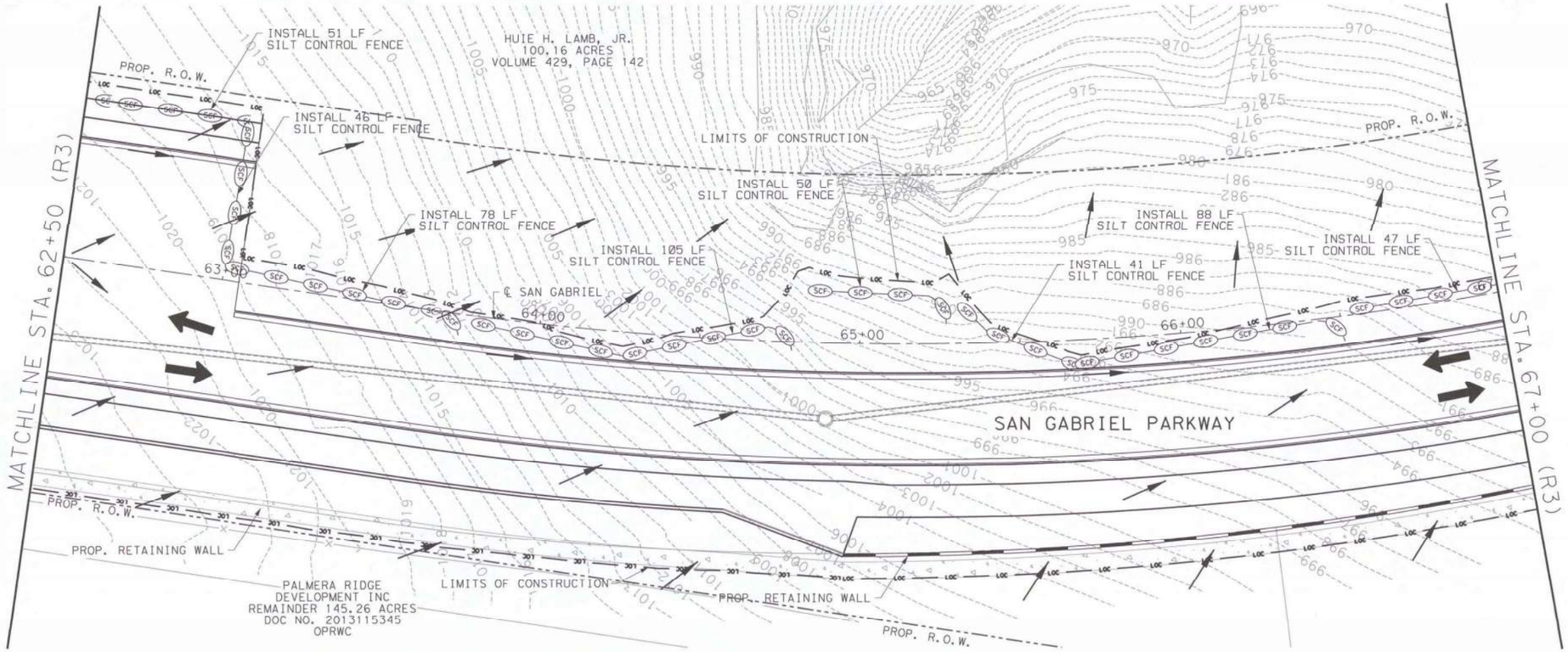
2. CONSTRUCTION EXIT LOCATIONS TO BE DETERMINED IN THE FIELD AND APPROVED BY THE CITY INSPECTOR.

3. SILT CONTROL FENCE SHALL BE PLACED 1 FOOT INSIDE THE LIMITIS OF CONSTRUCTION.

4. CONTRACTOR WILL USE GEOCURVE INLET FILTER OR EQUIVALENT INSERT TYPE FOR INLET PROTECTION IN ACCORDANCE WITH THE SW3P PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE



N

0 10' 20' 40'
HORIZONTAL SCALE

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

TEXAS REGISTERED ENGINEERING FIRM F-2144
FREESE AND NICHOLS, INC.

STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED
PROFESSIONAL ENGINEER
8/19/2022

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL
SW3P

STA. 58+00 (R2) TO STA. 67+00 (R3)

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED JL
DRAWN
CHECKED
FILE NAME CV-TRT-PP-SW3P05.SHT

NO. | ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 127
SEQ. 214

MicroStation V8i (SELECTseries 3)
O:\Environmental\CV-TRT-PP-SW3P05.SHT
Plotted By: Christopher Trevino
Plot Scale: 40.0000 '/ In.
Plot Date: Aug. 18, 2022 - 08:02:39 PM
User: Christopher Trevino
Model: Default
Project: LND15545 and Nichols, Inc. GEOPAK SS4

INSTALL 40 LF OF TEMPORARY ROCK BERM PRIOR TO THE CONSTRUCTION OF THE OUTFALL

PROP. R.O.W.

MATCHLINE STA. 67+00 (R3)

INSTALL 70 LF SILT CONTROL FENCE

INSTALL 16 LF INLET PROTECTION

HUIE H. LAMB, JR.
100.16 ACRES
VOLUME 429, PAGE 142

INSTALL 96 LF SILT CONTROL FENCE

℄ SAN GABRIEL

INSTALL 113 LF SILT CONTROL FENCE

LIMITS OF CONSTRUCTION

INSTALL 120 LF SILT CONTROL FENCE

PROP. R.O.W

MATCHLINE STA. 71+50 (R3)

SAN GABRIEL PARKWAY

PROP. CONC. DITCH

PROP. R.O.W.

PROP. RETAINING WALL

LIMITS OF CONSTRUCTION

PROP. R.O.W.

INSTALL 10 LF OF TEMPORARY ROCK BERM PRIOR TO THE CONSTRUCTION OF THE OUTFALL

LEGEND

- FLOW ARROW
- SCF — SILT CONTROL FENCE
- INLET PROTECTION
- RB — ROCK BERM
- SOIL RETENTION BLANKETS (CL 2) (TY E)

NOTE:
1. THE CITY OF LEANDER ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD OR MODIFY EROSION/SEDIMENT CONTROLS ON SITE THROUGHOUT THE DURATION OF THE PROJECT.

2. CONSTRUCTION EXIT LOCATIONS TO BE DETERMINED IN THE FIELD.

3. SILT CONTROL FENCE SHALL BE PLACED 1 FOOT INSIDE THE LIMITS OF CONSTRUCTION.

4. CONTRACTOR WILL USE GEOCURVE INLET FILTER OR EQUIVALENT INSERT TYPE FOR INLET PROTECTION IN ACCORDANCE WITH THE SW3P PLANS.

N

0 10' 20' 40'
SCALE IN FEET

INSTALL 175 LF SILT CONTROL FENCE

LIMITS OF CONSTRUCTION

HUIE H. LAMB, JR.
100.16 ACRES
VOLUME 429, PAGE 142

EXIST. R.O.W.

INSTALL 84 LF SILT CONTROL FENCE

INSTALL 124 LF SILT CONTROL FENCE

INSTALL 10 LF SILT CONTROL FENCE

INSTALL 54 LF SILT CONTROL FENCE

PROP. R.O.W.

INSTALL 1421 SF SOIL RETENTION BLANKETS

9886 SF STAGING AREA FOR STOCKPILES OR BRUSH DEBRIS

INSTALL 103 LF SILT CONTROL FENCE

INSTALL 15 LF SILT CONTROL FENCE

℄ SAN GABRIEL

MATCHLINE STA. 71+50 (R3)

SAN GABRIEL PARKWAY

PROP. RETAINING WALL

INSTALL 20 LF INLET PROTECTION

MATCHLINE STA. 76+00 (R3)

PROP. CONC. DITCH

INSTALL 10 LF OF TEMPORARY ROCK BERM PRIOR TO THE CONSTRUCTION OF THE OUTFALL

MCCLENDON DEVELOPMENT, LLC
9.53 ACRES
LEGAL DESCRIPTION:
AW0350-JOHNSON L.B. SUR

INSTALL 10 LF OF TEMPORARY ROCK BERM PRIOR TO THE CONSTRUCTION OF THE OUTFALL

PROP. R.O.W.

DRAINAGE EASEMENT

LIMITS OF CONSTRUCTION

N

0 10' 20' 40'
SCALE IN FEET

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

8/19/2022

CHRISTOPHER J. TREVINO
102438
LICENSED PROFESSIONAL ENGINEER

FREESE NICHOLS

10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER

SAN GABRIEL PARKWAY - PHASE 2

CIVIL
SW3P
STA. 67+00 (R3) TO STA. 76+00 (R3)

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED JL
DRAWN
REVISED
CHECKED
FILE NAME CV-TRT-PP-SW3P06.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 128
SEQ. 214

Microstation V8 i:\e8580\ffice\On Site
LND15545 N:\Drawings\Phase 2\9. Environmental\CV-TRT-PP-SW3P06.SHT
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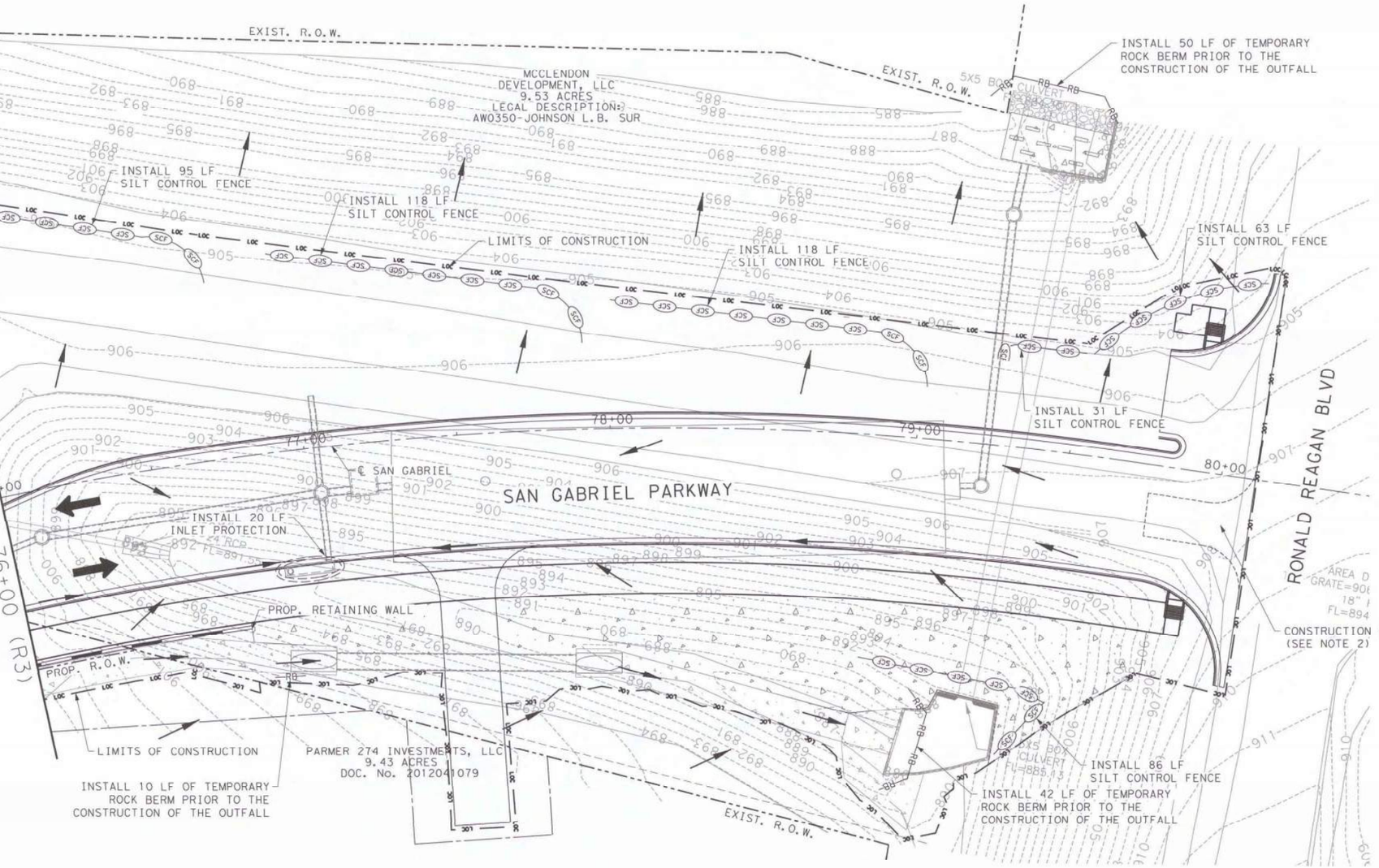
Plot Date/Time=08/30/2022 08:30:40 PM
Active Model=Default
Project=Esri Model=Default
Saved=Aug. 18, 2022 - 08:30:40 PM User=02858

Office\On Site LND15545 Date=Aug. 18, 2022 - 08:30:40 PM User=02858 File=N:\E\Drawings\Phase 2\9. Environmental\CV-TRT-PP-SW3P06.SHT



LEGEND

- FLOW ARROW
- SCF — SILT CONTROL FENCE
- INLET PROTECTION
- RB — ROCK BERM
- SOIL RETENTION BLANKETS (CL 2) (TY E)

NOTE:
1. THE CITY OF LEANDER ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD OR MODIFY EROSION/SEDIMENT CONTROLS ON SITE THROUGHOUT THE DURATION OF THE PROJECT.

2. CONSTRUCTION EXIT LOCATIONS TO BE DETERMINED IN THE FIELD.

3. QUANTITY SUMMARY TABLE INCLUDES AN ADDITIONAL 300 LF OF SILT CONTROL FENCE TO BE USED AT THE DISCRETION OF THE CITY'S INSPECTOR.

4. SILT CONTROL FENCE SHALL BE PLACED 1 FOOT INSIDE THE LIMITS OF CONSTRUCTION.

5. CONTRACTOR WILL USE GEOCURVE INLET FILTER OR EQUIVALENT INSERT TYPE FOR INLET PROTECTION IN ACCORDANCE WITH THE SW3P PLANS.

N

0 10' 20' 40'
SCALE IN FEET

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
CHRISTOPHER J. TREVINO
102438
LICENSED
PROFESSIONAL ENGINEER
8/19/2022
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web www.freese.com

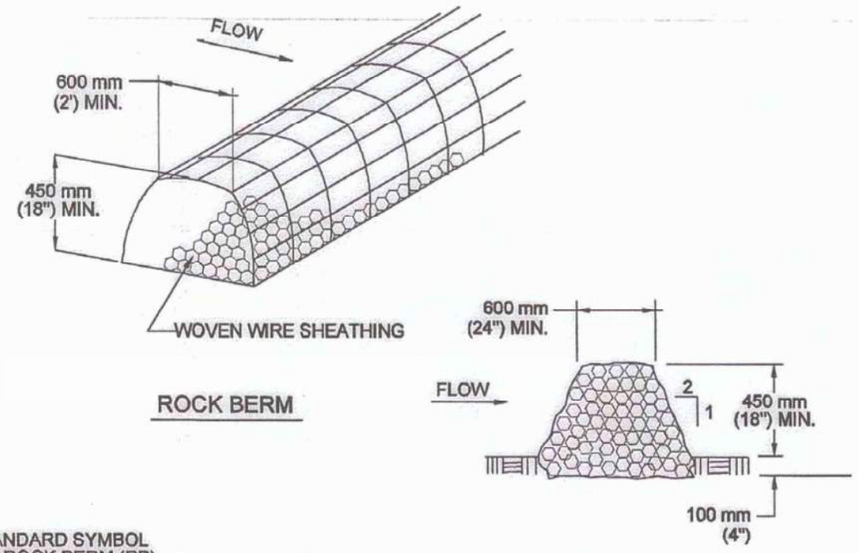
THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
SW3P
STA. 76+00 (R3) TO END

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 08/18/22
DESIGNED
DRAWN JL
REVISED
CHECKED
FILE NAME CV-TRT-PP-SW3P07.SHT

VERIFY SCALE Bar is one inch on an original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 129
SEQ. 214



ROCK BERM

CROSS SECTION

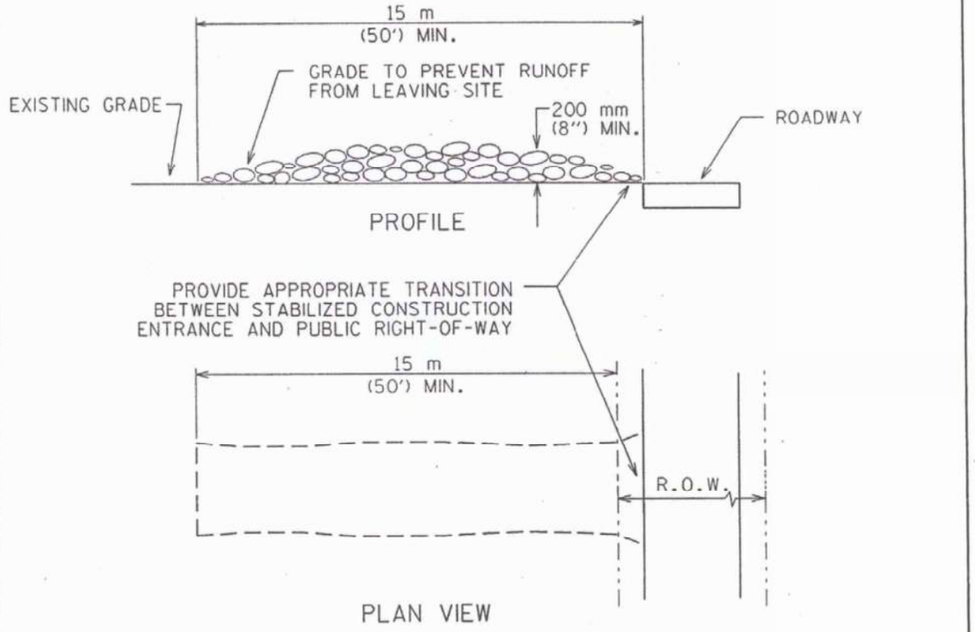
STANDARD SYMBOL
FOR ROCK BERM (RB)

RB

NOTES:

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

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
Mary S. Myers P.E. 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



PLAN VIEW

NOTES:

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

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
Leon Barba 5/23/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING FIRM F-2144

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2

CIVIL
SW3P

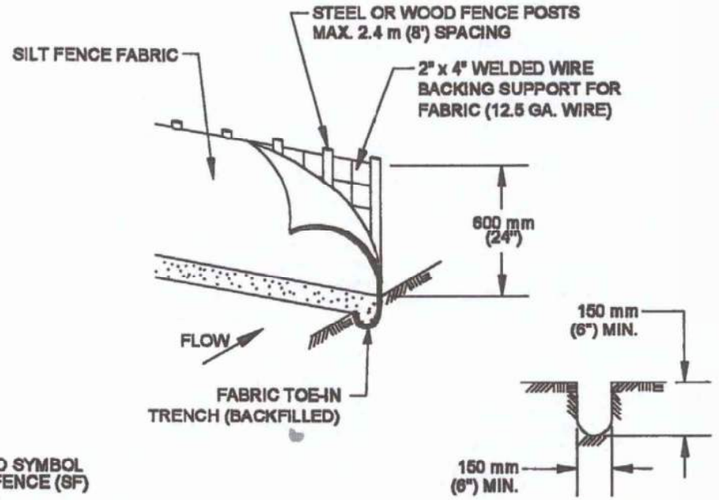
DETAIL #639S-1 & #641S-1

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME DT-SW3P STANDARDS.SHT

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly.
0 1"

SHEET 130
SEQ. 214



STANDARD SYMBOL
FOR SILT FENCE (SF)

SF

L=

TRENCH CROSS SECTION

1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 Inches) DEPTH, USE STEEL POSTS.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.

3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 Inches) DEEP AND 150 mm (6 Inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

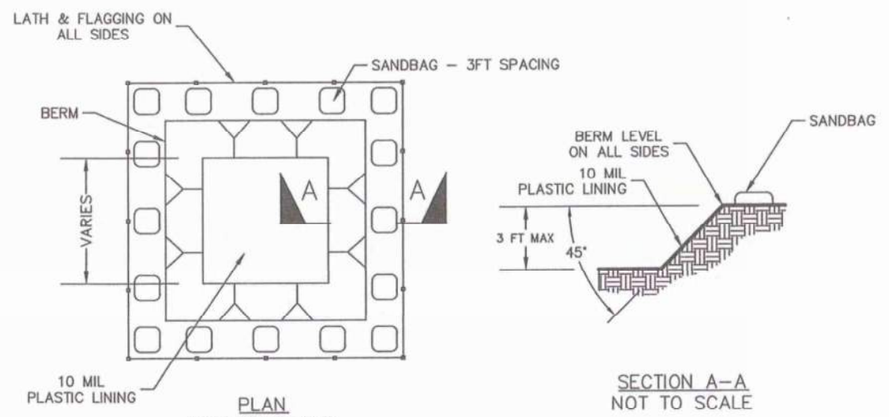
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.

5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

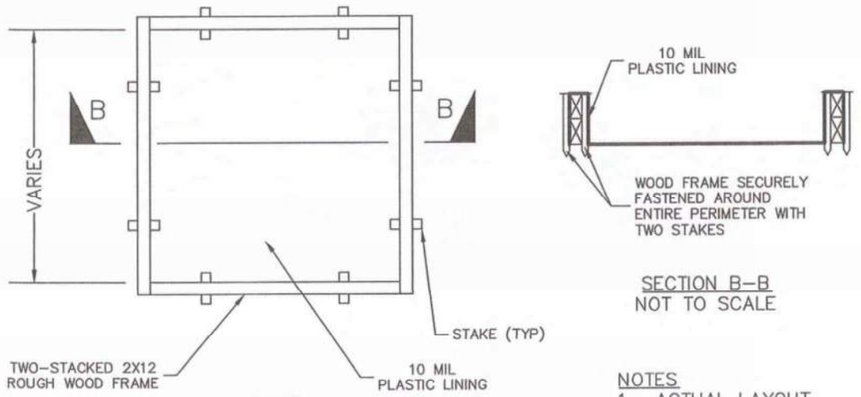
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 Inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
9/1/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



PLAN
NOT TO SCALE
TYPE "BELOW GRADE"

SECTION A–A
NOT TO SCALE



PLAN
NOT TO SCALE
TYPE "ABOVE GRADE"

SECTION B–B
NOT TO SCALE

NOTES
1. ACTUAL LAYOUT
DETERMINED IN FIELD

STATE OF TEXAS
WAYNE S. WATTS
86134
LICENSED
PROFESSIONAL ENGINEER
Wayne S. Watts
01/30/15

City Of Leander, Texas

303-1
CONCRETE WASHOUT

APPROVED
RMG

ISSUED FOR CONSTRUCTION
ON 03/03/2025

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2

CIVIL
SW3P
DETAIL #642S-1 & #303-I

F&N JOB NO. LN015545
DATE 06/04/25
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME CV-TRT-DT-SW3P STANDARDS.SHT

NO. | ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly.

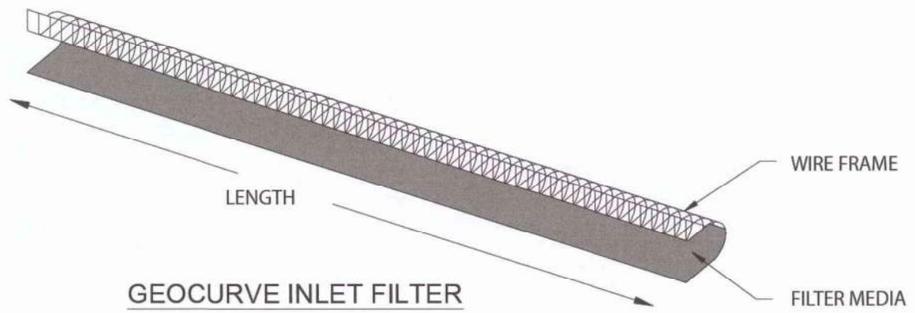
SHEET 131
SEQ. 214

GeoCurve Product Data Sheet

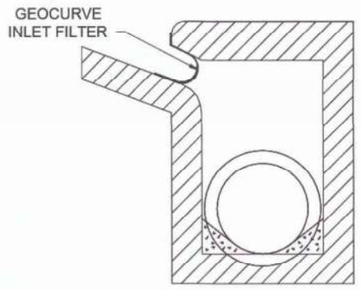
GEOCURVE

STORMWATER CURB INLET FILTER

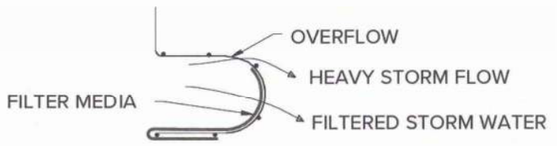
The GeoCurve Stormwater Curb Inlet Filter prevents sediment and debris from entering the storm sewer system, while complying to stormwater management requirements (SWPPP). The GeoCurve's compression fit technology allows the product to fit snug within the mouth of the inlet, hidden from oncoming traffic and pedestrians.



GEOCURVE INLET FILTER



CROSS-SECTION SHOWING PLACEMENT
OF GEOCURVE IN CURB INLET



GEOCURVE INLET FILTER
CROSS-SECTION

GeoSolutions, Inc. | 13812 Aston Street, Houston, TX 77040
(713) 714-8243 | www.geocurve.net

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2

CIVIL
SW3P

GEOCURVE PRODUCT DATA SHEET

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME DT-SW3P STANDARDS.SHT

NO. | BY | DATE | ISSUES

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SHEET 132
SEQ. 214

TCEQ CZP Modification Application

ATTACHMENT M

San Gabriel Parkway Phase 2

Williamson County, Texas

Construction Plans

TCEQ CZP Modification Application

ATTACHMENT P

San Gabriel Parkway Phase 2

Williamson County, Texas

Measures for Minimizing Surface Stream Contamination:

Stormwater and contaminants will be minimized by the capture and conveyance of roadway runoff over vegetated areas and to underground detention areas where it will be filtered through jellyfish filters. Water quality controls have been designed to reduce the contamination load by 93% as specified in the BMP Technical Guidance Manual. The vegetated area and soil retention blankets will reduce increased flowrates to predeveloped rates, thereby reducing stream velocities and scoured banks.

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Tam Tran

Date: 03/18/2025

Signature of Customer/Agent:

Regulated Entity Name: San Gabriel Parkway Phase 2

Project Information

Potential Sources of Contamination

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

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

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

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

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

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

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: South Fork San Gabriel River

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Attachment A

Spill Response Actions

The TCEQ's spill response rules (30 TAC § 327.1-5) define what is considered a reportable spill and outline reporting requirements to the state, local government, and affected persons or property owners. There will be no onsite fuel storage. Any vehicle refueling will be done offsite. This will decrease the likelihood of a chemical spill within the project area. If a spill were to occur within the San Gabriel Parkway project area the appropriate clean up and reporting actions are detailed below. Response and follow-up written report requirements are also identified.

The reportable quantities (RQ) for hazardous substances shall be:

(1) for spills or discharges onto land--the quantity designated as the Final Reportable Quantity (RQ) in Table 302.4 in 40 CFR §302.4; or

(2) for spills or discharges into waters in the state--the quantity designated as the Final RQ in Table 302.4 in 40 CFR §302.4, except where the Final RQ is greater than 100 pounds in which case the RQ shall be 100 pounds.

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.

The RQ for petroleum product and used oil shall be:

(A) 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.

Upon the determination that a reportable discharge or spill has occurred, the responsible person shall notify the agency as soon as possible but not later than 24 hours after the discovery of the spill or discharge. The responsible person shall notify the agency in any reasonable

manner including by telephone, in person, or by any other method approved by the agency. In all cases, the initial notification shall provide, to the extent known, the following information:

(1) the name, address and telephone number of the person making the telephone report;

(2) the date, time, and location of the spill or discharge;

(3) a specific description or identification of the oil, petroleum product, hazardous substances or other substances discharged or spilled;

(4) an estimate of the quantity discharged or spilled;

(5) the duration of the incident;

(6) the name of the surface water or a description of the waters in the state affected or threatened by the discharge or spill;

(7) the source of the discharge or spill;

(8) a description of the extent of actual or potential water pollution or harmful impacts to the environment and an identification of any environmentally sensitive areas or natural resources at risk;

(9) if different from paragraph (1) of this subsection, the names, addresses, and telephone numbers of the responsible person and the contact person at the location of the discharge or spill;

(10) a description of any actions that have been taken, are being taken, and will be taken to contain and respond to the discharge or spill;

(11) any known or anticipated health risks;

(12) the identity of any governmental representatives, including local authorities or third parties, responding to the discharge or spill; and

(13) any other information that may be significant to the response action.

In order to satisfy the federal requirement to notify the State Emergency Response Commission in the State of Texas, the responsible person shall notify one of the following:

(1) the State of Texas Spill-Reporting Hotline at 1-800-832-8224, which serves as the TCEQ spill reporting line during the day and the State Emergency Response Commission (SERC) line at night.

(2) during normal business hours, the local TCEQ regional office (Region 13: Austin, 512-339-2929) in which the discharge or spill occurred; or

(3) the EPA National Response Center at 1-800-424-8802.

The responsible person shall notify the agency as soon as possible whenever necessary to provide information that would trigger a change in the response to the spill or discharge. If the discharge or spill creates an imminent health threat, the responsible person shall immediately notify and cooperate with local emergency authorities (fire department, fire marshal, law enforcement authority, health authority, or Local Emergency Planning Committee (LEPC), as appropriate). The responsible party will cooperate with the local emergency authority in providing support to implement appropriate notification and response actions. The local emergency authority, as necessary, will implement its emergency management plan, which may include notifying and evacuating affected persons. In the absence of a local emergency authority, the responsible person shall take reasonable measures to notify potentially affected persons of the imminent health threat.

The responsible person shall immediately abate and contain the spill or discharge and cooperate fully with the executive director and the local incident command system. The responsible person shall also begin reasonable response actions which may include, but are not limited to, the following actions:

(1) arrival of the responsible person or response personnel hired by the responsible person at the site of the discharge or spill;
(2) initiating efforts to stop the discharge or spill;
(3) minimizing the impact to the public health and the environment;
(4) neutralizing the effects of the incident;
(5) removing the discharged or spilled substances; and
(6) managing the wastes.

Gasoline and diesel will be stored on the project site. These fuels will be stored in aboveground storage tanks with a cumulative storage capacity of less than 250 gallons. Fuels stored onsite will also contain secondary containment in the event of a breach. A nearby spill cleanup kit will be located next to the storage containers.

In the event of a spill:

- Avoid direct contact with the spilled material.
- Avoid inhalation of any gases, fumes, vapors, or smoke. All personnel should stay upwind.
- Move and keep people away from the incident scene. Contact the nearest law-enforcement authority for assistance if necessary. City of Leander Police Department, 512-528-2800.
- Find and if possible, safely remove all ignition sources.
- Assess the situation with regard to injuries.
- Contact the appropriate authorities and responsible parties and allow them to handle the response.

The objective of each spill clean up should be to return the site to pre-spill conditions. If the cleanup will take less than 180 days, the responsible part may elect to clean up the spill under the Texas Risk Reduction Program Rule. The responsible party must perform an Affected property Assessment and submit an Affected Property Assessment Report to the TCEQ regional office for approval to clean up to TRRP standards.

A Spill Follow-up Report will be required within 30 days. The follow-up report must contain:

- Information from the initial notification and a statement that the response to the discharge or spill has been completed and a description of how the action was conducted.
- A chronology listing time and date of the responses by the responsible party. Including the nature of the responses, date and time of first containment actions, and a detailed description of the containment equipment and personnel used, and the effectiveness of the initial response action.
- A description of the weather conditions during the incident and discussion of how the weather may have helped or hindered the cleanup.
- Reported injuries or fatalities.
- A description of actions taken or remove or neutralize the substances discharged or spilled including amounts of substances recovered or contained, amounts of substance lost to the environment, if the soil was affected, disposition of any excavated substances.
- Sampling and analysis from the cleanup.

Texas Commission on Environmental Quality (TCEQ). 2016. 30 TAC § 327.1-5. Chapter 327: Spill Prevention and Control. https://www.tceq.texas.gov/assets/public/legal/rules/rules/pdflib/327.pdf

Texas Parks and Wildlife Department (TPWD). 2022. Oil Spill and Hazardous Substance Response Agencies. https://tpwd.texas.gov/landwater/water/environconcerns/damage_assessment/response.phtml.

TCEQ CZP Modification Application

Temporary Stormwater Section

ATTACHMENT B
San Gabriel Parkway Phase 2
Williamson County, Texas

Potential Sources of Contamination:

- Sediments from land clearing and grubbing activities.
- Gasoline, diesel and hydraulic fluids from construction equipment.
- Asphalt products and concrete from roadway construction.

All material will be hauled away in a manner consistent with the manufacturer's recommendations. Disposal of waste materials will be in conformance with all state and local laws.

TCEQ CZP Modification Application

Temporary Stormwater Section

ATTACHMENT C
San Gabriel Parkway Phase 2
Williamson County, Texas

Sequence of Major Activities

Activity	Acres	Description	Temporary BMPs
Construct and install temporary BMPs	0.5	Install silt fencing and rock berm	Silt fencing, rock berm, inlet protection, stabilized construction entrance
Clearing and Grubbing	1.7	Clearing and grubbing of site entrance and roadway	Silt fencing, rock berm, inlet protection, stabilized construction entrance
Paving	1.7	Leveling and paving the roadway	Silt fencing, rock berm, inlet protection, stabilized construction entrance
Pick up temporary BMPs	0.5	Pick up silt fencing, rock berms, inlet protection, and dispose of any waste materials	N/A

TCEQ CZP Modification Application

Temporary Stormwater Section

ATTACHMENT D
San Gabriel Parkway Phase 2
Williamson County, Texas

Temporary Best Management Practices and Measures:

Temporary erosion control measures such as stabilized construction entrances, silt fencing, rock berms, and inlet protection will be installed according to the plans and specifications before any clearing and grubbing, grading, and excavation activities are conducted.

Stormwater flows over disturbed areas of the site will be filtered with BMPs such as rock berms and silt fences prior to leaving the site. The silt fencing will be placed along downgradient areas of the site to prevent any sediment from entering storm sewers or surface streams. No geologic features are located on the site, therefore no groundwater features would be impacted.

TCEQ CZP Modification Application

Temporary Stormwater Section

ATTACHMENT F
San Gabriel Parkway Phase 2
Williamson County, Texas

Structural Practices:

The silt fences and rock berms will be used to collect and filter sediments from stormwater runoff. Discharge to these locations will be filtered by the use of silt fences and rock berms located along the downstream perimeters of this site. The BMPs will be utilized during the construction phase to prevent sediment and stormwater flow into surface streams and geologic features.

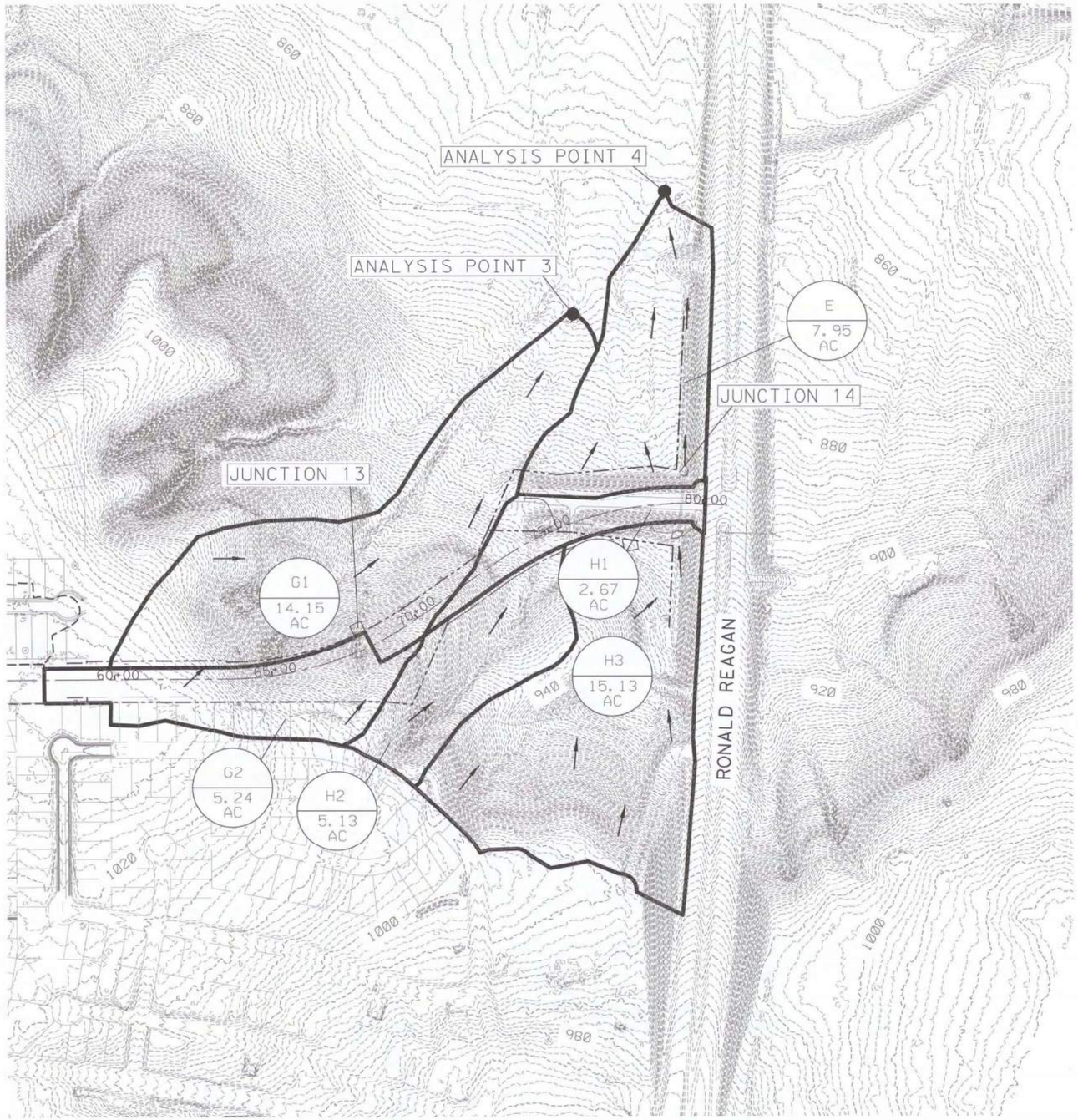
TCEQ CZP Modification Application

ATTACHMENT G

San Gabriel Parkway Phase 2

Williamson County, Texas

Drainage Area Maps



LEGEND

- ANALYSIS POINTS
- AREA #
  ACREAGE
- PROPOSED DRAINAGE AREA
- FLOW ARROW
- PROP. R.O.W.
- PROP. EASEMENT
- PHASE 1

Hydrologic Impact Analysis Existing Conditions Drainage Areas						
Design Point	Draianage Area Name	Area (ac)	Weighted CN	Lag Time (min)	25-year Peak Discharge (cfs)	100-year Peak Discharge (cfs)
San Gabriel River						
3	G1	14.15	78.50	8.27	88	127
	G2	5.24	80.03	6.96	36	51
Brushy Creek						
4	H1	2.67	83.57	4.21	23	32
	H2	5.13	81.42	5.05	40	57
	H3	15.13	83.98	4.84	124	173
	E	7.95	82.19	5.73	60	85

Return Event	Junction 13 Existing Peak Q (cfs)	Analysis Point 3 Existing Peak Q (cfs)	Junction 14 Existing Peak Q (cfs)	Analysis Point 4 Existing Peak Q (cfs)
2-year	14.0	46.3	78.1	102.3
10-year	26.9	91.4	141.9	185.9
25-year	35.9	123.1	185.7	243.7
100-year	51.2	177.3	260.1	342.6

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
ROBERT M. GOLDEN
82077
LICENSED PROFESSIONAL ENGINEER
10/26/2021

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE AREA MAP
EXISTING CONDITIONS

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED KB
DRAWN JL
REVISED XXX
CHECKED XXX
FILE NAME CV-SW-PP-DAM03.SHT

NO. ISSUES | BY | DATE

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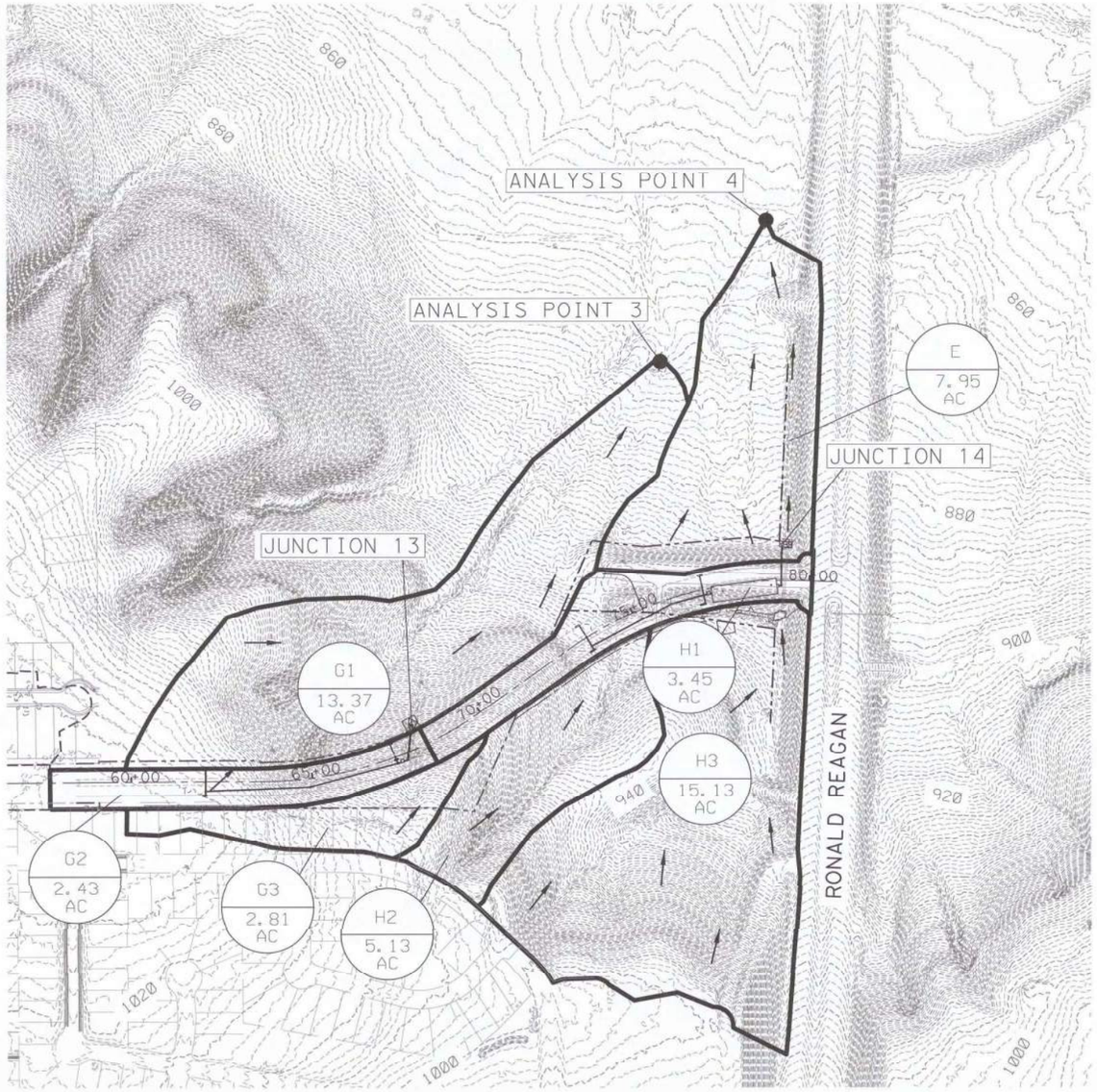

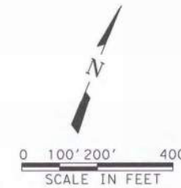

LEGEND

- ANALYSIS POINTS
- AREA # / ACREAGE
- PROPOSED DRAINAGE AREA
- FLOW ARROW
- PROP. R.O.W.
- PROP. EASEMENT
- PHASE 1

Hydrologic Impact Analysis
Proposed Conditions Drainage Areas

Design Point	Draianage Area Name	Area (ac)	Weighted CN	Lag Time (min)	25-year Peak Discharge (cfs)	100-year Peak Discharge (cfs)
San Gabriel River						
3	G1	13.37	78.50	8.27	83	120
	G2	2.43	92.03	3.00	24	33
Brushy Creek						
4	H1	3.45	93.44	3.42	34	45
	H2	5.13	81.42	5.05	40	57
	H3	15.13	83.98	4.84	124	173
	E	7.95	82.19	5.73	60	85
	G3	2.81	83.49	8.20	19	27

Hydrologic Impact Summary

Return Event	Junction 13 Existing Peak Q (cfs)	Junction 13 Proposed Peak Q (cfs)	Junction 13 Q Change (cfs)	Analysis Point 3 Existing Peak Q (cfs)	Analysis Point 3 Proposed Peak Q (cfs)	Analysis Point 3 Q Change (cfs)	Junction 14 Existing Peak Q (cfs)	Junction 14 Proposed Peak Q (cfs)	Junction 14 Proposed w/Detention Peak Q (cfs)	Junction 14 Q Change (cfs)	Analysis Point 4 Existing Peak Q (cfs)	Analysis Point 4 Proposed Peak Q (cfs)	Analysis Point 4 Proposed w/Detention Peak Q (cfs)	Analysis Point 4 Q Change (cfs)
2-year	14.0	12.2	-1.8	46.3	42.9	-3.4	78.1	90.9	77.6	-0.5	102.3	115.1	101.3	-1.0
10-year	26.9	19.5	-7.4	91.4	79.6	-11.8	141.9	161.7	139.5	-2.4	185.9	205.5	184.4	-1.5
25-year	35.9	24.4	-11.5	123.1	105.4	-17.7	185.7	210.4	184.3	-1.4	243.7	268.5	243.1	-0.6
100-year	51.2	32.8	-18.4	177.3	149.5	-27.8	260.1	293.0	259.9	-0.2	342.6	375.9	342.3	-0.3

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THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE AREA MAP
PROPOSED CONDITIONS

F&N JOB NO. LND15545
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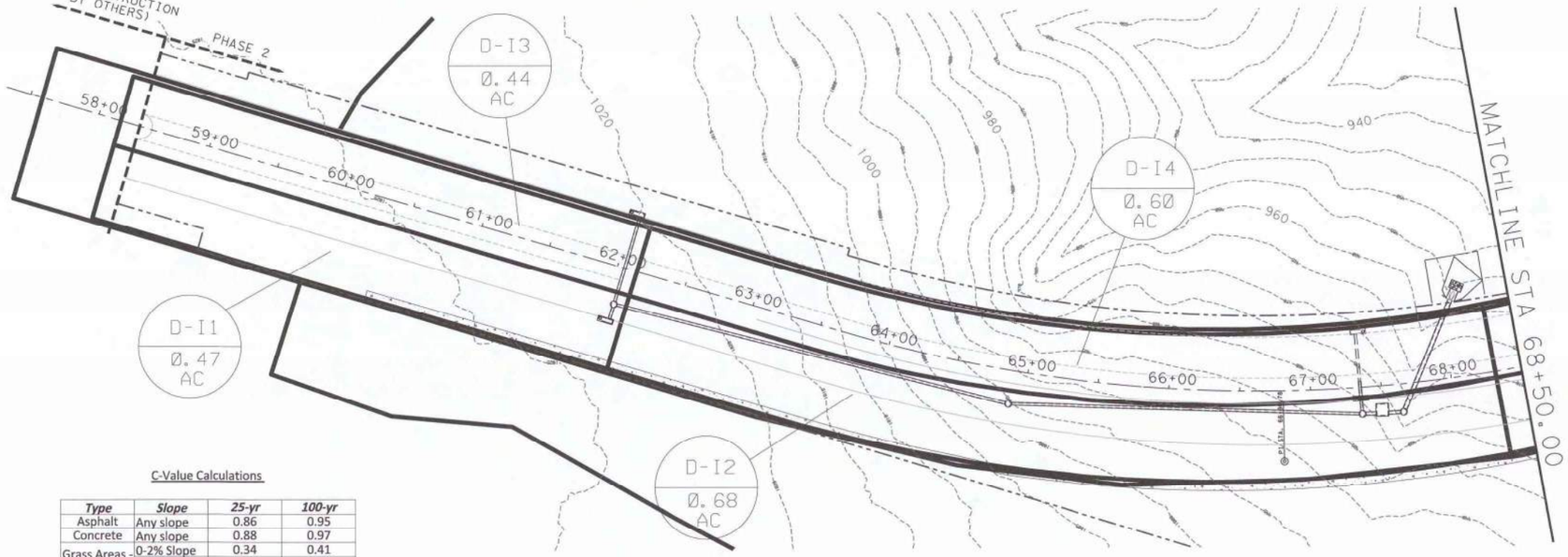
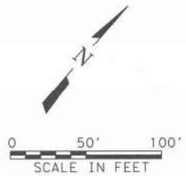
SEQ. 214





LEGEND

- AREA # / ACREAGE
- PROPOSED DRAINAGE AREA
- FLOW ARROW
- PROP. R.O.W.
- PROP. EASEMENT
- PHASE 1

C-Value Calculations

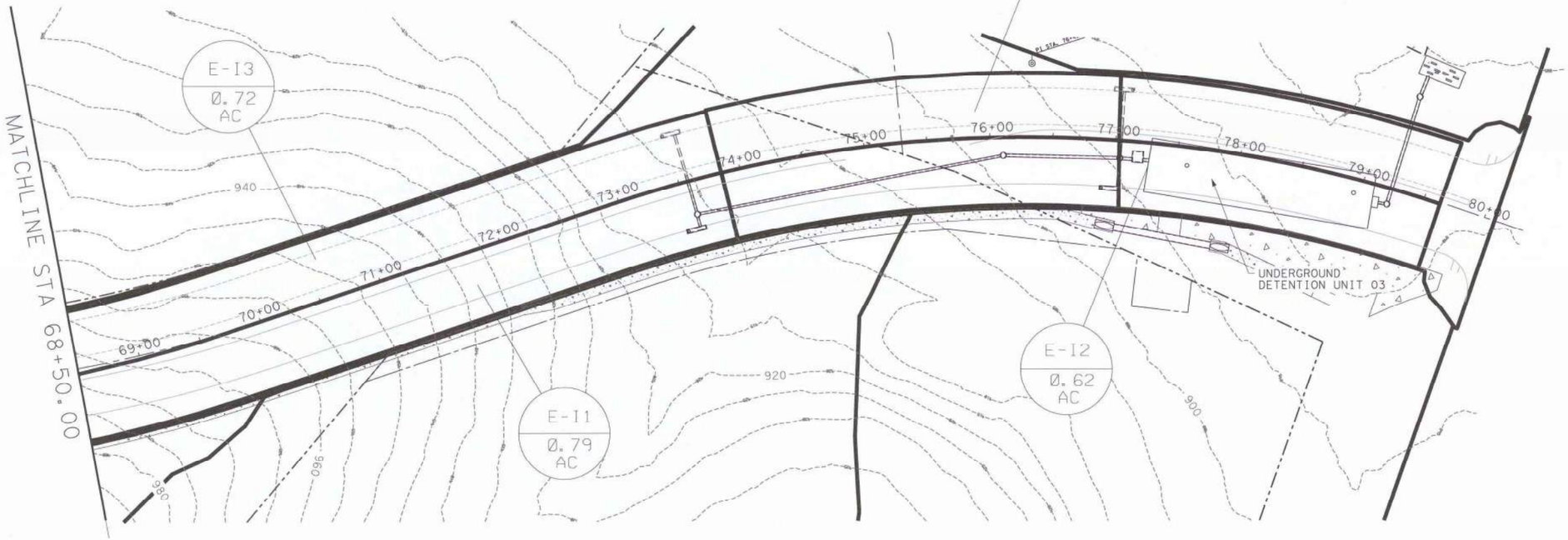
Type	*Slope*	*25-yr*	*100-yr*
Asphalt	Any slope	0.86	0.95
Concrete	Any slope	0.88	0.97
Grass Areas -	0-2% Slope	0.34	0.41
	2-7% Slope	0.42	0.49

From COA Table 2-1

Inlet_ID	DA_ID	Total Area	Roadway IC Area	Building IC Area	Pervious Area	Long_slope	*25-year*				*100-year*			
							Roadway 'C' Portion	Residential 'C' Portion	Pervious 'C' Portion	Combined 'C'	Roadway 'C' Portion	Residential 'C' Portion	Pervious 'C' Portion	Combined 'C'
D-I1	D-I1	0.470	0.34	0.00	0.13	0.005	0.62	0.00	0.09	**0.72**	0.69	0.00	0.11	**0.80**
D-I2	D-I2	0.678	0.53	0.00	0.20	0.090	0.67	0.00	0.12	**0.79**	0.74	0.00	0.14	**0.88**
D-I3	D-I3	0.436	0.31	0.00	0.13	0.005	0.60	0.00	0.10	**0.70**	0.66	0.00	0.12	**0.79**
D-I4	D-I4	0.604	0.45	0.00	0.20	0.090	0.65	0.00	0.14	**0.78**	0.71	0.00	0.16	**0.87**
E-I1	E-I1	0.788	0.54	0.00	0.21	0.090	0.59	0.00	0.11	**0.70**	0.65	0.00	0.13	**0.78**
E-I2	E-I2	0.615	0.58	0.00	0.12	0.090	0.81	0.00	0.08	**0.89**	0.90	0.00	0.09	**0.99**
E-I3	E-I3	0.719	0.48	0.00	0.21	0.090	0.57	0.00	0.12	**0.69**	0.63	0.00	0.14	**0.77**
E-I4	E-I4	0.611	0.57	0.00	0.12	0.090	0.80	0.00	0.09	**0.89**	0.88	0.00	0.10	**0.98**

Project Conditions Rational Method Discharge Calculations

Basin Name	Total Area (acres)	Tc (min)	25-Year Weighted C	100-Year Weighted C	25-Year Intensity (in/hr)	100-Year Intensity (in/hr)	25-Year Peak Discharge (cfs)	100-Year Peak Discharge (cfs)
D-I1	0.47	5.00	0.72	0.80	11.30	15.00	3.83	5.64
D-I2	0.68	5.00	0.79	0.88	11.30	15.00	6.05	8.95
D-I3	0.44	5.00	0.70	0.79	11.30	15.00	3.45	5.17
D-I4	0.60	5.00	0.78	0.87	11.30	15.00	5.33	7.88
E-I1	0.79	5.00	0.70	0.78	11.30	15.00	6.24	9.22
E-I2	0.62	5.00	0.89	0.99	11.30	15.00	6.19	9.13
E-I3	0.72	5.00	0.69	0.77	11.30	15.00	5.61	8.31
E-I4	0.61	5.00	0.89	0.98	11.30	15.00	6.15	8.98



ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
JEROME W. SOANES II
82077
REGISTERED PROFESSIONAL ENGINEER
10/25/2021

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
INLET DRAINAGE AREA MAP

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED
DRAWN
REVISED
CHECKED
FILE NAME CV-SW-PP-IDAM2.SHT

NO. ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 93
SEQ. 214

MicroStation V8i (SELECTseries 3)
Plotted: By: Jeromes Soanes@FreeseNichols.com
Plot Driver Name: C:\Users\jsoanes\AppData\Local\Bentley\MicroStation\CONNECT Edition\Configuration\Organization\FreeseNichols\Standards\Plotting\FreeseNichols.pltcfg
Plot Scale: 400.0000 % Wide
Plot Area: Fit
Model: Default
Plotted: Oct 22, 2021 - 05:25:55 PM
Drawing: C:\Projects\Freese and Nichols, Inc. GSPAK 554

Office: On Site LND15545 Date: Oct. 22, 2021 - 05:25:35 PM User: 02858 File: C:\[F:\Drawings\Phase 2\5. Drainage\CV-SW-PP-IDAM2.SHT

Project Conditions - On Grade Curb Inlet Calculations 25 Year

Area ID	Node ID	Description	Long Slope (%)	Depression Depth (ft)	Depression Width (ft)	Tc (minutes)	Inlet Discharge (cfs)	Inlet Capacity (cfs)	Inlet Required Length (ft)	Inlet Actual Length (ft)	Allowable Ponded Width (ft)	Computed Ponded Width (ft)	Allowable Ponded Depth (ft)	Computed Ponded Depth (ft)	Efficiency
D-I1	D-I1	Curb	9.00	0.58	1.50	5.00	3.83	3.08	16.74	10.00	15.00	7.91	0.50	0.16	0.81
D-I2	D-I2	Curb	9.00	0.42	1.50	5.00	6.80	4.51	22.03	10.00	15.00	6.57	0.50	0.25	0.66
D-I3	D-I3	Curb	9.00	0.58	1.50	5.00	3.45	2.89	15.76	10.00	15.00	7.62	0.50	0.15	0.84
D-I4	D-I4	Curb	9.00	0.42	1.50	5.00	5.89	4.15	20.34	10.00	15.00	6.23	0.50	0.24	0.70
E-I1	E-I1	Curb	8.65	0.52	1.50	5.00	8.53	6.35	28.22	15.00	15.00	10.77	0.50	0.22	0.74
E-I3	E-I3	Curb	8.76	0.52	1.50	5.00	7.35	5.80	25.94	15.00	15.00	10.16	0.50	0.20	0.79

Project Conditions - On Grade Curb Inlet Calculations 100 Year

Area ID	Node ID	Description	Long Slope (%)	Depression Depth (ft)	Depression Width (ft)	Tc (minutes)	Inlet Discharge (cfs)	Inlet Capacity (cfs)	Inlet Required Length (ft)	Inlet Actual Length (ft)	Allowable Ponded Width (ft)	Computed Ponded Width (ft)	Allowable Ponded Depth (ft)	Computed Ponded Depth (ft)	Efficiency
D-I1	D-I1	Curb	9.00	0.58	1.50	5.00	5.64	3.08	21.03	10.00	15.00	9.15	0.50	0.18	0.69
D-I2	D-I2	Curb	9.00	0.42	1.50	5.00	10.72	4.51	28.44	10.00	15.00	7.79	0.50	0.30	0.54
D-I3	D-I3	Curb	9.00	0.58	1.50	5.00	5.17	2.89	19.98	10.00	15.00	8.86	0.50	0.18	0.71
D-I4	D-I4	Curb	9.00	0.42	1.50	5.00	9.37	4.15	26.36	10.00	15.00	7.41	0.50	0.28	0.58
E-I1	E-I1	Curb	8.65	0.52	1.50	5.00	14.14	6.35	37.99	15.00	15.00	13.01	0.50	0.26	0.60
E-I3	E-I3	Curb	8.76	0.52	1.50	5.00	12.28	5.80	35.06	15.00	15.00	12.31	0.50	0.25	0.63

Project Conditions - In Sag Curb Inlet Calculations 25 Year

Area ID	Node ID	Description	Long Slope Left (%)	Long Slope Right (%)	Depression Depth (ft)	Depression Width (ft)	Tc (minutes)	Inlet Discharge (cfs)	Inlet Capacity (cfs)	Allowable Ponded Width (ft)	Computed Ponded Width (ft)	Allowable Ponded Depth (ft)	Computed Ponded Depth (ft)	Efficiency
E-I2	E-I2	Curb	n/a	n/a	0.52	1.50	5.00	8.37	14.39	15.00	9.38	0.50	0.35	1.00
E-I4	E-I4	Curb	n/a	n/a	0.52	1.50	5.00	7.70	14.39	15.00	9.09	0.50	0.33	1.00

Project Conditions - In Sag Curb Inlet Calculations 100 Year

Area ID	Node ID	Description	Long Slope Left (%)	Long Slope Right (%)	Depression Depth (ft)	Depression Width (ft)	Tc (minutes)	Inlet Discharge (cfs)	Inlet Capacity (cfs)	Allowable Ponded Width (ft)	Computed Ponded Width (ft)	Allowable Ponded Depth (ft)	Computed Ponded Depth (ft)	Efficiency
E-I2	E-I2	Curb	n/a	n/a	0.52	1.50	5.00	14.86	14.39	15.00	13.44	0.50	0.51	0.98
E-I4	E-I4	Curb	n/a	n/a	0.52	1.50	5.00	13.48	14.39	15.00	12.59	0.50	0.48	1.00

Project Conditions - In Sag Curb Inlet Calculations 25 Year

Area ID	Node ID	Description	Long Slope (%)	Depression Depth (ft)	Depression Width (ft)	Tc (minutes)	Inlet Discharge (cfs)	Inlet Capacity (cfs)	Inlet Required Length (ft)	Inlet Actual Length (ft)	Allowable Ponded Width (ft)	Computed Ponded Width (ft)	Allowable Ponded Depth (ft)	Computed Ponded Depth (ft)	Efficiency
Sag East	E-I2	E-I3 EAST	0.09	0.52	1.50	5.00	n/a	n/a	n/a	n/a	15.00	7.35	0.50	0.18	n/a
Sag West	E-I2	E-I3 WEST	0.09	0.52	1.50	5.00	n/a	n/a	n/a	n/a	15.00	7.35	0.50	0.18	n/a
On grade gutter calculations used to verify max spread leading to sag inlet from each direction															

Project Conditions - In Sag Curb Inlet Calculations 100 Year

Area ID	Node ID	Description	Long Slope (%)	Depression Depth (ft)	Depression Width (ft)	Tc (minutes)	Inlet Discharge (cfs)	Inlet Capacity (cfs)	Inlet Required Length (ft)	Inlet Actual Length (ft)	Allowable Ponded Width (ft)	Computed Ponded Width (ft)	Allowable Ponded Depth (ft)	Computed Ponded Depth (ft)	Efficiency
Sag East	E-I2	E-I3 EAST	0.09	0.52	1.50	5.00	n/a	n/a	n/a	n/a	15.00	6.96	0.50	0.17	n/a
Sag West	E-I2	E-I3 WEST	0.09	0.52	1.50	5.00	n/a	n/a	n/a	n/a	15.00	6.95	0.50	0.17	n/a
On grade gutter calculations used to verify max spread leading to sag inlet from each direction															

NOTES:
1. MINIMUM TC OF 5 MINUTES USED FOR ALL INLET DRAINAGE AREAS.
2. RAINFALL INTENSITY BASED ON CITY OF LEANDER ATLAS 14 RAINFALL.
3. STORM SEWER CALCULATIONS GENERATED USING BENTLEY MICROSTATION V8i GEOPAK DRAINAGE.

ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED PMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS — 82077 — REGISTERED PROFESSIONAL ENGINEER — 10/25/2021

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE CALCULATIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED CK
DRAWN CK
REVISED
CHECKED KAC
FILE NAME CV-SW-PL-CALCS.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 94
SEQ. 214

CONDUIT HYDRAULICS

Conduit ID	U/S Station	D/S Station	Length (ft)	Size	U/S Invert Elevation (ft)	D/S Invert Elevation (ft)	Slope %	25-YEAR Conduit Flow (cfs)	25-YEAR Conduit Capacity (cfs)	25-YEAR Velocity (ft/s)	25-YEAR US Junction Loss (ft)	25-YEAR U/S HGL Elevation (ft)	25-YEAR D/S HGL Elevation (ft)	25-YEAR U/S EGL Elevation (ft)	25-YEAR D/S EGL Elevation (ft)	100-YEAR Conduit Flow (cfs)	100-YEAR Conduit Capacity (cfs)	100-YEAR Velocity (ft/s)	100-YEAR US JUNCT LOSS (ft)	100-YEAR U/S HGL Elevation (ft)	100-YEAR D/S HGL Elevation (ft)	100-YEAR U/S EGL Elevation (ft)	100-YEAR D/S EGL Elevation (ft)
	SD LINE D																						
Line D1 a	67+49.48 (R3)	67+64.21 (R3)	9.1	24 Inch Dia. Circular	966.0	966.0	0.9	17.9	24.7	8.1	0.2	967.8	967.4	968.6	968.3	26.6	24.7	8.6	0.3	968.3	967.8	969.5	959.2
Line D1 aa	67+64.21 (R3)	67+98.50 (R3)	84.1	30 Inch Dia. Circular	956.4	955.4	1.2	17.9	51.6	4.8	0.1	958.0	956.5	958.6	957.7	26.6	51.6	7.0	0.2	958.4	956.8	959.2	958.2
Line D1 b	67+35.56 (R3)	67+49.48 (R3)	8.1	24 Inch Dia. Circular	969.3	969.1	2.0	17.9	37.0	11.1	0.2	971.1	970.3	971.8	971.5	26.6	37.0	12.1	0.3	971.5	970.6	972.7	972.3
Line D1 c	64+89.80 (R3)	67+35.56 (R3)	246.3	18 Inch Dia. Circular	992.5	972.4	8.2	7.2	35.1	14.8	0.1	994.0	972.8	994.5	976.3	10.7	35.1	16.5	0.1	994.3	972.9	995.0	977.2
Line D1 d	62+05.06 (R3)	64+89.80 (R3)	283.4	18 Inch Dia. Circular	1012.0	993.7	6.4	7.2	31.1	13.6	0.1	1013.3	994.2	1013.8	997.1	10.7	31.1	15.1	0.1	1013.6	994.3	1014.3	997.9
	SD LAT D-1																						
Lat D-1 a	62+05.07 (R3)	62+05.06 (R3)	9.2	18 Inch Dia. Circular	1012.5	1012.3	2.0	3.8	17.2	4.2	0.2	1013.6	1012.8	1013.8	1013.5	5.6	17.2	4.1	0.3	1013.9	1013.0	1014.2	1013.7
	SD LAT D-2																						
Lat D-2	62+05.34 (R3)	62+05.06 (R3)	29.9	18 Inch Dia. Circular	1012.5	1012.3	0.6	3.5	9.5	3.0	0.0	1013.3	1013.3	1013.5	1013.8	5.2	9.5	3.3	0.0	1013.6	1013.6	1013.8	1014.3
	SD LAT D-4																						
Lat D-4	67+34.84 (R3)	67+35.56 (R3)	21.2	18 Inch Dia. Circular	972.6	972.3	1.4	5.3	14.6	7.2	0.0	973.5	973.0	973.8	973.6	7.9	14.6	8.0	0.0	973.7	973.1	974.2	974.0
	SD LINE E																						
Line E1 a	73+57.94 (R3)	76+10.40 (R3)	242.8	18 Inch Dia. Circular	908.7	901.4	3.0	11.7	21.2	11.7	0.9	911.0	902.3	911.8	904.4	17.4	21.2	11.4	1.9	912.1	902.5	913.7	905.0
Line E1 b	76+10.40 (R3)	77+04.02 (R3)	88.2	24 Inch Dia. Circular	900.9	900.0	1.0	11.7	26.3	7.7	0.1	902.3	901.0	902.8	901.9	17.4	26.3	5.5	0.1	903.1	902.6	903.6	904.5
Line E1 c	77+04.02 (R3)	77+14.40 (R3)	8.2	24 Inch Dia. Circular	896.8	896.6	3.2	23.3	47.0	7.7	0.2	899.0	897.9	900.0	899.6	34.5	47.0	10.9	0.5	902.6	901.8	904.5	903.7
Line E1 c2	79+02.48 (R3)	79+08.31 (R3)	5.0	24 Inch Dia. Circular	896.6	896.3	5.2	23.3	60.2	0.0	0.2	898.8	897.6	899.8	899.4	34.5	60.2	11.0	0.5	901.8	901.2	903.7	903.0
Line E1 d*	79+16.40 (R3)	79+22.50 (R3)	4.7	18 Inch Dia. Circular	891.2	891.1	1.7	10.5	15.9	6.3	0.2	892.7	892.2	893.4	893.1	21.1	15.9	12.0	0.8	894.2	893.1	896.4	894.1
Line E1 e*	79+22.50 (R3)	79+24.22 (R3)	85.1	24 Inch Dia. Circular	891.0	884.2	8.0	10.5	74.6	11.0	0.1	892.6	884.7	893.0	888.4	21.1	74.6	13.4	0.2	893.1	885.0	894.1	890.0
Line E1 e2*	79+24.22 (R3)	79+26.03 (R3)	15.0	24 Inch Dia. Circular	884.2	884.0	1.3	10.5	29.7	3.4	0.0	886.9	886.8	887.1	887.0	21.1	29.7	6.7	0.1	887.0	886.8	887.7	887.5
	SD LAT E-1																						
Lat E-1	73+57.89 (R3)	73+57.94 (R3)	7.5	18 Inch Dia. Circular	913.3	913.2	1.0	6.2	12.2	6.6	0.4	914.8	914.1	915.1	914.6	9.2	12.2	7.2	0.6	915.4	914.3	915.7	915.0
	SD LAT E-2																						
Lat E-2	73+57.33 (R3)	73+57.94 (R3)	30.0	18 Inch Dia. Circular	913.5	913.2	1.0	5.6	12.2	6.4	0.0	914.4	914.0	914.8	914.6	8.3	12.2	7.0	0.0	914.7	914.2	915.2	914.9
	SD LAT E-3																						
Lat E-3	77+03.99 (R3)	77+04.02 (R3)	21.1	18 Inch Dia. Circular	901.5	901.3	1.0	6.2	12.1	6.5	0.4	903.0	902.1	903.3	902.7	9.1	12.1	6.1	0.6	903.5	902.3	903.8	903.0
	SD LAT E-4																						
Lat E-4	77+04.00 (R3)	77+04.02 (R3)	28.0	18 Inch Dia. Circular	901.6	901.3	1.1	6.2	12.8	6.8	0.0	902.5	902.0	903.0	902.7	9.0	12.8	6.4	0.0	902.7	902.3	903.3	903.1

NOTE: RESULTS FOR THE SYSTEM UPSTREAM OF DETENTION UNIT 3 WAS CALCULATED USING A SEPARATE GEOPAK DRAINAGE MODEL. THIS MODEL INCLUDES PEAK WSEL CALCULATED IN HEC-HMS MODELING EFFORTS APPLIED AS THE TAILWATER AT THE DS NODE.

* RESULTS FOR THESE CONDUITS WERE CALCULATED USING SEPARATE MODEL WHICH DOES NOT INCLUDE THE TAILWATER APPLIED AT THE UNDERGROUND DETENTION SYSTEM.

NOTE:
1. STORM SEWER CALCULATIONS GENERATED USING BENTLEY MICROSTATION V8i GEOPAK DRAINAGE.
2. ALL STATION CALLOUTS REFERENCE THE ROADWAY CENTERLINE.
3. DETENTION UNIT OUTFLOW FOR 25- AND 100-YR STORM EVENTS WERE OBTAINED IN HEC-HMS AND MANUALLY INPUT INTO THE GEOPAK DRAINAGE MODEL TO MODEL HGL AFTER DETENTION UNIT.

PROPOSED 60" DRIVEWAY CULVERT

	Proposed Conditions				
	Storm Event	Discharge (CFS)	Velocity (FPS)	HW Elevatio	TW Depth
60"-DWY Culvert	25	75.82	12.05	897.29	1.77
	100	100.53	12.93	897.98	1.97

EXISTING 5'x5' BOX CULVERT

	Existing Conditions				
	Storm Event	Discharge (CFS)	Velocity (FPS)	HW Elevatio	TW Depth
5'x5'-Box Culvert	25	164.00	10.53	890.63	1.69
	100	230.00	11.65	892.43	2.13

	Proposed Conditions				
	Storm Event	Discharge (CFS)	Velocity (FPS)	HW Elevatio	TW Depth
5'x5'-Box Culvert	25	183.00	10.77	890.52	1.82
	100	257.00	11.83	892.07	2.30

EXISTING BOX CULVERT NOTES:

1. EXISTING CULVERT USES SQUARE EDGE 90-DEGREE ENTRANCE CONFIGURATION.
2. PROPOSED HEADWALL MODIFICATIONS PROVIDE FOR 1.5:1 BEVELED 90-DEGREE ENTRANCE CONFIGURATION (SHT 110).

ISSUED FOR CONSTRUCTION ON 03/03/2025

APPROVED RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
KRISTEN A. CAMPBELL
82077
REGISTERED PROFESSIONAL ENGINEER
10/25/2021
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF SAN GABRIEL PARKWAY - PHASE 2

CIVIL

DRAINAGE CALCULATIONS

F&N JOB NO. LND15545
DATE 06/04/21
DESIGNED CK
DRAWN CK
REVISED
CHECKED KAC
FILE NAME CV-SW-PL-CALCS.sht

NO. | ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 95
SEQ. 214

DITCH02 - 25 Year

DITCH CHAIN	DITCH STATION	CONTRIBUTING DA	CONTRUBITING AREA (AC.)	FLOWLINE ELEVATION	SIDE SLOPE	LEFT SIDE SLOPE	CHANNEL DEPTH	MANNING'S "n"	DESIGN FLOW	SLOPE	BOTTOM WIDTH	NORMAL DEPTH	VELOCITY	SHEAR STRESS
	(ft)			(ft)	(h/v)(ft/ft)	(h/v)(ft/ft)	(ft)		(cfs)	(ft/ft)	(ft)	(ft)	(ft/s)	(lbs/ft*2)
DITCL02	10+00.00	G3	2.81	1024.02	0	0	2.00	0.013	19.15	-	-	-	-	-
DITCL02	10+65.00	G3	2.81	1023.68	0	0	2.00	0.013	19.15	0.0052	4.0	0.83	5.79	0.27
DITCL02	11+40.00	G3	2.81	1023.04	0	0	2.00	0.013	19.15	0.0085	4.0	0.70	6.82	0.37
DITCL02	12+02.50	G3	2.81	1022.70	0	0	2.00	0.013	19.15	0.0054	4.0	0.82	5.86	0.28
DITCL02	12+50.00	G3	2.81	1021.44	0	0	2.00	0.013	19.15	0.0265	4.0	0.48	9.92	0.80
DITCL02	12+82.50	G3	2.81	1020.25	0	0	2.00	0.013	19.15	0.0366	4.0	0.43	11.01	0.99
DITCL02	13+15.00	G3	2.81	1018.48	0	0	2.00	0.013	19.15	0.0545	4.0	0.38	12.51	1.30
DITCL02	13+90.00	G3	2.81	1011.57	0	0	2.00	0.013	19.15	0.0921	4.0	0.32	14.80	1.86
DITCL02	14+25.00	G3	2.81	1008.54	0	0	2.00	0.013	19.15	0.0866	4.0	0.33	14.51	1.78
DITCL02	14+70.00	G3	2.81	1004.35	0	0	2.00	0.013	19.15	0.0931	4.0	0.32	14.85	1.87
DITCL02	16+05.48	G3	2.81	996.77	0	0	2.00	0.013	19.15	0.0559	4.0	0.38	12.62	1.32
DITCL02	17+30.20	G3	2.81	992.42	0	0	2.00	0.013	19.15	0.0349	4.0	0.44	10.84	0.96
DITCL02	18+52.14	G3	2.81	987.13	0	0	2.00	0.013	19.15	0.0434	4.0	0.41	11.63	1.11
DITCL02	18+98.53	G3	2.81	984.33	0	0	2.00	0.013	19.15	0.0604	4.0	0.37	12.93	1.39
DITCL02	19+07.44	G3	2.81	983.29	0	0	2.00	0.013	19.15	0.1167	4.0	0.30	15.95	2.19
DITCL02	19+13.27	G3	2.81	982.13	0	0	2.00	0.013	19.15	0.1990	4.0	0.25	18.87	3.15
DITCL02	19+67.73	G3	2.81	967.25	0	0	2.00	0.013	19.15	0.2732	4.0	0.23	20.84	3.92
DITCL02	19+72.61	G3	2.81	966.19	0	0	2.00	0.013	19.15	0.2172	4.0	0.25	19.40	3.35
DITCL02	19+78.60	G3	2.81	965.12	0	0	2.00	0.013	19.15	0.1786	4.0	0.26	18.24	2.93
DITCL02	20+15.97	G3	2.81	960.22	0	0	2.00	0.013	19.15	0.1311	4.0	0.29	16.55	2.37

DITCH02 - 100 Year

DITCH CHAIN	DITCH STATION	CONTRIBUTING DA	CONTRUBITING AREA (AC.)	FLOWLINE ELEVATION	SIDE SLOPE	LEFT SIDE SLOPE	CHANNEL DEPTH	MANNING'S "n"	DESIGN FLOW	SLOPE	BOTTOM WIDTH	NORMAL DEPTH	VELOCITY	SHEAR STRESS
	(ft)			(ft)	(h/v)(ft/ft)	(h/v)(ft/ft)	(ft)		(cfs)	(ft/ft)	(ft)	(ft)	(ft/s)	(lbs/ft*2)
DITCL02	10+00.00	G3	2.81	1024.02	0	0	2.00	0.013	25.40	-	-	-	-	-
DITCL02	10+65.00	G3	2.81	1023.68	0	0	2.00	0.013	25.40	0.0052	4.0	1.00	6.32	0.33
DITCL02	11+40.00	G3	2.81	1023.04	0	0	2.00	0.013	25.40	0.0085	4.0	0.85	7.48	0.45
DITCL02	12+02.50	G3	2.81	1022.70	0	0	2.00	0.013	25.40	0.0054	4.0	0.99	6.41	0.34
DITCL02	12+50.00	G3	2.81	1021.44	0	0	2.00	0.013	25.40	0.0265	4.0	0.58	10.93	0.96
DITCL02	12+82.50	G3	2.81	1020.25	0	0	2.00	0.013	25.40	0.0366	4.0	0.52	12.15	1.19
DITCL02	13+15.00	G3	2.81	1018.48	0	0	2.00	0.013	25.40	0.0545	4.0	0.46	13.83	1.56
DITCL02	13+90.00	G3	2.81	1011.57	0	0	2.09	0.013	25.40	0.0921	4.0	0.39	16.39	2.23
DITCL02	14+25.00	G3	2.81	1008.54	0	0	2.00	0.013	25.40	0.0866	4.0	0.40	16.06	2.14
DITCL02	14+70.00	G3	2.81	1004.35	0	0	2.00	0.013	25.40	0.0931	4.0	0.39	16.44	2.24
DITCL02	16+05.48	G3	2.81	996.77	0	0	2.00	0.013	25.40	0.0559	4.0	0.46	13.95	1.59
DITCL02	17+30.20	G3	2.81	992.42	0	0	2.00	0.013	25.40	0.0349	4.0	0.53	11.96	1.16
DITCL02	18+52.14	G3	2.81	987.13	0	0	2.00	0.013	25.40	0.0434	4.0	0.49	12.85	1.34
DITCL02	18+98.53	G3	2.81	984.33	0	0	2.00	0.013	25.40	0.0604	4.0	0.44	14.30	1.67
DITCL02	19+07.44	G3	2.81	983.29	0	0	2.00	0.013	25.40	0.1167	4.0	0.36	17.68	2.62
DITCL02	19+13.27	G3	2.81	982.13	0	0	2.00	0.013	25.40	0.1990	4.0	0.30	20.94	3.76
DITCL02	19+67.73	G3	2.81	967.25	0	0	2.00	0.013	25.40	0.2732	4.0	0.27	23.15	4.68
DITCL02	19+72.61	G3	2.81	966.19	0	0	2.00	0.013	25.40	0.2172	4.0	0.29	21.53	4.00
DITCL02	19+78.60	G3	2.81	965.12	0	0	2.00	0.013	25.40	0.1786	4.0	0.31	20.24	3.50
DITCL02	20+15.97	G3	2.81	960.22	0	0	2.00	0.013	25.40	0.1311	4.0	0.35	18.34	2.83

DITCH03 - 25 Year

DITCH CHAIN	DITCH STATION	CONTRIBUTING DA	CONTRUBITING AREA (AC.)	FLOWLINE ELEVATION	RIGHT SIDE SLOPE	LEFT SIDE SLOPE	CHANNEL DEPTH	MANNING'S "n"	DESIGN FLOW	SLOPE	BOTTOM WIDTH	NORMAL DEPTH	VELOCITY	SHEAR STRESS
	(ft)			(ft)	(h/v)(ft/ft)	(h/v)(ft/ft)	(ft)		(cfs)	(ft/ft)	(ft)	(ft)	(ft/s)	(lbs/ft*2)
DITCL03	10+00.00	G3,H2	7.94	960.22	0	0	2.00	0.013	61.41	-	-	-	-	-
DITCL03	11+64.25	G3,H2	7.94	936.06	0	0	2.00	0.013	61.41	0.1471	4.0	0.59	25.98	5.42
DITCL03	11+89.25	G3,H2	7.94	931.92	0	0	2.00	0.013	61.41	0.1656	4.0	0.57	27.01	5.87
DITCL03	12+14.33	G3,H2	7.94	929.42	0	0	2.00	0.013	61.41	0.0997	8.0	0.41	18.69	2.56
DITCL03	12+39.35	G3,H2	7.94	925.61	0	0	2.00	0.013	61.41	0.1523	8.0	0.36	21.32	3.42
DITCL03	12+64.35	G3,H2	7.94	921.92	0	0	2.00	0.013	61.41	0.1476	8.0	0.36	21.11	3.35
DITCL03	12+89.07	G3,H2	7.94	917.16	0	0	2.00	0.013	61.41	0.1926	8.0	0.33	22.92	4.02
DITCL03	13+12.60	G3,H2	7.94	914.76	0	0	2.09	0.013	61.41	0.1020	8.0	0.41	18.82	2.60
DITCL03	13+36.14	G3,H2	7.94	912.78	0	0	2.00	0.013	61.41	0.0841	8.0	0.43	17.72	2.27
DITCL03	13+59.73	G3,H2	7.94	910.65	0	0	2.00	0.013	61.41	0.0903	8.0	0.42	18.12	2.39
DITCL03	13+83.20	G3,H2	7.94	908.05	0	0	2.00	0.013	61.41	0.1108	8.0	0.40	19.31	2.75
DITCL03	14+06.73	G3,H2,H3* (10%)	8.09	907.65	0	0	2.00	0.013	75.82	0.0170	8.0	0.82	11.54	0.87
DITCL03	14+30.27	G3,H2,H3*	9.44	907.25	0	0	2.00	0.013	75.82	0.0170	8.0	0.82	11.54	0.87
DITCL03	14+53.80	G3,H2,H3*	9.44	906.75	0	0	2.00	0.013	75.82	0.0212	8.0	0.76	12.40	1.01
DITCL03	14+77.33	G3,H2,H3*	9.44	905.93	0	0	2.00	0.013	75.82	0.0348	8.0	0.65	14.52	1.42
DITCL03	15+00.87	G3,H2,H3*	9.44	905.20	0	0	2.00	0.013	75.82	0.0310	8.0	0.68	13.99	1.31
DITCL03	15+24.39	G3,H2,H3*	9.44	904.70	0	0	2.00	0.013	75.82	0.0213	8.0	0.76	12.40	1.01
DITCL03	15+47.93	G3,H2,H3*	9.44	903.61	0	0	2.00	0.013	75.82	0.0463	8.0	0.60	15.89	1.72
DITCL03	15+71.47	G3,H2,H3*	9.44	901.54	0	0	2.00	0.013	75.82	0.0879	8.0	0.49	19.44	2.67
DITCL03	15+94.99	G3,H2,H3*	9.44	899.50	0	0	2.00	0.013	75.82	0.0867	8.0	0.49	19.36	2.65
DITCL03	16+18.52	G3,H2,H3*	9.44	896.99	0	0	2.00	0.013	75.82	0.1067	8.0	0.46	20.66	3.05
DITCL03	16+42.49	G3,H2,H3*	9.44	893.68	0	0	2.00	0.013	75.82	0.1381	8.0	0.42	22.39	3.65
DITCL03	17+59.65	G3,H2,H3*	9.44	888.86	0	0	2.00	0.013	75.82	0.0411	8.0	0.62	15.30	1.59
DITCL03	17+83.49	G3,H2,H3*	9.44	888.40	0	0	2.00	0.013	75.82	0.0193	8.0	0.79	12.02	0.95
DITCL03	18+07.10	G3,H2,H3*	9.44	887.56	0	0	2.00	0.013	75.82	0.0356	8.0	0.65	14.61	1.44
DITCL03	18+30.89	G3,H2,H3*	9.44	886.59	0	0	2.00	0.013	75.82	0.0408	8.0	0.62	15.26	1.58
DITCL03	18+53.67	G3,H2,H3*	9.44	885.95	0	0	2.00	0.013	75.82	0.0281	8.0	0.70	13.56	1.23

DITCH03 - 100 Year

DITCH CHAIN	DITCH STATION	CONTRIBUTING DA	CONTRUBITING AREA (AC.)	FLOWLINE ELEVATION	RIGHT SIDE SLOPE	LEFT SIDE SLOPE	CHANNEL DEPTH	MANNING'S "n"	DESIGN FLOW	SLOPE	BOTTOM WIDTH	NORMAL DEPTH	VELOCITY	SHEAR STRESS
	(ft)			(ft)	(h/v)(ft/ft)	(h/v)(ft/ft)	(ft)		(cfs)	(ft/ft)	(ft)	(ft)	(ft/s)	(lbs/ft*2)
DITCL03	10+00.00	G3,H2	7.94	960.22	0	0	2.00	0.013	81.41	-	-	-	-	-
DITCL03	11+64.25	G3,H2	7.94	936.06	0	0	2.00	0.013	81.41	0.1471	4.0	0.71	28.55	6.54
DITCL03	11+89.25	G3,H2	7.94	931.92	0	0	2.00	0.013	81.41	0.1656	4.0	0.69	29.71	7.08
DITCL03	12+14.33	G3,H2	7.94	929.42	0	0	2.00	0.013	81.41	0.0997	8.0	0.49	20.77	3.05
DITCL03	12+39.35	G3,H2	7.94	925.61	0	0	2.00	0.013	81.41	0.1523	8.0	0.43	23.71	4.08
DITCL03	12+64.35	G3,H2	7.94	921.92	0	0	2.00	0.013	81.41	0.1476	8.0	0.43	23.48	3.99
DITCL03	12+89.07	G3,H2	7.94	917.16	0	0	2.00	0.013	81.41	0.1926	8.0	0.40	25.51	4.79
DITCL03	13+12.60	G3,H2	7.94	914.76	0	0	2.09	0.013	81.41	0.1020	8.0	0.49	20.92	3.10
DITCL03	13+36.14	G3,H2	7.94	912.78	0	0	2.00	0.013	81.41	0.0841	8.0	0.52	19.69	2.71
DITCL03	13+59.73	G3,H2	7.94	910.65	0	0	2.00	0.013	81.41	0.0903	8.0	0.51	20.13	2.85
DITCL03	13+83.20	G3,H2	7.94	908.05	0	0	2.00	0.013	81.41	0.1108	8.0	0.47	21.47	3.28
DITCL03	14+06.73	G3,H2,H3* (10%)	8.09	907.65	0	0	2.00	0.013	100.53	0.0170	8.0	0.99	12.75	1.05
DITCL03	14+30.27	G3,H2,H3*	9.44	907.25	0	0	2.00	0.013	100.53	0.0170	8.0	0.99	12.74	1.05
DITCL03	14+53.80	G3,H2,H3*	9.44	906.75	0	0	2.00	0.013	100.53	0.0212	8.0	0.92	13.71	1.22
DITCL03	14+77.33	G3,H2,H3*	9.44	905.93	0	0	2.00	0.013	100.53	0.0348	8.0	0.78	16.08	1.70
DITCL03	15+00.87	G3,H2,H3*	9.44	905.20	0	0	2.00	0.013	100.53	0.0310	8.0	0.81	15.48	1.57
DITCL03	15+24.39	G3,H2,H3*	9.44	904.70	0	0	2.00	0.013	100.53	0.0213	8.0	0.92	13.71	1.22
DITCL03	15+47.93	G3,H2,H3*	9.44	903.61	0	0	2.00	0.013	100.53	0.0463	8.0	0.71	17.61	2.06
DITCL03	15+71.47	G3,H2,H3*	9.44	901.54	0	0	2.00	0.013	100.53	0.0879	8.0	0.58	21.59	3.19
DITCL03	15+94.99	G3,H2,H3*	9.44	899.50	0	0	2.00	0.013	100.53	0.0867	8.0	0.58	21.49	3.16
DITCL03	16+18.52	G3,H2,H3*	9.44	896.99	0	0	2.00	0.013	100.53	0.1067	8.0	0.55	22.94	3.65
DITCL03	16+42.49	G3,H2,H3*	9.44	893.68	0	0	2.00	0.013	100.53	0.1381	8.0	0.51	24.88	4.35
DITCL03	17+59.65	G3,H2,H3*	9.44	888.86	0	0	2.00	0.013	100.53	0.0411	8.0	0.74	16.95	1.90
DITCL03	17+83.49	G3,H2,H3*	9.44	888.40	0	0	2.00	0.013	100.53	0.0193	8.0	0.95	13.28	1.14
DITCL03	18+07.10	G3,H2,H3*	9.44	887.56	0	0	2.00	0.013	100.53	0.0356	8.0	0.78	16.18	1.72
DITCL03	18+30.89	G3,H2,H3*	9.44	886.59	0	0	2.00	0.013	100.53	0.0408	8.0	0.74	16.91	1.89
DITCL03	18+53.67	G3,H2,H3*	9.44	885.95	0	0	2.00	0.013	100.53	0.0281	8.0	0.84	15.00	1.47

ISSUED FOR CONSTRUCTION
ON 03/03/2025

APPROVED
RMG

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
82077
REGISTERED PROFESSIONAL ENGINEER
10/25/2021
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

THE CITY OF LEANDER
SAN GABRIEL PARKWAY - PHASE 2
CIVIL
DRAINAGE CALCULATIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. LN015545
DATE 06/04/21
DESIGNED NRS
DRAWN MA
REVISED
CHECKED KAC
FILE NAME CV-SW-PL-CALCS.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 96
SEQ. 214

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: San Gabriel Parkway
Date Prepared: 8/15/2022

8/19/2022

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by Sara Smith (Contech)
Reviewed by Jerome Scanlon (FNI)

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**2.98**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**2.29**	acres
Total post-development impervious cover fraction * =	**0.77**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1995**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**2**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	**D**	
Total drainage basin/outfall area =	**1.58**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.17**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.74**	
$L_{M\ THIS\ BASIN}$ =	**1020**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86.0**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**1.58**	acres
A_I =	**1.17**	acres
A_P =	**0.41**	acres
L_R =	**1122**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**1020**	lbs.
F =	**0.909**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**1.07**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.237**	cubic feet per second

7. Jellyfish

Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-6-2**	
Jellyfish Treatment Flow Rate =	**1.25**	cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: San Gabriel Parkway
Date Prepared: 8/15/2022

8/19/2022

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by Sara Smith (Contech)
Reviewed by Jerome Scanlon (FNI)

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**2.98**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**2.29**	acres
Total post-development impervious cover fraction * =	**0.77**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1995**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**2**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	**E**	
Total drainage basin/outfall area =	**2.03**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.12**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.55**	
$L_{M\ THIS\ BASIN}$ =	**975**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86.0**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
$LR = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**1.40**	acres
A_I =	**1.12**	acres
A_P =	**0.28**	acres
L_R =	**1071**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**975**	lbs.
F =	**0.911**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**1.02**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.18**	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-6-2**	
Jellyfish Treatment Flow Rate =	**1.25**	cfs

Project:	SGPPII
County:	Williamson
P (in.):	32

Water Quality Calculations

Discharge Point No.	Drainage Basin/Outfall Area	Proposed BMP Type	Proposed BMP ID	Sub-basins Draining to BMP	TSS Removal Efficiency (%)	Total Contributing Area (ac.)	Pre-Development Impervious Area (ac.)	Post-Development Impervious Area (ac.)	BMP Drainage Basin Information						
									A_C (ac.)	A_I (ac.)	A_P (ac.)	L_M (lb.)	L_R (lb.)	Desired L_M (lb.)	F
OF-D	Line D	Contech Jellyfish Filter	JFD		86	1.58	0.00	1.17	1.58	1.17	0.41	1020	1122	1020	0.91
OF-E	Line E	Contech Jellyfish Filter	JFE		86	1.40	0.00	1.12	1.40	1.12	0.28	975	1071	975	0.91
TOTAL						**2.99**	**0.00**	**2.29**				**1995**	≤	**1995**	

L_M	Required TSS load (lb.) removal from the basin.		A_P	Pervious area (ac.) remaining in the BMP catchment area.	
A_C	Total on-site drainage area (ac.) in the BMP catchment area.		L_R	Maximum TSS load (lb.) available for removal from this catchment area by the proposed BMP.	
A_I	Impervious area (ac.) proposed in the BMP catchment area.		F	Fraction of annual runoff to treat the BMP catchment area.	

STATE OF TEXAS
JEROME W. SCANLON III
82077
REGISTERED
PROFESSIONAL ENGINEER
8/19/2022

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

TCEQ CZP Modification Application

Temporary Stormwater Section

ATTACHMENT I
San Gabriel Parkway Phase 2
Williamson County, Texas

Inspection and Maintenance of Best Management Practices:

BMPs installed during construction will be maintained in accordance with the requirements of the TCEQ RG-348 and EPA NPDES/TPDES. The following maintenance procedures shall be followed until permanent stabilization occurs.

Dust control:

1) When dust is evident during dry weather, reapply dust control BMPs such as vegetative cover, mulch, spray-on adhesive, sprinkling with water, stone or gravel placement, surface roughening, and wind/dust barrier.

Stabilized construction entrance:

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

Silt fence:

1) Inspect all fencing weekly, and after any rainfall.

2) Remove sediment when buildup reaches 6 inches.
3) Replace any torn fabric or install a second line of fencing parallel to the torn section.
4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be re-vegetated. The fence itself should be disposed of in an approved landfill.

Rock Berm:

1) Inspect weekly or after each rain and the stone and/or fabric core-woven sheathing shall be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc. event and repair or replacement shall be made promptly as needed.
2) When silt reaches a depth equal to one-third the height of the berm or 6", whichever is less, the silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.
3) Service rock berms shall be inspected daily. Silt shall be removed when it reaches a depth of 6".
4) Rock berms shall be removed when the site is completely stabilized to prevent stream flow blocking during storm flows or drainage.

Inlet Protection:

1) Inspections shall be made weekly or after each rain event. Repair and replacement should be made immediately as needed.
2) Accumulated debris or silt shall be removed when it reaches a depth of 3 inches and disposed of at an approved site in a manner that will not contribute to additional siltation.
3) The dyke shall be removed when the site is stabilized and construction is complete.

Completed inspection reports will include the following information:

- scope of the inspection,
- name(s) of personnel making the inspection,
- reference to qualifications of inspection personnel,
- date of the inspection,
- observed major construction activities, and
- actions taken as a result of the inspection.

The inspection report should state whether the site was in compliance or identify any incidents of non-compliance. The report will be signed by the inspector in accordance with Part III.F.7 of the TPDES general permit and filed in the SWP3. Inspection reports will be kept in the Contractor's file, along with the SWP3, for at least three years from the date that the project is completed.

Final stabilization of the construction site has been achieved when all soil disturbing activities at the site have been completed, and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. If a vegetative cover cannot be established, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) can be employed. When these conditions have been met, BMPs can be removed from the construction area.

Owner & Responsible Party of Maintenance:	Emily Truman, P.E., City of Leander
Address:	201 N. Brushy Street
City, State, & Zipcode:	Leander, Texas 78646
Telephone Number:	(512) 528-2766

TCEQ CZP Modification Application

Temporary Stormwater Section

ATTACHMENT J
San Gabriel Parkway Phase 2
Williamson County, Texas

Schedule of Interim and Permanent Soil Stabilization Practices:

Soil Stabilization for all disturbed areas shall be accomplishes by hydraulic planting. The following is an outline to accomplish the required stabilization.

1. Preparing seed bed. After the designated areas have been rough graded to the lines, grades, and typical section indicated in the construction drawings, a suitable seed bed shall be prepared. The seedbed shall consist of a minimum of either 4 inches of approved top soil or approved salvaged topsoil, cultivated, and rolled sufficiently to reduce the soil to a state of good tilth. The optimum depth for the seeding shall be ¼ inch. Water shall be gently applied as required to prepare the seedbed prior to the planting operation either by broadcast seeding or hydraulic planting. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction operations have ceased for more than 21 days. Seeding shall be performed in accordance with the requirements described.

2. Watering. All watering shall comply with City Ordinances. Broadcast seeded areas shall immediately be watered with a minimum of 5 gallons of water per square yard or as needed and in the manner and quantity as directed by the Engineer of designated representative. Hydraulic seeded areas and native grass seeded areas shall be watered commencing after the tackifier has dried with a minimum of 5 gallons of water per square yard or as needed to keep the seedbed in a wet condition favorable for the growth of grass. Watering should continue until the grass is 1 ½ inches in height and accepted by the engineer or designated representative. Watering can be postponed immediately after a ½ inch or greater rainfall on the site but shall be resumed before the soil dries out.

3. Hydraulic planting. The seedbed shall be prepared as specified above and the hydraulic planting equipment, which can place all materials in a single operation, shall be used.

4. Soil Retention Blanket. Retention blankets will be installed over the seeded area and will prevent erosion of the slope and keep the seeds from washing downstream.

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, Huie H. Lamb of Trustee of Huie H. and Doris S. Lamb Living Trust

Land Owner Name (Individual) / Firm (applicable to Legal Entities)

am the Owner of Record or Title Holder of the property located at:

99.501 acres, L.B. Johnson Survey, A-350, Williamson Co., Texas

(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:

Wayne S. Watts, City of Leander

(Applicant Name / Plan Holder (Legal Entity or Individual))

to conduct:

San Gabriel Parkway Phase 2, roadway extension

(Description of the proposed regulated activities)

on the property described above or at:

San Gabriel Parkway and Isaias Drive; (30.603046, -97.822886)

(If applicable to a precise location for the authorized regulated activities)

Land Owner Acknowledgement

I, Huie H. Lamb of Trustee of Huie H. and Doris S. Lamb Living Trust

Land Owner Name (Individual) / Firm (applicable to Legal Entities)

understand that while Wayne S. Watts, City of Leander

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, Huie H. Lamb of Trustee of Huie H. and Doris S. Lamb Living Trust

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, Huie H. Lamb of Trustee of Huie H. and Doris S. Lamb Living Trust

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

Huie H. Lamb 2-3-21

Land Owner Signature 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 3rd day of February 2021

Dianna L Tinkler

NOTARY PUBLIC

DIANNA L. TINKLER
My Notary ID # 10969543
Expires September 8, 2021

Dianna L. Tinkler

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 09-08-2021

Attached: (Mark all that apply)

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

Applicant Acknowledgement

I, Wayne S. Watts (Applicant Name (Individual)) of City of Leander (Firm (applicable to Legal Entities))

acknowledge that Huie H. Lamb (Land Owner Name (Legal Entity or Individual))

has provided Wayne S. Watts (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 Wayne S. Watts (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

Huie H. Lamb J (Applicant Signature) 2-3-21 (Date)

THE STATE OF § _____

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 3rd day of February 2021.

Dianna L Tinkler
NOTARY PUBLIC

DIANNA L. TINKLER
My Notary ID # 10969543
Expires September 8, 2021

Dianna L. Tinkler
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 09-08-2021

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

I Emily Truman, PE, CFM, PMP.,
Print Name

City Engineer,
Title - Owner/President/Other

of City of Leander,
Corporation/Partnership/Entity Name

have authorized Tam Tran
Print Name of Agent/Engineer

of Freese and Nichols, 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

3/19/2025
Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Emily Truman 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 19 day of March, 2025.

LORRAINE B. ELDRED
My Notary ID # 124552760
Expires July 23, 2028

Lorraine B Eldred
NOTARY PUBLIC

Lorraine B. Eldred
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: July 23, 2028

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: San Gabriel Parkway Phase 2
Regulated Entity Location: Williamson County
Name of Customer: City of Leander
Contact Person: Tam Tran Phone: (512) 617-3148
Customer Reference Number (if issued):CN 600646012
Regulated Entity Reference Number (if issued):RN 110456332

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

☒ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	*Size*	*Fee Due*
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	6.99 Acres	$ 5,000.00
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:

Date: 03/18/2025

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

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

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)*

☒ Other **Permit Modification**

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 600646012		**RN 110456332**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	6/27/2025

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
City of Leander	

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

11. Type of Customer:	☐ Corporation	☐ Individual	Partnership: ☐ General ☐ Limited
Government: ☒ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other		☐ Sole Proprietorship	☐ Other:

12. Number of Employees	**13. Independently Owned and Operated?**
☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher	☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	201 N. Brushy Street						
	City	Leander	**State**	TX	**ZIP**	78641	**ZIP + 4**

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 528-2721		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

San Gabriel Parkway Phase 2

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

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

25. Description to Physical Location:	North of Hero Way, west of Ronald Reagan Blvd.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Leander			TX	78641	
Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).					
27. Latitude (N) In Decimal:	30.602905		**28. Longitude (W) In Decimal:**	-97.825724	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	36	10	-97	49	32

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
1521		236115	

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

Roadway

34. Mailing Address:							
	City		**State**		**ZIP**		**ZIP + 4**
35. E-Mail Address:							

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

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

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
		11000372		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

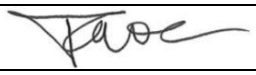
SECTION IV: Preparer Information

40. Name:	Tam H. Tran	**41. Title:**	Environmental Consultant

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512 **)** 381-1830		**( )** -	Tam.Tran@freese.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:	Freese and Nichols, Inc.	**Job Title:**	Environmental Consultant	
Name *(In Print):*	Tam Tran		**Phone:**	**(** 512 **)** 381- **1830**
Signature:			**Date:**	6/27/2025