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Balcones Flats

Jarrell, Texas

Sewage Collection System Plan

March 2025

TBPE # F-4512

MHE 2992.00

MATKINHOOVER
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& SURVEYING

February 27, 2025

Edwards Aquifer Protection Program
Texas Commission on Environmental Quality
Austin Regional Office
12100 Park 35 Circle
Austin, Texas 78753

Re: Balcones Flats
Jarrell, Texas
Organized Sewage Collection System Plan

Please find attached one (1) digital copy the Balcones Flats Development Sewer, Collection System Plan (SCS). The SCS has been prepared in accordance with the Texas Commission on Environmental Quality (30 TAC 217) and current policies for development over the Edwards Aquifer Recharge Zone.

This Organized Sewage Collection System Plan applies to a 23.028-acre tract located in the city limits of Jarrell, TX just southeast of the intersection between CR 487 and C. Bud Stockton Loop. This plan has already been approved by TCEQ but was not built and the permit expired, the previous approval letter from TCEQ is attached behind this page.

Please review the attached SCS information for the items it is intended to address, and if acceptable, provide a written approval of the plan in order that construction may begin at the earliest opportunity.

Appropriate review fees $650.00 paid on first submission and an additional $9.50 has been included with the NOD1 and fee application are included. If you have any questions regarding this information, please call our office.

Sincerely,
Matkin Hoover Engineering & Surveying
TBPE Firm No. F-4512

Garrett Keller, P.E.
President & COO

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 if not withdrawn the application will be denied and 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 to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- 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 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 effected 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: Balcones Flats						**2. Regulated Entity No.:**			
3. Customer Name: Strategic Metal Solutions, LLC						**4. Customer No.:** 605875822			
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):**		23.028	
9. Application Fee:	$650.00		**10. Permanent BMP(s):**			*N/A*			
11. SCS (Linear Ft.):	194.69		**12. AST/UST (No. Tanks):**			*N/A*			
13. County:	Williamson		**14. Watershed:**			Salado Creek			

Application Distribution

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

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

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

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	_X_
Region (1 req.)	___	___	_X_
County(ies)	___	___	_X_
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown _X_Jarrell ___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. Garrett Keller, P.E. Print Name of Customer/Authorized Agent Signature of Customer/Authorized Agent Date 3/10/25

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):	

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Balcones Flats Residential Subdivision
SCS
Section 2 – General Information

General Information Form

Texas Commission on Environmental Quality

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

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

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

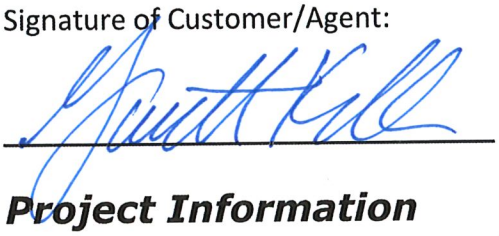
Signature

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

Print Name of Customer/Agent: Garrett Keller, P.E.

Date: 3/10/25

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Balcones Flats
2. County: Williamson
3. Stream Basin: Salado Creek
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☐ WPAP
   ☒ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: Evan Horn
   Entity: Strategic Metal Solutions, LLC
   Mailing Address: PO Box 689
   City, State: Marble Falls TX Zip: 78654
   Telephone: (512) 966 - 7434 FAX: N/A
   Email Address: evan@strategictx.com

8. Agent/Representative (If any):

   Contact Person: Garrett Keller
   Entity: Matkin Hoover Engineering & Surveying
   Mailing Address: 1701 Williams Dr
   City, State: Georgetown, Texas Zip: 78626
   Telephone: 830 - 249 - 0600 FAX: 830 - 249 - 0099
   Email Address: GKeller@matkinhoover.com

9. Project Location:

   ☒ The project site is located inside the city limits of Jarrell, Texas.
   ☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
   ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

    In Jarrell Texas just southeast of the intersection between CR 487 and C. Bud Stockton Loop.

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

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

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☐ Survey staking will be completed by this date: _____

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

15. 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/Uncleared)
    ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

    (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

    (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

    (4) The use of sewage holding tanks as parts of organized collection systems; and

    (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

    (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

    (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

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

Administrative Information

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

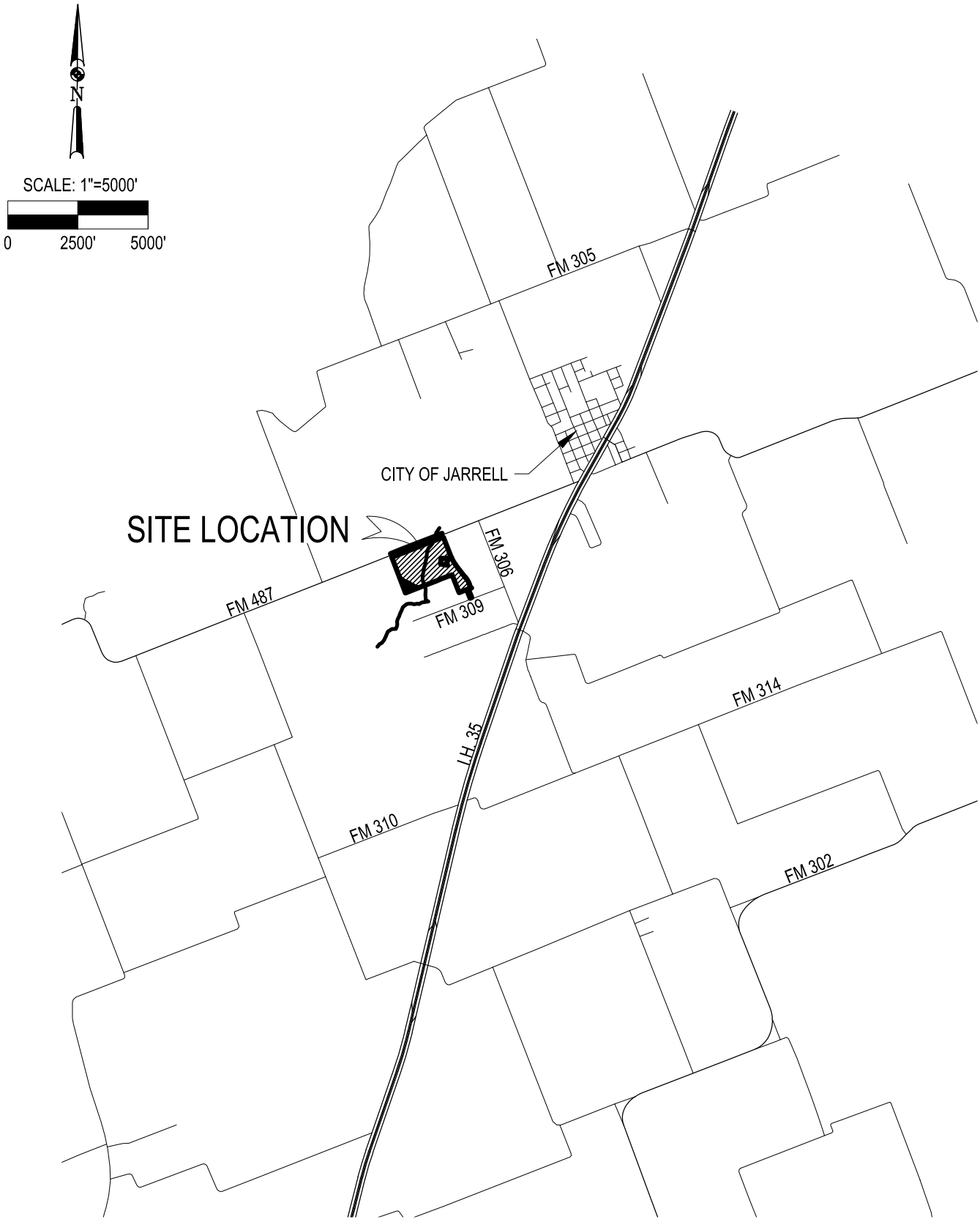
- ☐ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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

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



Date: Jan 27, 2025, 9:15am User ID: jandersen
G:\PROJECTS\2992 - Balcones Flats\11- Phase II\01 - Phase 2 Re-Approval\Submittals\TCEQ\SCS\02 - General Information\2.1 - Road Map (Attachment A).dwg

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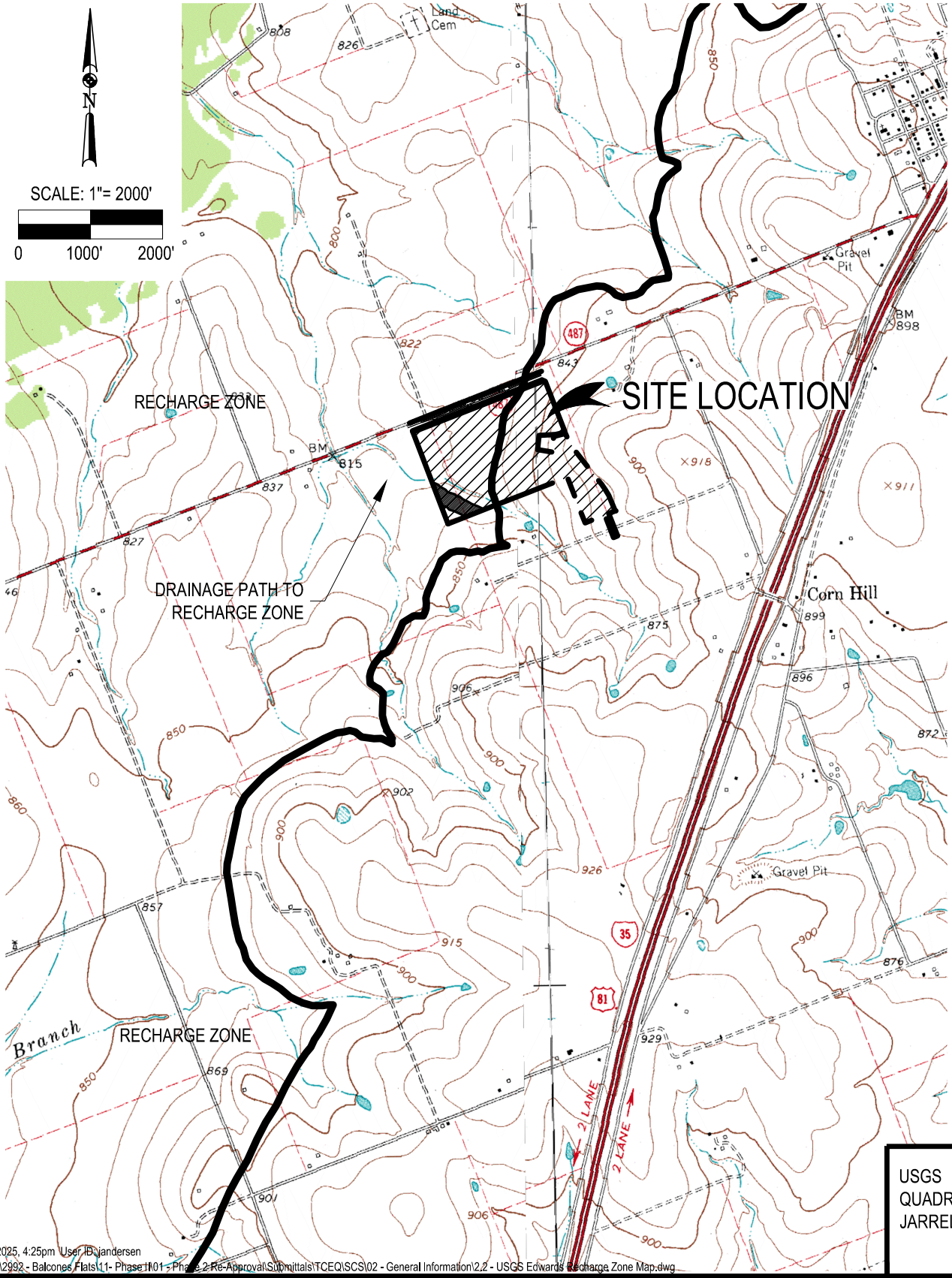
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600 FAX:830.249.0099
TEXAS REGISTERED ENGINEERING FIRM F-004512
CIVIL ENGINEERS SURVEYORS LAND PLANNERS CONSTRUCTION MANAGERS CONSULTANTS

ROAD MAP
FOR
BALCONES FLATS
JARRELL, TX

JOB NO.	2992.00
DATE	FEB 2025
DESIGNED	TJK
CHECKED	GK
SHEET	ATTACH. A



USGS
QUADRANGLE:
JARRELL

Date: Jan 27, 2025, 4:25pm User: JD.jandersen
G:\PROJECTS\2992 - Balcones Flats\11- Phase 1\01 - Phase 2 Re-Approval\Submittals\TCEQ\SCS\02 - General Information\2.2 - USGS Edwards Recharge Zone Map.dwg

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TEXAS REGISTERED ENGINEERING FIRM F-004512
CIVIL ENGINEERS SURVEYORS LAND PLANNERS CONSTRUCTION MANAGERS CONSULTANTS

USGS / EDWARDS RECHARGE ZONE MAP
FOR
BALCONES FLATS
JARRELL, TX

JOB NO.	2992.00
DATE	FEB 2025
DESIGNED	TJK
CHECKED	GK
SHEET	ATTACH. B

BALCONES FLATS
PROJECT DESCRIPTION

The proposed Balcones Flats Subdivision is located in Jarrell, TX just southeast of the intersection between CR 487 and C. Bud Stockton Loop. The project area is 68.70 acres of undeveloped/uncleared land. A portion of this property is located within Zone 'A' of the FEMA Floodplain as denoted herein, and as defined by Federal Emergency Management Administration Flood Hazard Boundary Map, community panel number 48491C0125E, dated effective September 26, 2008. 32.94 acres of the property lies within the Edwards Aquifer Recharge Zone and drains into Salado Creek while the other 35.76 acres of the property does not lie within the Edwards Aquifer jurisdiction.

The proposed development called "Balcones Flats" is a 3-phase residential subdivision. Phase 1 of the development will consist of 91 single family residential tracts with 47' and 52' frontage (ranging from 3500ft^2 to 6000ft^2 in size) and one open space lot with a lift station. Phase 2 of the development will consist of 108 single family residential tracts with three open space lots. Phase 3 of the development will consist of an approximate 300-unit multi-family development that will be permitted at a later date. The proposed site is currently undeveloped and has historically been used for agriculture and livestock resources. The proposed development will include the construction of roads, utilities, detention/water quality ponds, entrance monuments, TxDOT improvements and other appurtenances. Upon completion the subdivision will have 22.87 acres (33.3%) of impervious cover and 9.26 acres (28.1%) of impervious cover within the Edwards Aquifer Recharge Zone. Mitigation will be provided by a water quality pond that has been sized to account for the proposed impervious cover for the single-family homes within the EARZ of the development (Water Quality Pond F). The proposed pond has been sized in order to accommodate the TCEQ requirement of 80% TSS Removal. Separate calculations are provided within this submittal.

The second phase Balcones Flats is a 23.028-acre tract of land. Included within the second phase 194.69 LF of sanitary sewer within the Edwards Aquifer Recharge Zone and will be constructed to drain to the sewage collection system in phase 1. This submittal is to re-permit the sewer system located in phase 2, but the system has been sized for ultimate development. The letter of the previous approval for this development has been included after the executive summary letter for this site. No change has been made to the plans from its previous approval.

The BMPs for this project have been designed in accordance with the TCEQ Technical Guidance Manual RG-348(2005) to remove over 80% of the increased TSS for the entire project.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 9, 2021

Mr. Margarito Espinoza
Espinoza Stone
101 W. 4th St.
Jarrell, TX 76537

Re: Edwards Aquifer, Williamson County

NAME OF PROJECT: Balcones Flats Phase II; Located S.E. of C. Bud Stockton Loop and F.M. 487; Jarrell, Texas

TYPE OF PLAN: Request for Approval of an Organized Sewage Collection System (SCS) Plan; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11002524; Regulated Entity No. RN110816170

Dear Mr. Espinoza:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the organized sewage collection system plans and specifications for the referenced project submitted to the Austin Regional Office on behalf of Espinoza Stone by Matkin Hoover Engineering and Surveying on May 12, 2021. Final review of the SCS was completed after additional material was received on June 30, 2021. As presented to the TCEQ, the construction documents were selected and were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213 and Chapter 217. Therefore, based on the Texas Licensed Professional Engineer's concurrence of compliance, the planning materials for construction of the proposed sewage collection system and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires (2) two years from the date of this letter unless, prior to the expiration date, more than 10 percent of construction has commenced, or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed sewage collection system will provide disposal service for a single-family residential development. The gravity SCS system will include the piping outlined in the table below.

Pipe Diameter	Linear Feet	Pipe Material/Specifications
8" Gravity	194.69	SDR-26, Class 160/ASTM D2241

The system will be connected to an existing City of Jarrell wastewater line for conveyance to the City of Jarrell Wastewater Treatment Plant for treatment and disposal. The project is located within the City of Jarrell and will conform to all applicable codes, ordinances, and requirements of the City of Round Rock.

GEOLOGY

According to the Geologic Assessment included with the application, the soils consist of Austin-Whitewright, Denton silty clay, Heiden clay and Houston Black clay. The surficial geologic units consist of Del Rio Clay, Buda Limestone, Eagle Ford group and Austin Chalk. No sensitive features were observed within 50 feet of the SCS. The TCEQ site assessment conducted on June 29, 2021 revealed the site to be generally as described.

SPECIAL CONDITIONS

I. It is emphasized that where wastewater lines must bridge faults, caverns, sinkholes, or solution features the lines shall be constructed in a manner that will maintain the structural integrity of the pipe. When such sensitive features area encountered, 30 TAC §213.5(f)(2) requires that all regulated activities near the feature must be immediately suspended and the owner/developer shall immediately notify the Austin Regional Office. Additionally, when such geologic features are encountered which are bridged by construction, the location and extend of those features must be assessed by a geologist and must be reported to the Austin Regional Office in writing within two working days of discovery as required by 30 TAC §213.5(c)(3)(K). Construction may not resume in the area of the feature until the executive director has reviewed and approved the methods proposed to protect the aquifer from any potential adverse impacts. See Standard Condition 10 below.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the project location shall be provided a copy of this notice of approval. At least one complete copy of the approved SCS plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Modification to the activities described in the referenced SCS application following the date of approval may require the submittal of a plan to modify this approval, including the

payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

6. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved application, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

<u>During Construction:</u>

8. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213 and Chapter 217. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.
9. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
10. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
11. The following records shall be maintained by the applicant and made available to the executive director upon request: the dates trenching activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated and completed.
12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
13. Intentional discharges of sediment laden stormwater during construction are not allowed. If dewatering of excavated areas becomes necessary, the discharge will be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, sit fence rings, etc.
14. No part of the system shall be used as a holding tank for a pump-and-haul operation.

After Completion of Construction:

15. Certification by a Texas Licensed Professional Engineer of the testing of sewage collection systems required by 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office within 30 days of test completion and prior to the new sewage collection system being put into service. The certification should include the project name as it appeared on the approved application, the program ID number, and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Should any test result fail to meet passing test criteria and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.

    Every five years after the initial certification, the sewage collection system shall be retested. Any lines that fail the test must be repaired and retested. Certification that the system continues to meet the requirements of 30 TAC Chapter 213 and Chapter 217 shall be submitted to the Austin Regional Office. The certification should include the project name as it appeared on the approved application, the program ID number and two copies of a site plan sheet(s) indicating the wastewater lines and manholes that were tested and are being certified as complying with the appropriate regulations. Should any test result fail to meet passing test criteria, and then subsequently pass testing, the result(s) and an explanation of what repair, adjustment, or other means were taken to facilitate a subsequent passing result shall be provided.
16. If ownership of this organized sewage collection system is legally transferred (e.g., developer to city or Municipal Utility District), the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
17. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

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

Sincerely,

Lillian Butler

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

LIB/cmg

MATKINHOOVER
BOERNE | GEORGETOWN
CONTACT@MATKINHOOVER.COM
OFFICE: 830.249.0600 FAX:830.249.0099
ENGINEERING & SURVEYING

Balcones Flats Residential Subdivision
SCS
Section 3 – Geologic Assessment

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

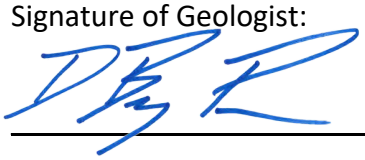
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

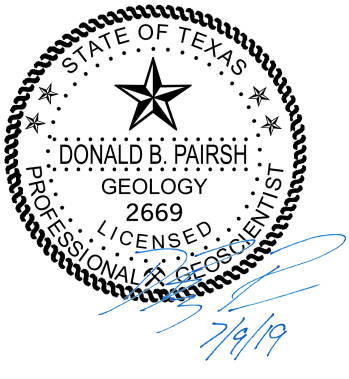
Print Name of Geologist: D Bryan Pairsh Telephone: 512-535-4368

Date: 05/22/2019 Fax: 512-535-4451

Representing: Capitol Environmental, Inc TBPG Firm Registration #50389 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:





Regulated Entity Name: Balcones Flats

Project Information

1. Date(s) Geologic Assessment was performed: May 21, 2019
2. Type of Project:

   ☒ WPAP ☐ AST
   ☐ SCS ☐ UST
3. Location of Project:

   ☒ Recharge Zone
   ☐ Transition Zone
   ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Austin-Whitewright (AWC2) 1-5% slope	C	1-10'
Denton silty clay (Dnc) 3-5% slope	D	1-10'
Heiden clay (HeB) 1-3% slope	D	1-10'
Houston Black clay (HuB) 1-3% slope	D	1-10'

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

   Applicant's Site Plan Scale: 1" = 100'
   Site Geologic Map Scale: 1" = 100'
   Site Soils Map Scale (if more than 1 soil type): 1" = 100'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.

☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☐ Geologic or manmade features were not discovered on the project site during the field investigation.
13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☒ There are 2 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☐ The wells are not in use and have been properly abandoned.
    - ☐ The wells are not in use and will be properly abandoned.
    - ☐ The wells are in use and comply with 16 TAC Chapter 76.

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

Administrative Information

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

Attachment A – Geologic Table

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: BALCONES FLATS

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
F-1	30.810861	-97.62801	O	5	Kdr	Streambed			305				F	35	40		X		X	Streambed
F-2	30.813889	-97.629167	MB	30	Kdr	Waterwell							X	5	35	X		X		Hilltop
F-3	30.815001	-97.625555	MB	30	Kdr	Waterwell							X	5	35	X		X		Hilltop

***DATUM:** NAD 83 StatePlane Texas Central

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date: 5/22/2019

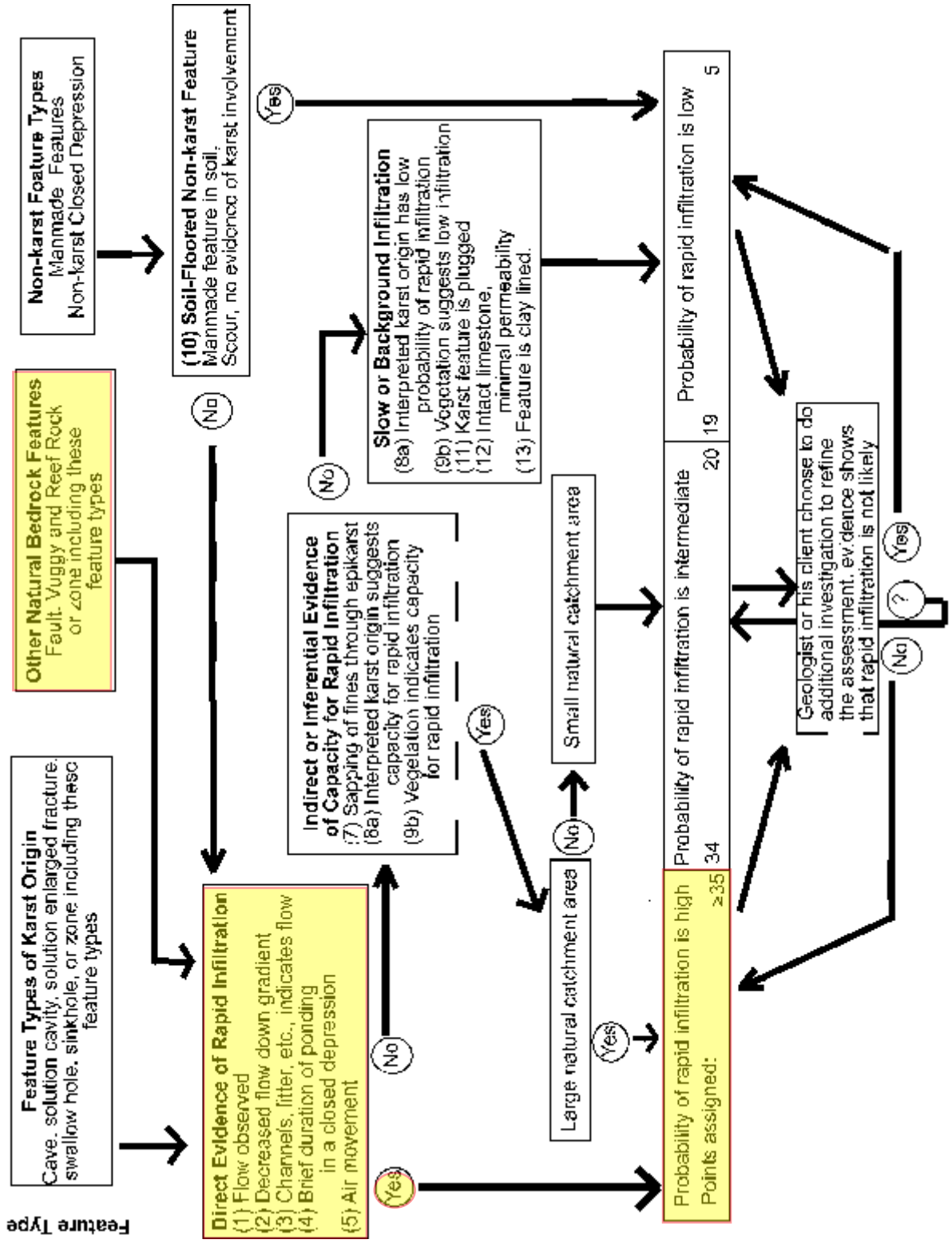
Sheet: 1 of 1

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST
7/9/19

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

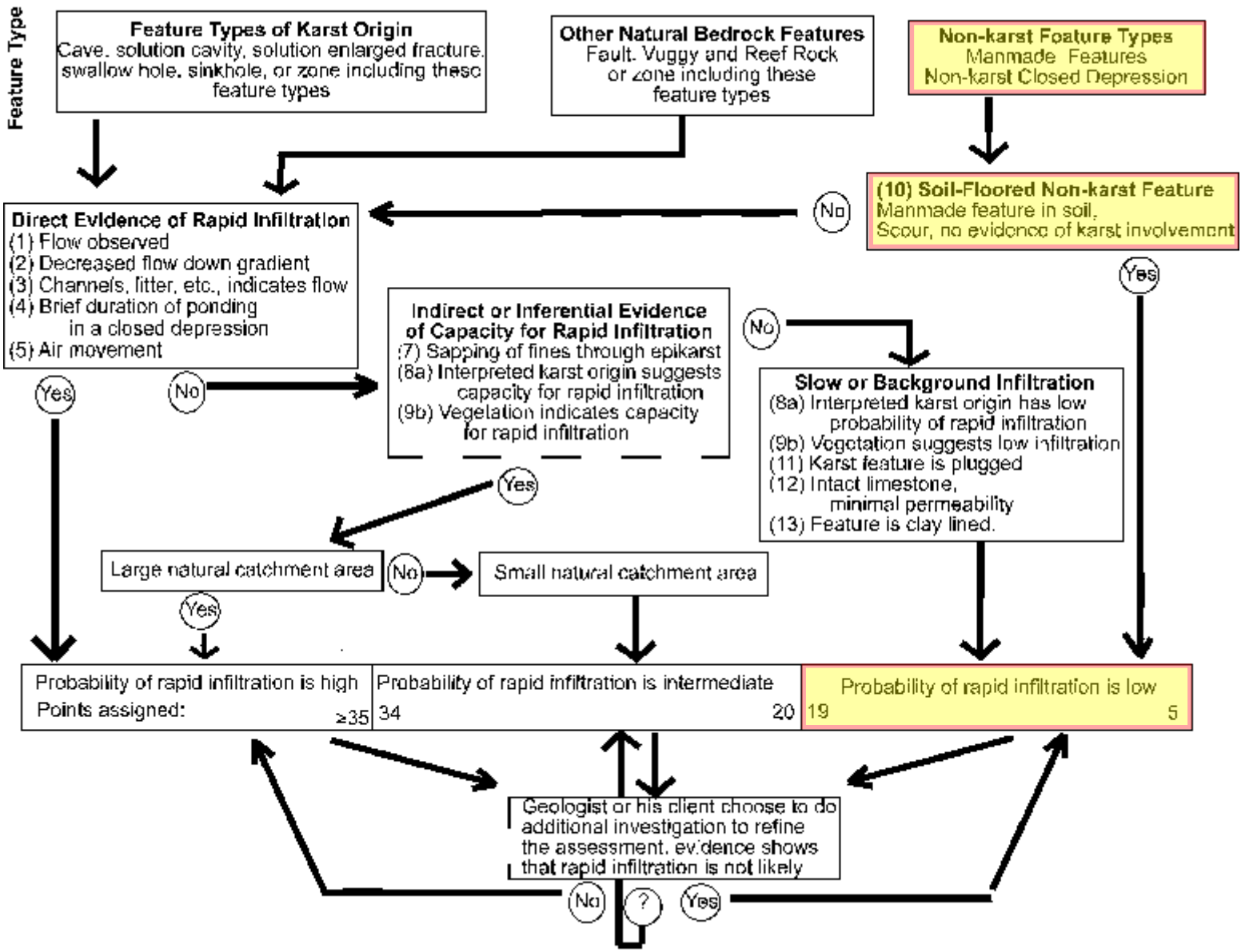
FEATURE: F-1

Figure 1: Assessing the Probability that Rapid Infiltration May Occur at a Feature



Feature: F-2

Figure 1: Assessing the Probability that Rapid Infiltration May Occur at a Feature



Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-11-601

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5811601
County	Williamson
River Basin	Brazos
Groundwater Management Area	8
Regional Water Planning Area	G - Brazos G
Groundwater Conservation District	
Latitude (decimal degrees)	30.813889
Latitude (degrees minutes seconds)	30° 48' 50" N
Longitude (decimal degrees)	-97.629167
Longitude (degrees minutes seconds)	097° 37' 45" W
Coordinate Source	+/- 5 Seconds
Aquifer Code	218EDRDA - Edwards and Associated Limestones
Aquifer	Edwards (Balcones Fault Zone)
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	830
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	209
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	7/18/1980
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Open Hole

Well Type	Test Hole
Well Use	Plugged or Destroyed
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	None
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	State of Texas
Driller	Texas Dept.of Water Resources
Other Data Available	Caliper; Gamma Ray; Gamma-Gamma; Neutron
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	7/18/1980
Last Update Date	9/16/2014

Remarks	Test Hole ZK-15. Destroyed.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
3	Blank	Steel			0	50
	Open Hole				50	209

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

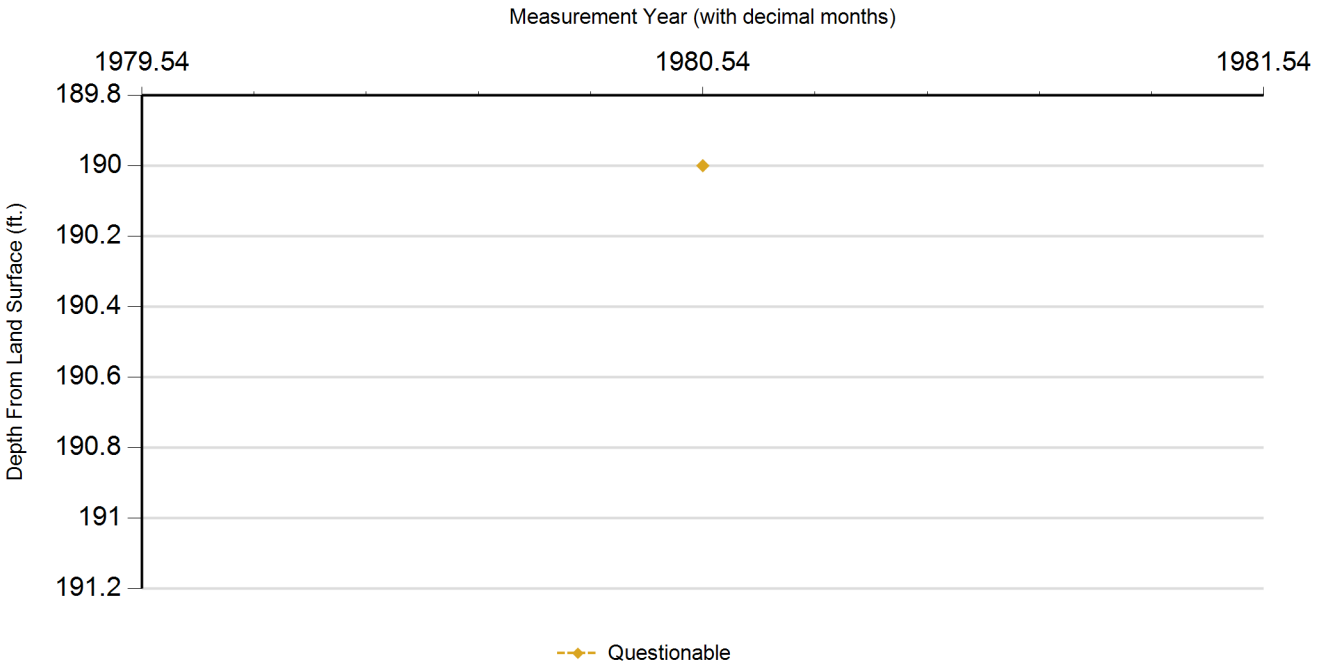
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
Q	7/17/1980		190		640	1	Other or Source of Measurement Unknown	Unknown	17	

Code Descriptions

Status Code	Status Description
Q	Questionable

Remark ID	Remark Description
17	Measurement before well completion

Water Quality Analysis - No Data Available

TEXAS DEPARTMENT OF WATER RESOURCES

WELL SCHEDULE

Aquifer(s) EDWARDS Project No. Outcrop Study State Well No. 58-11-601

Field No./Owner's Well No. ZK-15 County Williamson

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey ___, Longitude ___, Latitude ___

2. Owner: TDWR Address: ___

Tenant (other): ___ Address: ___

Driller: TDWR Address: ___

3. Land Surface Elevation: 830 ft. above msl determined by Topo

4. Drilled: July 18 1980; Dug, Cable Tool, (Rotary, Air,)

5. Depth: Rept. 215 ft. Meas. 209 ft.

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. None Type None

No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.

Column Diam. ___ in., Length Tailpipe ___ ft.

8. Motor: Mfr. None Fuel None HP. None

9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___ Date ___

10. Performance Test: Date ___ Length of Test ___ Made by ___

Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.

Production ___ gpm Specific Capacity ___ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) ___

Analyses

Date ___ Laboratory ___ TDS ___ Sp Cond ___

Date ___ Laboratory ___ TDS ___ Sp Cond ___

C/NC

12. Other data available as circled: Pumping test, Power & Yield Test, (Drillers) (Logs), Formation Samples, (Geophysical Log(s)) 7/17/80 (type)

CASING, BLANK PIPE & WELL SCREEN
Cemented From 0 ft. to 40 ft.

Diam. (in.)	Type	Setting (feet) from	to
3	steel	+2	50

13. Water Level(s): 190 ft. rept. meas. 7-17 1980 above below LSD which is 0 ft. above below Land Surface

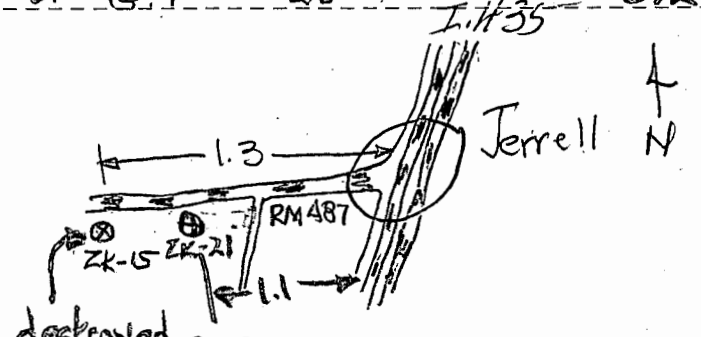
___ ft. rept. meas. ___ 19__ above below ___ which is ___ ft. above below Land Surface

14. Use: Dom., Stock, Public Supply, Ind., Irr., Observation, Other (Test Hole, Oil Test, etc.) DESTROYED 4/15/8

15. Recorded by: GLO Source of data: Rig Geologist Date: 7/18/80

16. Remarks: Base of Edwards 203 } This test well was destroyed
Top of " 158 } & replaced with ZK-21 (58-11-603.)
Top of G.T. 26 } 0.2 west of ZK-15

17. Location or Sketch:



destroyed see other Sch. 58-11-602

TDWR-0308

W/L Obs. Well ___ W/Q Obs. Well ___

State Well No. 58-11-601

TEXAS DEPARTMENT OF WATER RESOURCES

WELL SCHEDULE

Aquifer(s) EDWARDS Project No. Outcrop 2 Study State Well No. 58-11-601

Field No./Owner's Well No. ZK-15 County Williamson

1. Location: ¼, ¼, Section, Block, Survey, Longitude, Latitude

2. Owner: TDWR Address:

Tenant (other): Address:

Driller: TDWR Address:

3. Land Surface Elevation: 830 ft. above msl determined by Topo

4. Drilled: July 18 1980; Dug, Cable Tool (Rotary, Air)

5. Depth: Rept. 215 ft. Meas. 209 ft.

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. None Type None

No. Stages, Bowls Diam. in., Setting ft.

Column Diam. in., Length Tailpipe ft.

8. Motor: Mfr. None Fuel None HP. None

9. Yield: Flow gpm, Pump gpm, Meas., Rept., Est. Date

10. Performance Test: Date Length of Test Made by

Static Level ft. Pumping Level ft. Drawdown ft.

Production gpm Specific Capacity gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.)

Analyses

Date Laboratory TDS Sp Cond

Date Laboratory TDS Sp Cond

12. Other data available as circled: Pumping test, Power & Yield Test, (Drillers Log), Formation Samples, Geophysical Log(s) 7/17/80 (type)

CASING, BLANK PIPE & WELL SCREEN Cemented From 0 ft. to 40 ft.

Diam. (in.)	Type	Setting (feet) from	to
3	steel	+2	50

13. Water Level(s): 190 ft. rept. (est.) 7-17 1980 above (below) LSD which is 0 ft. above below Land Surface

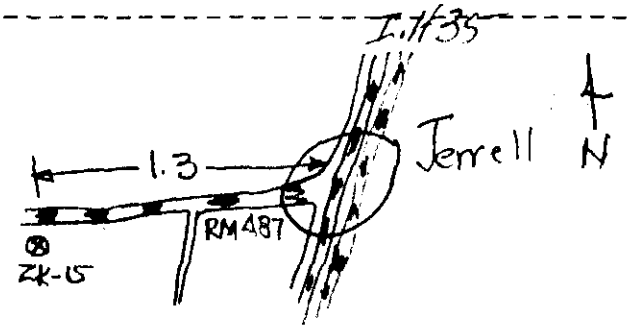
ft. rept. meas. 19 above below which is ft. above below Land Surface

14. Use: Dom., Stock, Public Supply, Ind., Irr., (Observation), Other (Test Hole, Oil Test, etc.)

15. Recorded by: GLO Source of data: Rig Geologist Date: 7/18/80

16. Remarks:

17. Location or Sketch:



E-log

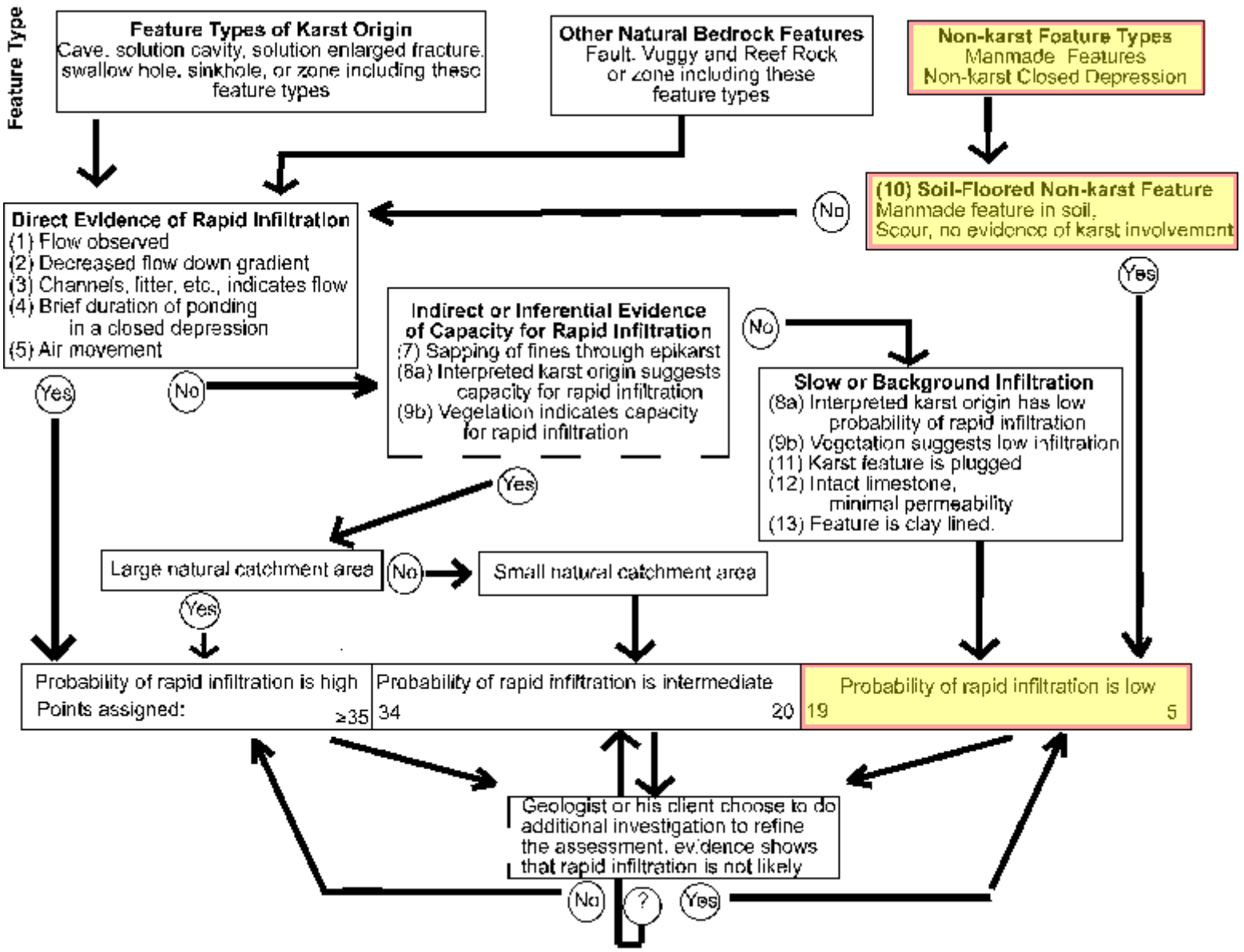
W/L Obs. Well ___ W/Q Obs. Well ___

State Well No. 58-11-601

TDWR-0360

Feature: F-3

Figure 1: Assessing the Probability that Rapid Infiltration May Occur at a Feature



Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-11-603

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	5811603
County	Williamson
River Basin	Brazos
Groundwater Management Area	8
Regional Water Planning Area	G - Brazos G
Groundwater Conservation District	
Latitude (decimal degrees)	30.815001
Latitude (degrees minutes seconds)	30° 48' 54" N
Longitude (decimal degrees)	-97.625555
Longitude (degrees minutes seconds)	097° 37' 32" W
Coordinate Source	+/- 5 Seconds
Aquifer Code	218EDRDA - Edwards and Associated Limestones
Aquifer	Edwards (Balcones Fault Zone)
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	840
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	262
Well Depth Source	Measured
Drilling Start Date	
Drilling End Date	4/16/1981
Drilling Method	Air Rotary
Borehole Completion	Open Hole

Well Type	Test Hole
Well Use	Plugged or Destroyed
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	None
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	State of Texas
Driller	Texas Dept.of Water Resources
Other Data Available	Caliper; Gamma Ray; Gamma-Gamma; Neutron
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	4/16/1981
Last Update Date	10/21/2009

Remarks	Test Hole ZK-21. Unable to locate well in Oct. 2009.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
3	Blank	Steel			0	210
3	Screen				210	262

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

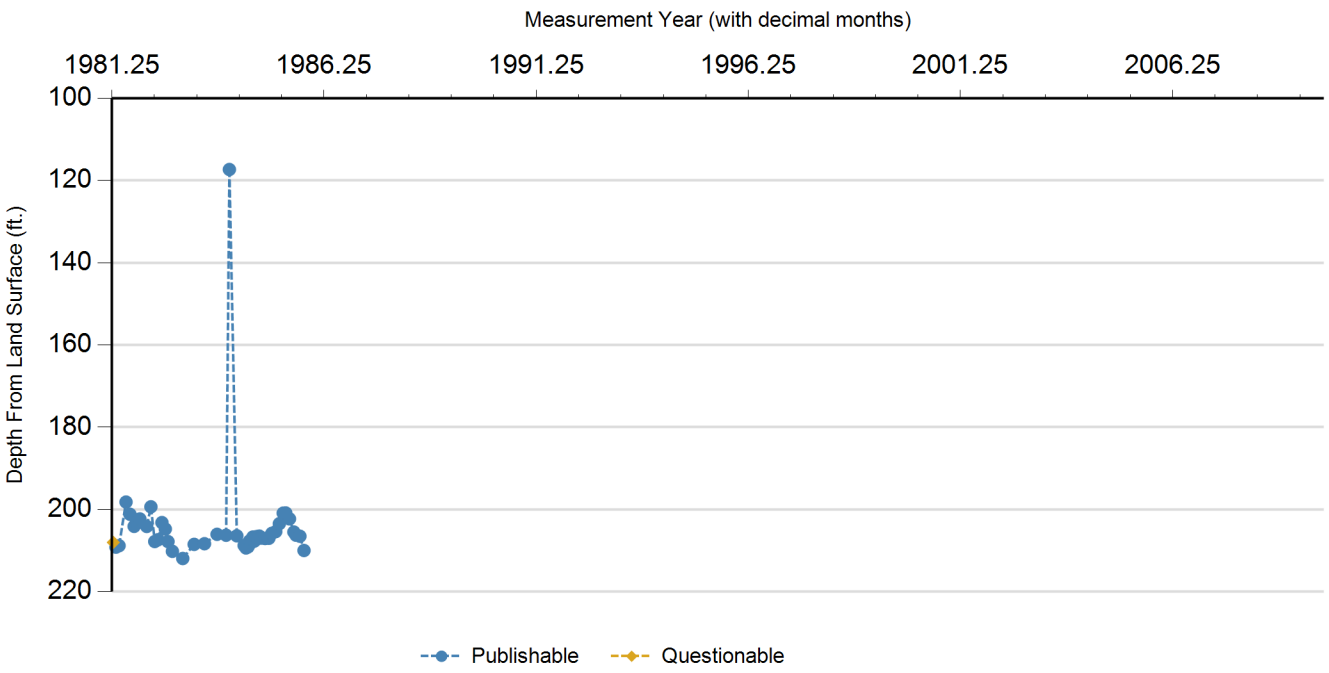
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
Q	4/15/1981		208		632	1	Other or Source of Measurement Unknown	Unknown	17	
P	5/7/1981		209.15	1.15	630.85	1	Texas Water Development Board	Steel Tape		
P	6/4/1981		208.8	(0.35)	631.2	1	Texas Water Development Board	Steel Tape		
P	8/4/1981		198.19	(10.61)	641.81	1	Texas Water Development Board	Steel Tape		
P	9/8/1981		201.17	2.98	638.83	1	Texas Water Development Board	Steel Tape		
P	10/14/1981		204.1	2.93	635.9	1	Texas Water Development Board	Steel Tape		
P	11/5/1981		203.1	(1.00)	636.9	1	Texas Water Development Board	Steel Tape		
P	12/3/1981		202.3	(0.80)	637.7	1	Texas Water Development Board	Steel Tape		
P	1/27/1982		204.12	1.82	635.88	1	Texas Water Development Board	Steel Tape		
P	3/3/1982		199.35	(4.77)	640.65	1	Texas Water Development Board	Steel Tape		
P	4/6/1982		207.79	8.44	632.21	1	Texas Water Development Board	Steel Tape		
P	5/5/1982		207.35	(0.44)	632.65	1	Texas Water Development Board	Steel Tape		
P	6/8/1982		203.18	(4.17)	636.82	1	Texas Water Development Board	Steel Tape		
P	7/7/1982		204.75	1.57	635.25	1	Texas Water Development Board	Steel Tape		
P	7/30/1982		207.8	3.05	632.2	1	Texas Water Development Board	Steel Tape		
P	9/8/1982		210.17	2.37	629.83	1	Texas Water Development Board	Steel Tape		
P	12/7/1982		211.92	1.75	628.08	1	Texas Water Development Board	Steel Tape		
P	3/10/1983		208.48	(3.44)	631.52	1	Texas Water Development Board	Steel Tape		
P	6/9/1983		208.32	(0.16)	631.68	1	Texas Water Development Board	Steel Tape		
P	9/27/1983		206.04	(2.28)	633.96	1	Texas Water Development Board	Steel Tape		
P	12/15/1983		206.26	0.22	633.74	1	Texas Water Development Board	Steel Tape		

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 58-11-603

groundwater division

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	1/8/1984		117.34	(88.92)	722.66	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/12/1984		206.4	89.06	633.6	1	Texas Water Development Board	Steel Tape		
P	5/15/1984		208.75	2.35	631.25	1	Texas Water Development Board	Steel Tape		
P	6/1/1984		209.36	0.61	630.64	1	Texas Water Development Board	Steel Tape		
P	6/18/1984		209.1	(0.26)	630.9	1	Texas Water Development Board	Steel Tape		
P	7/2/1984		207.64	(1.46)	632.36	1	Texas Water Development Board	Steel Tape		
P	7/16/1984		208.05	0.41	631.95	1	Texas Water Development Board	Steel Tape		
P	7/30/1984		206.7	(1.35)	633.3	1	Texas Water Development Board	Steel Tape		
P	8/13/1984		207.68	0.98	632.32	1	Texas Water Development Board	Steel Tape		
P	8/28/1984		206.62	(1.06)	633.38	1	Texas Water Development Board	Steel Tape		
P	9/13/1984		206.58	(0.04)	633.42	1	Texas Water Development Board	Steel Tape		
P	9/26/1984		206.47	(0.11)	633.53	1	Texas Water Development Board	Steel Tape		
P	10/10/1984		206.96	0.49	633.04	1	Texas Water Development Board	Steel Tape		
P	11/15/1984		207.05	0.09	632.95	1	Texas Water Development Board	Steel Tape		
P	12/18/1984		207	(0.05)	633	1	Texas Water Development Board	Steel Tape		
P	1/8/1985		205.8	(1.20)	634.2	1	Texas Water Development Board	Steel Tape		
P	2/12/1985		205.37	(0.43)	634.63	1	Texas Water Development Board	Steel Tape		
P	3/13/1985		203.45	(1.92)	636.55	1	Texas Water Development Board	Steel Tape		
P	4/16/1985		200.89	(2.56)	639.11	1	Texas Water Development Board	Steel Tape		
P	5/8/1985		200.85	(0.04)	639.15	1	Texas Water Development Board	Steel Tape		
P	6/10/1985		202.28	1.43	637.72	1	Texas Water Development Board	Steel Tape		
P	7/18/1985		205.48	3.20	634.52	1	Texas Water Development Board	Steel Tape		
P	8/6/1985		206.24	0.76	633.76	1	Texas Water Development Board	Steel Tape		
P	9/10/1985		206.5	0.26	633.5	1	Texas Water Development Board	Steel Tape		
P	10/15/1985		209.97	3.47	630.03	1	Texas Water Development Board	Steel Tape		
X	10/15/2009					1	Texas Water Development Board		29	

Code Descriptions

Status Code	Status Description
P	Publishable
Q	Questionable
X	No Measurement

Remark ID	Remark Description
17	Measurement before well completion
29	Unable to locate well

Water Quality Analysis - No Data Available

TEXAS DEPARTMENT OF WATER RESOURCES

APR 24 1981

WELL SCHEDULE

RECEIVED

Aquifer(s) EDWARDS Project No. outcrop study State Well No. 58-11-603

Field No./Owner's Well No. ZK-21 County Williamson

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey ___, Lat. ___, Long. ___

2. Owner: TDWR Address: ___

Tenant (other): ___ Address: ___

Driller: TDWR Address: ___

3. Land Surface Elevation: 840 ft. above msl determined by Topo

4. Drilled: 4/16 1981; Dug, Cable Tool, (Rotary, Air)

5. Depth: Rept. 261 ft. Meas. 262 ft.

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. None Type ___

No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.

Column Diam. ___ in., Length Tailpipe ___ ft.

8. Motor: Mfr. None Fuel ___ HP. ___

9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___ Date ___

10. Performance Test: Date ___ Length of Test ___ Made by ___

Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.

Production ___ gpm Specific Capacity ___ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) ___

Analyses

Date ___ Laboratory ___ TDS ___ Sp Cond ___

Date ___ Laboratory ___ TDS ___ Sp Cond ___

12. Other data available (as circled): Pumping Test, Power & Yield Test, (Drillers Log)

Formation Samples, (Geophysical Logs) 4/15/81 (type)

13. Water Level(s): 208 ft. rept. (meas) 4/15 1981 above (below) Ground which is 0 ft. above (below) Land Surface

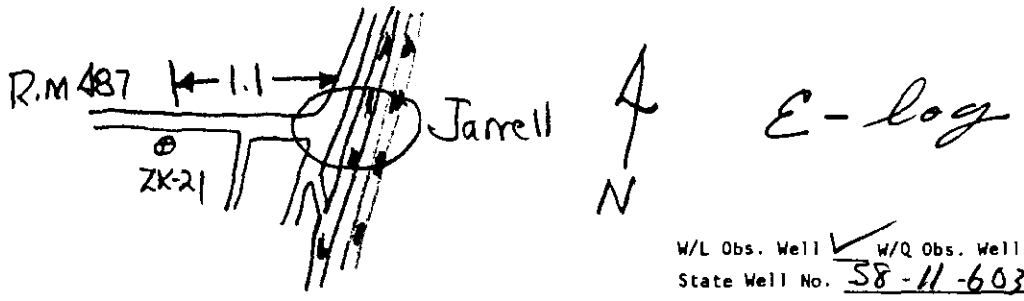
___ ft. rept. meas. ___ 19___ above below ___ which is ___ ft. above below Land Surface

14. Use: Dom., Stock, Public Supply, Ind., Irr. (Observation), Other (Test Hole), Oil Test, etc.) ___

15. Recorded by: GLO Source of data: Rig Geologist Date: 4/16/81

16. Remarks: ___

17. Location or Sketch:



E-log

CASING, BLANK PIPE & WELL SCREEN Cemented From 0 ft. to 8 ft.			
Diam. (in.)	Type	Setting (feet) from	to
3	Blank Steel	+1.5	210
3	slotted	210	262

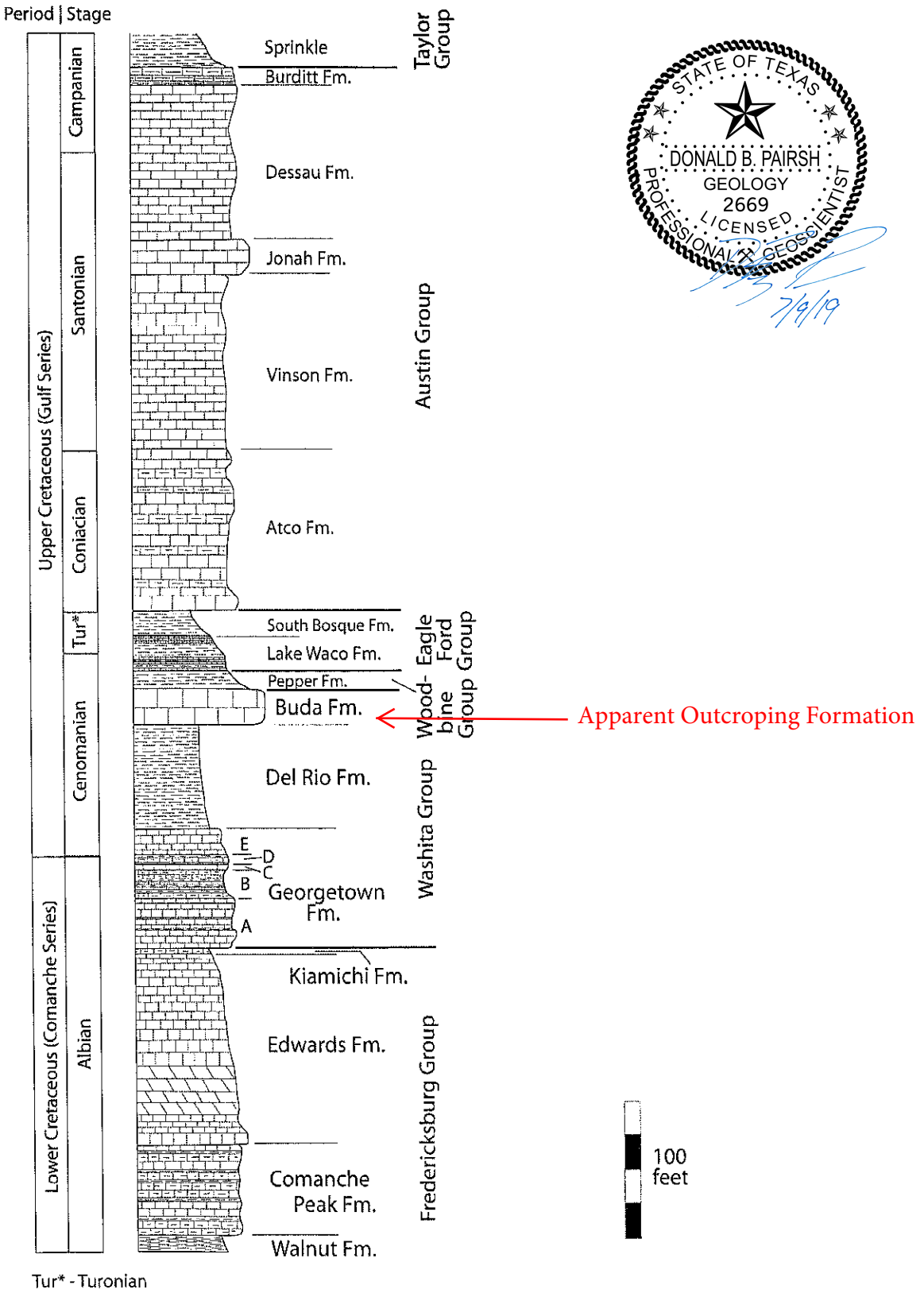
W/L Obs. Well ✓ W/Q Obs. Well ___

State Well No. 58-11-603

TDWR-0308

Attachment B – Stratigraphic Column

Generalized Stratigraphic Column of the Round Rock Area



Source:
Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas
By: Todd B. Housh

Attachment C – Site Geology

NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY
BALCONES FLATS
70 ACRE TRACT
JARRELL, WILLIAMSON COUNTY, TEXAS
5/21/2019

LOCATION

The subject site is an approximate 70 acres, more or less, tract of land located at FM 487 & C Bud Stockton Loop in Jarrell, Williamson County, Texas at approximately 30.812473° North Latitude and approximately -97.622572° West Longitude. The western portion of this tract location lies within the designated Edwards Aquifer Recharge Zone. Therefore, future intended development of the site must conform to criteria in accordance with the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program Rules in accordance with Title 30 of the Texas Administrative Code, Section 213 (30 TAC§ 213).

EXPLANATION OF ASSESSMENT

This assessment follows general guidelines contained in Texas Commission on Environmental Quality (TCEQ) "*Instruction for Geologist for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones"* (TCEQ Guidance 0585). The site is located on an area of the recharge zone that may contain karst features formed by selective solutioning of limestone minerals by water. Karst features may be expressed as surface features but more commonly tend to persist with depth. This assessment documents the presence or absence of site conditions that were present at the time the site visit that was performed on 5/21/2019. The site visit consisted of a walk through survey that consisted of a non-intrusive visual observation or survey of readily accessible, easily visible surface property conditions that were present on the subject property at the time of the site visit. Intrusive subsurface testing such as excavation, cave mapping, infiltrometer test, geophysical studies or tracer studies are not required for the geologic assessment of any feature in accordance with this practice.

A sensitive geologic or manmade feature, for the purpose of this practice is a feature on the recharge zone or transition zone of the Edwards Aquifer with a superficial appearance that suggest a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer and that has the apparent potential for rapid infiltration into the subsurface.

PHYSICAL DESCRIPTION OF SITE

The subject site is currently undeveloped land being utilized for agricultural purposes.

SURFACE DRAINAGE

After reviewing the project site topographic survey, storm water runoff appears to flow toward the Northwest.

SOIL DESCRIPTION

The site soil is composed of:

Austin-Whitewright complex, 1 to 5 percent slopes, eroded (AwC2), Hydrologic Group C

The Austin series consists of moderately deep, well drained, moderately slowly permeable soils that formed in chalk and interbedded marl. These soils are on nearly level to sloping erosional uplands. Slopes range from 0 to 8 percent. Well drained; medium to rapid runoff; moderately slow permeability.

Denton silty clay, 3 to 5 percent slopes (DnC), Hydrologic Group D

The Denton series consist of deep, well drained, slowly permeable soils that formed in clayey materials over residuum weathered from limestone bedrock. These nearly level or gently sloping soils are on uplands and have slopes ranging from 0 to 5 percent. Well drained; medium surface runoff; slow permeability.

Heiden clay, 1 to 3 percent slopes (HeB), Hydrologic Group D

The Heiden series consists of deep and very deep to mudstone, well drained, very slowly permeable soils that formed in clayey residuum weathered from mudstone. These nearly level to moderately steep soils occur on footslopes of base slopes, shoulders of interfluves, and backslopes of side slopes of ridges on dissected plains. Slopes range from 0.5 to 20 percent. Mean annual precipitation is about 889 mm (35 in) and the mean annual temperature is about 20 degrees C (68 degrees F). Well drained. Permeability is very slow. Runoff is high on 0.5 to 1 percent slopes and very high on 1 to 20 percent slopes. Infiltration is rapid when the soil is dry and cracked, but very slow when the soil is wet.

Houston Black clay, 1 to 3 percent slopes (HuB), Hydrologic Group D

The Houston Black series consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey residuum derived from calcareous mudstone of Cretaceous Age. These nearly level to moderately sloping soils occur on interfluves and side slopes on upland ridges and plains on dissected plains. Slopes are mainly 1 to 3 percent but range from 0 to 8 percent. Mean annual precipitation is about 889 mm (35 in) and the mean annual air temperature is about 20.6 degrees C (69 degrees F). Moderately well drained. Permeability is very slow. Surface runoff is high on 0 to 1 percent slopes and very high on slopes greater than 1 percent. Water enters the soil rapidly when it is dry and cracked, and very slowly when it is moist.

GEOLOGY

The site is located on the:

Del Rio Clay (Kdr)

The Del Rio Clay consist of calcareous and gypsiferous, becoming less calcareous and more gypsiferous upward, pyrite common, blocky, medium gray, weathers light gray to yellowish gray; some thin lenticular beds of highly calcareous siltstone; marine mega fossils include abundant Exogyra arietina and other pelecypods; thickness 40-70 feet.

Buda Limestone (Kbu)

The Buda Limestone consist of fine grained, bioclastic, commonly glauconitic, pyritiferous, hard, massive, poorly bedded to nodular, thinner bedded and argillaceous near upper contact, light gray

to pale orange; weathers dark gray to brown; burrows filled with chalky marl, abundant pelecypods; thickness up to 45 feet, locally absent to north.

Eagle Ford Group (Kef)

The Eagle Ford Group consist of shale and limestone. Upper part-shale, compact, silty, contains fossil fish teeth and bones, 10 feet or more thick; middle part-silty limestone grading to calcareous siltstone, flaggy, medium gray, weathers pale yellowish brown, 5 feet thick. Lower part-shale, calcareous, dark gray, 7-50 feet thick. Thickness of Eagle Ford Group 25-65 feet.

Austin Chalk (Kau)

The Austin Chalk consist of Chalk and marl; chalk mostly microgranular calcite with minor Foraminifera tests and Inoceramus prisms, averages about 85 percent calcium carbonate, ledge forming grayish white to white; alternates with marl, bentonitic seams locally recessive, medium gray; pyrite nodules common, weather to limonite; thickness 325-420 feet.

STRUCTURAL TREND and FEATURES:

The subject site is located on the Edwards Plateau within the Balcones / Ouachita structural province in central Texas. The Balcones / Ouachita structural province is an arcuate band of mostly down-to–the-coast normal faults that sub-parallels the Gulf of Mexico. In Williamson County, the regional structural trend of the Balcones / Ouachita province is generally southwest to northeast.

(Source: "*Lineament Analysis and Inference of Geologic Structure-Examples from the Balcones/Ouachita Trend of Texas."* Curan, Woodfruff, Jr, and Thompson, 1982)

The site is located in the vicinity of mapped regional faulting. No surface expressions of local structural features were observed during this assessment.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS
Identified 5/21/2019

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on 5/21/2019 no geologic features were identified on the subject tract of except for the following:

F-1 O: **Other Natural Bedrock Feature - Streambed**: This feature is a natural drainage way designated as an Intermittent Stream by the USGS National Hydrography Dataset (NHD). In accordance with TCEQ Edwards Aquifer Protection Program Guidance, Streambeds, including dry drainages, are significant because runoff is focused to them. Not only are features in streambeds and natural drainage ways likely to receive large volumes of recharge, but they are likely to be part of hydrologically integrated flow paths because past flow has preferentially enlarged and maintained conduits. Therefore, this feature is identified as a sensitive feature at this time.

F-2 MB: **Manmade Feature, Water Well:** Per Texas Water Development Board (TWDB) Groundwater Database (GWDB), this feature (State Well # 58-11-601) was a test well "test hole" owned by the State of Texas, drilled by the Texas Department of Water Resources on July 18,1980 and subsequently plugged and abandoned on April 15, 1981. There was no identifiable surface expression of this well at the time the site was evaluated on 5/21/2019. Assuming that this water well was properly plugged and abandoned in accordance with Texas Department of Licensing and

Regulation Water Well Drillers and Pump Installers 16 TAC § 76 (TOC § 1901.255 Plugging Water Wells), this feature should not have a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer. Therefore, this feature is not identified as a sensitive feature at this time.

F-3 MB: **Manmade Feature, Water Well:** Per Texas Water Development Board (TWDB) Groundwater Database (GWDB), this feature (State Well # 58-11-603) was a test well "test hole" owned by the State of Texas, drilled by the Texas Department of Water Resources on April 16,1981 and used to mointor water levels until September 15, 1985. TWDB records for this well show a Well Use designation of "Plugged or Destroyed" which indicates the well was plugged and abandoned sometime after the last water level reading conducted September 15, 1985 although a definitive plugging date is not located in available file. A remark logged to file by the TWDB states "*Unable to locate well in Oct. 2009*". There was no identifiable surface expression of this well at the time the site was evaluated on 5/21/2019. Assuming that this water well was properly plugged and abandoned in accordance with Texas Department of Licensing and Regulation Water Well Drillers and Pump Installers 16 TAC § 76 (TOC § 1901.255 Plugging Water Wells), this feature should not have a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer. Therefore, this feature is not identified as a sensitive feature at this time.

OBSERVATIONS

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on 5/21/2019 no sensitive features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer except for the following:

F-1 O: **Other Natural Bedrock Feature - Streambed**: This feature is a natural drainage way designated as an Intermittent Stream by the USGS National Hydrography Dataset (NHD). In accordance with TCEQ Edwards Aquifer Protection Program Guidance, Streambeds, including dry drainages, are significant because runoff is focused to them. Not only are features in streambeds and natural drainage ways likely to receive large volumes of recharge, but they are likely to be part of hydrologically integrated flow paths because past flow has preferentially enlarged and maintained conduits. Therefore, this feature is identified as a sensitive feature at this time.

CONCLUDING STATEMENTS

The Client understands that no non-intrusive visual observation or survey can wholly eliminate uncertainty regarding the possible presence of geologic conditions in connection with the subject property. Due to the inherent limits in connection with the agreed Scope of Work, this report does not address uncertainty about site conditions across those portions of the subject property not specifically addressed in this report.

Development of the site is planned. Additional modification of site surface conditions can be expected as construction proceeds. Unsuspected solution enlarged fractures, caves and cavities may be discovered during construction operations.

This assessment does not address the possible presence of subsurface conditions that may be exposed during construction operations. Should solution features or conditions be exposed during construction operations that indicate a potential for hydraulic interconnectedness between

the surface and the Edwards Aquifer, operations in the vicinity of the feature should be halted and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program should be contacted immediately in accordance with 30 TAC §213.5(f)(2).

Respectfully,

D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc
TBPG Firm Registration #50389
Austin, Texas

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

7/9/19

DISCLAIMER:

Under standard geologic assessment practice, this assessment is an assessment of surface property conditions that were readily accessible and easily visible at the time of the assessment.

Services performed under this contract were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. Under standard geologic assessment practice, information developed in this report represents an assessment of environmental conditions observed as present or absent on portions of the surface of the subject property at the time of the assessment. The field observations, measurements and research reported in this report are considered sufficient in detail and scope to form a contained assessment of discrete portions of the subject property. Capitol warrants that the findings and conclusions contained in this report have been prepared in accordance with generally accepted methods normal for the subject site described in this report.

Not every property will warrant the same level of assessment. Consistent with good commercial and customary practice, the appropriate level of assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the Client and information developed in the course of the inquiry. The Assessment has been developed to provide the Client with information regarding apparent indications of the presence of absence of geologic conditions relating to the surface of the subject site. The Geologic Assessment report is necessarily limited to the conditions observed and to the information available at the time the work was performed. Due to the limited nature of the work, there is a possibility that conditions may exist in connection with the subject site which could not be identified within the scope of this assessment practice or which were not easily visible or not disclosed at the time the report was prepared.

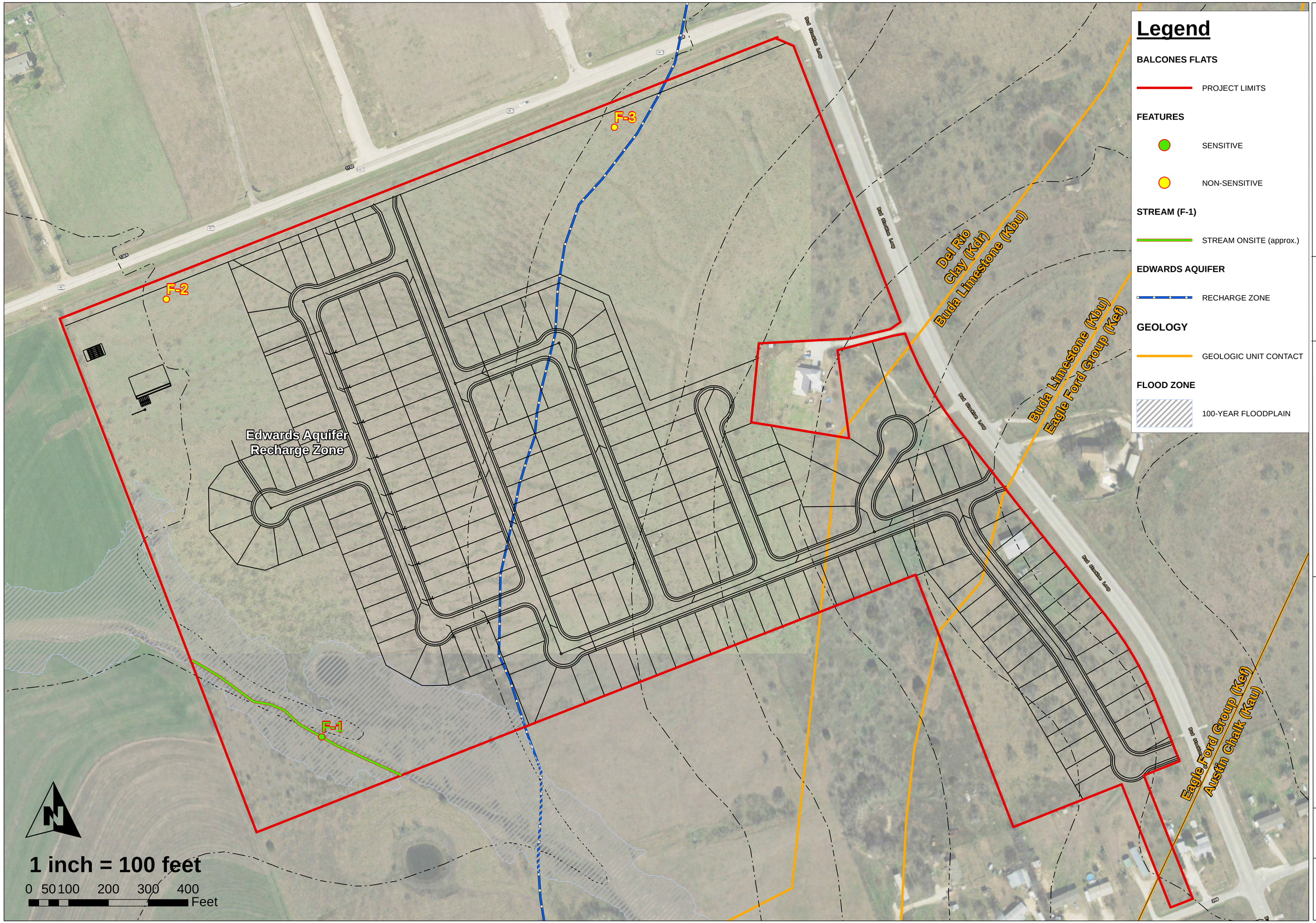
It is also possible that assessment methods employed at the time the report was prepared may be later superseded by more discrete assessment methods. The definition of a “sensitive geologic feature” and / or a “critical environmental feature” can also change statutorily over time. Capitol does not warrant the content or findings of this report in the event of changes in conditions in connection with the subject property; in the event of changes in assessment methods; or in the event of changes in statute that may apply to the subject property in the future.

In preparing this report, Capitol has relied on information derived from third party sources and personal interviews, as well as other investigative work. Except as set forth in this report, Capitol has made no independent investigation as to the accuracy or completeness of the information derived from third party sources.

This report does not address uncertainty about site conditions across those portions of the subject property not specifically assessed in this report. The Client understands that no surface assessment can wholly eliminate uncertainty regarding the possible presence of geologic conditions at depth in connection with the subject property. The Client should recognize that conditions elsewhere in the assessment area may differ from those at the study /sample locations, and that surface conditions described in the assessment practice herein may change at depth. This assessment should not to be used as a basis for engineering design.

This report was prepared for the Client, to identify the presence or absence of geologic conditions on surface portions of the subject property. Any use of this report for other purposes or any use of information presented in this report by other parties other than the Client is the Client’s responsibility.

Attachment D – Site Geologic Map
&
Site Soil Site Map



Legend

BALCONES FLATS

PROJECT LIMITS

FEATURES

SENSITIVE

NON-SENSITIVE

STREAM (F-1)

STREAM ONSITE (approx.)

EDWARDS AQUIFER

RECHARGE ZONE

GEOLOGY

GEOLOGIC UNIT CONTACT

FLOOD ZONE

100-YEAR FLOODPLAIN

BALCONES FLATS

Geologic Site Map

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 7/17/2019

TBPG Firm Registration #50389

CAPITOL ENVIRONMENTAL

www.capitolenvironmental.com

512.535.4368

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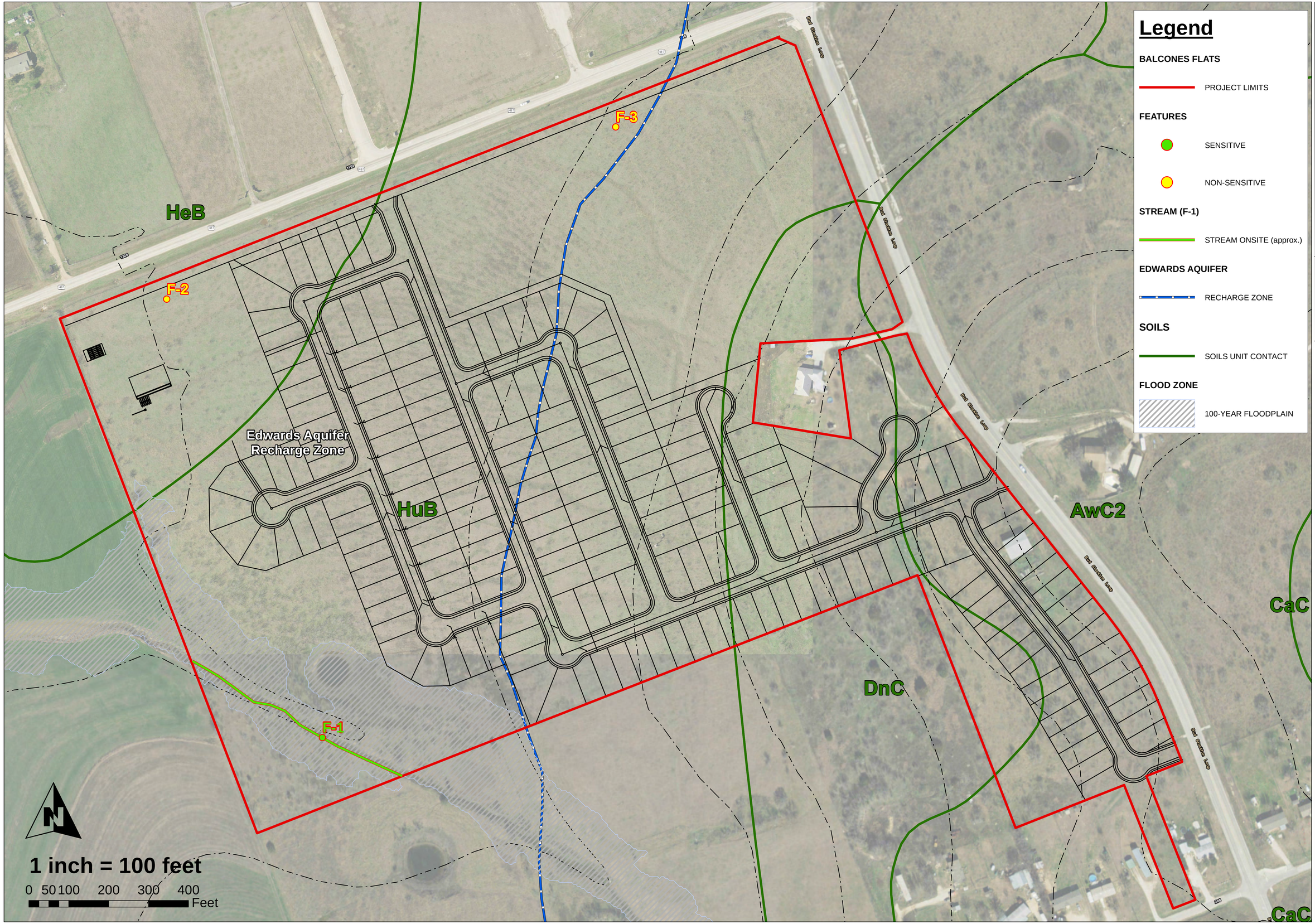
7/17/19

Not For Construction or Building Purposes

Sheet No. 1 of 2



Legend

BALCONES FLATS

PROJECT LIMITS

FEATURES

SENSITIVE

NON-SENSITIVE

STREAM (F-1)

STREAM ONSITE (approx.)

EDWARDS AQUIFER

RECHARGE ZONE

SOILS

SOILS UNIT CONTACT

FLOOD ZONE

100-YEAR FLOODPLAIN

BALCONES FLATS

Soils Site Map

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 7/17/2019

TBPG Firm Registration #50389

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Sheet No. 2 of 2

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

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

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

Regulated Entity Name: Balcones Flats

1. ☒ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: Evan Horne
   Entity: Strategic Metal Solutions, LLC
   Mailing Address: PO Box 689
   City, State: Marble Falls, Tx Zip: 78654
   Telephone: (512) 966-7434 Fax: _____
   Email Address: evan@strategictx.com
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

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

   Contact Person: Garrett Keller, P.E.
   Texas Licensed Professional Engineer's Number: 111511
   Entity: MatkinHoover Engineering & Surveying
   Mailing Address: 1701 Williams Dr
   City, State:Georgetown, Texas Zip: 78628
   Telephone:(830) 249-0600 Fax:_____
   Email Address:gkeller@matkinhoover.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☒ Residential: Number of single-family lots: 108
   ☐ Multi-family: Number of residential units: _____
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☒ Other: 5 HOA LOTS

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

100% Domestic	30,240 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 30,240

6. Existing and anticipated infiltration/inflow is 17,271 gallons/day. This will be addressed by: additional capacity within the pipes.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☒ The WPAP application for this development was approved by letter dated 11/05/2019. A copy of the approval letter is attached.
   ☐ The WPAP application for this development was submitted to the TCEQ on _____, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	194.69	SDR 26 Class 160	ASTM D2241

Total Linear Feet: 194.69

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

9. The sewage collection system will convey the wastewater to the City of Jarrell WWTP (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

   ☒ The City of Round Rock standard specifications.
   ☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.

   ☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.

   ☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

   ☒ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
D	CU203 Of CU206	3+80.00	MH
D	CU203 Of CU206	1+75.31	MH
	Of		
	Of		
	Of		
	Of		
	Of		

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	Of		
	Of		
	Of		

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

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 100'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☐ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☒ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

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

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☐ The placement and markings of all lateral stub-outs are shown and labeled.
☒ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

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

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

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

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

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	CU503 of CU504
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	CU503 of CU504
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	N/A of N/A
Typical trench cross-sections **[Required]**	CU504 of CU504
Bolted manholes **[Required]**	CU504 of CU504
Sewer Service lateral standard details **[Required]**	CU503 of CU504
Clean-out at end of line **[Required, if used]**	CU503 of CU504
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of N/A
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	CU502 of CU504
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	CU504 of CU504

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of N/A

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

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☐ Survey staking was completed on this date: _____

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

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Garrett Keller, PE

Date: 2/27/2025

Place engineer's seal here:

Signature of Licensed Professional Engineer:

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

The following Engineering Design Report (EDR) for the Balcones Flats Phase II Development Sewage Collection System, is in compliance with the 30 TAC Chapter 217, Subchapter A, Rule 217.10 "Final Engineering Design Report", and 30 TAC Chapter 217, Subchapter C, Rule 217.55 "Manholes and Related Structures". Information provided on this form will follow the order provided by item (e) "The report for a wastewater collection system must include the following:", located in 30 TAC Chapter 217, Subchapter A, Rule 217.10 "Final Engineering Design Report". The intent of the design report is to meet the Texas Commission on Environmental Quality (TCEQ) plan review of SCS applications.

This project consists of 194.69 LF of proposed sewer line into the existing City of Jarrell Wastewater Treatment Plant. The sewage collection system will service approximately 30,240 GPD.

(e-1) **X** Map showing the current service area, the proposed service area, and any area proposed for future expansion.

- Attachment - "**Wastewater Collection System**"- shows the current service area for the City of Jarrell WWTP.

(e-2) **X** The topographical features of the current, the proposed, and any future service areas. (Refer to Attachment **"Sewage Collection Site Plan"** and "**Balcones Flats Phase II Sanitary Sewer Plan and Profile Sheets: CU202-CU206** for Topographic details)

(e-3) **X** A description of how the design flow was determined. (Attachment – **"General Notes Sheet C-001"**)

The design flow for Balcones Flats Phase II Development, SCS, was derived using the DACS; Water, Reuse Water, and Wastewater; (00295200).DOC for the City of Round Rock

- Inflow/Infiltration rates are derived from a section of the City of Round Rock which includes an approximation of 750 gallons/acre/day. This provides a multiplier of 0.01721 gpd/ft2, for a contributing area of ± 23.028 acres.

- Peak dry weather flow calculations are derived from formula provided by the City of Round Rock provided below. The PDWF is derived from the formula:

    - Qpdwf = ([18 + (0.018 x F) 0.5] / [4 + (0.018 x F) 0.5]) x F
    - Where: F = 80 gal./person/day x No. of LUEs x 3.5/1440 = average dry weather flow in gpm

- Peak wet weather flow is obtained by adding inflow and infiltration to the peak dry weather flow. Refer to attachment for site residential, and the associated flow values used for design.

- Flow for the 50-year lifetime of the system is obtained by assuming a manning's roughness coefficient of 0.013 when determining capacity of the system. The appropriate conservative "n" value for minimum slope design of PVC sewer pipe is 0.009. As the pipe degrades over time the roughness coefficient will increase to approximately 0.013. Sizing the system using the 50-year "n" value and 65% full will yield the most conservative capacity and calculation have been provided within this report (**Refer to Minimum and Maximum Slope Table and Calculation.**)

(e-4) __**X** The minimum and maximum grades for each size and type of pipe. (Refer to Attachment **"General Notes Sheet C-001 – Minimum and Maximum Slope Table & Calculations Below"**)

Pipe sizing and minimum/maximum grades for Balcones Flats Phase II SCS, was derived using the DACS; Water, Reuse Water, and Wastewater; (00295200).DOC

- **"Percent Pipe Full at Design Flow"**, requires a minimum diameter of six (6) inches for all gravity lines sewer mains. Balcones Flats Phase II Development sanitary sewer system contains 8" lines. Minimum allowable slopes for mains conform with the DACS; Water, Reuse Water, and Wastewater; (00295200).DOC provided and shown on (Refer to Attachment **"General Notes Sheet C-001 – Minimum and Maximum Slope Table & Calculations Below")**

Peak Dry Weather Minimum and Maximum Flow Capacities

Capacity Calculation: Manning's "n" value: n = 0.013

Minimum Slope Values per Appendix A, Flow Velocity Table

	Main Size (in.)	Inside dia (in.)	Min Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q (Full) (cfs)	Max Pipe %	Flow Velocity	Q max at min slope (gpm)	
SDR 26, CL 160	8	7.715	2.00	0.32	0.16	0.30	0.141	1.56	65.00	4.76	568.00	FlowRate > 2fps (Acceptable)

Maximum Slope Values per Appendix A, Flow Velocity Table

	Main Size (in.)	Inside dia (in.)	Max Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q (Full) (cfs)	Max Pipe %	Flow Velocity	Q max at max slope (gpm)	
SDR 26, CL 160	8	7.715	2.00	0.32	0.16	0.30	0.141	1.56	65.00	4.76	568.00	FlowRate < 10fps (Acceptable)

Peak Wet Weather Minimum and Maximum Flow Capacities

Capacity Calculation: Manning's "n" value: n = 0.013

Minimum Slope Values per Appendix A, Flow Velocity Table

	Main Size (in.)	Inside dia (in.)	Min Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q (Full) (cfs)	Max Pipe %	Flow Velocity	Q max at min slope (gpm)	
SDR 26, CL 160	8	7.715	2.00	0.32	0.16	0.30	0.141	1.56	85.00	2.78	772.00	Qpw < 85% Qfull (Acceptable)

Maximum Slope Values per Appendix A, Flow Velocity Table

	Main Size (in.)	Inside dia (in.)	Max Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q (Full) (cfs)	Max Pipe %	Flow Velocity	Q max at max slope (gpm)	
SDR 26, CL 160	8	7.715	2.00	0.32	0.16	0.30	0.141	1.56	85.00	4.76	772.00	FlowRate < 10fps (Acceptable)

DACS; Water, Reuse Water, and Wastewater; (00295200).DOC "Percent Pipe Full at Design Flow

Note:
1. DACS; Water, Reuse Water, and Wastewater; (00295200).DOC, "For all wastewater gravity lines, the peak WWF (design flow) is not to exceed 85 percent of the capacity of the pipe flowing full."
2. Maximum velocity is to be 10ft/s without pipe protection

(e-5) **X** Calculations of expected minimum and maximum velocities in the system for each size and type of a pipe. (Refer to attachment **"General Notes Sheet C-001 –Flow Velocity Table & Calculations Above"**)

Minimum maximum velocities for Balcones Flats Phase II SCS, was derived using DACS; WATER, REUSE WATER, AND WASTEWATER; (00295200).DOC, "Minimum and Maximum Slope for Gravity Sewer".

- **"Design Velocities"** requires a minimum design velocity calculated using the Peak Dry Weather flow not be less than two (2) feet per second (fps). The maximum design velocity calculated using the Peak Wet Weather Flow should not exceed ten (10) fps. Slopes per pipe diameter size comply with Appendix A, listed above to meet minimum and maximum velocity requirements.

(e-6) **X** The proposed system's effect on an associated existing system's capacity.
The proposed flow for the entire system will discharge at peak wet weather flow rate of 397.11 - (Refer to attachment - **"City of Jarrell Serviceability Letter"**).

(e-7) **X** The existing and anticipated inflow and infiltration, the hydraulic effect of the inflow and infiltration on the proposed and existing systems, any inflow and infiltration flow rate monitoring, and any inflow and infiltration abatement measures.

- The Balcones Flats Phase II sanitary sewer design complies with design standards to prevent infiltration into the system. This is will be prevented through sealing manholes (where required), by means of gasketing and bolts shown in the utility detail sheets attached

(e-8) A description of the ability of the existing and proposed trunk and interceptor wastewater collection systems and lift stations to handle the peak flow. (Refer to attachment - **"City of Jarrell Serviceability Letter"**).

(e-9) **X** The capability of the receiving treatment facility to receive and adequately treat the anticipated peak flow. The proposed system for the entire site will discharge at peak wet weather flow rate of 397.11 gpm (Refer to attachment - **"City of Jarrell Serviceability Letter"**).

(e-10) **X** An engineering analysis showing compliance with structural design, minimization of odor-causing conditions, and the pipe design requirements of 217.55 of this title (relating to Manholes and Related Structures)

30 TAC 217, Subchapter C, Rule 217.55 Manholes and Related Structures

217.55(a) Manholes for the proposed wastewater system are included at all points of change in alignment, grade, size, intersection of all pipes, and at the end of all pipes that may be extended at a future date. **(Complied – Refer to SCS Site Plan)**

217.55(b) Manholes placed at the end of a wastewater collection system pipe that may be extended in the future must include pipe stub outs with plugs **(Complied - Refer to SCS Site Plan)**

217.55(c) A clean-out with watertight plugs may be installed in lieu of a manhole at the end of a wastewater collection system pipe if no extensions are anticipated. **(Complied - Refer to SCS Site Plan)**

217.55(d) Cleanout installations must pass all applicable testing requirements outlined for gravity collection pipes in 217.57 of this title (relating to Testing Requirements for Installation of Gravity Collection System Pipes). **(Complied - Refer to SCS Site Plan)**

217.55(e) A manhole must be made of monolithic, cast-in-place concrete, fiberglass, pre-cast concrete, high density polyethylene, or equivalent material that provides adequate structural integrity. **(Pre-cast Concrete. Location in submittal: CU503)**

217.55(f) The use of bricks to adjust a manhole cover to grade or construct a manhole is prohibited. **(Complied)**

217.55(g) Manholes may be spaced no further apart than the distances specified in the following table for a wastewater collection system with straight alignment and uniform grades, unless a variance based on the availability of cleaning equipment that is capable of servicing greater distances is granted by the executive director.

The maximum manhole spacing allowed by the TCEQ are as follows:

Pipe Diameter (in)	Maximum Manhole Spacing (ft)
6 - 15	500
18 - 30	800
36 - 48	1000
54 or Larger	2000

Indicate what the maximum spacing in this project will be for each proposed diameter of pipe.
Pipe Diameter: **8”** Max. Spacing: **204.69’**

217.55(h) Tunnels are exempt from manhole spacing requirements because of construction constraints. **(N/A)**

217.55(i) An intersection of three or more collection pipes must have a manhole. **(Complied)**

217.55(j) A manhole must not be located in the flow path of a watercourse, or in an area where ponding of surface water is probable. **(See below)**

Manhole covers which lie within a 100-year flood plain must be sealed and gasketed or otherwise provided with adequate protection against inflow. Such measures should also be provided to any manholes lying in drainage ways or streets subject to carrying drainage flows. Will this requirement be met? **N/A**

(k) The inside diameter of a manhole must be no less than 48 inches. A manhole diameter must be sufficient to allow personnel and equipment to enter, exit, and work in the manhole and to allow proper joining of the collection system pipes in the manhole wall.

(1) Manhole Covers:

(A) A manhole where personnel entry is anticipated requires at least a 30 inch diameter clear opening. **(Complied – Refer to Sheet CU503)**

(B) A manhole located within a 100-year flood plain must have a means of preventing inflow. **(N/A – No manholes are within the 100-year flood plain. Refer to FEMA F.I.R.M. Map #48491C0125E dated 9-26-2008).**

(C) A manhole cover construction must be constructed of impervious material. **(Complied)**

(D) A manhole cover that is located in a roadway must meet or exceed the American Association of State Highways and Transportation Officials standard M-306 for load bearing. **(Complied)**

(2) Manhole Inverts:

(A) The bottom of a manhole must contain a U-shaped channel that is a smooth continuation of the inlet and outlet pipes. **(Complied – Refer to Sheet CU503)**

(B) A manhole connected to a pipe less than 15 inches in diameter must have a channel depth equal to at least half the largest pipe's diameter. **(Complied – Refer to Sheet CU503)**

(C) A manhole connected to a pipe at least 15 inches in diameter but not more than 24 inches in diameter must have a channel depth equal to at least three-fourths of the largest pipe's diameter. **(N/A)**

(D) A manhole connected to a pipe greater than 24 inches in diameter must have a channel depth equal to at least the largest pipe's diameter. **(N/A)**

(E) A manhole with pipes of different sizes must have the tops of the pipes at the same elevation and flow channels in the invert sloped on an even slope from pipe to pipe. **(Complied)**

(F) A bench provided above a channel must slope at a minimum of 0.5 inch per foot. **(Complied)**

(G) An invert must be filleted to prevent solids from being deposited if a wastewater collection system pipe enters a manhole higher than 24 inches above a manhole invert. **(Complied)**

(H)A wastewater collection system pipe entering a manhole more than 24 inches above an invert must have a drop pipe. **(Complied)**

(m) The inclusion of steps in a manhole is prohibited. **(N/A)**

(n) Connections. A manhole-pipe connection must use watertight, size-on-size resilient connectors that allow for differential settlement and must conform to American Society for Testing and Materials C-923. **(Location in submittal: Plan sheet CU503)**

(o) Venting. An owner must use an alternate means of venting if manholes are at more than 1,500 foot intervals and gasketed manhole covers are required for more than three manholes in sequence. **(N/A)**

(p) Cleanouts. The size of a cleanout must be equal to the size of the wastewater collection system main. **(Complied)**

Structural Analysis of Wastewater System, 30 TAC, 217.53 Pipe Design. Proposed Pipe Information:

S-1) List all the pipe diameters proposed for this project. Specify the total linear feet of pipe proposed for each listed diameter, the pipe material proposed for each diameter, the national standard specifications (ASTM, AWWA, ANSI, etc...) which govern each proposed pipe material and the appropriate national standard specifications for joints which correspond to each of these proposed materials.

Pipe Diameter	Linear Feet	Pipe Material	National Standard Specification for Pipe Material	National Standard for Pipe Joints
8”	194.69	PVC SDR 26	ASTM D-2241	ASTM D-3139

Utility Trench Information:

S-2) For purposes of TCEQ review, flexible materials include, but are not limited to, plastics, PVC, ABS, fiberglass, and, polyethylene. If the design does not include flexible pipe, skip to T13. If the design includes flexible pipe materials, the specified bedding must comply with ASTM D-2321 class IA, IB, II or III for materials and densification. A minimum of 6 inches of bedding is required for all pipe. Will the proposed project comply with these requirements? **Yes**

S-3) The trench width must be minimized while still allowing adequate width for proper compaction of backfill, and while still ensuring that at least 6 inches of backfill exists on each side of the pipe. Will this be accomplished? **Yes**

S-4) For each diameter of pipe, indicate minimum and maximum trench width: Pipe Diameter: **8"** Min. Trench Width: **24"** Max. Trench Width: **36"**

S-5) Will the trench walls be vertical to at least one foot above the pipe? **Yes**

Location in submittal: Plan sheets **CU503**

S-6) Will the backfill be free of stones greater than 6 inches in diameter and free of organic or any other unstable material? **Yes**

General Requirements: 30 TAC 217.53

Structural Analysis: 30 TAC 217.53(k)
Flexible Pipe Design Live Load Analysis:

For the purposes of this application, the minimum depth of burial for gravity sanitary sewer pipe, from the ground surface to the crown of the pipe (H) is 2 feet. Does the submitted design comply with this minimum H? **Yes**

Live Load due to H-25 or HS-25 vehicle loading per AASHTO Table 5-3 (N/A)

Live Load due to 100-yr surface water elevation in water quality pond (See Attachment for L_l calculation) **N/A**

S-7) Indicate maximum anticipated L_l as determined in T63: **N/A**

S-8) Are all proposed flexible pipe materials capable of supporting this L_l? **N/A**

S-9) Indicate source of maximum L_l: **N/A**

Buckling Analysis:

S-10) Calculate allowable and predicted buckling pressure based on Moser's book. Predicted and allowable buckling pressures must be calculated for each size of pipe and type of flexible pipe material. For the purposes of this application form, the buckling analysis must be performed using the method outlined below. The method of calculating allowable buckling pressure provided below is only valid for lines which are installed at depths of 2 ft $\leq$ H $\leq$ 80 feet, and where the groundwater elevation is below the ground surface.

(Areas where groundwater elevation is below the ground surface)

$$q_a = 0.4\sqrt[2]{32 * R_W * B' * (E * \frac{I}{D^3})}$$ Equation (1)

$$q_a = 0.4\sqrt[2]{32 * 1.00 * 0.88 * (400{,}000 * \frac{0.00193}{8^3})}$$ =116.35 (8" PVC SDR 26 160 PSI)

See attachment for q_a calculation.

$$R_W = 1 - 0.33 * (h_W/h)$$ Equation (2)

For unsaturated: $R_W = 1 - 0.33 * (0/188.88) = 1.00$ (8" PVC SDR 26 160 PSI)
For fully saturated hw = h: $R_w = 1 - 0.33 * (1) = 0.67$ **N/A**

$$B' = \frac{1}{1 + 4 * e^{-0.213 H}}$$ Equation (3)

See attachment for B' calculation. *

$$I = (t^3/12)(inches^4/Linch)$$ Equation (4)

See attachment for I calculation.

qa = allowable buckling pressure, pounds per square inch (psi)

h = height of soil surface above top of pipe in inches (in)

hw = height of water surface above top of pipe in inches (in) (groundwater elevation)

Rw = Water buoyancy factor. If hw = 0, Rw = 1. If 0 ≤ hw ≤ h (groundwater elevation is between the top of the pipe and the ground surface), calculate Rw with Equation 2

H = Depth of burial in feet (ft) from ground surface to crown of pipe.

B' = Empirical coefficient of elastic support

Eb = modulus of soil reaction for the bedding material (psi)

E = modulus of elasticity of the pipe material (psi)

I = moment of inertia of the pipe wall cross section per linear inch of pipe, inch^4/linear inch = inch^3. For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.

t = pipe structural wall thickness (in)

D = mean pipe diameter (in)

a) Calculate pressure applied to pipe under installed conditions:

$$q_P = \gamma_w * h_w + R_w * \left(\frac{W_c}{D}\right) + L_1 \qquad \text{Equation (5)}$$

$q_P = 0.0361 * 0 + 1 * \left(\frac{92.21}{8}\right) + 0 = 11.95$ ("Worst Case" Max. Depth of Cover - 8" PVC SDR 26 160 PSI)

$$W_c = \gamma_s * H * (D + t)/144 \qquad \text{Equation (6)}$$

$W_c = 125 * 13.20 * \frac{8+0.332}{144} = 92.21$ ("Worst Case" Max. Depth of Cover - 8" PVC SDR 26 160 PSI)

qp = pressure applied to pipe under installed conditions (psi)

γw = 0.0361 pounds per cubic inch (pci), specific weight of water

γs = specific weight of soil in pounds per cubic foot (pcf)

Wc = vertical soil load on the pipe per unit length in pounds per linear inch (lb/in)

Ll = Live load as determined in T63 (see attached Capacity Design)

S-11) Report qa and qp for each pipe diameter proposed and for each type of pipe material proposed:

γs = 125 pcf ; hw = 0; t = 0.332" (8" PVC SDR 26 160 PSI);

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 160 PSI** q_a: **140.24** q_p: **11.95**

S-12) If $q_a \geq q_p$, specified pipe is acceptable for the proposed installation. If $q_a \leq q_p$, the wall thickness of the pipe must be increased and/or a pipe with a larger modulus of elasticity (E) must be used. Make the appropriate modifications and repeat the buckling analysis, showing that for the upgraded pipe, $q_a \geq q_p$. Does all the pipe proposed for this project meet these requirements? **Yes**

Wall Crushing:

S-13) If no concrete cradled flexible pipe is proposed for the submitted project, skip to T73. If any flexible pipe will be installed in rigid cradle (e.g. concrete), calculate the maximum depth that the pipe can be buried before wall crushing (or failure by ring compression) will occur using the method outlined below. It should be noted that cement stabilized sand or soil is not considered a rigid cradle for purposes of TCEQ review: No concrete cradle proposed, calculations shown for information only.

$$H = (24 * P_c * A)/(\gamma_s * D_o) \qquad \text{Equation (7)}$$

$H = (24 * 4000 * 3.984)/(125 * 8) = 382.46'$ **(8" PVC SDR 26 160 PSI)**

D_o = outside pipe diameter, in.

P_c = compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.

A = surface area of the pipe wall, $in.^2/ft$

γ_s = specific weight of soil in pounds per cubic foot (pcf)

H = Depth of burial in feet (ft) from ground surface to crown of pipe.

24 = conversions and coefficients

S-14) Will all pipe installations proposed for this project have an H less than or equal to the maximum allowable H calculated in S-13 and greater than or equal to 2 feet? **Yes** Report maximum allowable H, (H_a), and the maximum H which is proposed, (H), for each proposed pipe diameter and each type of flexible pipe material. **N/A**

Pipe Diameter: 8**"** Pipe Material: **PVC SDR 26 ASTM D-2241** H_a: **382.46ft** H: **13.20ft**

Tensile Strength:

S-15) The project specifications need to indicate minimum allowable tensile **strength** in psi for each flexible pipe material. If PVC pipe is proposed, specify cell class:

Pipe Material: **PVC SDR 26** Tensile Strength: **7,100** Cell Class (PVC only): **12364/12454**
"Handbook of PVC Pipe, Design and Construction" Table 2.1 pg. 14-15.

Strain:

S-16) Are the conditions of this installation such that strain-related failure will not be a problem? **Yes** If any proposed flexible pipe material is considered to be susceptible to strain-related failure at less than 5% long-term deflection provide analysis for predicted strain due to hoop stress and bending strain.

Deflection Analysis:

S-17) Indicate Eb (modulus of soil reaction for the bedding material) in psi. If Eb is greater than 750 psi, justification must be provided: **2,000 psi**

How was Eb determined or estimated? **"AWWA , M23 Manual" Table 4-5 pg. 30.**

S-18) Indicate E'n (modulus of soil reaction for the in-situ soil) in psi: **5000 psi**

How was E'n determined or estimated? **"Table 5 – E'native for Various Native Soil Conditions" (Reference: American Concrete Pipe Association, Page 20)**

S-19) Calculate the ratio of bedding modulus to soil modulus:

Eb/E'n = **2000 psi/ 5000 psi = 0.40**

If this ratio is greater than 1.25, a zeta factor must be calculated, where zeta is a factor which corrects for the effect of in-situ soil on pipe stability. If the ratio of bedding modulus to soil modulus is less than or equal to 1.25, assume zeta = **1.0**.

S-20) Where native soil is significantly weaker than bedding material, or where predicted deflection approaches 5%, the effect of native soil must be quantified using Leonhardt's Zeta factor. Zeta must be determined for each diameter of pipe and corresponding trench width. Zeta may be estimated graphically or calculated

directly. If zeta is estimated graphically, identify the source for tables, figures, etc...(including page numbers and table numbers or figure numbers for each source) which were used to estimate zeta.

Calculations:

$$zeta = \frac{1.44}{f + (1.44 - f) * (E_b / E_{n'})}$$ Equation (8)

$$zeta = \frac{1.44}{1.01 + (1.44 - 1.01) * (\frac{2000}{5000})} = 1.00$$ **8" PVC SDR 26 160 PSI**

$$f = \frac{b/d_a - 1}{1.154 + 0.444 * (b/d_a - 1)}$$ Equation (9)

$$f = \frac{\frac{24}{8} - 1}{1.154 + 0.444 * (\frac{24}{8} - 1)} = 1.01$$ **8" PVC SDR 26 160 PSI**

f = pipe/trench width coefficient

b = trench width

d_a = pipe diameter

E_b = modulus of soil reaction for the bedding material (psi)

E'_n = modulus of soil reaction for the in-situ soil (psi)

S-21) For each size of pipe, report zeta factor determined:
Pipe Diameter: **8"** Trench Width: **24"** zeta: **1.00**

S-22) Determine pipe stiffness (P_s) in psi. P_s can be determined either by parallel plate test at 5% deflection, based on manufacturer's data or national reference standards; or, calculated using either equation 10 or equation 11. As an example, the minimum pipe stiffness at 5% deflection for PVC pipe less than 15 inches in diameter meeting ASTM D 3034, is 46 psi for SDR-35 and 115 psi for SDR 26. If equation 11 is used,

the ring stiffness constant (RSC) is provided by the pipe manufacturer. Show calculations, or provide proper references, for each size of pipe and for each flexible pipe material.

$$P_s = \frac{EI}{0.149 * r^3}$$ Equation (10)

or

$$P_s = 0.80 * RSC * (8.337/D)$$ Equation (11)

E = modulus of elasticity of the pipe material (psi)

I = moment of inertia of the pipe wall cross section per linear inch of pipe, $inch^4$/linear inch = $inch^3$. For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.

D = mean pipe diameter (in)

r = mean radius (in)

S-23) Report P_s for each pipe size and each type of flexible pipe material as determined.

Pipe Diameter: **8”** Pipe Material: **PVC SDR 26 ASTM 2241** P_s: **160 psi**

S-24) Because the terms in the denominator of the modified Iowa formula (Equation 13) are added, it is theoretically possible to have zero pipe stiffness (P_s=0) and still predict flexible pipe deflections less than 5%. In order to ensure that the stiffness being provided to the installation has a reasonable contribution from pipe stiffness, and does not rely solely on the stiffness provided by the soil stiffness factor (SSF), the ratio of P_s/SSF must be calculated. If P_s/SSF < 0.15, S-22 and S-23 must be repeated such that a higher stiffness pipe is chosen for each portion of the project where P_s/SSF < 0.15. The P_s/SSF ratio(s) must then be recalculated for the new higher stiffness pipe. This process must be repeated until P_s/SSF ≥ 0.15 exists for all proposed pipe sizes and for all types of flexible pipe materials.

$$\frac{P_s}{SSF} = \frac{P_s}{(0.061 * zeta * E_b)} \geq 0.15$$ Equation (12)

$$\frac{P_S}{SSF} = \frac{160}{(0.061*1.00*2000)} = 1.31 \qquad \text{(8" PVC SDR 26 160 PSI)}$$

E_b = modulus of soil reaction for the bedding material (psi) [from T76]

zeta = 1.0, or a value calculated with the method in T79

SSF = soil stiffness factor (0.061*zeta*E_b)

S-25) Indicate the final values calculated for P_s/SSF for each diameter of pipe and for each pipe material:

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 ASTM D-2241** P_s/SSF: **1.31**

S-26) Do all proposed pipe sizes and flexible pipe materials have a pipe stiffness to soil stiffness factor ratio of greater than or equal to 0.15? **Yes**

S-27) Calculate and report predicted deflection. Predicted deflection must be calculated for each size of pipe and type of flexible pipe material. For the purposes of this application form, predicted deflection must be calculated using the method outlined below. Show calculations and report calculated maximum deflection for each size of pipe and type of flexible pipe material. Maximum allowable deflection in installed lines is 5%, as determined by the deflection analysis and verified by a mandrel test. Some conservatism should be employed in determining allowable predicted deflections. This conservatism is necessary to allow for variability in the quality of installation.

$$\Delta Y / D(\%) = \frac{K * (L_p + L_1) * 100}{(0.149 * P_s) + (0.061 * zeta * E_b)} \qquad \text{Equation (13)}$$

$$\frac{\Delta Y}{D(\%)} = \frac{0.11*(13.28+0.00)*100}{(0.149*180)+(0.061\&1.00*2000)} = 0.84\% \qquad \text{(8" PVC SDR 26 160 PSI)}$$

See attachment for calculation.
%ΔY/D = Predicted % vertical deflection under load.

ΔY = Change in vertical pipe diameter under load

D = Undeflected mean pipe diameter (in)

$$L_p = \frac{\gamma_s * H}{144} * 1.5 \qquad \text{Equation (14)}$$

$L_p = \frac{125*13.2}{144} * 1.5 = 17.1875$ (8" PVC SDR 26 160 PSI, H=15.74 ft)

K = Bedding angle constant. Assumed to be 0.110 unless otherwise justified.

γ_s = Unit weight of soil (pcf). γ_s less than 120 pcf must be justified.

H = Depth of burial (ft) from ground surface to crown of pipe.

L_p = Prism load (psi). If prism load is calculated using Marston's load formula, or other formulas less conservative than the one provided above, the load should be multiplied by a deflection lag factor $D_L = 1.5$ to account for long-term deflection of the pipe as the bedding consolidates S-27) Report the final pipe diameters, types of pipe material proposed for each diameter, type of pipe material, pipe stiffness for each pipe material (P_s), zeta factors assumed or calculated for each pipe diameter, modulus of the pipe bedding material (E_b) and % deflection predicted for each pipe size and type of pipe material.

	Type of Pipe Material	Ps (psi)	zeta Factor Assumed or Calculated	Eb (psi)	% Deflection
Pipe Diameter 1	8" PVC SDR 26/ASTM D-2241	160	1.00	2000	1.00

S-28) Do all pipes proposed for this project have a maximum predicted deflection of 5.0%? **Yes**

217.10(e)(11) __**X**__ A description of the areas not initially served by a project, and the projected means of providing service to these areas, including special provisions incorporated in the present plans for future expansion.

- Refer to Attachment - **"CU201."**

- 217.10(e)(12) __**N/A**__ The calculations and curves showing the operating characteristics of all system lift stations at minimum, maximum, and design flows during both present and future conditions.

217.10(e)(13) __N/A__ The safety considerations incorporated into a project design, including ventilation, entrances, working areas, and explosion prevention

Place engineer's seal here:

Garrett Keller, P.E.
Print Name of Licensed Professional Engineer

Signature of Licensed Professional Engineer

Date

	SDR 26 160 PSI	SDR 26 160 PSI
	Worse Case Line D, Sta: 18+78.43 (Deepest Depth of Cover)	Line D, Sta: 3+74.50 (Minimum Depth of Cover and Max Live Load)
General		
E (psi) =	400000	400000
Eb (psi) =	2000	2000
E'n (psi) =	5000	5000
Ys (pcf) =	125	125
Yw (pci) =	0.0361	0.0361
(pcf) =	62.4	62.4
b (min trench width)(in) =	24	24
Pc =	4000	4000
K =	0.11	0.11
Total length of Pipe (ft.)	194.69	194.69
SCS Cost	$97.35	$97.35

	Type of Pipe	*ASTM 2241*	*ASTM 2241*
	SDR	26 CL 160	26 CL 160
	D (Pipe Diameter) (in)	**8**	**8**
	length of Pipe (LF)	**194.69**	**194.69**
	Do (outside Dia.) (in)	8	8
	T (thickness) (in)	0.332	0.332
	(Fill Height) H (ft)	**13.20**	**11**
	(Fill Height) h (in)	158.40	132.00
	hw (in)	0	0
	Pipe Stiffness Ps (psi)	160	160
Equations	**Surface Water Depth (SWD) (in)**	0	0
T68) Allowable Buckling Pressure			
$q_a = 0.4 * \sqrt[3]{32 * R_w * B' * E_b * (E * I / D^4)}$	**qa**	140.24	132.76
Allowable Buckling Pressure (psi)			
$R_w = 1 - 0.33 * (h_w / h)$	**Rw**	1.00	1.00
Water Buoyancy Factor			
$B' = \frac{1}{1 + 4 * e^{-0.213 H}}$	**B'**	0.81	0.72
Empirical Coefficient of Elastic Support			
$I = (t^3/12)(\text{inches}^4/\text{Linch})$	**I**	0.00305	0.00305
Moment of Inertia of the Pipe Wall Cross Section (in^3)			
$L_i = \frac{\gamma_w * SWD}{144}$	**L_i**	0.00	0.00
Live Load (psi)			
$q_p = \gamma_w * h_w + R_w * (W_c/D) + L_i$	**qp**	11.95	9.96
Pressure Applied to Pipe Under Installed Conditions (psi)			
$W_c = \gamma_s * H * (D + t)/144$	**Wc**	92.21	76.84
Vertical Soil Load on the Pipe (lb/in)			
	TEST: if qa<qp wrong	Acceptable	Acceptable
T71) Concrete Cradle			
	Ha	382.46	382.46
$H_a = (24 * P_c * A)/(\gamma_s * D_o)$	**A**	3.984	3.984
	Test if Hp>Ha	Acceptable	Acceptable
T78) Ratio of Bedding Modulus to Soil Modulus			
	Eb/E'n	0.40	0.40
T79) Zeta Factor			
$zeta = \frac{1.44}{f + (1.44 - f) * (E_b / E_s)}$	**zeta**	1.00	1.00
$f = \frac{b/d_o - 1}{1.154 + 0.444 * (b/d_o - 1)}$	**f**	1.01	1.01
T83) Pipe Stiffness			
$\frac{P_s}{SSF} = \frac{P_s}{(0.061 * zeta * E_b)} \geq 0.15$	**SSF**	122.00	122.00
	Ps/SSF	1.31	1.31
	Test if >0.15	Acceptable	Acceptable
T86) Deflection			
$\Delta Y / D(\%) = \frac{K * (L_p + L_i) * 100}{(0.149 * P_s) + (0.061 * zeta * E_b)}$	**ΔY**	122.00	122.00
	D(%)	145.84	145.84
	ΔY/D(%)	0.84%	0.84%
$L_p = \frac{\gamma_s * H}{144} x 1.5$	**Lp**	Acceptable	Acceptable
Note: Deflection Lag Factor = 1.5 (as shown above)			

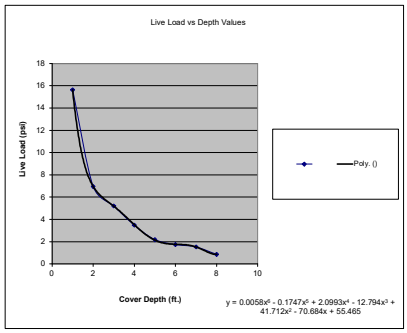
T-63) Live Load Analysis

Vehicle Live Load (Lv)	
Cover(ft)	Live Load (psi)
1	15.63
2	6.95
3	5.21
4	3.48
5	2.18
6	1.74
7	1.53
8	0.86

(Reference Table 2-7 Live Load Data AASHTO H-25)

	(min depth of cover, ft.)
SDR 26	11

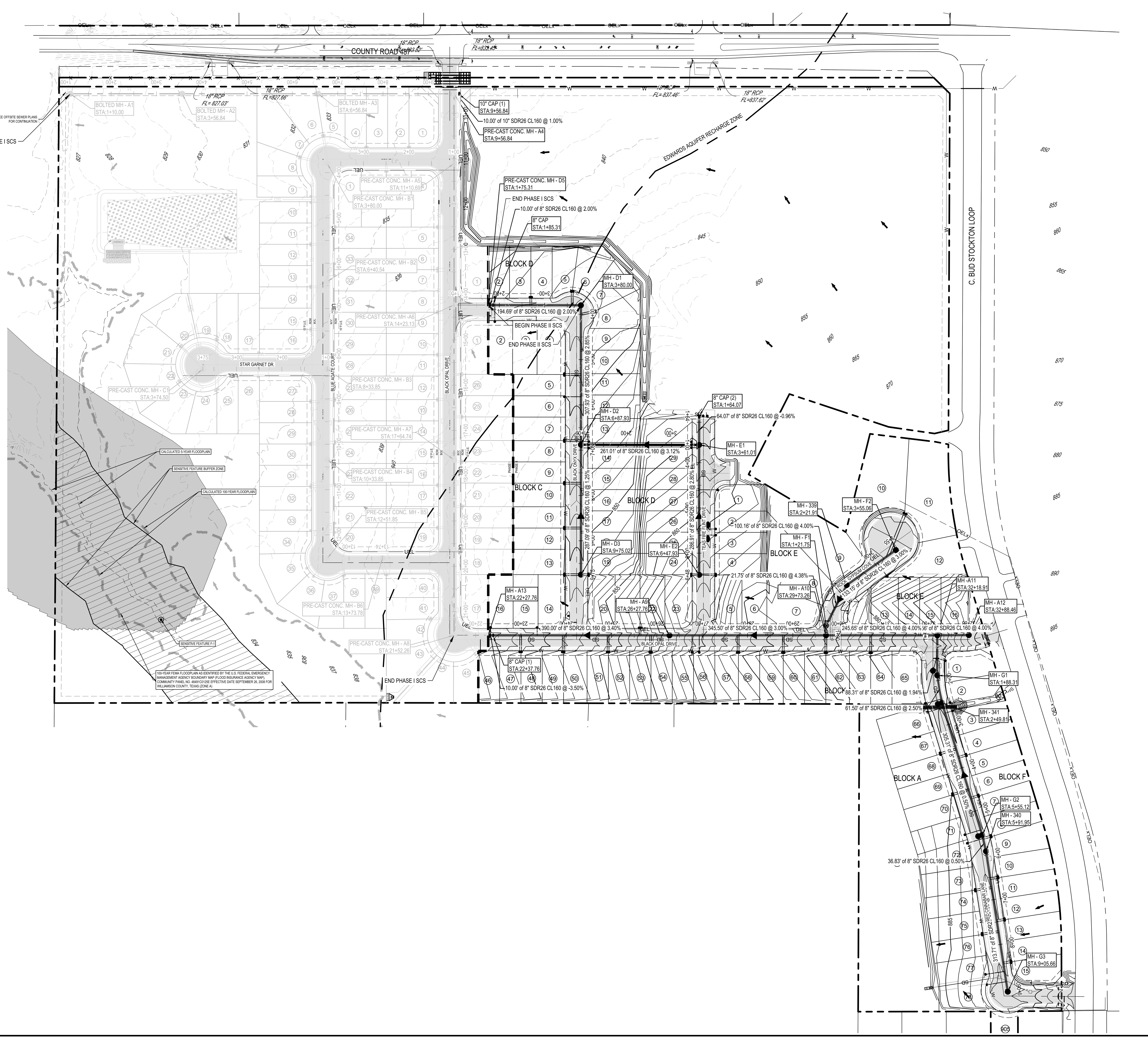
(through interpolation)



Peak Dry Weather Flow (PDWF) / Peak Wet Weather Flow (PWWF) For Balcones Flats On-Site Sewer System		
PDWF		
GPD		535,119
GPM		371.61
INFILTRATION		
GPD / acre		750
GPM acre		0.52
DRAIN AREA (ACRES)		44.39
TOTAL (GPM)		23.12
PWWF (GPM)		394.72

FLOW CAPACITIES From MH - D5 to MH-D1					
Pipe Material	Inside Diameter (in.)	Min Slope (%)	Q 65% Full (gpm)	Max Slope (%)	Max Flow Velocity (f/s)
SDR 26, CL 160	7.715	2.00	568.00	2.00	4.76
Pipe Material	Inside Diameter (in.)	Min Slope (%)	Q 85% Full (gpm)	Max Slope (%)	Max Flow Velocity (f/s)
SDR 26, CL 160	7.715	2.00	772.00	2.00	4.76

Note: Manning's "n" value = 0.013



LEGEND

- OVERALL SUBDIVISION BOUNDARY
- PHASE BOUNDARY
- EDWARDS AQUIFER RECHARGE ZONE
- PROPOSED LOT LINE
- EXISTING 1' CONTOUR — 970
- EXISTING 5' CONTOUR — 970
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR — 840
- PROPOSED WATER LINE — W
- PROPOSED SANITARY SEWER
- PROPOSED UNDERGROUND ELECTRIC — UEL
- PROPOSED STORM DRAIN — SD
- PROPOSED SANITARY SEWER SERVICE
- PUBLIC UTILITY EASEMENT (P.U.E.)
- RIGHT OF WAY — ROW
- FACE OF CURB — BOC
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED LOT NUMBERS — 50
- PROPOSED SILT FENCE — SF
- FLOW ARROW
- ROCK BERM
- STABILIZED CONSTRUCTION ENTRANCE
- CONSTRUCTION STAGING AREA
- CONCRETE WASHOUT AREA
- EXISTING SENSITIVE FEATURE
- CURB INLET PROTECTION

SCALE: 1"=100'

0 50' 100' 150' 200'

SHEET SIZE: 24" x 36"

STATE OF TEXAS
GARRETT D. KELLER
111511
LICENSED PROFESSIONAL ENGINEER
11/10/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING

HEADQUARTERS
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BOERNE, TEXAS 78006
OFFICE: 830.249.0600 FAX:830.249.0099

3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244

TEXAS REGISTERED ENGINEERING FIRM F-004512
BOERNE, TEXAS REGISTERED SURVEYING FIRM F-10024000
GEORGETOWN, TEXAS REGISTERED SURVEYING FIRM F-10194347
CIVIL ENGINEERS SURVEYORS LAND PLANNERS CONSTRUCTION MANAGERS CONSULTANTS

SEWAGE COLLECTION SITE PLAN

FOR

BALCONES FLATS PHASE II

JARRELL, TEXAS

CU201

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	44

Date: Nov 10, 2023, 9:37am User ID: cdanderson

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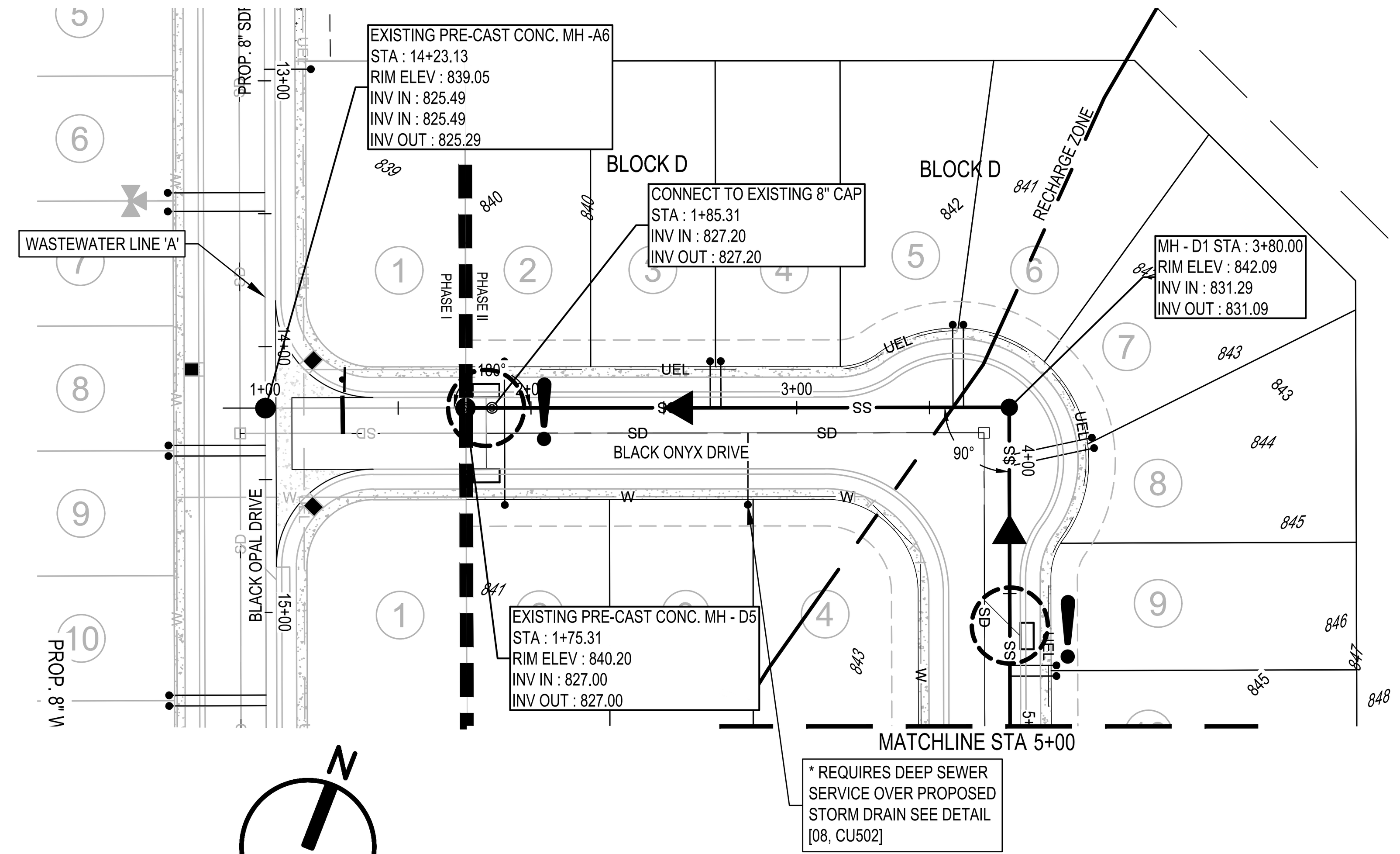
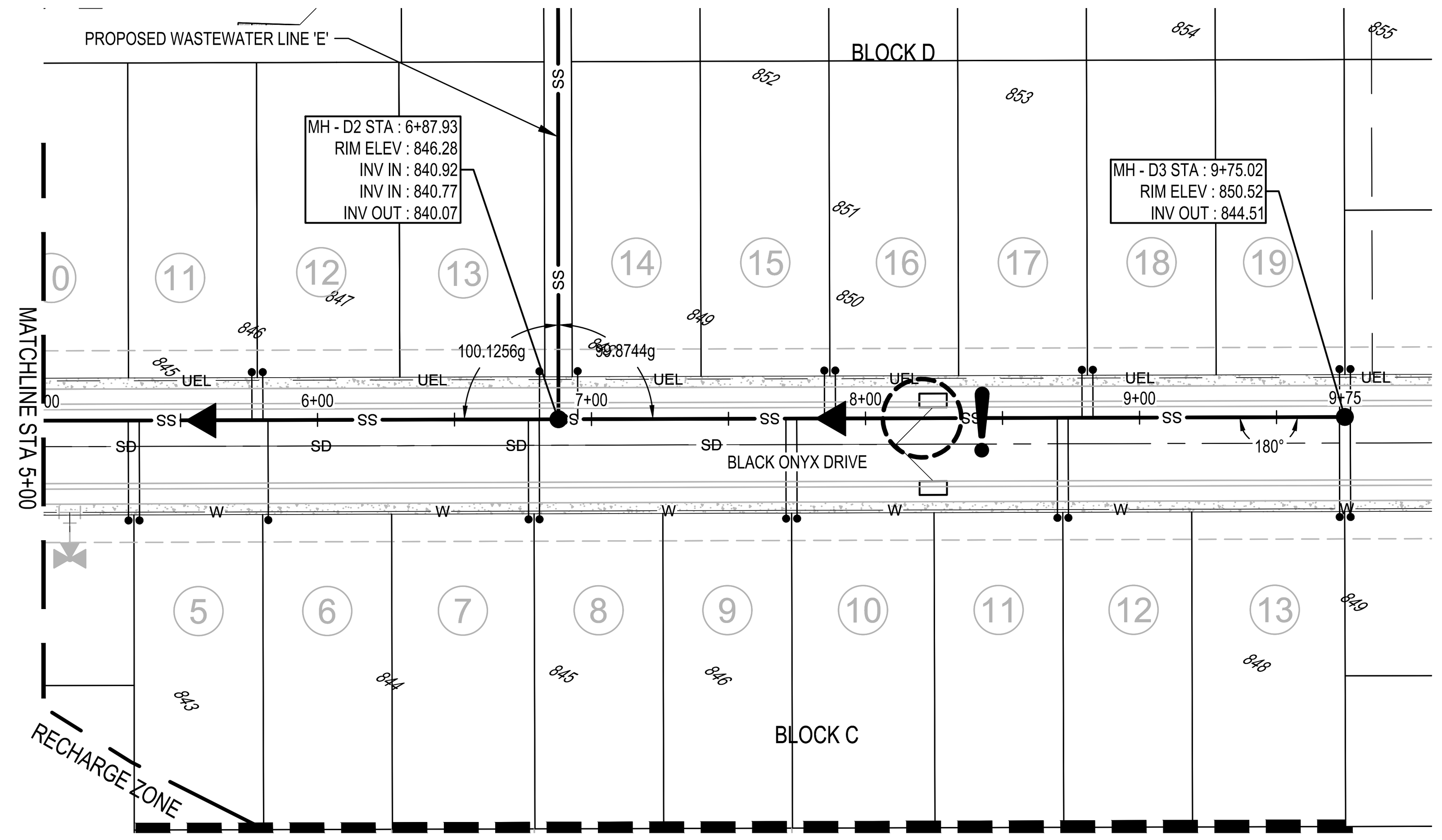




TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK 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.

WASTEWATER LINE 'D'
STA 1+00 TO END

NOTE:
1. SEE SHEET C-001 FOR GENERAL UTILITY NOTES
2. SEE SHEETS CU501 THROUGH CU504 FOR GENERAL UTILITY DETAILS

NOTE:
WHEN A MINIMUM FINISH FLOOR ELEVATION (FFE) IS SPECIFIED FOR A LOT. THE CONTRACTOR IS TO ENSURE SEWER SERVICE INVERT AT BUILDING SETBACK LINE IS A MINIMUM OF 3.5 FEET BELOW FFE. WASTEWATER DEEP SERVICE CONNECTIONS MAY BE INSTALLED ON LOTS WHERE SPECIFIED.

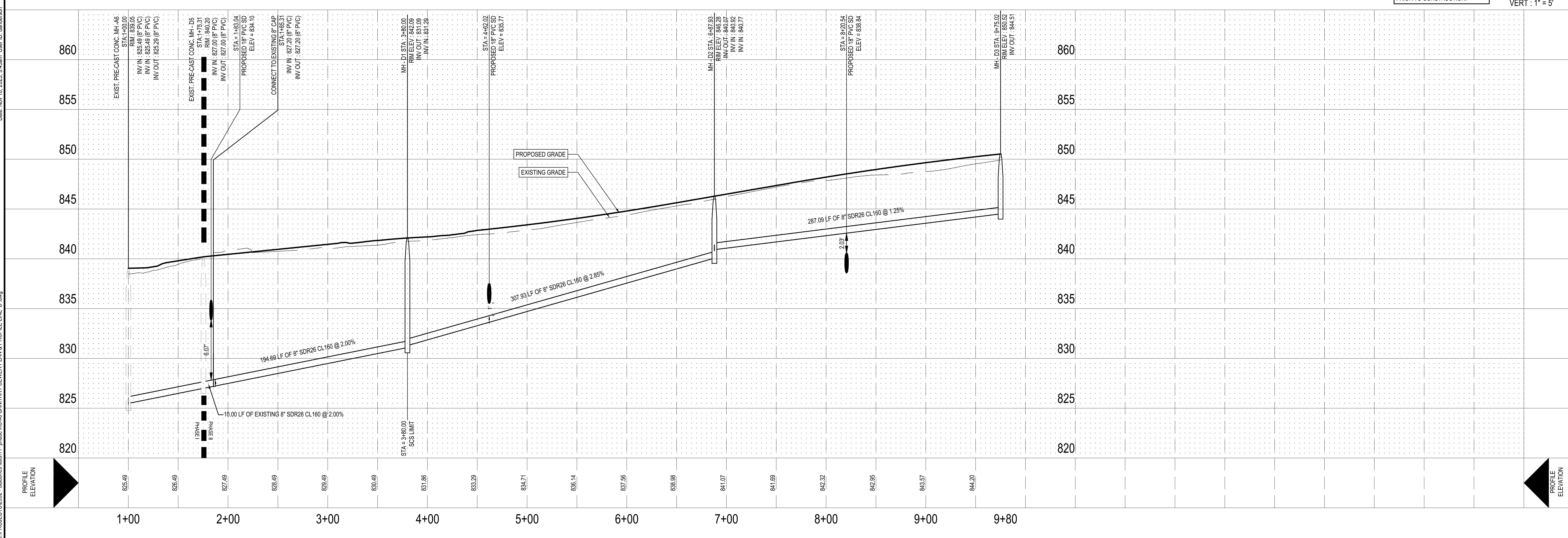
NOTE:
ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A SPECIFICATIONS. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

WARNING! CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION.

PROFILE SCALE:
HORZ : 1" = 50'
VERT : 1" = 5'

LEGEND
- OVERALL SUBDIVISION BOUNDARY
- PHASE BOUNDARY
- PROPOSED LOT LINE
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED WATER LINE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER SERVICE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED STORM DRAIN
- PROPOSED UNDERGROUND ELECTRIC
- PUBLIC UTILITY EASEMENT (P.U.E.)
- RIGHT OF WAY — ROW
- FACE OF CURB — BOC
- PROPOSED SANITARY SEWER MANHOLE
- FLOW DIRECTION ARROW
- PROPOSED LOT NUMBERS

DENOTES UTILITY CROSSING, SEE UTILITY DETAIL SHEET CU504 FOR UTILITY CROSSING DETAIL



SCALE: 1"=50'
SHEET SIZE: 24" x 36"

GARRETT D. KELLER
111511
11/10/23

REVISIONS:

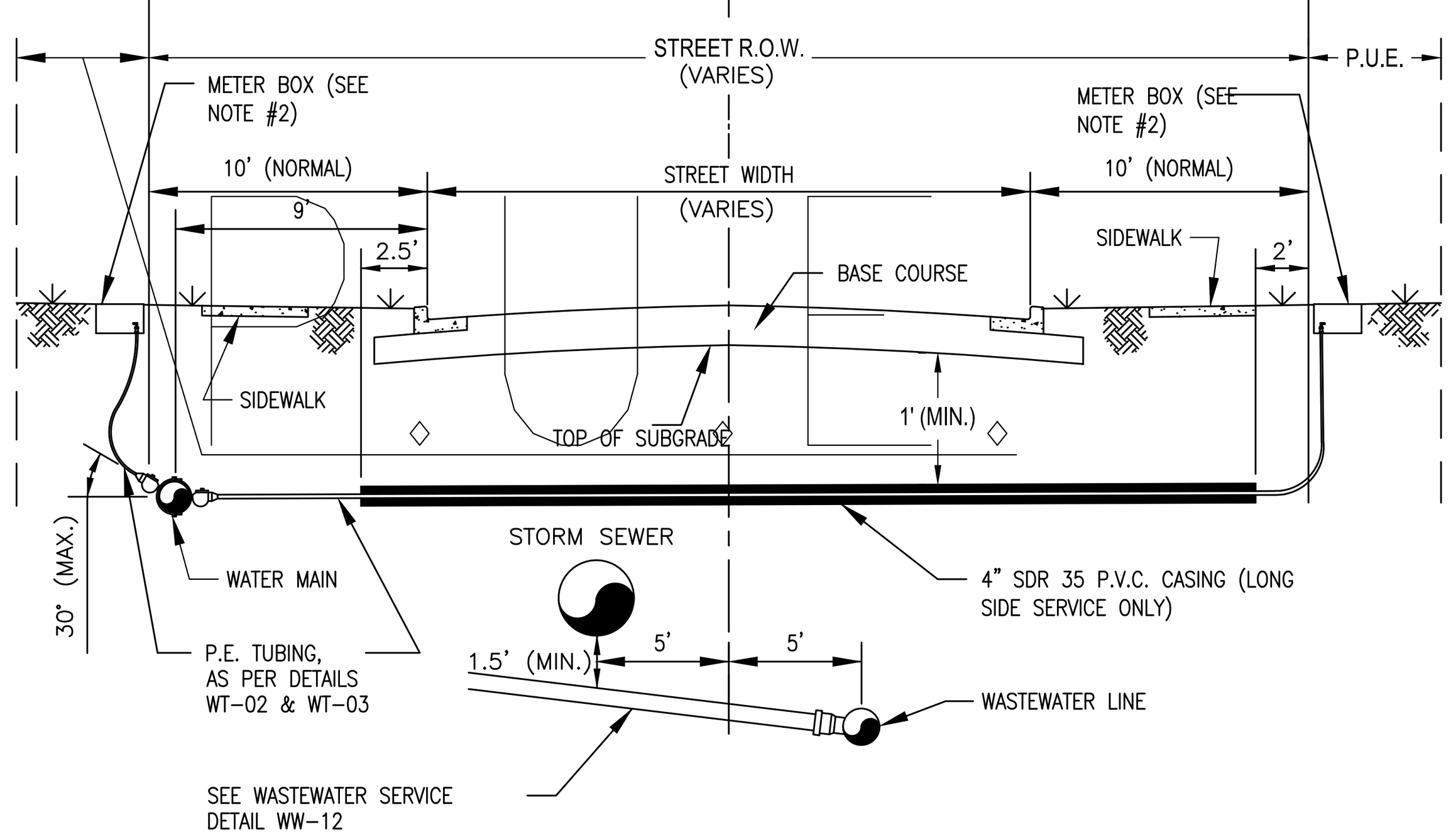
MATKINHOOVER ENGINEERING & SURVEYING
TEXAS REGISTERED ENGINEERING FIRM F-004512
TEXAS REGISTERED SURVEYING FIRM F-10024000

SANITARY SEWER PLAN & PROFILE LINE 'D'
FOR
BALCONES FLATS PHASE II
JARRELL, TEXAS

CU203

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	46

Date: Nov 10, 2023, 9:43am User ID: dandenson
G:\PROJECTS\2992 - balcones flats\11- phase II\C46 SANITARY SEWER PLAN & PROFILE LINE 'D'.dwg



NOTES:

1. REFER TO "STANDARD INSTALLATION DETAIL FOR ONE OR TWO METERS" FOR SERVICE SPECIFICS.
2. METER BOXES SHALL BE SET AS CLOSE TO R.O.W. (℄) AS POSSIBLE, WITH NO PART OF BOX WITHIN R.O.W. METER BOXES SHALL BE LEVEL FROM SIDE TO SIDE AND NO MORE THAN 1/4"/FT. SLOPE FROM FRONT TO BACK (OR BACK TO FRONT). GRADING IN P.U.E. AROUND METER BOX SHALL BE 3:1 MAXIMUM AND SHALL BLEND TO OTHER UTILITY APPURTENANCES WITHOUT ABRUPT ELEVATION CHANGES.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT
APPROVED
03-01-18
DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

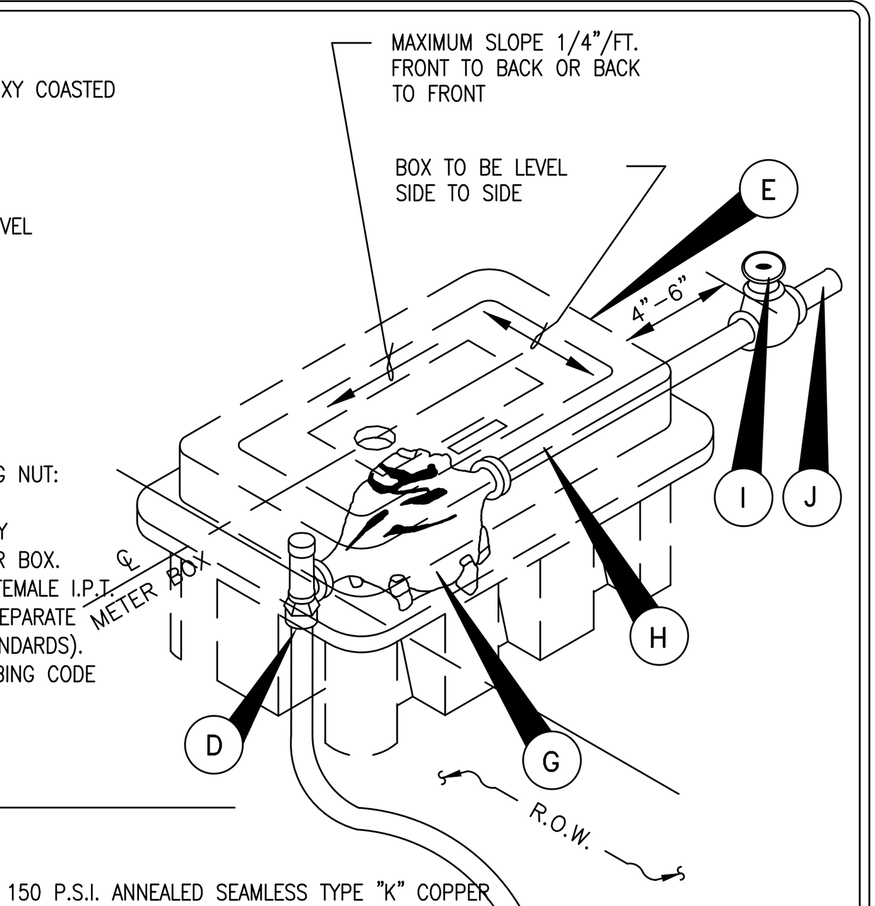
CITY OF ROUND ROCK — DRAWING NO: WT-01

WATER SERVICE CASING DETAIL (1)

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

MATERIAL LIST:

A. SERVICE SADDLE REQUIRED. SERVICE SADDLE TO BE EPOXY COASTED WITH DUAL STAINLESS STEEL BANDS.
B. 1" CORPORATION STOP – SERVICE PIPE OUTLET. (SEE NOTE #2)
C. 1" SERVICE PIPE.
D. LOCKING ANGLE METER STOP; SERVICE PIPE INLET X SWIVEL COUPLING NUT OUTLET:
- FOR 5/8" AND 3/4" METERS: 1" X 3/4"
- FOR 1" METERS: 1" X 1"
- SEE NOTE #2
E. PLASTIC RECTANGULAR METER BOX. (SEE TABLE BELOW)
F. PIPE CASING WHERE APPLICABLE. (AS PER DETAIL WT-01)
G. WATER METER, CENTERED IN BOX. (SEE TABLE BELOW)
H. WATER METER COUPLING; MALE I.P.T. X SWIVEL COUPLING NUT:
- FOR 5/8" AND 3/4" METERS: 3/4" X 8 1/2" LONG.
- FOR 1" METERS: LENGTH OF PIPE TO BE DETERMINED BY CONTRACTOR. EXTEND PIPE TO 4"-6" OUTSIDE OF METER BOX.
I. BRONZE GATE VALVE: NON-RISING STEM (3/4" OR 1") FEMALE I.P.T. (PROPERTY OWNERS CUT-OFF OUTSIDE METER BOX IN SEPARATE VALVE CAN WITH LID AS PER CITY OF ROUND ROCK STANDARDS).
J. 3/4" OR 1" PIPE MEETING CITY OF ROUND ROCK PLUMBING CODE REQUIREMENTS.

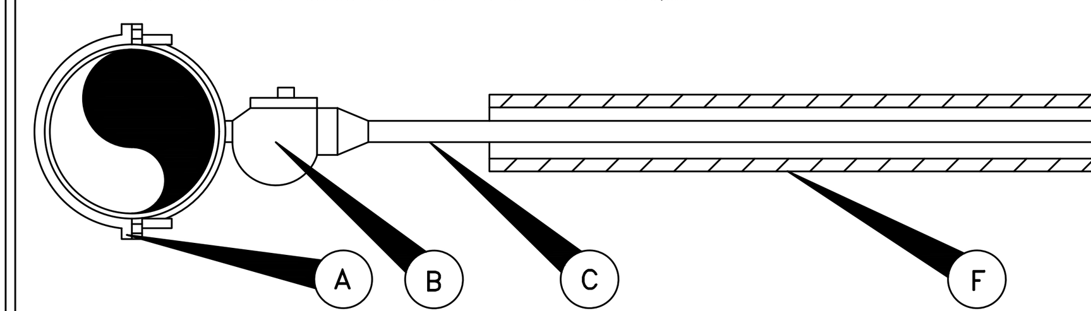


NOTES:

1. SERVICE PIPE SHALL BE COPPER TUBE SIZE. IT MAY BE 150 P.S.I. ANNEALED SEAMLESS TYPE "K" COPPER TUBING OR 200 P.S.I. BLACK COLORED POLYETHYLENE HAVING A DIMENSION RATIO OF 9 (DR9).
2. ALL STAINLESS STEEL INSERTS THAT COME WITH COMPRESSION FITTINGS SHALL NOT BE USED ON ANY CONNECTIONS.
3. SERVICE SADDLES SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
4. TOP OF BOXES SHALL BE 1" ABOVE FINISHED GRADE.
5. PIPING AND TUBING SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 510.3 OF THE STANDARD SPECIFICATIONS. SPECIAL ATTENTION IS CALLED TO "PIPE BEDDING ENVELOPE" AND "BACKFILLING", SECTIONS 510.3 (14) AND 510.3 (25), RESPECTIVELY.
6. AXIS OF METER ASSEMBLY (LINE THROUGH METER STOP, METER, PIPING AND OWNERS CUTOFF) SHALL BE 10" BELOW TOP OF BOX.
7. SLOTS PROVIDED IN METER BOX TO ACCOMMODATE PIPING INTO AND OUT OF BOX, SHALL NOT BE MODIFIED.
8. LOCATION OF METER BOXES SHALL BE SUBJECT TO THE APPROVAL OF THE C.O.R.R.

PART NUMBER	SERIES	COLOR	HEIGHT	WIDTH	LENGTH
DFW36C-12-BODY*	36C	BLACK	12"	TOP = 13-3/4"	TOP = 18-7/8"
DFW36C-AF1EQA-LID*	36C	BLACK	1-7/8"	LID = 10-3/16"	LID = 15-9/16"
DFW36C-12-AF1EQA*	36C	BLACK	12"	BASE = 10-1/2"	BASE = 18-7/8"

* MANUFACTURED BY DFW PLASTICS INCORPORATED OR APPROVED EQUAL.



METER SIZE	LENGTH
5/8"	7 1/2"
3/4"	7 1/2"
1"	11"

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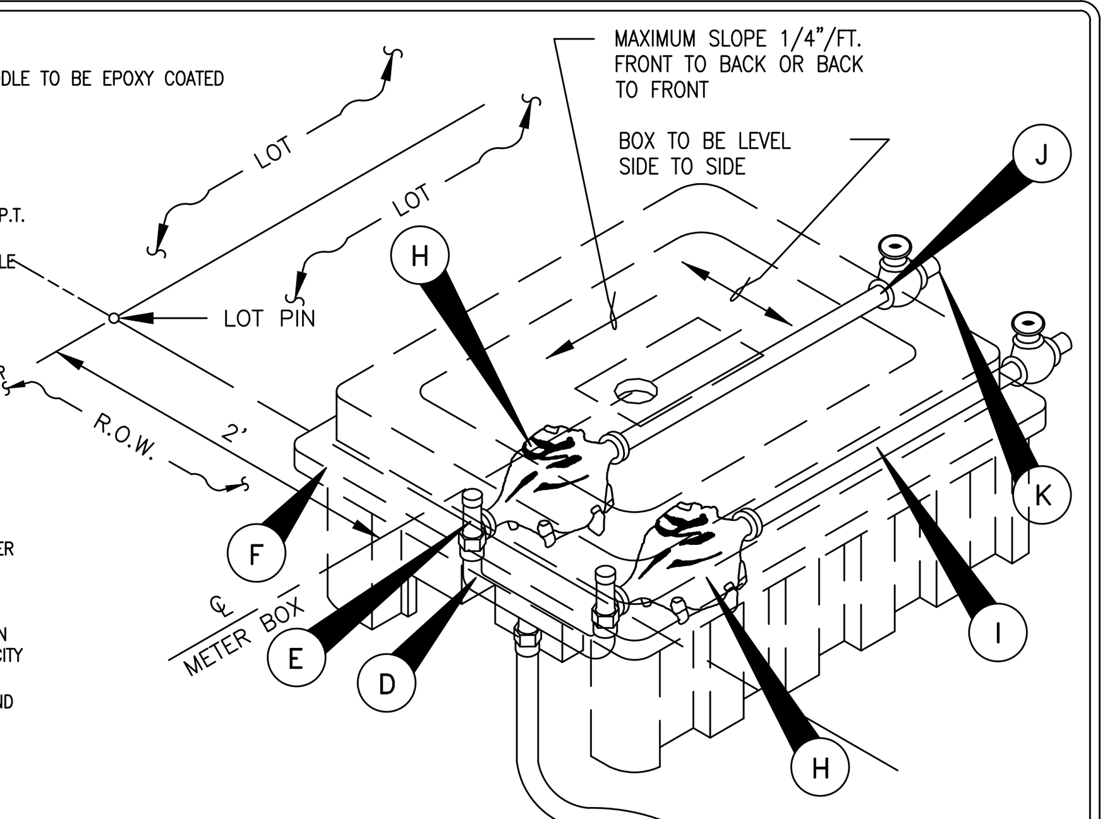
CITY OF ROUND ROCK — DRAWING NO: WT-02

SINGLE 5/8", 3/4" OR 1" WATER METER DETAIL (2)

MATERIAL LIST:

A. SERVICE SADDLE REQUIRED. SERVICE SADDLE TO BE EPOXY COATED WITH DUAL STAINLESS STEEL BANDS
B. 1 1/2" CORPORATION STOP (TYPICAL) – SERVICE PIPE OUTLET. (SEE NOTE #2)
C. 1 1/2" SERVICE PIPE (TYPICAL).
D. BRANCH CONNECTION: 1 1/2" OR 2" SERVICE PIPE INLET AND 2 3/4" MALE I.P.T. OUTLETS 7 1/2" O.C. (SEE NOTE #2)
E. 3/4" LOCKING ANGLE METER STOP; FEMALE I.P.T. INLET AND SWIVEL COUPLING NUT OUTLET.
F. PLASTIC RECTANGULAR METER BOX. (SEE TABLE BELOW)
G. PIPE CASING WHERE APPLICABLE. (AS PER DETAIL WT-01)
H. WATER METERS, CENTERED IN BOX. (SEE TABLE BELOW)
I. WATER METER COUPLING; MALE I.P.T. X SWIVEL COUPLING NUT.
- LENGTH OF PIPE TO BE DETERMINED BY CONTRACTOR.
- EXTEND PIPE TO 4"-6" OUTSIDE OF METER BOX.
J. BRONZE GATE VALVE: NON-RISING STEM (3/4" OR 1") FEMALE I.P.T. (PROPERTY OWNERS CUT-OFF OUTSIDE METER BOX IN SEPARATE VALVE CAN WITH LID AS PER CITY OF ROUND ROCK STANDARDS).
K. 3/4" OR 1" PIPE MEETING CITY OF ROUND ROCK PLUMBING CODE REQUIREMENTS.

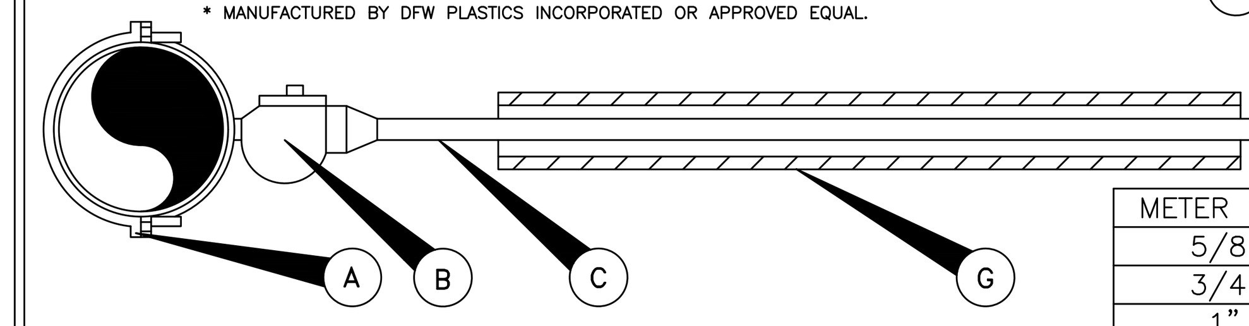


NOTES:

1. SERVICE PIPE SHALL BE COPPER TUBE SIZE. IT MAY BE 150 P.S.I. ANNEALED SEAMLESS TYPE "K" COPPER TUBING OR 200 P.S.I. BLACK COLORED POLYETHYLENE HAVING A DIMENSION RATIO OF 9 (DR9).
2. ALL STAINLESS STEEL INSERTS THAT COME WITH COMPRESSION FITTINGS SHALL NOT BE USED ON ANY CONNECTIONS.
3. SERVICE SADDLES SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
4. TOP OF BOXES SHALL BE 1" ABOVE FINISHED GRADE.
5. PIPING AND TUBING SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 510.3 OF THE STANDARD SPECIFICATIONS. SPECIAL ATTENTION IS CALLED TO "PIPE BEDDING ENVELOPE" AND "BACKFILLING", SECTIONS 510.3 (14) AND 510.3 (25), RESPECTIVELY.
6. AXIS OF METER ASSEMBLY (LINE THROUGH METER STOP, METER, PIPING AND OWNERS CUTOFF) SHALL BE 10" BELOW TOP OF BOX.
7. SLOTS PROVIDED IN METER BOX TO ACCOMMODATE PIPING INTO AND OUT OF BOX, SHALL NOT BE MODIFIED.
8. BRANCH CONNECTION AND BOTH ANGLE METER STOPS MUST BE INSTALLED PRIOR TO FIRST METER INSTALLATION EVEN THOUGH THE SECOND PROPERTY MAY NOT BE READY FOR SERVICE.
9. LOCATION OF METER BOXES SHALL BE SUBJECT TO THE APPROVAL OF THE C.O.R.R.

PART NUMBER	SERIES	COLOR	HEIGHT	WIDTH	LENGTH
DFW38C-14-BODY*	38C	BLACK	14"	TOP = 20-1/2"	TOP = 21-1/2"
DFW38C-AF1EQA-LID*	38C	BLACK	2"	LID = 17"	LID = 18"
DFW38C-14-AF1EQA*	38C	BLACK	14"	BASE = 17"	BASE = 21-1/2"

* MANUFACTURED BY DFW PLASTICS INCORPORATED OR APPROVED EQUAL.



METER SIZE	LENGTH
5/8"	7 1/2"
3/4"	7 1/2"
1"	11"

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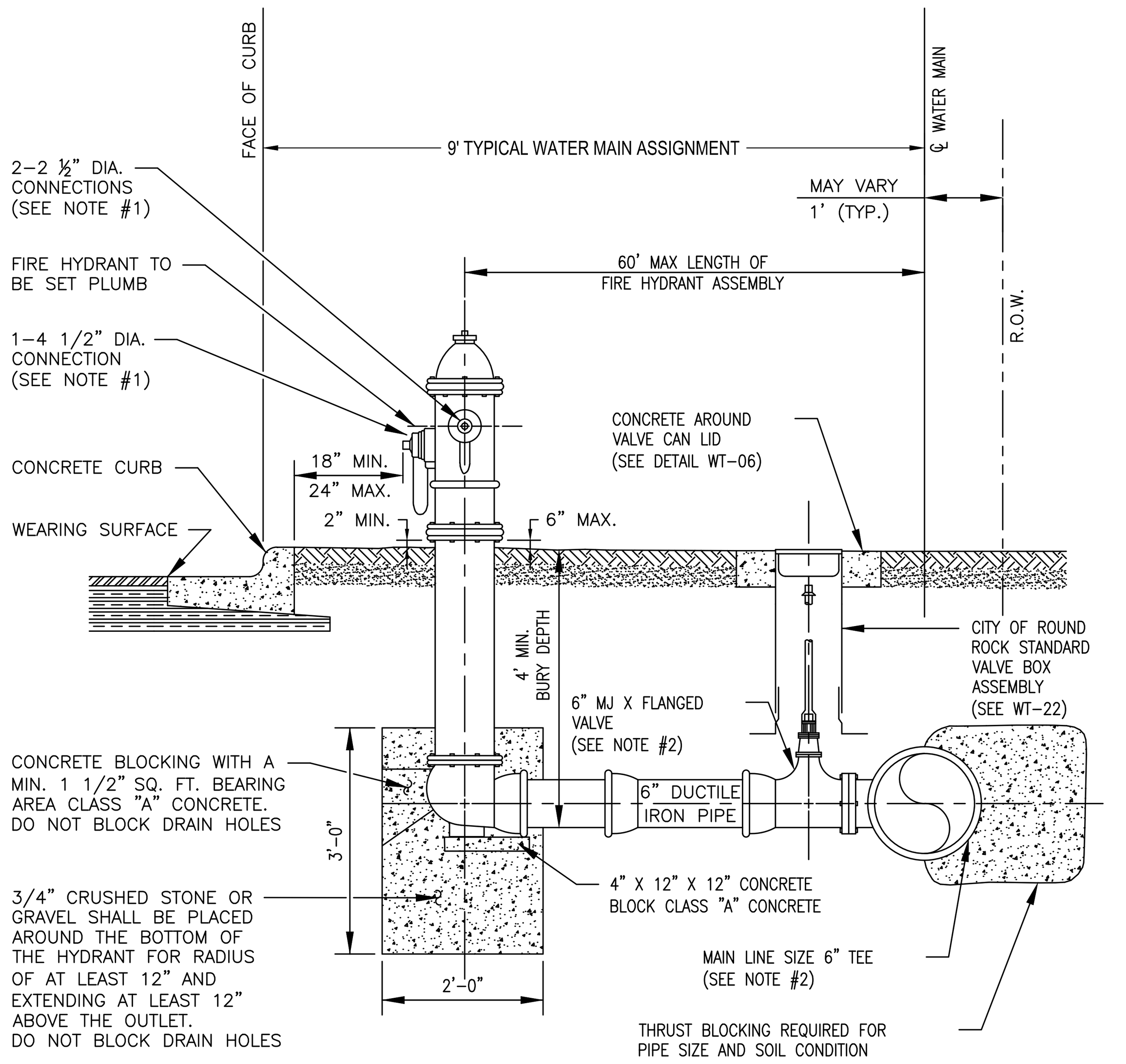
CITY OF ROUND ROCK — DRAWING NO: WT-04

DUAL 5/8", 3/4" OR 1" WATER METERS DETAIL (3)



NOTES:

1. THREADS ON OUTLET NOZZLES SHALL BE NATIONAL STANDARD THREAD.
2. TEE MAY HAVE FLANGED OUTLET FOR MJ X FLANGED GATE VALVE OR, ANCHOR (SWIVEL) TEE MAY BE USED WITH MJ X MJ GATE VALVE.
3. A BLUE REFLECTIVE DELINEATOR OF TYPE APPROVED BY THE ENGINEER SHALL BE PLACED 2 TO 3 FEET OFFSET FROM THE CENTERLINE OF PAVED STREETS OR PAVED ACCESS WAYS, ON THE SIDE OF AND IN LINE WITH ALL NEWLY INSTALLED FIRE HYDRANTS.
4. PIPE, VALVE, TEE AND HYDRANT BARREL SHALL BE WRAPPED IN 8 MM POLY.
5. FIRE HYDRANT LEADS SHALL NOT CONTAIN ANY HORIZONTAL OR VERTICAL BENDS EXCEPT FOR WHAT IS SHOWN IN THE DETAIL.
6. FIRE HYDRANT LEAD AND ASSEMBLY SHALL BE RESTRAINED AND THRUST BLOCKED.

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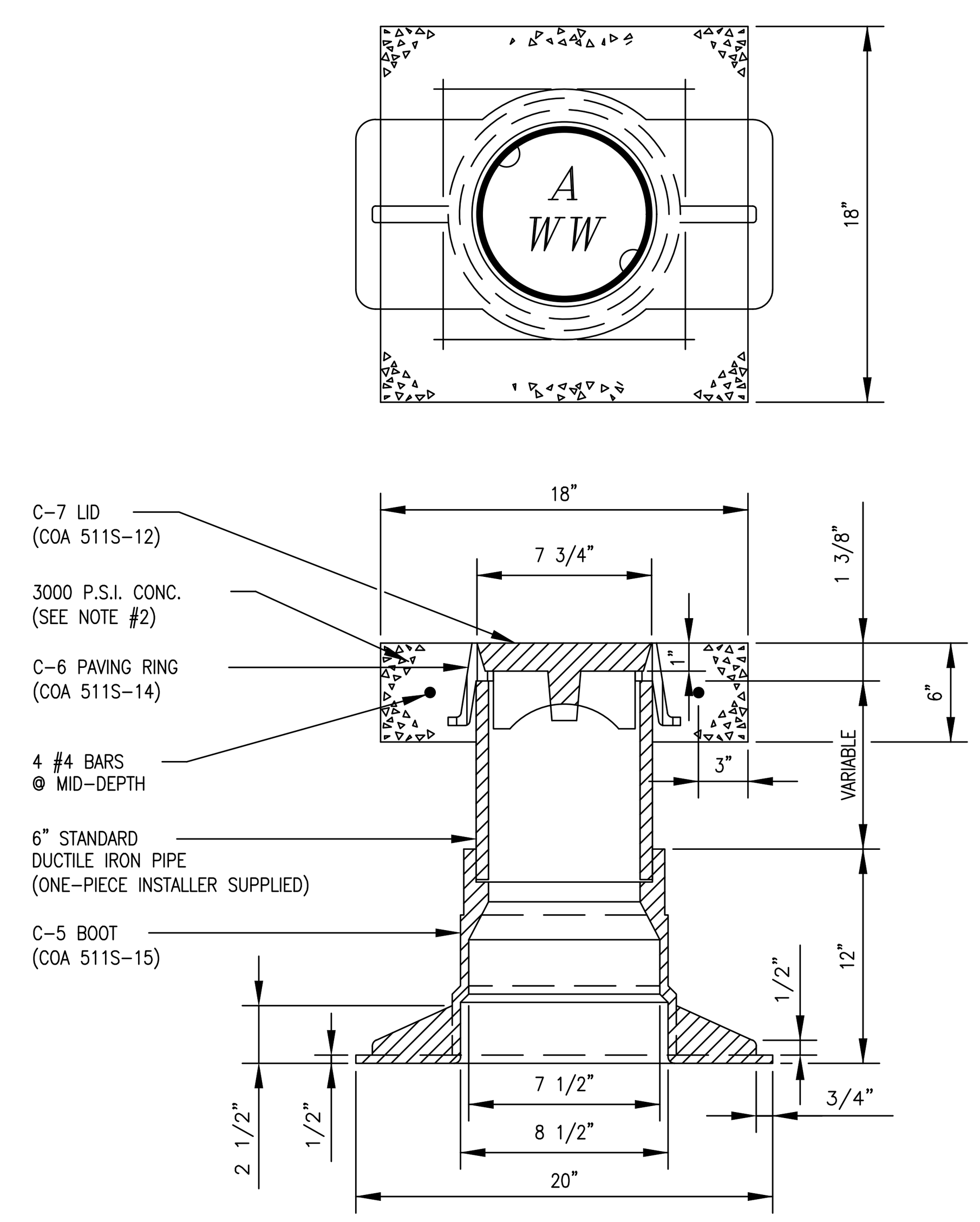
CITY OF ROUND ROCK — DRAWING NO: WT-05

FIRE HYDRANT ASSEMBLY DETAIL (4)



NOTES:

1. NUMBERED CASTINGS STANDARDS SHOWN IN PARENTHESES ARE REFERENCES TO THE CITY OF AUSTIN STANDARDS CRITERIA MANUAL.
2. DELETE CONCRETE AND REBAR WHEN VALVE IS WITHIN PAVED STREET.

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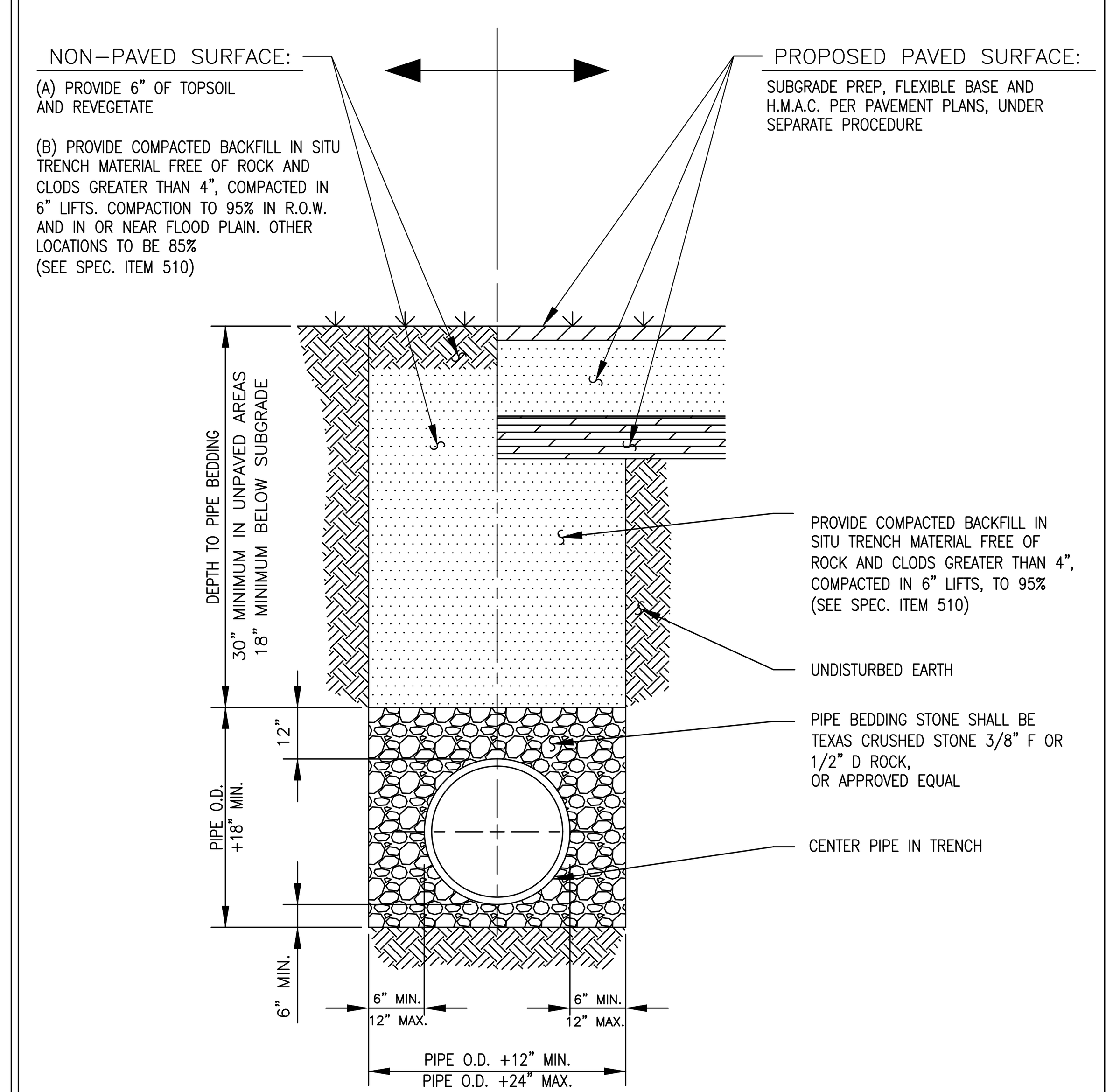
CITY OF ROUND ROCK — DRAWING NO: WT-06

VALVE BOX ASSEMBLY DETAIL (5)



NOTE:

1. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

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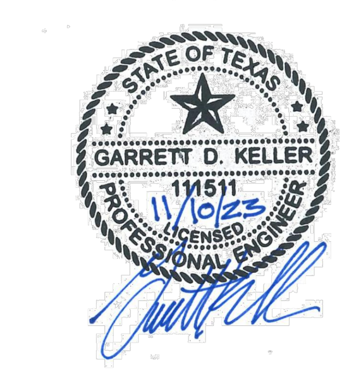
CITY OF ROUND ROCK — DRAWING NO: WT-08

WATERLINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE) (6)

SHEET SIZE: 24" x 36"



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CIVIL UTILITY DETAILS (SHEET 1)

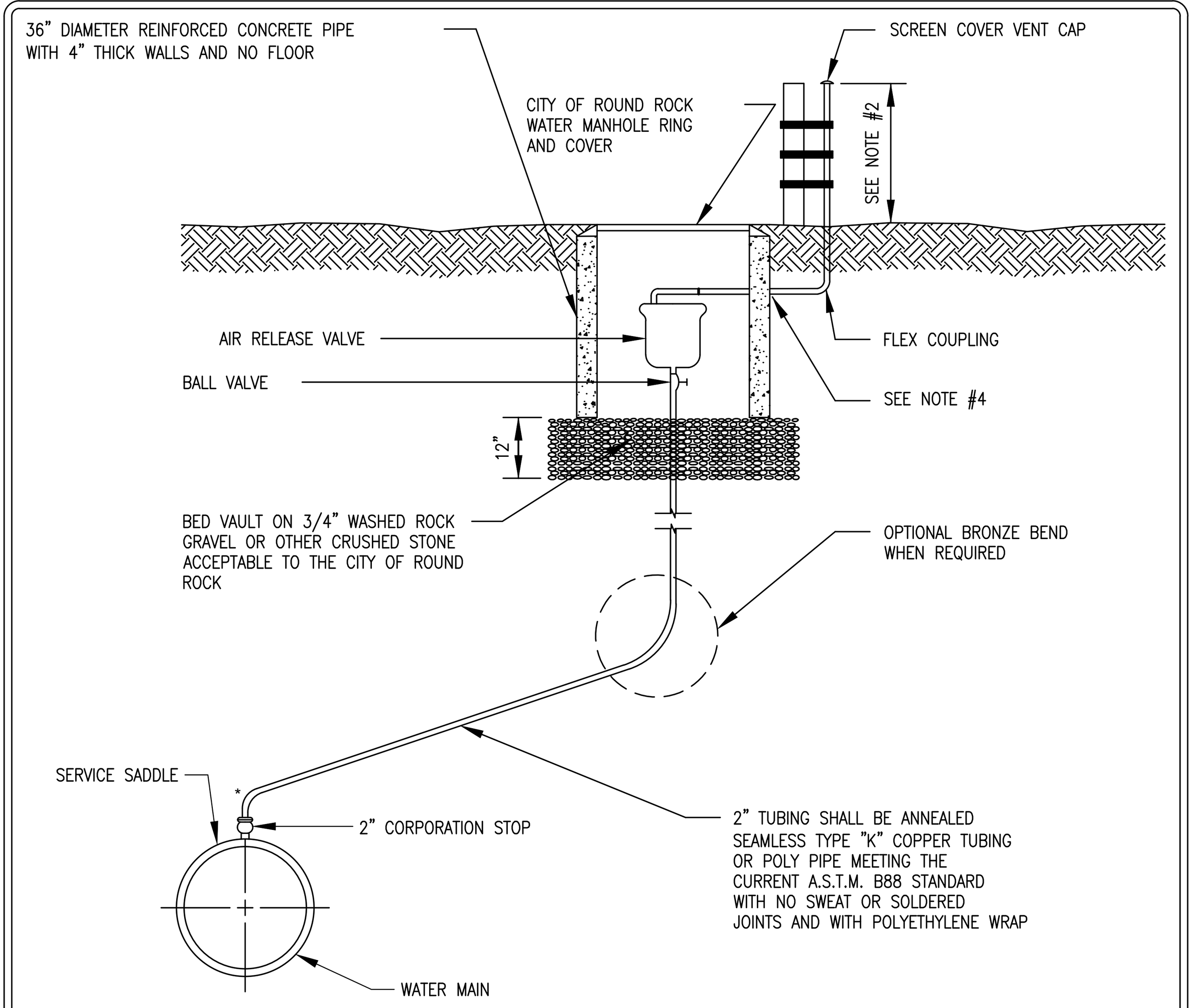
FOR

BALCONES FLATS PHASE II

JARRELL, TEXAS

CU501

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	50



* THREAD TO COMPRESSION BRASS ELBOW ALLOWED IF NECESSARY DUE TO DEPTH LIMITATIONS.

GALVANIZED IRON PIPE	
AIR VALVE	BALL VALVE
1"	1"
2"	2"

NOTES:

1. AIR RELEASE VALVE VAULT FOR USE IN NON-PAVEMENT AREAS.
2. EXTERIOR SURFACES OF EXPOSED AIR VENT PIPE AND STEEL SUPPORT PIPE SHALL BE CLEANED, PREPPED, PRIMED AND PAINTED WITH RUST-OLEUM SAFETY BLUE ACRYLIC #5225402 PAINT, OR APPROVED EQUAL.
3. THE AIR VENT PIPE SHALL BE 5' MINIMUM IN HEIGHT AND SHALL BE SUPPORTED BY A 4" STEEL PIPE, WHICH IS TO BE SET IN 2500 P.S.I. CONCRETE, FILLED WITH CONCRETE AND SUPPORTED WITH 3 STAINLESS STEEL CLAMPS.
4. CONCRETE VAULT PENETRATION SHALL BE CORE BIT DRILLED. VOID SHALL BE FILLED BY PRESS-SEAL GASKET CORP. PSX RESILIENT CONNECTOR MEETING A.S.T.M. C923, OR APPROVED EQUAL.
5. PIPE SUPPORT TO BE PROVIDED FOR THE AIR RELEASE VALVE.

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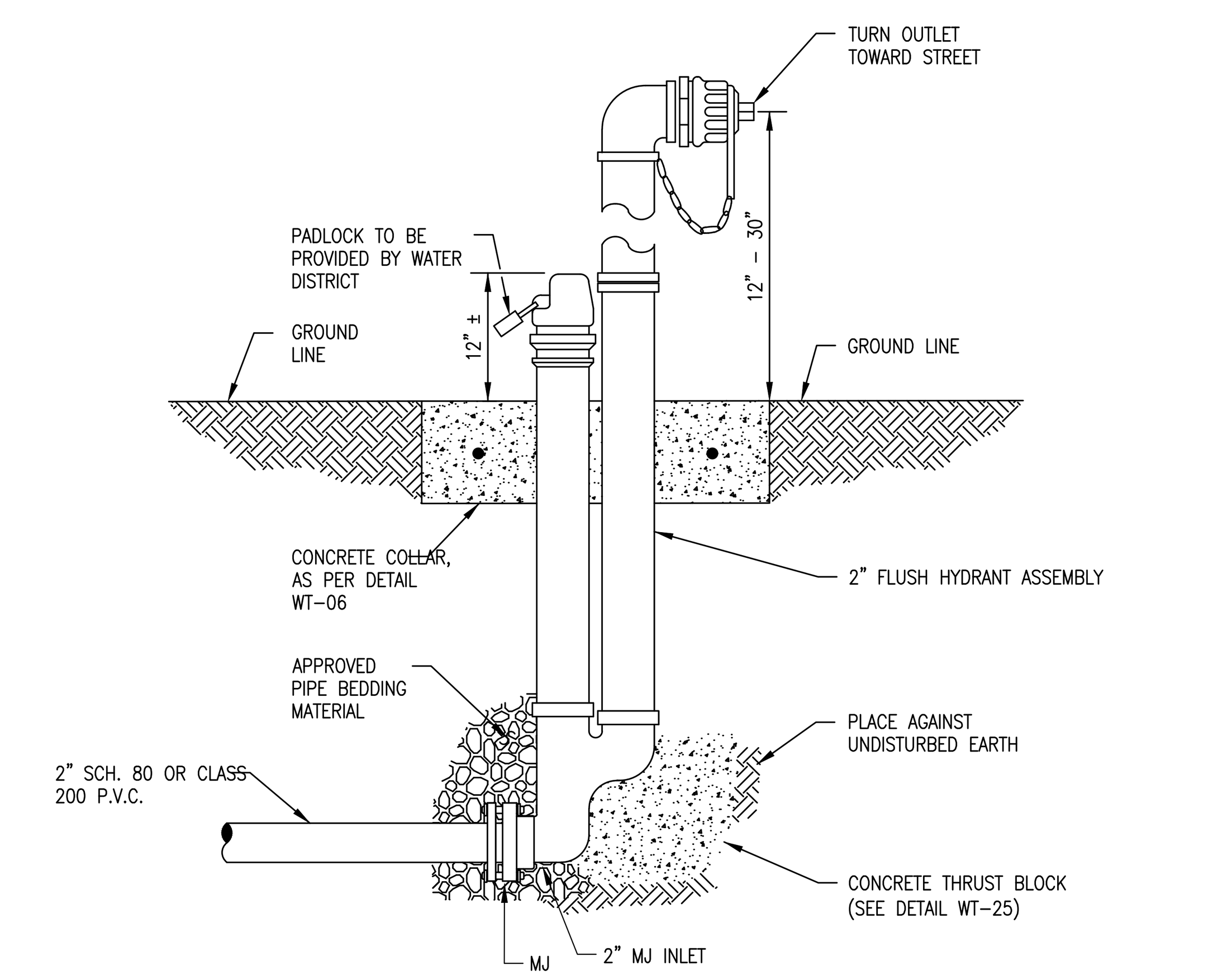
CITY OF ROUND ROCK

1" THRU 2" AIR RELEASE VALVE INSTALLATION DETAIL (UNDEVELOPED AREAS) (1)

DRAWING NO: WT-15

ROUND ROCK TEXAS UTILITIES AND ENVIRONMENTAL SERVICES



NOTES:

1. FLUSH HYDRANTS SHALL BE MAINGUARD NO. 77 AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO., OR APPROVED EQUAL.
2. HYDRANT SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH 30" MINIMUM COVER IN UNPAVED AREAS AND 18" MINIMUM BELOW SUBGRADE IN PAVED AREAS.
3. HYDRANTS SHALL BE FURNISHED WITH A 2" MJ INLET, A NON-TURNING OPERATING ROD AND SHALL OPEN TO THE LEFT.
4. THE OUTLET SHALL BE 2 1/2" NST BRONZE.
5. ALL WORKING PARTS SHALL BE OF BRONZE-TO-BRONZE DESIGN, AND BE SERVICEABLE FROM ABOVE GRADE WITH NO DIGGING. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE.

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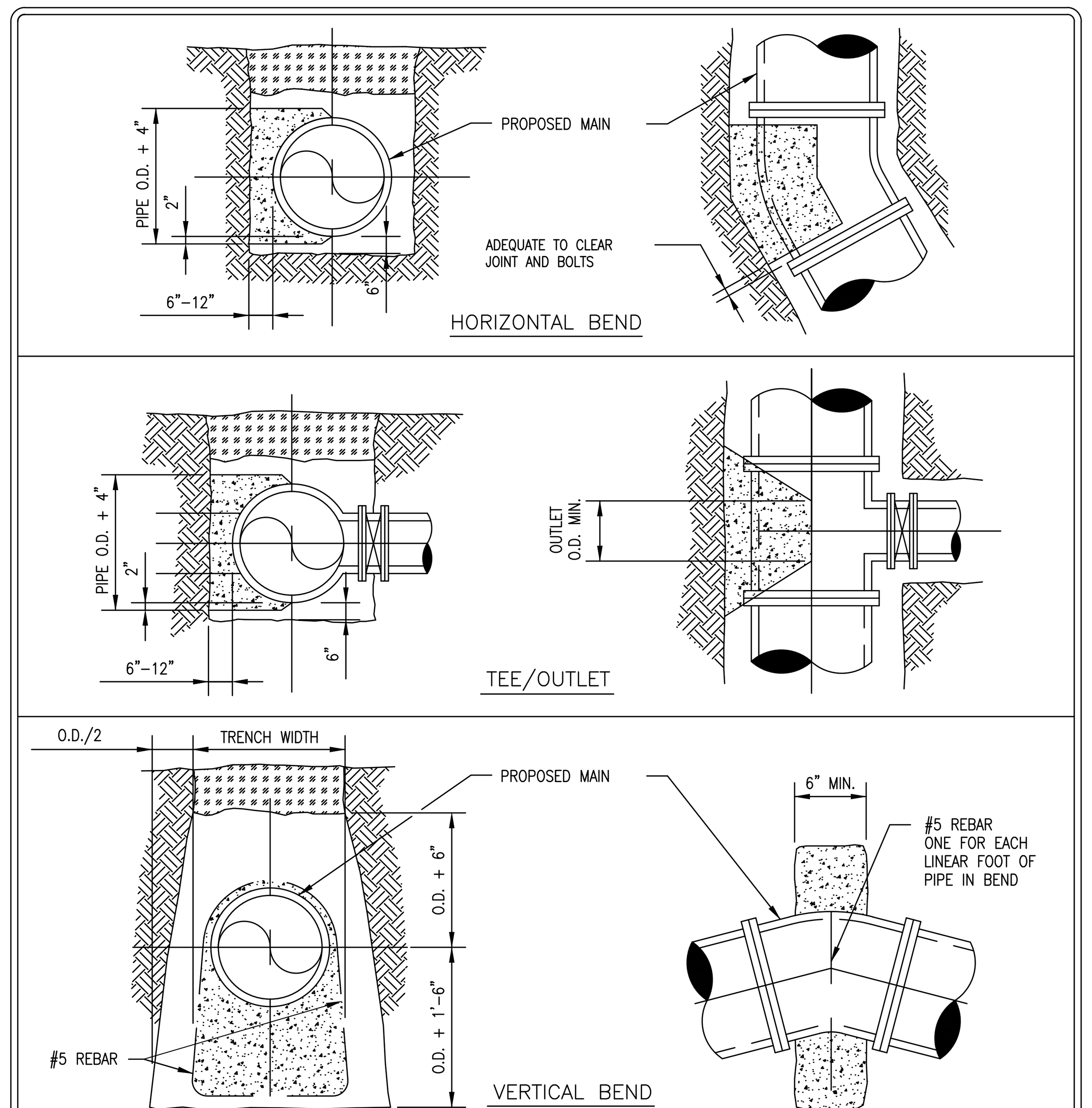
CITY OF ROUND ROCK

DEAD END LINE BLOW-OFF VALVE DETAIL (2)

DRAWING NO: WT-24

ROUND ROCK TEXAS UTILITIES AND ENVIRONMENTAL SERVICES



THRUST BLOCK DESIGN AS FOLLOWS:

A. PRESSURE OF 150 P.S.I. (ACTUAL IF HIGHER) + 50% SURGE ALLOWANCE
B. MAXIMUM SOIL BEARING:
C. ALL PIPE & FITTING TO BE WRAPPED WITH 40 PLASTIC MIL.

SOIL TYPE	PRESSURE
LIMESTONE	4000 LBS./SQ. FT.
UNDISTURBED SOIL, CALICHE	2000 LBS./SQ. FT.
LOOSE OR SPONGY SOIL	1500 LBS./SQ. FT.

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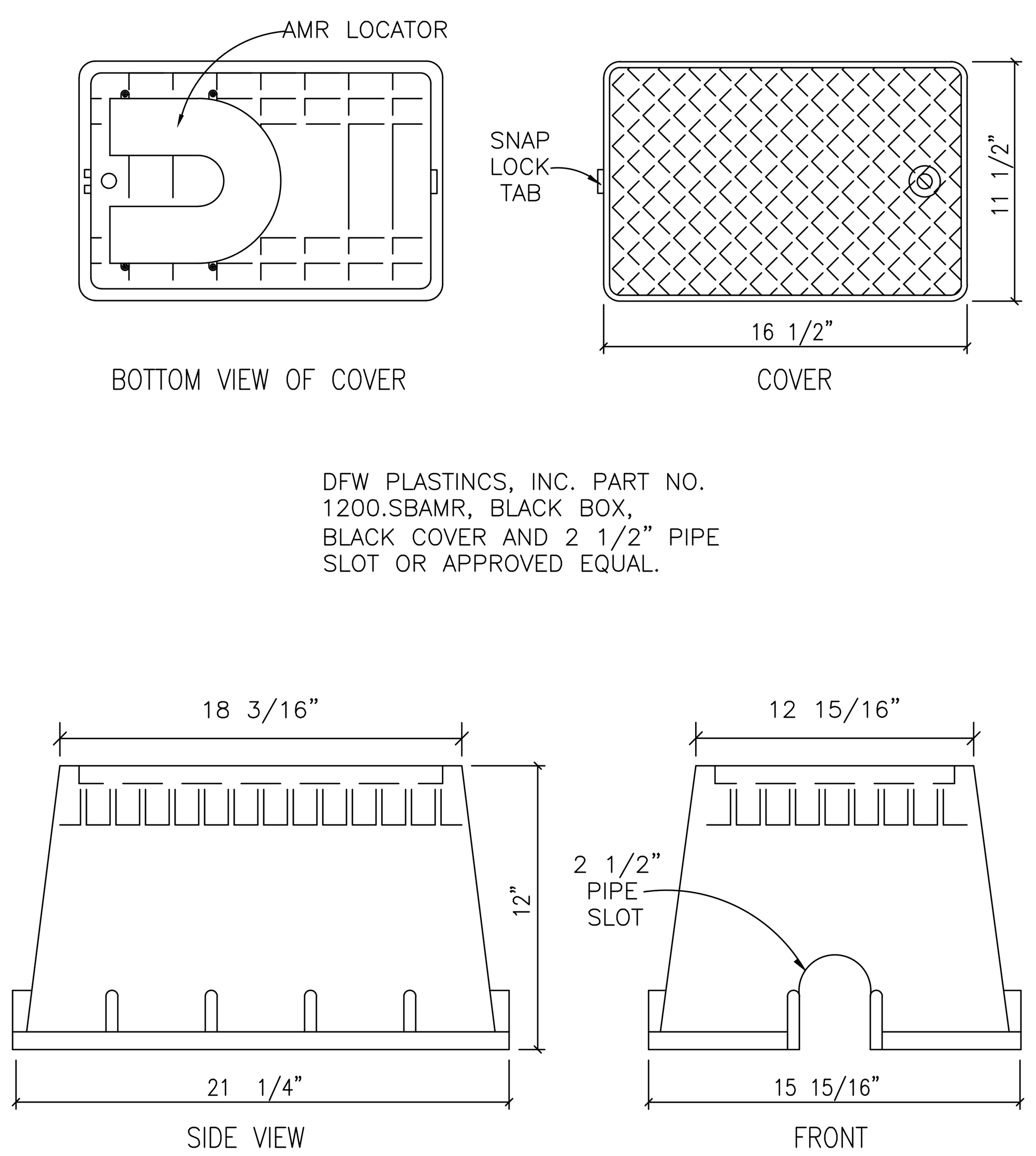
CITY OF ROUND ROCK

THRUST BLOCK DETAIL (3)

DRAWING NO: WT-25

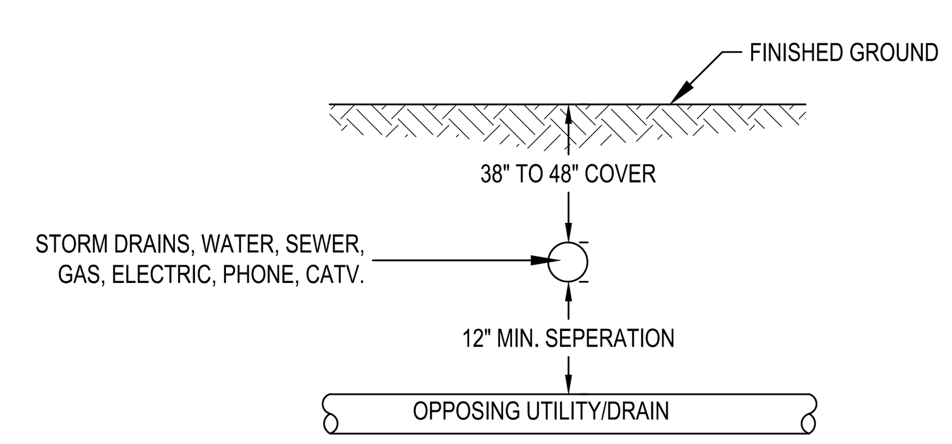
ROUND ROCK TEXAS UTILITIES AND ENVIRONMENTAL SERVICES



DFW PLASTINCS, INC. PART NO. 1200.SBAMR, BLACK BOX, BLACK COVER AND 2 1/2" PIPE SLOT OR APPROVED EQUAL.

(4) METER BOX (NON-TRAFFIC AREAS)

N.T.S.



NOTE:

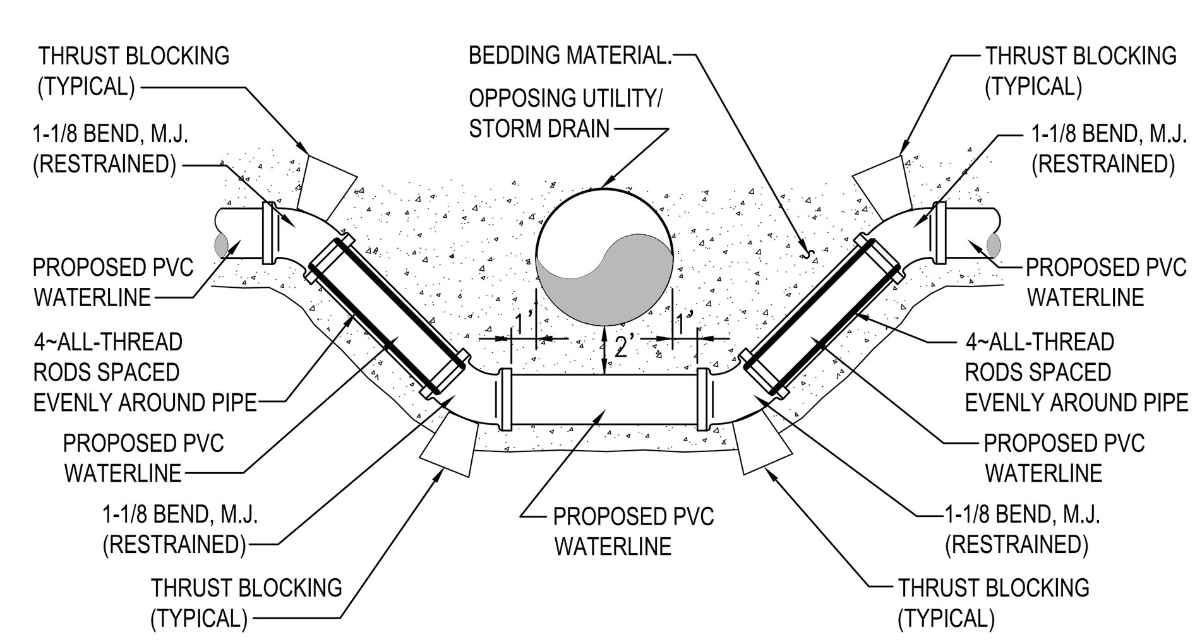
1. IF EITHER UTILITY SHOWN IS SEWER, REFER TO 30 TAC CHAPTER. 290.44(e) AND 217.13 APPENDIX E FOR TCEQ SEPARATION DISTANCE AND PROTECTION REQUIREMENTS.

2. IF SEPARATION CANNOT BE ATTAINED, CONTRACTOR SHALL COORDINATE WITH PROJECT ENGINEER AND APPLICABLE UTILITY COMPANY FOR ALTERNATE MEASURES.

3. IF SEPARATION CANNOT BE ATTAINED FOR WATERLINE, REFER TO TYPICAL WATER LOWERING DETAIL.

(5) TYPICAL UTILITY CROSSING DETAILS

N.T.S.



NOTES:

1. REFER TO TYPICAL UTILITY CROSSING DETAIL ON THIS SHEET FOR INSTALLATION AT SEWER AND WATER CROSSINGS.

(6) TYPICAL WATER LOWERING DETAIL

N.T.S.

PIPE SIZE	JOINT TYPE	MINIMUM REQUIRED RESTRAINED LENGTH
8 INCH	90° BEND	5 FEET
8 INCH	45° BEND	5 FEET
8 INCH	DEAD END (GATE VALVE)	12 FEET
8 INCH X 8 INCH	TEE	* 5 FEET (MAIN) 5 FEET (BRANCH)

* CALCULATION BASED ON JOINTS ON THE MAIN BRANCH A MINIMUM OF 5 FEET FROM THE TEE.

NOTES:
1. CONTRACTOR TO MAXIMIZE JOINT SPACING FROM FITTING AND VALVES WHERE POSSIBLE.

2. CALCULATIONS SPECIFIC TO THIS PROJECT SPECIFIED PIPE EMBEDMENT AND A 150 PSI OPERATING PRESSURE.

3. RESTRAINED LENGTH REFERS TO A DISTANCE FROM A FITTING WHERE ALL JOINTS WITHIN THIS DISTANCE MUST BE RESTRAINED. THE RESTRAINED LENGTH DOES NOT SPECIFY THE JOINT RESTRAINT TYPE OR METHOD. JOINT RESTRAINT TYPE AND METHODS SHALL BE INCLUDED IN PROJECT SUBMITTALS, AND APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.

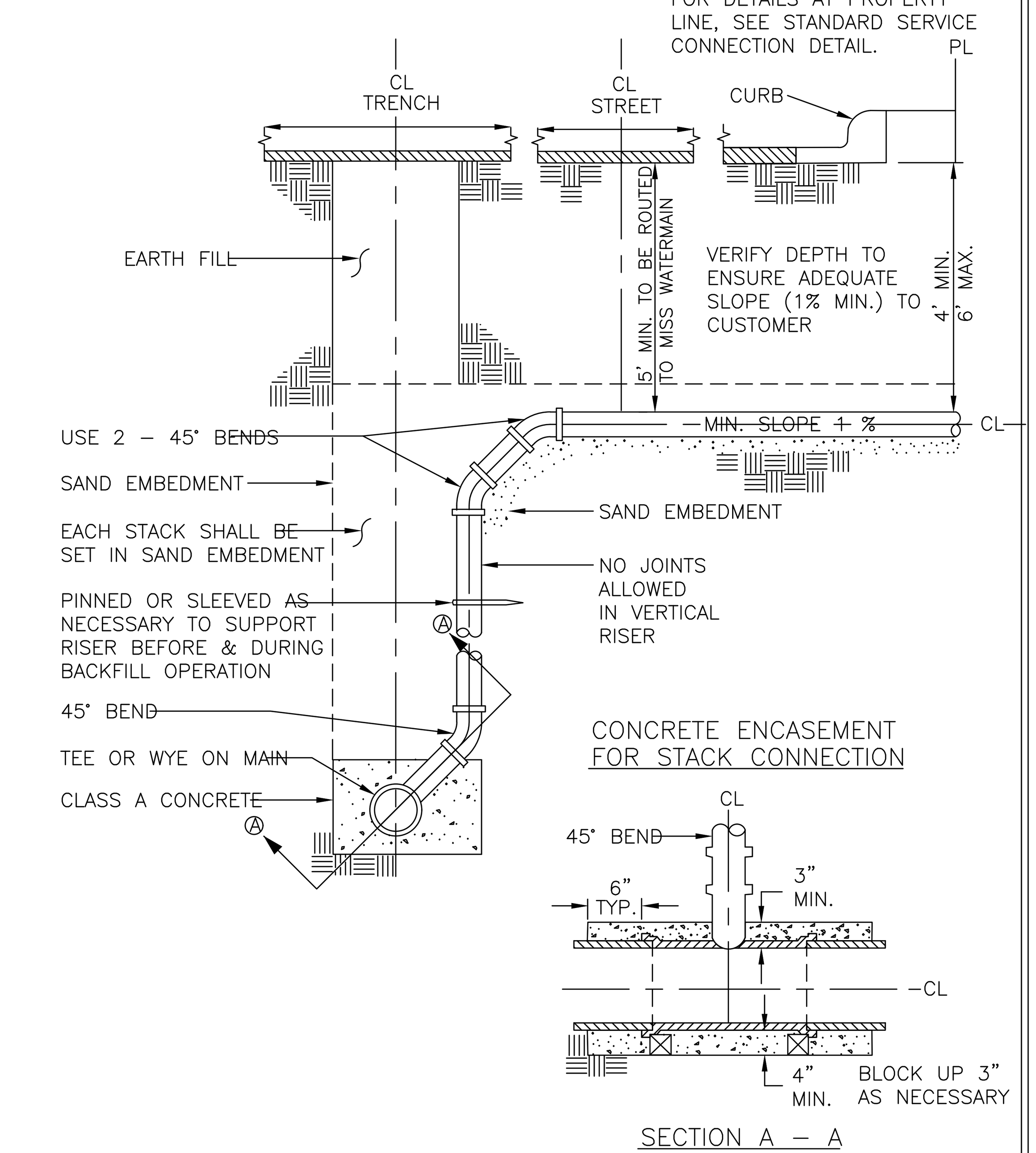
4. ALL-THREADED RODS SHALL BE USED FOR JOINT RESTRAINTS WHERE FITTINGS ARE WITHIN 5 FEET OF EACH OTHER. INDIVIDUAL JOINT HARNESSES OR BOLT-ON FLANGE ASSEMBLIES CAN BE INSTALLED ELSEWHERE.

(7) JOINT RESTRAINT CALCULATION TABLE

N.T.S.

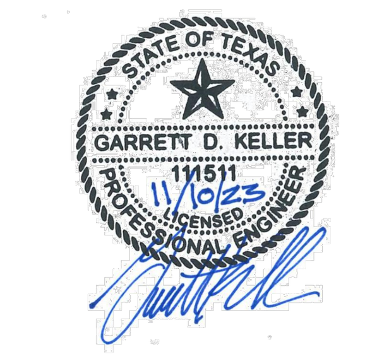
NOTE:

FOR DETAILS AT PROPERTY LINE, SEE STANDARD SERVICE CONNECTION DETAIL.



WASTEWATER DEEP SERVICE CONNECTION DETAIL (8)

SHEET SIZE: 24" x 36"



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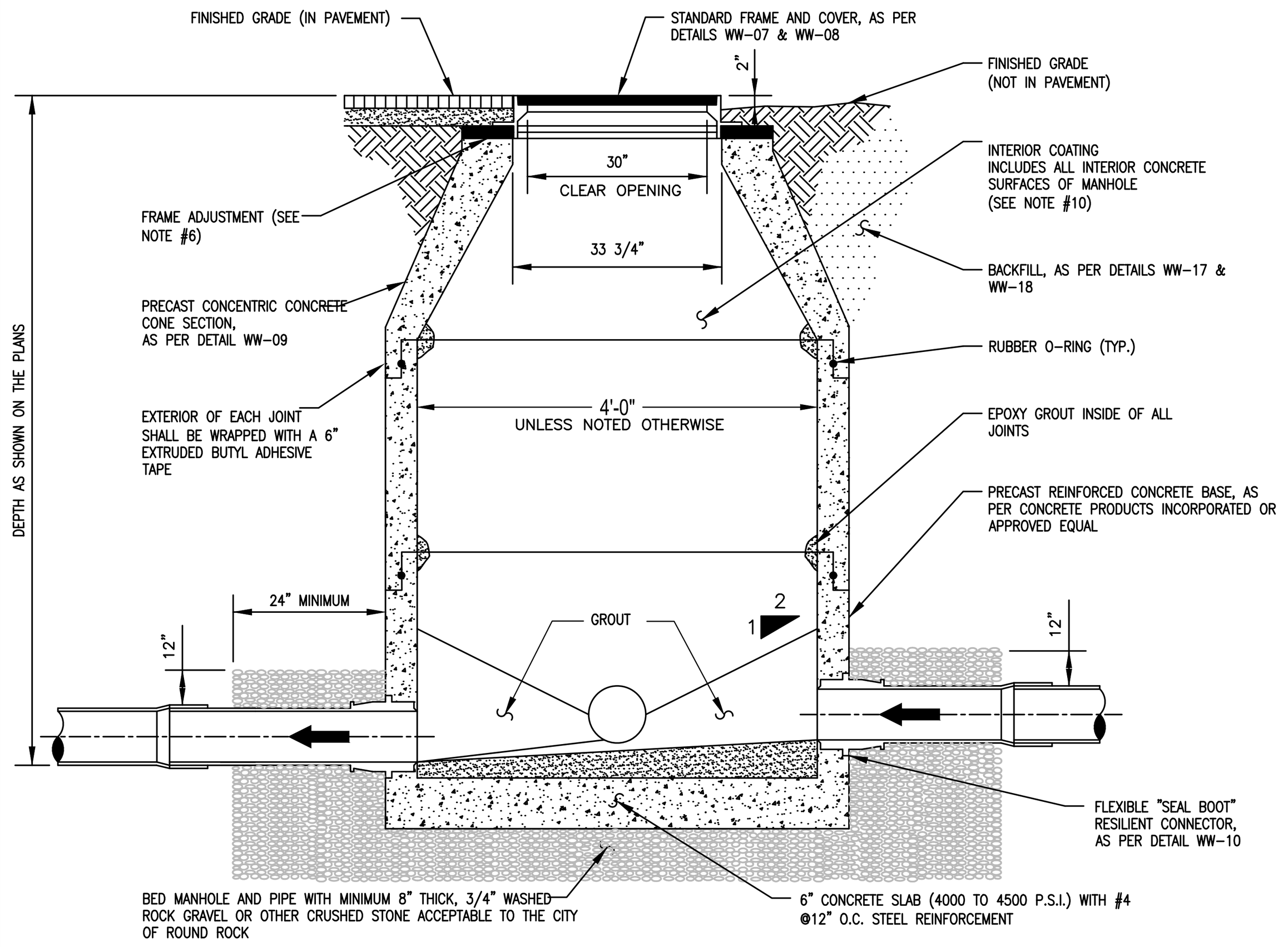
CIVIL UTILITY DETAILS (SHEET 2)
FOR
BALCONES FLATS PHASE II
JARRELL, TEXAS

CU502

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	51



NOTES:

1. IF DROP IS SIX INCHES (6") TO TWO FEET (2'-0"), CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED INVERT TO EXTEND UNDER THE DROP CONNECTION.
2. SEE CONSTRUCTION PLANS FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZES AND TYPES.
3. MANHOLES SHALL BE PRECAST A.S.T.M. C478 BELL AND SPIGOT WITH "O" RING JOINTS.
4. MANHOLES TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR H20 TRAFFIC LOADING.
5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED, WHEN MANHOLES ARE LOCATED OUTSIDE OF PAVEMENT.
6. FRAME ADJUSTMENT HEIGHT SHALL CONSIST OF FIVE INCHES (5") MINIMUM TO EIGHTEEN INCHES (18") MAXIMUM. GRADE RINGS SHALL BE GROUTED WITH A NON-SHRINK GROUT INSIDE AND OUTSIDE. HDPE GRADE RINGS, MAY NOT BE USED.
7. FOR MANHOLES TO BE VENTED, SEE DETAILS WW-05 AND WW-06.
8. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO THE FLOW STREAM. ALL P.V.C. PIPE SHALL BE REMOVED FROM INVERT.
9. BASE SECTION SHALL BE DESIGNED FOR H20 LOADING, PLUS EARTH LOAD AT 130 PCF.
10. ENTIRE INTERIOR CONCRETE SURFACES OF WASTEWATER MANHOLES TO BE COATED WITH RAVEN 405, SPRAYWALL, OR APPROVED EQUAL, (WITH A UNIFORM THICKNESS OF 124 MILS AND A MINIMUM THICKNESS OF 100 MILS, APPLIED AFTER MANHOLE HAS PASSED THE VACUUM TEST). FOR REHABILITATING MANHOLES 1/2" MINIMUM THICKNESS CALCIUM ALUMINATE CEMENTITIOUS COATING AND OTHER INTERIOR SURFACES MAY BE COATED IF RECOMMENDED BY COATING MANUFACTURER. (IN LIEU OF INTERIOR COATINGS NEW PRECAST MANHOLES CONTAINING CONSHIELD WILL BE ACCEPTED PROVIDING THE MANUFACTURER STENCILS "CONSHIELD" ON THE INSIDE AND OUTSIDE OF ALL MANHOLE SECTIONS.)

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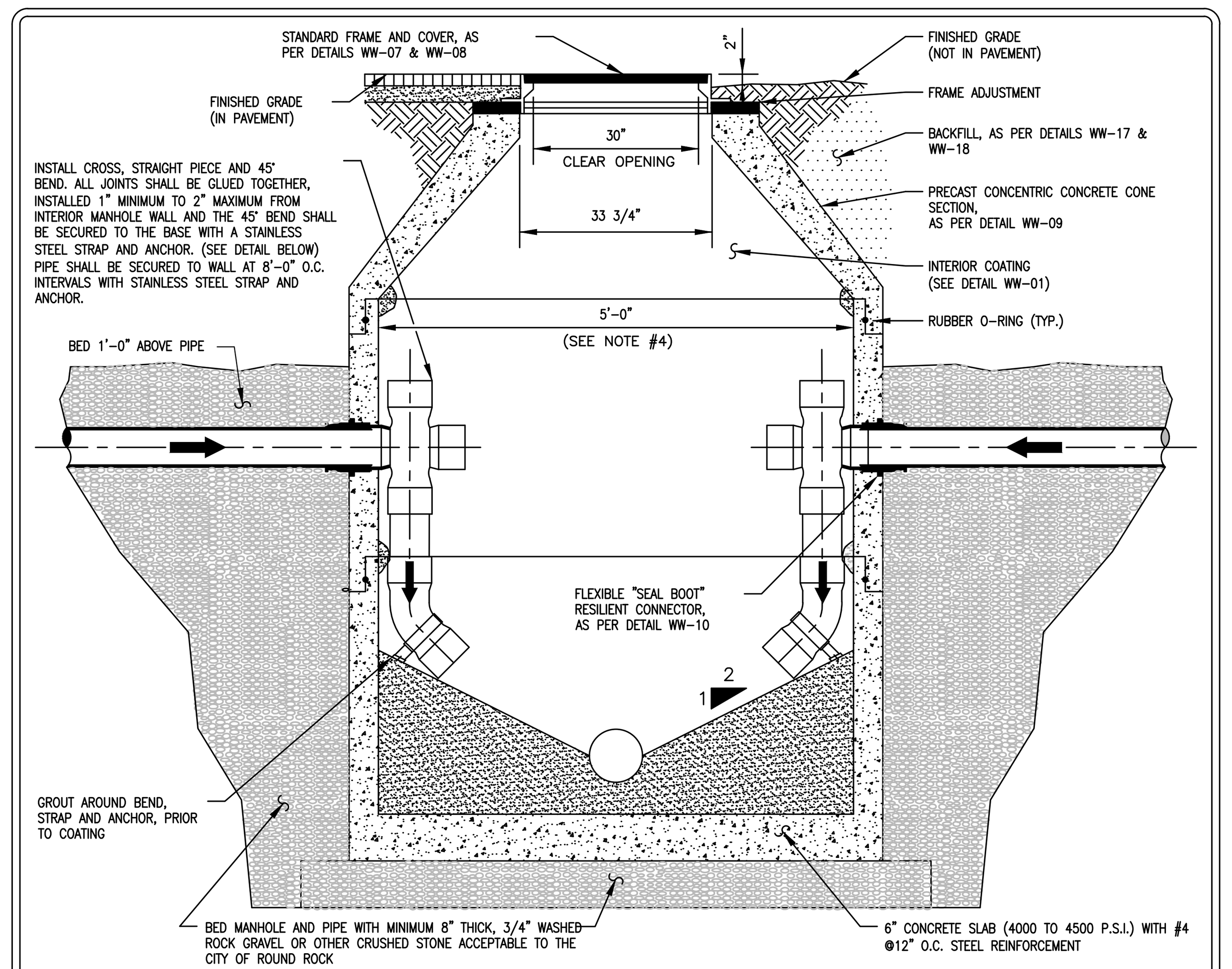
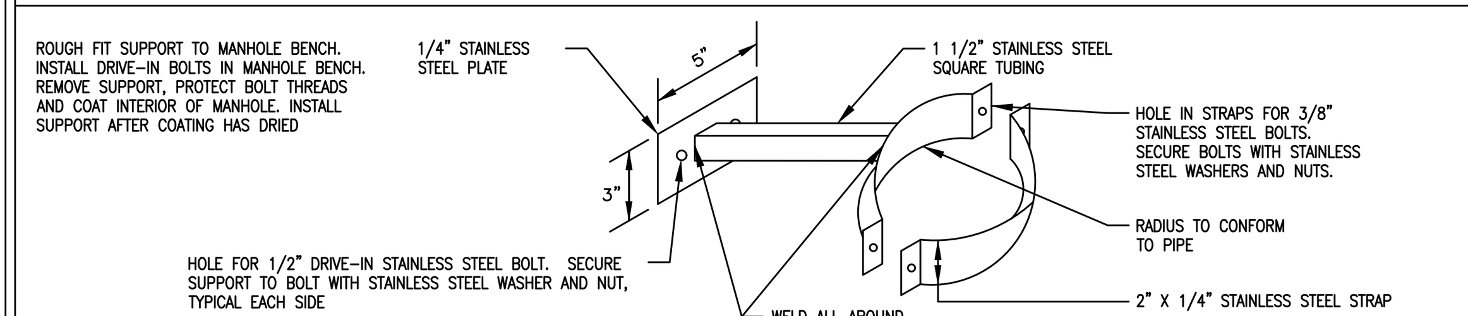
CITY OF ROUND ROCK — DRAWING NO: WW-01

PRECAST CONCRETE WASTEWATER MANHOLE DETAIL (1)

ROUND ROCK TEXAS





NOTES:

1. SEE NOTES #2 THROUGH #10 ON DETAIL WW-01.
2. DROP SERVICES SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER SERVICE IS LOCATED MORE THAN TWO FEET (2'-0") ABOVE THE MAIN INVERT CHANNEL.
3. WHEN P.V.C. PIPE IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT P.V.C. FITTINGS TO BE UTILIZED IN THE DROP ASSEMBLY ONLY. FITTINGS TO BE PVC SDR-35 WITH A TWO PART WATER RESISTANT GLUE AT ALL JOINTS.
4. A 5'-0" MANHOLE IS REQUIRED FOR 1 OR 2 DROP SERVICES. IF THERE ARE MORE THAN 2 DROP SERVICES, A 6'-0" DIAMETER MANHOLE IS REQUIRED.

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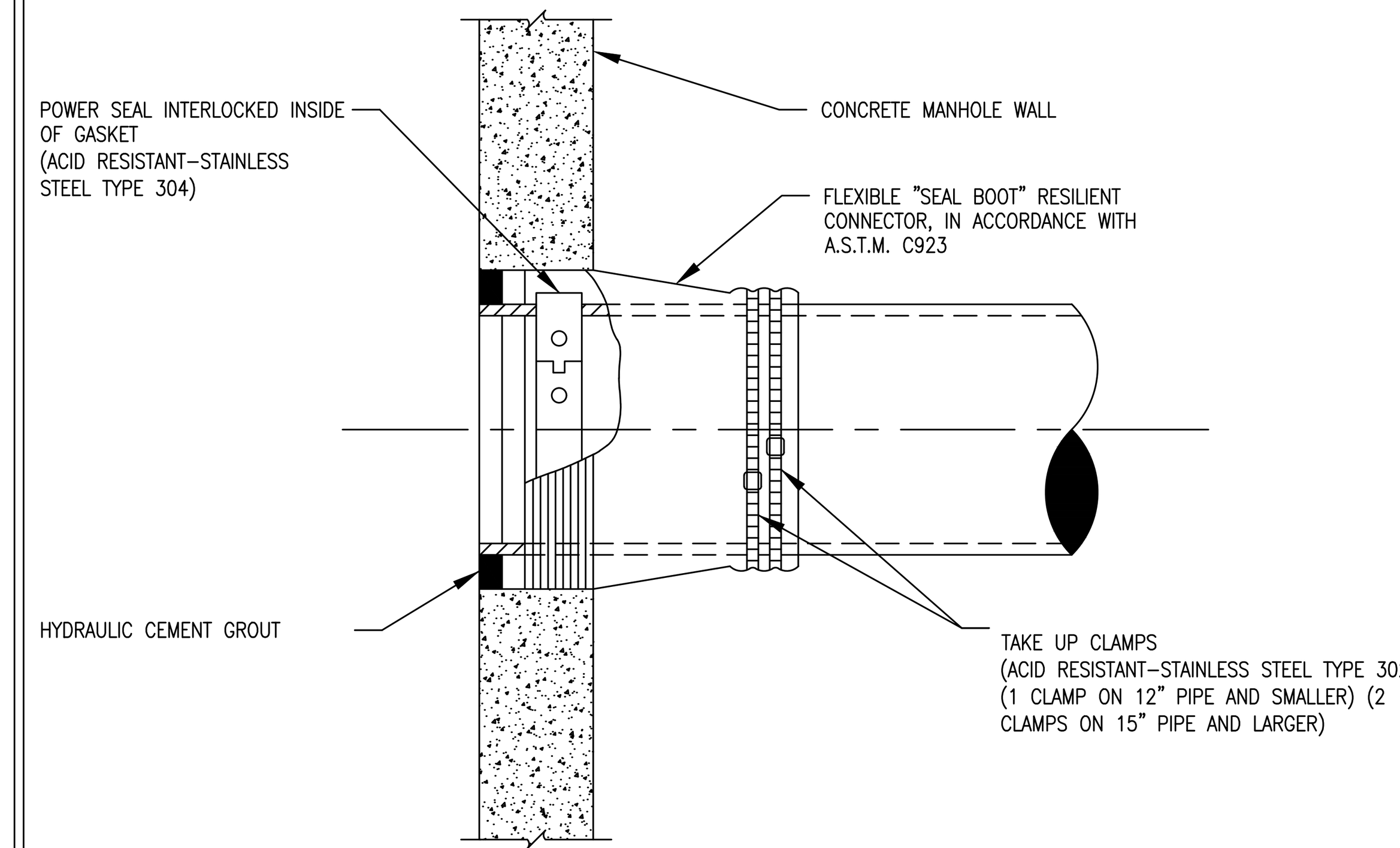
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

CITY OF ROUND ROCK — DRAWING NO: WW-03

PRECAST CONCRETE WASTEWATER MANHOLE WITH DROP SERVICE DETAIL (2)

ROUND ROCK TEXAS



NOTE:

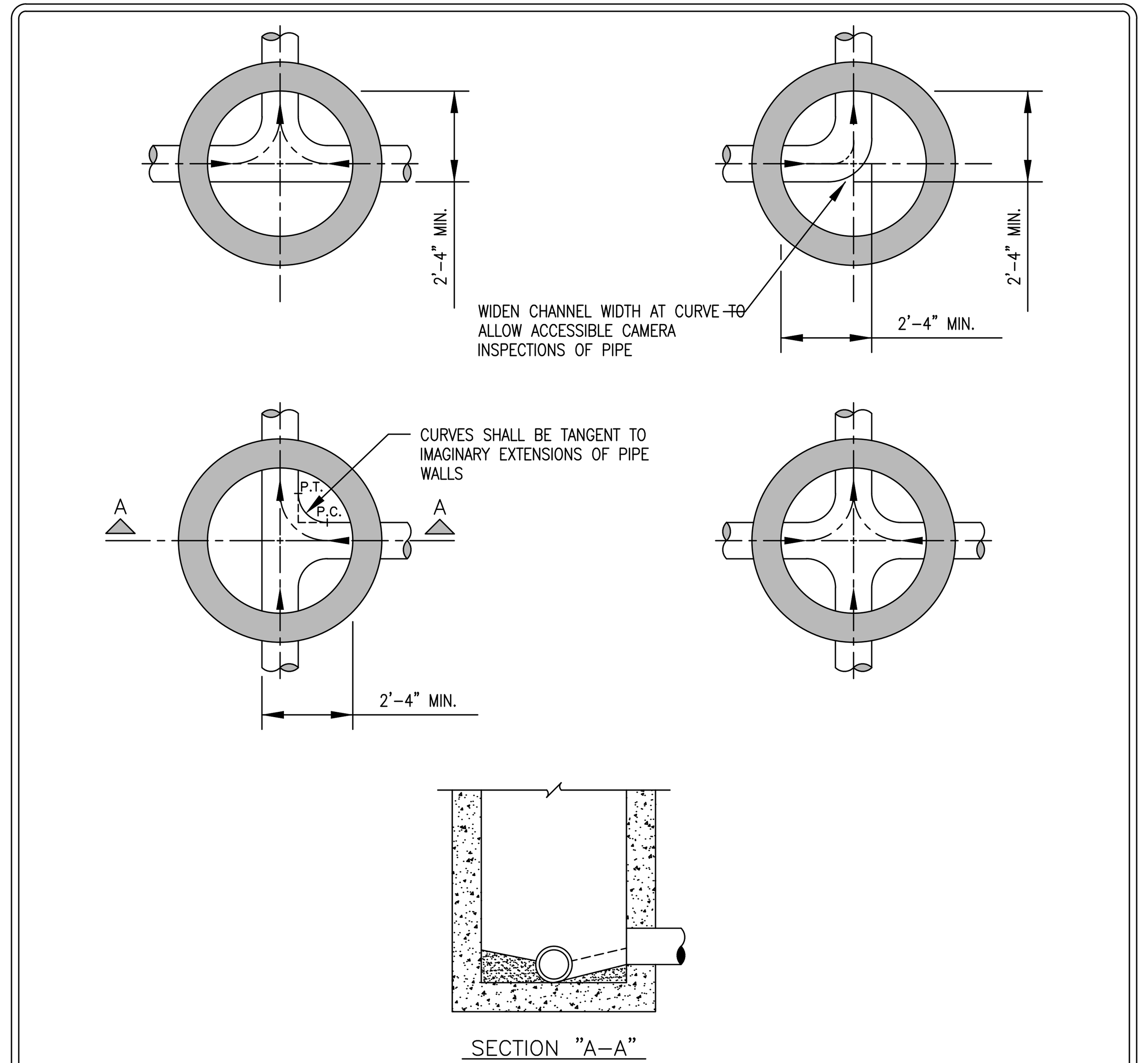
1. FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR TO BE A MINIMUM OF 12 INCHES (12") FROM A MANHOLE JOINT.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT | APPROVED 03-01-18 | DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

CITY OF ROUND ROCK — DRAWING NO: WW-10

FLEXIBLE "SEAL BOOT" RESILIENT CONNECTOR DETAIL (3)

ROUND ROCK TEXAS



NOTES:

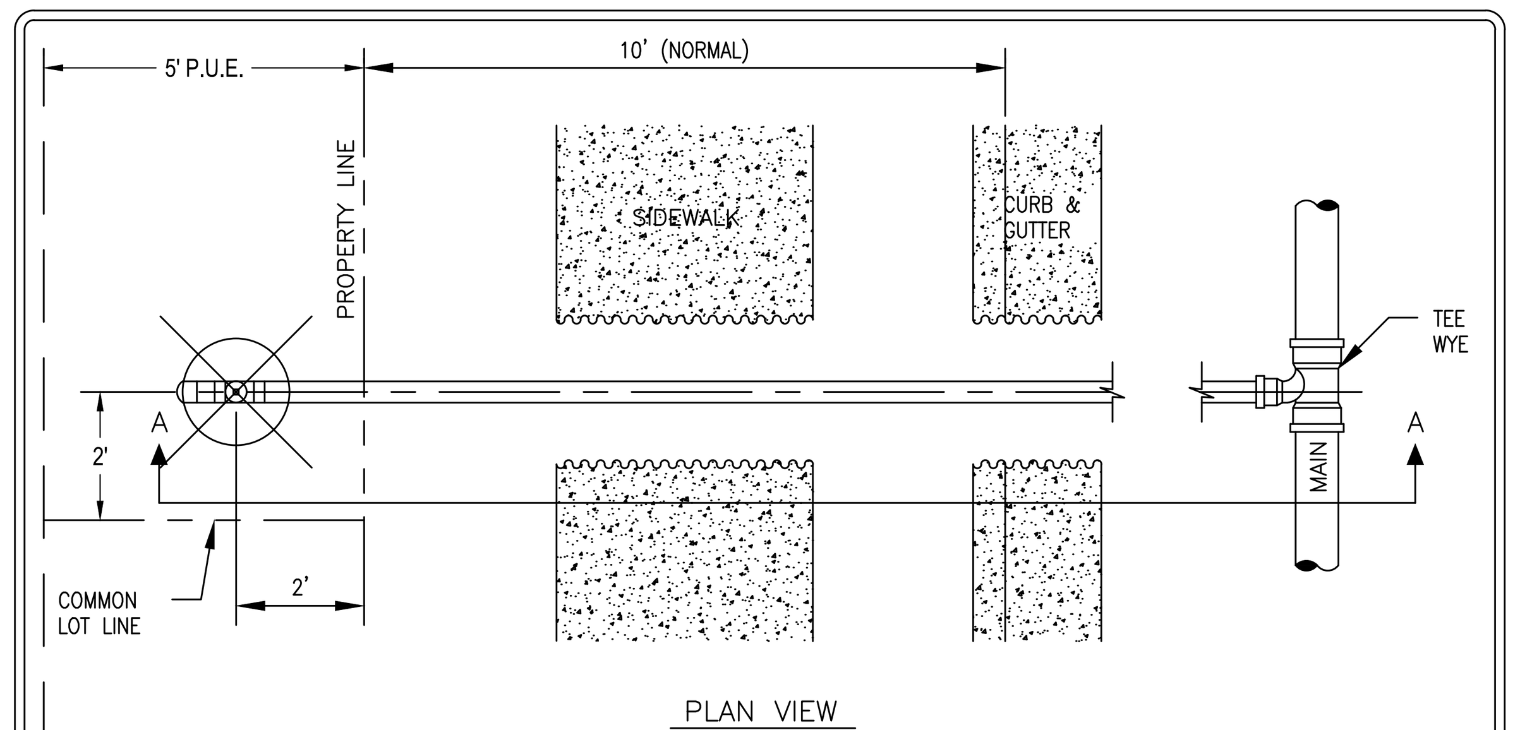
1. MINIMUM DROP FROM INLET TO OUTLET OF MANHOLE IS 0.1 FEET AND MAXIMUM DROP IS 2 FEET, UNLESS SPECIAL APPROVAL IS OBTAINED FROM THE CITY OF ROUND ROCK.
2. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
3. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
4. CHANNELS FOR FUTURE CONSTRUCTIONS, SHALL BE CONSTRUCTED WITH PIPE EXTENDING 3' BEYOND EXTERIOR OF MANHOLE WALL, WITH GLUED PLUG.
5. SLOPE MANHOLE BENCH AT 2:1 SLOPE FROM MANHOLE WALL TO CHANNEL.
6. INVERT CHANNEL SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR FOUR INCHES (4") DEEP.

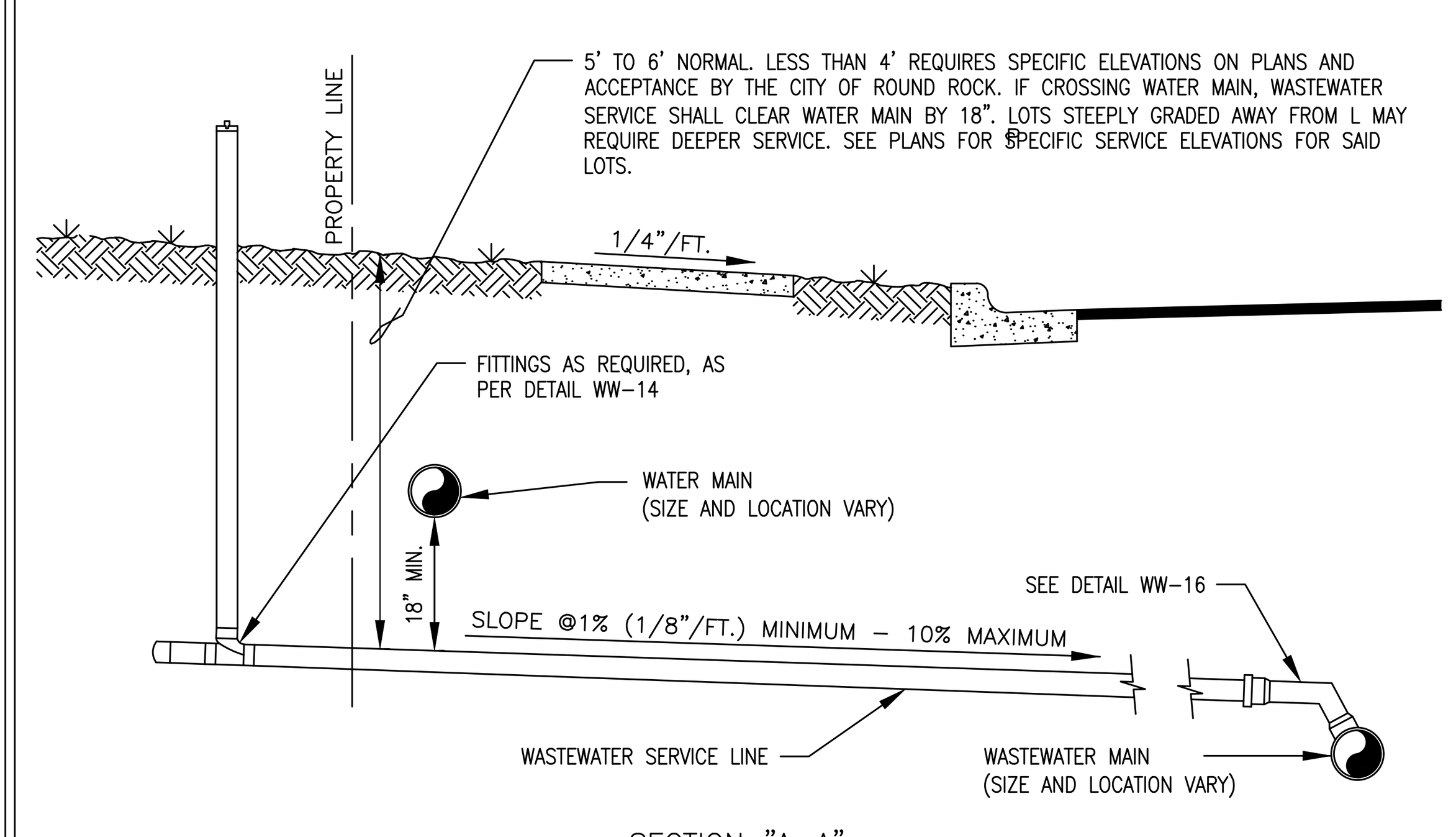
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT | APPROVED 03-01-18 | DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

CITY OF ROUND ROCK — DRAWING NO: WW-11

WASTEWATER FLOW PATTERNS FOR INVERT CHANNELS DETAIL (4)

ROUND ROCK TEXAS



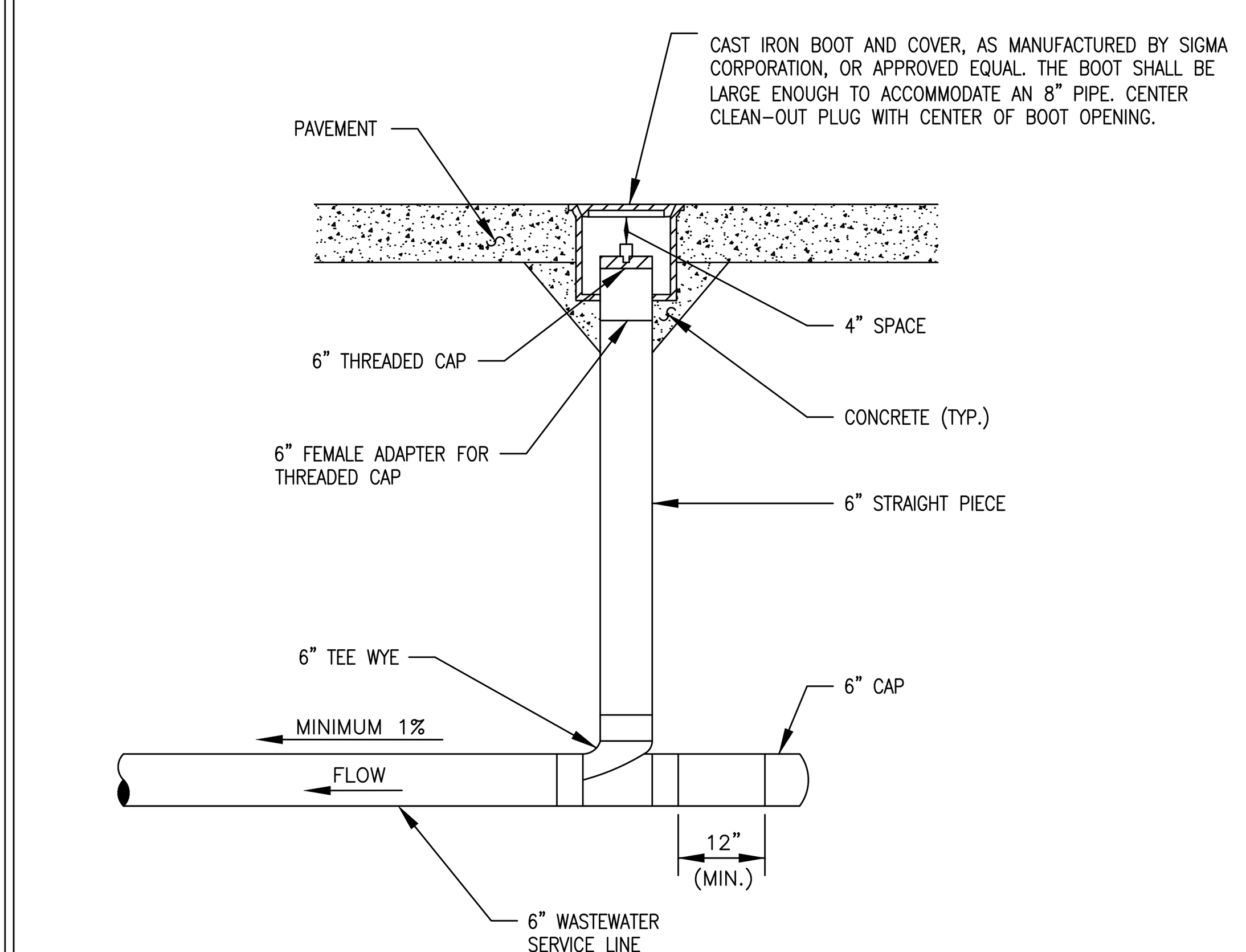


RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT | APPROVED 03-01-18 | DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

CITY OF ROUND ROCK — DRAWING NO: WW-12

WASTEWATER SERVICE DETAIL (5)

ROUND ROCK TEXAS



NOTES:

1. ALL PIPE TO BE SDR 26.
2. ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT | APPROVED 03-01-18 | DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

CITY OF ROUND ROCK — DRAWING NO: WW-13

WASTEWATER SERVICE CLEAN-OUT DETAIL (PAVED SURFACE) (6)

ROUND ROCK TEXAS

SHEET SIZE: 24" x 36"

STATE OF TEXAS — GARRETT D. KELLER — 111511 — LICENSED PROFESSIONAL ENGINEER — 11/10/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
HEADQUARTERS
8 SPENCER ROAD SUITES 100 & 300
BOERNE, TEXAS 78006
OFFICE: 830.249.0600 FAX:830.249.0099
3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244
TEXAS REGISTERED ENGINEERING FIRM F-004512
BOERNE, TEXAS REGISTERED SURVEYING FIRM F-10024000
GEORGETOWN, TEXAS REGISTERED SURVEYING FIRM F-10194347
CIVIL ENGINEERS SURVEYORS LAND PLANNERS CONSTRUCTION MANAGERS CONSULTANTS

CIVIL UTILITY DETAILS (SHEET 3)

FOR

BALCONES FLATS PHASE II

JARRELL, TEXAS

CU503

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	52

Date: Nov 10, 2023, 9:55am User ID: danderson

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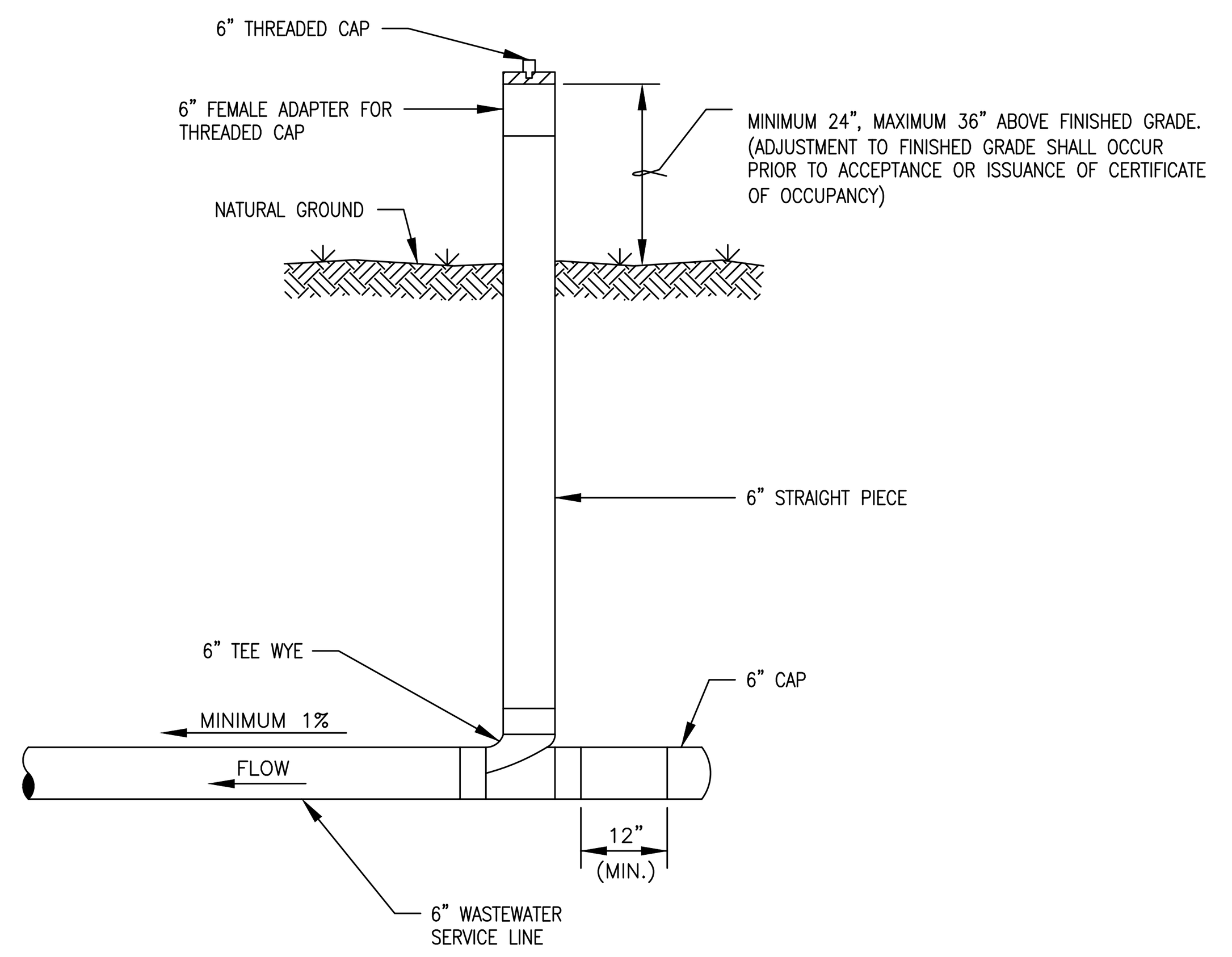
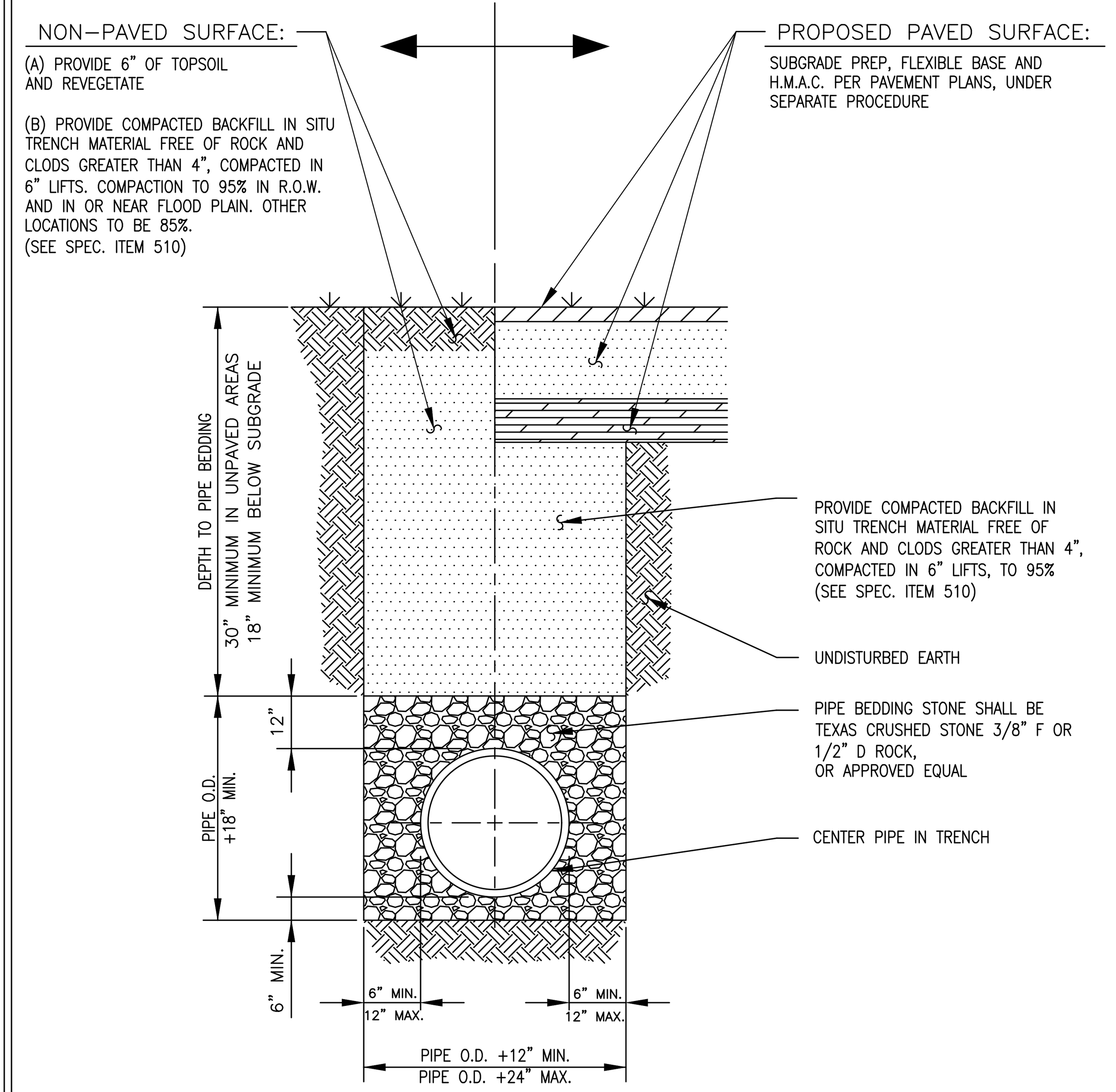


NOTES:

1. ALL PIPE TO BE SDR 26.
2. ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

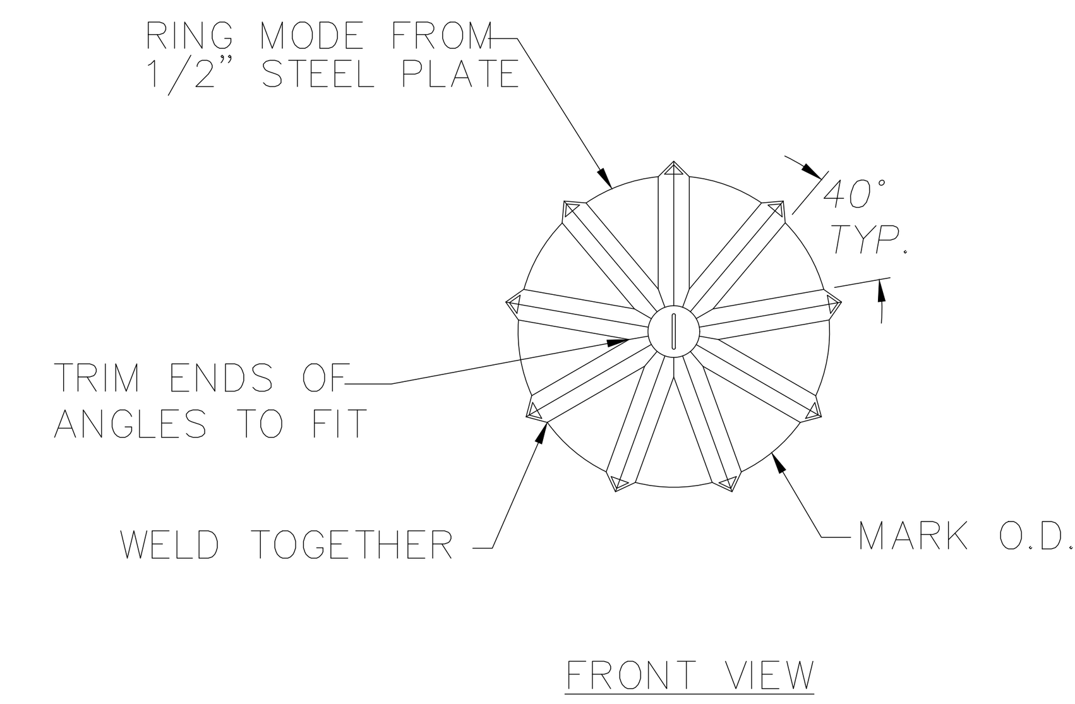
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-14
APPROVED 03-01-18 DATE	WASTEWATER SERVICE CLEAN-OUT DETAIL (NON-PAVED SURFACE) (1)	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



NOTE:

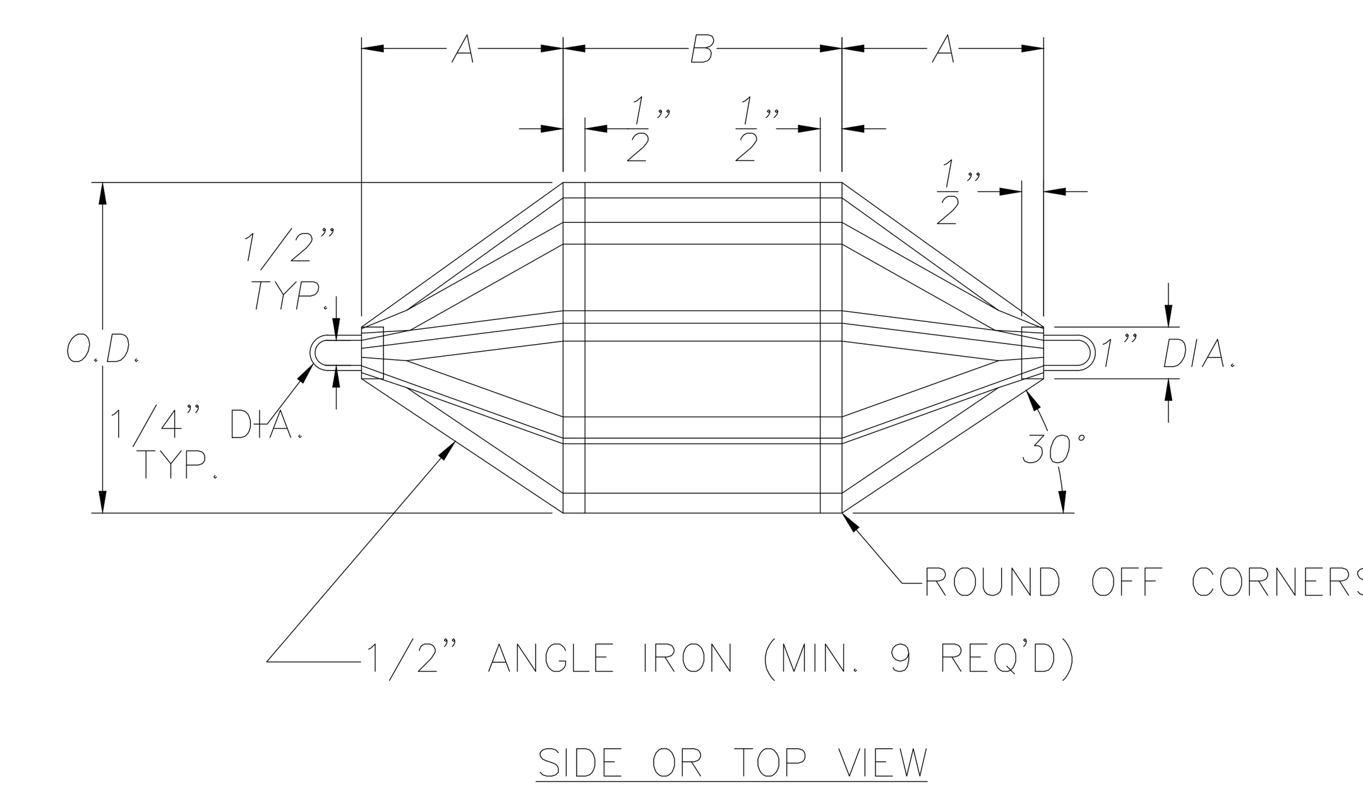
ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-18
APPROVED 03-01-18 DATE	WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE) (2)	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



FRONT VIEW

GO, NO GO DEFLECTION TESTING MANDREL



SIDE OR TOP VIEW

CHART "1"

SIZE	A	B*	MANDREL O.D. PVC (SDR-35)	MANDREL O.D. PVC (SDR-26)	RING O.D. PVC (SDR-35)	RING O.D. PVC (SDR-26)
6"	4"	4.5"	5.62	5.50	4.91	4.79
8"	5.5"	6"	7.52	7.37	6.81	6.66
10"	7"	7.5"	9.41	9.21	8.70	8.50
12"	8"	9"	11.19	10.96	10.48	10.25
15"	10"	11"	13.70	13.42	12.99	12.71
18"	12"	13.5"	16.75	----	16.04	----
21"	14"	16"	19.74	----	19.03	----
24"	16"	18"	22.21	----	21.50	----
27"	18"	20"	25.03	----	24.32	----

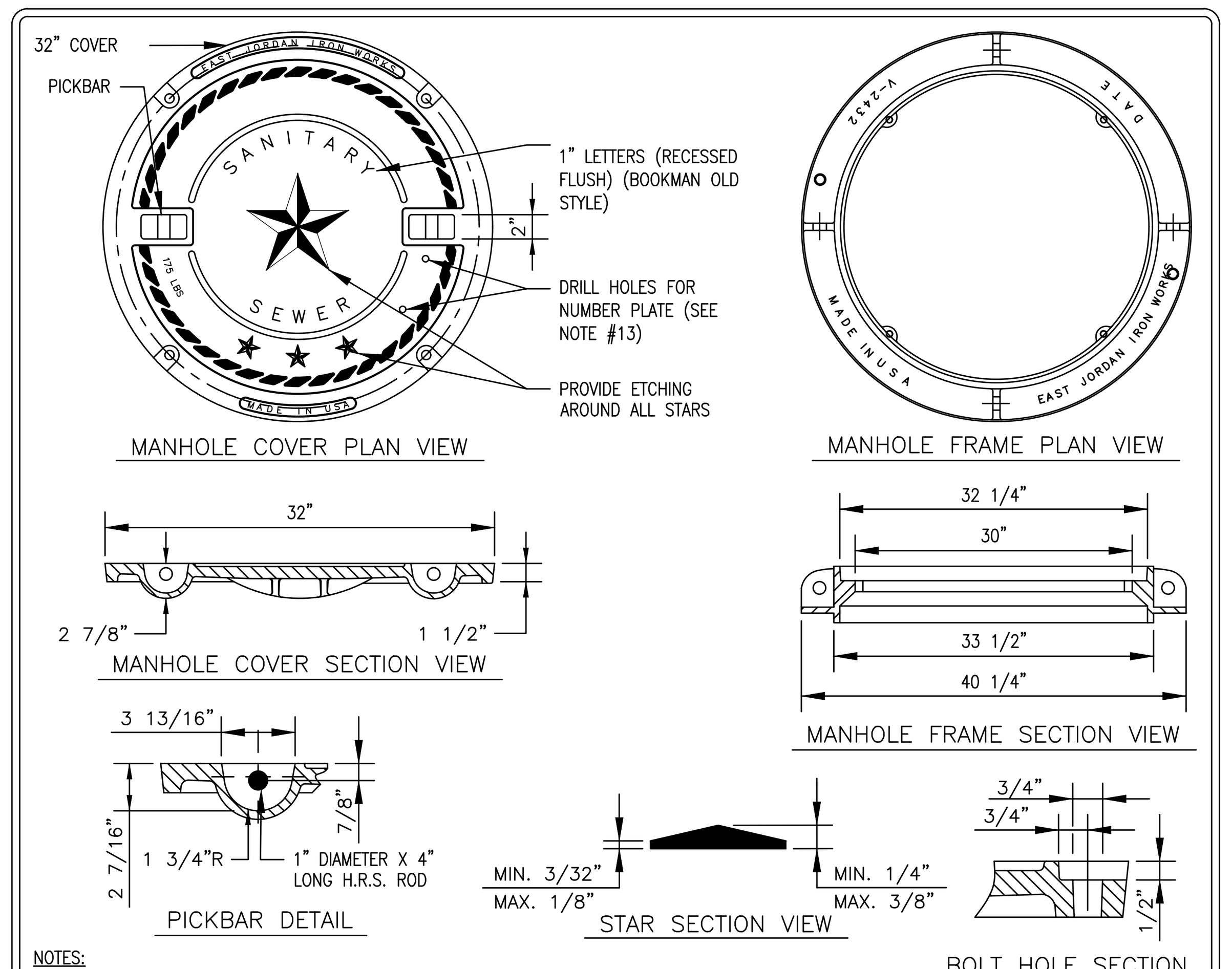
*MINIMUM LENGTH

NOTE:
SDR-26 MANDREL SHALL BE USED FOR SDR-18 PVC PIPE

PVC PIPES AND FITTINGS SIX INCHES (6") TO FIFTEEN INCHES (15") IN DIAMETER SHALL CONFORM TO ASTM D-3034.
PVC PIPES AND FITTINGS EIGHTEEN INCHES (18") TO TWENTY-SEVEN INCHES (27") IN DIAMETER SHALL CONFORM TO ASTM F-679.

THIS INFORMATION IS PROVIDED AS A REFERENCE. ALL DEFLECTION TESTING SHALL BE DONE IN ACCORDANCE WITH TCEQ CHAPTER 217.

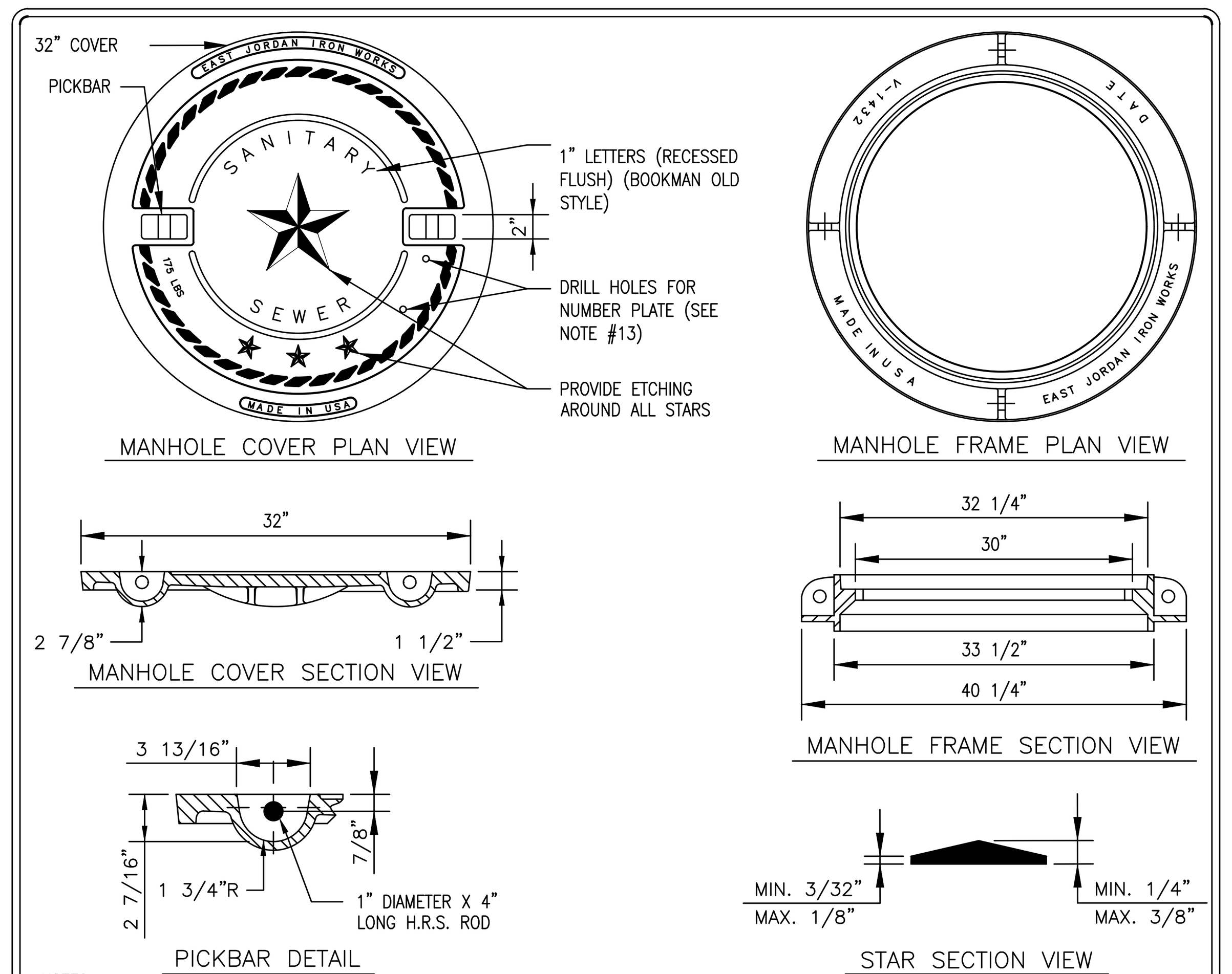
DRAWING NAME: **GO, NO GO DEFLECTION TESTING MANDREL** (3)



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-2432-3 (PRODUCT NUMBER: 42432033), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432073), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-07
APPROVED 03-01-18 DATE	BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL (4)	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-1432-3 (PRODUCT NUMBER: 41432059), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-1432 (PRODUCT NUMBER: 41432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-1432 (PRODUCT NUMBER: 41432089), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

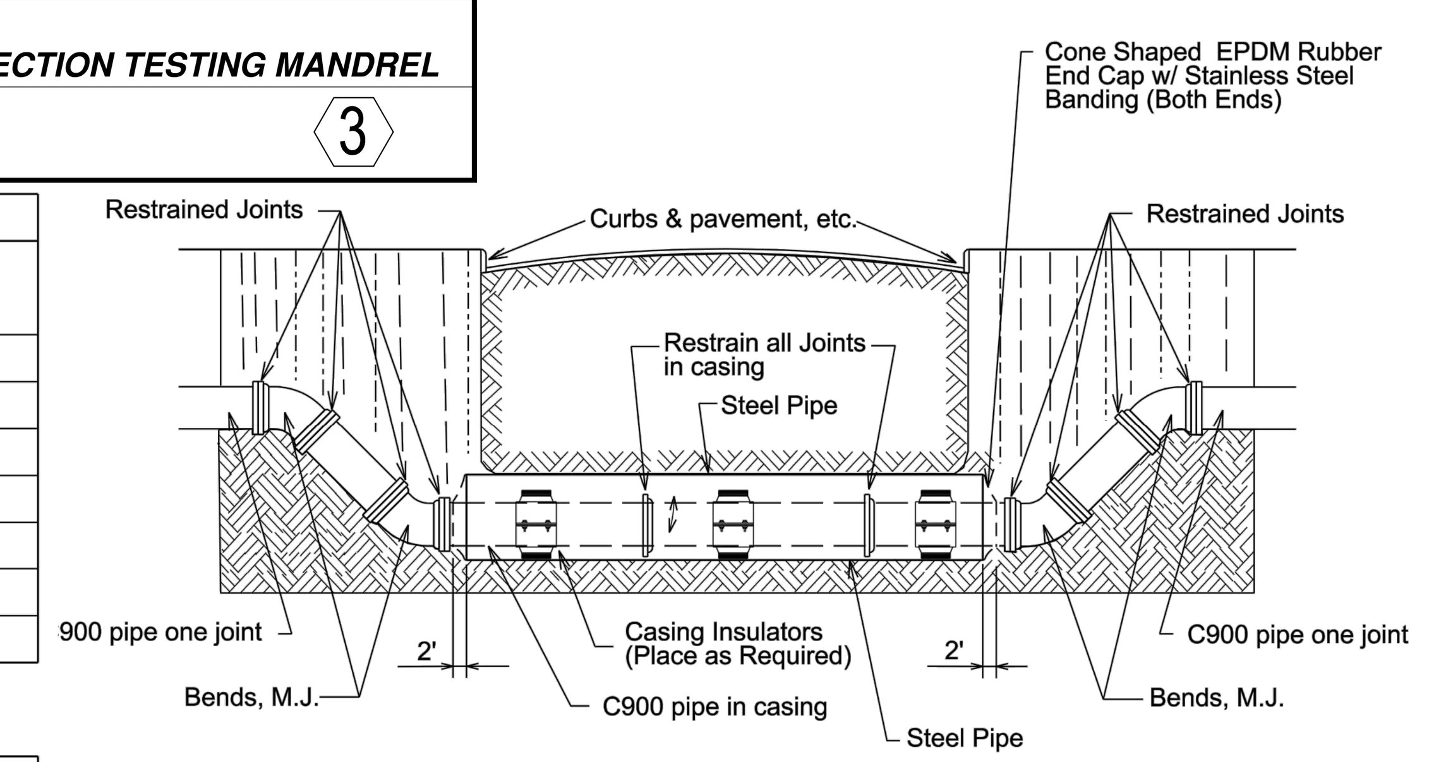
RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT	CITY OF ROUND ROCK	DRAWING NO: WW-08
APPROVED 03-01-18 DATE	NON-BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL (5)	ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		

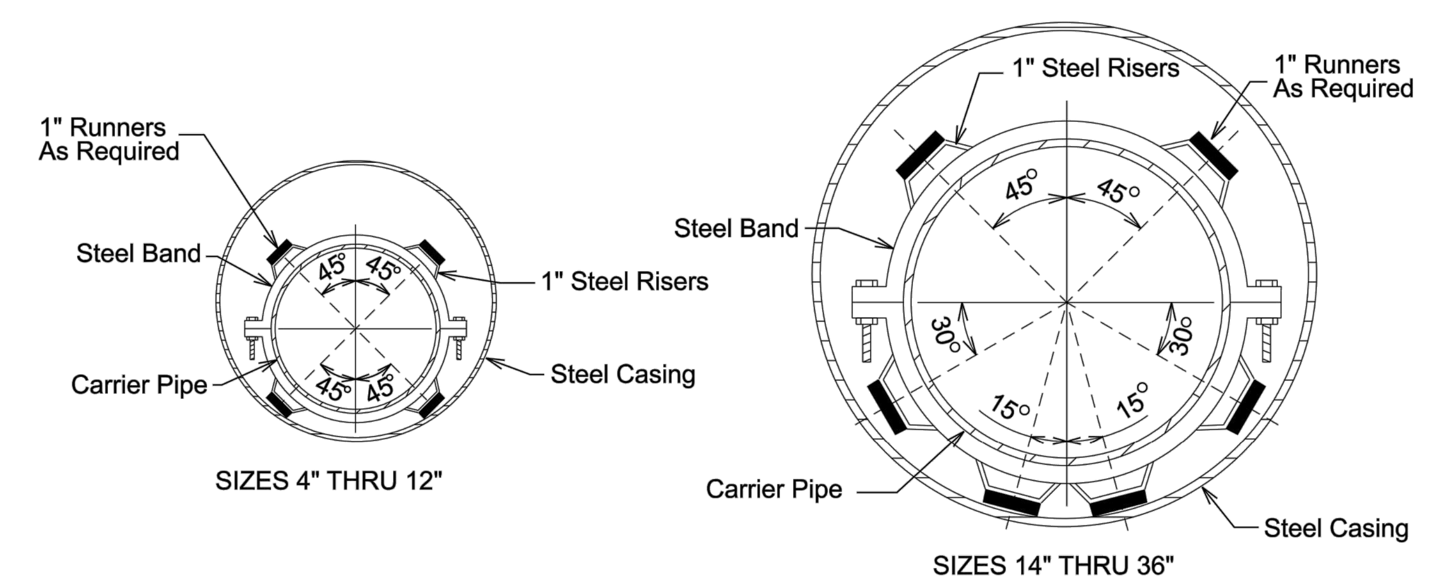
STEEL PIPE CASING/WATER MAIN		
Pipe Size (Inches)	Pipe Thickness (Inches)	Pipe Weight (Lbs./Ft.)
6	0.375	25.03
8	0.375	33.04
12	0.375	45.55
16	0.375	62.58
20	0.375	78.60
24	0.375	94.62
30	0.375	118.65

UNION PACIFIC RAILROAD CROSSING CASING REQUIREMENTS		
Nom. Dia. Steel Conduit (Inches)	Steel Pipe Thickness (Inches)	Pipe Weight (Lbs./Ft.)
18	0.375	70.59
24	0.438	110.22
30	0.50	157.53
36	0.562	212.70
42	0.625	276.18
48	0.625	316.53

WATER MAINS IN CONDUIT			
Water Main Size (Inches)	Nom. Dia. Steel (Inches)	Steel Pipe Thickness (Inches)	Pipe Weight (Lbs./Ft.)
6	18	0.375	70.59
8	24	0.375	94.62
12	24	0.375	94.62
16	30	0.375	118.65
20	36	0.438	166.19
24	42	0.438	194.02
30	48	0.50	259.02
36	54	0.50	291.07

INSTALLATION OF PIPE IN CONDUIT





SIZE	BAND WIDTH	NO. RUNNERS PER TIE
8"	8"	2 TOP, 2 BOTTOM
12"	8"	2 TOP, 2 BOTTOM
16"	8"	2 TOP, 4 BOTTOM
20"	8"	2 TOP, 4 BOTTOM
24"	8"	2 TOP, 4 BOTTOM
30"	12"	2 TOP, 4 BOTTOM
36"	12"	2 TOP, 4 BOTTOM

Notes:
1. Fittings shall be paid for by separate payment item
2. Joint restraints shall be approved, as specified in Material Specification Item 95-10
3. Casing insulators in accordance to SAWS Standard Material Specification 05-31

(6) INSTALLATION OF PIPE IN BORE
N.T.S.

SHEET SIZE: 24" x 36"

STATE OF TEXAS — GARRETT D. KELLER — 111511 — LICENSED PROFESSIONAL ENGINEER — 11/10/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING

TEXAS REGISTERED ENGINEERING FIRM F-004512
TEXAS REGISTERED SURVEYING FIRM F-10024000

CIVIL UTILITY DETAILS (SHEET 4)
FOR
BALCONES FLATS PHASE II
JARRELL, TEXAS

CU504

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	53

Date: Nov 10, 2023, 9:56am User ID: dlanderson

G:\PROJECTS\2992 - balcones flats\11- phase ii\C503 CIVIL UTILITY DETAILS (SHEET 4).dwg

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.

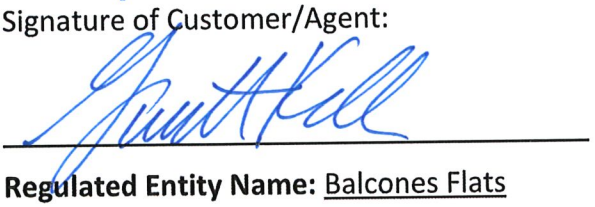
Signature

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: Garrett Keller, P.E.

Date: 3/10/25

Signature of Customer/Agent:



Regulated Entity Name: Balcones Flats

Project Information

Potential Sources of Contamination

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

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

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

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

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

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

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

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

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

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

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

Sequence of Construction

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

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

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

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Salado Creek

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.

BALCONES FLATS
SPILL RESPONSE ACTIONS (ATTACHMENT A)

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.

BALCONES FLATS
POTENTIAL SOURCES OF CONTAMINATION (ATTACHMENT B)

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 be 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

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Roads and Utility Construction Phase II

1. Mobilization of the contractor's equipment. (.5 acres disturbed)
2. Installation of temporary best management practices as described in attachment "D" of this section (Silt Fence, Construction Entrance, and Rock Berms).
3. Construction of roads.
    a. Within Phase II (2.64) acres disturbed)
4. Trenching and installation of utilities
    a. Within Phase II (1.79) acres disturbed)
5. Establishment of permanent soil stabilization on disturbed areas for road and utility construction.
6. Construction single family residential homes.
    a. Phased with builder takedown.
7. Establishment of permanent soil stabilization on disturbed areas for house construction.

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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 Sheet 2 of the SCS 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 Sheet 2 of the SCS 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 Sheet 2 of the WPAP 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. **Inlet Protection –** The installation of inlet protection consisting of permeable barriers will provide removal of sediment prior to it entering storm drain inlets. Install protection at storm sewer inlets that are operable during construction. Inlet protection materials should be approved by local jurisdiction prior to installation and should ensure that flows are treated and able to enter the storm drain without causing local flooding.

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

vi. **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 Sheet 2 of the SCS 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.

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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.

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BALCONES FLATS
STRUCTURAL PRACTICES (ATTACHMENT F)

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.

Placement of these structure practices within the floodplain will be avoided.

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LEGEND

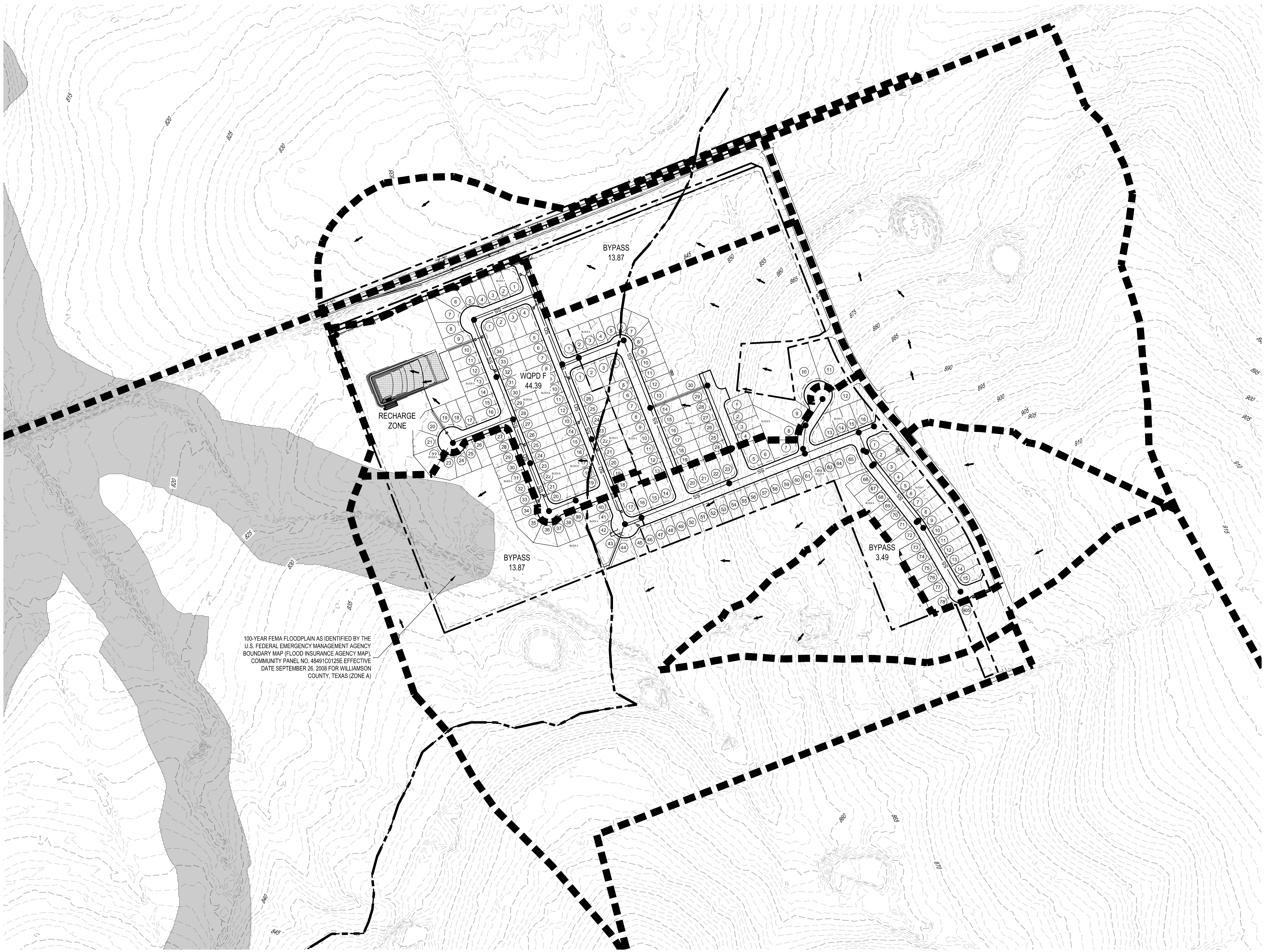
PROPERTY BOUNDARY

EXISTING 5' CONTOUR — 1270

EXISTING 25' CONTOUR — 1275

PROPOSED WATERSHED BOUNDARY

EDWARDS AQUIFER RECHARGE ZONE



N

SCALE: 1"=200'

0 100' 200'

SHEET SIZE: 24" x 36"

STATE OF TEXAS
GARRETT D. KELLER
111511
LICENSED
PROFESSIONAL ENGINEER

REVISIONS:

MATKINHOOVER
ENGINEERING & SURVEYING

HEADQUARTERS
8 SPENCER ROAD SUITES 100 & 300
BOERNE, TEXAS 78006
OFFICE: 830.249.0600 FAX:830.249.0099

3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244

TEXAS REGISTERED ENGINEERING FIRM F-004512
BOERNE, TEXAS REGISTERED SURVEYING FIRM F-10024000
GEORGETOWN, TEXAS REGISTERED SURVEYING FIRM F-10194347
CIVIL ENGINEERS SURVEYORS LAND PLANNERS CONSTRUCTION MANAGERS CONSULTANTS

DRAINAGE AREA MAP

FOR

BALCONES FLATS PHASE II

JARRELL, TEXAS

ATTACHMENT G

JOB NO.	2992.11
DESIGNED BY:	RAW
DRAWN BY:	MS
CHECKED BY:	GDK
SHEET #	

G:\PROJECTS\2992 - Balcones Flats\11- Phase II\01 - Phase 2 Re-Approval\Submittals\TCEQ\SCS\05 - Temporary Stormwater\6.7 - Drainage Area Map.dwg

Date: Mar 14, 2025, 12:50pm User ID: jandersen

BALCONES FLATS
INSPECTION AND MAINTENANCE FOR BMPs (ATTACHMENT I)

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 2 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.

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

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.

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BALCONES FLATS
INSPECTION AND MAINTENANCE FOR BMPs (ATTACHMENT I)

INSPECTION REPORT

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: _____

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BALCONES FLATS
SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES
(ATTACHMENT J)

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.

Permanent soil stabilization areas are indicated on the included Site Plan. Permanent seeding will take place in these areas when construction is permanently 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.

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Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Balcones Flats
Regulated Entity Location: Jarrell Texas
Name of Customer: Strategic Metal Solutions, LLC
Contact Person: Evan Horne Phone: (512) 966-7434
Customer Reference Number (if issued):CN 605875822
Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

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

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	194.69 L.F.	$ 650.00
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: 

Date:

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

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

I Evan Horne,
Print Name

Owner,
Title - Owner/President/Other

of Strategic Metal Solutions, LLC,
Corporation/Partnership/Entity Name

have authorized Garrett Keller, PE
Print Name of Agent/Engineer

of Matkin Hoover Engineering & Surveying
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

4/11/2025
Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Evan Horne 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 11th day of April, 2025.

NOTARY PUBLIC

Haden Simmons
Typed or Printed Name of Notary

HADEN SIMMONS
My Notary ID # 134834447
Expires April 3, 2028

MY COMMISSION EXPIRES: April 3rd, 2028

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)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 605875822		**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)*

If new Customer, enter previous Customer below:

Strategic Metal Solutions, LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
	32077030347	86-1202483	

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
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

358 Alsace Ave

City	Jarrell	**State**	TX	**ZIP**	76537	**ZIP + 4**	

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	evan@strateqictx.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 966-7434		( ) -

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.)*

Balcones Flats PH II

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

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

25. Description to Physical Location:	North on I35 from Austin, TX turn East on CR 487 the property will be on the South				
26. Nearest City			**State**	**Nearest ZIP Code**	
Jarrell			TX	76537	

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:	30.818989		**28. Longitude (W) In Decimal:**	97.611731	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	49	8.36	97	36	42.23

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)
6552			

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

land development of single-family homes

34. Mailing Address:	**358 Alsace Ave**							
	City	**Jarell**	**State**	**TX**	**ZIP**	**76537**	**ZIP + 4**	
35. E-Mail Address:	**evanstrateqictx.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 966-7434		( ) -

☐ 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:	Garrett Keller, P.E.		41. Title:	President
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(830) 249-0600		(830) 249-0099	gkeller@matkinhoover.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:	Matkin Hoover Engineering & Surveying	Job Title:	President	
Name *(In Print)*:	Garrett Keller	Phone:	(830) 249- 600	
Signature:		Date:	3/31/25	