Transmittal

Date: 11/21/2023

To: Texas Commission of Environmental Quality;

From: BGE, Inc. – Aaron Neumann, PE

Reference: Wimberley Ridge Contributing Zone Plan

Item No.	Number of Copies	Description
0.	1	Transmittal
1.	1	Contributing Zone Plan Checklist
2.	1	Edwards Aquifer Cover Page
3.	1	Contributing Zone Plan Application
4.	1	Temporary Storm Water Section
5.	1	Copies of Notice of Intent
6.	1	Agent Authorization Form
8.	1	Application Fee Form
9.	1	Check Payable to “Texas Commission on Environmental Quality”
10.	1	Core Data Form
11.	1	Owner Authorization Form

Comments: If you have any questions please feel free to give me a call at +1 (210) 581-3643 – Aaron Neumann

Contributing Zone Plan Checklist

- **Edwards Aquifer Application Cover Page (TCEQ-20705)**
- **Contributing Zone Plan Application (TCEQ-10257)**

  Attachment A - Road Map
  Attachment B - USGS Quadrangle Map
  Attachment C - Project Narrative
  Attachment D - Factors Affecting Surface Water Quality
  Attachment E - Volume and Character of Stormwater
  Attachment F - Suitability Letter from Authorized Agent (if OSSF is proposed)
  Attachment G - Alternative Secondary Containment Methods (if AST with an alternative method of secondary containment is proposed)
  Attachment H - AST Containment Structure Drawings (if AST is proposed)
  Attachment I - 20% or Less Impervious Cover Declaration (if project is multi-family residential, a school, or a small business and 20% or less impervious cover is proposed for the site)
  Attachment J - BMPs for Upgradient Stormwater
  Attachment K - BMPs for On-site Stormwater
  Attachment L - BMPs for Surface Streams
  Attachment M - Construction Plans
  Attachment N - Inspection, Maintenance, Repair and Retrofit Plan
  Attachment O - Pilot-Scale Field Testing Plan, if BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs
  Attachment P - Measures for Minimizing Surface Stream Contamination

- **Storm Water Pollution Prevention Plan (SWPPP)**

  -OR-

- **Temporary Stormwater Section (TCEQ-0602)**

  Attachment A - Spill Response Actions
  Attachment B - Potential Sources of Contamination
  Attachment C - Sequence of Major Activities
  Attachment D - Temporary Best Management Practices and Measures
  Attachment E - Request to Temporarily Seal a Feature, if sealing a feature
  Attachment F - Structural Practices
  Attachment G - Drainage Area Map
  Attachment H - Temporary Sediment Pond(s) Plans and Calculations
  Attachment I - Inspection and Maintenance for BMPs
  Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

- **Copy of Notice of Intent (NOI)**
- **Agent Authorization Form (TCEQ-0599), if application submitted by agent**

- **Application Fee Form (TCEQ-0574)**
- **Check Payable to the "Texas Commission on Environmental Quality"**
- **Core Data Form (TCEQ-10400)**

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: Wimberly Ridge						**2. Regulated Entity No.:**			
3. Customer Name: Impact Commercial Services, LLC						**4. Customer No.:**			
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):**			+/- 20.55 acres
9. Application Fee:	$4,000		**10. Permanent BMP(s):**			Batch Detention Pond			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Hays		**14. Watershed:**			Lower Blanco River			

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)	_X_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 ___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. Antonio Rodriguez
Print Name of Customer/Authorized Agent 6-19-24
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):	

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.

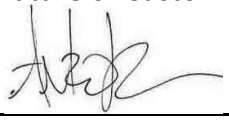
Signature

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: Antonio Rodriguez

Date: 06/19/2024

Signature of Customer/Agent:



Regulated Entity Name: Wimberley Ridge

Project Information

1. County: Hays
2. Stream Basin: Lone Woman-Cypress Creek Basin
3. Groundwater Conservation District (if applicable): Hays Trinity GCD
4. Customer (Applicant):

   Contact Person: Hutchison Utt
   Entity: Impact Commercial Services
   Mailing Address: 1206 W. Slaughter Lane
   City, State: Austin, TX Zip: 78748
   Telephone: (512) 531-9800 Fax: _____
   Email Address: mikel@impactcomsrv.com

5. Agent/Representative (If any):

Contact Person: Antonio Rodriguez
Entity: BGE, Inc.
Mailing Address: 330 San Pedro Ave #202
City, State: San Antonio, TX Zip: 78216
Telephone: +1 (210) 581-3600 Fax: _____
Email Address: trodriguez@bgeinc.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 _____.
☒ The project site is not located within any city's limits or ETJ.

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

The project is in Hays County, 2.25 miles west of the City of Woodcreek ETJ and 2 miles northwest of the City of Wimberly ETJ, and is located along West Valley Spring Road 0.56 miles north of FM 2325

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

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

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

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

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

11. Existing project site conditions are noted below:

☐ Existing commercial site
☐ Existing industrial site
☐ Existing residential site
☐ Existing paved and/or unpaved roads
☒ Undeveloped (Cleared)
☐ Undeveloped (Undisturbed/Not cleared)
☐ Other: _____

12. The type of project is:

☒ Residential: # of Lots: 56
☐ Residential: # of Living Unit Equivalents: _____
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 20.55 Acres

    Total disturbed area: 21.69 Acres

14. Estimated projected population: 153

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

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	***Sq. Ft.***	***Sq. Ft./Acre***	***Acres***
Structures/Rooftops	196,000	÷ 43,560 =	4.50
Parking	0	÷ 43,560 =	0
Other paved surfaces	107,864.4	÷ 43,560 =	2.48
Total Impervious Cover	303,864.4	÷ 43,560 =	6.98

Total Impervious Cover 6.98 **÷ Total Acreage** 21.69 **X 100 =** 32.2**% Impervious Cover**

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

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

For Road Projects Only

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

☒ N/A

18. Type of project:

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

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

☐ Concrete
☐ Asphaltic concrete pavement
☐ Other: _____

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

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

21. Pavement Area:

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

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 Aqua Texas (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			

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
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" = 60'.

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 FIRM Panel 4809C0219F (09/01/2005) .

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

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

37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.

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

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

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

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

42. ☒ Surface waters (including wetlands).

    ☐ N/A

43. ☒ Locations where stormwater discharges to surface water.

    ☐ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

    ☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

    ☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

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

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

    ☐ N/A

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

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

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

    ☐ N/A

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

    ☐ N/A

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

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

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

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

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

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

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

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

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

☐ N/A

55. ☒ **Attachment M - Construction Plans**. Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

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

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

☐ N/A

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

☒ N/A

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

☐ N/A

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

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

responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

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

Administrative Information

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

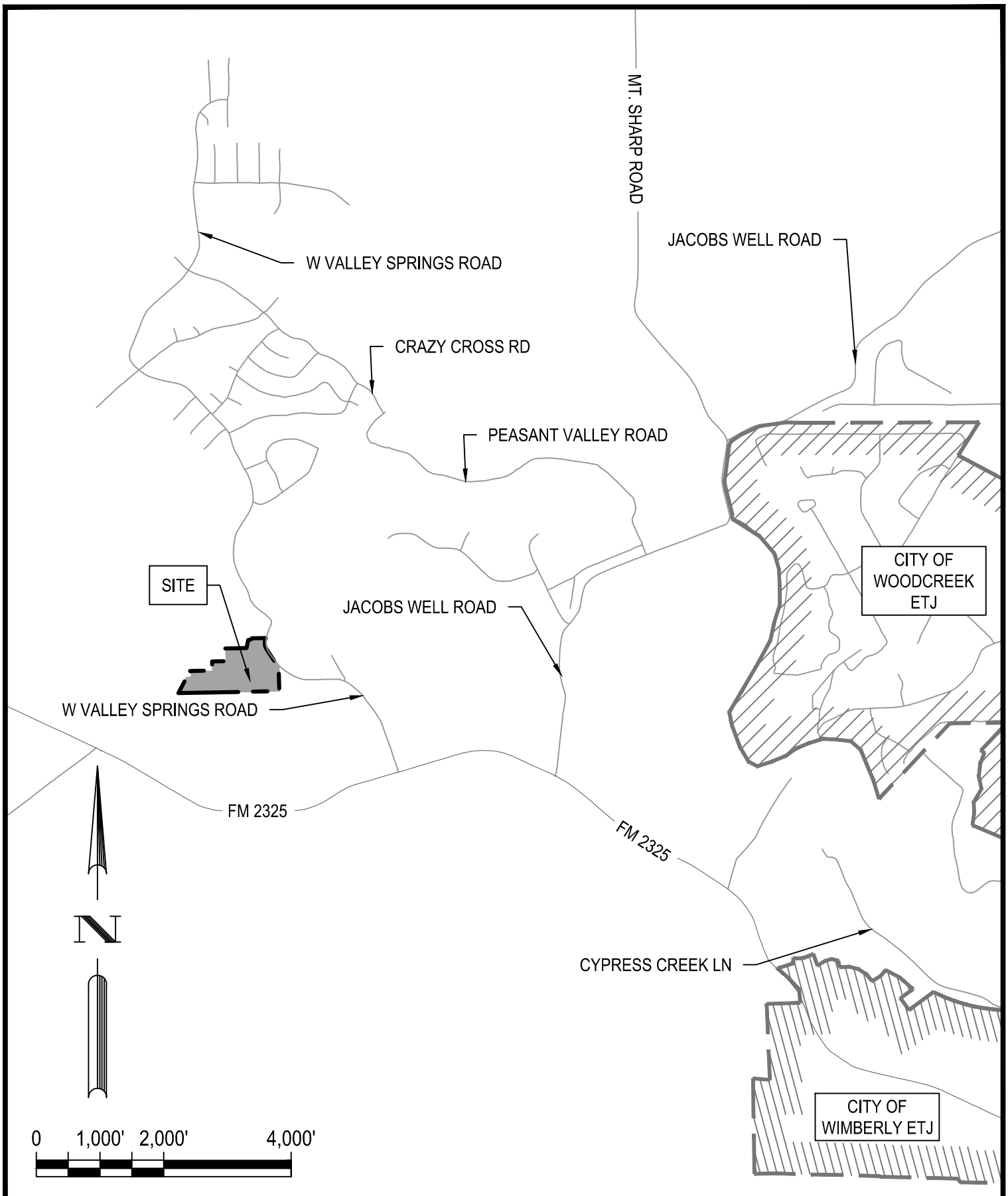
62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

ATTACHMENT A

ROAD MAP



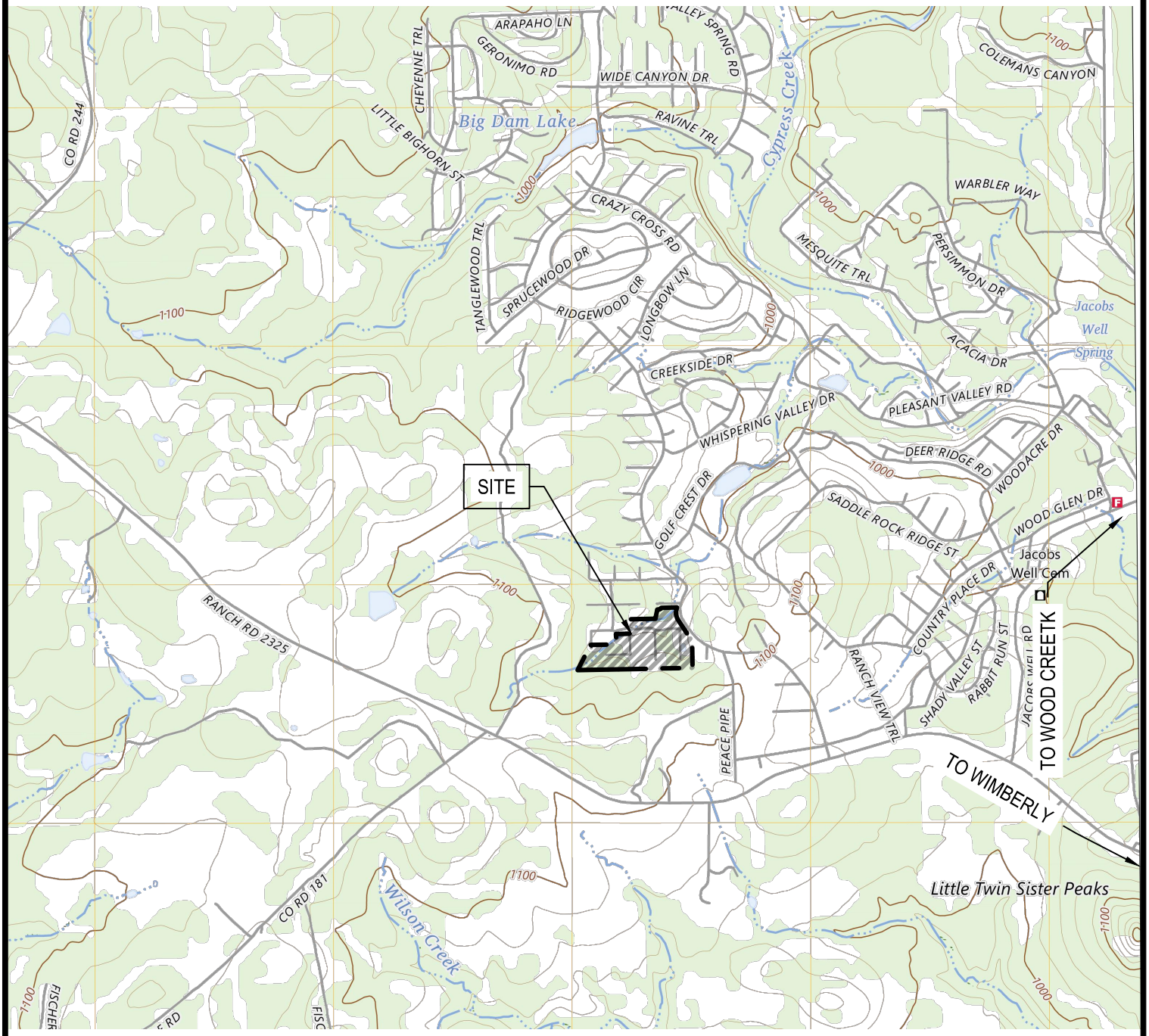
ATTACHMENT A - ROAD MAP

WIMBERLY RIDGE

BGE, INC.
7330 SAN PEDRO AVENUE, SUITE 202
SAN ANTONIO, TX 78216
TBPE Registration No. F-1046
TEL: 210-581-3600 www.bgeinc.com

ATTACHMENT B

USGS QUADRANGLE MAP



0 1,000' 2,000' 4,000'

SCALE: 1" = 2000'

N

USGS QUADRANGLE:
DRIFTWOOD, TX

ATTACHMENT B - USGS MAP

WIMBERLY RIDGE

BGE, INC.
7330 SAN PEDRO AVENUE, SUITE 202
SAN ANTONIO, TX 78216
TBPE Registration No. F-1046
TEL: 210-581-3600 www.bgeinc.com

ATTACHMENT C
PROJECT NARRATIVE

Wimberly Ridge

Contributing Zone Plan Application (TCEQ-10257)

Attachment C: Project Narrative

Wimberly Ridge is a proposed single-family residential development located in Hays County, Texas. The project site is located 2.25 miles west of the City of Woodcreek ETJ and 2 miles northwest of the City of Wimberly ETJ, along West Valley Spring Road 0.56 miles north of FM 2325. The deeded property is 19.08 acres of single-family residential lots out of a previously platted subdivision named Woodcreek Section 25. Additionally, 2.61 acres of adjacent public ROW will be developed for the purpose of access, grading, and future drainage conveyance. Currently, the site is cleared land, with minimal brush and ground cover and is surrounded by privately owned properties to its north, west and south, with its eastern boundary being West Valley Springs Road.

Historically, the Woodcreek Section 25 subdivision, was designated for development, but has been undeveloped for close to 50 years, therefore demolition will not be required. Portions of the land have been cleared but the site will still need to be prepared for construction. The property will be developed into 56 single family residential lots. The project's scope includes prepping the site for construction, grubbing, and grading of the overall site, as well as installation of water, wastewater, and street and drainage improvements including drainage channels and a water quality batch detention pond acting as the BMP for the proposed site. The batch detention pond will regulate the disposal of TSS into the Contributing Zone of the Edwards Aquifer in accordance with the *Texas Commission on Environmental Quality's (TCEQ) Technical Guidance Manual (TGM) RG-348 (2005)*.

The total area for the development is 21.69 acres. The project consists of 4.50 acres of impervious cover for the 56 proposed residential lots, and 2.48 acres of impervious cover from streets and channels, for a total of 6.98 acres. The impervious cover of the site was calculated to be about 32.2% of the site. This increase in impervious cover has been considered in the proposed conditions section of the overall drainage study for the site.

ATTACHMENT D

FACTORS AFFECTING SURFACE WATER QUALITY

Attachment D: Factors Affecting Water Quality

Potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site during construction include:

- Soil erosion due to the clearing of the site.
- Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle drippings.
- Hydrocarbons from asphalt paving operations.
- Miscellaneous trash and litter from construction operations and material wrappings.

Potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site after construction include:

- Fertilizers, herbicides, and pesticides from agricultural operations.
- Oil, grease, fuel, and hydraulic fluid contamination from vehicle drippings.
- Dirt and dust that may fall off vehicles.
- Miscellaneous trash and litter.

ATTACHMENT E

VOLUME AND CHARACTER OF STORMWATER

Attachment E: Volume and Character of Stormwater

Wimberly Ridge is a 21.69-acre project with a singular watershed engulfing the site. At completion, the site will consist of about 32.8% impervious cover.

For an overview of sub-drainage and drainage areas please refer to the drainage area maps and calculations for the site, provided with this application.

To calculate the runoff flow from the site, a HEC-HMS 4.11 model was created to simulate the 2-year, 10-year, 25-year and 100-year storm events considering type III rainfall. Times of concentration and curve numbers were calculated using Technical Release-55 (TR-55). Below is a summary of the pre-development and post-development runoff from the batch detention pond:

CP-1

Pre-Development Runoff:

	CN	Area (acres)	Runoff (cfs)
Q_{100}	78.3	151.5	**903.5**

Post-Development Runoff:

	CN	Area (acres)	Runoff (cfs)
Q_{100}	79.7	151.5	**903.3**

ATTACHMENT J

BMPs FOR UPGRADIENT STORMWATER

BGE, Inc. • 7330 San Pedro, Suite 202 • San Antonio, Texas 78216 • 210-581-3600 • www.bgeinc.com

Attachment J: BMP For Upgradient Stormwater

Wimberly Ridge is a 21.69-acre project with a singular watershed engulfing the site. There are about 129.7 acres of watershed upgradient from the site. The upgradient area is composed of approximately 18.46 acres of good woods, 59.40 acres of fair woods, approximately 44.77 acres of fair grass and 7.07 acres of poor grass. There is minimal offsite impervious cover to account for. A system of channels on-site will convey the upgradient storm water to the water quality, batch-detention pond, where the runoff will be treated for pollutants before leaving the site.

For an overview of sub-drainage and drainage areas please refer to the drainage area maps and calculations for the site, provided with this application.

ATTACHMENT K

BMPs FOR ON-SITE STORMWATER

BGE, Inc. • 7330 San Pedro, Suite 202 • San Antonio, Texas 78216 • 210-581-3600 • www.bgeinc.com

Attachment K: BMP For On-Site Stormwater

The proposed land use of Wimberly Ridge is single family residential development with about 32.8% of impervious cover within the limits of construction of 21.69 acres. Silt control fences are to be installed to prevent stormwater from carrying sediment offsite during construction. Construction entrances are to be placed to facilitate arrival and departure of construction vehicles without the addition of undue erosion. The runoff pollutants and TSS from the site will be treated in the water quality, batch detention pond to regulate the release of water into the Edwards Aquifer Contributing Zone in accordance with *TCEQ's Technical Guidance Manual (TGM) RG-348 (2005)*.

ATTACHMENT L

BMPs FOR SURFACE STREAMS

BGE, Inc. • 7330 San Pedro, Suite 202 • San Antonio, Texas 78216 • 210-581-3600 • www.bgeinc.com

Attachment L: BMPs for Surface Streams

The proposed water quality detention pond is the only permanent BMP required for the site. Wimberly Ridge is single family residential development with about 32.8% of impervious cover within the limits of construction of 21.69 acres. The water quality, detention pond will reduce the amount of sediment, organic matter, pesticides before the runoff enters the offsite surface streams and Edwards Aquifer Contributing Zone.

ATTACHMENT M
CONSTRUCTION PLANS

WIMBERLEY RIDGE

HAYS COUNTY

CIVIL CONSTRUCTION DRAWINGS
WATER, SEWER, STREET, AND DRAINAGE IMPROVEMENTS

APRIL 2024

SUMMARY NOTES:

DEVELOPER/OWNER: IMPACT COMMERCIAL SERVICES
CONTACT: HUTCH UTT
EMAIL: HUTCH@IMPACTCOMSRV.COM
1206 W. SLAUGHTER LANE
AUSTIN, TEXAS 78748
PHONE: (512) 423-9834

ENGINEER: BGE, INC., TBPE-1046
CONTACT: AARON NEUMANN, P.E.
EMAIL: ANEUMANN@BGEINC.COM
7330 SAN PEDRO AVENUE SUITE 202
SAN ANTONIO, TEXAS 78216
PHONE: (210) 581-3600

SURVEYOR: CHAPARRAL PROFESSIONAL LAND SURVEYING, INC.
CONTACT: JOHN BRILEY, SIT
EMAIL: JOHN@CHAPSURVEY.COM
3500 McCALL LANE
AUSTIN, TEXAS 78744
PHONE: (512) 443-1724

FLOODPLAIN INFORMATION

NO PORTION OF THE LOT IN THIS TRACT IS WITHIN THE BOUNDARIES OF THE 100 YEAR FLOODPLAIN OF ANY WATERWAY THAT IS WITHIN THE LIMITS OF THE FEDERAL FLOOD INSURANCE ADMINISTRATION FIRM PANEL 48209C0219F, EFFECTIVE 9/02/2005.

BENCHMARK

BM #1: SQUARE BOX CUT ON NORTH SIDE OF THE
CONCRETE APPROACH OF SHILO CIRCLE.

ELEVATION = 1073.20'
VERTICAL DATUM: NAVD 88 (GEOID 18)

BM #2: "CH161" MAG NAIL WITH WASHER SET IN CONCRETE

SURFACE COORDINATES:
N 13922976.12
E 2239502.39

TEXAS STATE PLANE COORDINATES:
N 13921166.37
E 2239211.29

ELEVATION = 1056.35'
VERTICAL DATUM: NAVD 88 (GEOID 18)

GENERAL NOTES

A STORM WATER CONTROL MEASURES MAINTENANCE PLAN HAS BEEN PREPARED FOR THIS DEVELOPMENT AND IS RECORDED AS DOCUMENT #_____ , IN THE PUBLIC RECORDS OF HAYS COUNTY, TEXAS

ALL CONSTRUCTION SHALL CONFORM TO THE LATEST HAYS COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION.

JURISDICTION:

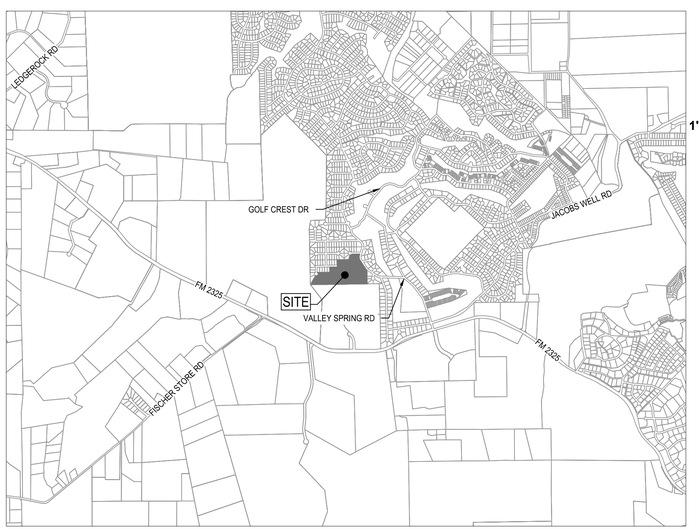
HAYS COUNTY
EDWARDS AQUIFER AUTHORITY

UTILITY PROVIDERS:

WATER: AQUA TEXAS
SEWER: AQUA TEXAS
ELECTRIC: PEDERNALES ELECTRIC COOPERATIVE

SCHOOL DISTRICT:
WIMBERLEY ISD

VICINITY MAP



Sheet List Table

Sheet Number	Sheet Title
1	TITLE SHEET
2	GENERAL NOTES SHEET (SHEET 1 OF 2)
3	GENERAL NOTES SHEET (SHEET 2 OF 2)
4	EXISTING CONDITIONS SURVEY
5	FINAL PLAT
6	OVERALL LAND PLAN
7	EROSION CONTROL PLAN
8	EROSION CONTROL DETAILS
9	EXISTING CONDITIONS DRAINAGE MAP
10	PROPOSED CONDITIONS DRAINAGE MAP
11	ONSITE DRAINAGE AREA MAP
12	ONSITE DRAINAGE CALCULATIONS
13	OVERALL GRADING PLAN
14	STORM DRAIN COLLECTION SYSTEM
15	BATCH DETENTION POND PLAN
16	BATCH DETENTION POND SECTIONS (SHEET 1 OF 3)
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21	HOUSTON STREET PLAN AND PROFILE (SHEET 1 OF 2)
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23	BAY CITY STREET PLAN AND PROFILE
24	BEAUMONT STREET PLAN AND PROFILE
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26	GALVESTON STREET PLAN AND PROFILE
27	CHANNEL A1 PLAN AND PROFILE
28	CHANNEL B PLAN AND PROFILE STA 1+00 TO 7+50
29	CHANNEL B PLAN AND PROFILE STA 7+50 TO END
30	CHANNEL C PLAN AND PROFILE STA 1+00 TO 7+50
31	CHANNEL C PLAN AND PROFILE STA 7+50 TO END
32	CHANNEL D PLAN AND PROFILE STA 0+00 TO END
33	CHANNEL E PLAN AND PROFILE STA 6+50 TO END
34	CHANNEL E PLAN AND PROFILE STA 0+50 TO 6+50
35	CHANNEL F & G PLAN AND PROFILE
36	CHANNEL H PLAN AND PROFILE STA 0+00 TO END
37	CHANNEL I PLAN AND PROFILE STA 0+00 TO END
38	STREET & DRAINAGE DETAILS (SHEET 1)
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41	STREET & DRAINAGE DETAILS (SHEET 4)
42	OVERALL UTILITY PLAN
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44	FORCE MAIN SANITARY SEWER PLAN
45	UTILITY DETAILS (SHEET 1)
46	UTILITY DETAILS (SHEET 2)
47	UTILITY DETAILS (SHEET 3)
48	SIGNAGE AND STRIPING PLAN

REVISIONS/CORRECTIONS					
SHEET LIST	DESCRIPTION	DATE	REVISE (R) ADD (A) VOID (V) SHEET NO.'S	ACCEPTED BY	APPROVAL DATE

NOT FOR CONSTRUCTION

_____

HAYS COUNTY DIRECTOR OF TRANSPORTATION

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

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

BGE

BGE, Inc.
7330 San Pedro Ave., Suite 202
San Antonio, TX 78216
Tel: 210-581-3600 ● www.browngay.com
TBPE Registration No. F-1046

SUBMITTED BY

_____

DATE: _____

AARON J. NEUMANN,P.E.
BGE,INC. TBPE NO.F-1046
7330 SAN PEDRO AVENUE SUITE 202
SAN ANTONIO, TEXAS 78216
PHONE: (210) 581-3600

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: AR

ROADWAY DESIGN, PAVING AND DRAINAGE IMPROVEMENTS HAYS COUNTY, TEXAS

DESIGN STANDARDS:

UNLESS SPECIFICALLY LISTED BELOW, DEFAULT STANDARDS SHALL BE THE MOST CURRENT CITY OF AUSTIN (COA) STANDARD SPECIFICATIONS. DESIGN GUIDELINES SHALL FOLLOW THE "AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS", "U.S. DEPARTMENT OF TRANSPORTATION HIGHWAY UTILITY GUIDE", "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS DIRECTED BY THE COUNTY ENGINEER. CONFLICTS FOUND IN THE PLANS AND OR SPECIFICATIONS, SHALL BE RESOLVED THROUGH THE DESIGN ENGINEER, AND WITH THE APPROVAL OF THE DIRECTOR OF TRANSPORTATION.

FUNCTIONAL CLASSIFICATIONS AND REQUIRED MINIMUM MFPS INPUT VALUES:

Hays County Classification ADT	Local 101-1,000	Minor Collector 1,001-2,500	Major Collector 2,501-5,000	Minor Arterial 5,001-15,000	Major Arterial >15,000
Corresponding COA Classification ADT	Residential Collector 1,000	Neighborhood Collector 2,000	Primary Collector 3,500	Minor Arterial 6,000	Major Arterial 18,000
Percentage Growth	3.5%	4%	4%	4%	4%
18-Kip Equivalency Factor	0.4	0.53	0.53	0.62	0.84
Initial Serviceability Index	4.20	4.20	4.20	4.20	4.20
Terminal Serviceability Index	1.50	1.50	2.00	2.50	2.50

WHENEVER A SOIL INVESTIGATION INDICATES THAT MORE THAN TWO FEET OF EXPANSIVE SUBGRADE SOIL WITH A P.I. OF 35 OR GREATER EXISTS BENEATH THE EXPECTED BASE LAYER, THE DESIGN PROFESSIONAL SHALL INCORPORATE A COMBINATION OF TWO OF THE MEASURES DESCRIBED IN COA TRANSPORTATION MANUAL SECTION 3.1.3 IN THE ROADWAY DESIGN. MEDIAN ISLANDS SHALL BE ENCOMPASSED BY AN APPROVED VERTICAL OR HORIZONTAL MOISTURE BARRIER. ALL PAVEMENT DESIGNS SHALL COMPLY WITH SECTION 3 OF THE LATEST COA TRANSPORTATION CRITERIA MANUAL AND HAYS COUNTY REQUIRED MINIMUM THICKNESSES. EROSION AND SEDIMENT CONTROL: ALL E&S CONTROLS SHALL BE IN PLACE BEFORE ANY WORK BEGINS. THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE HAS THE AUTHORITY TO STOP WORK AT ANY TIME FOR FAILURE TO MAINTAIN SUFFICIENT EROSION/SEDIMENTATION CONTROL. START NOTICE: THE CONTRACTOR SHALL NOTIFY THE HAYS COUNTY TRANSPORTATION DEPARTMENT A MINIMUM OF FORTYEIGHT (48) HOURS IN ADVANCE OF THE WORK COMMENCING ON THE PROJECT. THE NOTICE SHALL INCLUDE THE DEVELOPMENT PERMIT NUMBER ISSUED UNDER THE REGULATIONS OF HAYS COUNTY, TEXAS. FAILURE TO FOLLOW THESE REQUIREMENTS MAY RESULT IN THE COUNTY NOT ACCEPTING THE ROADWAY AND DRAINAGE FACILITIES FOR MAINTENANCE UPON COMPLETION. SAFETY: THE DIRECTOR OF TRANSPORTATION HAS THE AUTHORITY TO STOP WORK AT ANY TIME DUE TO UNSAFE WORK PRACTICES.

ITEM: 1.00 EXCAVATION AND SUBGRADE PREPARATION

1.01 DESCRIPTION

THE WORK TO BE PERFORMED UNDER THIS SPECIFICATION WILL CONSIST OF EXCAVATION AND GRADING NECESSARY FOR THE PREPARATION OF THE ROAD-BED SUBGRADE AND ROADSIDE DRAINAGE DITCHES, AND SHALL INCLUDE THE REMOVAL AND SATISFACTORY DISPOSAL OF ALL TREES, SHRUBS, BRUSH, ROOTS, ROCKS AND OTHER DEBRIS WITHIN THE RIGHT-OF-WAY BEING CLEARED.

1.02 CONSTRUCTION METHODS

AFTER THE SITE OF THE WORK HAS BEEN PROPERLY CLEARED, EXCAVATION AND GRADING SHALL PROCEED IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS, AND AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. WHEN REQUIRED BY THE PLANS AND SPECIFICATIONS, SELECTED MATERIALS FROM THE EXCAVATION SHALL BE UTILIZED TO IMPROVE THE ROAD-BED, IN WHICH CASE THE WORK SHALL BE PERFORMED IN SUCH MANNER AND SEQUENCE THAT SUITABLE MATERIALS MAY BE SELECTED, REMOVED SEPARATELY AND DEPOSITED IN THE ROADWAY WITHIN THE LIMITS AND TO THE REQUIRED ELEVATIONS SHOWN ON THE PLANS. IF UNSUITABLE SUBGRADE MATERIAL IS ENCOUNTERED, THIS MATERIAL SHALL BE EXCAVATED TO A DEPTH AS REQUIRED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE AND REPLACED WITH APPROVED MATERIAL IN COMPACTED LIFTS NO GREATER THAN 6" COMPACTED IN DEPTH. CARE SHALL BE EXERCISED SO AS NOT TO DISTURB THE NATURAL GROUND BELOW THE COMPACTED SUBGRADE LIMITS EXCEPT FOR THE CONSTRUCTION OF STRUCTURES, OR WHEN SO ORDERED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE FINISHED GRADES, SLOPES AND EDGES OF THE EXCAVATION SHALL BE BACKFILLED WHERE NECESSARY, USING SELECT MATERIALS THOROUGHLY COMPACTED AND DRESSED OFF UNIFORMLY IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL AT ALL TIMES MAKE AMPLE PROVISIONS FOR COMPLETELY AND READILY DRAINING THE SUBGRADES AND EXCAVATIONS.

1.03 EMBANKMENTS / FILLS

EMBANKMENTS OR FILLS SHALL BE CONSTRUCTED AT THE LOCATIONS AND TO THE LINES AND GRADES SHOWN ON THE PLANS. THE UNDERLYING SUBGRADE SHALL BE SCARIFIED AND BENCHED AS REQUIRED IN CONFORMANCE WITH TXDOT ITEM 132. MATERIALS PLACED IN FILLS SHALL BE FREE FROM ALL ORGANIC MATTER, TRASH, FROZEN MATERIALS, AND STONE HAVING A MAXIMUM DIMENSION GREATER THAN SIX INCHES. ALL LIFTS ARE SUBJECT TO INSPECTION WHILE IN A LOOSE UNCOMPACTED STATE. FILLS SHALL BE FORMED OF EXCAVATED MATERIALS PLACED IN SUCCESSIVE LIFTS OF SUCH WIDTHS AND LENGTHS AS ARE SUITED TO THE MOISTURE CONDITIONING AND COMPACTION METHOD UTILIZED. FILLS SHALL BE PLACED STARTING AT THE LOWEST POINT, PROGRESSING UPWARDS AND OUTWARDS WITH SUBSEQUENT LIFTS. EMBANKMENTS AND FILLS SHALL BE CONSTRUCTED IN LIFTS NOT EXCEEDING SIX INCHES IN THICKNESS AFTER COMPACTION, AND SHALL HAVE A MINIMUM SLOPE OF 3:1. FINISHED SLOPES SHALL COMPLY WITH THE CONSTRUCTION PLANS. IF THE FINISHED SLOPE IS NOT SHOWN, A MINIMUM OF 3:1 WILL BE REQUIRED. THE CONTRACTOR SHALL ADD MOISTURE TO, OR SHALL DRY BY SCARIFICATION EACH LIFT AS MAY BE NECESSARY TO MEET THE REQUIREMENTS OF THE MOISTURE-DENSITY SPECIFICATION. THE ADDITION OF MOISTURE TO OR DRYING OF EACH LIFT SHALL BE ACCOMPANIED WITH THOROUGH MIXING SO AS TO BRING ALL THE MATERIAL TO A UNIFORM MOISTURE CONTENT. COMPACTION SHALL BE ACCOMPLISHED WITH TAMPING ROLLERS, DISCS, AND PNEUMATIC ROLLERS OF APPROVED DESIGN. TAMPING ROLLERS SHALL BE USED EXCEPT FOR THE FINAL ROLLING OF THE COMPLETED FILL WHICH SHALL BE ACCOMPLISHED BY RUBBER-TIRED ROLLERS. THE ROLLERS, UNLESS OTHERWISE DIRECTED, SHALL BE OPERATED AT A SPEED BETWEEN TWO AND THREE MILES PER HOUR. ALL SOFT AREAS THAT DEVELOP DURING CONSTRUCTION OPERATIONS SHALL BE SCARIFIED, AERATED OR MOISTENED AS REQUIRED, AND COMPACTED TO THE FULL DEPTH REQUIRED TO OBTAIN THE SPECIFIED DENSITY OF 95% FOR EACH LAYER. PORTIONS OF EMBANKMENTS WHICH ARE TOO NEAR ADJACENT WALLS, PAVEMENTS OR OTHER FIXED OBJECTS TO PERMIT USE OF THE ABOVE SPECIFIED ROLLING EQUIPMENT FOR COMPACTING, AND OTHER PORTIONS WHICH THE ROLLER CANNOT REACH FOR ANY REASON, SHALL BE THOROUGHLY COMPACTED BY TAMPING IN TWO-INCH LIFTS WITH MECHANICAL TAMPERS OR OTHER EQUIPMENT AS APPROVED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE DEGREE OF COMPACTION FOR SUCH PORTIONS OF THE EMBANKMENTS SHALL BE EQUIVALENT TO THAT OBTAINED BY MOISTURE CONDITIONING AND ROLLING AS SPECIFIED FOR OTHER RESPECTIVE PORTIONS OF THE EMBANKMENT. DAMAGED WALLS, PAVEMENTS, OR OTHER FIXED OBJECTS SHALL BE REPLACED OR REPAIRED AT THE EXPENSE OF THE CONTRACTOR. APPROVED MATERIAL, EXCAVATED IN PREPARATION OF THE SUBGRADE, MAY BE UTILIZED IN THE CONSTRUCTION OF ADJACENT SHOULDERS AND SLOPES OR OTHERWISE DISPOSED OF AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. ANY ADDITIONAL MATERIAL REQUIRED FOR THE COMPLETION OF THE SHOULDERS AND SLOPES SHALL BE SECURED FROM APPROVED SOURCES. THE CONSTRUCTION OF "PARKWAY" EMBANKMENTS AND OR FILLS, PRIOR TO THE COMPLETED PLACEMENT OF ADJACENT FILLS WITHIN THE RIGHT OF WAY, WILL NOT BE ALLOWED. AFTER COMPACTION, IN-PLACE MOISTURE DENSITY TESTS SHALL BE REQUIRED AT INTERVALS NO LESS THAN 300 FEET, AT LOCATIONS REPRESENTATIVE OF THE ENTIRE ROADWAY. INTERMEDIATE POINTS WILL BE TESTED IF REQUIRED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE COST OF THESE TESTS SHALL BE BORNE BY THE DEVELOPER OR CONTRACTOR. ALL ROAD SUBGRADE, EMBANKMENTS, AND TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM DENSITY OF NINETY-FIVE PERCENT (95%) OF THE MAXIMUM DRY DENSITY USING TXDOT TEST METHOD TEX-114-E. A DIGITAL IMAGE OF THE PROCTOR SAMPLE NEAR OPTIMUM MOISTURE CONTENT SHALL BE INCLUDED WITH THE PROCTOR REPORT. ALL LIFTS, INCLUDING ONES THAT HAVE PASSED DENSITY TESTS ARE SUBJECT TO PROOF ROLL. SUBGRADE MATERIALS ON WHICH VEGETATION WILL BE ESTABLISHED SHALL BE COMPACTED TO A MAXIMUM OF EIGHTY FIVE PERCENT (85%).

Soil Description- P.I.	Required % Compaction	Moisture
Non-swelling- P.I. <20	95 to 105	-3% to +3%
Swelling- P.I. of 20 to 35	95 to 102	Optimum to +4%
Swelling- P.I. >35	95 to 100	Optimum to +6%

1.04 EARTH CUTS

ALL CUT AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6" BELOW GRADE, AND ALL UNSUITABLE, ORGANIC, AND OVERSIZED (6"+) MATERIAL REMOVED. SCARIFIED AREAS SHALL BE LEFT LOOSE UNTIL INSPECTED AND APPROVED FOR MOISTURE CONDITIONING AND COMPACTIVE EFFORTS TO BEGIN. SCARIFICATION MAY BE WAIVED WHEN A ROCK LEDGE IS IDENTIFIED AND ITS LOCATION NOTED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL ADD MOISTURE TO, OR SHALL DRY BY AERATION AS MAY BE NECESSARY TO MEET THE REQUIREMENTS OF THE MOISTURE/DENSITY SPECIFICATION. COMPACTION SHALL BE ACCOMPLISHED WITH TAMPING ROLLERS, DISCS, AND PNEUMATIC ROLLERS OF APPROVED DESIGN. TAMPING ROLLERS SHALL BE USED EXCEPT FOR THE FINAL ROLLING WHICH SHALL BE ACCOMPLISHED BY RUBBER-TIRED OR FLAT WHEEL ROLLERS.

1.05 SUBGRADE WIDENING

SHALL BE PERFORMED PER TXDOT ITEM 112. THE CONTRACTOR SHALL NOTCH INTO THE EXISTING SUBGRADE TO PROVIDE FOR A HORIZONTAL BEARING SURFACE THROUGHOUT THE FULL WIDTH OF THE WIDENING, TO ALLOW SUBSEQUENT LIFTS AND COURSES TO BE PLACED AND COMPACTED PARALLEL TO THE FINISHED SURFACE. THE DEPTH OF ANY SINGLE NOTCH SHALL NOT EXCEED 12" IN DEPTH.

1.06 MAINTENANCE OF THE FINISHED SUBGRADE

THE FINISH SUBGRADE SHALL BE MAINTAINED TO THE PROPER GRADE, CROSS SECTION, DENSITY, AND MOISTURE REQUIREMENTS BY THE CONTRACTOR UNTIL SUBBASE OR BASE MATERIAL IS PLACED THEREON. ALL SUCH MAINTENANCE, INCLUDING RECOMPACTING NECESSARY AS A RESULT OF PRECIPITATION OR EXCESSIVE DRYING OUT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL CONSTRUCTION TRAFFIC SHALL BE UNIFORMLY DISTRIBUTED OVER THE SUBGRADE. THE CONTRACTOR SHALL CHECK THE SUBGRADE FOR CONFORMITY TO THE LINES AND GRADES TO WITHIN ½ INCH BY SETTING "BLUE TOPS" AT INTERVALS NOT EXCEEDING 50 FEET ON THE CENTERLINE, QUARTER POINTS, CURB LINES AND AT OTHER POINTS INDICATED ON THE DRAWINGS OR AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. ALL SUBGRADE AND DITCHES SHALL HAVE POSITIVE DRAINAGE PRIOR TO PLACEMENT OF FLEX BASE.

1.07 LIME STABLIZED SUBGRADE

LIME STABILIZED SUBGRADE MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS SHALL COMPLY WITH MOST CURRENT COA SPECIFICATIONS, EXCEPT MOISTURE CONTENT WILL BE DETERMINED BY TEST METHOD TEX-103-E. IF LIME STABILIZATION IS TO BE UTILIZED AS PART OF PAVEMENT DESIGN AND CONSTRUCTION, THE MINIMUM DEPTH OF STABILIZATION SHALL NOT BE LESS THAN 8 INCHES. IN AREAS WHERE THE THICKNESS OF THE LIME STABILIZED MATERIAL EXCEEDS THE MAXIMUM ALLOWABLE THICKNESS ACHIEVABLE FROM THE LIME SOLIDS APPLIED, THE PLASTICITY INDEX SHALL BE VERIFIED USING TXDOT TESTING METHOD (TEX-106-E).THE LTSG SHALL BE PROOF-ROLLED PRIOR TO M/D TESTING AND THE MOISTURE CONTENT SHALL NOT BE LESS THAN 2% BELOW OPTIMUM AT THE TIME OF TESTING PER TEX-103-E. A MAXIMUM OF 20 P.I. (PLASTICITY INDEX) WILL BE ACCEPTED ON LIME TREATED SUBGRADE.

1.08 SUBGRADE TESTING

ALL SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF SUBGRADE FILL OR BASE COURSE. THE DESIGN ENGINEER, ACCREDITED LABORATORY, OR THEIR DESIGNATED REPRESENTATIVE SHALL MONITOR PROOF-ROLLING OPERATIONS AND SHALL DETERMINE WHETHER REMEDIATION OF WEAK AREAS IS REQUIRED BEFORE SUBGRADE TREATMENT. IF REMEDIATION IS REQUIRED, THE DESIGN ENGINEER OR ACCREDITED LABORATORY SHALL PROVIDE RECOMMENDATIONS FOR REMEDIATION. A 25 TON PNEUMATIC ROLLER SHALL BE USED FOR PROOF-ROLLING. A COUNTY REPRESENTATIVE MUST BE PRESENT DURING PROOF ROLLING. MOISTURE-DENSITY TESTS SHALL BE PERFORMED EVERY 300 LINEAR FEET OF SUBGRADE. CLOSER SPACING FOR DENSITY TESTING MAY BE REQUIRED TO VERIFY CONFORMANCE WITH PROJECT SPECIFICATIONS. A MINIMUM OF (2) IN-PLACE DENSITY TESTS PER STREET ARE REQUIRED. DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE IS REQUIRED TO WITNESS ALL IN-PLACE DENSITIES. IN THE EVENT OF PONDING WATER ON THE SUBGRADE AFTER DENSITIES ARE MADE OR OTHER CONDITIONS BEYOND THE CONTRACTORS CONTROL, AND IF THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE DEEMS THAT THE SUBGRADE CONDITIONS HAVE BEEN ADVERSELY AFFECTED, ADDITIONAL PROOF-ROLLING OF THE SUBGRADE WILL BE REQUIRED.

1.09 INSPECTION

PRIOR TO THE INSTALLATION OF THE BASE MATERIAL, THE COMPACTED SUBGRADE SHALL BE INSPECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE AND PROOF ROLLED. A MAXIMUM OF 1" OF DEFLECTION WILL BE ALLOWED IN NONSTABILIZED PLASTIC SOILS. THE OWNER OR HIS AGENT SHALL NOTIFY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE FORTY-EIGHT (48) HOURS PRIOR TO THE TIME WHEN THE INSPECTION IS NEEDED.

1.10 CONTROL OF WORK

THE CONTRACTOR SHALL ESTABLISH CONTROL POINTS AND MAINTAIN THEIR INTEGRITY, AND PRESERVE ALL CONTROL POINTS, CUT/FILL AND STATIONING STAKES, AND RIGHT OF WAY MARKERS NECESSARY TO CONTROL WORK AT ALL TIMES.

ITEM: 2.00 UTILITIES

2.01 PIPE EMBEDMENT MATERIALS

BEDDING SHALL BE ANGULAR MATERIAL (MANUFACTURED SAND, CRUSHED STONE OR GRAVEL) THAT IS, WASHED MATERIAL, HARD AND INSOLUBLE IN WATER, FREE OF MUD, CLAY, SILT, VEGETATION OR OTHER DEBRIS CONFORMING TO COA ITEM 510. THE USE OF NATURAL SAND IS NOT ALLOWED IN THE ROW.

2.02 EMBEDMENT

ALL PIPE EMBEDMENTS SHALL HAVE A MIN OF 6-INCHES OF EMBEDMENT MATERIAL BELOW THE BOTTOM OF THE PIPE. THE INITIAL LAYER OF EMBEDMENT PLACED TO RECEIVE THE PIPE SHALL BE BROUGHT UP TO A GRADE HIGHER THAN THAT REQUIRED FOR THE BOTTOM OF PIPE. THE PIPE SHALL BE PLACED AND BROUGHT TO GRADE BY TAMPING OR BY REMOVAL OF THE SLIGHT EXCESS AMOUNT OF EMBEDMENT UNDER THE PIPE: ADJUSTMENTS TO GRADE SHALL BE MADE BY SCRAPING AWAY OR FILLING WITH EMBEDMENT MATERIAL. WEDGING OR BLOCKING UP THE PIPE WILL NOT BE PERMITTED. EACH PIPE SECTION OF THE PIPE SHALL HAVE A UNIFORM BEARING ON THE EMBEDMENT OF THE LENGTH OF PIPE, EXCEPT IMMEDIATELY AT THE JOINT. ALL LINES SHALL HAVE A MINIMUM OF 6-INCHES OF GRANULAR EMBEDMENT MATERIAL ON EACH SIDE OF THE PIPE AND NOT LESS THAN 12-INCHES ABOVE THE TOP OF PIPE. ALL OTHER BEDDING MATERIALS MUST BE APPROVED BY THE DIRECTOR OF TRANSPORTATION AND CONFORM TO COA ITEM 510. ALL BEDDING AND TRENCHES MUST BE INSPECTED PRIOR TO BACKFILL BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. ALL BACKFILL IN RIGHT-OF-WAY MUST MEET HAYS COUNTY SUBGRADE REQUIREMENTS. A MINIMUM OF 36" OF COVER FROM THE TOP OF PIPE IS REQUIRED IN THE ROW.

2.03 TRENCH BACKFILL MATERIALS

TRENCH BACKFILL SHALL CONSIST OF THE EXCAVATED MATERIAL FROM THE TRENCH, UNLESS APPROVED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE MATERIAL SHALL BE PROCESSED AND MOISTURE CONDITIONED TO CREATE A UNIFORM MATERIAL, FREE FROM ORGANICS AND OVERSIZED MATERIAL, AND BE PLACED IN COMPACTED LIFTS NOT TO EXCEED 8" IN DEPTH.

2.04 UTILITY TRENCH TESTING

MOISTURE-DENSITY TESTS SHALL BE PERFORMED ON EACH VERTICAL FOOT OF BACKFILL, AT ALL MANHOLES, JUNCTION BOXES, AND EVERY 500 LINEAR FEET OF MAINLINE TRENCH. CLOSER SPACING FOR DENSITY TESTING MAY BE REQUIRED TO VERIFY CONFORMANCE WITH PROJECT SPECIFICATIONS. A MINIMUM OF (2) TEST SITES PER LINE ARE REQUIRED. THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE SHALL WITNESS ALL IN-PLACE M/D TESTING. MOISTURE-DENSITY TESTS SHALL BE PERFORMED ON EACH VERTICAL FOOT OF BACKFILL, ON THE MAJORITY OF ALL SERVICES AND UTILITY CROSSINGS.

ITEM: 300 FLEXIBLE BASE

3.01 DESCRIPTION

THIS ITEM SHALL CONSIST OF A FOUNDATION COURSE FOR ASPHALTIC CONCRETE OR OTHER PAVING, AND SHALL BE COMPOSED OF CRUSHED LIMESTONE MATERIAL CONSTRUCTED AS HEREIN SPECIFIED IN ONE OR MORE COURSES IN CONFORMITY WITH THE TYPICAL SECTIONS SHOWN ON THE PLANS AND TO THE LINES AND GRADES ESTABLISHED. A MINIMUM THICKNESS OF EIGHT (8") INCHES IS REQUIRED ON ALL HMAC ROADWAYS, THIRTEEN (13") INCHES IS REQUIRED ON ROADWAYS WITH 2 COURSE SURFACE TREATMENT.

3.02 MATERIALS

THE FLEXIBLE BASE SHALL BE CONSTRUCTED OF CRUSHED LIMESTONE MATERIAL FROM AN APPROVED SOURCE. THE MATERIAL SHALL CONSIST OF DURABLE STONE PARTICLES MIXED WITH AN APPROVED BINDING MATERIAL, COMPLYING WITH THE MOST CURRENT **TXDOT SPECIFICATIONS FOR GRADES 1 & 2, AND HAVE A MINIMUM P.I. OF 4**.

THE MATERIAL PASSING THE #40 SIEVE SHALL BE KNOWN AS "SOIL BINDER" AND THE PLASTICITY INDEX SHALL NOT EXCEED 10.
THE BASE MATERIAL PROPOSED TO BE USED SHALL BE TESTED BY AN APPROVED SOILS TESTING LABORATORY AND THE RESULTS OF THE TEST SHALL BE SUBMITTED TO THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE PRIOR TO USE OF THE MATERIAL.

3.03 CONSTRUCTION METHODS

THE BASE MATERIAL SHALL BE PLACED ON THE PREPARED SUBGRADE IN UNIFORM MOISTURE CONDITIONED COURSES, WITH THE COMPACTED THICKNESS TO BE NO MORE THAN 7 INCHES OR LESS THAN 3 INCHES. MATERIAL DEPOSITED ON THE SUBGRADE SHALL BE SPREAD AND SHAPED THE SAME DAY UNLESS OTHERWISE DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE COURSE SHALL THEN BE SPRINKLED AS REQUIRED AND ROLLED AS DIRECTED UNTIL A UNIFORM COMPACTION IS SECURED. THROUGH THIS ENTIRE OPERATION, THE SHAPE OF THE BASE COURSE SHALL BE MAINTAINED BY BLADING AND THE SURFACE, UPON COMPLETION, SHALL BE SMOOTH AND IN CONFORMANCE WITH THE TYPICAL SECTIONS SHOWN ON THE PLANS AND TO THE ESTABLISHED LINES AND GRADES. ALL IRREGULARITIES, DEPRESSIONS OR WEAK SPOTS WHICH DEVELOP SHALL BE CORRECTED IMMEDIATELY BY SCARIFYING THE AFFECTED AREA, ADDING SUITABLE MATERIAL AS REQUIRED, COMPACTING AND RESHAPING. THE MOISTURE CONTENT SHALL BE MAINTAINED TO WITHIN ±2% OF OPTIMUM DURING COMPACTION.

3.04 THICKNESS CONTROL

THE THICKNESS OF THE COMPACTED FLEXIBLE BASE MAY VARY A MAXIMUM OF 1/2 INCH THAN SPECIFIED. DEVIATIONS NOT WITHIN THIS TOLERANCE SHALL BE CORRECTED. THE CONTRACTOR SHALL CHECK THE SURFACE OF THE LIFT FOR CONFORMITY OF THE LINES AND GRADES BY SETTING " BLUE TOPS" AT INTERVALS NOT EXCEEDING 50 FEET ON THE CENTERLINE, AT QUARTER POINTS, AT CURB LINES OR AT EDGE OF PAVEMENT, AND AT OTHER POINTS THAT MAY BE INDICATED ON THE DRAWINGS. WHEN THE THICKNESS OF A PARTICULAR LIFT OF THE FLEX BASE IS IN QUESTION, THE CONTRACTOR SHALL CHECK THE LIFT FOR CONFORMITY TO THE LINES AND GRADES BY SETTING "BLUE TOPS" AT INTERVALS NOT TO EXCEED 50 FEET ON THE CENTERLINE, AT QUARTER POINTS, AT CURB LINES OR EDGE OF PAVEMENT, AND AT OTHER POINTS THAT MAY BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE.

3.05 ROAD BASE REQUIREMENTS FOR PRIVATE ROADS

ROADS THAT ARE INTENDED TO BE PRIVATELY MAINTAINED SHALL BE DESIGNED AND CONSTRUCTED IN CONFORMANCE WITH HAYS COUNTY SPECIFICATIONS. TESTING AND INSPECTION STANDARDS IN THESE SPECIFICATIONS SHALL APPLY TO PRIVATE ROADS.

3.06 FLEXIBLE BASE TESTING

AFTER FINAL COMPACTION, **AND WHILE THE BASE IS STILL "GREEN"**, AN IN-PLACE MOISTURE-DENSITY TEST SHALL BE REQUIRED AT INTERVALS NO LESS THAN 1 PER 300 LF, AT LOCATIONS REPRESENTATIVE OF THE ENTIRE ROAD BASE. A MINIMUM OF TWO (2) IN-PLACE MOISTURE-DENSITY TESTS ARE REQUIRED PER STREET PER LIFT. DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE MUST BE PRESENT AT TIME OF IN-PLACE MOISTURE-DENSITY TESTS. INTERMEDIATE POINTS WILL BE TESTED IF REQUIRED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE COST OF THESE TESTS SHALL BE BORNE BY THE DEVELOPER OR CONTRACTOR. **EACH COURSE OF BASE SHALL BE COMPACTED TO A MINIMUM DENSITY OF 100 PERCENT (100%), ACCORDING TO TXDOT TEST METHOD TEX-113-E, WITH A MOISTURE CONTENT OF ±2% OF OPTIMUM. DENSITIES SHALL BE BASED ON THE GEOTECHNICAL LAB RUN PROCTOR. DENSITY SHALL NOT BE ACHIEVED BY DRYING THE MATERIAL AFTER COMPACTION.**

3.07 INSPECTION

PRIOR TO THE PLACEMENT OF THE PAVING MATERIALS, THE COMPACTED BASE MATERIAL SHALL BE INSPECTED FOR UNIFORMITY AND LOOSE SEGREGATED MATERIAL. IT MAY BE PROOF ROLLED AT THE DISCRETION OF THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE OWNER OR HIS AGENT SHALL NOTIFY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE FORTY-EIGHT (48) HOURS PRIOR TO THE TIME WHEN THE INSPECTION IS NEEDED.

ITEM: 4.00 PRIME COAT

4.01 DESCRIPTION

THIS ITEM SHALL GOVERN THE APPLICATION OF ASPHALTIC MATERIAL ON THE COMPLETED BASE COURSE AND/OR OTHER APPROVED AREAS IN ACCORDANCE WITH THE DRAWINGS, THESE SPECIFICATIONS OR AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE.

4.02 MATERIALS

THE ASPHALT MATERIAL FOR PRIME COAT SHALL MEET THE REQUIREMENTS OF THE MOST CURRENT TXDOT ITEM 300, "ASPHALTS, OILS AND EMULSIONS".

4.03 CONSTRUCTION METHODS

WHEN, IN THE OPINION OF THE DIRECTOR OF TRANSPORTATION OR HIS DESIGNATED REPRESENTATIVE, THE BASE COURSE OR OTHER SURFACE IS READY TO RECEIVE THE PRIME COAT, THE SURFACE SHALL BE PREPARED BY SWEEPING OR OTHER APPROVED METHODS AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE. THE SURFACE SHALL BE LIGHTLY SPRINKLED WITH WATER JUST PRIOR TO APPLICATION OF THE ASPHALTIC MATERIAL UNLESS THIS REQUIREMENT IS WAIVED BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE. THE CONTRACTOR SHALL SUBMIT A LIST OF PRIME MATERIAL(S) RECOMMENDED FOR APPLICATION ON THE WORK TO THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE FOR APPROVAL. WHEN EMULSIONS ARE APPROVED, A DISPERSAL AGENT SHALL BE ADDED TO THE WATER BEFORE APPLICATION. THE ASPHALTIC MATERIAL SHALL BE APPLIED ON THE CLEAN SURFACE BY AN APPROVED TYPE OF SELF-PROPELLED PRESSURE DISTRIBUTOR OPERATED SO AS TO DISTRIBUTE THE PRIME COAT AT A RATE RANGING FROM 0.1 TO 0.3 GALLONS PER SQUARE YARD (0.45 TO 1.36 LITERS PER SQUARE METER) OF SURFACE AREA. THE PREPARED SURFACE SHOULD BE LIGHTLY SPRINKLED WITH WATER, TO CONTROL DUST AND ENSURE ABSORPTION, JUST PRIOR TO APPLICATION. THE MATERIAL SHALL BE EVENLY AND SMOOTHLY DISTRIBUTED UNDER PRESSURE SUFFICIENT TO ASSURE PROPER DISTRIBUTION. DURING THE APPLICATION OF PRIME COAT, CARE SHALL BE TAKEN TO PREVENT OVERSPRAY OF ADJACENT PAVEMENT, CURB AND GUTTERS OR STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ALL AREAS CONTAMINATED BY OVERSPRAY. PRIME COAT MAY BE APPLIED WHEN THE SURFACE TEMPERATURE IS 60°F OR HIGHER, AND THE AIR TEMPERATURE IS 50°F AND RISING. MEASURE THE AIR TEMPERATURE IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT. ASPHALTIC MATERIAL SHALL NOT BE PLACED WHEN GENERAL WEATHER CONDITIONS, IN THE OPINION OF THE ENGINEER OR DESIGNATED REPRESENTATIVE, ARE NOT SUITABLE. **THE APPLICATION OF PRIME COAT SHALL BE PROHIBITED WHEN THE FORECAST FOR PRECIPITATION IS EQUAL TO OR GREATER THAN 50% WITHIN 24 HOURS OF THE TIME OF PROPOSED APPLICATION.** THE CONTRACTOR SHALL APPLY THE ASPHALTIC MATERIAL AT A TEMPERATURE WITHIN 15°F OF THE SPECIFIED TEMPERATURE, BUT NOT EXCEED THE MAXIMUM ALLOWABLE IN MOST CURRENT TXDOT ITEM 300 SPECIFICATIONS.

THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT FOR DETERMINING THE TEMPERATURE OF THE ASPHALTIC MATERIAL, THE RATE AT WHICH IT IS APPLIED, AND FOR DETERMINING UNIFORMITY BETWEEN TWO (2) DISTRIBUTOR LOADS.

THE DISTRIBUTOR SHALL HAVE BEEN CALIBRATED WITHIN THREE (3) YEARS FROM THE DATE IT IS FIRST USED ON THIS PROJECT. THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE SHALL BE FURNISHED AN ACCURATE AND SATISFACTORY RECORD OF SUCH CALIBRATION UPON REQUEST. AFTER BEGINNING THE WORK, IF THE YIELD ON THE ASPHALTIC MATERIAL APPLIED APPEARS IN ERROR, THE DISTRIBUTOR SHALL BE CALIBRATED IN A MANNER SATISFACTORY TO THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SURFACE UNTIL THE WORK IS ACCEPTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. NO TRAFFIC, HAULING OR PLACEMENT OF ANY SUBSEQUENT COURSES SHALL BE PERMITTED OVER THE FRESHLY APPLIED PRIME COAT FOR A MINIMUM OF 24 HOURS OR UNTIL THE PRIME COAT IS ACCEPTED AS DRY AND CURED COMPLETELY BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE. ALL STORAGE TANKS, PIPING, RETORTS, BOOSTER TANKS AND DISTRIBUTORS USED IN STORING OR HANDLING ASPHALTIC MATERIALS SHALL BE KEPT CLEAN AND IN GOOD OPERATING CONDITION AT ALL TIMES AND THEY SHALL BE OPERATED IN SUCH MANNER THAT THERE WILL BE NO CONTAMINATION OF THE ASPHALTIC MATERIAL WITH FOREIGN MATERIAL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND MAINTAIN IN GOOD WORKING ORDER A RECORDING THERMOMETER AT THE MATERIAL STORAGE FACILITY AT ALL TIMES. IN THE EVENT OF RAIN PRIOR TO THE PLACEMENT OF HMAC, THE PRIMED BASE SHALL BE INSPECTED AND APPROVED BEFORE PROCEEDING WITH THE NEXT COURSE.

ITEM: 5.00 TWO COURSE SURFACE TREATMENT

5.01 DESCRIPTION

THIS ITEM SHALL CONSIST OF A WEARING SURFACE COMPOSED OF TWO APPLICATIONS OF ASPHALTIC MATERIAL, EACH COVERED WITH AGGREGATE CONSTRUCTED ON THE PREPARED BASE COURSE AS HEREIN SPECIFIED AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. ALL SPECIFICATIONS IN THIS ITEM SHALL BE IN CONFORMANCE WITH **COA ITEM 320S.** A TWO COURSE SURFACE TREATMENT MAY BE APPLIED WHEN THE SURFACE TEMPERATURE IS 60°F OR HIGHER, AND THE AIR TEMPERATURE IS 50°F AND RISING. MEASURE THE AIR TEMPERATURE IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT. WHEN LATEX MODIFIED ASPHALT CEMENT IS SPECIFIED, THE TWO COURSE SURFACE TREATMENT SHALL BE APPLIED WHEN THE AIR AND SURFACE TEMPERATURE IS ABOVE 70°F. AIR TEMPERATURE SHALL BE TAKEN IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT. ASPHALTIC MATERIAL SHALL NOT BE PLACED WHEN GENERAL WEATHER CONDITIONS, IN THE OPINION OF THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE, ARE NOT SUITABLE.

5.02 MATERIALS

ASPHALTIC MATERIALS:

THE ASPHALTIC MATERIALS USED SHALL CONFORM TO COA ITEM NO. 301S, "ASPHALTS, OILS AND EMULSIONS" AS FOLLOWS: 1. AIR TEMPERATURE 65 TO 80°F, HFRS-2; 2. AIR TEMPERATURE OVER 81°F, RS-2

AGGREGATE:

THE AGGREGATE MATERIALS SHALL CONFORM TO COA ITEM NO. 302S, "AGGREGATE FOR SURFACE TREATMENTS" AS FOLLOWS:

1. FIRST COURSE GRADE 3, 2. SECOND COURSE GRADE 4

CLASS B:TYPE B Grade 3

Sieve	Percent (%) Retained
3/4"	0
5/8"	0-5
1/2"	20-40
3/8"	80-100
1/4	95-100
#8	98-100
Application Rate - Min 1 CY covers 80 SY, (1:80), max 1 CY covers 100 SY, (1:100).	

CLASS B:TYPE B Grade 4

Sieve	Percent (%) Retained
5/8"	0
1/2"	0-5
3/8"	20-40
#4	95-100
#8	98-100
Application Rate-Min. 1 CY covers 90 SY, (1:90); max 1 CY covers 110 SY, (1:110).	

5.03 CONSTRUCTION METHODS

THE AREA TO BE TREATED SHALL BE CLEANED OF DIRT, DUST, OR OTHER DELETERIOUS MATTER BY SWEEPING OR OTHER APPROVED METHODS. ASPHALTIC MATERIAL OF THE TYPE AND GRADE SHOWN ON THE PLANS FOR THE FIRST COURSE SHALL BE APPLIED ON THE CLEAN SURFACE BY AN APPROVED TYPE OF SELF-PROPELLED PRESSURE DISTRIBUTOR SO OPERATED AS TO DISTRIBUTE THE MATERIAL IN THE QUANTITY SPECIFIED, EVENLY AND SMOOTHLY, UNDER A PRESSURE NECESSARY FOR PROPER DISTRIBUTION. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY FACILITIES FOR DETERMINING THE TEMPERATURE OF THE ASPHALTIC MATERIAL IN ALL OF THE HEATING EQUIPMENT AND IN THE DISTRIBUTOR, FOR DETERMINING THE RATE AT WHICH IT IS APPLIED, AND FOR SECURING UNIFORMITY AT THE JUNCTION OF TWO DISTRIBUTOR LOADS. THE DISTRIBUTOR SHALL HAVE BEEN RECENTLY CALIBRATED AND THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE SHALL BE FURNISHED AN ACCURATE AND SATISFACTORY RECORD OF SUCH CALIBRATION. AFTER BEGINNING WORK, SHOULD THE YIELD OF THE ASPHALT MATERIAL APPEAR TO BE IN ERROR, THE DISTRIBUTOR SHALL BE RECALIBRATED IN A MANNER SATISFACTORY TO THE ROAD DIRECTOR BEFORE PROCEEDING. ASPHALTIC MATERIAL FOR EACH COURSE MAY BE APPLIED FOR THE FULL WIDTH OF THE SURFACE TREATMENT IN ONE APPLICATION, UNLESS THE WIDTH EXCEEDS TWENTY-SIX FEET (26'). NO TRAFFIC OR HAULING WILL BE PERMITTED OVER THE FRESHLY APPLIED ASPHALTIC MATERIAL UNTIL IMMEDIATE COVERING IS ASSURED. AGGREGATE, OF THE TYPE AND GRADE SHOWN ON THE PLANS FOR THE FIRST COURSE, SHALL BE IMMEDIATELY AND UNIFORMLY APPLIED AND SPREAD BY AN APPROVED SELF-PROPELLED CONTINUOUS FEED AGGREGATE SPREADER, UNLESS OTHERWISE SHOWN ON THE PLANS OR AUTHORIZED BY THE DIRECTOR OF TRANSPORTATION IN WRITING. THE AGGREGATE SHALL BE APPLIED AT THE APPROXIMATE RATES INDICATED ON THE PLANS AND AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SURFACE OF THE FIRST COURSE UNTIL THE SECOND COURSE IS APPLIED. THE ENTIRE SURFACE SHALL BE BROOMED, BLADED OR RAKED AS REQUIRED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE AND SHALL BE THOROUGHLY ROLLED WITH POWER ROLLERS, SELF-PROPELLED TYPE, WEIGHING NOT LESS THAN 6 TONS NOT MORE THAN 12 TONS. ALL WHEELS SHALL BE FLAT. IN LIEU OF THE ROLLING EQUIPMENT SPECIFIED, THE CONTRACTOR MAY, UPON WRITTEN PERMISSION FROM THE DIRECTOR OF TRANSPORTATION, OPERATE OTHER COMPACTING EQUIPMENT THAT WILL PRODUCE EQUIVALENT RELATIVE COMPACTION IN THE SAME PERIOD OF TIME AS THE SPECIFIED EQUIPMENT. IF THE SUBSTITUTED COMPACTION EQUIPMENT FAILS TO PRODUCE THE DESIRED COMPACTION WITHIN THE SAME PERIOD AS WOULD BE EXPECTED OF THE SPECIFIED EQUIPMENT, AS DETERMINED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE, ITS USE SHALL BE DISCONTINUED. ROLLERS SHALL BE MAINTAINED IN GOOD REPAIR AND OPERATING CONDITION AND SHALL BE APPROVED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE SECOND COURSE SHALL CONSIST OF ASPHALTIC MATERIAL AND AGGREGATE OF THE TYPE AND GRADE INDICATED ON THE PLANS FOR THE SECOND COURSE. THE ASPHALTIC MATERIAL AND AGGREGATE FOR THIS SECOND COURSE SHALL BE APPLIED AND COVERED IN THE MANNER SPECIFIED FOR THE FIRST APPLICATION. THE SURFACE SHALL THEN BE BROOMED, BLADED OR RAKED AS REQUIRED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE AND THOROUGHLY ROLLED AS SPECIFIED FOR THE FIRST COURSE. ASPHALTIC MATERIALS AND AGGREGATES FOR BOTH COURSES SHALL BE APPLIED AT THE APPROXIMATE RATES INDICATED ON THE PLANS AND AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SURFACE UNTIL THE WORK IS ACCEPTED BY THE DIRECTOR OF TRANSPORTATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PREPARATION OF ALL STOCKPILE AREA BEFORE AGGREGATES ARE PLACED THEREON, INCLUDING LEVELING AND CLEANING OF DEBRIS NECESSARY FOR THE PROTECTION OF THE AGGREGATE TO PREVENT ANY CONTAMINATION THEREOF. ALL STORAGE TANKS, PIPING, RETORTS, BOOSTER TANKS AND DISTRIBUTORS USED IN STORING OR HANDLING ASPHALTIC MATERIALS SHALL BE KEPT CLEAN AND IN GOOD OPERATING CONDITION AT ALL TIMES AND THEY SHALL BE OPERATED IN SUCH MANNER THAT THERE WILL BE NO CONTAMINATION OF THE ASPHALTIC MATERIAL WITH FOREIGN MATERIAL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND MAINTAIN IN GOOD WORKING ORDER A RECORDING THERMOMETER AT THE MATERIAL STORAGE FACILITY AT ALL TIMES.

ITEM: 6.00 HOT MIX ASPHALTIC CONCRETE PAVEMENT (HMACP)

6.01 DESCRIPTION

THIS ITEM SHALL GOVERN BASE, LEVEL UP, AND PAVEMENT SURFACE COURSES COMPOSED OF A COMPACTED MIXTURE OF AGGREGATE AND ASPHALTIC CEMENT MIXED HOT IN A MIXING PLANT. THE HOT MIX ASPHALTIC CONCRETE PAVEMENT (HMACP) SHALL BE CONSTRUCTED ON A PREVIOUSLY COMPLETED AND APPROVED SUBGRADE, SUBBASE MATERIAL, BASE MATERIAL, CONCRETE SLAB OR EXISTING PAVEMENT. A MINIMUM THICKNESS OF TWO (2") INCHES IS REQUIRED ON ALL ROADWAYS.

6.02 MATERIALS

THE CONTRACTOR SHALL FURNISH MATERIALS TO MEET THE REQUIREMENTS SPECIFIED HEREIN AND SHALL BE SOLELY RESPONSIBLE FOR THE QUALITY AND CONSISTENCY OF THE PRODUCT DELIVERED TO THE PROJECT.

AGGREGATE:

THE AGGREGATE SHALL BE COMPOSED OF COARSE AGGREGATE, A FINE AGGREGATE AND, IF REQUIRED OR ALLOWED, MINERAL FILLER AND **FRACTIONATED** RECLAIMED ASPHALT PAVEMENT (RAP). A MAXIMUM 20% RAP MAY BE USED IN SURFACE COURSES.

AGGREGATES SHALL MEET THE QUALITY REQUIREMENTS OF TXDOT ITEM 344.

ASPHALTIC MATERIAL:

ASPHALT BINDERS AND TACK COAT MATERIALS SHALL COMPLY WITH TXDOT'S MOST CURRENT ITEM 300 AND ITEM 344

ADDITIVES:

ADDITIVES TO FACILITATE MIXING AND/OR IMPROVE THE QUALITY OF THE ASPHALTIC MIXTURE OR TACK COAT MAY BE USED WITH THE AUTHORIZATION OF THE ENGINEER OR DESIGNATED REPRESENTATIVE. THE CONTRACTOR MAY CHOOSE TO USE EITHER LIME OR A LIQUID ANTI-STRIPPING AGENT TO REDUCE MOISTURE SUSCEPTIBILITY OF THE AGGREGATE.

6.03 PAVING MIXTURES

AN ASPHALT MIXTURE DESIGN IS DEVELOPED BY A LABORATORY PROCESS, WHICH INCLUDES THE DETERMINATION OF THE QUALITY AND QUANTITY OF THE ASPHALT CEMENT AND THE INDIVIDUAL AGGREGATES, AND THE TESTING OF THE COMBINED MIXTURE (LABORATORY DESIGN). THE LABORATORY DESIGN IS SUBSEQUENTLY REVISED TO PRODUCE AN APPROPRIATE JOB MIX FORMULA. THE JOB MIX FORMULA (JMF) LISTS THE QUANTITY OF EACH COMPONENT TO BE USED IN THE MIX AFTER THE LABORATORY DESIGN HAS BEEN ADJUSTED BY RUNNING IT THROUGH A PARTICULAR PLANT (I.E. THE MIX DESIGN IS PLANT CORRECTED). **THE JMF WILL BE THE STANDARD TO WHICH THE ACCEPTANCE PLAN WILL BE APPLIED.** THE JMF OF ONE DRUM OR BATCHING UNIT SHALL NOT BE USED FOR ANOTHER UNIT. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER ON FORMS PROVIDED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE, AN ASPHALT MIXTURE DESIGN REVIEWED, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS OR CERTIFIED BY A TXDOT LEVEL II CERTIFIED ASPHALT TECHNICIAN. MIX DESIGNS OLDER THAN ONE YEAR WILL NOT BE ACCEPTED WITHOUT A REVIEW OF CURRENT TEST DATA OF THE PROPOSED MATERIALS AND CURRENT MIX DESIGN TO ENSURE THAT THE MATERIALS MEET SPECIFICATION REQUIREMENTS. THE JMF (PLANT CORRECTED) SHALL BE SUBMITTED TO THE ENGINEER OR DESIGNATED REPRESENTATIVE FOR REVIEW, FOR EACH INDIVIDUAL PROJECT, A MINIMUM OF THREE (3) WORKING DAYS BEFORE THE MIXTURE IS TO BE PLACED. UNDER NO CIRCUMSTANCES WILL A MIXTURE BE PLACED BEFORE ITS USE IS REVIEWED AND APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. PERFORMANCE OF THE MIX DESIGN SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.

MIXTURE DESIGN:

THE MIX SHALL BE AN APPROVED TXDOT DESIGN AND SHALL COMPLY WITH MOST CURRENT TXDOT ITEM 344

Operational Tolerances

	Test Method	Allowable Difference Between Trial	Allowable Difference from Current JMF Target	Allowable Difference between Contractor and Engineer[1]
Individual % retained for #8 sieve and larger	Tex-200-F or Tex-236-F	Must be Within Master Grading Limits in Table 8	±5.0[2,3]	±5.0
Individual % retained for sieves smaller than #8 and larger than #200			±3.0[2,3]	±3.0
% passing the #200 sieve			±2.0[2,3]	±1.6
Asphalt binder content, %	Tex-236-F	±0.5	±0.3[3]	±0.3
			.0	±0.5
In-place air voids, %	Tex-207-F	N/A	N/A	±1.0
Laboratory-molded bulk specific gravity		N/A	N/A	±0.020
VMA, % Min	Tex-204-F	Note 4	Note 4	N/A
Theoretical maximum specific (Rice) gravity	Tex-227-F	N/A	N/A	±0.020

1. Contractor may request referee testing only when values exceed these tolerances.
2. When within these tolerances, mixture production gradations may fall outside the master grading limits; however, the % passing the #200 will be considered out of tolerance when outside the master grading limits.
3. Only applies to mixture produced for Lot 1 and higher.
4. Test and verify that Table 8 requirements are met.

6.04 EQUIPMENT

THE TRUCKS THAT DELIVER THE HOT MIX ASPHALT CONCRETE MATERIAL TO THE PROJECT SHALL BE OF SUFFICIENT NUMBER TO INSURE A CONTINUOUS PAVING OPERATION. ALL EQUIPMENT USED FOR THE PRODUCTION, PLACEMENT AND COMPACTION OF THE MIXTURE SHALL BE MAINTAINED IN GOOD REPAIR AND OPERATING CONDITIONS TO THE SATISFACTION OF THE ENGINEER OR DESIGNATED REPRESENTATIVE AND COMPLY WITH THE MOST CURRENT TXDOT ITEM 320. ALL EQUIPMENT SHALL BE MADE AVAILABLE FOR INSPECTION. IF THE ENGINEER OR DESIGNATED REPRESENTATIVE EXPRESSES CONCERN ABOUT THE CONDITION OF ANY EQUIPMENT, IT SHALL NOT BE USED UNTIL IT IS REPAIRED TO THE SATISFACTION OF THE ENGINEER OR DESIGNATED REPRESENTATIVE.

6.05 MIXTURE TEMPERATURE

THE CONTRACTOR SHALL SELECT A TARGET TEMPERATURE FOR DISCHARGE OF THE HMA MIXTURE FROM THE MIXER BETWEEN 250°F AND 350°F THAT IS SUITABLE TO WEATHER AND PROJECT CONDITIONS. THE TARGET TEMPERATURE SHALL BE REPORTED TO THE ENGINEER OR DESIGNATED REPRESENTATIVE DAILY. THE HMA MIXTURE TEMPERATURE SHALL NOT VARY BY MORE THAN 25°F FROM THE TARGET TEMPERATURE FOR DISCHARGE FROM THE MIXER. **HMA MIXTURES THAT ARE DISCHARGED FROM THE MIXER AT A TEMPERATURE EXCEEDING 350°F WILL NOT BE ACCEPTED AND SHALL NOT BE PLACED ON THE PROJECT.**

6.06 CONSTRUCTION METHODS

GENERAL: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRODUCTION, TRANSPORTATION, PLACEMENT AND COMPACTION OF THE SPECIFIED HMA PAVING MIXTURE TO THE REQUIREMENTS OF THIS SPECIFICATION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING A SAFE ENVIRONMENT FOR INSPECTION PERSONNEL TO INSPECT THE EQUIPMENT AND TO ACQUIRE SAMPLES. SURFACES TO BE PAVED SHALL BE FINISHED, PRIMED, CURED, BROOMED AND TACKED, AS APPROPRIATE, TO THE SATISFACTION OF THE ENGINEER OR DESIGNATED REPRESENTATIVE. IF THE SURFACE ON WHICH THE FIRST COURSE OF THE PAVING MIXTURE IS TO BE PLACED IS A FLEXIBLE BASE COURSE, AND A CUT-BACK ASPHALT IS TO BE USED AS A PRIME COAT, THE FLEXIBLE BASE SHALL HAVE BEEN PRIMED AND CURED A MINIMUM OF 24 HOURS BEFORE THE PAVING MIXTURE MAY BE PLACED. THE 24- HOUR RESTRICTION WILL NOT APPLY TO A FLEXIBLE BASE THAT HAS BEEN PRIMED WITH MATERIAL OTHER THAN A CUTBACK. **HOWEVER, THE SURFACE ON WHICH THE TACK COAT AND/OR PAVING MIXTURE ARE TO BE PLACED SHALL BE IN A DRY CONDITION**. EQUIPMENT SHALL BE INSPECTED PRIOR TO USE AND, IF FOUND TO BE DEFECTIVE OR IN AN OPERATING CONDITION THAT COULD POTENTIALLY AFFECT THE QUALITY OF THE FINISHED PAVEMENT, AS DETERMINED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE, ITS USE SHALL NOT BE ALLOWED. LEAKAGE OF FUELS, OILS, GREASE, HYDRAULIC OR BRAKE FLUIDS OR OTHER CONTAMINANTS ONTO THE PREPARED SURFACE OR NEWLY-LAID HMA LAYER WILL NOT BE ALLOWED AND MAY REQUIRE REPLACEMENT OF THE AFFECTED PAVEMENT AREA. ANY MATERIAL DELIVERED TO THE PROJECT THAT BY VISUAL INSPECTION CAN REASONABLY BE EXPECTED NOT TO MEET SPECIFICATION REQUIREMENTS (I.E. SEGREGATED OR BURNED MATERIAL, DEFICIENT OR EXCESS ASPHALT, LOW MIXING TEMPERATURE, VISIBLE CONTAMINANTS, ETC.), AS DETERMINED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE, SHALL NOT BE USED OR LEFT IN PLACE. HMA MIXTURES THAT ARE DISCHARGED INTO THE LAYDOWN MACHINE WITH A TEMPERATURE ≥350°F OR A TEMPERATURE MORE THAN 50°F BELOW THE TARGET TEMPERATURE WILL NOT BE ACCEPTED AND SHALL NOT BE PLACED ON THE PROJECT. PLACE MIXTURE WHEN THE ROADWAY SURFACE TEMPERATURE IS AT OR ABOVE 60°F UNLESS OTHERWISE APPROVED. MEASURE THE ROADWAY SURFACE TEMPERATURE WITH A HAND-HELD THERMAL CAMERA OR INFRARED THERMOMETER. THE ENGINEER MAY ALLOW MIXTURE PLACEMENT TO BEGIN BEFORE THE ROADWAY SURFACE REACHES THE REQUIRED TEMPERATURE IF CONDITIONS ARE SUCH THAT THE ROADWAY SURFACE WILL REACH THE REQUIRED TEMPERATURE WITHIN 2 HR. OF BEGINNING PLACEMENT OPERATIONS. PLACE MIXTURES ONLY WHEN WEATHER CONDITIONS AND MOISTURE CONDITIONS OF THE ROADWAY SURFACE ARE SUITABLE AS DETERMINED BY THE ENGINEER. THE ENGINEER MAY RESTRICT THE CONTRACTOR FROM PAVING IF THE AMBIENT TEMPERATURE IS LIKELY TO DROP BELOW 32°F WITHIN 12 HR. OF PAVING. UNLESS INDICATED OTHERWISE ON THE DRAWINGS, DUMPING OF THE HMA MATERIAL IN A WINDROW AND THEN PLACING THE HMA MIXTURE IN THE FINISHING MACHINE WITH WINDROW PICK-UP EQUIPMENT WILL BE PERMITTED PROVIDED THE TEMPERATURE OF THE HMA MIXTURE DOES NOT DROP MORE THAN 50°F BELOW THE TARGET TEMPERATURE BEFORE BEING PLACED BY THE FINISHING MACHINE. UNDER NO CIRCUMSTANCES WILL THE HMA MATERIAL BE PERMITTED TO BE DUMPED ON OR NEAR THE JOB SITE AND THEN RELOADED FOR HAULING TO THE SITE OF PLACEMENT. EXCEPTIONS MAY BE ALLOWED IF APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. CONSTRUCTION JOINTS OF SUCCESSIVE COURSES OF HMA MATERIAL SHALL BE OFFSET AT LEAST 6 INCHES. LONGITUDINAL JOINTS IN THE LAYER SHALL BE PLACED TO COINCIDE WITH LANE LINES AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. TRANSVERSE JOINTS SHALL BE OFFSET A MINIMUM OF 5 FEET. THE COMPLETED SURFACE, WHEN TESTED WITH A TEN (10) FOOT STRAIGHT-EDGE LAID PARALLEL TO THE CENTERLINE OF THE ROADWAY, SHALL HAVE A MAXIMUM ORDINATE MEASURED FROM THE FACE OF THE STRAIGHT-EDGE NOT TO EXCEED ONE- EIGHTH (1/8) INCH AT ANY POINT. APPROVED TEMPLATES SHALL BE FURNISHED BY THE CONTRACTOR FOR CHECKING SUBGRADE AND FINISHED SECTIONS. THE TEMPLATES SHALL BE OF SUCH STRENGTH AND RIGIDITY THAT IF THE SUPPORT IS TRANSFERRED TO THE CENTER THERE WILL NOT BE A DEFLECTION OF MORE THAN ONE-EIGHTH INCH (1/8").

6.07 COMPACTION

THE PAVEMENT LAYERS/LIFTS SHALL BE COMPACTED THOROUGHLY AND UNIFORMLY TO OBTAIN THE COMPACTION AND CROSS SECTION MEETING THE REQUIREMENTS INDICATED ON THE DRAWINGS AND THIS SPECIFICATION ITEM. REGARDLESS OF THE METHOD USED FOR COMPACTION, ALL ROLLING TO ACHIEVE SPECIFIED DENSITY SHALL CEASE BEFORE THE TEMPERATURE OF THE HMA MIXTURE DROPS BELOW 175°F. ROLLING WITH A PNEUMATIC TIRE ROLLER SHALL BE USED TO SEAL THE SURFACE. ROLLING WITH A TANDEM OR OTHER STEEL-WHEEL ROLLER SHALL BE PROVIDED IF REQUIRED TO IRON OUT ANY ROLLER MARKS. SURFACE SEALING AND REMOVAL OF ROLLER MARKS MAY BE ACCOMPLISHED AT HMA TEMPERATURES BELOW 175°F.

6.08 TESTING

THE DEVELOPER, AT HIS EXPENSE, SHALL EMPLOY A COMMERCIAL TESTING LABORATORY APPROVED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE TO CONDUCT THE REQUIRED MATERIAL TESTING. THE HMA MIXTURE SHALL BE TESTED DAILY AT THE PROJECT SITE FOR CONFORMANCE TO SPECIFICATION REQUIREMENTS. THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE SHALL UTILIZE A RANDOM SELECTION METHOD TO DETERMINE SAMPLE LOCATIONS BASED ON THE CONTRACTOR'S ANTICIPATED PRODUCTION. EACH DAY'S ANTICIPATED PRODUCTION SHALL BE DIVIDED INTO THREE (3) ESSENTIALLY EQUAL SINGLE-PASS, SUB-AREA LOTS. EACH DAY'S SAMPLE LOCATIONS SHALL BE EQUALLY DISTRIBUTED OVER THE THREE (3) SUB-AREAS. IF, DUE TO THE WEATHER OR PLANT MALFUNCTIONS, THE CONTRACTOR'S DAILY-ANTICIPATED PRODUCTION IS NOT ATTAINED, THE RANDOM LOCATIONS WILL NOT BE RECALCULATED. ALSO, NO MORE THAN ONE LOCATION OF THE THREE (3) SUB-AREAS SHALL BE LOCATED IN AN IRREGULAR SHAPED AREA SUCH AS A CUL-DE-SAC. UNLESS DIRECTED OTHERWISE BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE, A MINIMUM OF THREE BAG SAMPLES AND THREE CORRELATING 4-INCH CORES WILL BE OBTAINED FROM EACH DAY'S PRODUCTION. BAG SAMPLES SHALL BE TAKEN DURING LAY-DOWN OPERATIONS. THE PRIMARY SAMPLING POINT FOR THE BAG SAMPLES SHALL BE FROM THE WINDROW IF A WINDROW ELEVATOR IS USED. IF A WINDROW ELEVATOR IS NOT USED, THE SAMPLE SHALL BE TAKEN FROM THE CURB SIDE OF THE PAVER, BETWEEN THE AUGER AND THE END GATE. ONE CORE SHALL BE TAKEN FOR EVERY 2,000 SINGLE-PASS SQUARE YARDS WITH A MINIMUM OF THREE (3) CORES FOR ALL PROJECTS. ONE CORE SHALL BE TAKEN AT THE SAME STATION AND PASS SAMPLED FOR EACH OF THE BAG SAMPLES. CORE SITES SHALL BE PATCHED WITH AN APPROVED POLYMER MODIFIED COLD MIX, IF HMAC IS NOT AVAILABLE. FOR TOTAL AREAS OF LESS THAN 500 SQUARE YARDS (420 SQUARE METERS), A TOTAL OF ONLY TWO BAG SAMPLES AND TWO CORRELATING CORES WILL BE OBTAINED. IF THE CONTRACTOR DESIRES ADDITIONAL TESTING, IT SHALL BE AT ITS OWN ENTIRE EXPENSE.
THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE MAY ALTER, INCREASE OR WAIVE THE TESTING SCHEDULE TO ENSURE MATERIAL AND WORKMANSHIP COMPLIANCE WITH SPECIFICATION REQUIREMENTS. ACCEPTABILITY OF THE COMPLETED PAVEMENT SHALL BE BASED ON THE AVERAGE OF TEST RESULTS FOR THE PROJECT. GRADATION, ASPHALT CONTENT AND STABILITY VALUE OF THE HMA MIXTURE SHALL BE REPORTED FOR EACH OF THE BAG SAMPLES. THE STABILITY VALUE REPORTED FOR EACH OF THE BAG SAMPLES SHALL BE THE AVERAGE OF THREE (3) TESTS PER BAG. PAVEMENT THICKNESS AND DENSITY SHALL BE DETERMINED FROM 4-INCH FIELD CORES. FOR EACH DAY'S PLACEMENT, DENSITY OF CORES FOR WHICH NO CORRESPONDING BAG SAMPLES WERE TAKEN SHALL BE DETERMINED BY USING THE AVERAGE MAXIMUM THEORETICAL DENSITY OF THE DAY'S THREE (3) BAG SAMPLES OR AS MAY OTHERWISE BE DETERMINED BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE. WHEN, IN THE OPINION OF THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE, TEST RESULTS APPEAR UNREPRESENTATIVE, ADDITIONAL TESTING MAY BE AUTHORIZED. THE RETESTING WILL BE AT THE EXPENSE OF THE OWNER AND THE RESULTS OF THE RETESTING SHALL BE AVERAGED WITH THE RESULTS OF THE ORIGINAL TESTING. IF THE RESULTS OF RETESTING INDICATE THAT THE ORIGINAL TEST RESULTS WERE ERRONEOUS, THE ORIGINAL TEST RESULTS WILL BE DISCARDED.

6.09 ASPHALT CONTENT ACCEPTANCE SCHEDULE

% Deviation from the JMF	All Roadways
± 0.30	Acceptance
> ± 0.30	1.5" Mill & Overlay

6.10 DENSITY ACCEPTANCE SCHEDULE

Average Percent Density	All Roadways
> 96.7	Remove & Replace
92 to 96.7	Acceptance
< 92	Remove & Replace

6.11 THICKNESS ACCEPTANCE SCHEDULE

Variance Percent of Thickness	2" thickness or Greater
0 – 10	Acceptance
10.1 - 16	+1 year Warranty
>16	1.5" Mill & Overlay

***Note - a 1.5" Mill & Overlay shall be required, if HMAC is deficient in more than one category.**

6.12 PATCHES

AREAS THAT REQUIRE PATCHING SHALL BE OVER CUT A MINIMUM OF SIX (6) INCHES IN ALL DIRECTIONS, OR AS NEEDED TO ALLOW FOR AMPLE ROOM TO REPAIR THE UNDERLYING BASE AND SUBGRADE MATERIALS AND ADJOIN TO STABLE UNDAMAGED MAT. MULTIPLE PATCHES SEPARATED BY LESS THAN TWENTY FIVE (25) FEET, SHALL BE COMBINED INTO ONE CONTINUOUS PATCH. PATCHES SHALL BE A MINIMUM OF TWO (2") INCHES THICK, OR MATCH THE SURROUNDING MAT.

ITEM: 7.00 REINFORCING STEEL

7.01 DESCRIPTION

THIS ITEM SHALL CONSIST OF THE FURNISHING AND PLACING OF REINFORCING STEEL, DEFORMED AND SMOOTH, OF THE SIZE AND QUANTITY INDICATED AND IN ACCORDANCE WITH COA ITEM 406S.

7.02 CHAIRS AND SUPPORTS

CHAIRS AND SUPPORTS SHALL BE STEEL, PLASTIC, PRECAST MORTAR OR CONCRETE BLOCKS CAST IN MOLDS MEETING THE APPROVAL OF THE ENGINEER/ARCHITECT OF SUFFICIENT STRENGTH TO POSITION THE REINFORCEMENT AS INDICATED WHEN SUPPORTING THE DEAD LOAD OF THE REINFORCEMENT, THE WEIGHT OF THE WORKERS PLACING CONCRETE AND THE WEIGHT OF THE CONCRETE BEARING ON THE STEEL. CHAIRS SHALL BE PLASTIC COATED WHEN INDICATED.

7.03 SPLICES

SPLICING OF BARS, EXCEPT WHEN INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN, WILL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE ENGINEER OR DESIGNATED REPRESENTATIVE. NO SUBSTITUTION OF BARS WILL BE ALLOWED WITHOUT THE APPROVAL OF THE ENGINEER OR DESIGNATED REPRESENTATIVE. ANY SPLICING OF SUBSTITUTED BARS SHALL CONFORM TO THE REQUIREMENTS IN THE TABLE BELOW. SPLICES NOT INDICATED ON THE DRAWINGS WILL BE PERMITTED IN SLABS NOT MORE THAN 15 INCHES IN THICKNESS, COLUMNS, WALLS AND PARAPETS. SPLICES WILL NOT BE PERMITTED IN BARS 30 FEET OR LESS IN PLAN LENGTH UNLESS OTHERWISE APPROVED. FOR BARS EXCEEDING 30 FEET IN PLAN LENGTH, THE DISTANCE CENTER TO CENTER OF SPLICES SHALL NOT BE LESS THAN 30 FEET MINUS 1 SPLICE LENGTH, WITH NO MORE THAN 1 INDIVIDUAL BAR LENGTH LESS THAN 10 FEET. SPLICES NOT INDICATED ON THE DRAWINGS, BUT PERMITTED HEREBY, SHALL CONFORM TO THE TABLE 7-1 BELOW. THE SPECIFIED CONCRETE COVER SHALL BE MAINTAINED AT SUCH SPLICES AND THE BARS PLACED IN CONTACT AND SECURELY TIED TOGETHER.

Table 7-1: Minimum Lap Length Requirements

Bar Number	Uncoated	Coated
3	16"	24"
4	21"	32"
5	26"	39"
6	31"	47"
7	41"	5 feet 2 inches
8	54"	6 feet 9 inches
9	5 feet 8 inches	8 feet 6 inches
10	7 feet 3 inches	10 feet 11 inches
11	8 feet 11 inches	13 feet 5 inches

SPIRAL STEEL SHALL BE LAPPED A MINIMUM OF 1 TURN. BAR NO. 14 AND NO. 18 MAY NOT BE LAPPED. WELDED WIRE FABRIC SHALL BE SPLICED USING A LAP LENGTH THAT INCLUDES AN OVERLAP OF AT LEAST 2 CROSS WIRES PLUS 2 INCHES ON EACH SHEET OR ROLL. SPLICES USING BARS THAT DEVELOP EQUIVALENT STRENGTH AND ARE LAPPED IN ACCORDANCE WITH THE TABLE ABOVE ARE PERMITTED. WELDING OF REINFORCING BARS MAY BE USED ONLY WHERE INDICATED ON THE DRAWINGS OR AS PERMITTED HEREIN. ALL WELDING OPERATIONS, PROCESSES, EQUIPMENT, MATERIALS, QUALITY OF WORK AND INSPECTION SHALL CONFORM TO THE REQUIREMENTS INDICATED ON THE DRAWINGS. ALL SPLICES SHALL BE OF SUCH DIMENSION AND CHARACTER AS TO DEVELOP THE FULL STRENGTH OF THE BAR BEING SPLICED. END PREPARATION FOR BUTT-WELDING REINFORCING BARS SHALL BE DONE IN THE FIELD, EXCEPT BAR NO. 6 AND LARGER SHALL BE DONE IN THE SHOP. DELIVERED BARS SHALL BE OF SUFFICIENT LENGTH TO PERMIT THIS PRACTICE. FOR BOX CULVERT EXTENSIONS WITH LESS THAN 1 FOOT OF FILL, THE EXISTING LONGITUDINAL BARS SHALL HAVE A LAP WITH THE NEW BARS AS SHOWN IN THE TABLE ABOVE. FOR BOX CULVERT EXTENSIONS WITH MORE THAN 1 FOOT OF FILL, A MINIMUM LAP OF 12 INCHES WILL BE REQUIRED. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, DOWEL BARS TRANSFERRING TENSILE STRESSES SHALL HAVE A MINIMUM EMBEDMENT EQUAL TO THE MINIMUM LAP REQUIREMENTS SHOWN IN THE TABLE ABOVE. SHEAR TRANSFER DOWELS SHALL HAVE A MINIMUM EMBEDMENT OF 12 INCHES.

7.04 PLACEMENT

ALL REINFORCING STEEL SHALL BE TIED AT ALL INTERSECTIONS, EXCEPT THAT WHERE SPACING IS LESS THAN 1 FOOT IN EACH DIRECTION, ALTERNATE INTERSECTIONS ONLY NEED BE TIED. FOR REINFORCING STEEL CAGES FOR OTHER STRUCTURAL MEMBERS, THE STEEL SHALL BE TIED AT ENOUGH INTERSECTIONS TO PROVIDE A RIGID CAGE OF STEEL. MATS OF WIRE FABRIC SHALL OVERLAP EACH OTHER 1 FULL SPACE AS A MINIMUM TO MAINTAIN A UNIFORM STRENGTH AND SHALL BE TIED AT THE ENDS AND EDGES. WHERE PREFABRICATED DEFORMED WIRE MATS ARE SPECIFIED OR IF THE CONTRACTOR REQUESTS, WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR A COMPARABLE AREA OF STEEL REINFORCING BAR PLAN, SUBJECT TO THE APPROVAL OF THE ENGINEER/ARCHITECT. A SUITABLE TIE WIRE SHALL BE PROVIDED IN EACH BLOCK, TO BE USED FOR ANCHORING TO THE STEEL. EXCEPT IN UNUSUAL CASES AND WHEN SPECIFICALLY AUTHORIZED BY THE ENGINEER, THE SIZE OF THE SURFACE TO BE PLACED ADJACENT TO THE FORMS SHALL NOT EXCEED 2 1/2 INCHES SQUARE OR THE EQUIVALENT THEREOF IN CASES WHERE CIRCULAR OR RECTANGULAR AREAS ARE PROVIDED. BLOCKS SHALL BE CAST ACCURATELY TO THE THICKNESS REQUIRED AND THE SURFACE TO BE PLACED ADJACENT TO THE FORMS SHALL BE A TRUE PLANE, FREE OF SURFACE IMPERFECTIONS. REINFORCEMENT SHALL BE SUPPORTED AND TIED IN SUCH A MANNER THAT A SUFFICIENTLY RIGID CAGE OF STEEL IS PROVIDED. IF THE CAGE IS NOT ADEQUATELY SUPPORTED TO RESIST SETTLEMENT OR FLOATING UPWARD OF THE STEEL, OVERTURNING OF TRUSS BARS OR MOVEMENT IN ANY DIRECTION DURING CONCRETE PLACEMENT, PERMISSION TO CONTINUE CONCRETE PLACEMENT WILL BE WITHHELD UNTIL CORRECTIVE MEASURES ARE TAKEN. SUFFICIENT MEASUREMENTS SHALL BE MADE DURING CONCRETE PLACEMENT TO INSURE COMPLIANCE WITH THE ABOVE. NO CONCRETE SHALL BE DEPOSITED UNTIL THE ENGINEER/ARCHITECT HAS REVIEWED THE PLACEMENT OF THE REINFORCING STEEL AND ALL MORTAR, MUD, DIRT, ETC., SHALL BE CLEANED FROM THE REINFORCEMENT, FORMS, WORKERS' BOOTS AND TOOLS. REINFORCEMENT SHALL BE PLACED AS NEAR AS POSSIBLE IN THE POSITION INDICATED. UNLESS OTHERWISE INDICATED, DIMENSIONS SHOWN FOR REINFORCEMENT ARE TO THE CENTERS OF THE BARS. IN THE PLANE OF THE STEEL PARALLEL TO THE NEAREST SURFACE OF CONCRETE, BARS SHALL NOT VARY FROM PLAN PLACEMENT BY MORE THAN 1/12 OF THE SPACING BETWEEN BARS. IN THE PLANE OF THE STEEL PERPENDICULAR TO THE NEAREST SURFACE OF CONCRETE, BARS SHALL NOT VARY FROM PLAN PLACEMENT BY MORE THAN 1/4 INCH. COVER OF CONCRETE TO THE NEAREST SURFACE OF STEEL SHALL BE AS FOLLOWS:

Table 7-2: Minimum Cover

Type, Location, or Exposure level	Min Cover
(a) Concrete cast against and permanently exposed to earth	3"
(b) Concrete exposed to earth or weather:	
Bar No. 6 through 18 bars	2"
Bar No. 5, W31 or D31 wire and smaller	1.5"
(c) Concrete not exposed to weather or in contact with ground:	
Slabs, walls, joists:	
Bar No. 14 and 18	1.5"
Bar No. 11 and smaller	1"
Beams, columns:	
Primary reinforcement, ties, stirrups, spirals	1.5"
Shells, folded plate members:	
Bar No. 6 and larger	1"
Bar No. 5, W31 or D31 wire, and smaller	1"

ITEM: 8.00 CONCRETE FOR STRUCTURES

8.01 DESCRIPTION

THIS ITEM SHALL GOVERN QUALITY, STORAGE, HANDLING, PROPORTIONING AND MIXING OF MATERIALS FOR PORTLAND CEMENT CONCRETE CONSTRUCTION OF BRIDGES, CULVERTS, SLABS, PRESTRESSED CONCRETE AND INCIDENTAL APPURTENANCES.

8.02 MATERIALS

CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT OR PORTLAND CEMENT AND FLY ASH, WATER, AGGREGATES (FINE AND COARSE), AND ADMIXTURES PROPORTIONED AND MIXED AS HEREINAFTER PROVIDED TO ACHIEVE SPECIFIED RESULTS.

A. CEMENTITIOUS MATERIALS: PORTLAND CEMENT SHALL CONFORM TO ASTM C 150 AND COA ITEM 403S, TYPE I (GENERAL PURPOSE), TYPE II (GENERAL PURPOSE WITH MODERATE SULFATE RESISTANCE) AND TYPE III (HIGH EARLY STRENGTH). TYPE I SHALL BE USED WHEN NONE IS SPECIFIED OR INDICATED ON THE DRAWINGS. TYPE I AND TYPE III CEMENTS SHALL NOT BE USED WHEN TYPE II CEMENT IS SPECIFIED OR INDICATED ON THE DRAWINGS. TYPE III CEMENT MAY BE USED IN LIEU OF A TYPE I CEMENT, WHEN THE ANTICIPATED AIR TEMPERATURE FOR THE SUCCEEDING 12 HOURS WILL NOT EXCEED 60°F. ALL CEMENT SHALL BE OF THE SAME TYPE AND FROM THE SAME SOURCE FOR A MONOLITHIC PLACEMENT.

B. MIXING WATER: WATER FOR USE IN CONCRETE AND FOR CURING SHALL BE POTABLE WATER FREE OF OILS, ACIDS, ORGANIC MATTER OR OTHER DELETERIOUS SUBSTANCES AND SHALL NOT CONTAIN MORE THAN 1,000 PARTS PER MILLION OF CHLORIDES AS CL OR SULFATES AS SO4.

C. MORTAR AND GROUT: UNLESS OTHERWISE SPECIFIED, INDICATED ON THE DRAWINGS OR APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE MORTAR AND GROUT SHALL CONSIST OF 1 PART CEMENT, 2 PARTS FINELY GRADED SAND AND ENOUGH WATER TO MAKE THE MIXTURE PLASTIC. WHEN REQUIRED TO PREVENT COLOR DIFFERENCE, WHITE CEMENT SHALL BE ADDED TO PRODUCE COLOR REQUIRED. WHEN REQUIRED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE, AN APPROVED LATEX ADHESIVE MAY BE ADDED TO THE MORTAR.

D. ADMIXTURES: ALL CHEMICAL ADMIXTURES INCLUDING WATER REDUCING, PLASTICIZERS AND AIR ENTRAINMENT SHALL CONFORM TO TXDOT DMS-4640, "CHEMICAL ADMIXTURES FOR CONCRETE". CALCIUM CHLORIDE-BASED ADMIXTURES SHALL NOT BE APPROVED. ADMIXTURES SHALL BE INCLUDED IN THE PREQUALIFIED CONCRETE ADMIXTURES LIST MAINTAINED BY TXDOT'S CONSTRUCTION DIVISION. HIGH-RANGE WATER-REDUCING ADMIXTURES (TXDOT TYPE F OR G) AND ACCELERATING ADMIXTURES (TXDOT TYPE C OR E) SHALL NOT BE USED IN BRIDGE DECK CONCRETE.

E. AIR ENTRAINMENT UNLESS INDICATED OTHERWISE ON THE DRAWINGS, ALL CONCRETE CLASSES WITH THE EXCEPTION OF CLASS B SHALL BE AIR ENTRAINED IN ACCORDANCE WITH TABLE 8-2. IF THE AIR CONTENT IS MORE THAN 1.5 PERCENTAGE POINTS BELOW OR 3 PERCENTAGE POINTS ABOVE THE REQUIRED AIR, THE LOAD OF CONCRETE WILL BE REJECTED. IF THE AIR CONTENT IS MORE THAN 1.5 BUT LESS THAN 3 PERCENTAGE POINTS ABOVE THE REQUIRED AIR, THE CONCRETE MAY BE ACCEPTED BASED ON STRENGTH TEST RESULTS.

8.03 MIX DESIGN

THE CONTRACTOR SHALL FURNISH A MIX DESIGN ACCEPTABLE TO THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE FOR THE CLASS OF CONCRETE SPECIFIED. THE MIX SHALL BE DESIGNED BY A QUALIFIED COMMERCIAL LABORATORY AND SIGNED/SEALED BY A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF TEXAS TO CONFORM WITH REQUIREMENTS CONTAINED HEREIN, TO ACI 211.1 OR TXDOT BULLETIN C-11 (AND SUPPLEMENTS THERETO). THE CONTRACTOR SHALL PERFORM, AT HIS OWN EXPENSE, THE WORK REQUIRED TO SUBSTANTIATE THE DESIGN, INCLUDING TESTING OF STRENGTH SPECIMENS. COMPLETE CONCRETE DESIGN DATA SHALL BE SUBMITTED TO THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE FOR APPROVAL. THE MIX DESIGN WILL BE VALID FOR A PERIOD OF ONE (1) YEAR PROVIDED THAT THERE ARE NO CHANGES TO THE COMPONENT MATERIALS. AT THE END OF ONE (1) YEAR, A PREVIOUSLY APPROVED MIX MAY BE RESUBMITTED FOR APPROVAL IF IT CAN BE SHOWN THAT NO SUBSTANTIAL CHANGE IN THE COMPONENT MATERIALS HAS OCCURRED. THE RESUBMITTAL ANALYSIS MUST BE REVIEWED, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF TEXAS. THIS RESUBMITTAL SHALL INCLUDE A REANALYSIS OF SPECIFIC GRAVITY, ABSORPTION, FINENESS MODULUS, SAND EQUIVALENT, SOUNDNESS, WEAR, AND UNIT WEIGHTS OF THE AGGREGATES. PROVIDED THAT THE FINENESS MODULUS DID NOT DEVIATE BY MORE THAN 0.20 OR THAT THE RE-PROPORTIONED TOTAL MIXING WATER, AGGREGATE AND CEMENT (OR CEMENT PLUS FLY ASH) ARE WITHIN 1, 2, AND 3 PERCENT, RESPECTIVELY, OF PRE-APPROVED QUANTITIES, A ONE-YEAR EXTENSION ON THE APPROVAL OF THE MIX MAY BE GRANTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. UPDATED CEMENT, FLY ASH, AND ADMIXTURE CERTIFICATIONS SHALL ACCOMPANY THE RESUBMITTAL.

REV	DESCRIPTION	DATE	APR
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△			
△			

DESIGNED BY: AG

REVIEWED BY: TR

DRAWN BY: RA

NOT FOR CONSTRUCTION

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TBPE Registration No. F-1046

WIMBERLEY RIDGE

GENERAL NOTES SHEET (SHEET 1 OF 2)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
2

8.04 CONSISTENCY AND QUALITY OF CONCRETE

CONCRETE SHALL BE WORKABLE, COHESIVE, POSSESS SATISFACTORY FINISHING QUALITIES AND OF STIFFEST CONSISTENCY THAT CAN BE PLACED AND VIBRATED INTO A HOMOGENEOUS MASS WITHIN SLUMP REQUIREMENTS SPECIFIED IN TABLE 8-3. NO CONCRETE WILL BE PERMITTED WITH A SLUMP IN EXCESS OF THE MAXIMUMS SHOWN UNLESS WATER-REDUCING ADMIXTURES HAVE BEEN PREVIOUSLY APPROVED. SLUMP VALUES SHALL BE CONDUCTED IN ACCORDANCE WITH TXDOT TEST METHOD TEX-415-A. CONSISTENCY AND QUALITY OF CONCRETE SHOULD ALLOW EFFICIENT PLACEMENT AND COMPLETION OF FINISHING OPERATIONS BEFORE INITIAL SET. RE-TEMPERING (I.E. ADDITION OF WATER AND REWORKING CONCRETE AFTER INITIAL SET) SHALL NOT BE ALLOWED. WHEN FIELD CONDITIONS ARE SUCH THAT ADDITIONAL MOISTURE IS NEEDED FOR FINAL CONCRETE SURFACE FINISHING OPERATION, THE REQUIRED WATER SHALL BE APPLIED TO SURFACE BY FOG SPRAY ONLY AND SHALL BE HELD TO A MINIMUM. EXCESSIVE BLEEDING SHALL BE AVOIDED AND IN NO CASE WILL IT BE PERMISSIBLE TO EXPEDITE FINISHING AND DRYING BY THE APPLICATION OF CEMENT POWDER TO THE SURFACE. DURING PROGRESS OF THE WORK, THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE SHALL REQUIRE THE DEVELOPER TO CAST TEST CYLINDERS AND/OR BEAMS AS A CHECK ON COMPRESSIVE AND/OR FLEXURAL STRENGTH OF CONCRETE ACTUALLY PLACED. THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE MAY REQUIRE THE DEVELOPER ALSO TO PERFORM SLUMP TESTS, ENTRAINED AIR TESTS AND TEMPERATURE CHECKS TO ENSURE COMPLIANCE WITH SPECIFICATIONS. THE COST SHALL BE BARED BY THE DEVELOPER OR CONTRACTOR.

UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS, CONCRETE MIX TEMPERATURE SHALL NOT EXCEED 90°F EXCEPT IN MIXES WITH HIGH RANGE WATER REDUCERS WHERE A MAXIMUM MIX TEMPERATURE OF 100°F WILL BE ALLOWED. COOLING AN OTHERWISE UNACCEPTABLE MIX BY ADDITION OF WATER OR ICE DURING AGITATION WILL NOT BE ALLOWED.

ICE MAY BE USED DURING HOT WEATHER CONCRETE PLACEMENT TO LOWER THE CONCRETE TEMPERATURE; HOWEVER, THE CONTRACTOR SHALL FURNISH A MIX DESIGN ACCEPTABLE TO THE ENGINEER OR DESIGNATED REPRESENTATIVE FOR CLASS OF CONCRETE SPECIFIED. THE ADDITION OF ICE SHALL NOT EXCEED 50% OF THE TOTAL MIX WATER WEIGHT. TEST CYLINDERS MAY BE REQUIRED FOR SMALL PLACEMENTS SUCH AS WING WALLS AND HEAD WALLS. THE ENGINEER MAY VARY THE NUMBER OF TESTS TO A MINIMUM OF 1 FOR EACH 25 CUBIC YARDS PLACED OVER A SEVERAL DAY PERIOD. SLUMP TESTS WILL BE PERFORMED IN ACCORDANCE WITH TXDOT TEST METHOD TEX-415-A. ENTRAINED AIR TESTS WILL BE PERFORMED IN ACCORDANCE WITH TXDOT TEST METHOD TEX-416-A. TEST SPECIMENS SHALL BE CURED USING THE SAME METHODS AND UNDER THE SAME CONDITIONS AS THE CONCRETE REPRESENTED. DESIGN STRENGTH BEAMS AND CYLINDERS SHALL BE CURED CONFORMING TO TXDOT BULLETIN C-11 (AND SUPPLEMENTS THERETO). WHEN CONTROL OF CONCRETE QUALITY IS BY 28-DAY COMPRESSIVE TESTS, JOB CONTROL TESTING WILL BE BY 7-DAY COMPRESSIVE STRENGTH TESTS. THE MINIMUM STRENGTH REQUIREMENT FOR SEVEN (7) DAY TEST WILL BE 70 PERCENT OF THE SPECIFIED MINIMUM 28-DAY COMPRESSIVE STRENGTH. IF THE REQUIRED 7-DAY STRENGTH IS NOT SECURED WITH THE QUANTITY OF CEMENT SPECIFIED IN TABLE 8-1, CHANGES IN THE MIX DESIGN SHALL BE MADE AND RESUBMITTED FOR APPROVAL. FOR AN OCCASIONAL FAILURE OF THE SEVEN-DAY COMPRESSIVE TEST, THE CONCRETE MAY BE TESTED AT 28 DAYS FOR FINAL EVALUATION.

Table 8-1: Classes of Concrete

Class	Cement Sacks/CY	Minimum Strength (psi) 7 days	28 days	Maximum W/C Ratio	Course Agg Grade 2,3,4	Entrained Air
A	5.0	2100	3000	0.6	1,2,3,4,8	Yes
B	4.0	1400	2000	0.6	2,3,4,5,6,7	No
C5	6.0	2520	3600	0.45	1,2,3,4,5,6	Yes
D	4.5	1750	2500	0.6	2,3,4,5,6,7	No
H5	6.0	As Indicated	As Indicated	0.45	3,4,5,6	Yes
I	5.5	2450	3500	0.45	2,3,4,5	Yes
J	2.0	560	800	N/A	2,3,4,5	No
S5	6.0	2800	4000	0.45	2,3,4,5	Yes

NOTES: 1.MAXIMUM WATER-CEMENT OR WATER-CEMENTITIOUS RATIO BY WEIGHT.

2. UNLESS OTHERWISE ALLOWED, GRADE 1 COARSE AGGREGATE SHALL ONLY BE USED IN MASSIVE FOUNDATIONS WITH 4-IN MINIMUM CLEAR SPACING BETWEEN REINFORCING STEEL BARS.

3. GRADE 1 COARSE AGGREGATE GRADING SHALL NOT BE USED IN DRILLED SHAFTS.

4. UNLESS OTHERWISE ALLOWED, GRADE 8 COARSE AGGREGATE SHALL BE USED IN EXTRUDED CURBS.

5. STRUCTURAL CONCRETE CLASSES.

6. WHEN TYPE II CEMENT IS USED IN CLASS C, S OR A CONCRETE, THE 7-DAY COMPRESSIVE STRENGTH REQUIREMENT WILL BE 2310 PSI FOR CLASS C, 2570 PSI FOR CLASS S AND 1925 PSI FOR CLASS A MINIMUM.

Table 8-2: Air Entrainment*

Nominal Maximum Aggregate Size In	% Air Entrainment Moderate Exposure	Severe Exposure
3/8 Grades 7&8	6.0	7.5
1/2 Grade 6	5.5	7.0
3/4 Grade 5	5.0	6.0
1 Grade 4	4.5	6.0
1-1/2 Grade 3	4.5	5.5
2 Grade 2	4.0	5.0

* For specified concrete strengths above 5,000 psi a reduction of 1 percentage point is allowed.

Table 8-3: Slump Requirements

Type of Construction	Slump in inches Maximum	Minimum
Cased Drilled Shafts	4	3
Reinforced Foundation Caissons and Footings	3	1
Reinforced Footings and Substructure Walls	3	1
Uncased Drilled Shafts	6	5
Thin-walled Sections; 9 inches (225 mm) or less	5	4
Bridge Decks	4	2
Pavements, Fixed-form	3	1
Pavements, Slip-form	1-1/2	½
Sidewalks, Driveways and Slabs on Ground	4	2
Curb & Gutter, Hand-vibrated	3	1
Curb & Gutter, Hand-tamped or spaded	4	2
Curb & Gutter, Slip-form/extrusion machine	2	½
Heavy Mass Construction	2	1
High Strength Concrete	4	3
Riprap and Other Miscellaneous Concrete	6	1

8.05 MIXING AND MIXING EQUIPMENT

A. **READY-MIXED CONCRETE**: USE OF READY-MIXED CONCRETE WILL BE PERMITTED PROVIDED THE BATCHING PLANT AND MIXER TRUCKS MEET QUALITY REQUIREMENTS SPECIFIED HEREIN. WHEN READY-MIXED CONCRETE IS USED, ADDITIONAL MORTAR (1 SACK CEMENT, 3 PARTS SAND AND SUFFICIENT WATER) SHALL BE ADDED TO EACH BATCH TO COAT THE MIXER DRUM. READY-MIXED CONCRETE, BATCHING PLANT AND MIXER TRUCK OPERATION SHALL INCLUDE THE FOLLOWING:

1. A TICKET SYSTEM WILL BE USED THAT INCLUDES A COPY FOR THE INSPECTOR. TICKET WILL HAVE MACHINE STAMPED TIME/DATE OF CONCRETE BATCH, A MIX DESIGN DESIGNATION, WEIGHT OF CEMENT, FLY ASH, SAND AND AGGREGATES; EXACT NOMENCLATURE AND WRITTEN QUANTITIES OF ADMIXTURES AND WATER. ANY ITEM MISSING OR INCOMPLETE ON TICKET MAY BE CAUSE FOR REJECTION OF CONCRETE
2. SUFFICIENT TRUCKS WILL BE AVAILABLE TO SUPPORT CONTINUOUS PLACEMENTS. THE CONTRACTOR WILL SATISFY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE THAT ADEQUATE STANDBY TRUCKS ARE AVAILABLE TO SUPPORT MONOLITHIC CONCRETE PLACEMENT REQUIREMENTS.
3. A PORTION OF MIXING WATER REQUIRED BY THE MIX DESIGN TO PRODUCE THE SPECIFIED SLUMP MAY BE WITHHELD AND ADDED AT THE JOB SITE, BUT ONLY WITH PERMISSION OF THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE AND UNDER THE INSPECTOR'S OBSERVATION. WHEN WATER IS ADDED UNDER THESE CONDITIONS, THE CONCRETE BATCH WILL BE THOROUGHLY MIXED BEFORE ANY SLUMP OR STRENGTH SAMPLES ARE TAKEN. ADDITIONAL CEMENT SHALL NOT BE ADDED AT THE JOB SITE TO OTHERWISE UNACCEPTABLE MIXES.
4. A METAL PLATE(S) SHALL BE ATTACHED IN A PROMINENT PLACE ON EACH TRUCK MIXER PLAINLY SHOWING THE VARIOUS USES FOR WHICH IT WAS DESIGNED. THE DATA SHALL INCLUDE THE DRUM'S SPEED OF ROTATION FOR MIXING AND FOR AGITATING AND THE CAPACITY FOR COMPLETE MIXING AND/OR AGITATING ONLY. A COPY OF THE MANUFACTURER'S DESIGN, SHOWING DIMENSIONS OF BLADES, SHALL BE AVAILABLE FOR INSPECTION AT THE PLANT AT ALL TIMES. ACCUMULATIONS OF HARDENED CONCRETE SHALL BE REMOVED TO THE SATISFACTION OF THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE.
5. THE LOADING OF THE TRANSIT MIXERS SHALL NOT EXCEED CAPACITY AS SHOWN ON THE MANUFACTURER'S PLATE ATTACHED TO THE MIXER OR 63 PERCENT OF THE DRUM VOLUME, WHICHEVER IS THE LESSER VOLUME. THE LOADING OF TRANSIT MIXERS TO THE EXTENT OF CAUSING SPILL-OUT EN ROUTE TO DELIVERY WILL NOT BE ACCEPTABLE. CONSISTENT SPILLAGE WILL BE CAUSE FOR DISQUALIFICATION OF A SUPPLIER.
6. EXCESS CONCRETE REMAINING IN THE DRUM AFTER DELIVERY AND WASH WATER AFTER DELIVERY SHALL NOT BE DUMPED ON THE PROJECT SITE UNLESS APPROVAL OF THE DUMP LOCATION IS FIRST SECURED FROM THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE.

B. **HAND MIXED CONCRETE**: HAND MIXING OF CONCRETE MAY BE PERMITTED FOR SMALL PLACEMENTS OR IN CASE OF AN EMERGENCY AND THEN ONLY ON AUTHORIZATION OF THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE. HAND-MIXED BATCHES SHALL NOT EXCEED A 4 CUBIC FOOT (3 CUBIC METERS) BATCH IN VOLUME. MATERIAL VOLUME RATIOS SHALL NOT BE LEANER THAN 1 PART CEMENT, 2 PARTS LARGE AGGREGATE, 1 PART FINE AGGREGATE AND ENOUGH WATER TO PRODUCE A CONSISTENT MIX WITH A **SLUMP NOT TO EXCEED 4 INCHES**. ADMIXTURES SHALL NOT BE USED UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE.

ITEM: 9.00 DRAINAGE FACILITIES

9.01 DESCRPTION

THIS ITEM SHALL GOVERN THE FURNISHING OF ALL DRAINAGE CULVERT PIPE, CONCRETE HEADWALLS, AND REFLECTOR POST AS SHOWN ON THE PLANS AND HEREIN SPECIFIED, AND INSTALLING THE SAME AS DESIGNATED ON THE PLANS OR BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE IN CONFORMITY WITH THE LINES AND GRADES GIVEN.

9.02 MATERIALS

THE CULVERT PIPE SHALL BE OF SIZE, LENGTH, AND GAUGE AS SHOWN ON THE PLANS. CORRUGATED GALVANIZED METAL PIPE SHALL BE AS SPECIFIED BY ITEM 460 OF THE MOST CURRENT TXDOT STANDARD SPECIFICATIONS. REINFORCED CONCRETE PIPE SHALL BE AS SPECIFIED BY ITEM 464 OF THE SAME. ALL PIPE SHALL BE NEW AND UNUSED AND SHALL NOT HAVE BEEN DAMAGED BY HANDLING OR SHIPPING. THE USE OF HDPE OR POLYPROPYLENE PIPE WITHIN THE ROW IS STRICTLY PROHIBITED. REFLECTOR POSTS SHALL CONFORM TO THE COA DETAIL 824-2 OR AN APPROVED ALTERNATIVE, EQUIPPED WITH 3 INCH AMBER REFLECTORS. THE LENGTH OF THE POST SHALL BE ADEQUATE TO PLACE THE REFLECTOR ASSEMBLY 48 INCHES ABOVE THE CENTERLINE ELEVATION OF THE STREET AND ANCHOR THE POST APPROXIMATELY 48 INCHES INTO THE GROUND. CONCRETE HEADWALLS AND/OR RIP-RAP SHALL BE CONSTRUCTED OF CLASS A CONCRETE CONFORMING WITH COA ITEM 403S REINFORCED WITH DEFORMED BARS OR WIRE MESH CONFORMING WITH ITEM 406S OF SAME. ALL HEADWALLS AND/OR RIP-RAP SHALL BE OF THE DIMENSIONS AND IN THE LOCATIONS SHOWN ON THE PLANS.

9.03 CONSTRUCTION METHODS

CULVERT PIPE SHALL BE INSTALLED TO THE LINES AND GRADES SHOWN ON THE PLAN OR AS SPECIFIED BY THE DIRECTOR OF TRANSPORTATION OR HIS REPRESENTATIVE. THE PIPE SHALL BE BEDDED ALONG ITS COMPLETE LENGTH AND UP TO THE SHOULDERS. THE BACKFILL AROUND THE PIPE SHALL BE COMPACTED. THE INSTALLATION OF ALL CULVERT PIPES SHALL BE IN GENERAL CONFORMANCE WITH THE APPROPRIATE SECTIONS OF THE MOST CURRENT TXDOT STANDARD SPECIFICATIONS. ALL CULVERT PIPES LOCATED AT STREET INTERSECTIONS SHALL BE PROVIDED WITH REFLECTOR POSTS. THE REFLECTOR POST SHALL BE EQUIPPED WITH ONE REFLECTOR FACING IN EACH DIRECTION OF TRAFFIC FLOW. REFLECTOR POSTS SHALL BE PROVIDED ON THE ENDS OF THE CONCRETE HEADWALLS OR RIP-RAP AS SHOWN ON THE PLANS. THE CONCRETE HEADWALLS OR RIP-RAP SHALL BE OF THE DIMENSIONS AND AT THE LOCATIONS SHOWN ON THE PLANS. THE HEADWALLS SHALL BE FORMED ON THEIR EXPOSED SURFACES, WHICH SHALL BE GROUTED AND BROOM FINISHED UPON REMOVAL OF THE FORMS. **GUARDRAIL IS REQUIRED WERE SLOPES DO NOT MEET REQUIREMENTS OF TABLE 7.3.**

ITEM: 10.00 CHANNEL EXCAVATION

10.01 DESCRIPTION

CHANNEL EXCAVATION SHALL CONSIST OF REQUIRED EXCAVATION FOR ALL CHANNELS, THE REMOVAL AND PROPER UTILIZATION OR DISPOSAL OF ALL EXCAVATED MATERIALS, AND CONSTRUCTING, SHAPING AND FINISHING OF ALL EARTHWORK INVOLVED IN CONFORMITY WITH THE REQUIRED LINES, GRADES AND TYPICAL CROSS SECTIONS AND IN ACCORDANCE WITH THE SPECIFICATIONS AND REQUIREMENTS HEREIN OUTLINED.

10.02 CLASSIFICATION

ALL CHANNEL EXCAVATION WILL BE UNCLASSIFIED. UNCLASSIFIED CHANNEL EXCAVATION SHALL INCLUDE ALL MATERIALS ENCOUNTERED REGARDLESS OF THEIR NATURE OR THE MANNER IN WHICH THEY ARE REMOVED.

10.03 CONSTRUCTION METHODS

ALL SUITABLE MATERIALS REMOVED FROM THE EXCAVATION SHALL BE USED, INSOFAR AS PRACTICABLE, IN THE FORMATION OF EMBANKMENTS AS REQUIRED, OR SHALL BE OTHERWISE UTILIZED OR SATISFACTORILY DISPOSED OF AS INDICATED ON PLANS, OR AS DIRECTED, AND COMPLETED WORK SHALL CONFORM TO THE ESTABLISHED ALIGNMENT, GRADES AND CROSS SECTIONS. DURING CONSTRUCTION, THE CHANNEL SHALL BE KEPT DRAINED, INSOFAR AS PRACTICABLE, AND THE WORK SHALL BE PROSECUTED IN A NEAT AND WORKMANLIKE MANNER. UNSUITABLE CHANNEL EXCAVATION OR EXCAVATION IN EXCESS OF THAT NEEDED FOR CONSTRUCTION, SHALL BE KNOWN AS "WASTE" AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR TO BE DISPOSED OF BY HIM. CHANNEL EXCAVATION SHALL INCLUDE THE REMOVAL AND REPLACEMENT OF ALL FENCE LINES CROSSING THE CHANNELS AND THE INSTALLATION OF GATES AND WATER GAPS AS SHOWN ON THE PLANS. ALL CHANNELS AND THAT AREA ADJACENT TO THEM WHICH HAS BEEN DISTURBED BY CONSTRUCTION EQUIPMENT SHALL BE GRADED SMOOTH AND SEEDED. SEEDING SHALL CONFORM TO ITEM 164 OF THE MOST CURRENT TXDOT STANDARD SPECIFICATIONS OR APPLICABLE STANDARDS FOR THE APPROPRIATE JURISDICTION.

ITEM: 11.00 CLEAR ZONES

11.01 GENERAL

THE PURPOSE OF THIS SECTION IS TO PROVIDE DESIGN CRITERIA FOR ESTABLISHING A ROADWAY CLEAR ZONE. MINIMUM CLEAR ZONE WIDTHS MAY BE FOUND IN **TABLE 11-1**.

11.02 CLEAR ZONES

THE TERM "CLEAR ZONE" IS USED TO DESCRIBE THE GENERALLY FLAT AND UNOBSTRUCTED AREA THAT IS PROVIDED BEYOND THE TRAVEL LANES. THE CLEAR ZONE MAY INCLUDE SHOULDERS. FOR URBAN STREETS, ARTERIALS, COLLECTORS AND LOCAL STREETS, WHERE CURBS ARE USED, AVAILABLE AREA FOR CLEAR ZONES MAY BE LIMITED. A MINIMUM OFFSET DISTANCE OF 18 INCHES SHOULD BE PROVIDED BETWEEN THE FACE OF CURB AND OBSTRUCTIONS SUCH AS UTILITY POLES, LIGHTING POLES AND FIRE HYDRANTS (LOCAL URBAN STREETS, HORIZONTAL CLEARANCE TO OBSTRUCTIONS, CHAPTER 5 OF AASHTO'S, "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2001"). GREATER OFFSETS SHOULD BE PROVIDED WHEN POSSIBLE TO PERMIT CURBSIDE PARKING. BECAUSE MOST CURBS DO NOT HAVE A CAPABILITY TO REDIRECT VEHICLES, THE MINIMUM CLEAR ZONE DISTANCE SHOULD BE INCREASED AS DIRECTED BY THE DIRECTOR OF TRANSPORTATION OR DESIGNATED REPRESENTATIVE COMMENSURATE WITH INCREASES IN TRAFFIC VOLUMES AND VEHICLE SPEEDS.

TABLE 11-1: MINIMUM CLEAR ZONE WIDTH

Classification	Design Speed	ADT	Minimum Width* **
Major Arterial	≥55mph	>15000	12ft
Minor Arterial	≤55mph	5001-15000	12ft
Major Collector	≤45mph	2501-5000	12ft
Minor Collector	≤35mph	1001-2500	6ft
Local/Country Lane Uncurbed	All	All	6ft
Local/Country Lane Curbed	All	All	2ft from FOC

* Without barrier or other safety treatment of appurtenances.

**Measured from edge of travel lane for all cut sections and for all fill sections where side slopes are 1V:4H or flatter. Where fill slopes are steeper than 1V:4H it is desirable to provide a 10 ft. area free of obstacles beyond the toe of slope.

11.03 LANDSCAPING IN THE RIGHT OF WAY

THE FOLLOWING REQUIREMENTS WILL APPLY TO ALL LANDSCAPING WITHIN THE RIGHT-OF-WAY ALONG ROADSIDES, MEDIAN AND INTERSECTION.

A. INTERSECTIONS: NO LANDSCAPING OF ANY TYPE SHALL OBSTRUCT VISION. THESE REQUIREMENTS WILL APPLY TO ANY MATERIAL FROM A HEIGHT OF TWO (2) FEET TO A CLEARANCE HEIGHT OF EIGHT (8) FEET ABOVE THE TOP OF CURB, INCLUDING, BUT NOT LIMITED TO FULL GROWN TREES, FULL-GROWN SHRUBS, FENCES, STRUCTURES, ANY SIGNS EXCEPT TRAFFIC CONTROL SIGNS, ETC.

B. TRAFFIC CONTROL DEVICES: NO LANDSCAPING OF ANY TYPE SHALL OBSTRUCT VISION. THESE REQUIREMENTS WILL APPLY TO ANY MATERIAL FROM A HEIGHT OF SEVEN (7) FEET TO A CLEARANCE HEIGHT OF FOURTEEN (14) FEET ABOVE THE TOP OF CURB, INCLUDING, BUT NOT LIMITED TO FULL GROWN TREES, FULL-GROWN SHRUBS, FENCES, STRUCTURES, ANY SIGNS EXCEPT TRAFFIC CONTROL SIGNS, ETC. WITHIN TWENTY- FIVE (25) FEET OF ANY EXISTING OR PROPOSED TRAFFIC SIGNAL, REGULATORY OR WARNING SIGNS, OR OTHER TRAFFIC CONTROL DEVICES.

C. SCHOOL CROSSINGS: NO LANDSCAPING OF ANY TYPE SHALL OBSTRUCT VISION. THESE REQUIREMENTS WILL APPLY TO ANY MATERIAL WITH A HEIGHT OF TWO (2) FEET OR GREATER WITHIN ONE HUNDRED FIFTY (150) FEET OF A SCHOOL CROSSING TO ASSURE PEDESTRIAN SAFETY BY NOT RESTRICTING THE SIGHT VISIBILITY OF MOTORISTS.

D. RAILROAD CROSSINGS: NO LANDSCAPING OF ANY TYPE SHALL OBSTRUCT VISION. THESE REQUIREMENTS WILL APPLY TO ANY MATERIAL WITH A HEIGHT OF TWO (2) FEET OR GREATER WITHIN TWO HUNDRED FIFTY (250) FEET OF A RAILROAD CROSSING TO ASSURE ADEQUATE SIGHT VISIBILITY.

E. GENERAL NOTE: ANY LANDSCAPING THAT IS NOT IN COMPLIANCE WITH THE REQUIREMENTS STATED IN THESE CRITERIA OR HAS BEEN PLANTED WITHOUT AN APPROVED LICENSE AGREEMENT FROM THE COUNTY SHALL BE REMOVED BY THE SPONSORING ORGANIZATION OR INDIVIDUAL AT THEIR COST. THE REQUIRED LICENSE AGREEMENT MAY BE OBTAINED FROM THE HAYS COUNTY ROAD AND BRIDGE DEPARTMENT.

ITEM: 12.00 MISCELLANEOUS

12.01 SIGNAGE

STREET NAME SIGNS, TRAFFIC CONTROL SIGNS, SPEED LIMIT SIGNS, CROSSWALKS ETC. SHALL ALL CONFORM TO THE REQUIREMENTS OF THE MOST CURRENT TXDOT STANDARD SPECIFICATIONS AND THE "UNIFORM MANUAL OF TRAFFIC CONTROL DEVICES". SIGNAGE AND POSTS SHALL CONFORM TO THE COA DETAIL 824-2 OR AN APPROVED ALTERNATIVE. STOP BARS SHALL BE INSTALLED AT ALL STOP SIGN LOCATION. THEY SHALL BE RETRO-REFLECTIVE WHITE THERMOPLASTIC MATERIAL A MINIMUM OF 24" WIDE. THEY SHALL BE PLACED ADJACENT TO THE STOP SIGN AND SHALL EXTEND FROM THE EDGE OF PAVEMENT TO THE MIDPOINT OF THE ROADWAY. FOR ALL DEVELOPMENTS PROPOSING NEW STREET CONSTRUCTION, THE DEVELOPER'S ENGINEER SHALL PROVIDE - AS PART OF THE CONSTRUCTION PLANS - A NARRATIVE STATEMENT IN RECORDABLE FORMAT, TO BE RECORDED WITH THE FINAL PLAT, LISTING THE TYPE AND LOCATION OF ALL PROPOSED SIGNS FOR DIRECTING AND CONTROLLING TRAFFIC.

12.02 COMPLETION CERTIFICATE

UPON COMPLETION, BUT PRIOR TO ACCEPTANCE OF THE WORK BY HAYS COUNTY TRANSPORTATION DEPARTMENT, THE ACCREDITED MATERIALS ENGINEERING LABORATORY SHALL SUBMIT TO HAYS COUNTY TRANSPORTATION DEPARTMENT A WRITTEN STATEMENT OF SUBSTANTIAL COMPLIANCE WHICH HAS BEEN SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS. THE WRITTEN STATEMENT OF SUBSTANTIAL COMPLIANCE MUST ACKNOWLEDGE THAT ALL CONSTRUCTION MATERIALS AND OPERATIONS USED IN THE PROJECT WERE TESTED AND INSPECTED BY ACCREDITED LABORATORY AND THAT THEY COMPLY WITH ALL THE SPECIFICATIONS APPLICABLE TO THE PROJECT.AT THE TIME A FINAL INSPECTION AND RELEASE OF PERFORMANCE SECURITY IS REQUESTED; THE DESIGN ENGINEER SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" RECORD DRAWINGS IN PDF FORMAT (300 DPI) ON A VIRUS FREE DISK AND SHALL CERTIFY THAT ALL ROAD AND DRAINAGE CONSTRUCTION HAS BEEN COMPLETED IN SUBSTANTIAL ACCORDANCE WITH PREVIOUSLY APPROVED PLANS AND SPECIFICATIONS, EXCEPT AS NOTED. **NO PERFORMANCE SECURITY WILL BE RELEASED WITHOUT THESE EXHIBITS.**

12.03 ACCEPTANCE OF MAINTENANCE

PRIOR TO THE ACCEPTANCE OF MAINTENANCE BY HAYS COUNTY TRANSPORTATION DEPARTMENT, ALL ROADWAYS TO BE ACCEPTED, WILL HAVE MEET OR BE BROUGHT UP TO HAYS COUNTY STANDARDS. A FULL DEPTH REPAIR, CONSISTING OF NO LESS THAN 6" OF TYPE B OR C AND 2" OF TYPE D MIX, WILL BE REQUIRED ON BASE AND SUBGRADE FAILURES AS DETERMINED BY THE DIRECTOR OF TRANSPORTATION.

HAYS COUNTY GENERAL CONSTRUCTION NOTES

THESE PLANS ARE NOT TO BE CONSIDERED FINAL FOR CONSTRUCTION UNTIL APPROVED BY HAYS COUNTY. CHANGES MAY BE REQUIRED PRIOR TO APPROVAL.

1. SEVENTY-TWO (72) HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION, THE DEVELOPER SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE WITH ALL PERTINENT PARTIES.
2. ALL ROADWAY AND DRAINAGE IMPROVEMENTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH HAYS COUNTY SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS FROM HAYS COUNTY ROAD AND BRIDGE DEPARTMENT PRIOR TO BEGINNING ANY ON-SITE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING THE NECESSARY INSPECTIONS FROM THE HAYS COUNTY ROAD AND BRIDGE DEPARTMENT. ALL REPAIRS TO IMPROVEMENTS CAUSED BY CONTRACTOR'S FAILURE TO INSTALL IMPROVEMENTS IN ACCORDANCE WITH HAYS COUNTY SPECIFICATIONS AND THESE CONSTRUCTION PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. HAYS COUNTY TRANSPORTATION DEPARTMENT'S ACCEPTANCE OF THE IMPROVEMENTS ARE CONTINGENT ON REPAIRS BEING MADE TO HAYS COUNTY'S SATISFACTION. DELAYS CAUSED BY REPAIRS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. A MINIMUM OF TWO (2) BENCHMARKS SHALL BE SHOWN ON THE CONSTRUCTION PLANS.
4. ALL BEDDING MATERIALS USED WITHIN THE ROW SHALL COMPLY WITH COA ITEM 510.
5. ALL CONCRETE PLACED WITHIN THE ROW SHALL BE A MINIMUM OF CLASS A. THE USE OF REBAR CHAIRS AND TESTS CYLINDERS WILL BE REQUIRED ON PCC VALLEY GUTTER PLACEMENTS.
6. THE PROPOSED FULLY DEVELOPED STORMWATER RUNOFF RATE CANNOT EXCEED EXISTING CONDITIONS RUNOFF RATE
7. THE TCEQ PERMIT AND SWPPP BOOK MUST BE ON SITE AND AVAILABLE UPON REQUEST AT ALL TIMES AT ALL TIMES.
8. THE CONTRACTOR SHALL MAINTAIN E&S CONTROLS THAT FAILED INSPECTION PRIOR TO THE NEXT INSPECTION OR RAIN EVENT.
9. A HARD COPY OF THE APPROVED/STAMPED PLANS MUST BE ON SITE AND AVAILABLE UPON REQUEST AT ALL TIMES.
10. DEWATERING OPERATIONS MUST USE SWPPP-SPECIFIED METHODS ONLY. IF SUCH METHODS ARE ONLY GENERAL OR NOT APPLICABLE, PUMP FROM THE TOP OF THE POOL (RATHER THAN THE BOTTOM) AND DISCHARGE TO A VEGETATED, UPLAND AREA (AWAY FROM WATERBODIES OR DRAINAGES) OR USE ANOTHER TYPE OF FILTRATION PRIOR TO DISCHARGE. REFER TO THE EPA 2017 GENERAL CONSTRUCTION PERMIT, SECTION 2.4, AS APPLICABLE.
11. THE CONTRACTOR SHALL SUPPLY QUALIFIED PERSONNEL TO PERFORM SWPPP INSPECTIONS ON PROJECT ≥ 1 ACRE. QUALIFIED PERSONNEL SHALL HAVE CISEC, CESSWI, OR EQUIVALENT CERTIFICATION APPROVED BY THE MS4.
12. CONTRACTOR SHALL PLACE GEO FABRIC UNDER SCE'S AND CLEAN UP ANY MUD AND DEBRIS TRACKED ONTO PUBLICLY MAINTAINED ROADWAYS FROM VEHICLES LEAVING THE CONSTRUCTION SITE DAILY.
13. NO EXPLOSIVES SHALL BE USED FOR THIS PROJECT WITHOUT TCEQ APPROVAL.
14. ALL HOLES, TRENCHES AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY BARRICADES, FENCING, LIGHTS AND/OR OTHER PROTECTIVE DEVICES IN COMPLIANCE WITH COA 509S AND OSHA REGULATIONS AT ALL TIMES.
15. HE CONTRACTOR SHALL SUBMIT A TRENCH SAFETY PLAN PREPARED AND SEALED BY AN ENGINEER LICENSED BY THE STATE OF TEXAS PRIOR TO THE START OF THE PROJECT. THE CONTRACTOR SHALL ASSIGN A COMPETENT PERSON THAT HAS BEEN PROPERLY TRAINED AND IS QUALIFIED TO MAKE INSPECTIONS AND SUPERVISE THE INSTALLATION, MAINTENANCE, AND REMOVAL OF THE TRENCH SAFETY OR EXCAVATION SAFETY SYSTEM.
16. HAYS COUNTY IS NOT RESPONSIBLE FOR SIDEWALK MAINTENANCE. A FULLY EXECUTED LICENSE AGREEMENT MUST BE IN-PLACE PRIOR TO CONSTRUCTION OF SIDEWALKS WITHIN HAYS COUNTY ROW.
17. CONTRACTOR SHALL COMPLY WITH CONSTRUCTION SEQUENCING WHICH MAY BE SPECIFIED SOMEWHERE IN THE CONSTRUCTION PLANS.
18. PERMIT IS REQUIRED FOR CONSTRUCTION IN 'RIGHT OF WAY': ORDINANCE 7.10. NO DRIVEWAY, UTILITY CONSTRUCTION, MAILBOXES, LANDSCAPING OR ANY OTHER ENCROACHMENT INTO RIGHT-OF-WAY OR EASEMENT SHALL BE ALLOWED WITHOUT FIRST OBTAINING A PERMIT FROM THE HAYS COUNTY ROAD AND BRIDGE DEPARTMENT.
19. PRIOR TO THE INSTALLATION OF ANY ROAD BUILDING MATERIAL THE SUBGRADE SHALL BE INSPECTED BY HAYS COUNTY. PRIOR TO PAVING, BASE MATERIAL SHALL BE INSPECTED BY HAYS COUNTY. THE OWNER OR HIS AGENT SHALL NOTIFY HAYS COUNTY FORTY-EIGHT (48) HOURS PRIOR TO THE TIME WHEN THE INSPECTION IS NEEDED :ORDINANCE 1.05; 2.06.
20. ALL OUTFALLS CONSTRUCTED WITHIN HAYS COUNTY MUST BE SUBMITTED TO HAYS COUNTY WITH GPS COORDINATES AT THE END OF EACH PROJECT. COORDINATES WILL BE SUBMITTED ON THE NAD 1983 STATE PLANE SOUTH CENTRAL FIPS 4204 FEET COORDINATE SYSTEM. ALL COORDINATES WILL BE SUBMITTED IN GRID UNITS. THE REQUIRED FILE TYPE FOR COORDINATE DATA SUBMISSIONS IS *TXT FORMAT.
21. AT THE TIME A FINAL INSPECTION AND RELEASE OF PERFORMANCE SECURITY IS REQUESTED; THE DESIGN ENGINEER SHALL PROVIDE A COMPLETE SET OF "AS-BUILT" RECORD DRAWINGS IN PDF FORMAT (300DPI) ON A VIRUS FREE DISK AND SHALL CERTIFY THAT ALL ROAD AND DRAINAGE CONSTRUCTION HAS BEEN COMPLETED IN SUBSTANTIAL ACCORDANCE WITH PREVIOUSLY APPROVED PLANS AND SPECIFICATIONS, EXCEPT AS NOTED. NO PERFORMANCE SECURITY WILL BE RELEASED WITHOUT THESE EXHIBITS.

TYPICAL SEQUENCE OF CONSTRUCTION

1. HOLD PRE-CONSTRUCTION MEETING.
2. NO CLEARING OR ROUGH CUTTING MAY BE DONE UNTIL THE APPROVED EROSION AND
3. SEDIMENT CONTROLS ARE IN PLACE AND APPROVED BY HAYS COUNTY.
4. ROUGH CUT DETENTION/WATER QUALITY PONDS/BASINS AND DIRECT RUNOFF TO PONDS
5. TO ACT AS A SEDIMENT TRAP.
6. ROUGH GRADE STREETS
7. INSTALL ALL UTILITIES IN THE RIGHTS-OF-WAY.
8. REGRADE AND COMPACT SUBGRADE. MEET WITH INSPECTOR AND /DESIGN ENGINEER TO
9. DETERMINE AREAS OF DIFFERING STREET SECTIONS OR SUBGRADE PREPARATION, IF
10. CALLED FOR IN THE GEOTECHNICAL REPORT.
11. INSURE ALL UNDERGROUND UNTILITY CROSSINGS ARE IN PLACE INCLUDING SLEEVES
12. FOR DRY UTILITIES AND INSTALL FIRST COURSE OF BASE.
13. INSTALL CURBS, RIP-RAP AND MISCELLANEOUS CONCRETE.
14. INSTALL SECOND COURSE OF BASE.
15. PRIOR TO PAVING, ALL UTILITY TESTING MUST BE COMPLETE AND APPROVED BY THE UTILITY OWNER.
16. LAY ASPHALT.
17. FINAL GRADE ANY DITCHES AND PARKWAYS.
18. REVEGETATE ALL DISTURBED AREAS. DISPOSE OF SPOIL IN AN APPROVED MANNER.
19. SCHEDULE A FINAL INSPECTION.
20. AFTER ACCEPTANCE OF CONSTRUCTION, TEMPORARY EROSION CONTROLS MAY BE REMOVED.

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR
◁			
◁			
◁			
◁			
◁			

DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

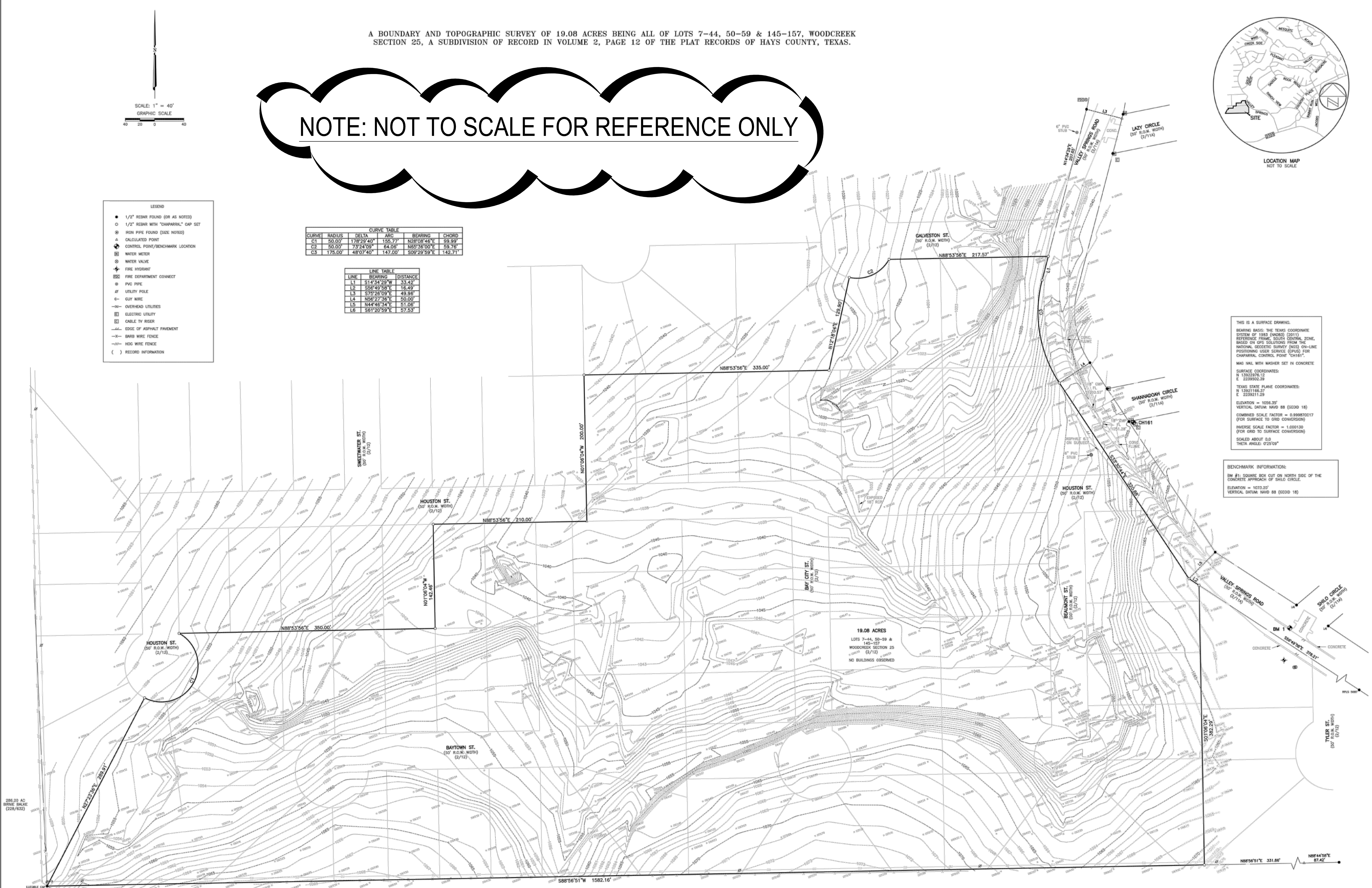
GENERAL NOTES SHEET (SHEET 2 OF 2)

STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER
LICENSED
05/02/2024

SHEET
3

A BOUNDARY AND TOPOGRAPHIC SURVEY OF 19.08 ACRES BEING ALL OF LOTS 7-44, 50-59 & 145-157, WOODCREEK SECTION 25, A SUBDIVISION OF RECORD IN VOLUME 2, PAGE 12 OF THE PLAT RECORDS OF HAYS COUNTY, TEXAS.

NOTE: NOT TO SCALE FOR REFERENCE ONLY



LEGEND

- ● 1/2" REBAR FOUND (OR AS NOTED)
- ○ 1/2" REBAR WITH "CHAPARRAL" CAP SET
- ⊙ IRON PIPE FOUND (SIZE NOTED)
- △ CALCULATED POINT
- CONTROL POINT/BENCHMARK LOCATION
- W WATER METER
- ⊗ WATER VALVE
- FIRE HYDRANT
- FDC FIRE DEPARTMENT CONNECT
- ◎ PVC PIPE
- Ø UTILITY POLE
- ← GUY WIRE
- —OU— OVERHEAD UTILITIES
- E ELECTRIC UTILITY
- C CABLE TV RISER
- EDGE OF ASPHALT PAVEMENT
- —X— BARB WIRE FENCE
- —///— HOG WIRE FENCE
- ( ) RECORD INFORMATION

CURVE TABLE

CURVE	RADIUS	DELTA	ARC	BEARING	CHORD
C1	50.00'	178°29'40"	155.77'	N28°08'46"E	99.99'
C2	50.00'	73°24'09"	64.06'	N65°36'00"E	59.76'
C3	175.00'	48°07'40"	147.00'	S09°29'59"E	142.71'

LINE TABLE

LINE	BEARING	DISTANCE
L1	S14°34'29"W	33.42'
L2	S56°49'58"E	16.49'
L3	S75°26'09"E	49.96'
L4	N56°27'36"E	50.00'
L5	N44°46'34"E	51.06'
L6	S61°20'59"E	57.53'

THIS IS A SURFACE DRAWING.

BEARING BASIS: THE TEXAS COORDINATE SYSTEM OF 1983 (NAD83) (2011) REFERENCE FRAME, SOUTH CENTRAL ZONE, BASED ON GPS SOLUTIONS FROM THE NATIONAL GEODETIC SURVEY (NGS) ON-LINE POSITIONING USER SERVICE (OPUS) FOR CHAPARRAL CONTROL POINT "CH161".

MAG NAIL WITH WASHER SET IN CONCRETE

SURFACE COORDINATES:
N 13922976.12
E 2239502.39

TEXAS STATE PLANE COORDINATES:
N 13921166.37
E 2239211.29

ELEVATION = 1056.35'
VERTICAL DATUM: NAVD 88 (GEOID 18)

COMBINED SCALE FACTOR = 0.999870017
(FOR SURFACE TO GRID CONVERSION)

INVERSE SCALE FACTOR = 1.000130
(FOR GRID TO SURFACE CONVERSION)

SCALED ABOUT 0,0
THETA ANGLE: 0°25'09"

BENCHMARK INFORMATION:

BM #1: SQUARE BOX CUT ON NORTH SIDE OF THE CONCRETE APPROACH OF SHILO CIRCLE.

ELEVATION = 1073.20'
VERTICAL DATUM: NAVD 88 (GEOID 18)

TITLE COMMITMENT NOTE:

This Survey was prepared without the benefit of a Commitment for Title, and may be subject to additional easements or restrictions not shown hereon. No additional easement research was done for the purpose of this survey.

FLOOD-PLAIN NOTE:

The tract shown hereon lies within Zone "X" (areas determined to be outside the 0.2% annual chance floodplain), as identified by the Federal Emergency Management Agency, National Flood Insurance Program, as shown on map no. 48209C0219F, dated September 2, 2005, for Hays County, Texas and incorporated areas. If this site is not within an identified special flood hazard area, this flood statement does not imply that the property and/or the structures thereon will be free from flooding or flood damage. This flood statement shall not create liability on the part of the surveyor.

GENERAL SURVEY NOTES:

PROPERTY ADDRESS: N/A

DATE OF SURVEY: August, 2023

ATTACHMENTS: N/A

SURVEYOR'S CERTIFICATE:

I hereby certify that a survey of the property shown hereon was actually made upon the ground under my direction and supervision on the date shown, and that to the best of my professional knowledge and belief: there are no apparent encroachments, overlapping of improvements, discrepancies, deed line conflicts, visible utility lines or roads in place, except as shown hereon, and that this property abuts or adjoins a dedicated road right-of-way or access easement, unless noted hereon.

This survey substantially complies with the current Texas Society of Professional Surveyors Manual of Practice for a Category 6, Condition II Land Title Survey. Effective December 31, 2020.

Paul J. Flugel Date
Registered Professional Land Surveyor
State of Texas No. 5096
PaulF@Chapsurvey.com

FOR REVIEW ONLY
Paul J. Flugel
R.P.L.S. No. 5096

Chaparral
Professional Land Surveying, Inc.
Surveying and Mapping
3500 McCall Lane
Austin, Texas 78744
512-443-1724
T.B.P.E.L.S. Firm No. 10124500

PROJECT NO.: 1995-002
DRAWING NO.: 1995-002-BASE
PLOT DATE: 09/03/2023
PLOT SCALE: 1" = 40'
DRAWN BY: JLB
SHEET 01 OF 01

REV	DESCRIPTION	DATE	APR

DESIGNED BY: TR
REVIEWED BY: TR
DRAWN BY: TR

NOT FOR CONSTRUCTION

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

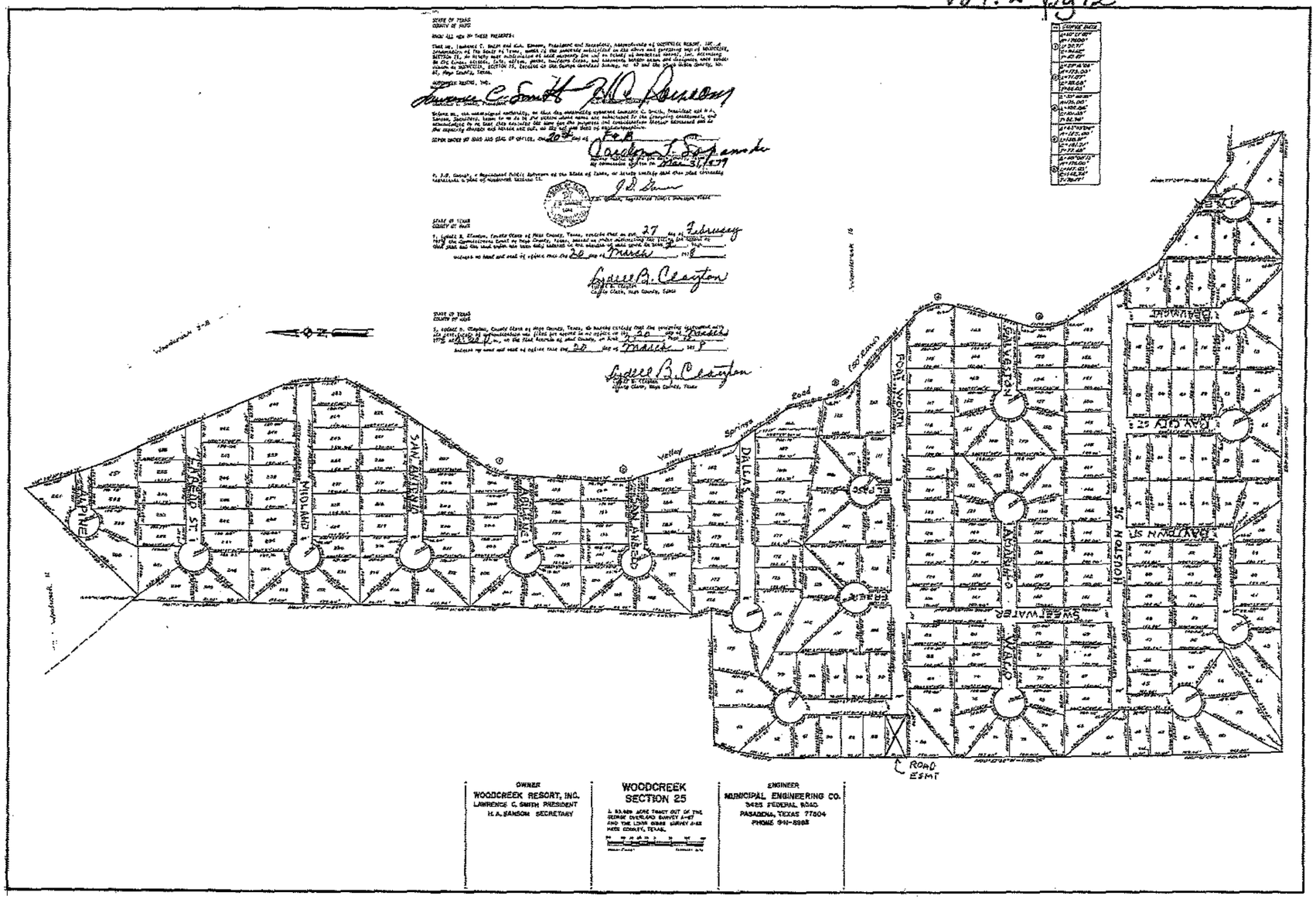
WIMBERLEY RIDGE

EXISTING CONDITIONS SURVEY

STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER
LICENSED
05/02/2024

NOTE: NOT TO SCALE FOR REFERENCE ONLY

Vol 1.2 pg 12



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REV	DESCRIPTION	DATE	APR

DESIGNED BY: TR
REVIEWED BY: TR
DRAWN BY: TR

WIMBERLEY RIDGE

FINAL PLAT

STATE OF TEXAS
AARON J. NEUMANN
114451
REGISTERED PROFESSIONAL ENGINEER
05/02/2024

SHEET
5

UTILITY PROVIDERS:

WATER: AQUA TEXAS
SEWER: AQUA TEXAS
ELECTRIC: PEDERNALES ELECTRIC COOPERATIVE

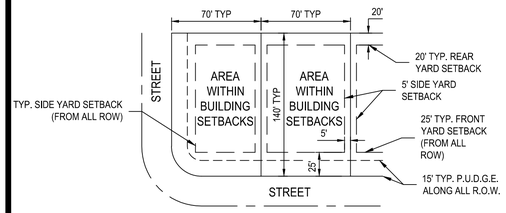
FEMA FIRM PANELS:
NO PORTION OF THE LOT IN THIS TRACT IS WITHIN THE BOUNDARIES OF THE 100 YEAR FLOODPLAIN OF ANY WATERWAY THAT IS WITHIN THE LIMITS OF THE FEDERAL FLOOD INSURANCE ADMINISTRATION FIRM PANEL 48209C0219F, EFFECTIVE 9/02/2005.

SCHOOL DISTRICT:
WIMBERLEY ISD

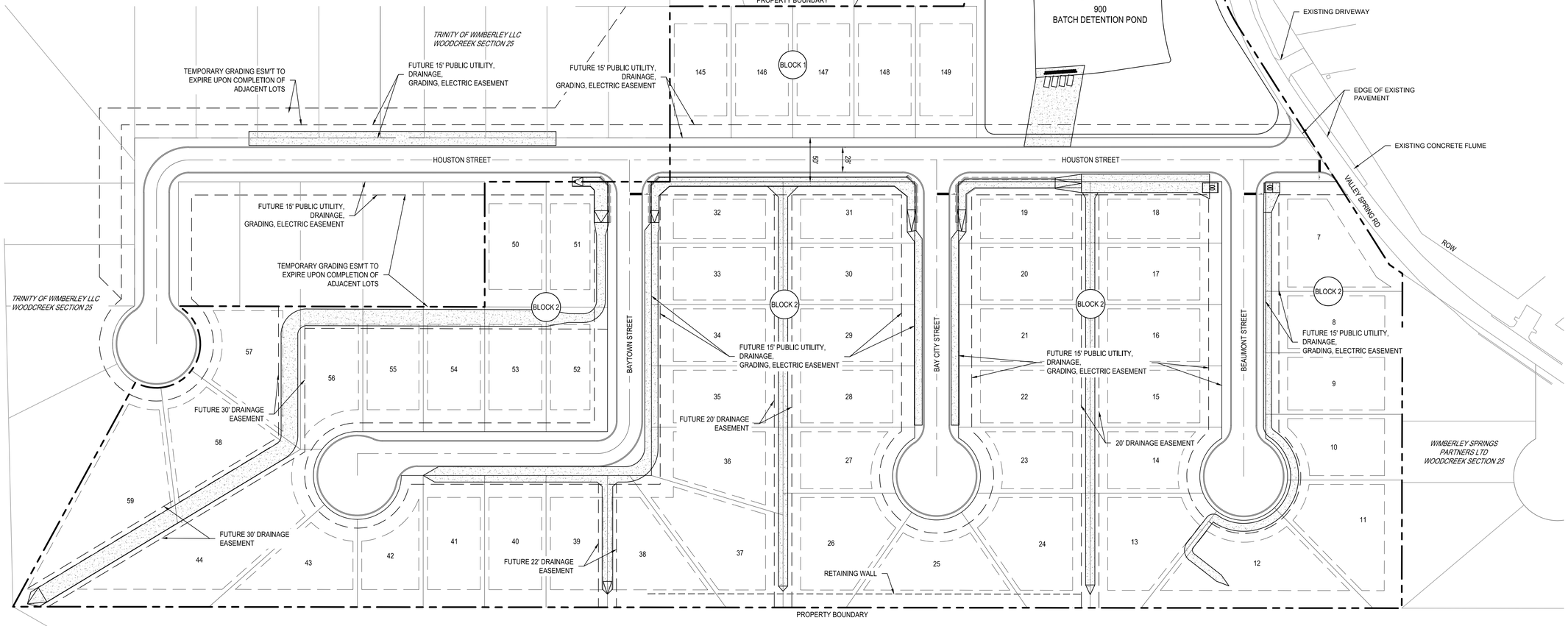
GENERAL SITE PLAN NOTES

1. THIS DEVELOPMENT SHALL COMPLY WITH THE HAYS COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS MANUAL AND THE DEVELOPMENT MANUAL.
2. THIS SITE PLAN SHALL MEET THE HAYS COUNTY STORM WATER REQUIREMENTS.
3. ALL ROADS WILL BE PUBLICLY OWNED.
4. ELECTRIC SERVICE TO BE PROVIDED BY PEDERNALES ELECTRIC COOPERATIVE.
5. SANITARY SEWER SERVICE IS TO BE PROVIDED BY AQUA TEXAS.
6. MAINTENANCE OF DRAINAGE EASEMENTS DESIGNATED WITH IN A LOT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE, OF ANY EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS OF IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO THE UTILITIES, IT'S SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF HAYS COUNTY OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.
7. ALL STREETS WITHIN THE WIMBERLEY RIDGE SUBDIVISION WILL BE BUILT TO THE HAYS COUNTY SPECIFICATIONS AND WILL BE DEDICATED TO THE COUNTY UPON COMPLETION AND ACCEPTANCE.
8. TYPICAL SETBACKS & EASEMENTS APPLY TO ALL LOTS EXCEPT WHERE NOTED OTHERWISE.
9. CORNER LOTS WITH THE REAR YARD ADJACENT TO A FRONT YARD ARE SUBJECT TO A 20-FOOT SIDE BUILDING SETBACK.
10. A 15' P.U.D.G.E WILL BE DEDICATED ADJACENT TO ALL STREET RIGHT-OF-WAY, UNLESS OTHERWISE NOTED ON PLANS.
11. THE FRONT BUILDING SETBACK LINE ON ALL PUBLIC ROADS SHALL BE 25 FEET FROM THE EDGE OF THE RIGHT-OF-WAY.
12. CONTRACTOR SHALL REFER TO THE RECOMMENDATIONS CONTAINED WITHIN THE GEOTECHNICAL INVESTIGATION REPORTS PREPARED BY ALPHA TESTING.

PROJECT SUMMARY	
SINGE-FAMILY RESIDENTIAL LOTS	53
ROADS (LF)	2,900 LF
ROADS (AC.)	2.63 AC.
OPEN SPACE/DETENTION LOTS	1.16 AC.
DENSITY (LOTS/ACRE)	2.94
TOTAL ACREAGE	19.08



TYPICAL LOT LAYOUT



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							DATE
							DESCRIPTION
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DESIGNED BY:	AG
REVIEWED BY:	TR
DRAWN BY:	RA

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SAN ANTONIO, TX 78216
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WIMBERLEY RIDGE

OVERALL LAND PLAN

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
6

G:\TX\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\05 OVERALL LAND PLAN.dwg Layout: 6ERALL LAND PLAN Plotted: 5/2/2024 11:24:18 AM By: Trodriguez

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CONTRIBUTING ZONE PLAN
GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES – LEGAL DISCLAIMER

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

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN (CZP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTOR(S) SHOULD KEEP COPIES OF THE APPROVED PLAN AND APPROVAL LETTER ON SITE.
3. NO HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
5. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
6. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
7. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
8. ALL EXCAVATED MATERIAL THAT WILL BE STORED ON-SITE MUST HAVE PROPER E&S CONTROLS.
9. IF PORTIONS OF THE SITE WILL HAVE A CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL TCEQ-0592A (REV. JULY 15, 2015) PAGE 2 OF 2 STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
10. THE FOLLOWING RECORDS SHOULD BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
    - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
    - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
    - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
11. THE HOLDER OF ANY APPROVED CZP MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES (BMPS) OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
C. ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER; OR
D. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE APPROVEDCONTRIBUTING ZONE PLAN.

AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

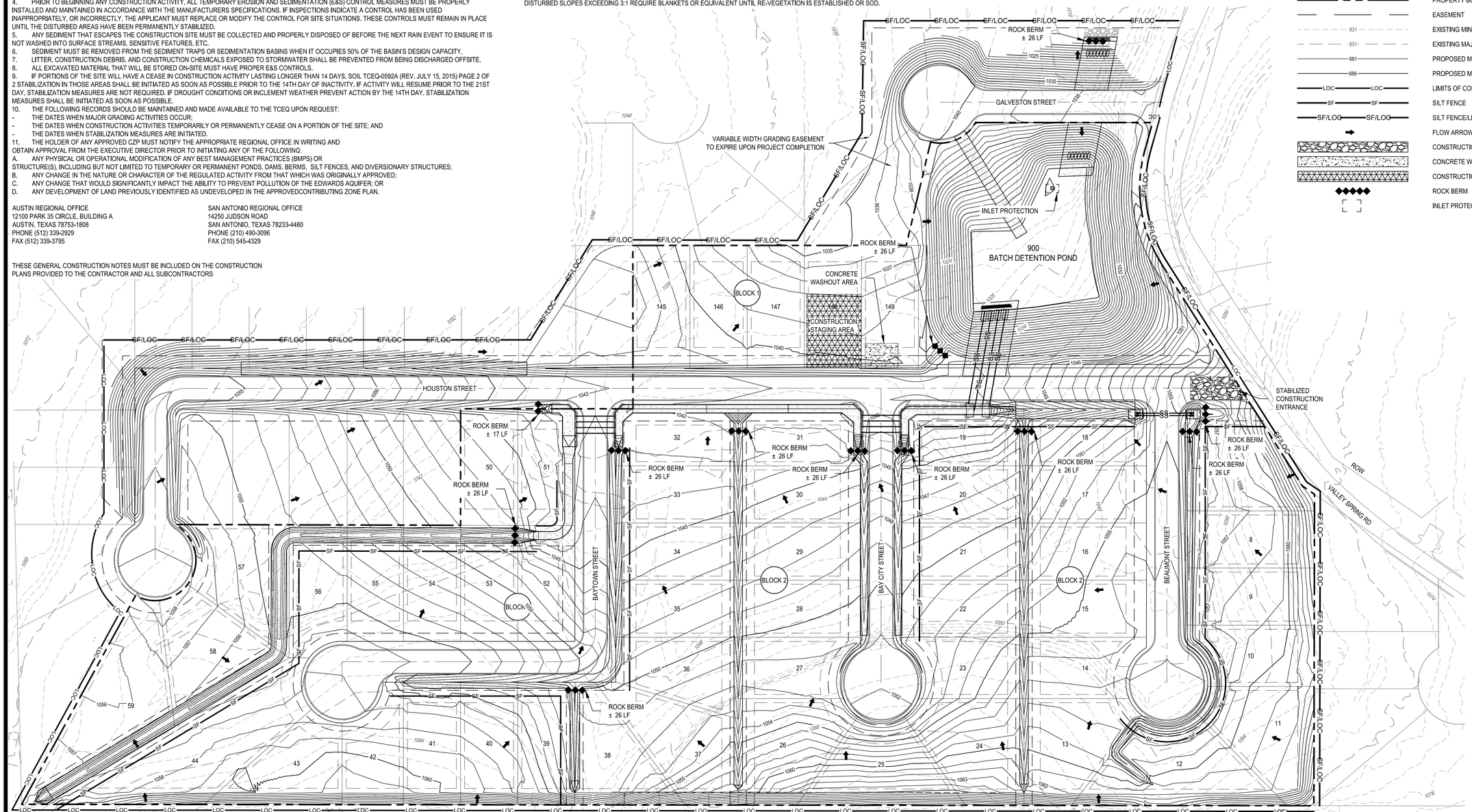
SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO, TEXAS 78233-4480
PHONE (210) 490-3096
FAX (210) 545-4329

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

TEMPORARY OR PERMANENT
VEGETATIVE SOIL STABILIZATON

1. INTERIM OR FINAL GRADING MUST BE COMPLETED PRIOR TO SEEDING, MINIMIZING ALL STEEP SLOPES.
2. FERTILIZER SHOULD BE APPLIED AT THE RATE OF 40 POUNDS OF NITROGEN AND 40 POUNDS OF PHOSPHORUS PER ACRE. COMPOST CAN BE USED INSTEAD OF FERTILIZER AND APPLIED AT THE SAME TIME AS THE SEED.
3. ALL DISTURBED AREAS SHALL BE PERMANENTLY SEEDED OR OTHERWISE STABILIZED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE TEMPORARY CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 21 DAYS.
4. ADD J HOOKS PER CITY OF AUSTIN DETAIL ALONG THE SILT FENCE.
5. A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MUST BE PREPARED/AMENDED BY A TX PE, CPESC, OR QPSWPPP [CITY CODE SECTION 86.529(B)(2) OR 86.529(C)(3)], IMPLEMENTED, AND UPDATED TO MATCH SITE CONDITIONS DURING THE PROJECT. THE ASSOCIATED TPDES CONSTRUCTION SITE NOTICE MUST BE POSTED IN PUBLIC VIEW. TXR150000 PART III.D.2.
6. HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT PER CITY CODE SECTIONS 86.523 AND 86.529(B)(9) OR 86.529(C)(10). MAINTAIN ALL ESC MEASURES AND ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS PER CITY CODE SECTION 86.529(C)(11).
7. THE LIMITS OF CONSTRUCTION (LOC) SHALL BE ADJUSTED AS NEEDED DURING THE PROJECT TO COVER ALL AREAS DISTURBED DURING DEMOLITION, GRADING, CONSTRUCTION, STORAGE, STOCKPILING, PARKING, ETC., PER TXR150000 PARTS I AND III.G.4.(C) AND (D). ADDITIONAL EROSION AND SEDIMENT CONTROLS MAY BE REQUIRED.
8. PER TXR150000 PART III.F.1.(M)., LOCATIONS OF THE FOLLOWING, AS APPLICABLE, MUST BE MARKED ON THIS ESCP IN THE FIELD: THE TPDES CONSTRUCTION SITE NOTICE POSTING IN PUBLIC VIEW, STAGING, SPOILS STORAGE, CONCRETE WASHOUT, DUMPSTERS, PORTABLE TOILET(S), FUELING POINT(S), AND/OR OTHER POTENTIAL CONTAMINANT SOURCES. THIS ESCP MUST ALSO BE UPDATED AS THESE POTENTIAL CONTAMINANT SOURCES MOVE OR OTHER CHANGES OCCUR ONSITE. PEN AND INK CHANGES ARE EXPECTED AND DON'T REQUIRE RESUBMITTAL; JUST DATE AND INITIAL.
9. IF THERE IS A BREAK OF MORE THAN 14 DAYS DURING THE PROJECT WHERE NO DIRT WORK IS DONE ON A SITE PORTION(S) WITHIN THE LIMITS OF CONSTRUCTION, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER TXR150000 PART III.F.2.(B),III/CITY CODE SECTION 86.529(A)(1)(G), SUCH DIRT WORK STOPPAGE INCLUDES TIME PERIODS BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START, DURING CONSTRUCTION, BETWEEN CONSTRUCTION AND FINAL STABILIZATION, ETC. USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED HARDWOOD MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.
10. ANY EXISTING STORM WATER INLETS WITHIN 200' OF THE LOC MUST HAVE INLET PROTECTION. STORM WATER INLET PROTECTION IS ALSO REQUIRED AS NEW STORM WATER INLETS ARE ADDED TO THE SITE, IF APPLICABLE.
11. POND OR OTHER DISTURBED SLOPES 3:1 OR FLATTER MUST BE STABILIZED WITH BIODEGRADABLE SOIL RETENTION BLANKETS WITH NO PLASTIC NETTING. DISTURBED SLOPES EXCEEDING 3:1 REQUIRE BLANKETS OR EQUIVALENT UNTIL RE-VEGETATION IS ESTABLISHED OR SOD.

ALL DISTURBED AREAS SHALL BE PERMANENTLY SEEDED OR OTHERWISE STABILIZED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE TEMPORARY CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 21 DAYS



N

0 30' 60' 120'

SCALE: 1" = 60'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- 831 EXISTING MINOR CONTOUR
- 831 EXISTING MAJOR CONTOUR
- 681 PROPOSED MINOR CONTOUR
- 686 PROPOSED MAJOR CONTOUR
- LOC LOC LIMITS OF CONSTRUCTION
- SF SF SILT FENCE
- SF/LOC SF/LOC SILT FENCE/LIMITS OF CONSTRUCTION
- FLOW ARROW
- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT AREA
- CONSTRUCTION STAGING AREA
- ROCK BERM
- INLET PROTECTION

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

NOT FOR CONSTRUCTION

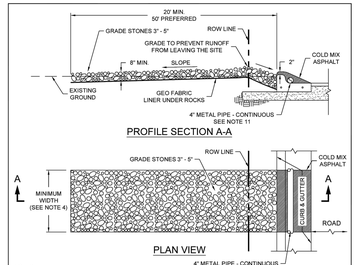
BGE
BGE, Inc.
7330 SAN PEDRO AVE. SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

EROSION CONTROL PLAN

STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER
05/02/2024

SHEET
7



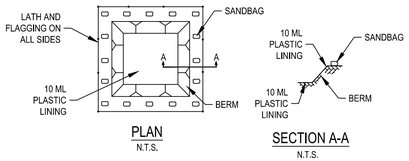
PROFILE SECTION A-A

PLAN VIEW

NOTES:

1. STONE SIZE: 3-5" OPEN GRADED ROCK.
2. LENGTH: 50' PREFERRED OR AS EFFECTIVE BUT NOT LESS THAN 20'.
3. THICKNESS: NOT LESS THAN 8".
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. DIMENSIONS OF SITE WILL DICTATE THE DIMENSIONS OF THE STABILIZED CONSTRUCTION ENTRANCES IF THE PREFERRED DIMENSIONS ARE NOT POSSIBLE ON SITE.
6. 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 THAT DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
7. 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 MEASUREMENT DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
8. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
9. WHEN ALL SITE WORK IS COMPLETED, REMOVE STABILIZED CONSTRUCTION ENTRANCE COMPLETELY. REGRADE TO ORIGINAL CONDITION, ELEVATION AND RESTORE TO MATCH EXISTING OR PROPOSED CONDITIONS.
10. TOP OF GRADE STONES SHALL MATCH TOP OF EXISTING PAVEMENT OR CURB. COLD MIX ASPHALT & 4" METAL PIPE OR ALTERNATIVE WILL NOT BE REQUIRED WHERE THERE IS NO CATCH OR SPILL CURB.
11. PRE-FABRICATED CURB RAMPS ARE AN ACCEPTABLE ALTERNATIVE TO COLD MIX ASPHALT AND 4" METAL PIPE.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2024	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



PLAN
N.T.S.

SECTION A-A
N.T.S.

CONCRETE WASHOUT NOTES:

1. THE LINED WASHOUT PIT SHALL BE SUFFICIENTLY LARGE ENOUGH TO HOLD EXPECTED VOLUME OF WASHOUT MATERIAL.
2. WHEN FACILITY IS NO LONGER REQUIRED, HARDENED CONCRETE SHALL PROPERLY REMOVED AND DISPOSED OF.
3. CONTRACTOR TO BACKFIELD PIT UPON REMOVAL OF LINING.

SAND BAG NOTES:

1. THE SAND BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC. MINIMUM UNIT WEIGHT 4 OZ/YD2, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
2. THE BAG LENGTH SHOULD BE 24 TO 30 INCHES, WIDTH SHOULD BE 16 TO 18 INCHES AND THICKNESS SHOULD BE 6 TO 8 INCHES.
3. SANDBAGS SHOULD BE FILLED WITH COARSE GRADE SAND, FREE FROM DELETERIOUS MATERIAL. ALL SAND SHOULD PASS THROUGH A NO. 10 SIEVE. THE FILLED BAG SHOULD HAVE AN APPROXIMATE WEIGHT OF 40 POUNDS.
4. OUTLET PIPE SHOULD BE SCHEDULE 40 OR STRONGER POLYVINYL CHLORIDE (PVC) HAVING A NOMINAL INTERNAL DIAMETER OF 4 INCHES.

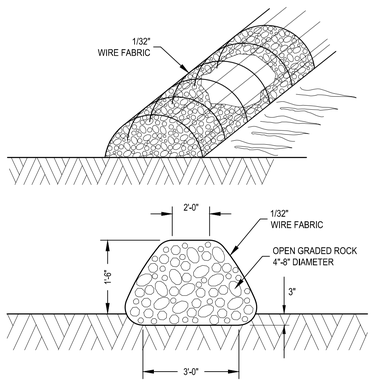
IN-GROUND CONCRETE WASHOUT PIT
N.T.S.

CONTRACTOR/BUILDERS RESPONSIBILITY:

1. INSTALL NEEDED EROSION AND SEDIMENT CONTROL PRACTICES PRIOR TO ANY LAND DISTURBANCE TO PREVENT EXCESSIVE SEDIMENT FROM LEAVING THE SITE.
2. CONTACT A TCEQ INSPECTOR TO ANSWER AND QUESTIONS REGARDING SITE PLAN TO REVIEW A COMPLETED WORKSHEET.
3. PERIODIC INSPECTION AND MAINTENANCE ARE VITAL TO THE PERFORMANCE OF EROSION AND SEDIMENT CONTROLS. IT IS RECOMMENDED THAT ALL TEMPORARY EROSION CONTROLS BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL.
4. MAINTENANCE: ESC (EROSION SEDIMENT CONTROLS) SHOULD BE ROUTINELY INSPECTED AND MAINTAINED UNTIL SITE IS PERMANENTLY VEGETATED. SOMETIMES ROUTINE INSPECTIONS MAY SHOW A NEED FOR ADJUSTMENTS OR ADDITIONAL ESC'S.
5. CONTACT A TCEQ INSPECTOR WHEN CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION OR OTHER APPROVED METHODS.
6. REVEGETATE THE SITE: PREVENT EROSION ON INDIVIDUAL LOTS WITH GROUND COVER. EXISTING TREES AND VEGETATION SHOULD BE PROTECTED TO HELP MAINTAIN A STABLE GROUND SURFACE AND PREVENT LOSS OF VALUABLE TOPSOIL. EROSION CONTROL BLANKETS, MATTING AND MULCHES CAN HELP STABILIZE THE AREA UNTIL PERMANENT VEGETATION IS ESTABLISHED. THE SITE NEEDS TO HAVE AT LEAST 80 PERCENT VEGETATION BEFORE ESC'S CAN BE REMOVED.

COMPLIANCE CHECKLIST:

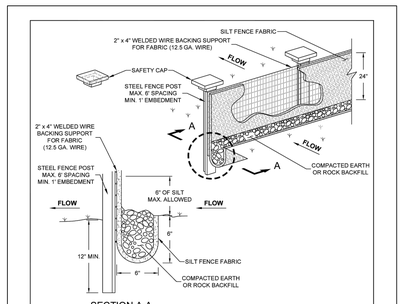
1. PERIMETER CONTROLS: INSTALL ESC'S (EROSION SEDIMENT CONTROLS) ALONG THE BACK OF THE CURB AND ALONG THE LOT LINE OF ADJACENT PROPERTIES, WHICH ARE DOWNHILL AND RECEIVE RUNOFF FROM YOUR LOT. FOLLOWING SIDEWALK INSTALLATION, ESC;S SHOULD BE REMOVED TO THE BACK OF TEH SIDEWALK TO PREVENT SEDIMENT FROM REACHING THE SIDEWALK. MAINTAIN ESC'S TO ENSURE PROPER FUNCTION, INCLUDING REPAIR OR REPLACEMENT OF TORN, DEGRADED OR OTHERWISE INEFFECTIVE MATERIALS. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE PROTECTION.
2. STOCKPILES: INSTALL SEDIMENT CONTROL AROUND STOCKPILES TO PREVENT SEDIMENT FROM REACHING THE STREET AND ADJACENT PROPERTIES. LOCATE STOCKPILES AWAY FROM THE STREET, PROPERTY LINES AND DRAINAGE WAYS.
3. LOT ACCESS: REQUIRED FOR EACH INDIVIDUAL LOT. MAINTAIN A SURFACE SUITABLE FOR PARKING AND UNLOADING TO PREVENT THE TRACKING OF MUD AND ROCK ONTO THE STREET. A MINIMUM OF 6-INCH DEPTH OF 3- TO 5-INCH AGGREGATE IS SUGGESTED. ALL VEHICLES THAT ACCESS THE LOT MUST USE THE CONSTRUCTION ENTRANCE. ANY SOILS THAT ARE TRUCKED ONTO THE STREET MUST BE REMOVED BY THE END OF THE DAY.
4. INTERMEDIATE CONTROL: LONG OR STEEP DRAINAGE PATHS MAY REQUIRED INTERMEDIATE OR INTERIOR ESC'S TO HELP SLOW THE FLOW OF RUNOFF. FAILURE OF PERIMETER CONTROLS DUE TO THE FORCE OF RUNOFF OFTEN DETERMINE THE NEED FOR INTERMEDIATE CONTROLS.
5. HOUSEKEEPING: PROVIDE ADEQUATE SANITARY FACILITIES AND TRASH/REFUSE BINS.



GENERAL NOTES:

1. USE ONLY OPEN GRADED ROCK 4-8 INCHES DIAMETER FOR STREAM FLOW CONDITION; USE OPEN GRADED ROCK 3-5 INCHES DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 1/32 INCH.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 12 INCHES, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SERVE SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

ROCK BERM DETAIL
N.T.S.

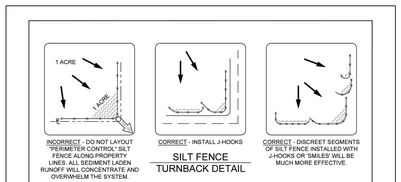


SECTION A-A

NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS SHALL MATCH THE TOP OF THE FENCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1'.
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 6" DEEP AND 6" WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY AND REPAIR OR REPLACEMENT SHALL BE MADE WITHIN 24 HOURS OF INSPECTION.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS PERMANENTLY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WITHIN 24 HOURS WHEN IT REACHES A DEPTH OF 6" OR AS DIRECTED BY OWNER. THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. INSTALL J-HOOK SPACING PER ENGINEER'S DESIGN , BUT NOT TO EXCEED 200'.

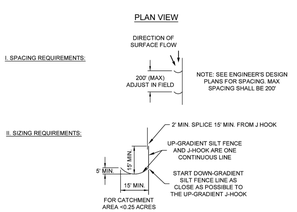
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2024	SILT FENCE	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2



SILT FENCE
TURNBACK DETAIL

SILT FENCE PLACEMENT FOR PERIMETER CONTROL

PLAN VIEW



The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2024	SILT FENCE	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2

	APR
	DATE
	DESCRIPTION
	REV
DESIGNED BY:	AG
REVIEWED BY:	TR
DRAWN BY:	RA

NOT FOR CONSTRUCTION

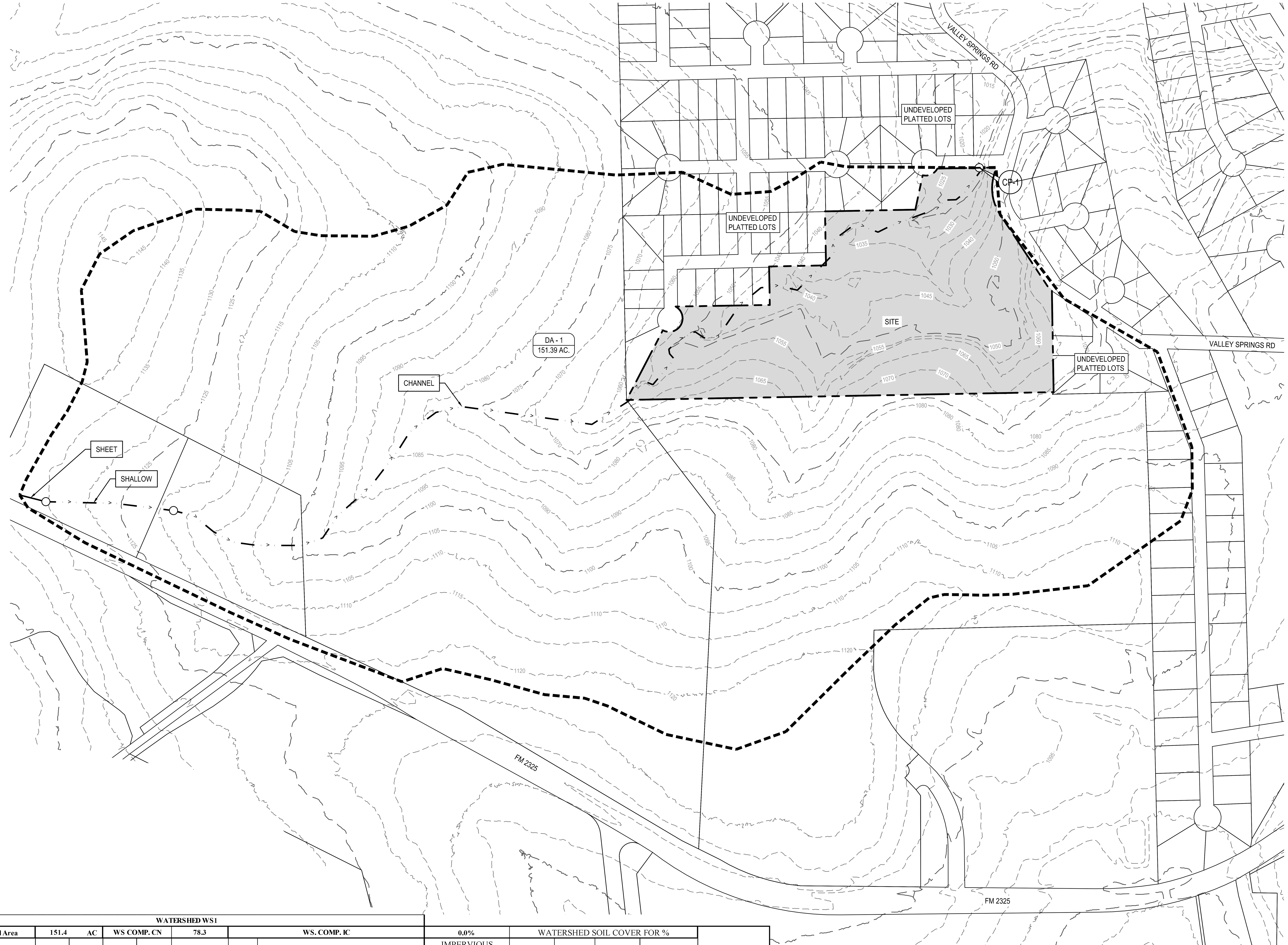
BGE, Inc.
7330 SAN PEDRO AVE. SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

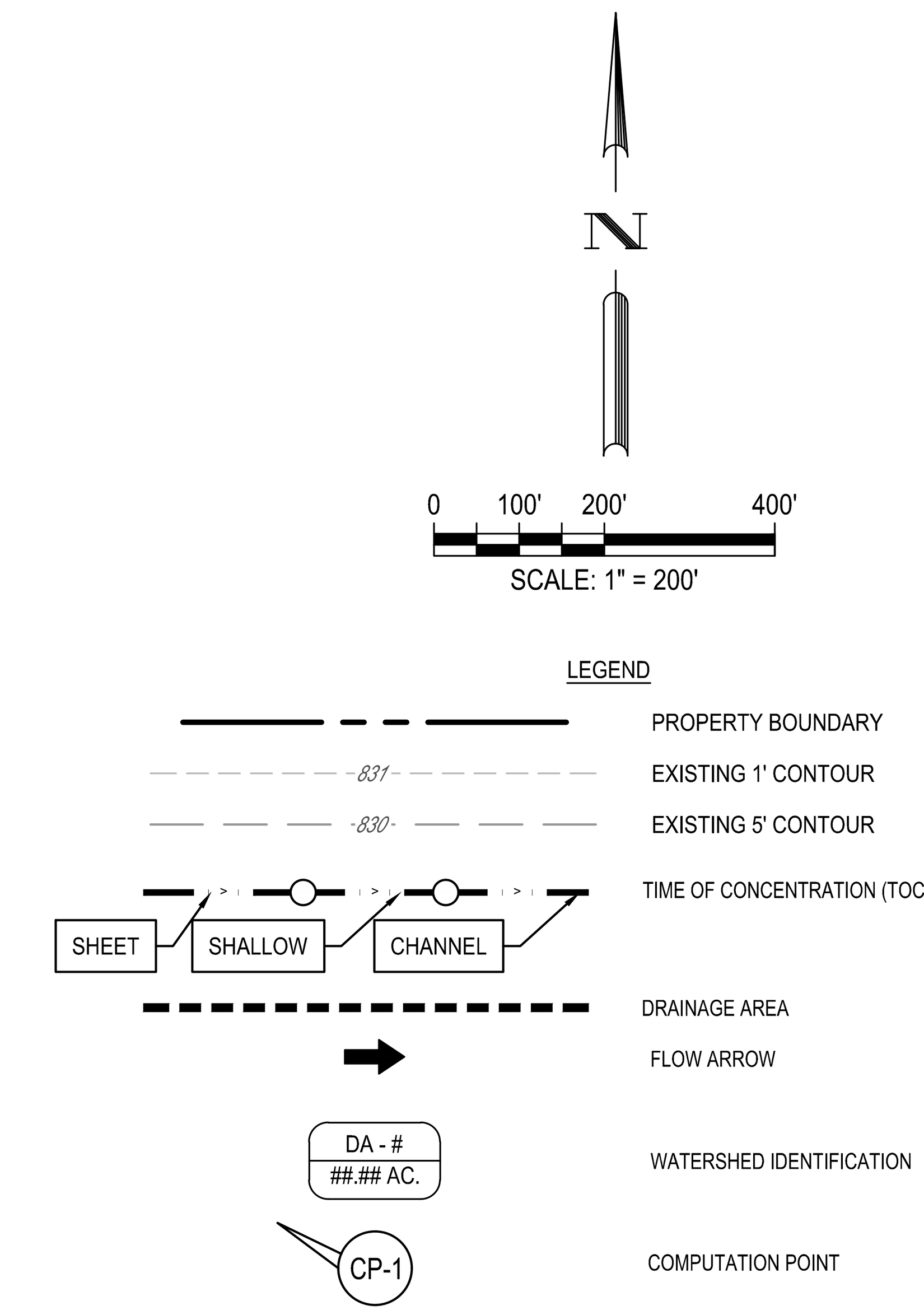
WIMBERLEY RIDGE

EROSION CONTROL DETAILS

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED
PROFESSIONAL ENGINEER
05/02/2024

SHEET
8





NOTES

1. THE SCS METHOD WAS USED FOR CALCULATING PEAK FLOW RATES FOR ALL WATERSHEDS.
2. RAINFALL DATA WAS OBTAINED FROM CITY OF AUSTIN STORM WATER DESIGN CRITERIA MANUAL
3. CN-VALUES WERE OBTAINED FROM CITY OF AUSTIN STORM WATER DESIGN CRITERIA MANUAL
4. IMPERVIOUS COVER VALUES WERE OBTAINED FROM CITY OF AUSTIN WATER DESIGN CRITERIA MANUAL
5. TOPOGRAPHIC INFORMATION WAS OBTAINED USING USGS LIDAR INFORMATION.
6. HYDROLOGIC MODELS FOR CALCULATING DEVELOPMENT RUNOFF VALUES WERE CREATED BY USING HEC-HMS 4.11 ROUTING SOFTWARE.

WATERSHED WS1

Watershed Area	151.4			AC	WS COMP. CN				78.3		WS. COMP. IC		0.0%	WATERSHED SOIL COVER FOR %				TOTAL CN AREA
CURVE NUMBER (CN) / SOIL GROUP (SG) (%)	A	(%)	B	(%)	C	(%)	D	(%)	COMP. CN	COVER (%)	COVER TYPE	CN Classification	IMPERVIOUS COVER (BY LAND USE)	A	B	C	D	
Classification Composite CN	30	0.0	55	0.0	70	0.0	77	100.0	77.0	13.7	OTHER	Good Woods	0%	-	-	-	905,804.95	905,804.95
	36	0.0	60	0.0	73	0.0	79	100.0	79.0	39.6	OTHER	Fair Woods	0%	-	-	-	2,612,878.97	2,612,878.97
	35	0.0	56	0.0	70	0.0	77	100.0	77.0	38.9	OTHER	Fair brush-weed-grass-mixture	0%	-	-	-	2,562,553.72	2,562,553.72
	48	0.0	67	0.0	77	0.0	83	100.0	83.0	7.8	OTHER	Poor brush-weed-grass mixture	0%	-	-	-	513,249.12	513,249.12

PRE-DEVELOPMENT DRAINAGE ANALYSIS CALCULATIONS (NRCS; SCS Unit Hydrograph Method) - CITY OF WIMBERLY

Governing References:

City of Austin United Development Code

NRCS Technical Release 55; *Urban Hydrology for Small Watersheds*

Runoff CN: TR-55, Table 2-2a thru 2-2c | Manning's: TR-55, Table 3-1 | C.o.B. P_2= 4.14 | Travel Time: TR-55, eq. 3-3 | Velocity: TR-55, Figure 3.1 | Travel Time: TR-55, eq. 3-1 | Vel_{25yr}: <100 ac. Vel_{100yr}: >100 ac. | Travel Time: TR-55, (eq. 3-4) * L | $T_C = T_S + T_{SC} + T_{CH}$ | $T_{Lag} = 0.60*T_C$

DESIGN STORM ANALYSIS METHODOLGY
NATIONAL RESOURCE CONSERVATION SERVICE (NRCS),
SOIL CONSERVATION SERVICE METHOD (SCS); HEC-HMS 4.2.1

WATERSHEDS					SHEET FLOW				SHALLOW CONCENTRATED FLOW					CHANNEL				T_C	T_{Lag}	Q (c.f.s.) PER FREQUENCY STORM				
CALC. POINT	CONTRIBUTING AREAS	AREA ACREAGE (Ac.)	SQUARE MILES (mi^2)	COMPOSITE CN	n	L (ft)	s (%)	T_S (Min)	PAVED (Y/N)	L (ft)	s (%)	vel. (ft/s)	T_{SC} (Min)	L (ft)	s (%)	vel. (ft/s)	T_{CH} (Min)	(Min)	(Min)	2	5	10	25	100
1	WS-1	151.4	0.2366	78.3	0.40	100	2.4%	17.6	N	475	3.9%	3.2	2.48	3,767	3.1%	6.0	10.46	30.5	18.3	242.8	365.9	479.0	640.3	903.5
					HEC-HMS 4.2.1 PROGRAM WAS USED TO OBTAIN FLOWS																			

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR
△			
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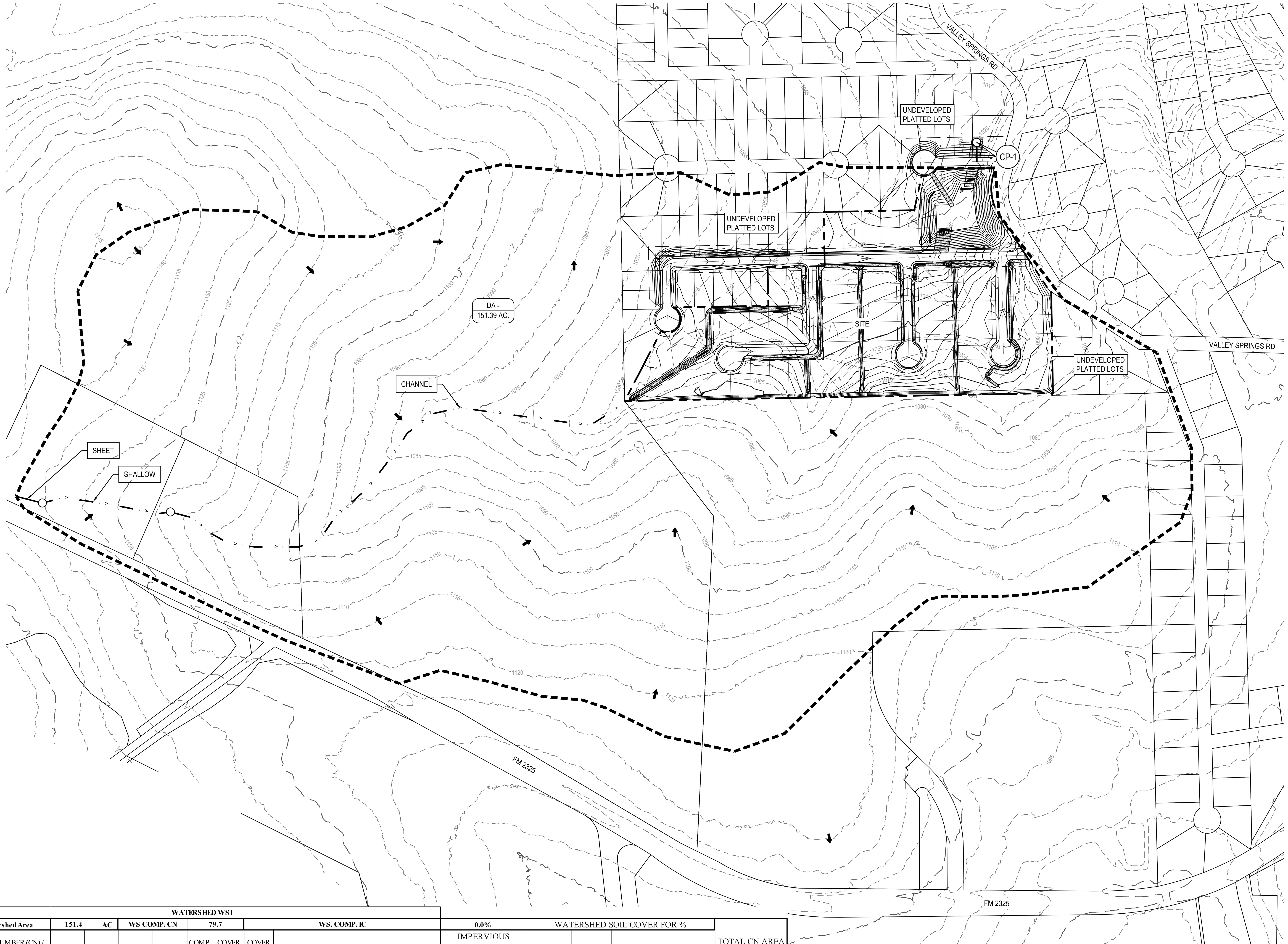
DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE
EXISTING CONDITIONS DRAINAGE MAP

STATE OF TEXAS
AARON J. NEUMANN
114451
05/02/2024

SHEET
9



N

0 100' 200' 400'
SCALE: 1" = 200'

LEGEND

(line)	PROPERTY BOUNDARY
150	LOT NUMBERS
831	PROPOSED 1' CONTOUR
830	PROPOSED 5' CONTOUR
831	EXISTING 1' CONTOUR
830	EXISTING 5' CONTOUR
SHEET / SHALLOW / CHANNEL	TIME OF CONCENTRATION (TOC)
(line)	DRAINAGE AREA
(arrow)	FLOW ARROW
DA - # ##.## AC.	WATERSHED IDENTIFICATION
CP-1	COMPUTATION POINT

NOT FOR CONSTRUCTION

NOTES

1. THE SCS METHOD WAS USED FOR CALCULATING PEAK FLOW RATES FOR ALL WATERSHEDS.
2. RAINFALL DATA WAS OBTAINED FROM CITY OF AUSTIN STORM WATER DESIGN CRITERIA MANUAL
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DRAINAGE ANALYSIS SUMMARY

STORM EVENT FREQUENCY	PRE (CFS)	POST (CFS)	INCREASE (CFS)
2-YR	242.8	282.4	39.6
5-YR	365.9	420.9	55.0
10-YR	479.0	547.7	68.7
25-YR	640.3	727.4	87.1
100-YR	903.5	1019.8	116.3

WATERSHED WS1

Watershed Area	151.4	AC		WS COMP. CN				79.7		WS. COMP. IC		0.0%	WATERSHED SOIL COVER FOR %				TOTAL CN AREA
CURVE NUMBER (CN) / SOIL GROUP (SG) (%)	A	(%)	B	(%)	C	(%)	D	(%)	COMP. CN	COVER (%)	COVER TYPE	CN Classification	IMPERVIOUS COVER (BY LAND USE)	A	B	C	D	
Classification Composite CN	30	0.0	55	0.0	70	0.0	77	100.0	77.0	12.2	OTHER	Good Woods	0%	-	-	-	804,003.76	804,003.76
	36	0.0	60	0.0	73	0.0	79	100.0	79.0	39.2	OTHER	Fair Woods	0%	-	-	-	2,587,314.13	2,587,314.13
	35	0.0	56	0.0	70	0.0	77	100.0	77.0	29.6	OTHER	Fair brush-weed-grass-mixture	0%	-	-	-	1,950,352.89	1,950,352.89
	61	0.0	75	0.0	83	0.0	87	100.0	87.0	19.0	URBAN	Residential: 1/4 acre	0%	-	-	-	1,252,440.33	1,252,440.33

POST DEVELOPED DRAINAGE ANALYSIS CALCULATIONS (NRCS; SCS Unit Hydrograph Method) - City of Wimberly

Governing References:

City of Austin United Development Code

NRCS Technical Release 55; *Urban Hydrology for Small Watersheds*

Runoff CN: TR-55, Table 2-2a thru 2-2c; Manning's: TR-55, Table 3-1; C.o.B. P_2= 4.14; Travel Time: TR-55, eq. 3-3; Velocity: TR-55, Figure 3.1; Travel Time: TR-55, eq. 3-1; Vel_{25yr}: <100 ac. Vel_{100yr}: >100 ac.; Travel Time: TR-55, (eq. 3-4) * L; $T_C = T_S + T_{SC} + T_{CH}$; $T_{Lag} = 0.60*T_C$

DESIGN STORM ANALYSIS METHODOLGY
NATIONAL RESOURCE CONSERVATION SERVICE (NRCS),
SOIL CONSERVATION SERVICE METHOD (SCS); HEC-HMS 4.2.1

WATERSHEDS					SHEET FLOW				SHALLOW CONCENTRATED FLOW					CHANNEL				T_C	T_{Lag}	Q (c.f.s.) PER FREQUENCY STORM				
CALC. POINT	CONTRIBUTING AREAS	AREA ACREAGE (Ac.)	SQUARE MILES (mi^2)	COMPOSITE CN	n	L (ft)	s (%)	T_S (Min)	PAVED (Y/N)	L (ft)	s (%)	vel. (ft/s)	T_{SC} (Min)	L (ft)	s (%)	vel. (ft/s)	T_{CH} (Min)	(Min)	(Min)	2	5	10	25	100
1	WS-1	151.4	0.2366	79.7	0.40	100	2.4%	17.6	N	475	3.9%	3.2	2.48	3,767	3.1%	6.0	10.46	30.5	18.3	282.4	420.9	547.7	727.4	1,019.8
					HEC-HMS 4.2.1 PROGRAM WAS USED TO OBTAIN FLOWS																			

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

BGE

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

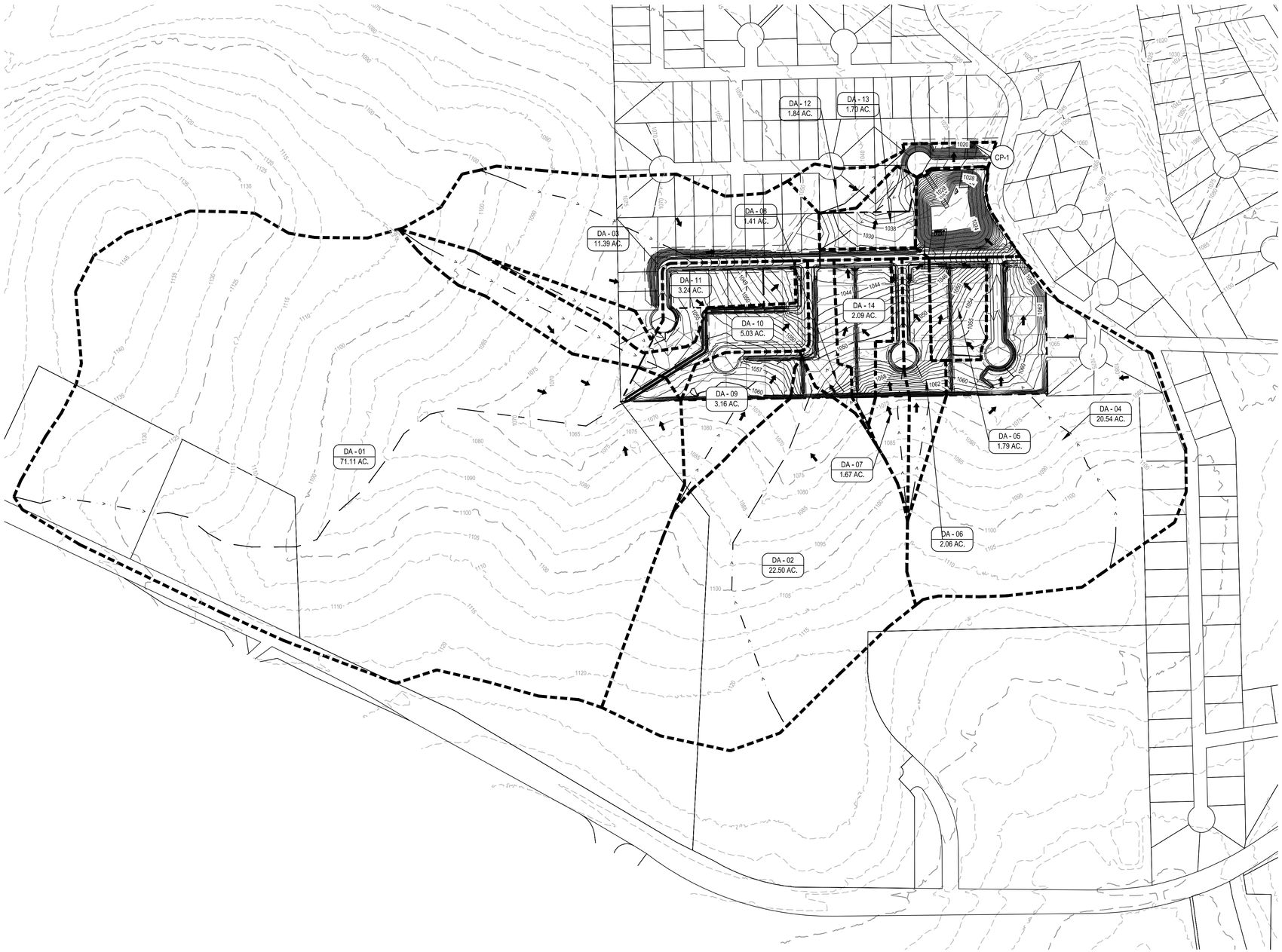
WIMBERLEY RIDGE

PROPOSED CONDITIONS DRAINAGE MAP

STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER
05/02/2024

SHEET
10

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\10 PROPOSED CONDITIONS DRAINAGE MAP.dwg Layout: 10PROPOSED CONDITIONS DRAINAGE MAP Plotted: 5/2/2024 11:26:10 AM By: Trodriguez



N

0 100' 200' 400'

SCALE: 1" = 200'

LEGEND

- PROPERTY BOUNDARY
- 150 LOT NUMBERS
- 1021 PROPOSED 1' CONTOUR
- 1020 PROPOSED 5' CONTOUR
- 1021 EXISTING 1' CONTOUR
- 1020 EXISTING 5' CONTOUR
- TIME OF CONCENTRATION (TOC): SHEET | SHALLOW | CHANNEL
- DRAINAGE AREA
- FLOW ARROW
- DA - # / ##.## AC. WATERSHED IDENTIFICATION
- CP-1 COMPUTATION POINT

NOTES

1. THE RATIONAL METHOD WAS USED FOR CALCULATING PEAK FLOW RATES FOR ALL WATERSHEDS.
2. WATERSHED BOUNDARIES WERE ESTABLISHED USING A COMBINATION OF LIDAR DATA RECEIVED FROM TNRIS, USGS MAP INFORMATION AND FIELD INVESTIGATIONS.
3. FOR PEAK FLOW RATE COMPUTATION ALL 'C' VALUES WERE BASED ON FULLY DEVELOPED CONDITIONS

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AG

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WIMBERLEY RIDGE

ONSITE DRAINAGE AREA MAP

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
11

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\11 ONSITE DRAINAGE AREA MAP.dwg Layout: 11SITE DRAINAGE AREA MAP Plotted: 5/2/2024 11:26:36 AM By: Trodriguez

		DRAINAGE AREA CHARACTERISTICS			SHEET FLOW						SHALLOW CONC. FLOW (LOT SWALE + STREET FLOW)							CHANNEL FLOW			T_C	RUNOFF 'C'		PEAK STORM							
		ID	INFRASTRUCTURE TYPE	AREA	L	CoSA/ETJ P_2 = 4.140		s	T_t	T_i	L	ELEV. 1	ELEV. 2	PAVED?		s	T_{sc}	L	V	T_{ch}		AVG 'S"	'C'	2-YR		10-YR		25-YR		100-YR	
																								i	Q	i	Q	i	Q	i	Q
RUNOFF COEFFICIENT	SURFACE TYPE			(AC)	(FT)	ELEV. 1	ELEV. 2	n	(%)	(MIN)	(MIN)	(FT)			Y/N	K	(%)	(MIN)	(FT)	(FT/S)	(MIN)	(MIN)	(%)		(IN/HR)	(CFS)	(IN/HR)	(CFS)	(IN/HR)	(CFS)	(IN/HR)	(CFS)
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-01	CHANNEL B	71.10	100.0	1,137.7'	1,135.3'	0.240	2.4%	11.62	11.62	481.4	1,135.3'	1,117.0'	N	16.13	3.8%	2.55	2155.4	6	2.55	16.73	3.6%	80	4.05	230.36	6.08	345.83	7.43	422.62	9.65	548.89
		CHANNEL B (R-01) - ALIGNMENT CHNL B																							230.36		345.83		422.62		548.89
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-10		5.03	100.0	1,109.9'	1,107.4'	0.240	2.5%	11.44	11.44	1,037.6	1,107.4'	1,059.2'	N	16.13	4.7%	4.97	840.2	6	4.97	21.38	4.5%	80	3.67	14.77	5.5	22.13	6.72	27.04	8.71	35.05
		R-10																							14.77		22.13		27.04		35.05
		CHANNEL B1 (R-01,10) - ALIGNMENT CHNL B																							245.13		367.96		449.66		583.94
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-11		3.24	100.0	1,093.0'	1,089.1'	0.240	3.9%	9.61	9.61	690.0	1,089.1'	1,060.0'	N	16.13	4.2%	3.47	736.9	6	3.47	16.55	4.2%	80	4.06	10.52	6.11	15.84	7.46	19.34	9.68	25.09
		CHANNEL C (R-11) - ALIGNMENT CHNL C																							10.52		15.84		19.34		25.09
		CULVERT B (REACH 1): R-01,10,11 - ALIGNMENT CHNL C																							255.66		383.80		469.00		609.03
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-09		3.16	100.0	1,095.0'	1,091.4'	0.240	3.6%	9.92	9.92	602.2	1,091.4'	1,053.0'	N	16.13	6.4%	2.46	259.6	6	2.46	14.84	6.0%	84	4.22	11.20	6.34	16.83	7.75	20.57	10.07	26.73
		CHANNEL A1 (R-09) - ALIGNMENT CHNL A1																							11.20		16.83		20.57		26.73
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-02		22.50	100.0	1,124.0'	1,122.7'	0.240	1.3%	14.91	14.91	603.0	1,122.7'	1,089.8'	N	16.13	5.5%	2.67	782.4	6	2.67	20.24	0.2%	75	3.76	63.45	5.65	95.34	6.9	116.44	8.94	150.86
		CHANNEL A (R-02) - ALIGNMENT CHNL A																							63.45		95.34		116.44		150.86
		CHANNEL A2 (R-02,09) - ALIGNMENT CHNL A1																							74.65		112.17		137.01		177.59
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-08		1.39	100.0	1,083.6'	1,078.2'	0.240	5.3%	8.46	8.46	320.4	1,078.2'	1,047.9'	N	16.13	9.5%	1.08	289.3	6	1.08	10.61	8.5%	84	4.89	5.71	7.4	8.64	9.07	10.59	11.84	13.82
		CHANNEL A3 (R-02,08,09) - ALIGNMENT CHNL A1																							80.36		120.81		147.60		191.42
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-14		2.09	100.0	1,080.4'	1,071.2'	0.240	9.1%	6.83	6.83	28.9	1,071.2'	1,060.0'	N	16.13	38.8%	0.05	469.6	6	.05	6.92	15.8%	84	5.77	10.13	8.72	15.31	10.7	18.78	13.95	24.49
		CHANNEL H - (R-14) ALIGNMENT CHNL H																							10.13		15.31		18.78		24.49
		CHANNEL C1 (R-02,08,09,01,10,11,14) - ALIGNMENT CHNL C & G																							346.15		519.92		635.38		824.94
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-07		1.69	100.0	1,106.9'	1,102.2'	0.240	4.7%	8.88	8.88	456.8	1,102.2'	1,054.0'	N	16.13	10.5%	1.45	424.5	6	1.45	11.79	9.5%	84	4.7	6.67	7.1	10.08	8.7	12.35	11.35	16.11
		CHANNEL G (R-07) - ALIGNMENT G																							6.67		10.08		12.35		16.11
		CULVERT C (REACH 2): R-02,08,09,01,10,11,07,14 - ALIGNMENT C																							352.82		530.00		647.73		841.05
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-06		2.06	100.0	1,106.9'	1,102.0'	0.240	4.8%	8.81	8.81	498.2	1,102.0'	1,052.0'	N	16.13	10.0%	1.62	376.0	6	1.62	12.06	9.2%	84	4.66	8.06	7.04	12.18	8.62	14.92	11.24	19.45
		CHANNEL F (R-06) - ALIGNMENT F																							8.06		12.18		14.92		19.45
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-04		20.54	100.0	1,114.0'	1,109.8'	0.240	4.2%	9.31	9.31	805.8	1,109.8'	1,057.8'	N	16.13	6.4%	3.28	409.7	6	3.28	15.86	6.2%	84	4.12	71.08	6.19	106.80	7.57	130.61	9.83	169.60
		CHANNEL J (R-04) - ALIGNMENT J																							71.08		106.80		130.61		169.60
		CULVERT D (REACH 3): R-04																							71.08		106.80		130.61		169.60
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-05		1.79	100.0	1,059.0'	1,058.3'	0.240	0.7%	18.67	18.67	19.6	1,058.3'	1,056.2'	N	16.13	10.7%	0.06	319.1	6	.06	18.80	2.4%	77	3.88	5.35	5.83	8.04	7.12	9.81	9.23	12.72
		CHANNEL I (R-04) - ALIGNMENT I																							5.35		8.04		9.81		12.72
		CHANNEL D (R-04,05) - ALIGNMENT D																							76.43		114.84		140.42		182.32
		CULVERT A (REACH 4): R-01, 10, 11, 02, 08, 09, 04, 05, 06, 07,14																							437.31		657.02		803.07		1042.83
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-03		11.39	100.0	1,102.0'	1,095.5'	0.240	6.5%	7.83	7.83	741.2	1,095.5'	1,058.3'	N	16.13	5.0%	3.42	825.0	6	3.42	14.66	0.8%	75	4.24	36.22	6.38	54.50	7.8	66.63	10.14	86.62
		CHANNEL E (R-03) - ALIGNMENT E																							36.22		54.50		66.63		86.62
CLOSELY BUILT RESIDENTIAL	DENSE GRASSES²	DA-13		1.7	100	1041.6	1040.1	0.240	1.4%	14.3	14.3	324.6	1040.14	1030	N	16.13	3.1%	3.42				17.69	0.34%	75	**3.97**	5.06	5.97	7.61	7.29	9.29	9.46	12.06
UNDEVELOPED RESIDENTIAL	DENSE GRASSES²	DA-14	OFFSITE	1.84	100	1042.3	1038.8	0.240	3.6%	10.0	10.0	297.424	1038.78	1032	N	16.13	2.3%	4.42				14.38	0.90%	65	**4.29**	5.13	6.46	7.73	7.89	9.44	10.26	12.27
		CP-1																							483.73		726.86		888.43		1153.78

ALIGNMENT	STATION	REACH	WATERSHED	SHAPE	CHANNEL SLOPE (%)	BOTTOM WIDTH (FT)	DEPTH (FT)	MANNING'S N	SIDE SLOPES (Z:1;Z:1)	TOP WIDTH	VELOCITY (FT/S)	Q (CFS)	CONCRETE LINED
A	1+00-1+12	A	DA-02	Triangular	2.26%	-	2.0	0.011	3;3	12	16.84	150.86	YES
	1+12-2+29				1.00%						12.83		YES
	2+29-END				33.3%						45.81		YES
A1	6+90-END	A1	DA-09	Triangular	33.3%	-	2.5	0.011	3;4	17.5	29.36	26.73	YES
	5+50-6+90				2.58%						11.36		YES
	4+63 - 5+50				3.21%						12.55		YES
	3+50-4+63	A2	R-02 + R-09	Triangular	3.21%	-	2.5	0.011	3;4	17.5	20.07	177.59	YES
	2+50 - 3+50	A3	DA-08 + R-02 + R-09	Triangular	3.05%	-	2.5	0.011	3;4	17.5	20.09	191.42	YES
	1+48 - 2+50				0.75%						11.83		YES
	1+37 - 1+48			U-SHAPED	25.00%	10	5.0		-	10	39.07		YES
	1+00 - 1+48				0.3% (RULED BY CROSS SLOPE)						9.43		YES
B	10+70 - END	B	DA-01	Trapezoidal	33.3%	3.0	4.0	0.011	3;4	31.00	69.80	548.89	YES
	9+00 - 10+70				0.69%						16.64		YES
	5+50 - 9+00	B1	DA-10 + R-01	Trapezoidal	0.69%	3.0	4.0	0.011	2;2	31.00	16.93	583.94	YES
	3+00 - 5+50				2.71%						28.27		YES
	2+75 - 3+00			U-SHAPED	16.52%	10.0	5.0		-	10	51.68		YES
	1+25 - 2+75				0.85%						19.08		YES
	1+00 - 1+25				0.5% (RULED BY CROSS SLOPE)						15.78		YES
C	12+44 - 12+50	C	DA-11	Triangular	33.3%	-	2.5	0.011	3;4	17.5	15.5	25.09	YES
	11+00 - 12+44				1.09%			0.026			4.31		NO
	9+50 - 11+00				1.48%			0.026			4.82		NO
	9+00 - 9+50				2.93%			0.011			11.78		YES
	7+00 - 9+00				3.50%			0.011			12.74		YES
	6+20 - 7+00				1.70%			0.026			5.06		NO
	6+00 - 6+20				25.00%			0.011			13.83		YES
	5+00 - 6+00	C1	DA-11 + (R-09,10)	U-SHAPED	1.00%	10.0	6.0	0.011	-	10	22.3	824.94	YES
	1+00 - 1+50		DA-06 + (R-02,08,09,10,11, 14, 06)		2.50%						30.9		YES
D	4+14 - 4+33	D	DA-04 & DA-05	Triangular	2.00%	-	3.0	0.011	3;4	21	17.01	182.32	YES
	1+15 - 1+30			U-SHAPED	25.00%	10	7.0	0.011	-	10	37.96		YES
E	1+16 - 5+27	E	DA-03	Triangular	0.47%	-	2.25	0.011	3;3	13.5	8.44	86.62	YES
F	1+48 - 1+69	F	DA-06	Triangular	8.87%	-	1.50	0.011	3;4	10.5	16.52	19.45	YES
	1+24 - 1+48			U-SHAPED	33.3%	10	6.00	0.011	-	10	16.21		YES
G	1+48 - 1+69	G	DA-07	Triangular	6.14%	-	1.50	0.011	3;4	10.5	13.68	16.11	YES
	1+24 - 1+48			U-SHAPED	33.3%	10	6.00	0.011	-	10	5.56		YES
H	0+17 - 3+76	H	DA - 14	Triangular	3.28%	-	1.5	0.011	3;3	9	12.76	24.49	YES
	0.05 - 0+17			Triangular	25.00%	-	3	0.011	2;2	12	28.98		YES
I	0+07 - 4+64	I	DA - 05	Triangular	4.18%	-	1.5	0.011	3;3	9	11.78	12.72	YES
	0+00 - 0+07			Triangular	33.3%	-	1.5	0.011	3;3	9	25.22		YES
K	3+83 - 5+30	K	DA-04	Triangular	0.90%	-	3	0.011	3;4	21	12.36	169.60	YES
	1+28 - 3+83			Triangular	1.30%	-	3	0.011	3;4	21	14.16		YES

CULVERT	# PIPES/BOXES	DEPTH	HEIGHT	SLOPE (%)	Q (CFS)	OVERTOP DEPTH (FT)
A	4	4'	6'	1	1042.83	0.77
B	4	4'	5'	1	609.03	0.22
C	4	4'	5'	1	841.05	0
D	2	2'	-	3.69	169.60	0.63

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR

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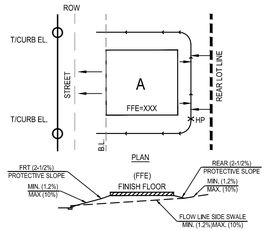
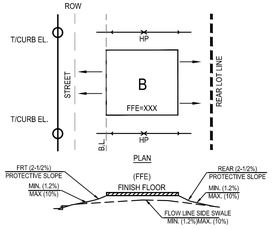
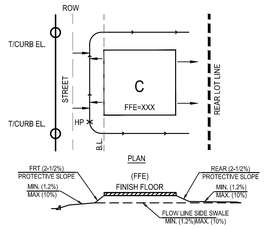


TYPE "A"
ALL DRAINAGE TO STEET



TYPE "B"
DRAINAGE TO BOTH STREET
AND REAR LOT LINE



TYPE "C"
DRAINAGE TO REAR LOT LINE

GENERAL NOTES:

1. HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
2. AS SOON AS PRACTICAL, HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.
3. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
4. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.
5. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
6. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.
7. EARTHEN GRADING SLOPES SHALL BE NO GREATER THAN 3:1.
8. SLOPES GREATER THAN 3:1 ARE ASSUMED TO BE MILLED ROCK. IF SITE CONDITIONS VARY FROM THIS, NOTIFY ENGINEER IMMEDIATELY.

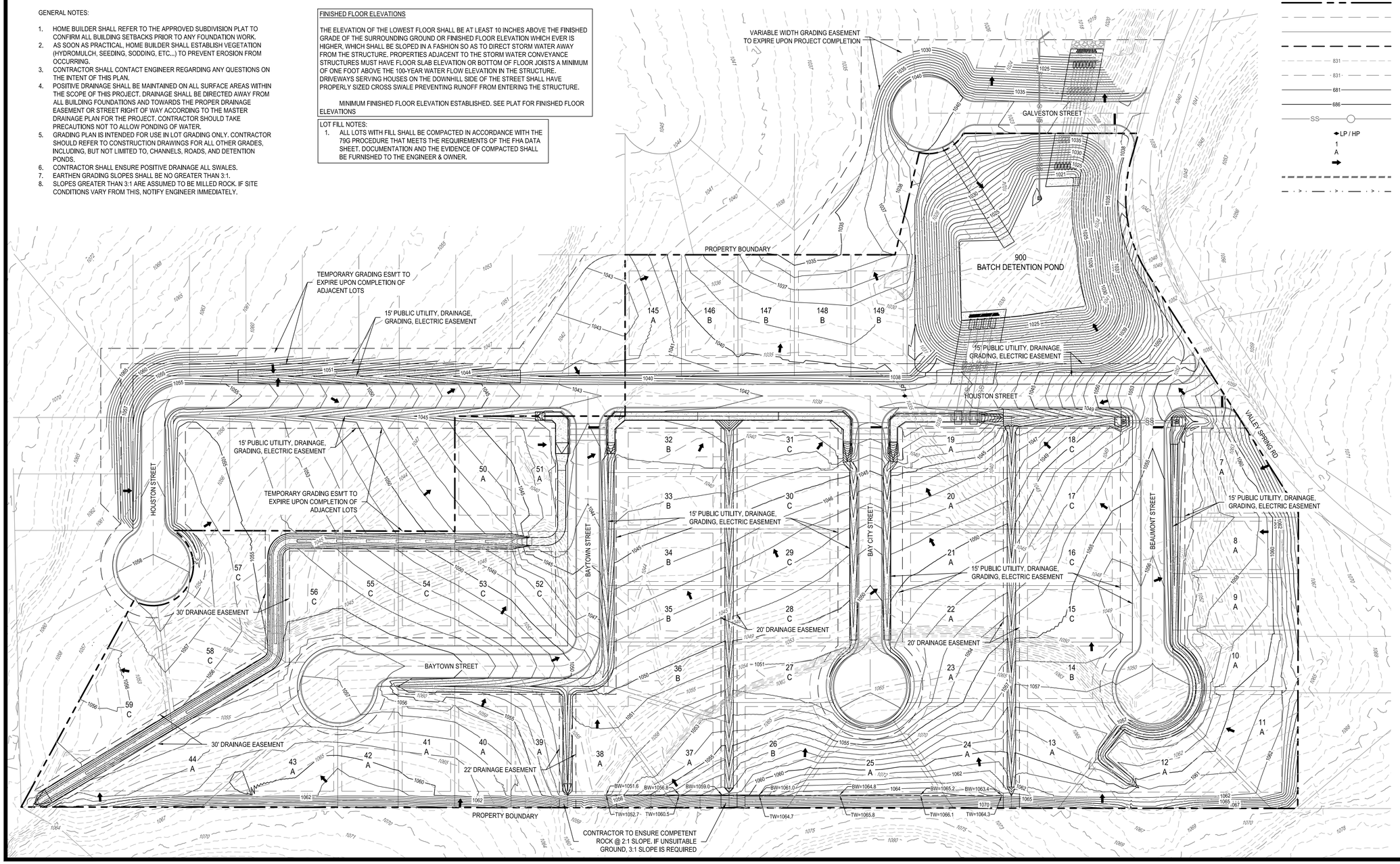
FINISHED FLOOR ELEVATIONS

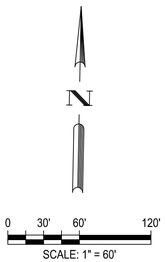
THE ELEVATION OF THE LOWEST FLOOR SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND OR FINISHED FLOOR ELEVATION WHICH EVER IS HIGHER, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORM WATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO THE STORM WATER CONVEYANCE STRUCTURES MUST HAVE FLOOR SLAB ELEVATION OR BOTTOM OF FLOOR JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100-YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE STRUCTURE.

MINIMUM FINISHED FLOOR ELEVATION ESTABLISHED. SEE PLAT FOR FINISHED FLOOR ELEVATIONS

LOT FILL NOTES:

1. ALL LOTS WITH FILL SHALL BE COMPACTED IN ACCORDANCE WITH THE 79G PROCEDURE THAT MEETS THE REQUIREMENTS OF THE FHA DATA SHEET. DOCUMENTATION AND THE EVIDENCE OF COMPACTED SHALL BE FURNISHED TO THE ENGINEER & OWNER.





LEGEND

- PROPERTY BOUNDARY
- BUILDING SETBACK
- PROPOSED LOT LINES
- EASEMENT
- 831 EXISTING MINOR CONTOUR
- 831 EXISTING MAJOR CONTOUR
- 681 PROPOSED MINOR CONTOUR
- 686 PROPOSED MAJOR CONTOUR
- SS PROPOSED STORM LINE WITH MANHOLE
- LP / HP LOW POINT/HIGH POINT
- 1 A LOT NUMBER AND GRADING TYPE
- DIRECTION OF FLOW
- RETAINING WALL
- PROPOSED SWALE FLOWLINE

REV	DESCRIPTION	DATE	APR

DESIGNED BY: ##
REVIEWED BY: ##
DRAWN BY: ##

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WIMBERLEY RIDGE

OVERALL GRADING PLAN

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
13

G:\TXCI\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\13 OVERALL GRADING PLAN.dwg Layout: 13ERALL GRADING PLAN Plotted: 5/2/2024 11:27:16 AM By: Trodriguez

N

0 30' 60' 120'

SCALE: 1" = 60'

VARIABLE WIDTH GRADING EASEMENT TO EXPIRE UPON PROJECT COMPLETION

VARIABLE WIDTH GRADING EASEMENT TO EXPIRE UPON PROJECT COMPLETION

GALVESTON STREET

PROPERTY BOUNDARY

900
BATCH DETENTION POND

TEMPORARY GRADING ESMT TO EXPIRE UPON COMPLETION OF ADJACENT LOTS

15' PUBLIC UTILITY, DRAINAGE, GRADING, ELECTRIC EASEMENT

CHNL E

CULVERT A

CULVERT B

HOUSTON STREET

CULVERT C

CHNL C

CULVERT D

CHNL D

VALLEY SPRING RD

SLOPED END TREATMENT

CHNL B

CHNL A1

CHNL G

CHNL F

CHNL H

BAYTOWN STREET

BAY CITY STREET

BEAUMONT STREET

TEMPORARY GRADING ESM'T TO EXPIRE UPON COMPLETION OF ADJACENT LOTS

PROPOSED 30' DRAINAGE EASEMENT

PROPOSED 20' DRAINAGE EASEMENT

CHNL I

CHNL J

CHNL K

CHNL A

22' DRAINAGE EASEMENT

PROPERTY BOUNDARY

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR (831)
- EXISTING MAJOR CONTOUR (831)
- PROPOSED MINOR CONTOUR (681)
- PROPOSED MAJOR CONTOUR (686)
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE (W)
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL (25)
- 100 YEAR HGL (100)
- PROPOSED GROUND
- EXISTING GROUND

ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AG

REVIEWED BY: TR

DRAWN BY: RA

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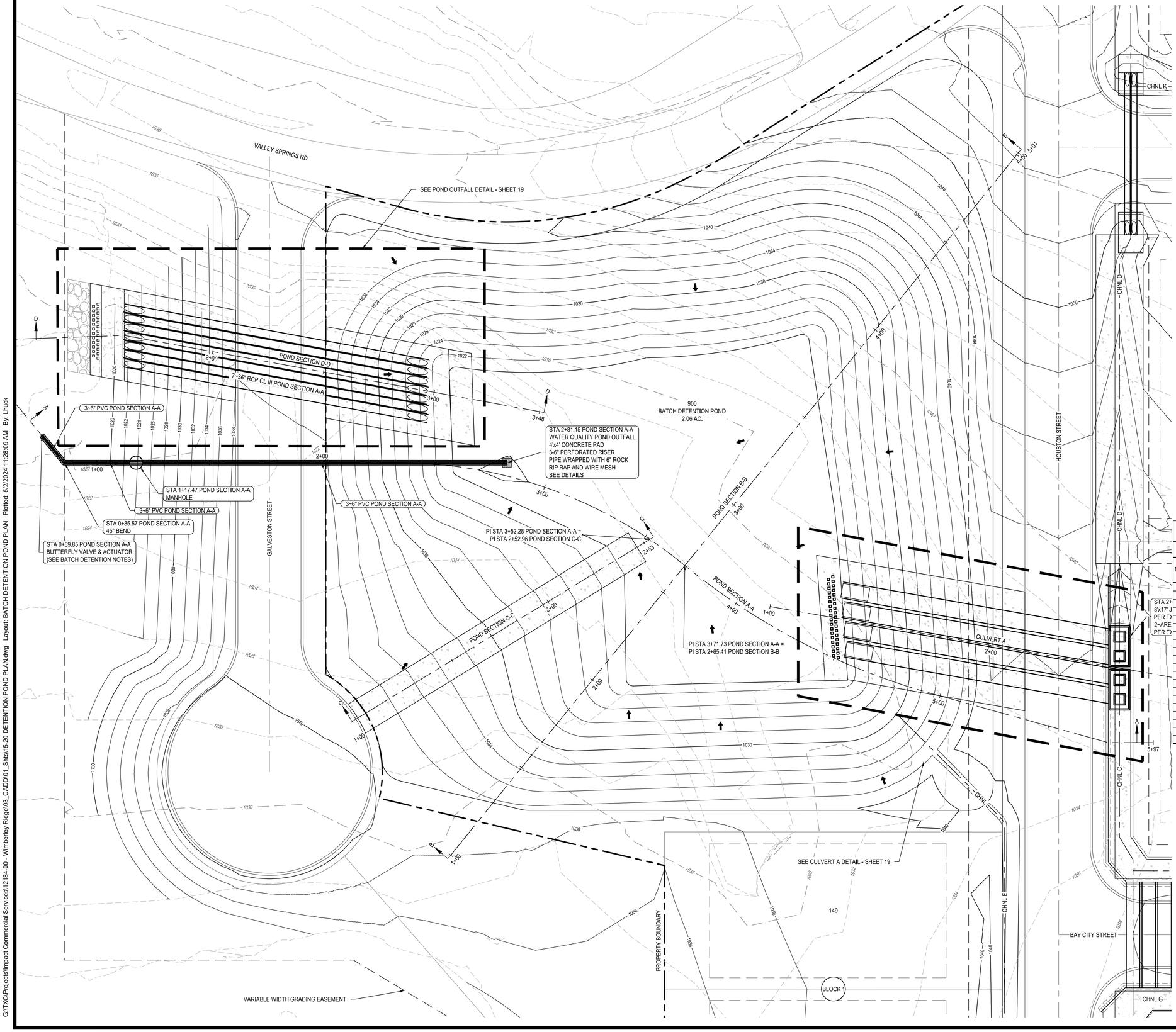
WIMBERLEY RIDGE

STORM DRAIN COLLECTION SYSTEM

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
14



0 10' 20' 40'

SCALE: 1" = 20'

LEGEND

	PROPERTY BOUNDARY
	EASEMENT
831	EXISTING MINOR CONTOUR
831	EXISTING MAJOR CONTOUR
681	PROPOSED MINOR CONTOUR
686	PROPOSED MAJOR CONTOUR
	PROPOSED STORM DRAIN LINE
FM FM FM	PROPOSED FORCEMAIN LINE
W W	PROPOSED WATER LINE
	DIRECTION OF FLOW

NOTE: UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS, AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF ACCEPTANCE OR OCCUPANCY BY THE PERMIT CENTER, THE DESIGN ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DETENTION FACILITY, FILTRATION FACILITIES AND/OR WATER QUALITY FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.

BATCH DETENTION POND STORAGE VOLUMES

BASIN: 900 BATCH DETENTION POND

CONTOUR ELEVATION (FT)	CONTOUR AREA (FT^2)	INCREMENTAL DEPTH (FT)	AVG. END AREA INCREMENTAL VOLUME (FT^3)	AVG. END AREA CUMULATIVE VOLUME (FT^3)
1,020.00	137			
1,021.00	19,711	1	9,924	9,924
1,022.00	21,712	1	20,712	30,636
1,022.80	23,380	0.8	18,037	48,672
1,023.00	23,798	0.2	4,718	53,390
1,024.00	25,972	1	24,885	78,275
1,025.00	28,230	1	27,101	105,376
1,026.00	30,574	1	29,402	134,778
1,027.00	33,003	1	31,789	166,567
1,028.00	35,517	1	34,260	200,827
1,029.00	38,117	1	36,817	237,644
1,030.00	40,803	1	39,460	277,104
1,031.00	43,526	1	42,165	319,268
1,032.00	46,317	1	44,922	364,190
1,033.00	49,205	1	47,761	411,951
1,034.00	52,204	1	50,705	462,655
1,035.00	55,324	1	53,764	516,419
1,036.00	58,559	1	56,942	573,361
1,037.00	61,922	1	60,241	633,601
1,038.00	65,146	1	63,534	697,135

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	APR	DATE	DESCRIPTION	REV

DESIGNED BY: AG

REVIEWED BY: TR

DRAWN BY: RA

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WIMBERLEY RIDGE

BATCH DETENTION POND PLAN

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET 15

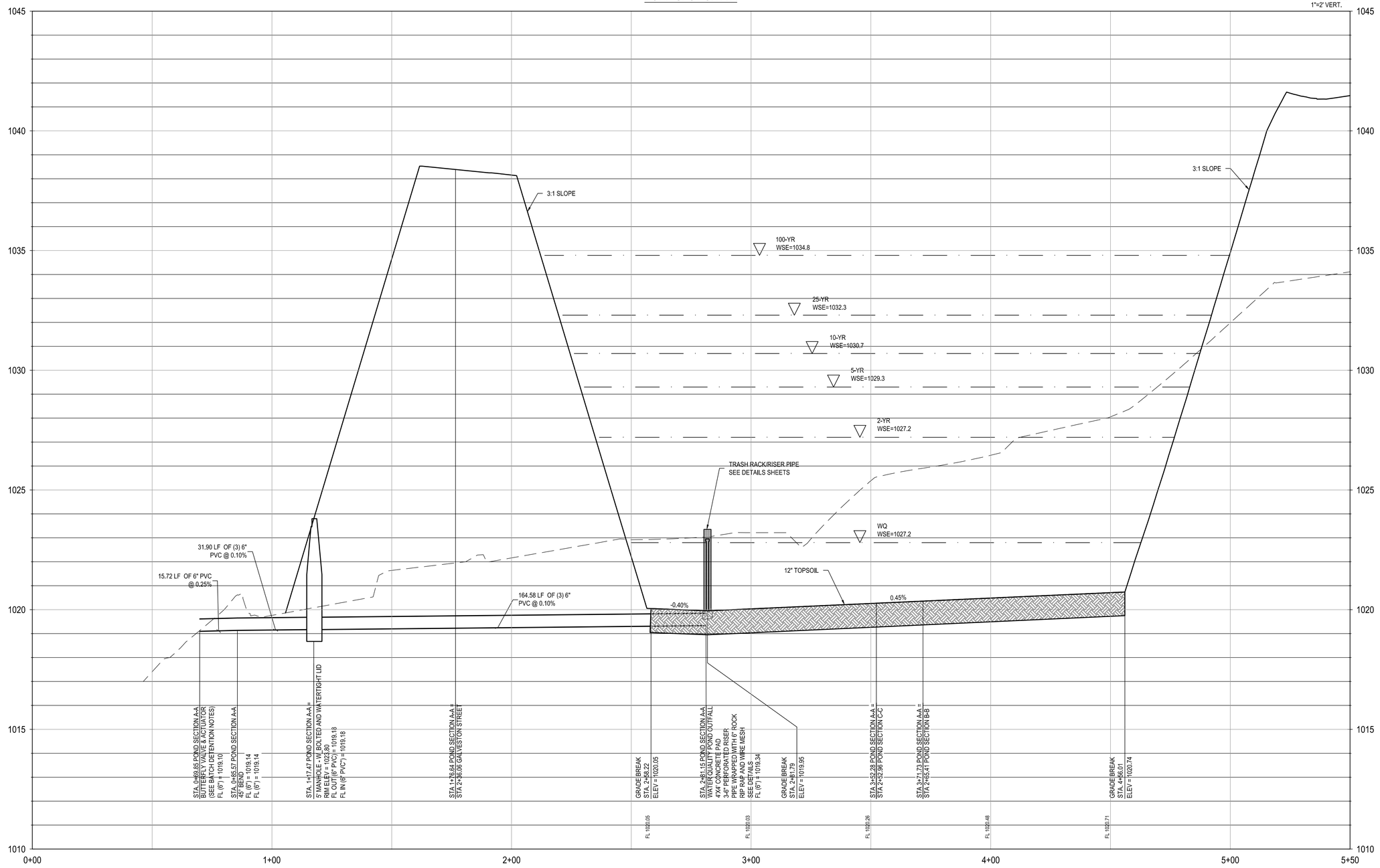
G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\15-20 DETENTION POND PLAN.dwg Layout: BATCH DETENTION POND PLAN Plotted: 5/2/2024 11:28:09 AM By: Lhuck

SECTION VIEW LEGEND

- PROPOSED POND GRADING
- EXISTING GROUND
- 25 YR WSE XXX / 25 YEAR WSEL
- 100 YR WSE XXX / 100 YEAR WSEL

POND SECTION A-A

SCALE:
1"=20' HORIZ.
1"=2' VERT.



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DRAWN BY: RA

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WIMBERLEY RIDGE

BATCH DETENTION POND SECTIONS (SHEET 1 OF 3)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
16

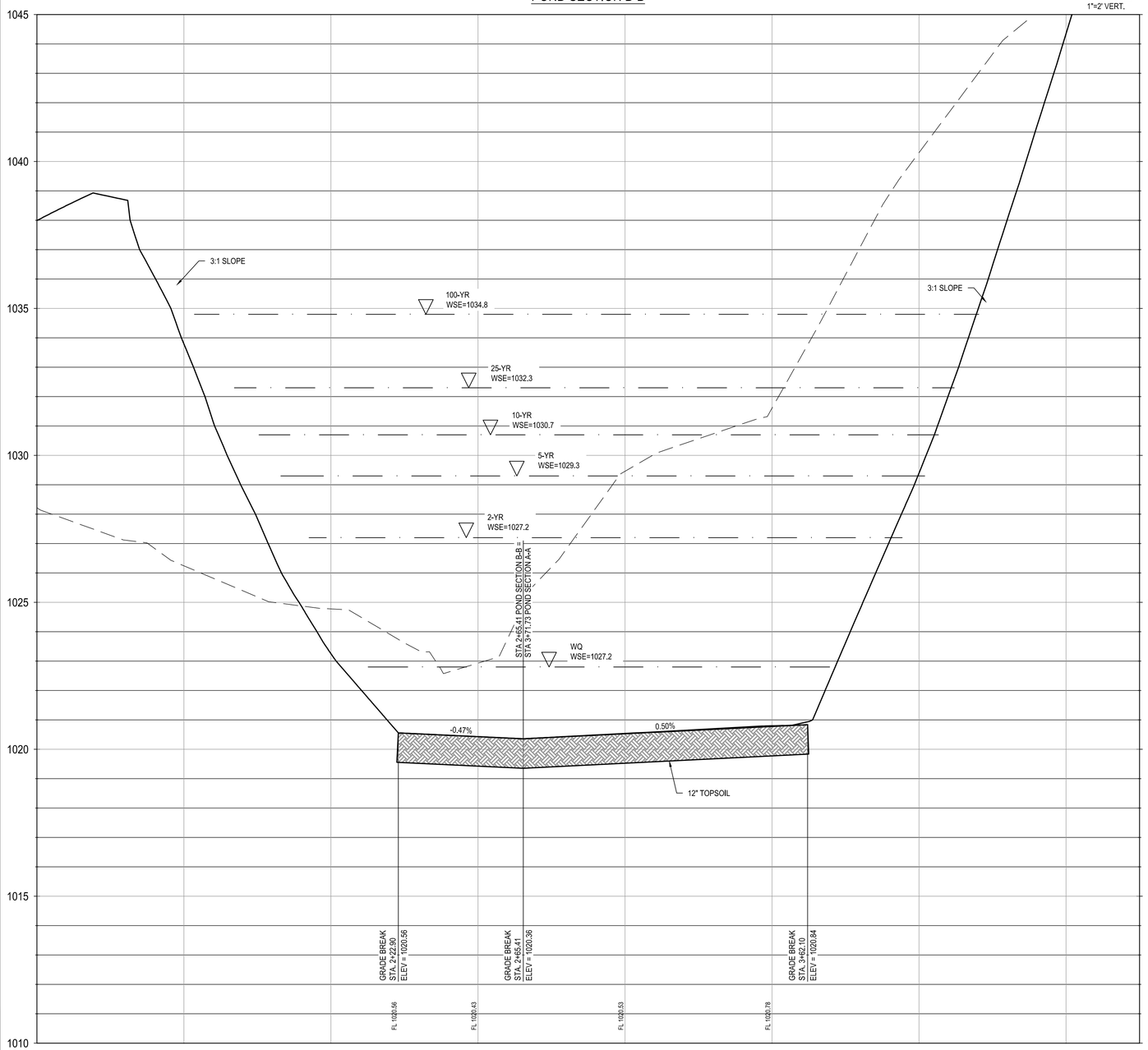
G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\15-20 DETENTION POND PLAN.dwg Layout: 16 BATCH DETENTION POND SECTIONS (SHEET 1 OF 3) Plotted: 5/2/2024 11:28:14 AM By: Lhuck

SECTION VIEW LEGEND

- PROPOSED POND GRADING
- EXISTING GROUND
- 25 YR WSE XXX — 25 YEAR WSEL
- 100 YR WSE XXX — 100 YEAR WSEL

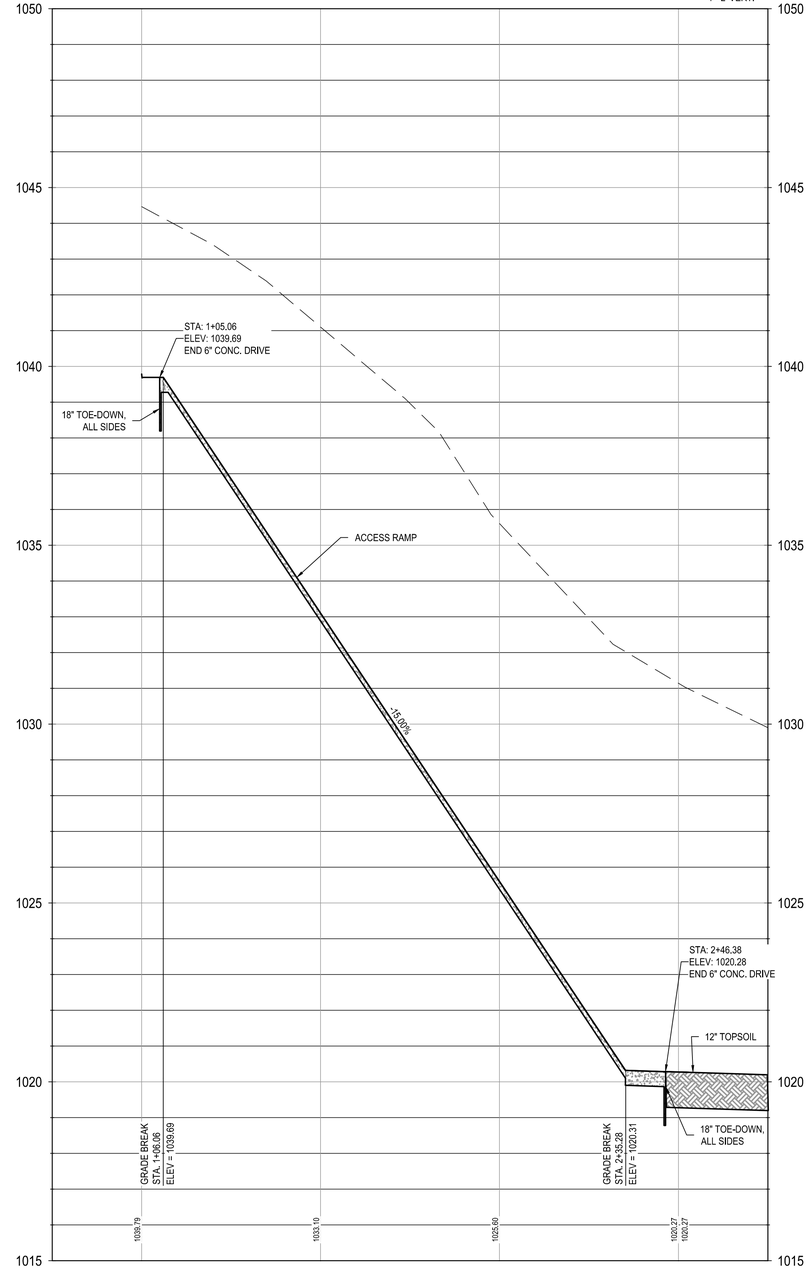
POND SECTION B-B

SCALE:
1"=20' HORIZ.
1"=2' VERT.



POND SECTION C-C

SCALE:
1"=20' HORIZ.
1"=2' VERT.



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WIMBERLEY RIDGE

BATCH DETENTION POND SECTIONS
(SHEET 2 OF 3)

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

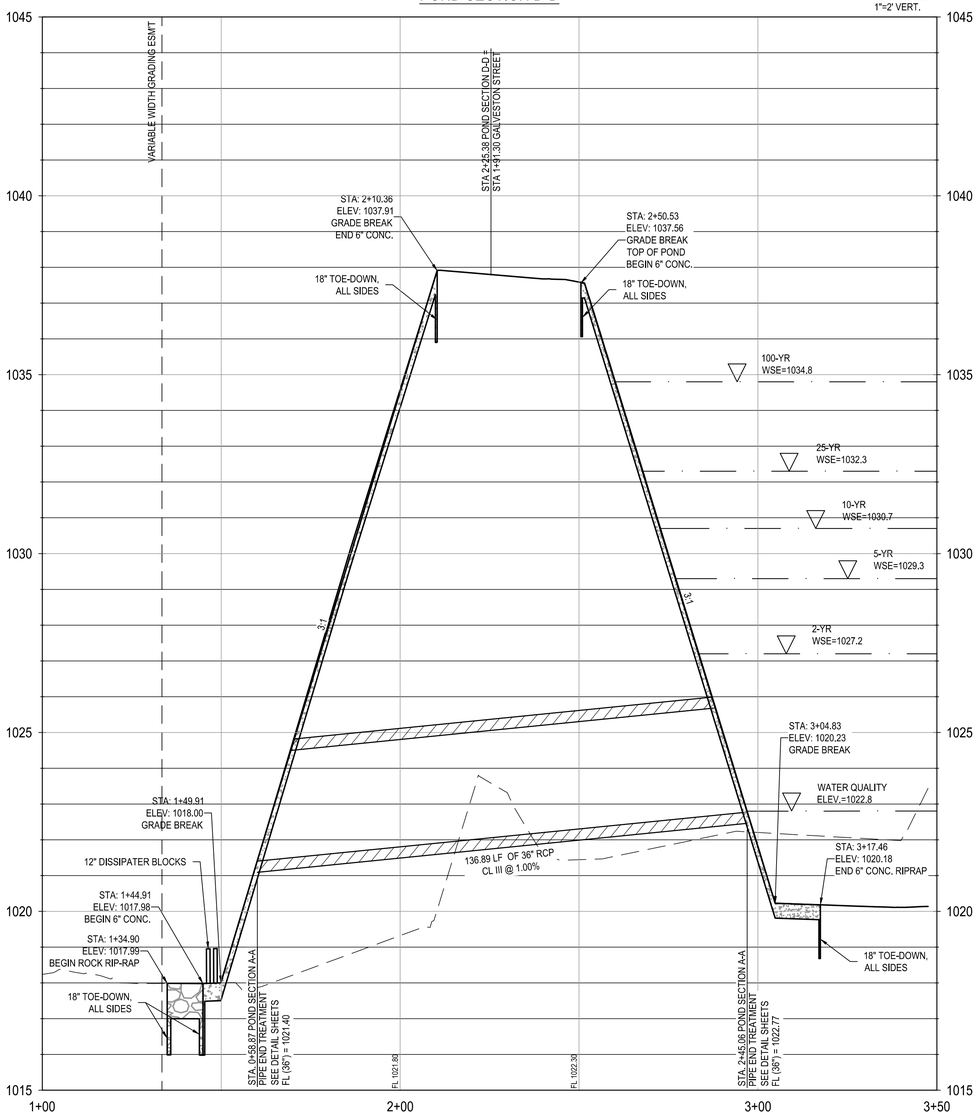
SHEET
17

SECTION VIEW LEGEND

PROPOSED POND GRADING
EXISTING GROUND
25 YR WSE XXX — 25 YEAR WSEL
100 YR WSE XXX — 100 YEAR WSEL

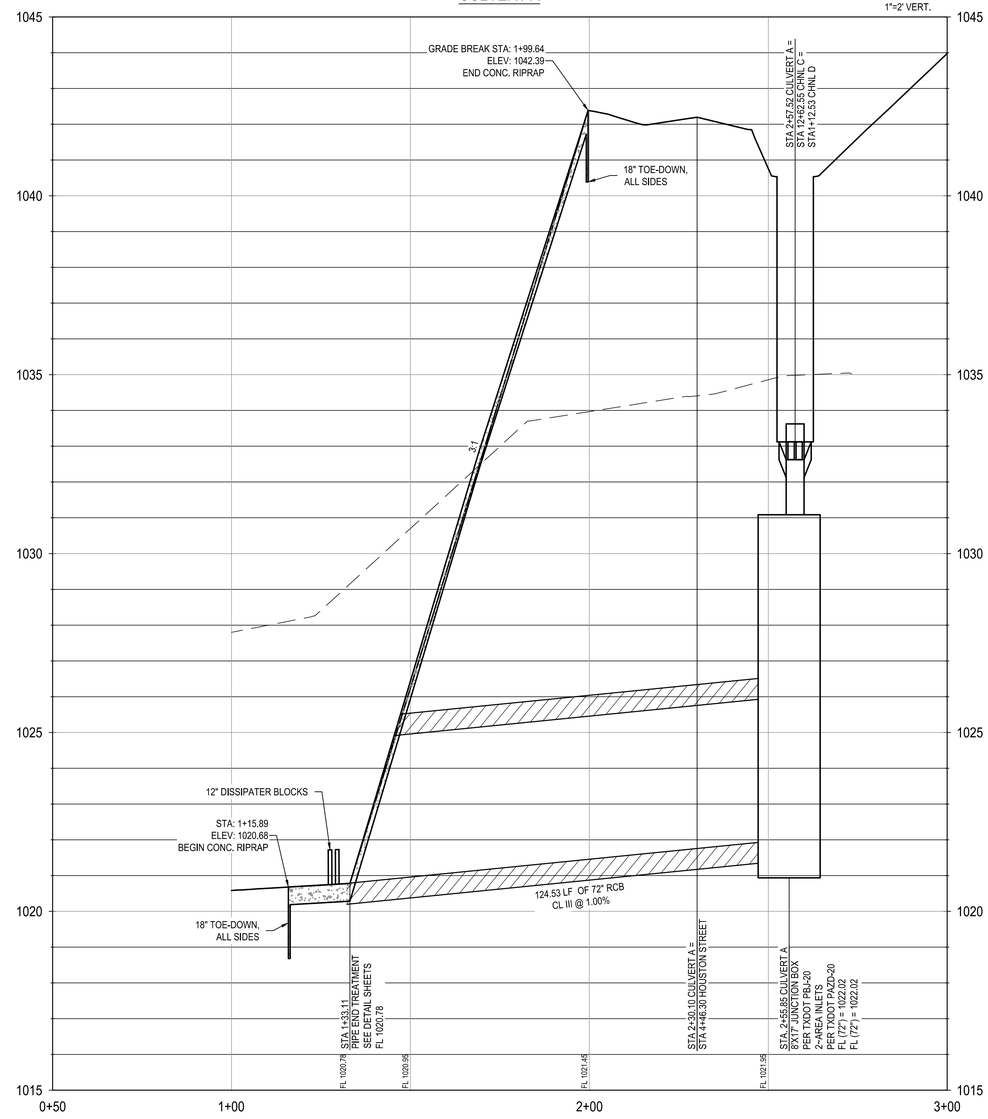
POND SECTION D-D

SCALE:
1"=20' HORIZ.
1"=2' VERT.



CULVERT A

SCALE:
1"=20' HORIZ.
1"=2' VERT.



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DESIGNED BY: AG
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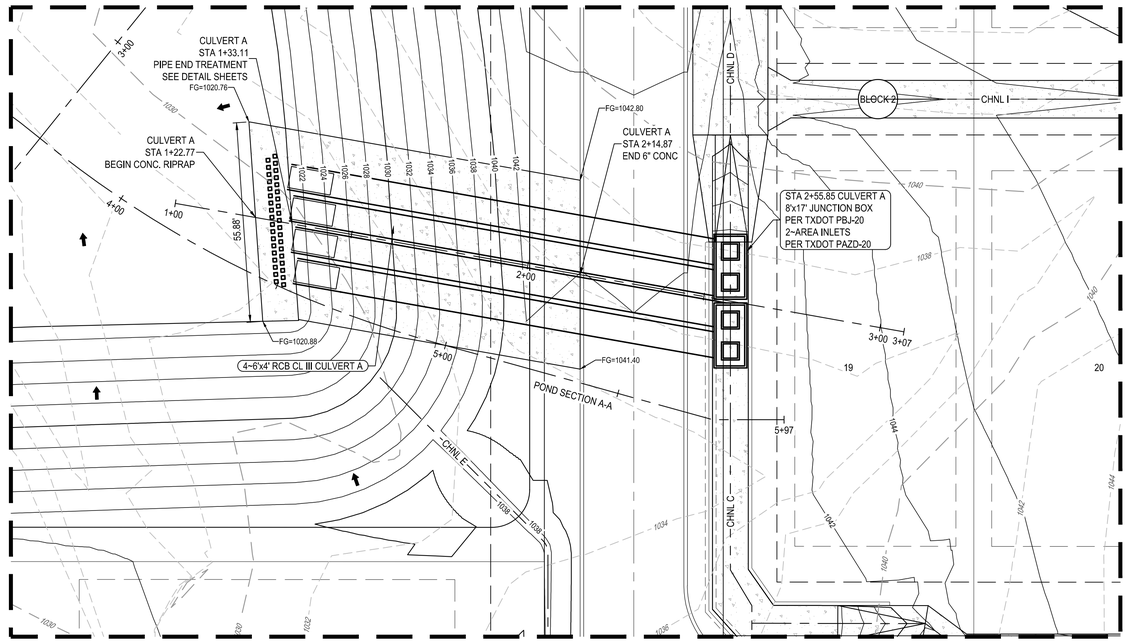
WIMBERLEY RIDGE

BATCH DETENTION POND SECTIONS (SHEET 3 OF 3)

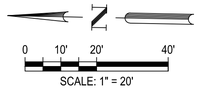
STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
18

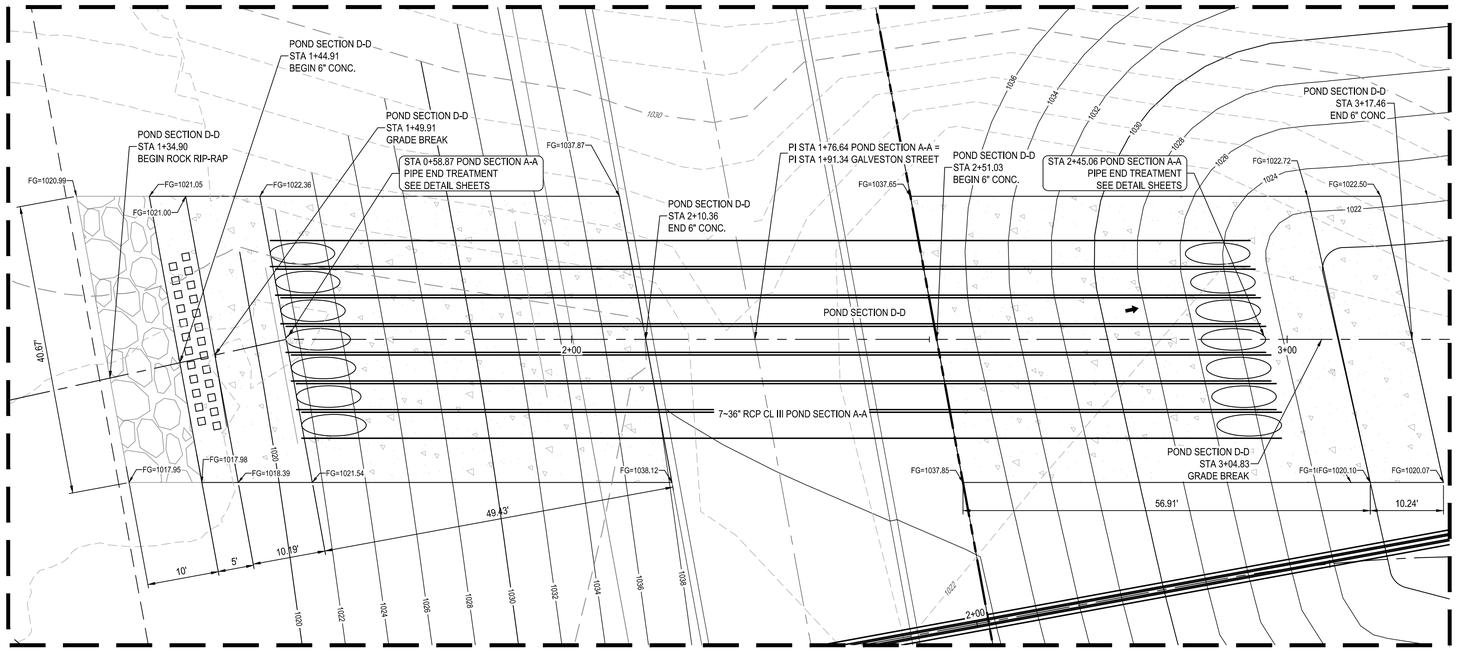
G:\TXCI\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\15-20 DETENTION POND PLAN.dwg Layout: 18 BATCH DETENTION POND SECTIONS (SHEET 3 OF 3) Plotted: 5/2/2024 11:28:26 AM By: Lhuck



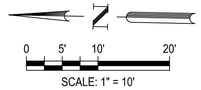
CULVERT A DETAIL
1" = 20'



SCALE: 1" = 20'



POND OUTFALL DETAIL
1" = 10'



SCALE: 1" = 10'

LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- 831 EXISTING MINOR CONTOUR
- 831 EXISTING MAJOR CONTOUR
- 681 PROPOSED MINOR CONTOUR
- 686 PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- FM PROPOSED FORCEMAIN LINE
- W PROPOSED WATER LINE
- DIRECTION OF FLOW

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

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WIMBERLEY RIDGE

BATCH DETENTION POND DETAILS
(SHEET 1 OF 2)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
19

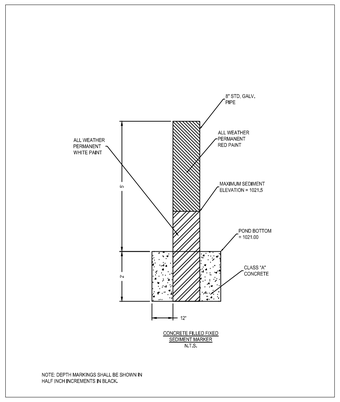
G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\15-20 DETENTION POND PLAN.dwg Layout: 19 BATCH DETENTION POND DETAILS (SHEET 1 OF 2) Plotted: 5/2/2024 11:28:33 AM By: LHuck

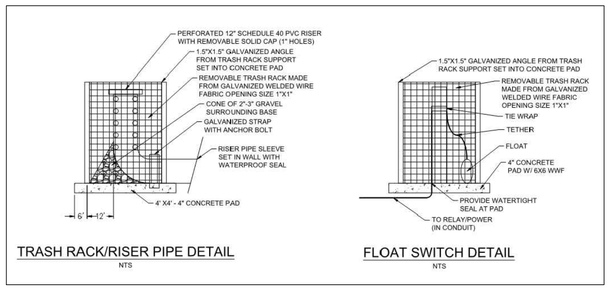
NOTES:

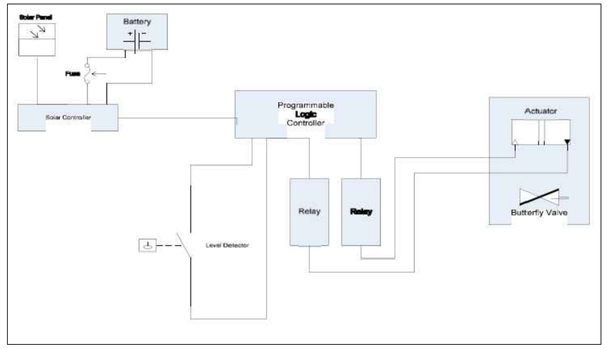
1. POND SHALL MAINTAINED BY PROPERTY OWNER ASSOCIATION.
2. POND IS TO HAVE 12" TOPSOIL BOTTOM. CONTRACTOR TO ESTABLISH VEGETATION.
3. THE REQUIRED WATER QUALITY VOLUME IS 201,048 CF AND THE PROVIDED WATER QUALITY VOLUME IS 203,259 CF.

BATCH DETENTION NOTES:

1. OVERVIEW: THE BASIN IS TYPICALLY FILLED QUICKLY BY STORMWATER CONVEYED THROUGH A STORM DRAIN, MAKING THE INFLOW TIME RELATIVELY SHORT. THE RESIDENCE TIME OF THE STORMWATER IS 12 HOURS AND IS CONTROLLED BY THE CONTROL VALVE (NORMALLY SHUT OFF) AND ACTUATOR INSTALLED ON THE OUTLET STRUCTURE. THE CONTROL VALVE OPENS ONCE THE DESIRED RESIDENCE TIME IS ACHIEVED AFTER A STORM EVENT. THE TREATED WATER IS RELEASED SLOWLY OVER A TIME OF 24 TO 48 HOURS.
2. VALVE/ACTUATOR: THE VALVE/ACTUATOR ASSEMBLY CONSISTS OF A BUTTERFLY VALVE WITH A SMALL 12VDC ACTUATOR. THE VALVE IS A QUARTER TURN VALVE. THE ACTUATOR OPERATES THE VALVE BETWEEN THE FULL OPEN AND FULL CLOSED POSITIONS. A MECHANICAL HAND CLANK ALLOWS A PHYSICAL OVERRIDE OF THE VALVE SYSTEM.
3. THE VALVE IS A KEYSTONE 6-INCH(100MM) BUTTERFLY VALVE MATED WITH A EPI-6 12VDC ACTUATOR. THE EPI-6 ACTUATOR REQUIRES AN OPEN OR CLOSE SIGNAL OF 10 SECONDS. THE ACTUATOR HAS LIMIT SWITCHES THAT DETECT END OF TRAVEL AND SHOT OFF THE INCOMING OPEN OR CLOSE SIGNAL TO THE ACTUATOR ONCE THE VALVES REACHES THE FULL OPEN OR CLOSED POSITION. OVER TORQUE SENSORS WILL SHUT DOWN THE ACTUATOR IN THE EVENT OF AN OVER TORQUE SITUATION.
4. CONTROLLER SYSTEM SPECIFICATIONS:
   - 4.1. POWER - THE CONTROLLER SHALL BE POWERED BY A SHIELD-CONTAINED RENEWABLE POWER SOURCE (SUCH AS SOLAR POWER) IF ELECTRICAL POWER IS NOT AVAILABLE. A SINGLE SUPPLY VOLTAGE FOR ALL COMPONENTS IS DESIRABLE.
   - 4.2. PROGRAMMABILITY - THE CONTROLLED SHALL BE PROGRAMMABLE, IT SHALL BE POSSIBLE TO UPDATE PROGRAMS IN THE FIELD. THE DETENTION TIME AND DRAW-DOWN TIME SHALL BE ADJUSTABLE IN HOURS FROM 0 HOURS TO 72 HOURS.
   - 4.3. EVENT SENSING - THE CONTROLLER SHALL BE ABLE TO SENSE THE BEGINNING OF A STORM (WATER FILLING THE BASIN), AND THE END OF A STORM (WATER HAS DRAINED FROM THE BASIN).
   - 4.4. ENVIRONMENT - THE CONTROLLER SHALL OPERATE IN TEMPERATURES FROM 0 DEGREES CELSIUS TO 55 DEGREES CELSIUS, IN HUMIDITY FROM 10% TO 90% (NON-CONDENSING). THE CONTROLLER SHALL OPERATE DURING PERIODS OF RAINFALL.
   - 4.5. SAFETY/SECURITY - THE SYSTEM COMPONENTS SHALL BE LOCKED IN ENCLOSURE TO PREVENT ACCIDENTAL CONTACT THAT COULD COMPROMISED THE FUNCTION OF THE APPARATUS OR CAUSE INJURY.
   - 4.6. MAINTENANCE - THE CONTROLLER SHALL REQUIRE MINIMAL PERIODIC MAINTENANCE TO CONTROLLER PROGRAM SHALL BE FIELD UPGRADEABLE. THE ABILITY TO MANUALLY OPERATE THE VALVE SHALL BE PROVIDED.
   - 4.7. RELIABILITY - 40,000 HOURS(4.6 YEARS) OR GREATER.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN OF SENSOR, AUTOMATIC VALVE, CONTROLLER, ETC.TO ENGINEER FOR REVIEW AND APPROVAL.







NOTE: UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS, AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF ACCEPTANCE OR OCCUPANCY BY THE PERMIT CENTER, THE DESIGN ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DETENTION FACILITY, FILTRATION FACILITIES AND/OR WATER QUALITY FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.

IMPERVIOUS COVER CALCULATIONS - WIMBERLEY RIDGE (3,500 SF PER LOT)				
UNIT 1 (21.26 AC.)				
SIDEWALK SF	0			
STREET SF	107864.36			
LOTS	56	3500 SF PER LOT		196000
MISC.	0			
TOTAL	303864.36	<SF	AC.>	6.98

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Wimberly Ridge
Date Prepared: 9/18/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

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: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = 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 =	Hays	
Total project area included in plan * =	21.26	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	6.98	acres
Total post-development impervious cover fraction * =	0.33	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	6265	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	21.26	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	6.98	acres
Post-development impervious fraction within drainage basin/outfall area =	0.33	
$L_{M\ THIS\ BASIN}$ =	6265	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

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

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

where:
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 =	21.26	acres
A_I =	6.98	acres
A_P =	14.28	acres
L_R =	7484	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	6350	lbs.
F =	0.85	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.32	inches
Post Development Runoff Coefficient =	0.27	
On-site Water Quality Volume =	27744	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	132.32	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	12680	cubic feet
Storage for Sediment =	8085	
Total Capture Volume (required water quality volume(s) x 1.20) =	48510	cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

APR	DATE	DESCRIPTION	REV
			◁
			◁
			◁
			◁
			◁

DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

NOT FOR CONSTRUCTION

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

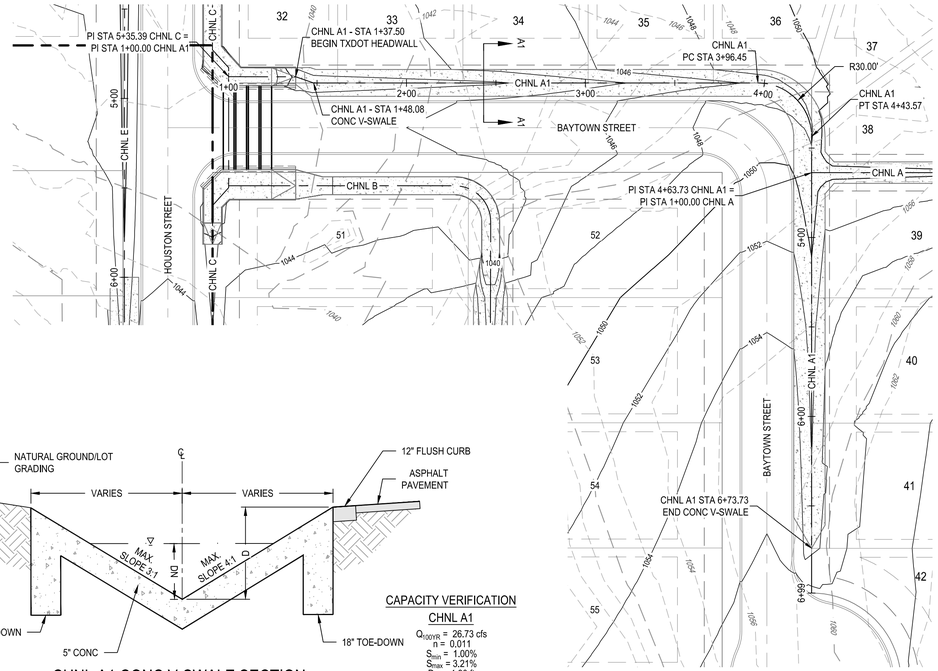
WIMBERLEY RIDGE

BATCH DETENTION POND DETAILS (SHEET 2 OF 2)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
20

G:\TX\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\15-20 DETENTION POND PLAN.dwg Layout: BATCH DETENTION POND DETAILS (SHEET 2 OF 2) Plotted: 5/2/2024 11:28:37 AM By: Lhuck



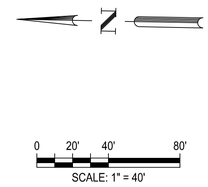
CHNL A1 CONC V-SWALE SECTION

N.T.S

CAPACITY VERIFICATION

CHNL A1

Q_{100YR} = 26.73 cfs
n = 0.011
S_{min} = 1.00%
S_{max} = 3.21%
Dn = 1.30 ft
V_{max} = 11.36 fps
D = 2.50 ft



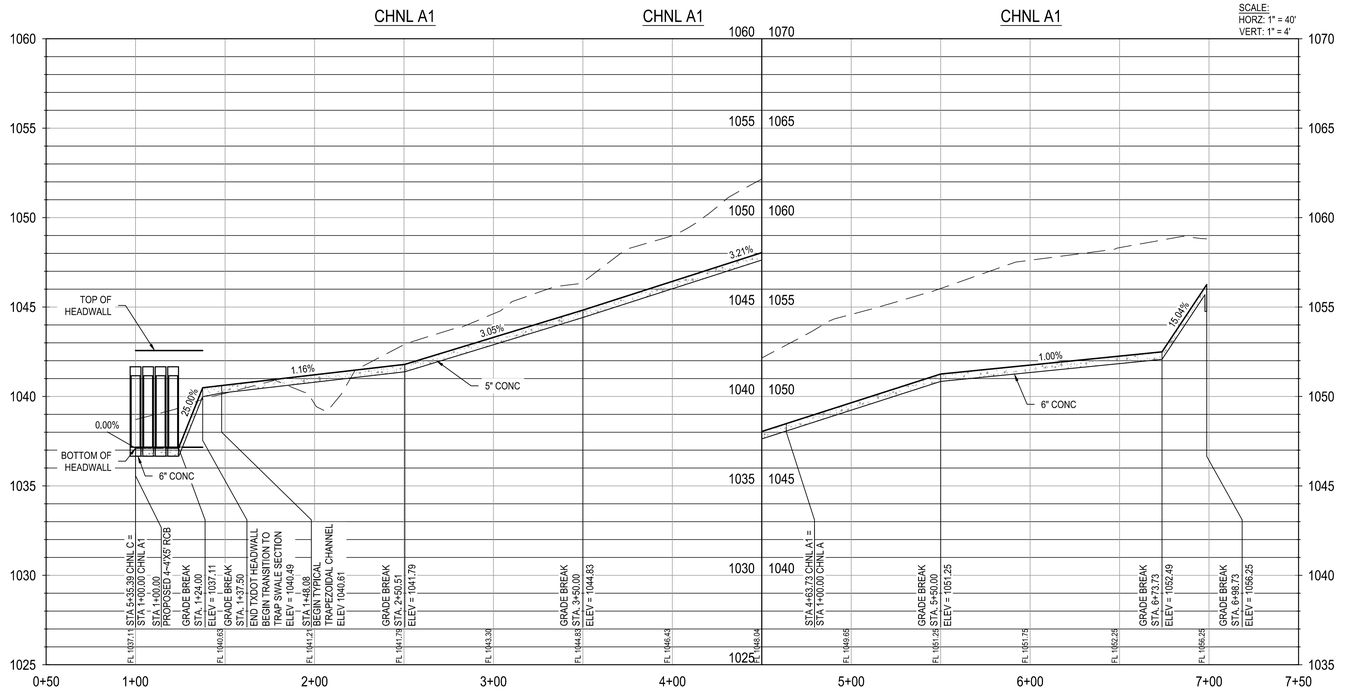
LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION



	DATE	DESCRIPTION
APR		
REV		

DESIGNED BY: AGS

REVIEWED BY: TR

DRAWN BY: RA

BGE, Inc.
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TBPE Registration No. F-1046

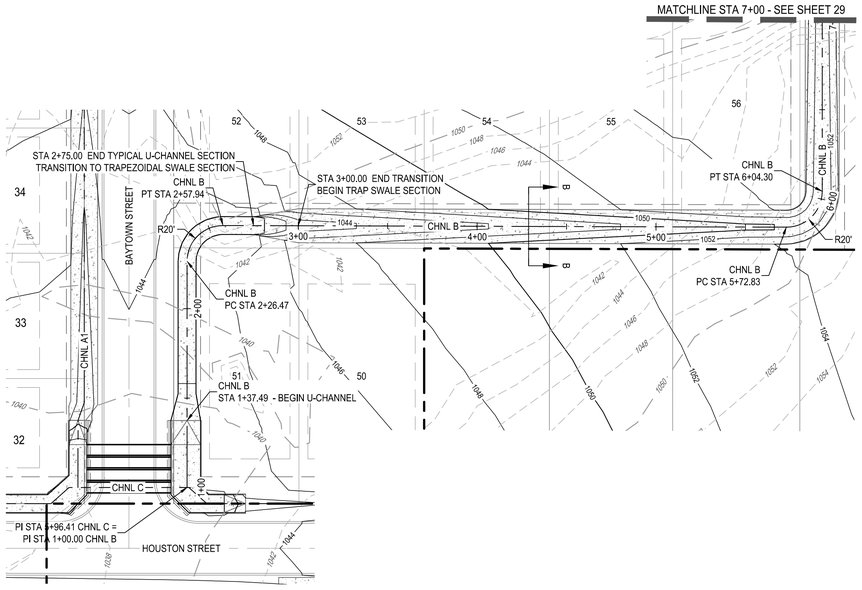
WIMBERLEY RIDGE

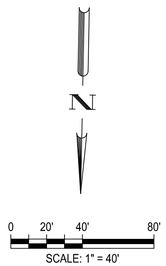
CHANNEL A1 PLAN AND PROFILE

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
27

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\27 CHANNEL A1 PLAN AND PROFILE.dwg Layout: CHANNEL A1 PLAN AND PROFILE Plotted: 5/2/2024 11:32:07 AM By: Trodriguez





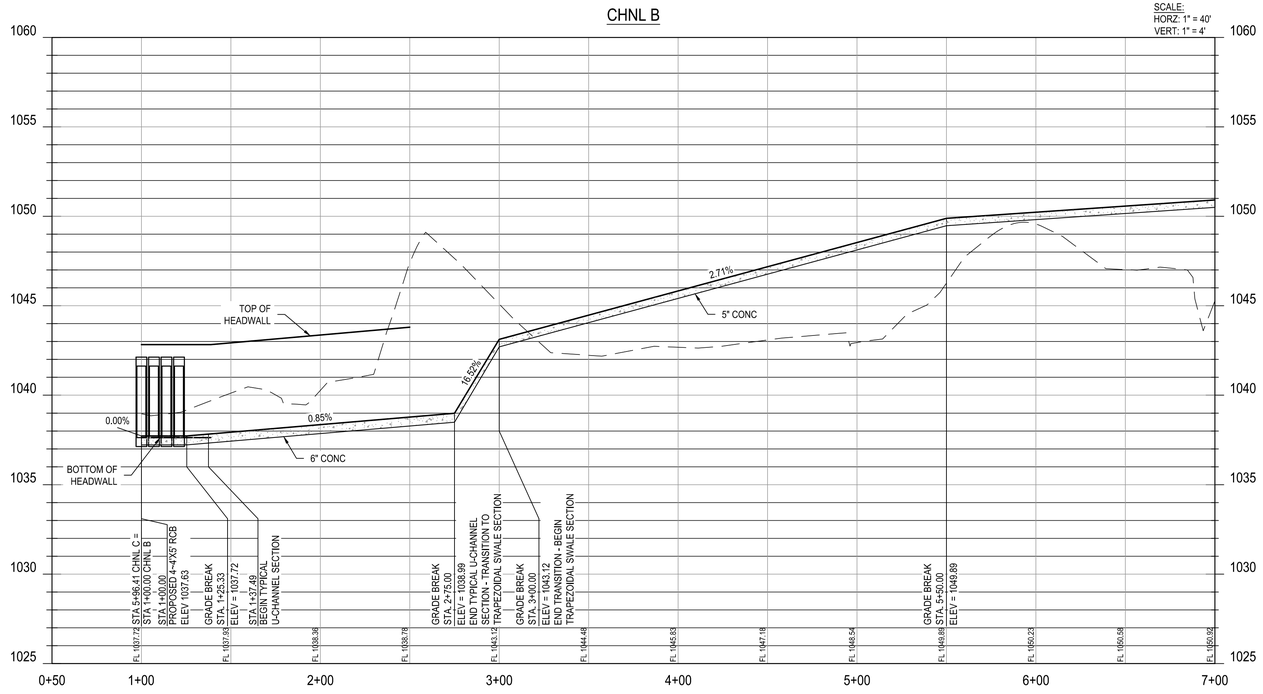
LEGEND

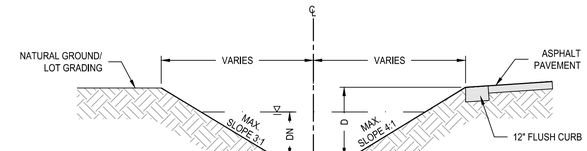
- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION



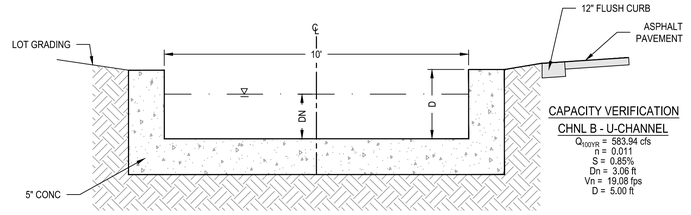


CHNL B - TRAPEZOIDAL-CHANNEL TYPICAL SECTION

N.T.S

CAPACITY VERIFICATION
CHNL B - TRAPEZOIDAL-CHANNEL

Q_{100YR} = 583.94 cfs
n = 0.011
S_{min} = 0.69%
S_{max} = 2.71%
Dn = 3.47 ft
V_{max} = 16.93 fps
D = 4.00 ft



CHNL B - U-CHANNEL TYPICAL SECTION

N.T.S

CAPACITY VERIFICATION
CHNL B - U-CHANNEL

Q_{100YR} = 583.94 cfs
n = 0.011
S = 0.85%
Dn = 3.06 ft
Vn = 19.08 fps
D = 5.00 ft

	DESCRIPTION	DATE	APR
REV			
DESIGNED BY:	AGS		
REVIEWED BY:	TR		
DRAWN BY:	RA		

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TBPE Registration No. F-1046

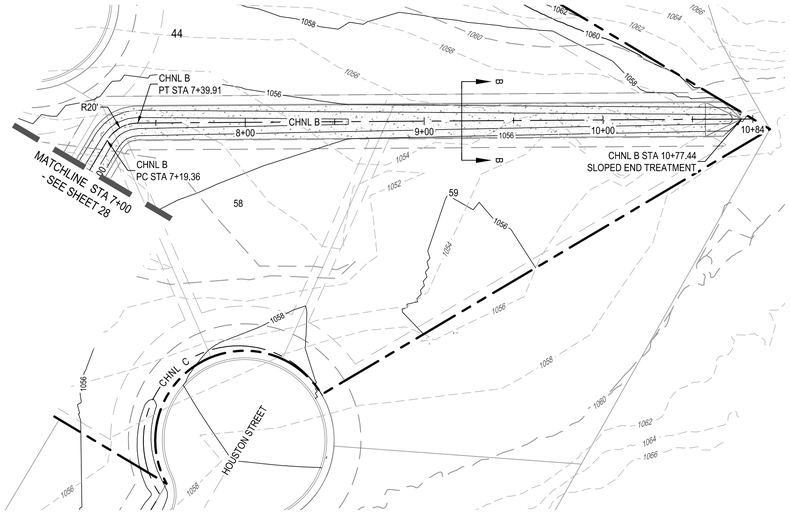
WIMBERLEY RIDGE

CHANNEL B PLAN AND PROFILE
STA 1+00 TO 7+50

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
28

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Stds\28-29 CULVERT B PLAN AND PROFILE.dwg Layout: CHANNEL B PLAN AND PROFILE STA 1+00 TO 7+50 Plotted: 5/2/2024 11:33:03 AM By: Trodriguez



0 20' 40' 80'

SCALE: 1" = 40'

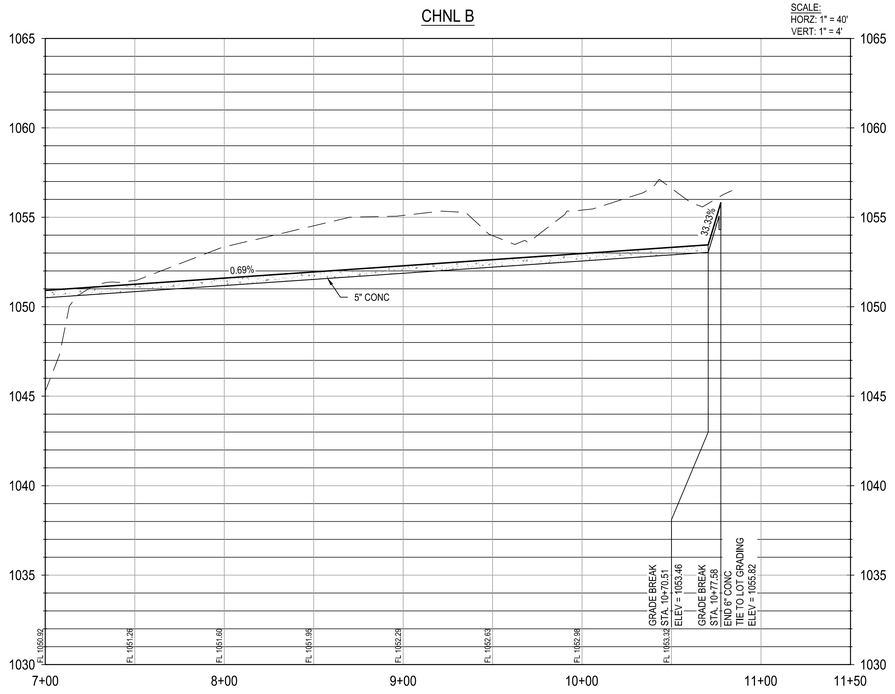
LEGEND

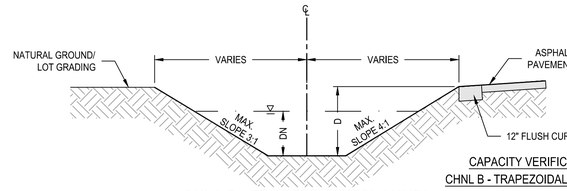
- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION





CHNL B - TRAPEZOIDAL-CHANNEL
TYPICAL SECTION

N.T.S

CAPACITY VERIFICATION
CHNL B - TRAPEZOIDAL-CHANNEL

Q_{100YR} = 583.94 cfs
n = 0.011
S_{min} = 0.69%
S_{max} = 2.71%
Dn = 3.47 ft
V_{max} = 16.93 fps
D = 4.00 ft

							APR
							DATE
							DESCRIPTION
◁	◁	◁	◁	◁	◁		REV

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
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TBPE Registration No. F-1046

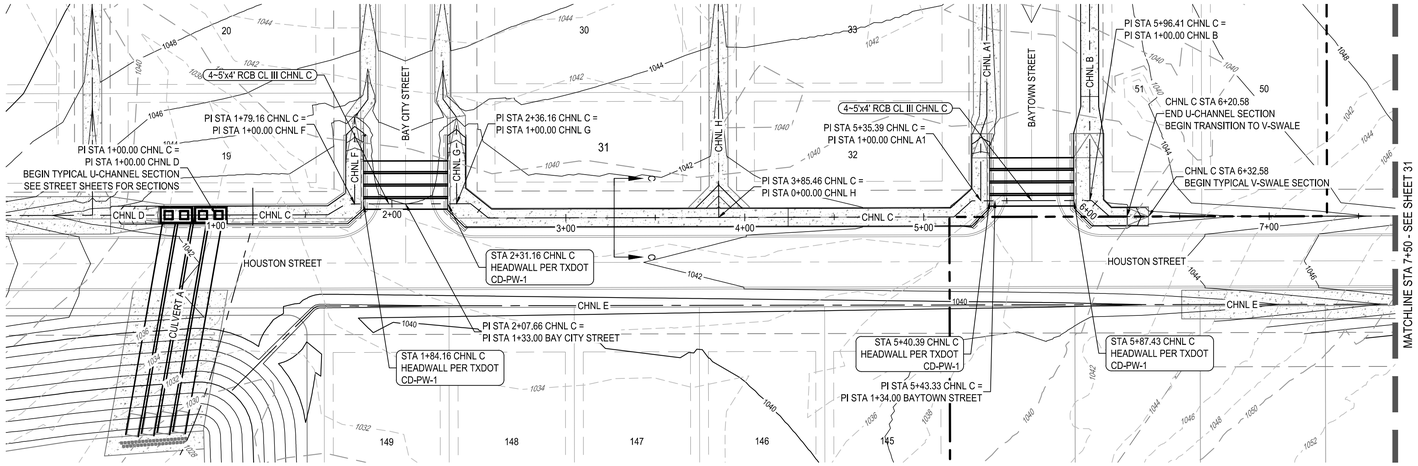
WIMBERLEY RIDGE

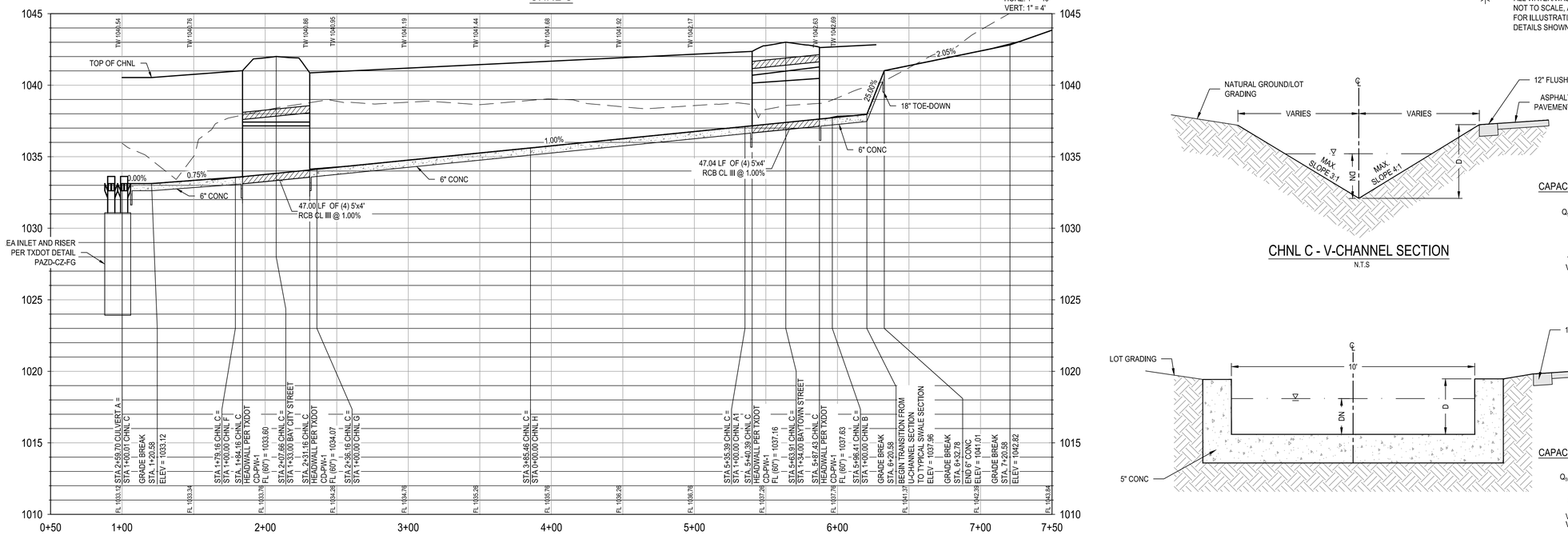
CHANNEL B PLAN AND PROFILE
STA 7+50 TO END

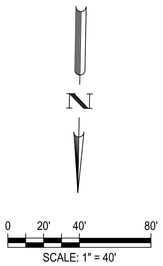
STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
29

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Stds\28-29 CULVERT B PLAN AND PROFILE.dwg Layout: CHANNEL B PLAN AND PROFILE STA 7+50 TO END Plotted: 5/2/2024 11:33:18 AM By: Trodriguez







LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

CHNL C - V-CHANNEL SECTION
N.T.S

CAPACITY VERIFICATION
"CHNL C"
Q_{100YR} = 25.09 cfs
n_{min} = 0.026
n_{max} = 0.011
S_{min} = 1.09%
S_{max} = 3.50%
Dn = 1.27 ft
V_{min} = 4.31 fps
V_{max} = 12.74 fps
D = 2.50 ft

CHNL C - U-CHANNEL TYPICAL SECTION
N.T.S

CAPACITY VERIFICATION
CHNL C
Q_{100YR} = 824.94 cfs
n = 0.011
S_{min} = 1.00%
S_{max} = 2.50%
Dn = 5.96 ft
V_{min} = 20.44 fps
V_{max} = 22.30 fps
D = 6.00 ft

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

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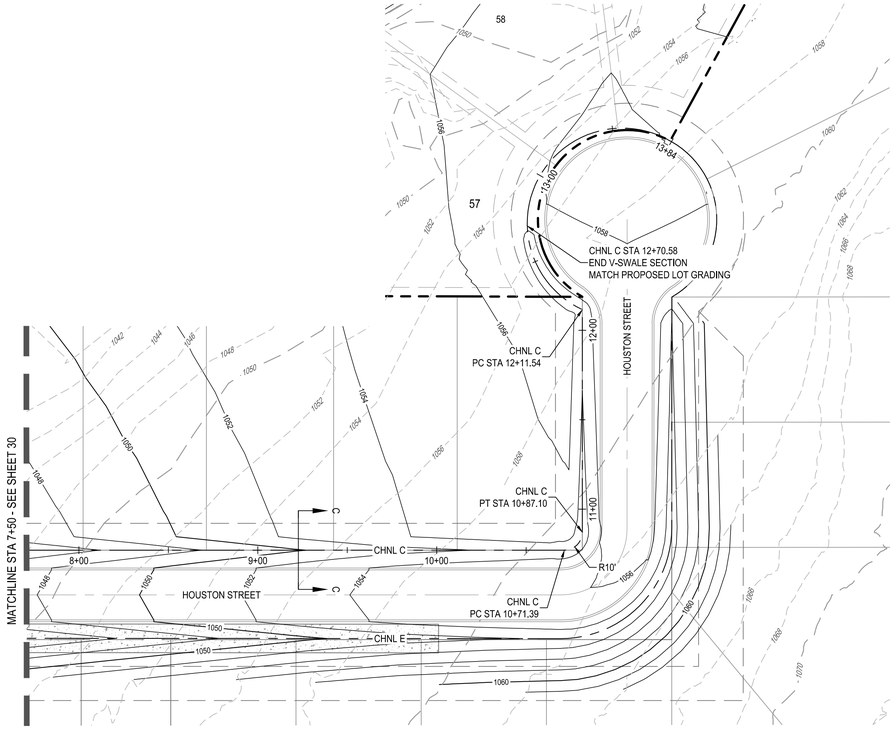
WIMBERLEY RIDGE

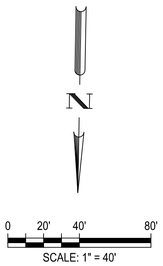
CHANNEL C PLAN AND PROFILE
STA 1+00 TO 7+50

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
30

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\30-31 CHANNEL C PLAN AND PROFILE.dwg Layout: CHANNEL C PLAN AND PROFILE STA 1+00 TO 7+50 Plotted: 5/2/2024 11:34:04 AM By: Trodriguez





LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

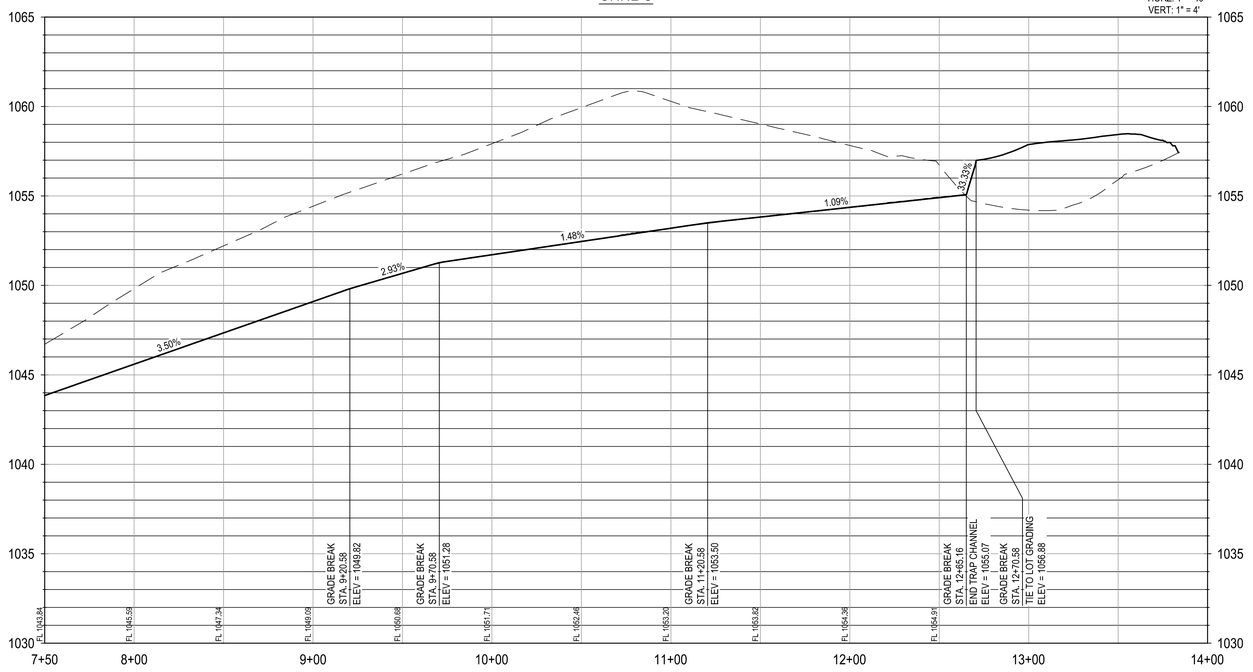
PROFILE LEGEND

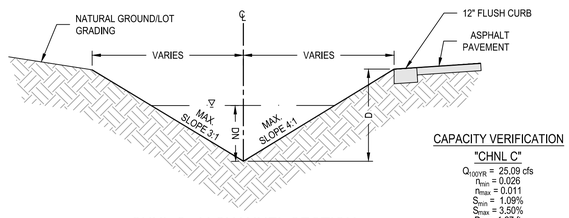
- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION

CHNL C

SCALE:
HORZ: 1" = 40'
VERT: 1" = 4'





CHNL C - V-CHANNEL SECTION

N.T.S

CAPACITY VERIFICATION
"CHNL C"

Q_{100YR} = 25.09 cfs
n_{min} = 0.026
n_{max} = 0.011
S_{min} = 1.09%
S_{max} = 3.50%
Dn = 1.27 ft
V_{min} = 4.31 fps
V_{max} = 12.74 fps
D = 2.50 ft

							APR
							DATE
							DESCRIPTION
◁	◁	◁	◁	◁	◁		REV

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

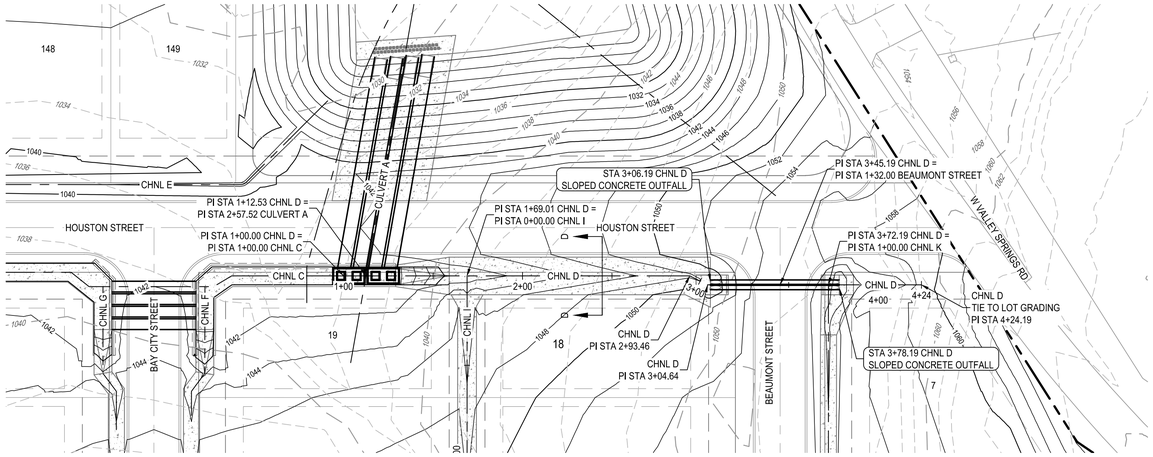
WIMBERLEY RIDGE

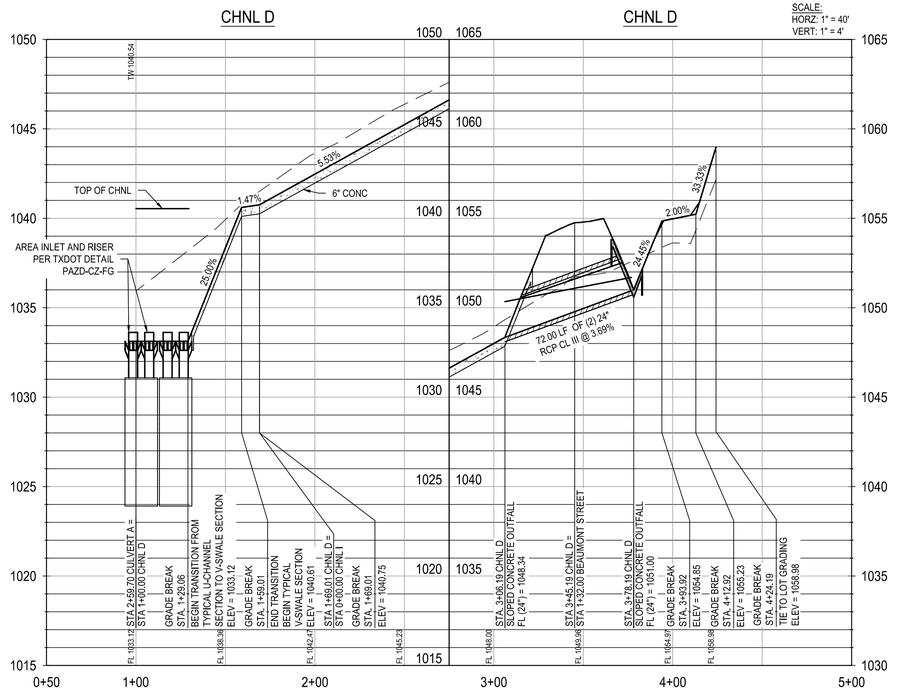
CHANNEL C PLAN AND PROFILE
STA 7+50 TO END

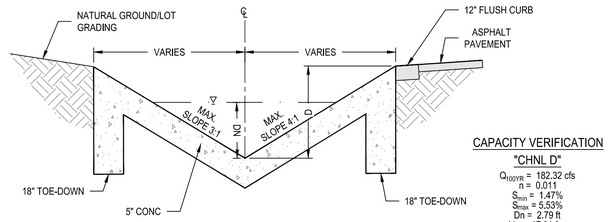
STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
31

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\30-31 CHANNEL C PLAN AND PROFILE.dwg Layout: CHANNEL C PLAN AND PROFILE STA 7+50 TO END Plotted: 5/2/2024 11:34:20 AM By: Trodriguez







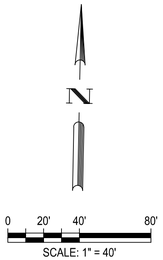
CHNL D V-SWALE TYPICAL SECTION

N.T.S

CAPACITY VERIFICATION

"CHNL D"

Q_{100YR} = 182.32 cfs
n = 0.011
S_{min} = 1.47%
S_{max} = 5.53%
Dn = 2.79 ft
Vn = 17.01 fps
D = 3.00 ft



LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION

	APR	DATE	DESCRIPTION
REV			

DESIGNED BY: AGS

REVIEWED BY: TR

DRAWN BY: RA

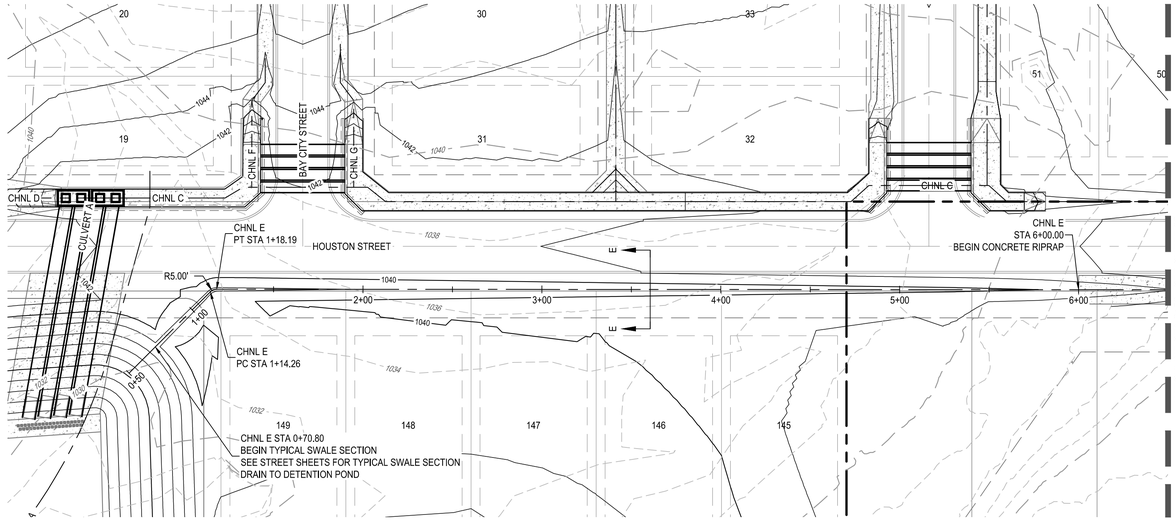
BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

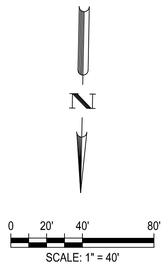
WIMBERLEY RIDGE

CHANNEL D PLAN AND PROFILE STA 0+00 TO END

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
32





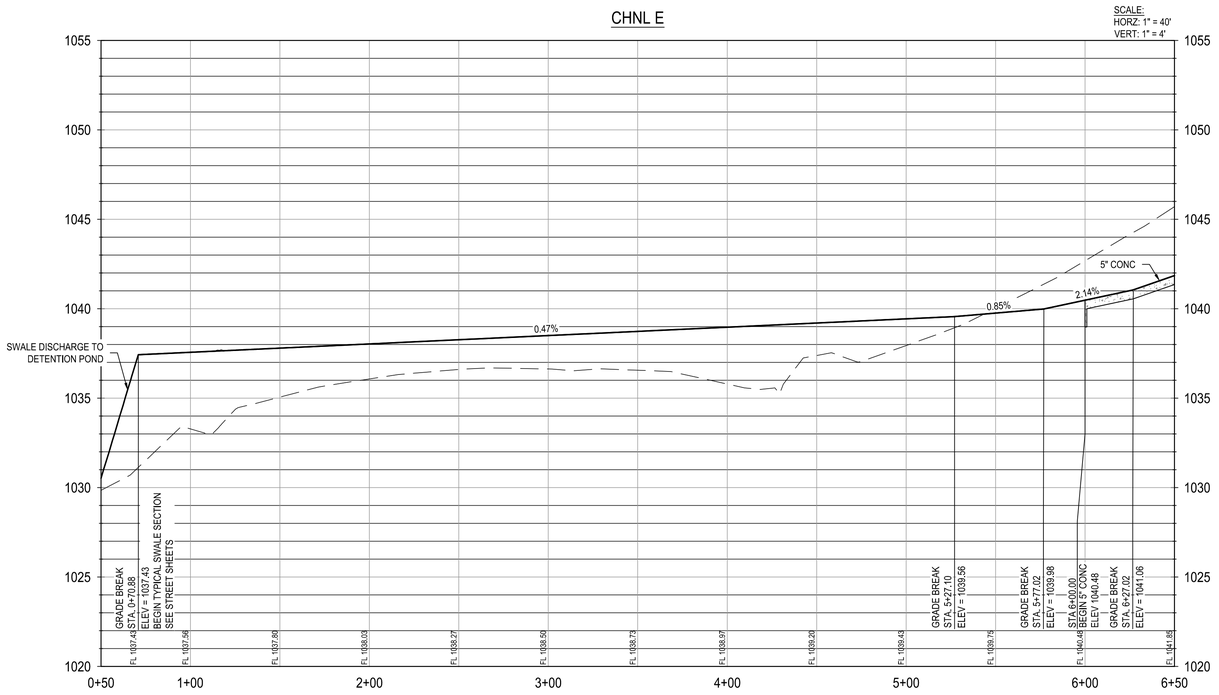
LEGEND

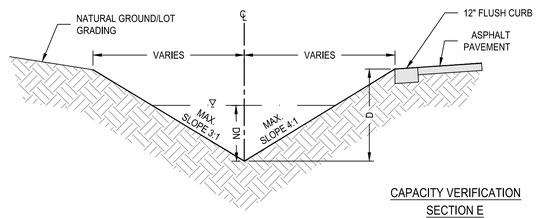
- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION





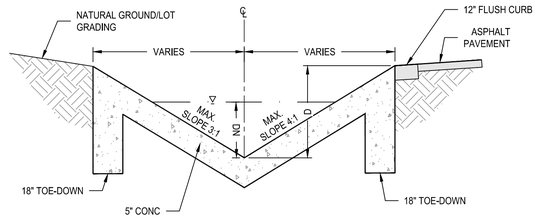
CHNL E V-SWALE SECTION

N.T.S

CAPACITY VERIFICATION

SECTION E

Q_{100YR} = 86.62cfs
n = 0.011
S_{min} = 0.47%
S_{max} = 2.14%
Dn = 2.21 ft
Vn = 5.84 fps
D = 2.25 ft



CHNL E CONC V-SWALE SECTION

N.T.S

CAPACITY VERIFICATION

SECTION E

Q_{100YR} = 86.62cfs
n = 0.011
S_{min} = 0.47%
S_{max} = 3.46%
Dn = 2.21 ft
V_{min} = 8.44 fps
V_{max} = 17.90 fps
D = 2.25 ft

	APR
	DATE
	DESCRIPTION
	REV
DESIGNED BY:	AGS
REVIEWED BY:	TR
DRAWN BY:	RA

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

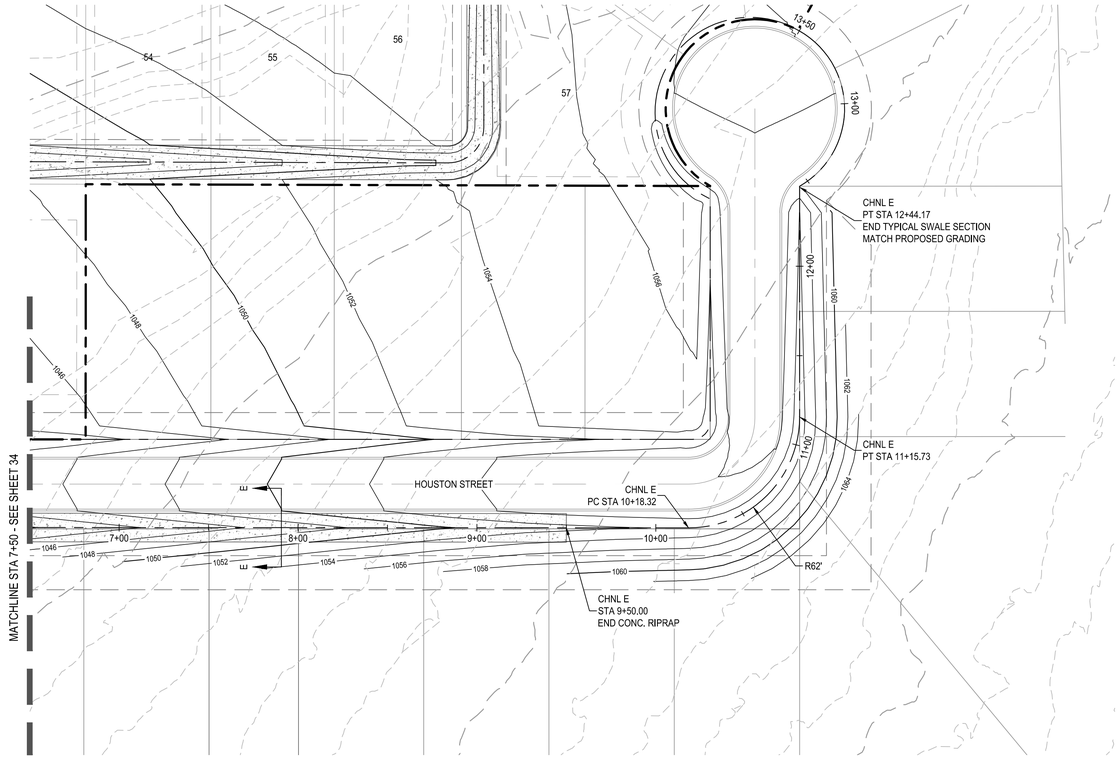
WIMBERLEY RIDGE

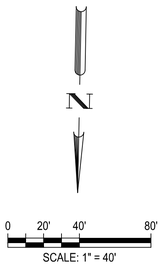
CHANNEL E PLAN AND PROFILE STA 0+50 TO 6+50

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
33

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\33-34 CHANNEL E PLAN AND PROFILE.dwg Layout: CHANNEL E PLAN AND PROFILE STA 0+50 TO 6+50 Plotted: 5/2/2024 11:36:16 AM By: Trodriguez





LEGEND

- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR (831)
- EXISTING MAJOR CONTOUR (831)
- PROPOSED MINOR CONTOUR (681)
- PROPOSED MAJOR CONTOUR (686)
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE (W)
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

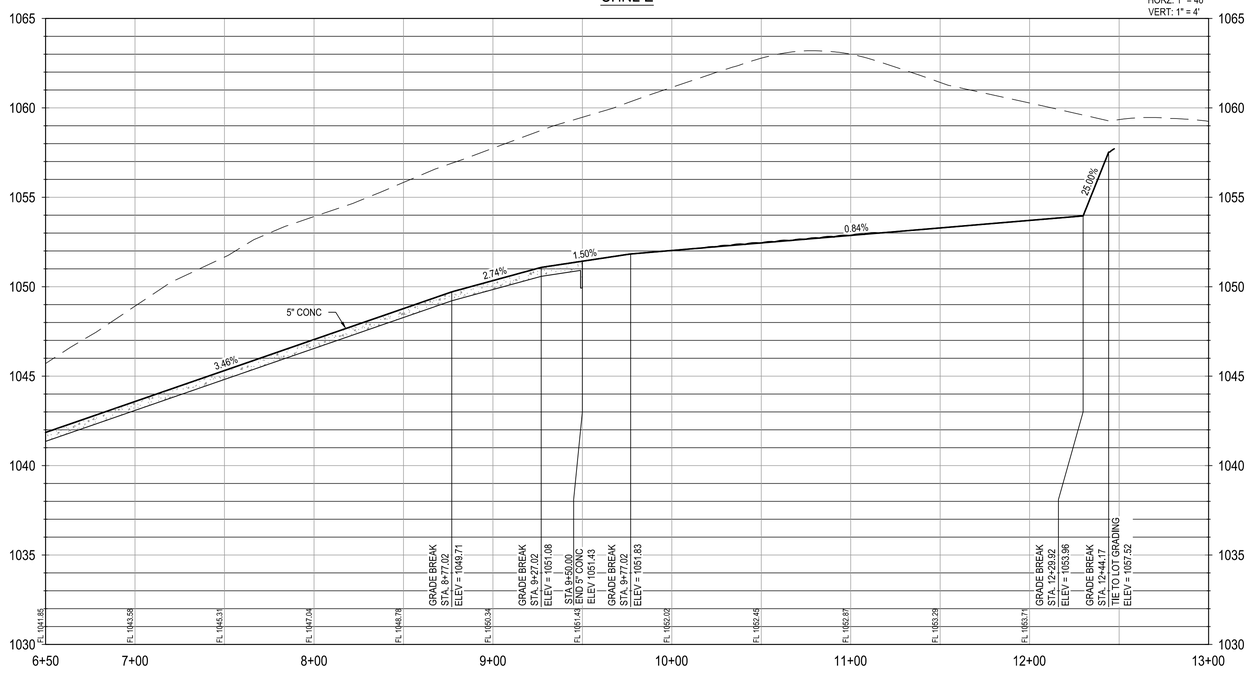
PROFILE LEGEND

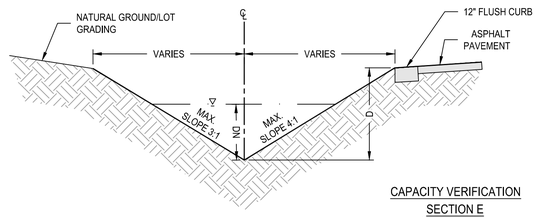
- PROPOSED STORM PIPE
- 25 YEAR HGL (25)
- 100 YEAR HGL (100)
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION

CHNL E

SCALE:
HORZ: 1" = 40'
VERT: 1" = 4'



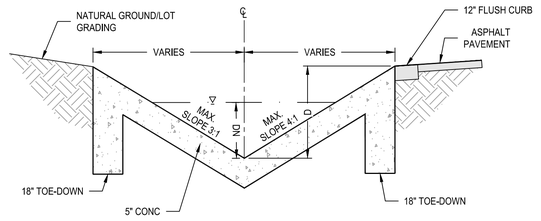


CHNL E V-SWALE SECTION

N.T.S

CAPACITY VERIFICATION

SECTION E
Q_{100YR} = 86.62cfs
n = 0.011
S = 0.47%
Dn = 2.21 ft
Vn = 8.44 fps
D = 2.25 ft



CHNL E CONC V-SWALE SECTION

N.T.S

CAPACITY VERIFICATION

SECTION E
Q_{100YR} = 86.62cfs
n = 0.011
S_{min} = 0.47%
S_{max} = 3.46%
Dn = 2.21 ft
V_{min} = 8.44 fps
V_{max} = 17.90 fps
D = 2.25 ft

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
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SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

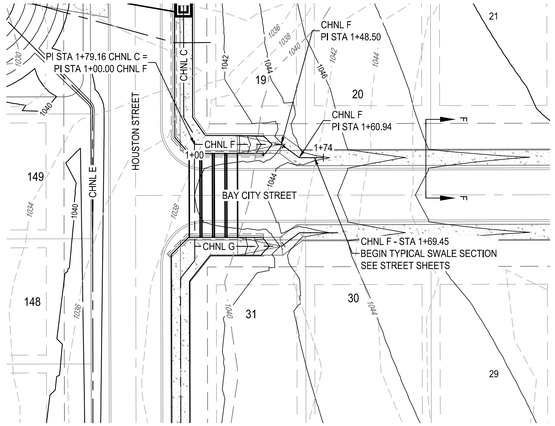
WIMBERLEY RIDGE

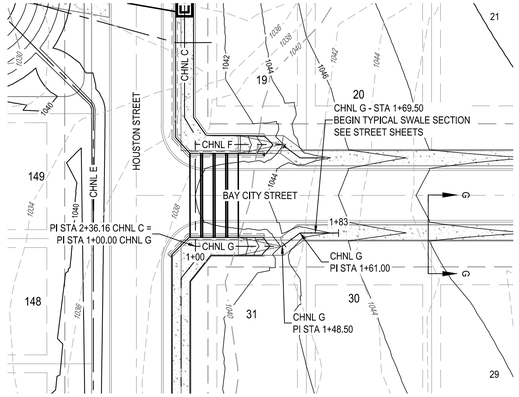
CHANNEL E PLAN AND PROFILE STA 6+50 TO END

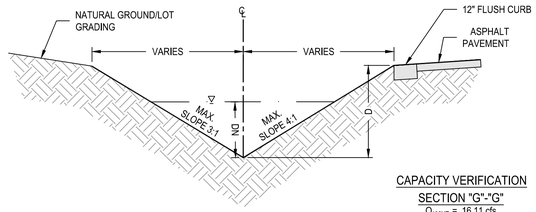
STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
34

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\33-34 CHANNEL E PLAN AND PROFILE.dwg Layout: CHANNEL E PLAN AND PROFILE STA 6+50 TO END Plotted: 5/2/2024 11:36:41 AM By: Trodriguez



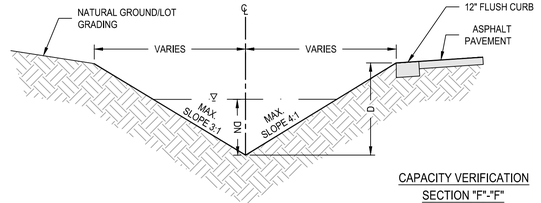




CHNL G - V-CHANNEL SECTION

N.T.S

CAPACITY VERIFICATION
SECTION "G"-"G"
Q_{100YR} = 16.11 cfs
n = 0.011
S = 6.14%
Dn = 1.06 ft
Vn = 13.68 fps
D = 1.50 ft



CHNL F - V-CHANNEL SECTION

N.T.S

CAPACITY VERIFICATION
SECTION "F"-"F"
Q_{100YR} = 19.45 cfs
n = 0.011
S = 8.87%
Dn = 1.14 ft
Vn = 16.52 fps
D = 1.50 ft

0 20' 40' 80'

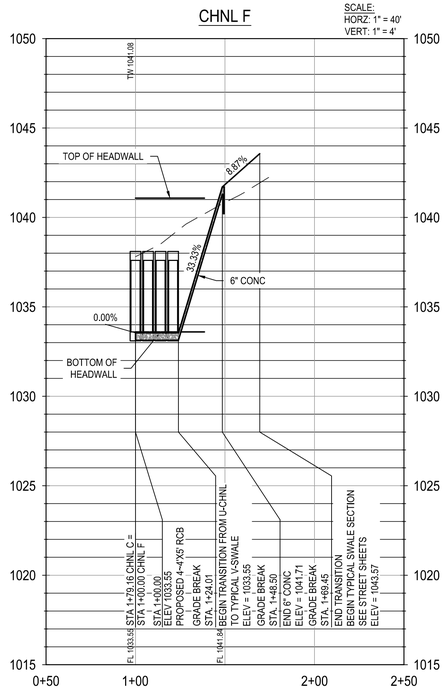
SCALE: 1" = 40'

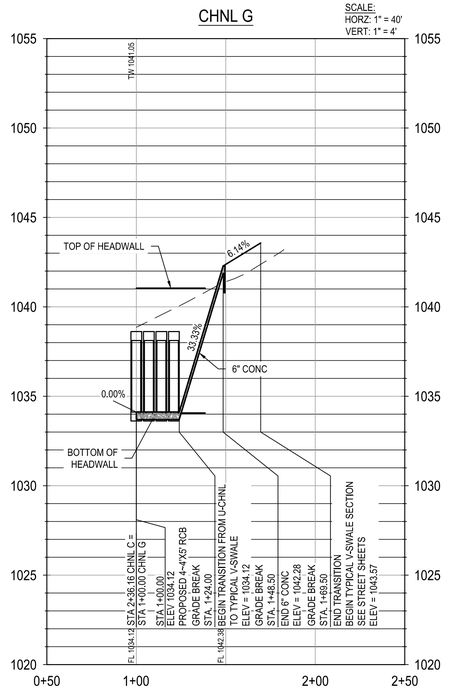
LEGEND

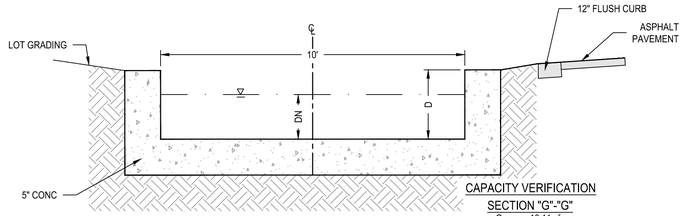
- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.



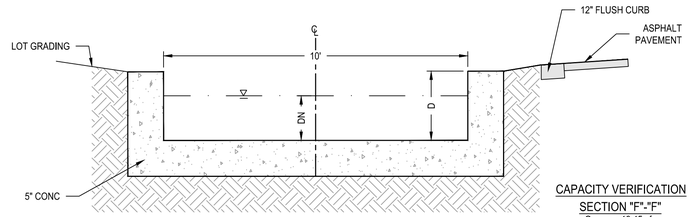




CHNL G - U-CHANNEL SECTION

N.T.S

CAPACITY VERIFICATION
SECTION "G"-"G"
Q_{100YR} = 16.11 cfs
n = 0.011
S = 6.14%
Dn = 0.44 ft
Vn = 9.48 fps
D = 6.00 ft



CHNL F - U-CHANNEL SECTION

N.T.S

CAPACITY VERIFICATION
SECTION "F"-"F"
Q_{100YR} = 19.45 cfs
n = 0.011
S = 33.3%
Dn = 0.49 ft
Vn = 16.21 fps
D = 6.00 ft

NOT FOR CONSTRUCTION

	DESCRIPTION	DATE	APR
REV			

DESIGNED BY: AGS

REVIEWED BY: TR

DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

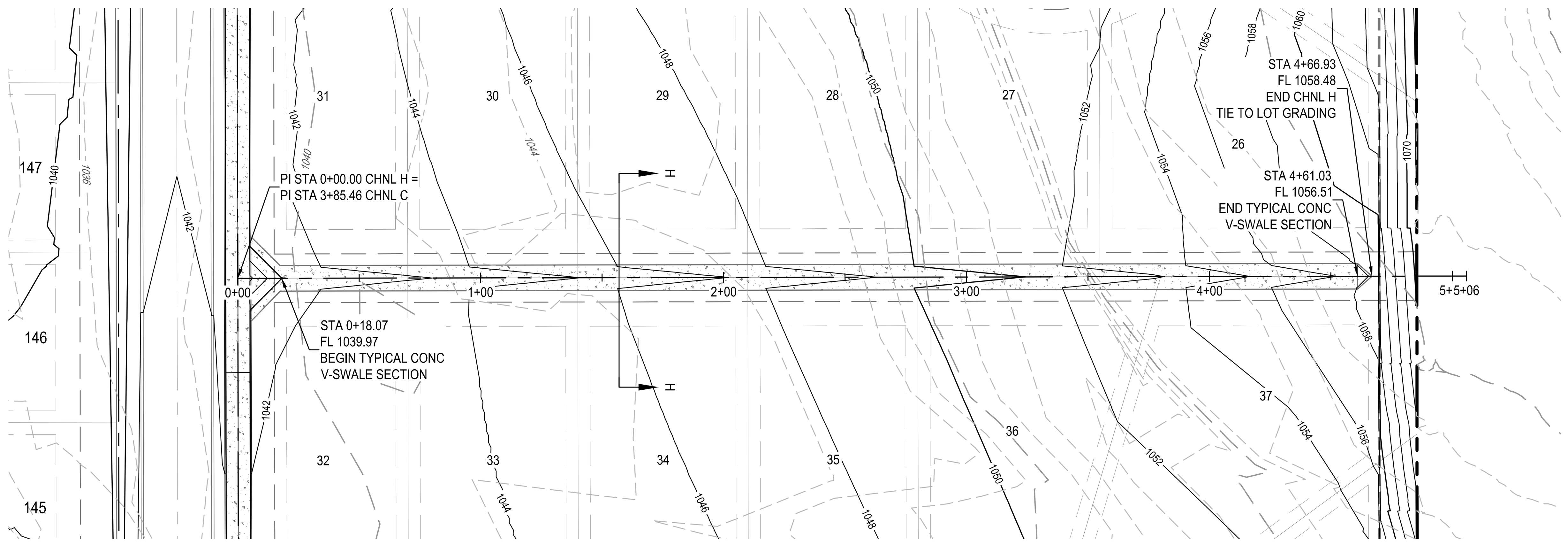
WIMBERLEY RIDGE

CHANNEL F & G PLAN AND PROFILE

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
35

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\35 CHANNEL F & G PLAN AND PROFILE.dwg Layout: CHANNEL F & G PLAN AND PROFILE Plotted: 5/2/2024 11:38:12 AM By: Lhuck



N

0 20' 40' 80'
SCALE: 1" = 40'

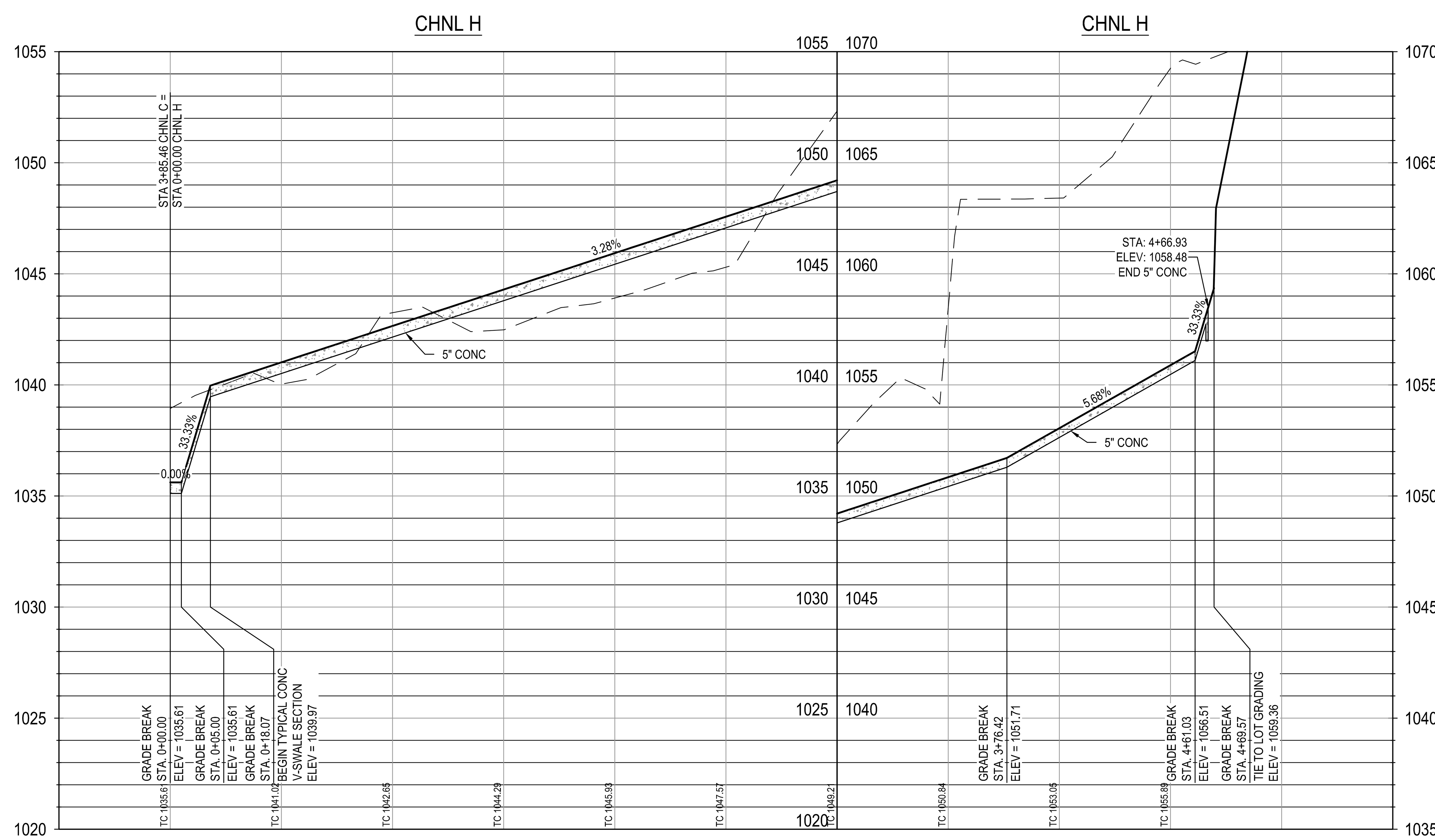
LEGEND

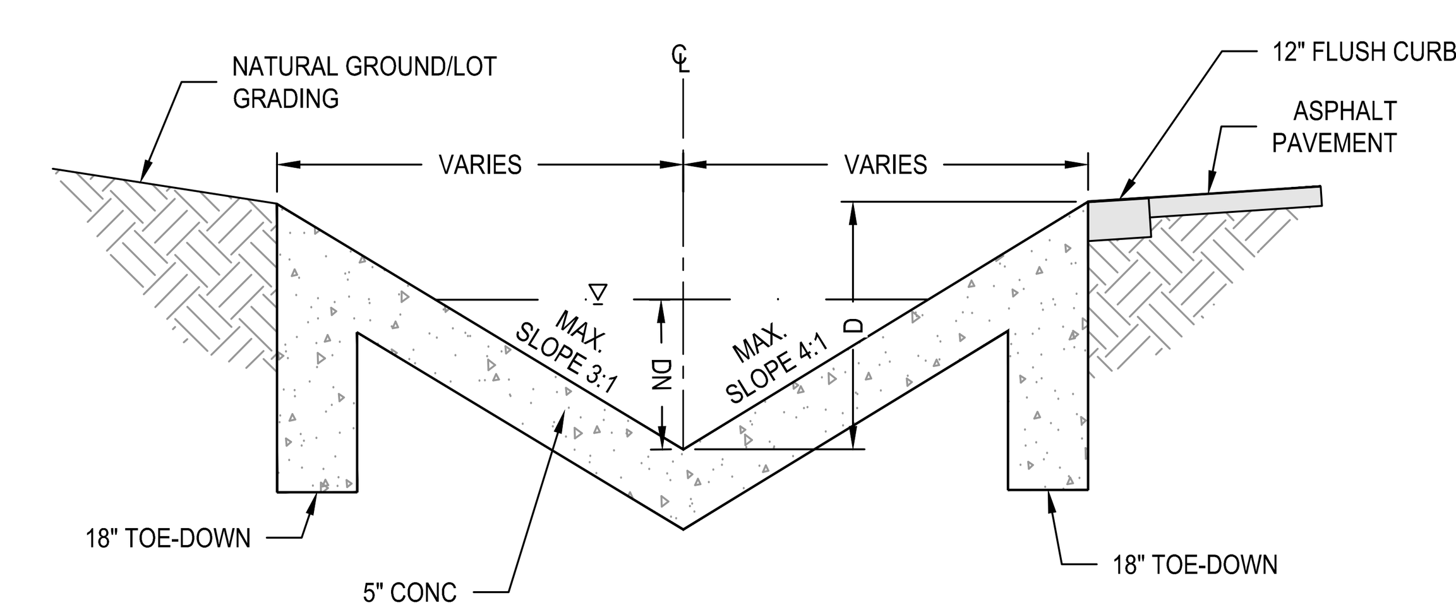
	PROPERTY BOUNDARY
	EASEMENT
831	EXISTING MINOR CONTOUR
831	EXISTING MAJOR CONTOUR
681	PROPOSED MINOR CONTOUR
686	PROPOSED MAJOR CONTOUR
	PROPOSED STORM DRAIN LINE
	PROPOSED STORM DRAIN MANHOLE
	PROPOSED WASTEWATER FORCEMAIN
W W	PROPOSED WATER LINE
	PROPOSED WASTEWATER SERVICES
	PROPOSED WATER SERVICES
	DIRECTION OF FLOW
!	UTILITY CROSSING
> > >	PROPOSED SWALE FLOWLINE

PROFILE LEGEND

	PROPOSED STORM PIPE
25 25	25 YEAR HGL
100 100	100 YEAR HGL
	PROPOSED GROUND
	EXISTING GROUND
*	ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION





CHNL H - V-CHANNEL SECTION

N.T.S

CAPACITY VERIFICATION

SECTION "H"-"H"

Q_{100YR} = 24.49 cfs
n = 0.011
S_{min} = 3.28%
S_{max} = 5.68%
Dn = 3.47 ft
V_{max}= 8.16 fps
D = 4.00 ft

REV	DESCRIPTION	DATE	APR
△			
△			
△			
△			
△			

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

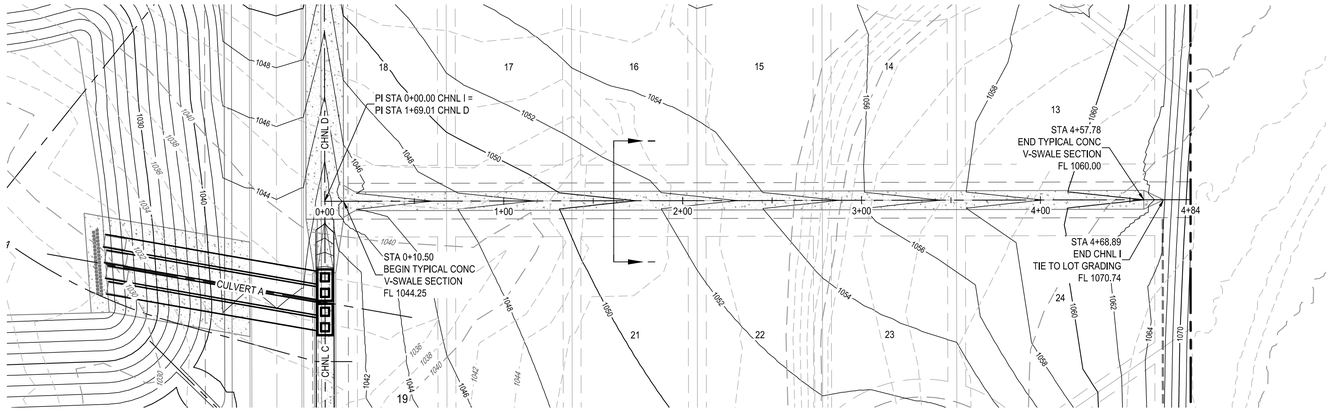
BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

CHANNEL H PLAN AND PROFILE STA 0+00 TO END

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED
PROFESSIONAL ENGINEER
[illegible]
05/02/2024

SHEET
36



0 20' 40' 80'

SCALE: 1" = 40'

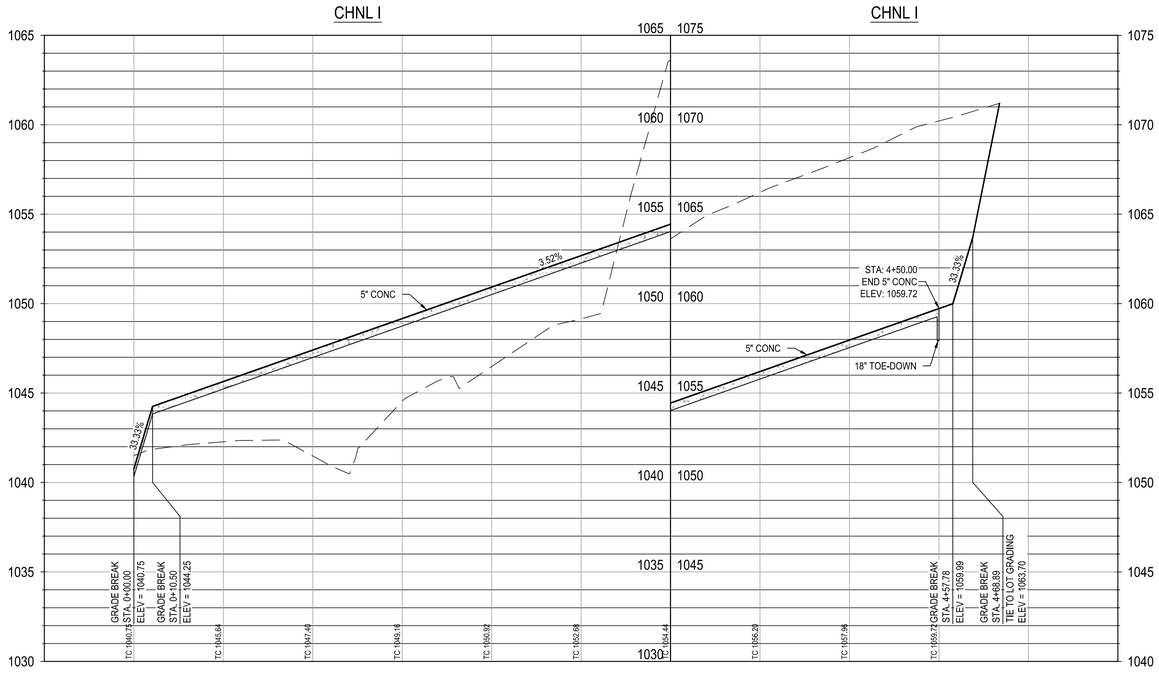
LEGEND

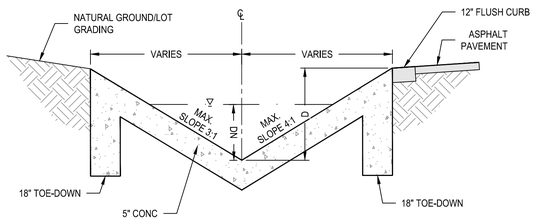
- PROPERTY BOUNDARY
- EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED STORM DRAIN LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED WASTEWATER FORCEMAIN
- PROPOSED WATER LINE
- PROPOSED WASTEWATER SERVICES
- PROPOSED WATER SERVICES
- DIRECTION OF FLOW
- UTILITY CROSSING
- PROPOSED SWALE FLOWLINE

PROFILE LEGEND

- PROPOSED STORM PIPE
- 25 YEAR HGL
- 100 YEAR HGL
- PROPOSED GROUND
- EXISTING GROUND
- ALL WATER/WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSES. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION





CHNL I CONC V-SWALE SECTION

N.T.S

CAPACITY VERIFICATION

SECTION I

Q_{100YR} = 12.72 cfs
n = 0.011
S = 3.52%
Dn = 1.03 ft
Vn = 11.03 fps
D = 1.50 ft

							APR
							DATE
							DESCRIPTION
							REV

DESIGNED BY: AGS

REVIEWED BY: TR

DRAWN BY: RA

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SAN ANTONIO, TX 78216
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TBPE Registration No. F-1046

WIMBERLEY RIDGE

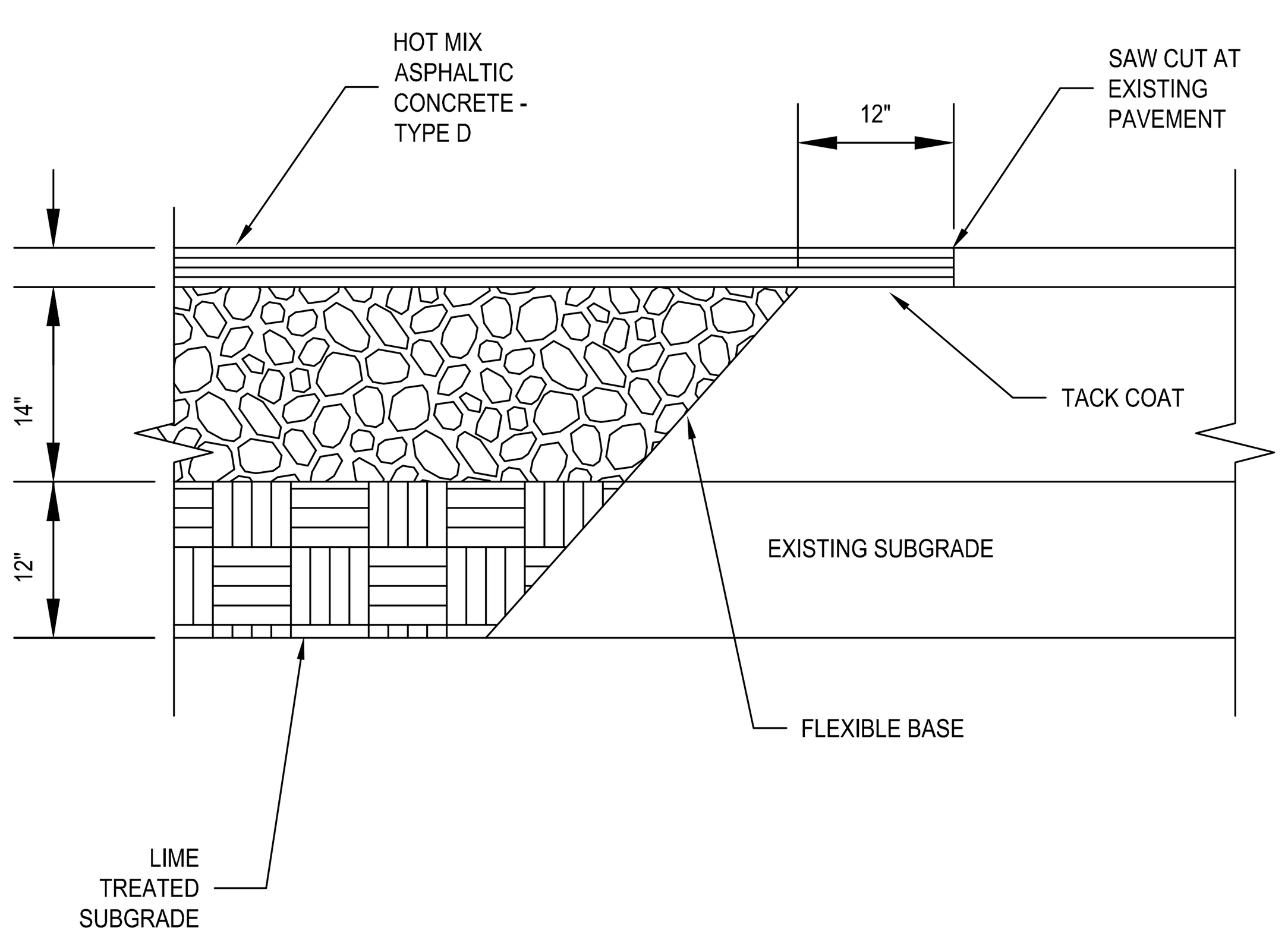
CHANNEL I PLAN AND PROFILE STA 0+00 TO END

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

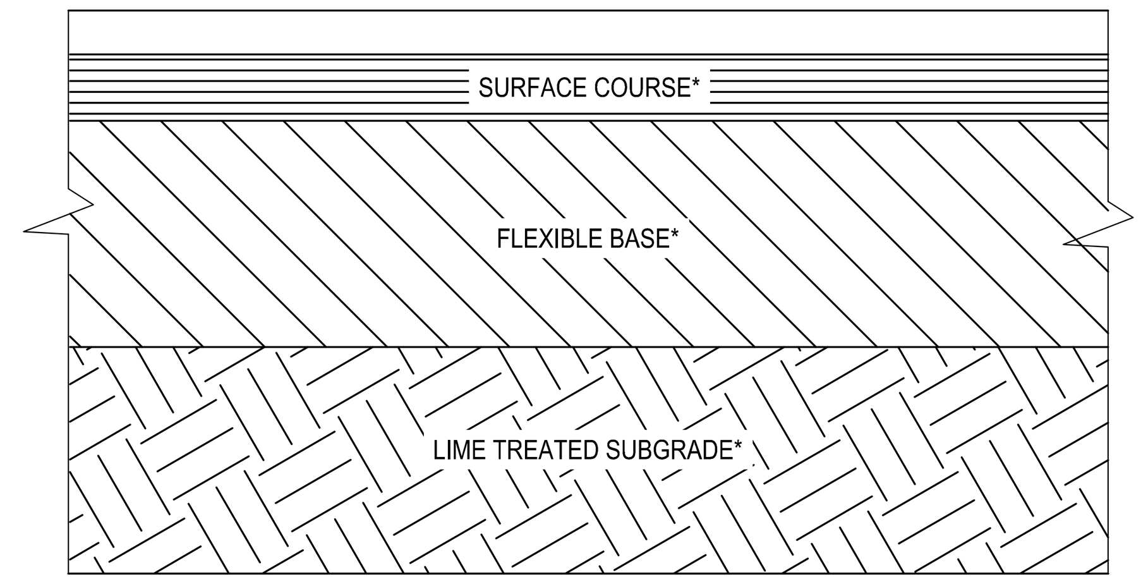
SHEET
37

G:\TX\C\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\37 CHANNEL I PLAN AND PROFILE.dwg Layout: CHANNEL I PLAN AND PROFILE STA 0+00 TO END Plotted: 5/2/2024 11:39:42 AM By: Trodriguez

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\38 STREET & DRAINAGE DETAILS.dwg Layout: STREET & DRAINAGE DETAILS (SHEET 1) Plotted: 5/2/2024 11:41:00 AM By: Trodriguez



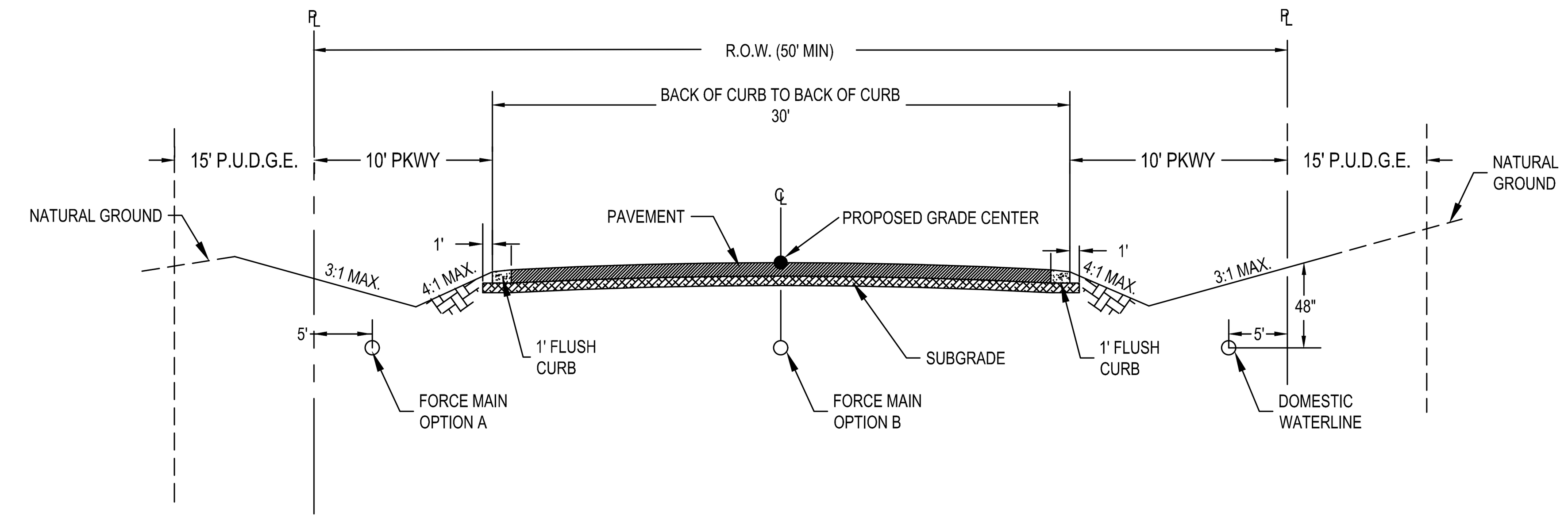
MATCH EXISTING PAVEMENT
N.T.S.



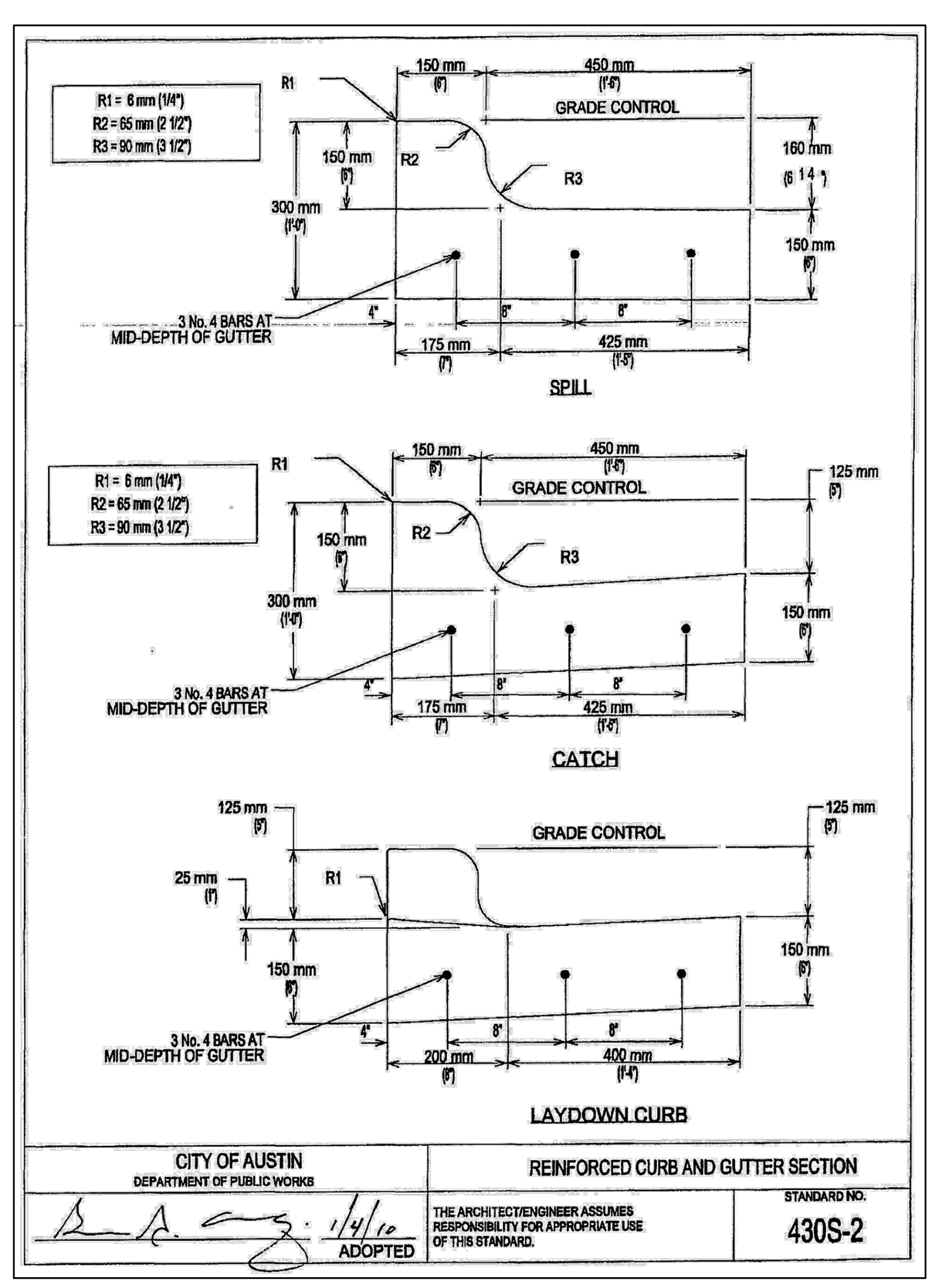
* VALUES AND RECOMMENDATIONS THAT SHALL BE USED ARE FOUND IN THE ABOVE REFERENCED GEOTECHNICAL INVESTIGATION REPORT. CONTRACTOR SHALL REFERENCE THE RECOMMENDATIONS CONTAINED WITHIN THE GEOTECHNICAL INVESTIGATION REPORTS PREPARED BY:

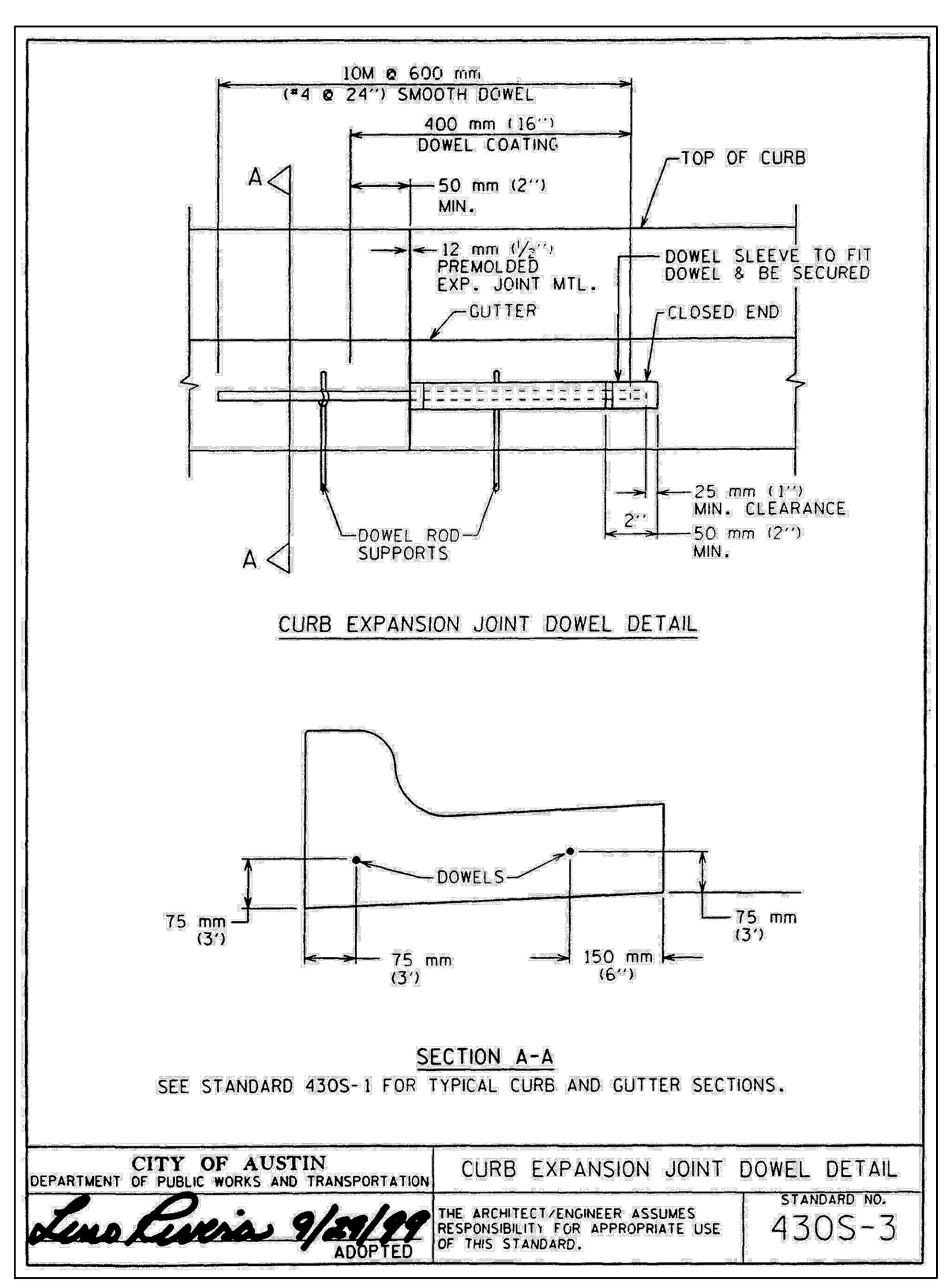
ALPHA TESTING
REPORT NO. A233109-R
MARCH 18, 2024

TYPICAL PAVEMENT DETAIL
N.T.S.



TYPICAL STREET SECTION & UTILITY ASSIGNMENT DETAIL
N.T.S.





NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR
◁			
◁			
◁			
◁			
◁			

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

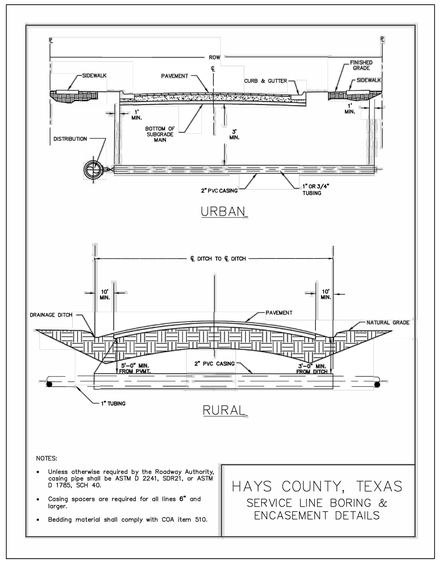
BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

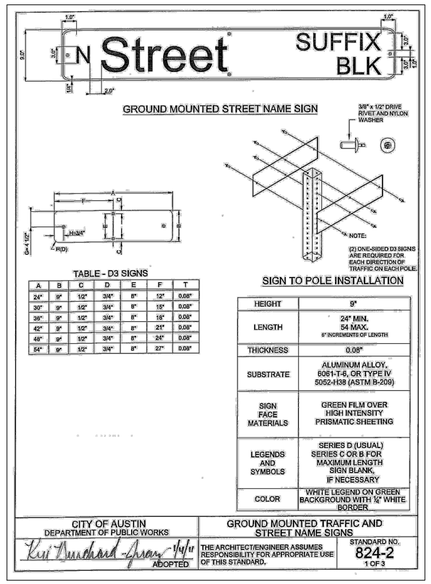
WIMBERLEY RIDGE

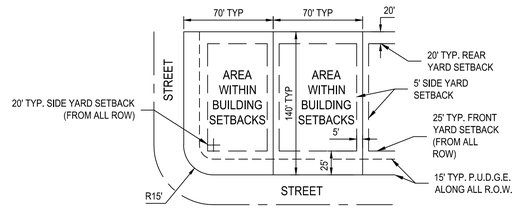
STREET & DRAINAGE DETAILS (SHEET 1)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED
PROFESSIONAL ENGINEER
05/02/2024

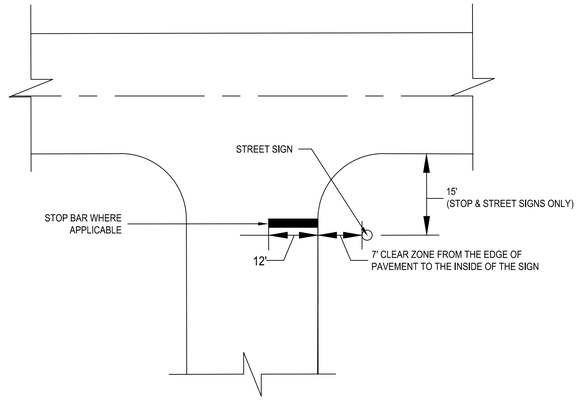
SHEET
38



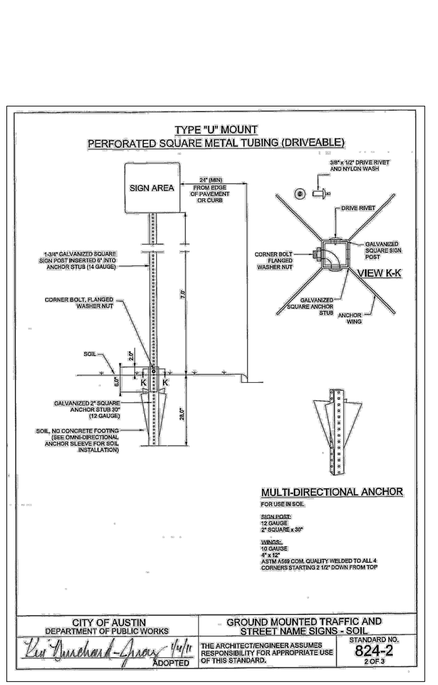


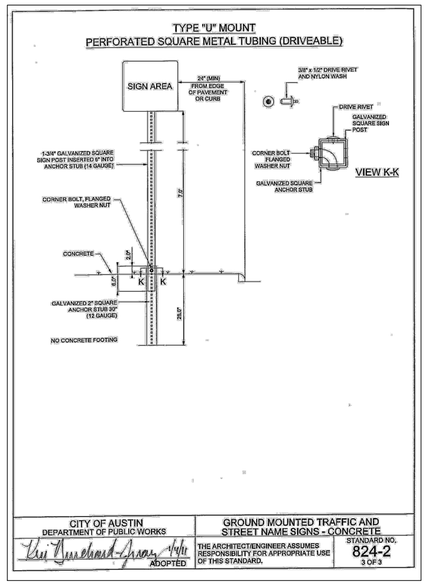


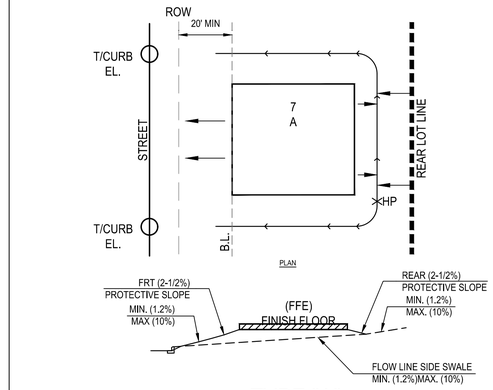
TYPICAL LOT LAYOUT
NOT-TO-SCALE



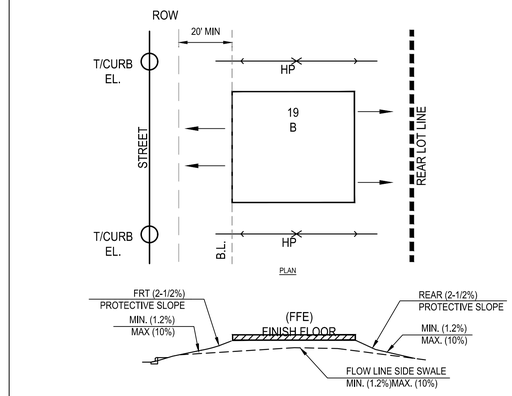
SIGN LOCATION DETAIL
N.T.S.



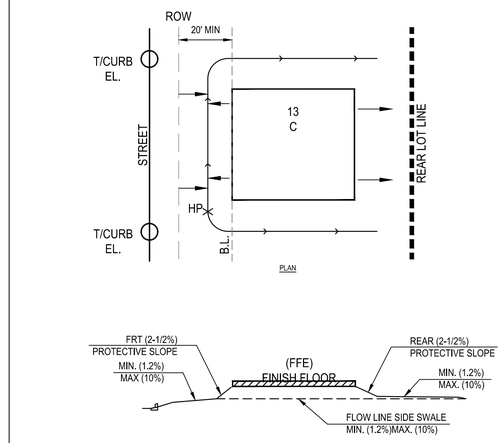




TYPE "A"
ALL DRAINAGE TO STREET



TYPE "B"
DRAINAGE TO BOTH STREET AND REAR LOT LINE



TYPE "C"
DRAINAGE TO REAR LOT LINE

FHA LOT GRADING
N.T.S.

NOT FOR CONSTRUCTION

							APR
							DATE
							DESCRIPTION
◁	◁	◁	◁	◁	◁		REV

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE. SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

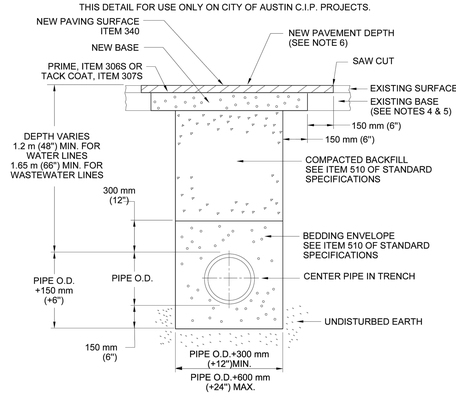
WIMBERLEY RIDGE

STREET & DRAINAGE DETAILS (SHEET 2)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
39

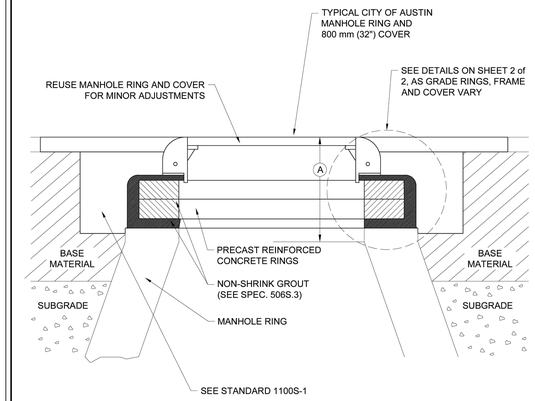
THIS DETAIL FOR USE ONLY ON CITY OF AUSTIN C.I.P. PROJECTS.



NOTES:

1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE A MINIMUM OF 300 mm (12") WIDER THAN THE UNDISTURBED SIDES OF THE TRENCH, SYMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
2. ANY CONCRETE PAVING SHALL BE SAW CUT 150 mm (6") WIDER THAN UNDISTURBED SIDES OF EXCAVATION.
3. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX OR TEMPORARY HOT MIX ASPHALTIC CONCRETE.
4. ROAD BASE AND SURFACE MATERIALS IN THE TRENCH CUT SHALL BE REPLACED IN KIND OF EQUAL THICKNESS, OR MINIMUM BASE THICKNESS OF 250 mm (10"), WHICHEVER IS GREATER.
5. ALL DAMAGED AREAS OF PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH MINIMUM OF 200 mm (8") OF BASE OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
6. SURFACE PAVEMENT SHALL BE OF THE KIND AND THICKNESS AS EXISTING, OR MINIMUM 50 mm (2"), WHICHEVER IS GREATER.

CITY OF AUSTIN WATER AND WASTEWATER UTILITY		TYPICAL TRENCH WITH PAVED SURFACE	
RECORD COPY SIGNED BY LEON BARBA	8/19/02 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 510S-3 1 OF 1



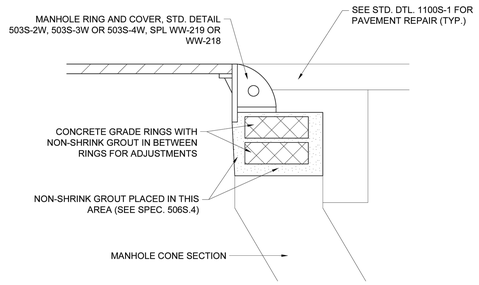
(A) VERTICAL FACE = ALLOWABLE THROAT OR CHIMNEY HEIGHT
= NEW CONSTRUCTION = 525mm = (21") Max.
= EXISTING CONSTRUCTION = 675mm (27") Max.

NOTES:

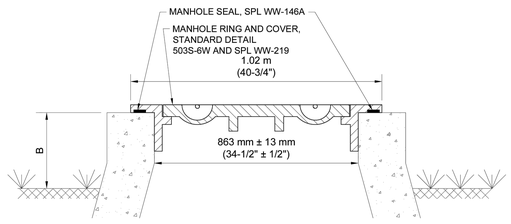
1. NON-SHRINK GROUT SHALL NOT EXCEED 25 mm (1") IN ANY DIMENSION.
2. SUB-GRADE AND BASE MATERIALS SHALL BE COMPACTED ACCORDING TO ITEMS 201S AND 210S, RESPECTIVELY, OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. REFER TO STANDARD 1100S-1 FOR REPAIRS AROUND MANHOLES.
4. SEE STANDARD 506S-4A FOR HDPE RING INSTALLATION (FOR USE IN PAVED AREAS ONLY).

CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 506S-4 1 OF 2

INSIDE PAVEMENT DETAIL



OUTSIDE PAVEMENT DETAIL

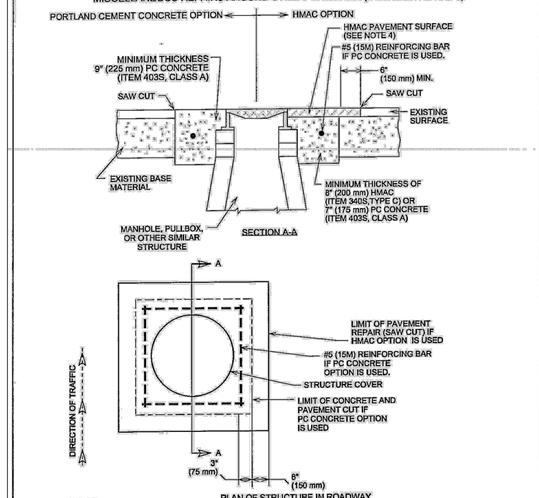


NOTES:

1. FOR USE IN UNPAVED AREAS ONLY.
2. WHEN USED WITHIN 100-YEAR FLOODPLAIN, SEE DTL. 506S-6 FOR ADDITIONAL M.H. REQUIREMENTS.
3. DIMENSION B=150-300 mm (6"-12") FOR M.H. LOCATED IN 100-YR FLOOD PLAN; B=50-300 mm (2"-12") FOR M.H. OUTSIDE 100-YR FLOOD PLAN.

CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011 ADOPTED	THE ENGINEER/ARCHITECT ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. MODIFICATIONS TO THIS STANDARD ARE PROHIBITED.	STANDARD NO. 506S-4 2 OF 2

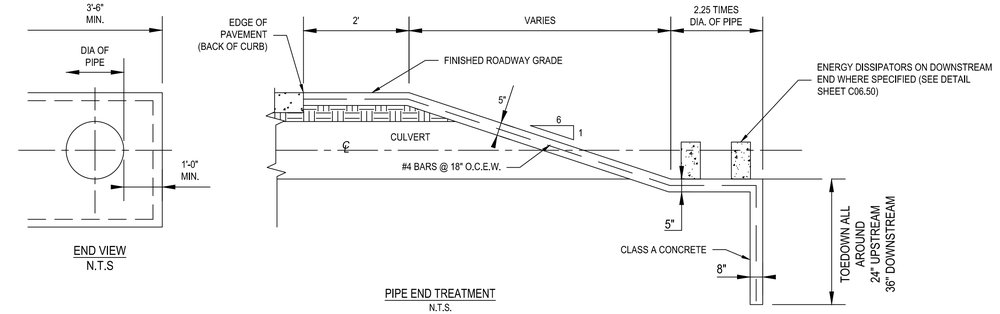
MISCELLANEOUS REPAIRS AROUND UTILITY CASTINGS (UCM SECTION 5.8.3)



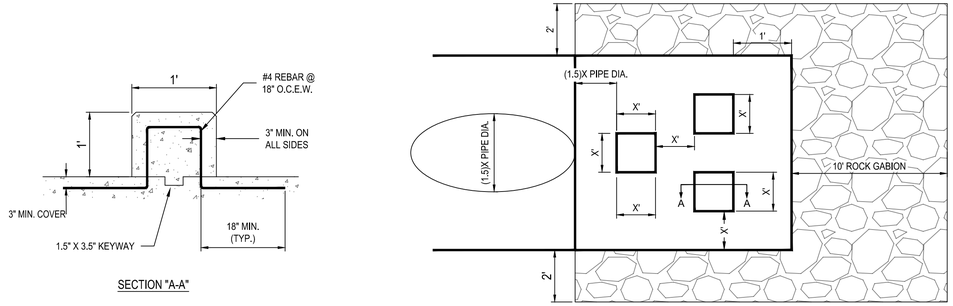
NOTES:

1. IF PC CONCRETE IS USED AROUND THE MANHOLE, THE CONCRETE SHALL BE REINFORCED WITH #5 (15M) BARS AS SHOWN. THE CONCRETE SHALL EXTEND TO EDGE OF SAW CUT PAVEMENT EDGE.
2. REQUIREMENTS FOR NEW MANHOLE CONSTRUCTION AND MINOR MANHOLE ADJUSTMENTS IN NEW, RECONSTRUCTION AND REPAVING PROJECTS ARE INCLUDED IN STANDARD NO. 506S-4 AND 506S-4A.
3. REQUIREMENTS FOR WATER VALVE ADJUSTMENTS ARE INCLUDED IN STANDARD DETAILS 511S-13A AND 511S-13B.
4. REPLACEMENT HMAC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
   a) MIN. 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
   b) MIN. 3" (75 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS. SEE ITEM 340S, SECTION 340S.4.
5. REFER TO UCM SECTION 5.8.3 FOR ADDITIONAL BACKFILL REQUIREMENTS.

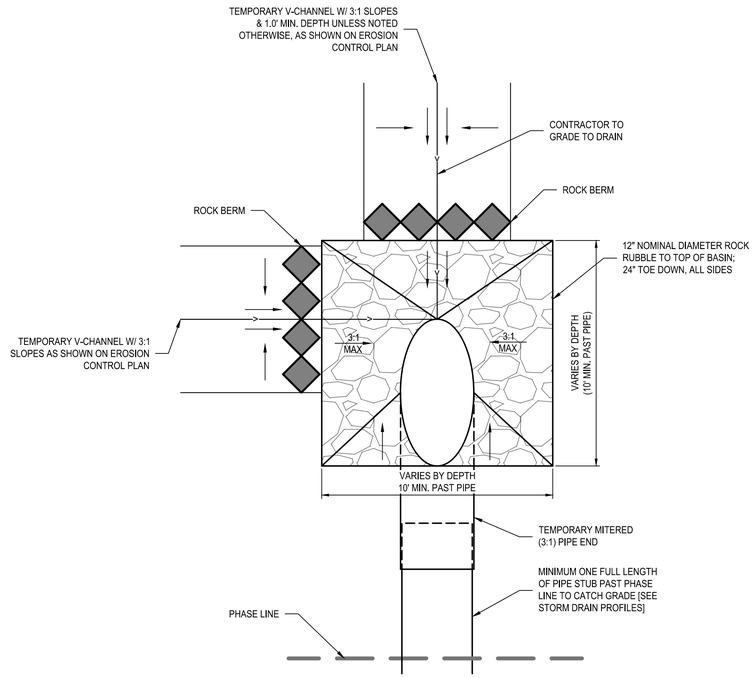
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		CASTING ADJUSTMENT	
	1/4/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 1100S-1



PIPE END TREATMENT
N.T.S.



ENERGY DISSIPATOR LAYOUT DETAIL
N.T.S.



TEMPORARY V-CHANNEL & HEADWALL
N.T.S

NOT FOR CONSTRUCTION

	APR	DATE	DESCRIPTION	REV

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

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SAN ANTONIO, TX 78216
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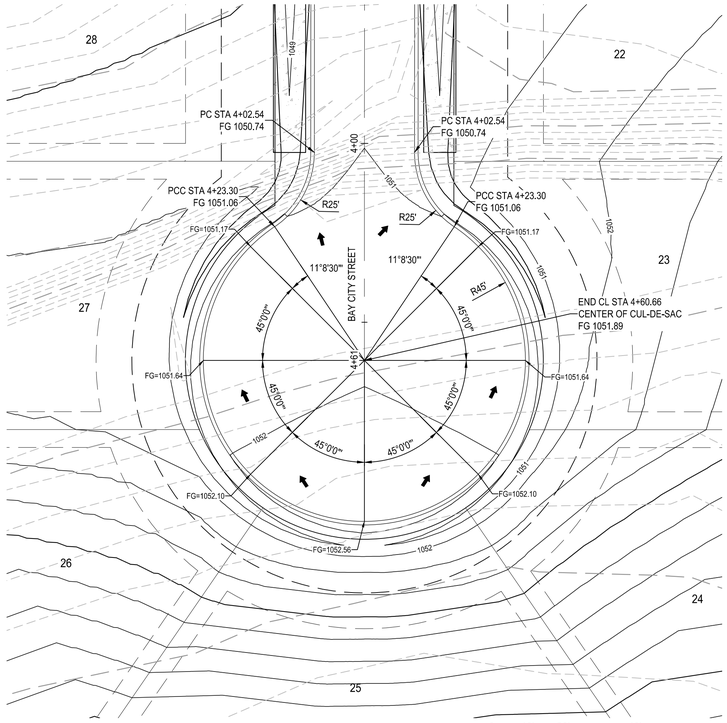
WIMBERLEY RIDGE

STREET & DRAINAGE DETAILS (SHEET 3)

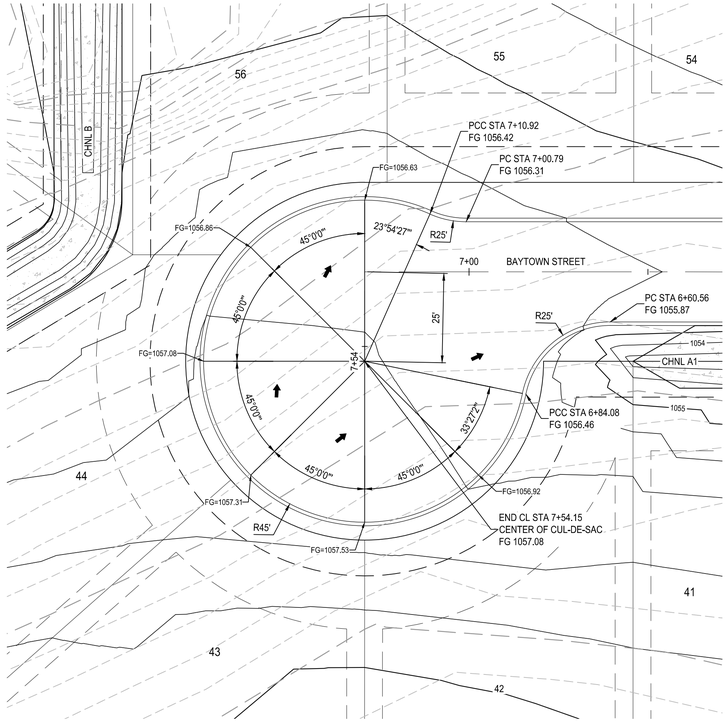
STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER
05/02/2024

SHEET
40



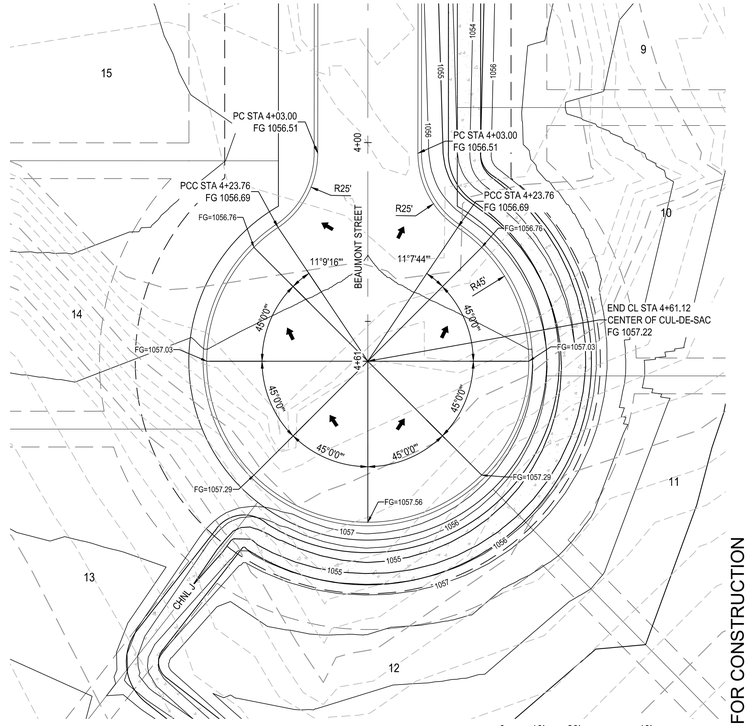
BAY CITY CUL-DE-SAC DETAIL

SCALE: 1" = 20'



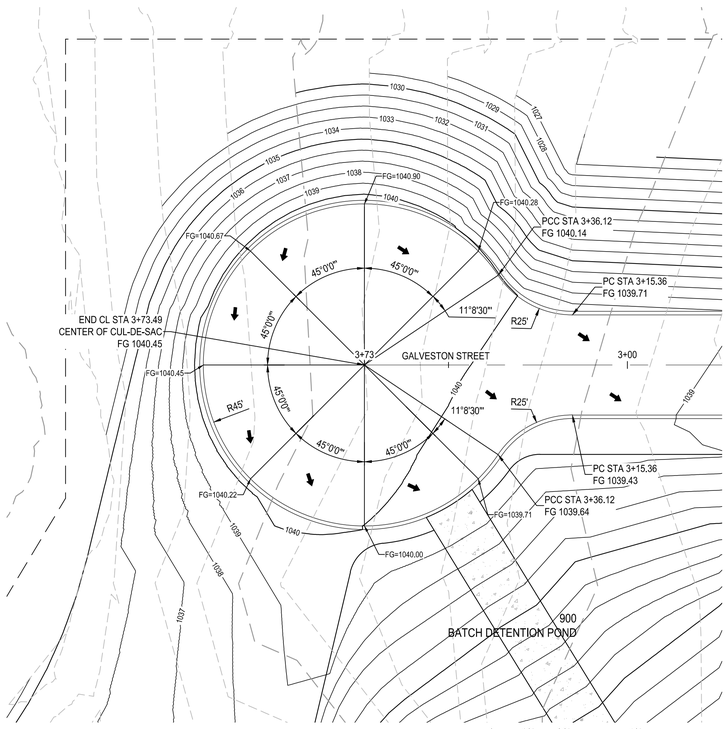
BAYTOWN CUL-DE-SAC DETAIL

SCALE: 1" = 20'



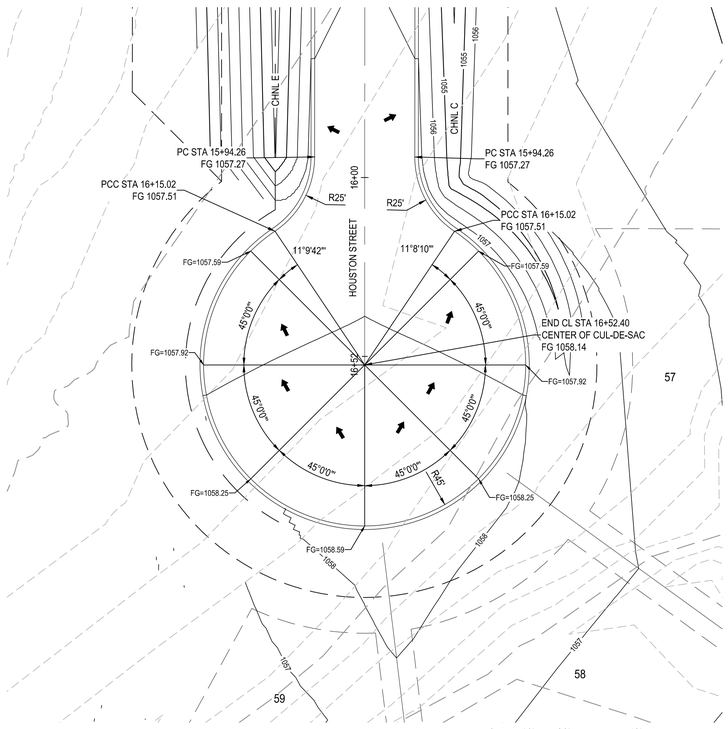
BEAUMONT CUL-DE-SAC DETAIL

SCALE: 1" = 20'



GALVESTON CUL-DE-SAC DETAIL

SCALE: 1" = 20'



HOUSTON CUL-DE-SAC DETAIL

SCALE: 1" = 20'

LEGEND

- PROPERTY BOUNDARY
- ACCESS EASEMENT
- PROPOSED EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- ROAD CENTERLINE
- PROPOSED FLUSH CURB
- PROPOSED CHANNEL FLOW DIRECTION
- LP / HP — LOW POINT/HIGH POINT
- SS — PROPOSED STORM SEWER MAIN

NOT FOR CONSTRUCTION

	APR	DATE	DESCRIPTION	REV

DESIGNED BY: AGS

REVIEWED BY: TR

DRAWN BY: RA

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WIMBERLEY RIDGE

STREET & DRAINAGE DETAILS (SHEET 4)

STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER

05/02/2024

SHEET
41

AQUA TEXAS GENERAL NOTES

1. PROPOSED AQUA TEXAS FACILITIES INCLUDE ITEMS OF THE PROPOSED WORK THE DEVELOPER PLANS TO CONVEY TO AQUA TEXAS TO OWN AND OPERATE UPON COMPLETION OF THE WORK AND AFTER SATISFYING CERTAIN OTHER REQUIREMENTS.
2. AQUA TEXAS HAS NO AGREEMENT OR CONTRACT WITH THE CONTRACTOR. THE PROPOSED AQUA TEXAS FACILITIES DESCRIBE ON THESE PLAN SHEETS ARE BEING CONSTRUCTED BY AND FOR THE BENEFIT OF THE PROJECT OWNER.
3. AQUA TEXAS HAS NOT PROVIDED REVIEW RELATED TO ITEMS OF WORK NOT RELATED TO PROPOSED OR EXISTING AQUA TEXAS FACILITIES OR CONTRACTORS' SAFETY PRECAUSTIONS OR MEANS, METHODS, TECHINIQUES, SQUENCES OR PROCEDURES REQUIRED FOR THE CONTRACTOR TO PEFORM THEIR WORK.
4. ANY CONTRACTOR(S) USING THESE DRAWINGS SHALL OBTAIN AND THEREAFTER KEEP IN FORCE THROUGH THE DURATION OF THAT USE CUSTOMARY AND APPROPRIATE INSURANCE COVERAGE, WHICH SHALL INCLUDE WORKERS COMPENSATION AND EMPLOYERS' LIABILITY, COMMERCIAL GENERAL LIABILITY, COMMERCIAL AUTOMOBILE LIABILITY, AND UMBRELLA LIABILITY. CERTIFICATE(S) OF INSURANCE BY THE INSURER(S) ISSUING THE POLICIES SHALL BE FILED WITH AQUA TEXAS PRIOR TO COMMENCING CONSTRUCTION OF AQUA TEXAS FACILITIES
5. ANY CONTRACTOR(S) USING THESE DRAWINGS, BY SAID USE, SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS AQUA TEXAS, ITS OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS FROM AND AGAINST ANY AND ALL CLAIMS, DEMANDS, DEBTS, SUITS, CAUSES OF ACTION, LOSSES, DAMAGES, JUDGMENTS, FINES, PENALTIES, LIABILITIES, AND COSTS, INCLUDING REASONABLE ATTORNEY FEES AND DEFENSE COSTS (COLLECTIVELY "DAMAGES") INCURRED BY AQUA ARISING OUT OF CONSTRUCTION OF THE AQUA TEXAS FACILITIES.
6. THE DEVELOPER, ENGINEER, OR CONTRACTOR SHALL CHAIR OR ATTEND A PRECONSTRUCTION MEETING WHICH INCLUDES AQUA TEXAS PERSONNEL. CONTACT AQUA TEXAS' BUSINESS DEVELOPMENT ENGINEER TO COORDINATE THE MEETING ATTENDANCE, SCHEDULE, AND CONTENT.
7. THE CONTRACTOR SHALL WORK WITH FINAL ENGINEERING PLANS MARKED TO INDICATE APPROVAL BY AQUA TEXAS' ENGINEERING DEPARTMENT. THE CONTRACTOR SHALL HAVE APPROVED PLANS ON HAND ANYTIME PROPOSED AQUA TEXAS FACILITIES ARE BEING CONSTRUCTED OR DISTURBED. AQUA TEXAS' APPROVAL SHOULD BE NOTED ON THE COVER SHEET ALONG WITH THE DATE THE PLANS WERE APPROVED.
8. NO PLAN CHANGES OR FIELD CHANGES RELATED TO THE CONSTRUCTION OF PROPOSED AQUA TEXAS FACILITIES SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF AN AQUA TEXAS ENGINEERING DEPARTMENT REPRESENTATIVE.
10. CONTRACTOR SHALL NOTIFY AQUA TEXAS 48 HOURS BEFORE:
    a. BEGINNING CONSTRUCTION OF PROPOSED AQUA TEXAS FACILITIES
       NOTIFY: AQUA ENGINEERING AND AQUA OPERATIONS*
    b. CONDUCTING REQUIRED SAMPLING OR TESTING
       NOTIFY: AQUA OPERATIONS*
    c. TAPPING, CONNECTING, MODIFYING OR IN ANY OTHER WAY DISTURBING AQUA TEXAS FACILITIES
       NOTIFY: AQUA OPERATIONS*

    *(AQUA ENGINEERING AND OPERATIONS CONTACTS SHALL BE DESIGNATED AT THE PRE-CONSTRUCTION MEETING)
9. AN AQUA TEXAS REPRESENTATIVE MAY BE ON SITE FROM TIME TO TIME TO OBERVE AND RECORD:
    a. CONNECTION TO AQUA FACILITITES
    b. CONSTRUCTION PROGRESS AND CONDITIONS
    c. TESTING AND SAMPLING.

    THESE OBSERVATIONS AND RECORDS IN NO WAY CONSTITUTE APPROVAL OR ACCEPTANCE OF WORK BY THE CONTRACTOR.
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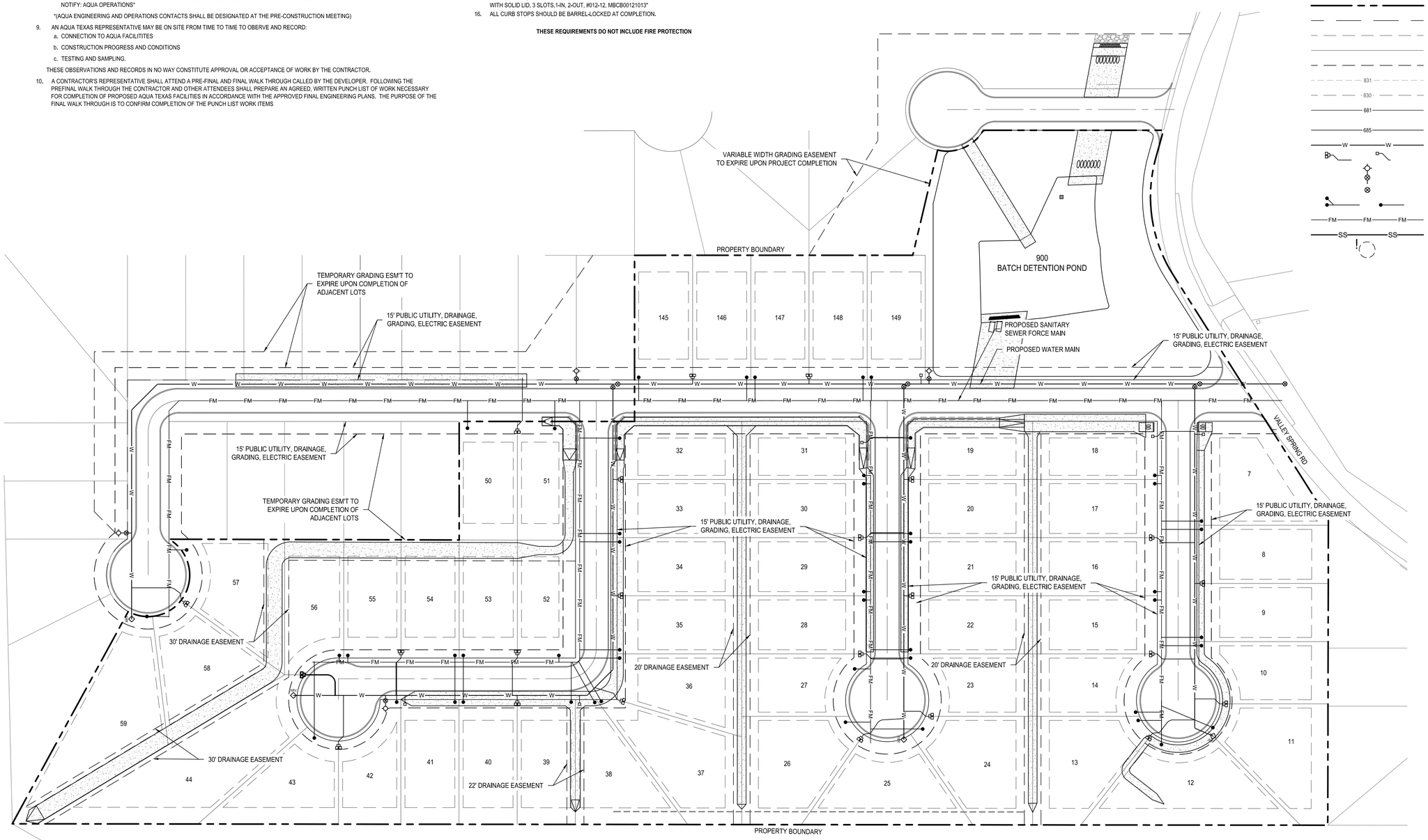
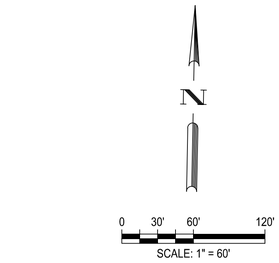
DEVELOPER PROJECTS - PROPOSED RESIDENTIAL SUBDVISIONS

AQUA TEXAS SPECIFICATIONS FOR RESIDENTIAL SUBDIVISION
WATER DISTRIBUTION SYSTEMS:

1. ALL WATER MAINS SHOULD BE PVC C909 WITH C909 RESTRAINING JOINTS.
2. WATER LINES SHOULD BE LOCATED ALONG THE FRONT LOT LINE AND SHOULD BE IN A MINIMUM 15 FOOT DEDICATED EASEMENT.
3. WATER MAINS SHOULD BE BEDDED IN SAND.
4. ALL VALVES SHOULD BE "CLOSE - RIGHT."
5. ALL VALVE COVERS SHOULD BE 36-48 SCREW TYPE WITH SURFACE CONCRETE PADS.
6. MINIMUM PIPELINE COVER SHOULD BE 3 FEET BELOW NATURAL GRADE.
7. WHEN THE WATER MAIN CROSSES OR RUNS PARALLEL WITHIN 3 FEET OF A DRAINAGE CULVERT OR DRAINAGE DITCH, THE WATER MAIN SHOULD BE 3 FEET BELOW THE DRAINAGE FACILITY FLOW LINE.
8. WATER MAINS SHOULD BE LAID WITH TRACER WIRE AND HAVE TRACER WIRE STATIONS INSTALLED NO GREATER THAN 1,000 FEET APART.
9. ALL LONG TAPS SHOULD BE INSTALLED IN A YELOMINE, PVC, OR STEEL SLEEVE.
10. FLUSH HYDRANTS SHOULD MUELLER AND SHOULD INCLUDE AN ISOLATION VALVE ON THE LEAD.
11. DEAD END WATER MAINS SHOULD INCLUDE A 2 INCH MAIN GUARD FLUSH ASSEMBLY.
12. TAPPING SADDLES SHOULD BE FORD BRASS TAPPING SADDLES FOR PVC PIPE - S71-XXX (STYLE "A"). CORP STOPS SHOULD BE FORD BRONZE.
13. SINGLE SERVICES SHOULD BE LOCATED ON PROPERTY CORNERS AND SHOULD BE A MINIMUM OF 1 1/2 INCH BLACK POLY, A FORD 1" x 3/4" ANGLE CURB STOPS WITH LOCKING EARS.
14. DOUBLE SERVICES SHOULD BE LOCATED ON PROPERTY CORNERS AND SHOULD BE A MINIMUM OF 1 INCH BLACK POLY, 2 FORD 1" x 3/4" ANGLE CURB STOPS WITH LOCKING EARS. LAKE PALESTINE MINIMUM POLY IS 2 INCH.
15. SINGLE METER BOX - BLACK PLASTIC. - "CARSON #00121013 METER BOX WITH SOLID LID, 2 SLOTS,1-IN, 1-OUT, #012-12, MBCB00121013" DOUBLE METER BOX - BLACK PLASTIC - "CARSON #00121013 METER BOX WITH SOLID LID, 3 SLOTS,1-IN, 2-OUT, #012-12, MBCB00121013"
16. ALL CURB STOPS SHOULD BE BARREL-LOCKED AT COMPLETION.

THESE REQUIREMENTS DO NOT INCLUDE FIRE PROTECTION





LEGEND

- PROPERTY BOUNDARY
- ACCESS EASEMENT
- BUILDING SETBACK
- PROPOSED LOT LINES
- PROPOSED EASEMENT
- 831 EXISTING MINOR CONTOUR
- 830 EXISTING MAJOR CONTOUR
- 681 PROPOSED MINOR CONTOUR
- 685 PROPOSED MAJOR CONTOUR
- W PROPOSED WATER MAIN
- DUAL/SINGLE WATER SERVICES
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- DUAL/SINGLE WASTEWATER SERVICE
- FM PROPOSED FORCE MAIN
- SS PROPOSED STORM SEWER MAIN
- UTILITY CROSSING

NOT FOR CONSTRUCTION

							APR
							DATE
							DESCRIPTION
◁	◁	◁	◁	◁	◁		REV

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

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WIMBERLEY RIDGE

OVERALL UTILITY PLAN

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
42

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\39 OVERALL UTILITY PLAN.dwg Layout: OVERALL UTILITY PLAN Plotted: 5/2/2024 11:42:34 AM By: Trodriguez

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    b. CONDUCTING REQUIRED SAMPLING OR TESTING
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DEVELOPER PROJECTS - PROPOSED RESIDENTIAL SUBDVISIONS

AQUA TEXAS SPECIFICATIONS FOR RESIDENTIAL SUBDIVISION
WATER DISTRIBUTION SYSTEMS:

1. ALL WATER MAINS SHOULD BE PVC C909 WITH C909 RESTRAINING JOINTS.
2. WATER LINES SHOULD BE LOCATED ALONG THE FRONT LOT LINE AND SHOULD BE IN A MINIMUM 15 FOOT DEDICATED EASEMENT.
3. WATER MAINS SHOULD BE BEDDED IN SAND.
4. ALL VALVES SHOULD BE "CLOSE - RIGHT."
5. ALL VALVE COVERS SHOULD BE 36-48 SCREW TYPE WITH SURFACE CONCRETE PADS.
6. MINIMUM PIPELINE COVER SHOULD BE 3 FEET BELOW NATURAL GRADE.
7. WHEN THE WATER MAIN CROSSES OR RUNS PARALLEL WITHIN 3 FEET OF A DRAINAGE CULVERT OR DRAINAGE DITCH, THE WATER MAIN SHOULD BE 3 FEET BELOW THE DRAINAGE FACILITY FLOW LINE.
8. WATER MAINS SHOULD BE LAID WITH TRACER WIRE AND HAVE TRACER WIRE STATIONS INSTALLED NO GREATER THAN 1,000 FEET APART.
9. ALL LONG TAPS SHOULD BE INSTALLED IN A YELOMINE, PVC, OR STEEL SLEEVE.
10. FLUSH HYDRANTS SHOULD MUELLER AND SHOULD INCLUDE AN ISOLATION VALVE ON THE LEAD.
11. DEAD END WATER MAINS SHOULD INCLUDE A 2 INCH MAIN GUARD FLUSH ASSEMBLY.
12. TAPPING SADDLES SHOULD BE FORD BRASS TAPPING SADDLES FOR PVC PIPE - S71-XXX (STYLE "A"). CORP STOPS SHOULD BE FORD BRONZE.
13. SINGLE SERVICES SHOULD BE LOCATED ON PROPERTY CORNERS AND SHOULD BE A MINIMUM OF 1 1/2 INCH BLACK POLY, A FORD 1" x 3/4" ANGLE CURB STOPS WITH LOCKING EARS.
14. DOUBLE SERVICES SHOULD BE LOCATED ON PROPERTY CORNERS AND SHOULD BE A MINIMUM OF 1 INCH BLACK POLY, 2 FORD 1" x 3/4" ANGLE CURB STOPS WITH LOCKING EARS. LAKE PALESTINE MINIMUM POLY IS 2 INCH.
15. SINGLE METER BOX - BLACK PLASTIC - "CARSON #00121013 METER BOX WITH SOLID LID, 2 SLOTS,1-IN, 1-OUT, #012-12. MBCB00121013" DOUBLE METER BOX - BLACK PLASTIC - "CARSON #00121013 METER BOX WITH SOLID LID, 3 SLOTS,1-IN, 2-OUT, #012-12, MBCB00121013"
16. ALL CURB STOPS SHOULD BE BARREL-LOCKED AT COMPLETION.

THESE REQUIREMENTS DO NOT INCLUDE FIRE PROTECTION

GENERAL UTILITY LOCATION NOTES:
TYPICAL QUALITY LEVEL OF THE UTILITY INFORMATION SHOWN ON THESE PLANS IS SHOWN IN THE TABLE BELOW. SPECIFIC NOTES ON THE PLANS INDICATE LOCATIONS WHERE THE UTILITY INFORMATION SHOWN IS KNOWN TO FALL SHORT OF OR EXCEED THE STATED QUALITY LEVEL.

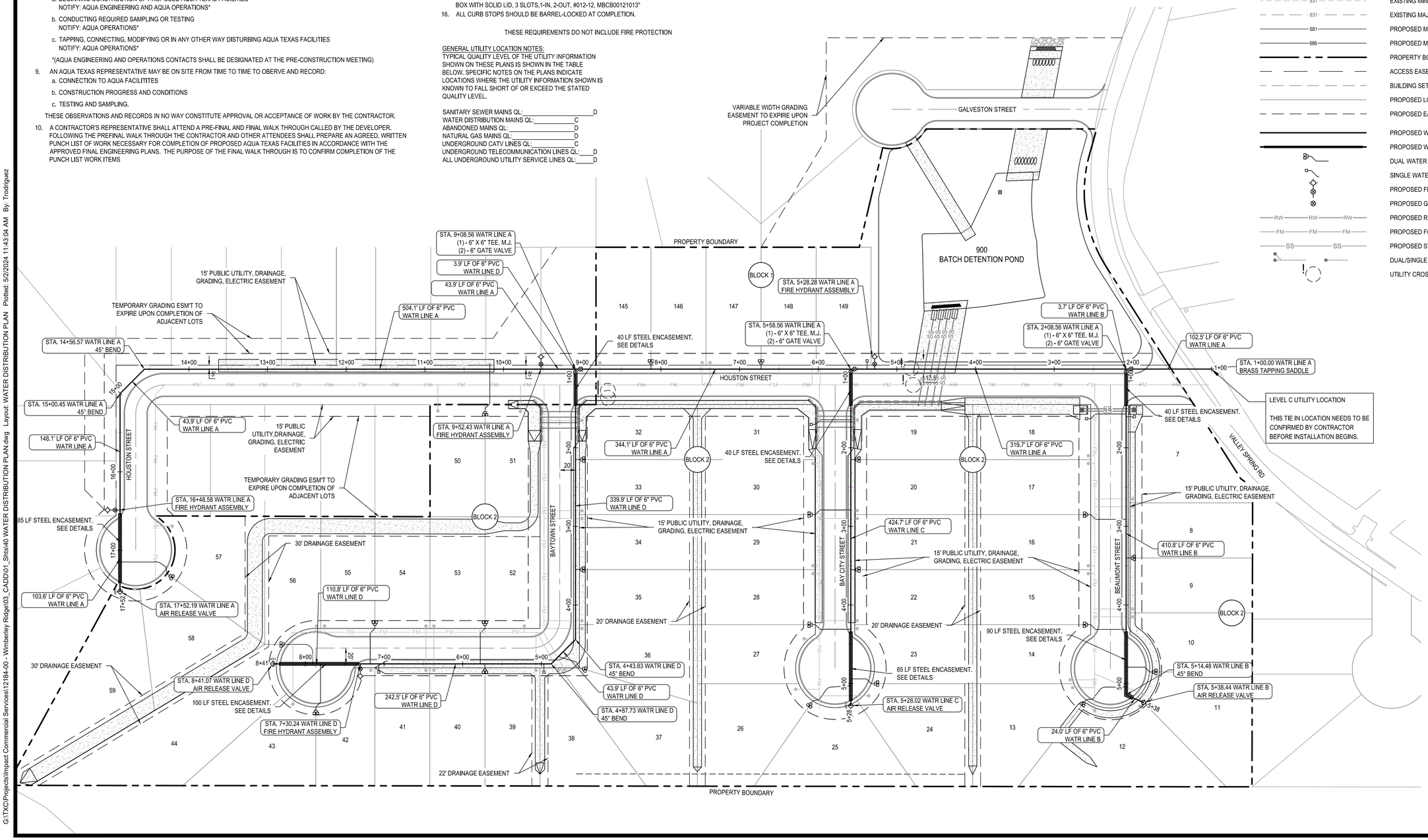
SANITARY SEWER MAINS QL:_____D
WATER DISTRIBUTION MAINS QL:_____C
ABANDONED MAINS QL: _____D
NATURAL GAS MAINS QL:_____D
UNDERGROUND CATV LINES QL:_____C
UNDERGROUND TELECOMMUNICATION LINES QL:____D
ALL UNDERGROUND UTILITY SERVICE LINES QL:____D

UTILITY TRENCH COMPACTION
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF SAN MARCOS STREET INSPECTOR, AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF SAN MARCOS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS COVERING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

NOTE:
1. SEE SHEETS 45 - 47 FOR UTILITY DETAILS
2. ELECTRIC PLANS SHOWN FOR SCHEMATIC PURPOSES ONLY. REFER TO ELECTRIC PLANS FOR FULL ELECTRIC LAYOUT.

NOTE:
IF THE MAXIMUM STATIC PRESSURE EXCEEDS 80 PSI, A PRV WILL BE REQUIRED ON THE PROPERTY OWNER'S SIDE OF THE WATER METER.



N

0 30' 60' 120'

SCALE: 1" = 60'

LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPERTY BOUNDARY
- ACCESS EASEMENT
- BUILDING SETBACK
- PROPOSED LOT LINES
- PROPOSED EASEMENT
- PROPOSED WATER MAIN
- PROPOSED WATER MAIN ENCASEMENT
- DUAL WATER SERVICE
- SINGLE WATER SERVICE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- PROPOSED RECLAIMED WATER MAIN
- PROPOSED FORCE MAIN
- PROPOSED STORM SEWER MAIN
- DUAL/SINGLE WASTEWATER SERVICE
- UTILITY CROSSING

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AG
REVIEWED BY: TR
DRAWN BY: RA

NOT FOR CONSTRUCTION

BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

WATER DISTRIBUTION PLAN

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
43

G:\TXCI\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\40 WATER DISTRIBUTION PLAN.dwg Layout: WATER DISTRIBUTION PLAN Plotted: 5/2/2024 11:43:04 AM By: Trodriguez

AQUA TEXAS GENERAL NOTES

1. PROPOSED AQUA TEXAS FACILITIES INCLUDE ITEMS OF THE PROPOSED WORK THE DEVELOPER PLANS TO CONVEY TO AQUA TEXAS TO OWN AND OPERATE UPON COMPLETION OF THE WORK AND AFTER SATISFYING CERTAIN OTHER REQUIREMENTS.
2. AQUA TEXAS HAS NO AGREEMENT OR CONTRACT WITH THE CONTRACTOR. THE PROPOSED AQUA TEXAS FACILITIES DESCRIBE ON THESE PLAN SHEETS ARE BEING CONSTRUCTED BY AND FOR THE BENEFIT OF THE PROJECT OWNER.
3. AQUA TEXAS HAS NOT PROVIDED REVIEW RELATED TO ITEMS OF WORK NOT RELATED TO PROPOSED OR EXISTING AQUA TEXAS FACILITIES OR CONTRACTORS' SAFETY PRECAUSTIONS OR MEANS, METHODS, TECHINIQUES, SQUENCES OR PROCEDURES REQUIRED FOR THE CONTRACTOR TO PEFORM THEIR WORK.
4. ANY CONTRACTOR(S) USING THESE DRAWINGS SHALL OBTAIN AND THEREAFTER KEEP IN FORCE THROUGH THE DURATION OF THAT USE CUSTOMARY AND APPROPRIATE INSURANCE COVERAGE, WHICH SHALL INCLUDE WORKERS COMPENSATION AND EMPLOYERS' LIABILITY, COMMERCIAL GENERAL LIABILITY, COMMERCIAL AUTOMOBILE LIABILITY, AND UMBRELLA LIABILITY. CERTIFICATE(S) OF INSURANCE BY THE INSURER(S) ISSUING THE POLICIES SHALL BE FILED WITH AQUA TEXAS PRIOR TO COMMENCING CONSTRUCTION OF AQUA TEXAS FACILITIES
5. ANY CONTRACTOR(S) USING THESE DRAWINGS, BY SAID USE, SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS AQUA TEXAS, ITS OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS FROM AND AGAINST ANY AND ALL CLAIMS, DEMANDS, DEBTS, SUITS, CAUSES OF ACTION, LOSSES, DAMAGES, JUDGMENTS, FINES, PENALTIES, LIABILITIES, AND COSTS, INCLUDING REASONABLE ATTORNEY FEES AND DEFENSE COSTS (COLLECTIVELY "DAMAGES") INCURRED BY AQUA ARISING OUT OF CONSTRUCTION OF THE AQUA TEXAS FACILITIES.
6. THE DEVELOPER, ENGINEER, OR CONTRACTOR SHALL CHAIR OR ATTEND A PRECONSTRUCTION MEETING WHICH INCLUDES AQUA TEXAS PERSONNEL. CONTACT AQUA TEXAS' BUSINESS DEVELOPMENT ENGINEER TO COORDINATE THE MEETING ATTENDANCE, SCHEDULE, AND CONTENT.
7. THE CONTRACTOR SHALL WORK WITH FINAL ENGINEERING PLANS MARKED TO INDICATE APPROVAL BY AQUA TEXAS' ENGINEERING DEPARTMENT. THE CONTRACTOR SHALL HAVE APPROVED PLANS ON HAND ANYTIME PROPOSED AQUA TEXAS FACILITIES ARE BEING CONSTRUCTED OR DISTURBED. AQUA TEXAS' APPROVAL SHOULD BE NOTED ON THE COVER SHEET ALONG WITH THE DATE THE PLANS WERE APPROVED.
8. NO PLAN CHANGES OR FIELD CHANGES RELATED TO THE CONSTRUCTION OF PROPOSED AQUA TEXAS FACILITIES SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF AN AQUA TEXAS ENGINEERING DEPARTMENT REPRESENTATIVE.
10. CONTRACTOR SHALL NOTIFY AQUA TEXAS 48 HOURS BEFORE:
    a. BEGINNING CONSTRUCTION OF PROPOSED AQUA TEXAS FACILITIES
       NOTIFY: AQUA ENGINEERING AND AQUA OPERATIONS*
    b. CONDUCTING REQUIRED SAMPLING OR TESTING
       NOTIFY: AQUA OPERATIONS*
    c. TAPPING, CONNECTING, MODIFYING OR IN ANY OTHER WAY DISTURBING AQUA TEXAS FACILITIES
       NOTIFY: AQUA OPERATIONS*

    *(AQUA ENGINEERING AND OPERATIONS CONTACTS SHALL BE DESIGNATED AT THE PRE-CONSTRUCTION MEETING)
9. AN AQUA TEXAS REPRESENTATIVE MAY BE ON SITE FROM TIME TO TIME TO OBERVE AND RECORD:
    a. CONNECTION TO AQUA FACILITITES
    b. CONSTRUCTION PROGRESS AND CONDITIONS
    c. TESTING AND SAMPLING.

THESE OBSERVATIONS AND RECORDS IN NO WAY CONSTITUTE APPROVAL OR ACCEPTANCE OF WORK BY THE CONTRACTOR.

10. A CONTRACTOR'S REPRESENTATIVE SHALL ATTEND A PRE-FINAL AND FINAL WALK THROUGH CALLED BY THE DEVELOPER. FOLLOWING THE PREFINAL WALK THROUGH THE CONTRACTOR AND OTHER ATTENDEES SHALL PREPARE AN AGREED, WRITTEN PUNCH LIST OF WORK NECESSARY FOR COMPLETION OF PROPOSED AQUA TEXAS FACILITIES IN ACCORDANCE WITH THE APPROVED FINAL ENGINEERING PLANS. THE PURPOSE OF THE FINAL WALK THROUGH IS TO CONFIRM COMPLETION OF THE PUNCH LIST WORK ITEMS

DEVELOPER PROJECTS - PROPOSED RESIDENTIAL SUBDIVISIONS

AQUA TEXAS SPECIFICATIONS FOR RESIDENTIAL SUBDIVISION
WATER DISTRIBUTION SYSTEMS:

1. ALL WATER MAINS SHOULD BE PVC C909 WITH C909 RESTRAINING JOINTS.
2. WATER LINES SHOULD BE LOCATED ALONG THE FRONT LOT LINE AND SHOULD BE IN A MINIMUM 15 FOOT DEDICATED EASEMENT.
3. WATER MAINS SHOULD BE BEDDED IN SAND.
4. ALL VALVES SHOULD BE "CLOSE - RIGHT."
5. ALL VALVE COVERS SHOULD BE 36-48 SCREW TYPE WITH SURFACE CONCRETE PADS.
6. MINIMUM PIPELINE COVER SHOULD BE 3 FEET BELOW NATURAL GRADE.
7. WHEN THE WATER MAIN CROSSES OR RUNS PARALLEL WITHIN 3 FEET OF A DRAINAGE CULVERT OR DRAINAGE DITCH, THE WATER MAIN SHOULD BE 3 FEET BELOW THE DRAINAGE FACILITY FLOW LINE.
8. WATER MAINS SHOULD BE LAID WITH TRACER WIRE AND HAVE TRACER WIRE STATIONS INSTALLED NO GREATER THAN 1,000 FEET APART.
9. ALL LONG TAPS SHOULD BE INSTALLED IN A YELOMINE, PVC, OR STEEL SLEEVE.
10. FLUSH HYDRANTS SHOULD MUELLER AND SHOULD INCLUDE AN ISOLATION VALVE ON THE LEAD.
11. DEAD END WATER MAINS SHOULD INCLUDE A 2 INCH MAIN GUARD FLUSH ASSEMBLY.
12. TAPPING SADDLES SHOULD BE FORD BRASS TAPPING SADDLES FOR PVC PIPE - S71-XXX (STYLE "A"). CORP STOPS SHOULD BE FORD BRONZE.
13. SINGLE SERVICES SHOULD BE LOCATED ON PROPERTY CORNERS AND SHOULD BE A MINIMUM OF 1 1/2 INCH BLACK POLY, A FORD 1" x 3/4" ANGLE CURB STOPS WITH LOCKING EARS.
14. DOUBLE SERVICES SHOULD BE LOCATED ON PROPERTY CORNERS AND SHOULD BE A MINIMUM OF 1 INCH BLACK POLY, 2 FORD 1" x 3/4" ANGLE CURB STOPS WITH LOCKING EARS. LAKE PALESTINE MINIMUM POLY IS 2 INCH.
15. SINGLE METER BOX - BLACK PLASTIC - "CARSON #00121013 METER BOX WITH SOLID LID, 2 SLOTS,1-IN, 1-OUT, #012-12, MBCB00121013" DOUBLE METER BOX - BLACK PLASTIC - "CARSON #00121013 METER BOX WITH SOLID LID, 3 SLOTS,1-IN, 2-OUT, #012-12, MBCB00121013"
16. ALL CURB STOPS SHOULD BE BARREL-LOCKED AT COMPLETION.

THESE REQUIREMENTS DO NOT INCLUDE FIRE PROTECTION

GENERAL UTILITY LOCATION NOTES:
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SANITARY SEWER MAINS QL:_____D
WATER DISTRIBUTION MAINS QL:_____C
ABANDONED MAINS QL:_____D
NATURAL GAS MAINS QL:_____D
UNDERGROUND CATV LINES QL:_____C
UNDERGROUND TELECOMMUNICATION LINES QL:____D
ALL UNDERGROUND UTILITY SERVICE LINES QL:____D

UTILITY TRENCH COMPACTION
ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF SAN MARCOS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT, UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF SAN MARCOS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

TRENCH EXCAVATION SAFETY PROTECTION
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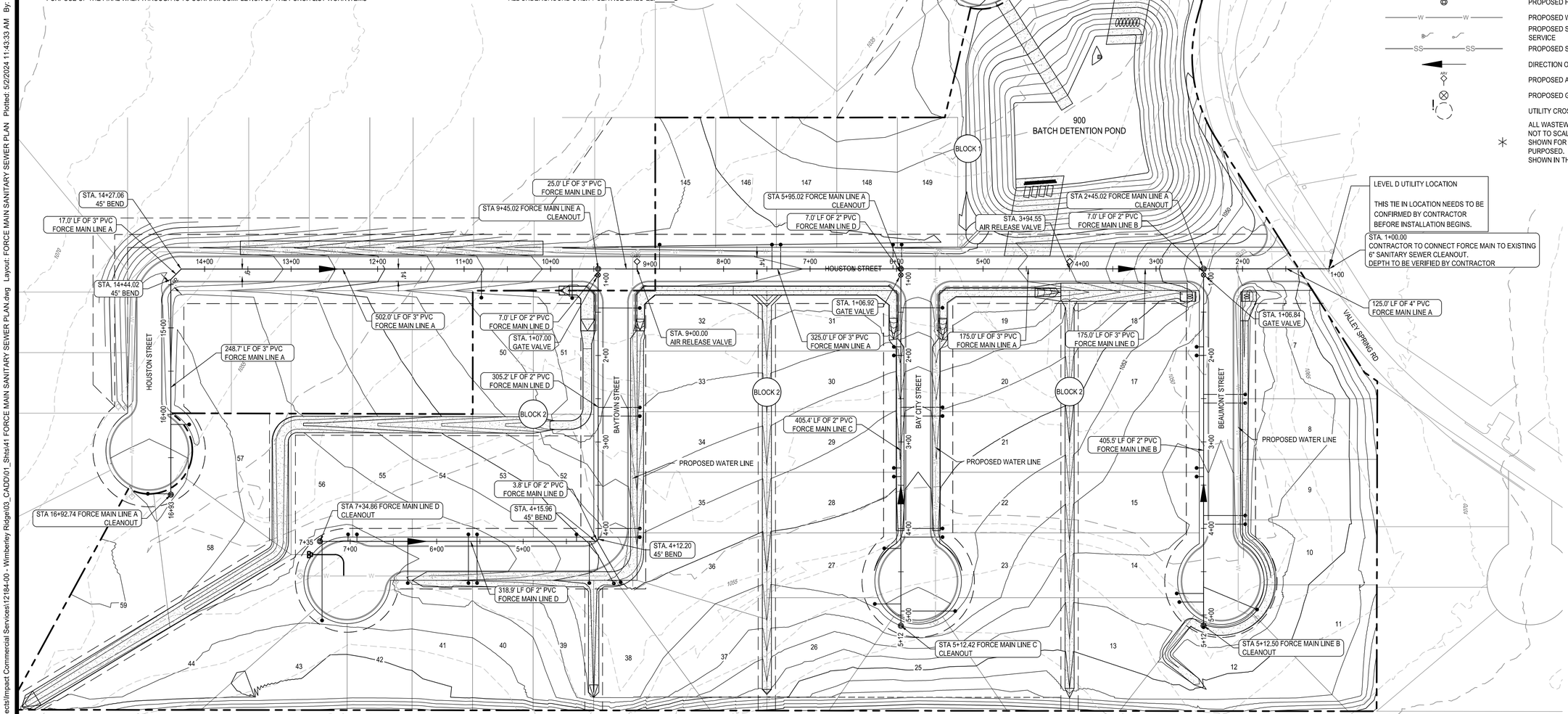
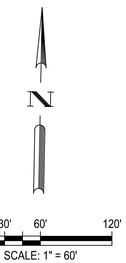
NOTE:
1. SEE SHEETS 45 - 47 FOR UTILITY DETAILS
2. ELECTRIC PLANS SHOWN FOR SCHEMATIC PURPOSES ONLY. REFER TO ELECTRIC PLANS FOR FULL ELECTRIC LAYOUT.





LEGEND

- PROPERTY BOUNDARY
- UNIT BOUNDARY
- EASEMENT
- 831 EXISTING MINOR CONTOUR
- 831 EXISTING MAJOR CONTOUR
- 681 PROPOSED MINOR CONTOUR
- 686 PROPOSED MAJOR CONTOUR
- PROPOSED FORCE MAIN
- PROPOSED SINGLE FORCEMAIN SERVICE
- PROPOSED DOUBLE FORCEMAIN SERVICE
- PROPOSED FORCEMAIN CLEANOUT
- W PROPOSED WATER LINE
- W PROPOSED SINGLE/DOUBLE WATER SERVICE
- SS PROPOSED STORM LINE
- DIRECTION OF FLOW
- PROPOSED AIR RELEASE VALVE
- PROPOSED GATE VALVE
- UTILITY CROSSING

ALL WASTEWATER SYMBOLS ARE NOT TO SCALE, AND ARE ONLY SHOWN FOR ILLUSTRATION PURPOSED. REFER TO DETAILS SHOWN IN THIS PLAN SET.

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE. SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

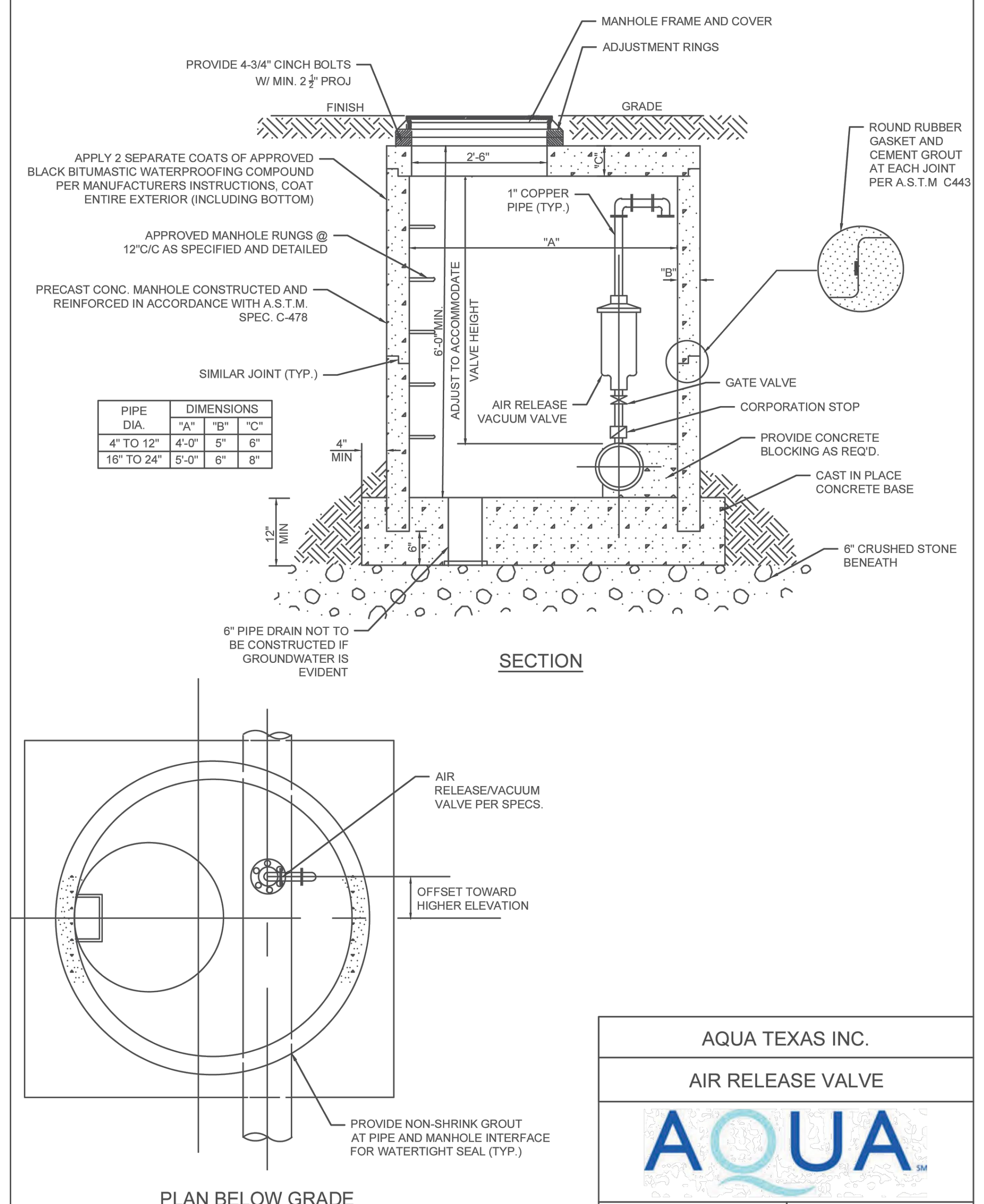
FORCE MAIN SANITARY SEWER PLAN

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
44

G:\TXCO\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\41 FORCE MAIN SANITARY SEWER PLAN.dwg Layout: FORCE MAIN SANITARY SEWER PLAN Plotted: 5/2/2024 11:43:33 AM By: Trodriguez

G:\TXC\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\42 UTILITY DETAILS.dwg Layout: UTILITY DETAILS (SHEET 1) Plotted: 5/2/2024 11:44:31 AM By: Trodriguez



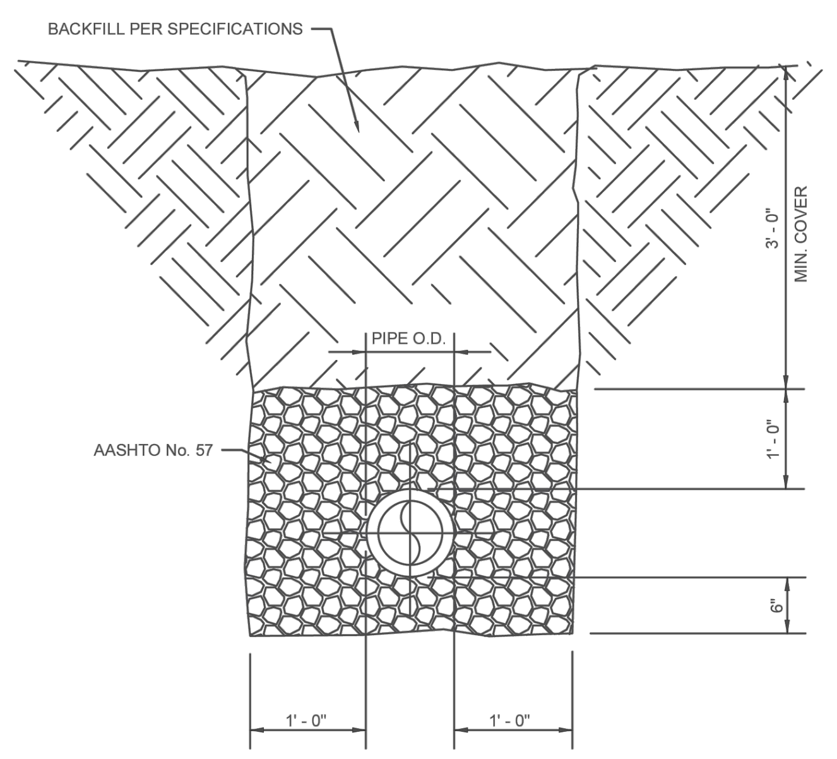
PIPE DIA.	DIMENSIONS		
	"A"	"B"	"C"
4" TO 12"	4'-0"	5"	6"
16" TO 24"	5'-0"	6"	8"

AQUA TEXAS INC.

AIR RELEASE VALVE

AQUA

DATE: JUNE 2022 SCALE: N.T.S.

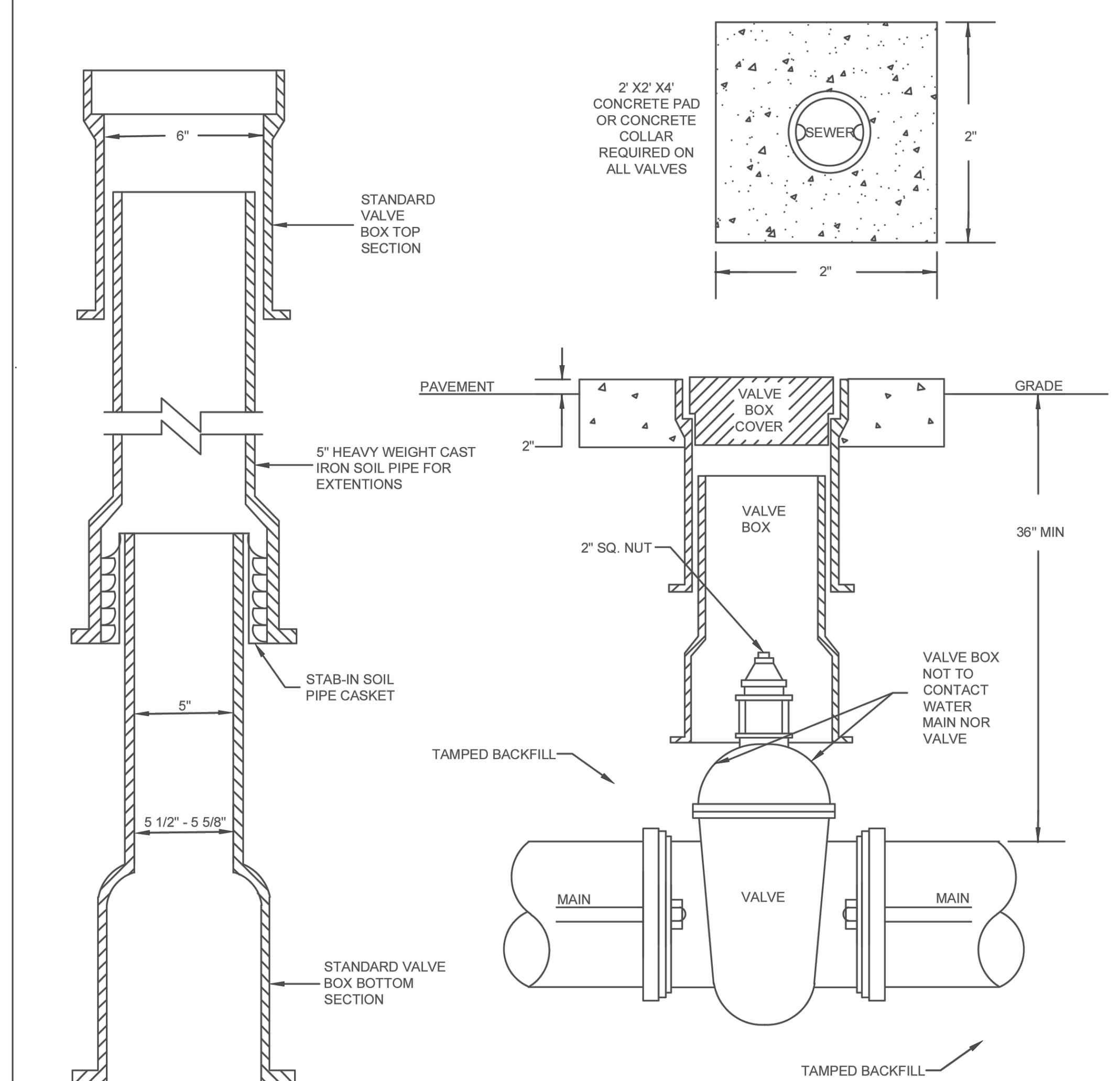


AQUA TEXAS INC.

TYPICAL P.V.C. PIPE TRENCH

AQUA

DATE: JUNE 2022 SCALE: N.T.S.



NOTES:

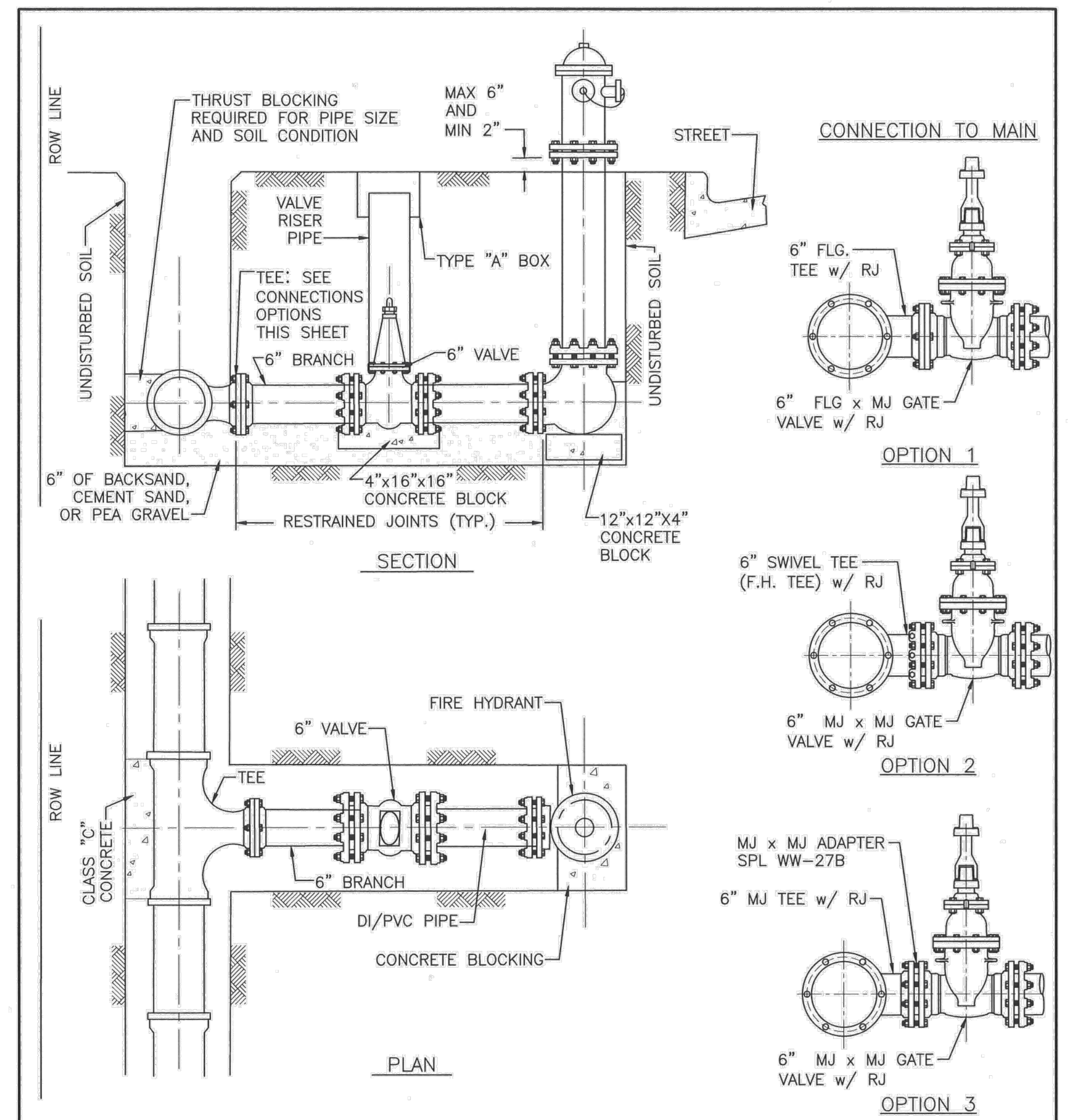
1. GATE VALVES SHALL COMPLY WITH AWWA C-500 AND BE IRON BODY, PARALLEL SEAT TYPE, BRONZE FITTED W/ RESILIENT SEAT. LEFT HAND OPEN (CCW).
2. BROOKS 24" VAVLE BOX COLLAR MAY BE USED.

AQUA TEXAS INC.

GATE VALVE AND EXTENSION

AQUA

DATE: JUNE 2022 SCALE: N.T.S.



NOTES:

1. LOCATE FIRE HYDRANTS AT POINT OF CURVATURE (PC) OR POINT OF TANGENCY (PT) OF THE INTERSECTION CURB RADIUS, 3 FEET BEHIND CURB OR PROJECTED FUTURE CURB.
2. ON OPEN-DITCH ROADWAYS, SET THE FIRE HYDRANTS WITH IN 5 FEET OF RIGHT-OF-WAY LINES.
3. FIRE HYDRANT STEAMER NOZZLE SHALL FACE THE STREET.
4. LOCATE HYDRANT VALVE IMMEDIATELY ADJACENT TO WATER LINE.
5. ALL PIPING TO BE RESTRAINED JOINTS.

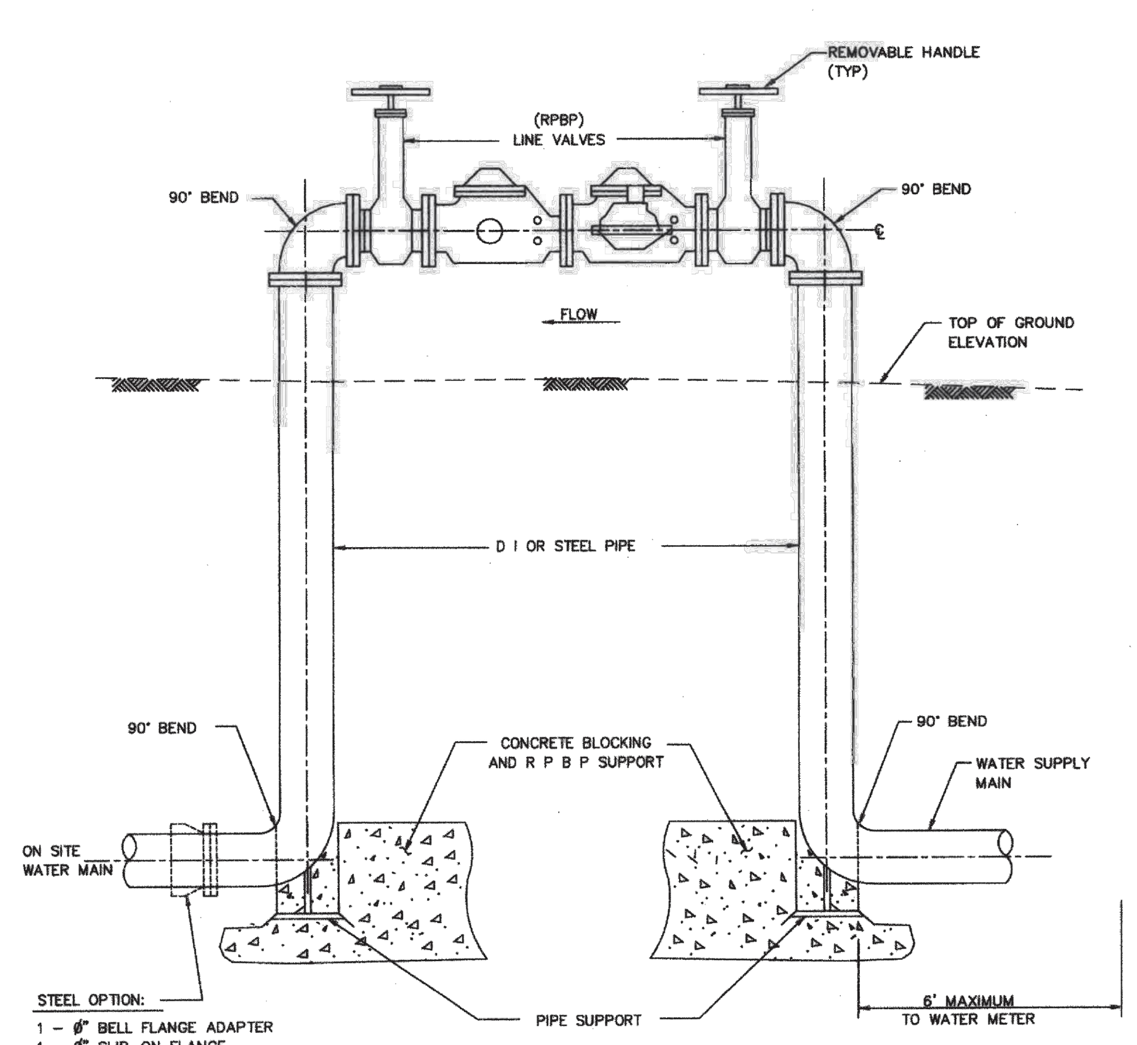
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STANDARD FIRE HYDRANT DETAIL
(NOT TO SCALE)

APPROVED BY: Suhail Kanwar CITY ENGINEER | APPROVED BY: Carol Haddock DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL - 01 - 2021 DWG NO: 02520-01

NOT FOR CONSTRUCTION



GENERAL NOTES:

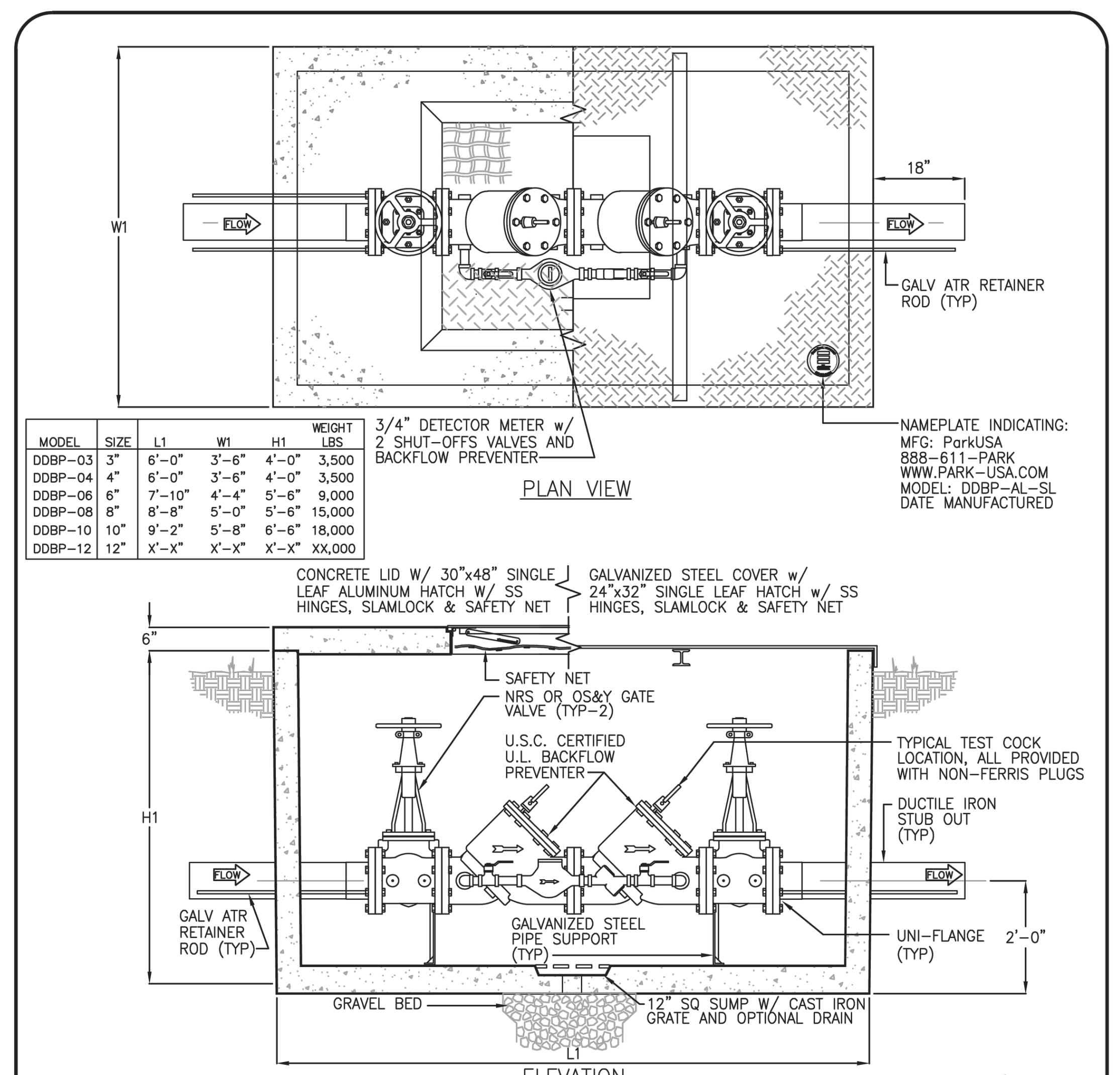
1. INSULATE REDUCED PRESSURE BACKFLOW PREVENTER TO AVOID FREEZING.
2. REDUCED PRESSURE BACKFLOW PREVENTER'S DISCHARGE OPENING IS TO BE A MINIMUM OF 12 INCHES ABOVE GROUND ELEVATION OR 100 YEAR FLOOD ELEVATION WHICHEVER IS GREATER.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REDUCED PRESSURE BACKFLOW – PREVENTER (R P B P) (NOT TO SCALE)

APPROVED BY: [illegible] CITY ENGINEER | APPROVED BY: [illegible] DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010 DWG NO: 02523-01



MODEL	SIZE	L1	W1	H1	WEIGHT LBS
DDBP-03	3"	6'-0"	3'-6"	4'-0"	3,500
DDBP-04	4"	6'-0"	3'-6"	4'-0"	3,500
DDBP-06	6"	7'-10"	4'-4"	5'-6"	9,000
DDBP-08	8"	8'-8"	5'-0"	5'-6"	15,000
DDBP-10	10"	9'-2"	5'-8"	6'-8"	18,000
DDBP-12	12"	X'-X"	X'-X"	X'-X"	XX,000

Specifications

CONCRETE : Class 1 concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

ACCESS COVER: 1/4" steel skid-resistant floor plate welded to 3" angle frame with (2) 3"x2-3/8" I-beam supports. Hatch to be furnished with 316 stainless steel bolts and hinges

HATCHWAY: 1/4" Aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel slam lock & hinges.

Engineering Data

The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

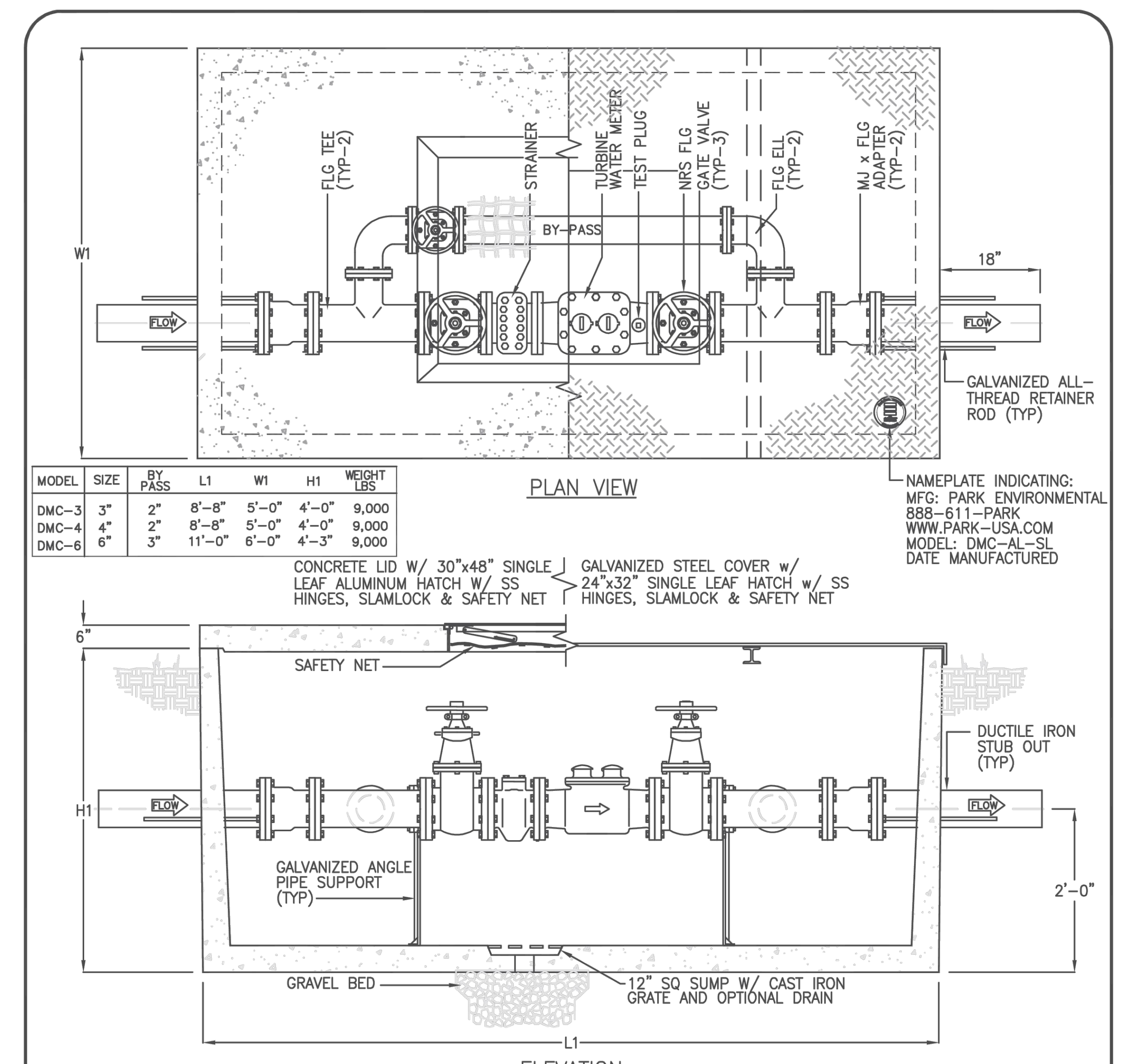
FM AWWA UL UPC NPCA CERTIFIED PLANT

PROJECT :
CUSTOMER :
ENGINEER :
ARCHITECT :
ORDER # :
DATE : PM :

888.611.7275
www.park-usa.com
PARK USA
Design for Water

DOUBLE DETECTOR BACKFLOW PREVENTER ASSEMBLY FOR FIRE SERVICE MODEL DDBP - 3" THRU 10"

SCALE NONE | DWG. NO. DDBP-AL-SL | REV. A
DATE 2012



MODEL	SIZE	BY PASS	L1	W1	H1	WEIGHT LBS
DMC-3	3"	2"	8'-8"	5'-0"	4'-0"	9,000
DMC-4	4"	2"	8'-8"	5'-0"	4'-0"	9,000
DMC-6	6"	3"	11'-0"	6'-0"	4'-3"	9,000

Specifications

CONCRETE : Class II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

STEEL COVER: 1/4" steel skid-resistant floor plate welded to 3" angle frame with (2) 3"x2-3/8" I beam supports (300 PSF).

HATCHWAY: 1/4" Aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel snap lock & brass hinges.

Engineering Data

The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

FM AWWA UL UPC NPCA CERTIFIED PLANT

PROJECT :
CUSTOMER :
ARCHITECT :
ENGINEER :
ORDER # :
DATE :

PARK ENVIRONMENTAL EQUIPMENT 888-611-PARK www.park-USA.com
"Expect the Best"

DOMESTIC COMPOUND WATER METER ASSEMBLY MODEL DMC - 3" THRU 6"

SCALE NONE | DWG. NO. DMC-AL-SL | REV. A
DATE 2010

REV	DESCRIPTION	DATE	APR
△			
△			
△			
△			
△			

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE

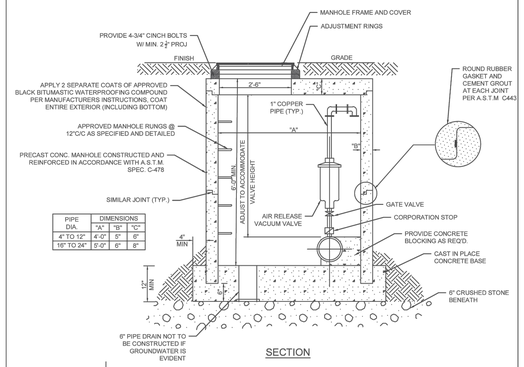
BGE, Inc.
7330 SAN PEDRO AVE, SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

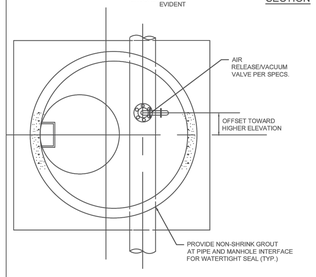
UTILITY DETAILS (SHEET 1)

STATE OF TEXAS
AARON J. NEUMANN
114451
PROFESSIONAL ENGINEER
05/02/2024

SHEET
45

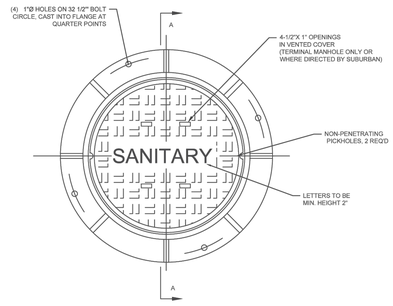


SECTION

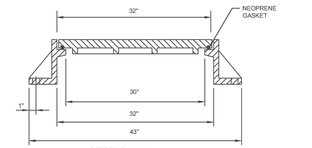


PLAN BELOW GRADE

AQUA TEXAS INC.		
AIR RELEASE VALVE		
DATE:	JUNE 2022	SCALE: N.T.S.

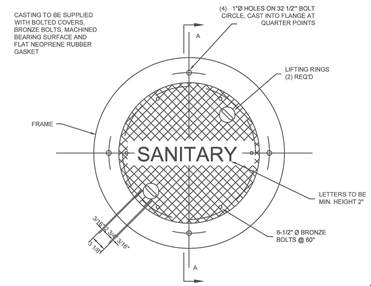


PLAN

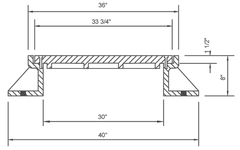


SECTION A-A

AQUA TEXAS INC.		
CAST IRON MANHOLE FRAME & COVER		
DATE:	JUNE 2022	SCALE: N.T.S.

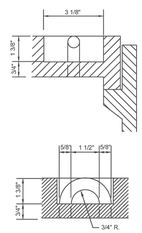


PLAN



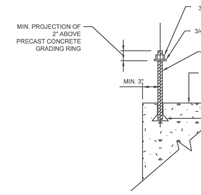
SECTION A-A

BRIDGESTATE FOUNDRY CO., HADDONFIELD, N.J. (PATTERN #1503) TYPE A MODIFIED OR APPROVED EQUAL. MINIMUM WEIGHT 500#

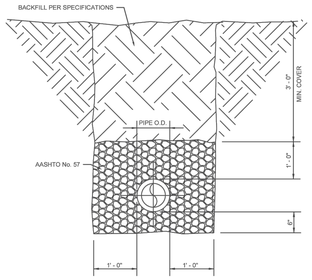


DETAIL OF LIFTING RING

AQUA TEXAS INC.		
BOLT DOWN WATERTIGHT MANHOLE FRAME & COVER		
DATE:	JUNE 2022	SCALE: N.T.S.



AQUA TEXAS INC.		
ANCHOR BOLT DETAIL FOR PRECAST MANHOLE		
DATE:	JUNE 2022	SCALE: N.T.S.



AQUA TEXAS INC.		
TYPICAL P.V.C. PIPE TRENCH		
DATE:	JUNE 2022	SCALE: N.T.S.

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

NOT FOR CONSTRUCTION

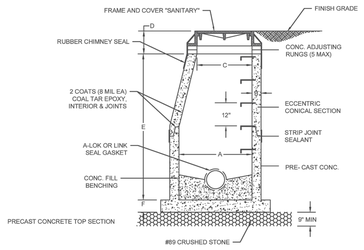
BGE, Inc.
7330 SAN PEDRO AVE. SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

UTILITY DETAILS (SHEET 2)

STATE OF TEXAS
AARON J. NEUMANN
11445
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
46



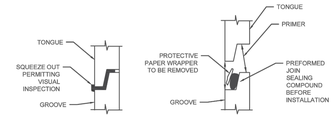
MH DEPTH	A	B	C	D	E	F
UP TO 12'	48"	8"	24.5"	15"	AS REQ'D	8"
12' TO 18'	60"	8"	24.5"	15"	AS REQ'D.	10"
18' AND DEEPER	72"	8"	24.5"	15"	AS REQ'D.	12"

MANHOLE SIZE
UP TO 24" PIPE: 48" MANHOLE
UP TO 36" PIPE: 60" MANHOLE
OVER 36" PIPE: 72" MANHOLE

NOTES:

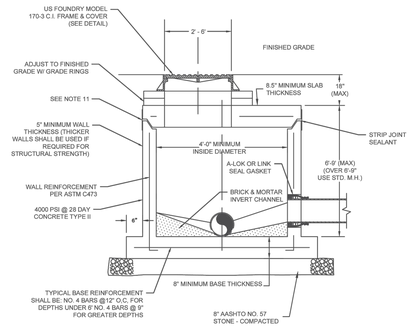
1. PRE - CAST CONCRETE SHALL BE TYPE 2 CEMENT (4,000 PSI).
2. LIFT HOLES NOT PERMITTED THROUGH PRE-CAST SECTIONS.
3. ALL OPENINGS SHALL BE SEALED WITH NON-SHRINK GROUT.
4. INSTALL FLOW CHANNEL INSIDE MANHOLES.
5. SERVICE LATERALS SHALL GENERALLY NOT BE PERMITTED DIRECTLY INTO MANHOLES.
6. PLACE TWO HALF-MOON SHAPED PLYWOOD (3/8" TH. MIN.) IN BOTTOM OF MANHOLE AFTER PIPES HAVE BEEN CONNECTED TO KEEP DEBRIS FROM ENTERING SEWER.
7. REINFORCING STEEL PER ASTM C478- 88A.
8. PROVIDE 5' X 5' X 12" CONCRETE COLLAR AROUND COVER FRAME, WITH 4 - #4 REBAR E.W. IN UNPAVED AREAS.
9. PROVIDE PIPE TO MANHOLE SEAL: A-LOK GASKET PER ASTM C-433 SPECIFICATION CAST INTEGRALLY IN MANHOLE WALL AND LOCATED AS DIRECTED. GASKET DESIGNED TO MEET TEST AND PERFORMANCE REQUIREMENT OF ASTM C-425 SPECIFICATION. JOINT SHALL ALLOW 10° OMNIDIRECTIONAL DIRECTION.
10. JOINT SEALANT SHALL BE BUTYL RUBBER OR BITUMINOUS MASTIC GASKET PER ASTM C-990 SPECIFICATION. PROVIDE BUTYL- LOK BY A-LOK PRODUCTS, INC.
11. MANHOLE STEPS SHALL BE 1/2 INCH GRADE 60 STEEL, ENCAPSULATED IN POLYPROPYLENE CONFORMING TO ASTM C478.
12. MANHOLE FRAME AND GASKETED COVER SHALL BE NEENAH MODEL R- 1743 OR AN APPROVED EQUAL.
13. SEAL MANHOLE FRAME AND GRADE RINGS WITH WRAPIDSEAL HEAT SHRINK ENCAPSULATION SYSTEM BY CANUSA-CPS, INC.
14. MANHOLES GREATER THAN 15' SHALL HAVE AN INTERMEDIATE LANDING CONSTRUCTED OF PRECAST CONCRETE.
15. MANHOLE UPSTREAM OF WW PLANT SHALL BE A GRIT TRAP TYPE WITH 2" SUMP.

AQUA TEXAS INC.
STANDARD MANHOLE DETAIL
AQUA
DATE: JUNE 2022 SCALE: N.T.S.



CLOSED JOINT OPEN JOINT

AQUA TEXAS INC.
JOINT DETAIL FOR PRECAST MANHOLE
AQUA
DATE: JUNE 2022 SCALE: N.T.S.

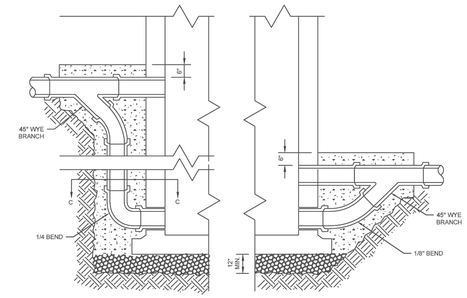


NOTE: FORCE MAIN RECEIVING MANHOLE TO BE FIBERGLASS LINED.

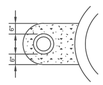
NOTES:

1. PRE-CAST CONCRETE SHALL BE TYPE 2 CEMENT (4,000 PSI).
2. LIFT HOLES NOT PERMITTED THROUGH PRE-CAST SECTIONS.
3. ALL OPENINGS SHALL BE SEALED WITH NON-SHRINK GROUT.
4. INSTALL FLOW CHANNEL INSIDE MANHOLES.
5. SERVICE LATERALS SHALL GENERALLY NOT BE PERMITTED DIRECTLY INTO MANHOLES.
6. PLACE TWO HALF-MOON SHAPED PLYWOOD (3/8" TH. MIN.) IN BOTTOM OF MANHOLE AFTER PIPES HAVE BEEN CONNECTED TO KEEP DEBRIS FROM ENTERING SEWER.
7. REINFORCING STEEL PER ASTM C478-88A.
8. PROVIDE 5' X 5' X 12" CONCRETE COLLAR AROUND COVER FRAME WITH 4 - #4 REBAR E.W. IN UNPAVED AREAS.
9. PROVIDE PIP TO MANHOLE SEAL: A-LOK GASKET PER ASTM C-433 SPECIFICATION CAST INTEGRITY IN MANHOLE WALL AND LOCATED DIRECTED. GASKET DESIGNED TO MEET TEST AND PERFORMANCE REQUIREMENT OF ASTM C-425 SPECIFICATION. JOINT SHALL BE ALLOW 10° OMNIDIRECTIONAL DIRECTION.
10. MANHOLE BENCH SHALL BE SHOP CAST OR FIELD POURED CONCRETE - 4,000 PSI MIN.
11. JOINT SEALANT SHALL BE BUTYL RUBBER OR BITUMINOUS MASTIC GASKET PER ASTM C-990 SPECIFICATION. PROVIDE BUTYL-LOK BY A-LOK PRODUCTS INC.
12. MANHOLE STEPS SHALL BE 1/2 INCH GRADE 60 STEEL, ENCAPSULATED IN POLYPROPYLENE CONFORMING TO ASTM C478.
13. MANHOLE FRAME AND GASKETED COVER SHALL BE NEENAH MODEL R-1737 OR AN APPROVED EQUAL.
14. SEAL MANHOLE FRAME AND GRADE RINGS WITH WRAPIDSEAL HEAT SHRINK ENCAPSULATION SYSTEM BY CANUSA-CPS, INC.

AQUA TEXAS INC.
SHALLOW MANHOLE DETAIL
AQUA
DATE: JUNE 2022 SCALE: N.T.S.

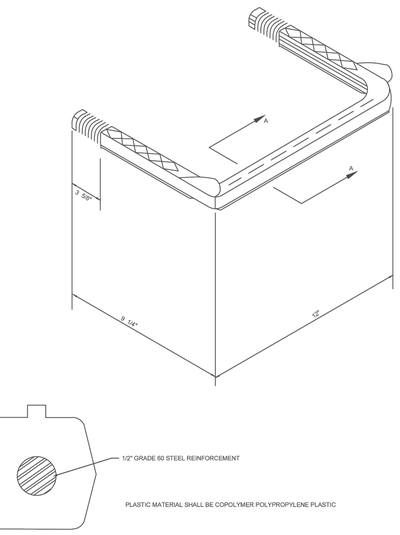


MANHOLE ELEVATION

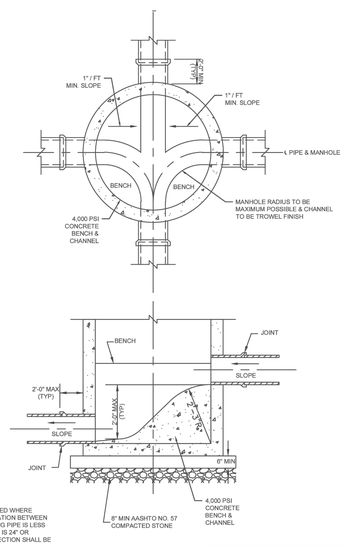


SECTION C - C

AQUA TEXAS INC.
DROP MANHOLE CONNECTION
AQUA
DATE: JUNE 2022 SCALE: N.T.S.

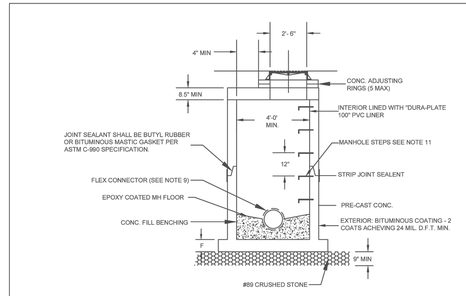


AQUA TEXAS INC.
POLYPROPYLENE MANHOLE STEP
AQUA
DATE: JUNE 2022 SCALE: N.T.S.



NOTE:
MANHOLE CHUTE IS TO BE USED WHERE DIFFERENCE IN INVERT ELEVATION BETWEEN INCOMING PIPE AND OUTGOING PIPE IS LESS THAN 24". IF THE DIFFERENCE IS 24", OR GREATER, THEN DROP CONNECTION SHALL BE USED.

AQUA TEXAS INC.
MANHOLE CHUTE
AQUA
DATE: JUNE 2022 SCALE: N.T.S.

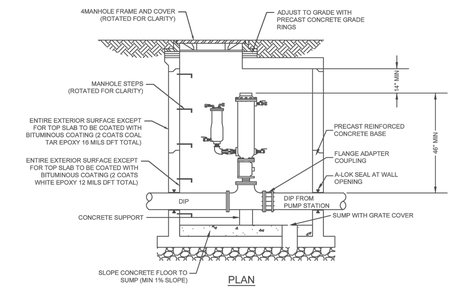


MANHOLE SIZE:
UP TO 24" PIPE: 48" MANHOLE
UP TO 36" PIPE: 60" MANHOLE
OVER 36" PIPE: 72" MANHOLE

NOTES:

1. PRE-CAST CONCRETE SHALL BE TYPE 2 CEMENT (4,000 PSI).
2. LIFT HOLES NOT PERMITTED THROUGH PRE-CAST SECTIONS.
3. ALL OPENINGS SHALL BE SEALED WITH NON-SHRINK GROUT.
4. INSTALL FLOW CHANNEL INSIDE MANHOLES.
5. SERVICE LATERALS SHALL GENERALLY NOT BE PERMITTED DIRECTLY INTO MANHOLES.
6. PLACE TWO HALF-MOON SHAPED PLYWOOD (3/8" TH. MIN.) IN BOTTOM OF MANHOLE AFTER PIPES HAVE BEEN CONNECTED TO KEEP DEBRIS FROM ENTERING SEWER.
7. REINFORCING STEEL PER ASTM C478-88A.
8. PROVIDE 5' X 5' X 12" CONCRETE COLLAR AROUND COVER FRAME WITH 4 - #4 REBAR E.W. IN UNPAVED AREAS.
9. PROVIDE PIP TO MANHOLE SEAL: A-LOK GASKET PER ASTM C-433 SPECIFICATION CAST INTEGRITY IN MANHOLE WALL AND LOCATED DIRECTED. GASKET DESIGNED TO MEET TEST AND PERFORMANCE REQUIREMENT OF ASTM C-425 SPECIFICATION. JOINT SHALL BE ALLOW 10° OMNIDIRECTIONAL DIRECTION.
10. JOINT SEALANT SHALL BE BUTYL RUBBER OR BITUMINOUS MASTIC GASKET PER ASTM C-990 SPECIFICATION. PROVIDE BUTYL-LOK BY A-LOK PRODUCTS INC.
11. MANHOLE STEPS SHALL BE 1/2 INCH GRADE 60 STEEL, ENCAPSULATED IN POLYPROPYLENE CONFORMING TO ASTM C478.
12. MANHOLE FRAME AND GASKETED COVER SHALL BE NEENAH MODEL R-1737 OR AN APPROVED EQUAL.
13. SEAL MANHOLE FRAME AND GRADE RINGS WITH WRAPIDSEAL HEAT SHRINK ENCAPSULATION SYSTEM BY CANUSA-CPS, INC.
14. MANHOLES GREATER THAN 15' SHALL HAVE AN INTERMEDIATE LANDING CONSTRUCTED OF PRECAST CONCRETE.
15. MANHOLE UPSTREAM OF WW PLANT SHALL BE A GRIT TRAP TYPE WITH 2" SUMP.

AQUA TEXAS INC.
FORCE MAIN RECEIVING MANHOLE DETAIL
AQUA
DATE: JUNE 2022 SCALE: N.T.S.



PLAN

NOTES:

1. BELOW GRADE EXTERIOR SURFACE SHALL RECEIVE TWO (2) COATS OF COAL TAR EPOXY IN ACCORDANCE WITH THE SPECIFICATIONS.
2. ALL INTERIOR SURFACES SHALL RECEIVE A THREE (3) COAT EPOXY PAINT SYSTEMS IN ACCORDANCE WITH THE SPECIFICATIONS. FINISH COLOR SHALL BE WHITE.
3. THE CONTRACTOR SHALL PROVIDE BUOYANCY CALCULATIONS ASSUMING WATER AT GRADE ELEVATION. THE CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LISTENED IN THE STATE OF NORTH CAROLINA AS ART OF THE SUBMITTAL.
4. AREAS OF ALUMINUM IN CONTRACT WITH CONCRETE SHALL BE PROVIDED WITH BIUMASTIC COATING. AREAS IN WHICH DISSIMILAR METALS ARE IN CONTRACT SHALL BE PROVIDED WITH NON-METALLIC ISOLATORS.
5. FORCE MAIN AND CLEAN-OUT CONNECTION SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIFICATIONS.
6. SEAL MANHOLE FRAME AND GRADE RINGS WITH WRAPIDSEAL SEAT SHRINK ENCAPSULATION SYSTEM BY CANUSA-CPS, INC. OR APPROVED EQUAL.

AQUA TEXAS INC.
FORCE MAIN CLEAN-OUT MANHOLE
AQUA
DATE: JUNE 2022 SCALE: N.T.S.

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	APR

DESIGNED BY: AGS
REVIEWED BY: TR
DRAWN BY: RA

BGE, Inc.
7330 SAN PEDRO AVE. SUITE 202
SAN ANTONIO, TX 78216
TEL: 210-581-3600 • www.bgeinc.com
TBPE Registration No. F-1046

WIMBERLEY RIDGE

UTILITY DETAILS (SHEET 3)

STATE OF TEXAS
AARON J. NEUMANN
114451
LICENSED PROFESSIONAL ENGINEER
05/02/2024

SHEET
47

G:\TX\Cl\Projects\Impact Commercial Services\12184-00 - Wimberley Ridge\03_CADD\01_Shts\42 UTILITY DETAILS.dwg Layout: UTILITY DETAILS (SHEET 3) Plotted: 5/2/2024 11:44:50 AM By: Trodriguez

ATTACHMENT N

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

Contributing Zone Plan Application (TCEQ-10257)

Attachment N- Inspection, Maintenance, Repair, and Retrofit Plan

This document has been prepared to provide a description and schedule for the performance of maintenance on permanent pollution abatement measures. Maintenance measures to be performed will be dependent on what permanent pollution abatement measures are incorporated into the project. The project specific water pollution abatement plan should be reviewed to determine what permanent pollution abatement measures are incorporated into a project. It should also be noted that the timing and procedures presented herein are general guidelines. Adjustment to the timing and procedures may have to be made depending on project specific characteristics as well as weather related conditions but may not be altered without TCEQ approval.

Where a project is occupied by the owner, the owner may provide for maintenance with his own skilled forces or contract for recommended maintenance of Permanent Best Management Practices. Where a project is occupied or leased by a tenant, the owner shall require tenants to contract for such maintenance services either through a lease agreement, property owners association covenants, or other binding document.

I understand that I am responsible for maintenance of the Permanent Pollution Abatement Measures included in this project until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or ownership is transferred.

I, the owner, have read and understand the requirements of the attached Maintenance Plan and Schedule.

Signature

6-21-24
Date

ATTACHMENT N

Contributing Zone Plan Application

BATCH DETENTION POND

Inspections should occur at least twice a year. If possible, these inspections should be conducted during wet weather to determine if the pond is meeting target detention times. Inspections should check for clogging of the primary outfall mechanism, as well as erosion problems in the upper stage pilot channel, all flow paths, and any erodible areas inside and downstream of the basin. If any slumping or erosion is discovered, immediate regrading or revegetation should be performed to correct the problems. Structural faults discovered during inspection should be identified and repaired immediately. Faults to check for include cracked concrete, sealing of voids, and removal of vegetation from cracks and joints. All inlet/outlet and riser pipes will eventually deteriorate and require replacement.

The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. At the time of mowing, litter and debris should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed. Additionally at this time, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

ATTACHMENT N

Contributing Zone Plan Application

The Logic Controller should be inspected as part of the investigations conducted twice a year. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

*All inspection and maintenance records must be kept at the office of the operator for the previous three years.

ATTACHMENT N

Contributing Zone Plan Application

ATTACHMENT P

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

Attachment P: Measures for Minimizing Surface Stream Contamination

Appropriately sized energy dissipators will be included where discharge from the site is concentrated and erosive velocities exist to reduce velocities to non-erosive levels and reduce surface stream contamination.

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: Antonio Rodriguez

Date: 06/19/2024

Signature of Customer/Agent:

Regulated Entity Name: Wimberley Ridge

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.

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: Cypress Creek, Blanco 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

Attachment A: Spill Response Actions

General Response Actions

1. All leaks and spills should be cleaned immediately.
2. Rags, mops, and absorbent material may all be used to cleanup a spill.
3. If these materials are used to clean a hazardous material, then they must be disposed of as hazardous waste.
4. Never hose down or bury dry material spills.

Minor Spills

If a minor spill occurs (typically small quantities of oil, gasoline, etc.) the following actions should be taken.

1. Contain the spread of the spill
2. Recover spilled materials
3. Clean the contaminated area and properly dispose of contaminated materials

Semi-Significant Spills

If a semi-significant spill occurs the following actions should be taken.

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

Significant/Hazardous Spills

If a significant or hazardous spill occurs in reportable quantities, the following actions should be taken.

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

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

Attachment B: Potential Sources of Contamination

Potential sources of contamination that may occur are:

- Oil, grease, fuel, and hydraulic fluid from construction equipment and vehicle drippings
- Miscellaneous trash and litter from construction workers and material wrappings
- Construction debris
- Excess application of fertilizers, herbicides, and pesticides

Preventative measures that will be taken to reduce contamination are:

- Vehicle maintenance will be performed within the construction staging area.
- Trash containers will be placed throughout the site to encourage proper trash disposal if necessary.
- Construction debris will be monitored daily by the contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis.
- Fertilizers, herbicides, and pesticides will be applied only when necessary and in accordance with manufacturer's directions.

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

Attachment C: Sequence of Major Activities

Roads and Utility Construction

1. Mobilization of the contractor's equipment.
2. Installation of temporary best management practices as described in attachment "D" of this section (Silt Fence, Construction Entrance, and Rock Berms), disturbed area included in road construction below.
3. Construction of flood management pond. (See table for disturbed areas)
4. Construction of roads. (See table for disturbed areas)
5. Trenching and installation of utilities. (See table for disturbed areas)
6. Establishment of permanent soil stabilization on disturbed areas.
7. Removal of Temporary BMP's.

Pond	1.64 acres
Roads	3.76 acres
Utilities	2.99 acres
Total	8.39 acres

ATTACHMENT D

TEMPORARY BMPs AND MEASURES

Attachment D: Temporary Best Management Practices and Measures

a. All upgradient stormwater entering the site will be treated by the BMPs that will prevent pollution of surface water or groundwater that originates on-site or flows off site. See a list of these BMPs in section "b."

b. The BMPs that will prevent pollution of surface water or groundwater that originates on-site or flows off site are:

i. **Temporary Construction Entrance/Exit** – The installation of a stabilized construction entrance/exit will reduce the dispersion of sediment from the site. See CG 801 of the CZP Site Plan which contains a copy of Section 1.4.2 from the Edwards Aquifer Rules: Technical Guidance on Best Management Practices for materials, installation, common trouble points, inspection and maintenance.

ii. **Silt Fence** – The erection of silt fence along the boundary of construction activities will provide temporary erosion and sedimentation control. See CG 801 of the CZP Site Plan which contains a copy of Section 1.4.3 from the Edwards Aquifer Rules: Technical Guidance on Best Management Practices for materials, installation, common trouble points, inspection and maintenance.

iii. **Rock Berm** – The use of rock berms throughout the site will provide temporary erosion and sedimentation control. See CG 801 of the CZP Site Plan which contains a copy of Section 1.4.5 from the Edwards Aquifer Rules: Technical Guidance on Best Management Practices for materials, installation, common trouble points, inspection and maintenance.

iv. **Construction Staging Area** – The construction staging area will provide on-site pollution prevention.

v. **Concrete Truck Washout Pit** – A concrete truck washout pit aids in the final cleanup and prevents unnecessary discharge of concrete residue from contaminating the storm water runoff. See CG 801 of the CZP Site Plan which contains a copy of Section 1.4.18 from the Edwards Aquifer Rules: Technical Guidance on Best Management Practices for materials, installation, common trouble points, inspection and maintenance.

c. Silt fence and rock berms (see section "b") will be used to prevent sediment-laden runoff from entering sensitive features on this site and surface streams off the site.

d. The flow to the natural sensitive features on this site, to a maximum practical extent, will not be disturbed. No clearing, excavation or grading will occur within the buffer zone of the sensitive feature. If another naturally-occurring sensitive feature is identified during construction all activity will be stopped and the contractor should notify TCEQ.

ATTACHMENT E

STRUCTURAL PRACTICES

Attachment E: Structural Practices

Structural practices installed to prevent the runoff of pollutants from exposed areas of the site are:

- Silt Fence
- Stabilized Construction Entrance/Exit
- Construction Staging Area
- Concrete Truck Washout Pit
- Rock Berm

For the majority of the disturbed soil within the limits of this project, silt fence will capture and hold sediment laden runoff.

Since part of this site is located within the floodplain, placement of these structure practices within the floodplain should be avoided.

ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMPs

Attachment I – Inspection and Maintenance for BMPs

Designated and qualified person(s) shall inspect Pollution Control Measures every seven days and within 24 hours after a storm event. An inspection report that summarized the scope of the inspection, names and qualifications of personnel conducting the inspection, date of inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of the Storm Water T.P.D.E.S. Plan. A copy of the inspection report form is provided as page 3 of this attachment. Inspection and Maintenance Guidelines are as follows:

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 revegetated. The fence itself should be disposed of in an approved landfill.

Temporary/Permanent Vegetation:
(1) Permanent vegetation should be inspected weekly and after each rain event to locate and repair any erosion.
(2) Erosion from storms or other damage should be repaired as soon as practical by regrading the area and applying new seed.
(3) If the vegetated cover is less than 80%, the area should be reseeded.

Rock Berm:
(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.
(2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
(3) Repair any loose wire sheathing.
(4) The berm should be reshaped as needed during inspection.
(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
(6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

Wimberly Ridge

Temporary Stormwater Section (TCEQ-0602)

Attachment I – Inspection and Maintenance for BMP

Approved Inspection intervals:

i. Conducted once every 7 days AND within 24 hours after rainfall event greater than 0.5 inch.

PROJECT NAME _____

REPORT # _____ DATE _____

INSPECTOR _____ TITLE _____

REASON FOR INSPECTION (CHECK ONE) Weekly _____ Or ½" Rain _____

DATE OF LAST RAINFALL _____ AMOUNT _____

SITE CONDITIONS:

EROSION AND SEDIMENTATION CONTROLS	IN CONFORMANCE		EFFECTIVE	
Concrete Washout Area		Yes/No/Na		Yes/No
Construction Entrance		Yes/No/Na		Yes/No
Permanent Vegetation		Yes/No/Na		Yes/No
Silt Fence		Yes/No/Na		Yes/No
Rock Berm		Yes/No/Na		Yes/No

RECOMMENDED REMEDIAL ACTIONS: _____

COMMENTS: _____

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

INSPECTOR: _____ DATE: _____

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Attachment J – Schedule of Interim and Permanent Soil Stabilization Practices

Soil stabilization practices will be used to reduce the amount of erosion from the site. Only the areas essential for immediate construction should be cleared. This will keep a buffer zone around the area of construction as these areas will remain undisturbed until construction begins there.

Interim soil stabilization areas are determined in the field. Temporary vegetation will be used as an aid to control erosion on critical sites during establishment period of protective vegetation when construction is temporarily ceased.

Stabilization practices should be installed according to the following rules:

- Stabilization measures shall be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

- Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by weather conditions, stabilization measures shall be initiated as soon as practical.

- In areas experiencing droughts where the initiation of stabilization measure by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practical.

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

I Hutchison Utt,
Print Name

Owner,
Title - Owner/President/Other

of Impact Commercial Services,
Corporation/Partnership/Entity Name

have authorized Antonio Rodriguez
Print Name of Agent/Engineer

of BGE, 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

May 28 2024
Date

THE STATE OF Texas §

County of Hays §

BEFORE ME, the undersigned authority, on this day personally appeared Hutchinson Vit 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 28th day of May, 2024.

MORGAN GLENN
Notary Public, State of Texas
Comm. Expires 06-17-2024
Notary ID 132526365

Morgan Glenn
NOTARY PUBLIC

Morgan Glenn
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 06-17-2024

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Wimberley Ridge

Regulated Entity Location: along west side of Valley Springs Road , 0.56 miles north of FM 2325, 2.25 miles west of the City of Woodcreek ETJ and 2 miles northwest of the City of Wimberly ETJ.

Name of Customer: Impact Commercial Services, LLC

Contact Person: Antonio Rodriguez Phone: +1 (210) 581-3643

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☒ Hays ☐ Williamson

☐ Travis

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

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

☒ Austin Regional Office ☐ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ 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	19.22 Acres	$ 4,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$

Type of Plan	Size	Fee Due
Extension of Time	Each	$

Signature: _____ Date: 5/28/24

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

2. Customer Reference Number *(if issued)*

CN

Follow this link to search for CN or RN numbers in Central Registry**

3. Regulated Entity Reference Number *(if issued)*

RN

SECTION II: Customer Information

4. General Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*

Impact Commercial Services, LLC

If new Customer, enter previous Customer below:

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0803666106	32074833685		

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☐ Owner & Operator ☐ Other:

☐ Occupational Licensee ☒ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:

1206 W Slaughter Lane

City	Austin	**State**	TX	**ZIP**	78748	**ZIP + 4**	6432

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)*

(210) 531-9800		( ) -

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.)*

Wimberley Ridge

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

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

25. Description to Physical Location:	21.69-acre project located along West Valley Springs Road , 0.56 miles north of FM 2325, 2.25 miles west of the City of Woodcreek ETJ and 2 miles northwest of the City of Wimberly ETJ.

26. Nearest City	**State**	**Nearest ZIP Code**
Wimberley	TX	78676

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:	30.024545		**28. Longitude (W) In Decimal:**	-98.146106	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	1	28	-98	8	46

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		236117	

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

Single Family Residential Housing

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
☐ 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:	Tony Rodriguez	41. Title:	EIT

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 581-3600		( ) -	trodriguez@bgeinc.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:		Job Title:	
Name *(In Print)*:	Hutchinson UTT	Phone:	( ) -
Signature:		Date:	5/16/2024

Applicant Acknowledgement

I, Hutchison Utt of Impact Commercial Services LLC
Applicant Name (Individual) Firm (applicable to Legal Entities)

acknowledge that WimRidge Development LLC
Land Owner Name (Legal Entity or Individual)

has provided Impact Commercial Services LLC
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 Impact Commercial Services LLC
Applicant Name (Legal Entity or Individual)

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

Applicant Signature

Applicant Signature

7/24/2024
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 24th day of July, 2024

Denna S Turner
NOTARY PUBLIC

DENNA L. TURNER NOTARY PUBLIC STATE OF TEXAS ID 12884401 EXP. 01-15-2028

Denna L. Turner
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 1-15-2028

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, Hutch Utt (Land Owner Name (Individual)) of WimRidge Development LLC (Firm (applicable to Legal Entities))

am the Owner of Record or Title Holder of the property located at:

Woodcreek Section 25, Lots 7-44, 50-59, & 145-157

(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:

Impact Commercial Services, LLC

(Applicant Name / Plan Holder (Legal Entity or Individual))

to conduct:

Construction of residential subdivision, including grading, roads, drainage, and utility infrastructure installation

(Description of the proposed regulated activities)

on the property described above or at:

Woodcreek Section 25, Lots 7-44, 50-59, & 145-157

(If applicable to a precise location for the authorized regulated activities)

Land Owner Acknowledgement

I, Hutch Utt (Land Owner Name (Individual)) of WimRidge Development LLC (Firm (applicable to Legal Entities))

understand that while Impact Commercial Services, LLC (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, Hutchison Utt of WimRidge Development LLC

Land Owner Name (Individual) Firm (applicable to Legal Entities)

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

I, Hutchison Utt of WimRidge Development LLC

Land Owner Name (Individual) Firm (applicable to Legal Entities)

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

Land Owner Signature

Land Owner Signature

7/24/2024

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 24th day of July, 2024

Denna L. Turner

NOTARY PUBLIC

DENNA L. TURNER NOTARY PUBLIC STATE OF TEXAS ID 128844401 EXP. 01-15-2028

Denna L. Turner

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 1-15-2028

Attached: (Mark all that apply)

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