

# **CITY COUNCIL**

## **MEETING AGENDA**

**APRIL 15, 2024, 6:00 PM**



**CITY COUNCIL REGULAR MEETING**

**HISTORIC CHURCH BUILDING - 403 N 7TH STREET, SANGER, TEXAS**

**CALL THE WORK SESSION TO ORDER AND ESTABLISH A QUORUM**

### **DISCUSSION ITEMS**

1. Presentation and overview of Finance Department operations.

**OVERVIEW OF ITEMS ON THE REGULAR AGENDA**

**ADJOURN THE WORK SESSION**

**The Regular Meeting will begin following the Work Session  
but not earlier than 7:00 p.m.**

**CALL THE REGULAR MEETING TO ORDER AND ESTABLISH A QUORUM**

**INVOCATION AND PLEDGE**

### **CITIZENS COMMENTS**

*This is an opportunity for citizens to address the Council on any matter. Comments related to public hearings will be heard when the specific hearing begins. Citizens are allowed 3 minutes to speak. Each speaker must complete the Speaker's Form and include the topic(s) to be presented. Citizens who wish to address the Council with regard to matters on the agenda will be received at the time the item is considered. The Council is not allowed to converse, deliberate or take action on any matter presented during citizen input.*

### **SPECIAL PRESENTATIONS AND ANNOUNCEMENTS**

*Mayoral proclamations, presentations of awards and certificates, and other acknowledgments of significant accomplishments or service to the community.*

2. Proclamation - Mental Health Month in the City of Sanger 2024

## **CONSENT AGENDA**

*All items on the Consent Agenda will be acted upon by one vote without being discussed separately unless requested by a Councilmember to remove the item(s) for additional discussion. Any items removed from the Consent Agenda will be taken up for individual consideration.*

- [3.](#) Consideration and possible action on the minutes from the April 1, 2024, meeting.
- [4.](#) Consideration and possible action on Ordinance No. 04-06-24 to impose additional penalty for collection costs.
- [5.](#) Consideration and possible action approving an amended contract for the collection of delinquent property taxes between the City of Sanger and McCreary, Veselka, Bragg and Allen, P.C., and authorizing the City Manager to execute all necessary documents.
- [6.](#) Consideration and possible action on the Final Plat of Marley Meadows being 19.653 acres described as A0658A JANUARY TR 3, located in the City of Sanger's ETJ, and generally located on the west side of Sam Bass Road and approximately 1307 feet north of the intersection of FM 455 and Sam Bass Road.

## **PUBLIC HEARING ITEMS**

- [7.](#) Conduct a public hearing on Ordinance No. 04-07-24 amending Sanger's Water Conservation and Drought Contingency Plan.

## **ACTION ITEMS**

- [8.](#) Consideration and possible action on Ordinance No. 04-07-24 Amending Sanger's Water Conservation and Drought Contingency Plan.
- [9.](#) Consideration and possible action on selecting a possible layout concept for the new Downtown Park.

## **FUTURE AGENDA ITEMS**

*The purpose of this item is to allow the Mayor and Councilmembers to bring forward items they wish to discuss at a future meeting, A Councilmember may inquire about a subject for which notice has not been given. A statement of specific factual information or the recitation of existing policy may be given. Any deliberation shall be limited to a proposal to place the subject on an agenda for a subsequent meeting. Items may be placed on a future meeting agenda with a consensus of the Council or at the call of the Mayor.*

## **INFORMATIONAL ITEMS**

*Information Items are for informational purposes only. No action may be taken on items listed under this portion of the agenda.*

- [10.](#) Atmos Rider GCR - Rate Filing under Docket No. 10170 - March 26, 2024

## **ADJOURN**

**NOTE:** The City Council reserves the right to adjourn into Executive Session as authorized by Texas Government Code, Section 551.001, et seq. (The Texas Open Meetings Act) on any item on its open meeting agenda in accordance with the Texas Open Meetings Act, including, without limitation Sections 551.071-551.087 of the Texas Open Meetings Act.

## **CERTIFICATION**

I certify that a copy of this meeting notice was posted on the bulletin board at City Hall that is readily accessible to the general public at all times and was posted on the City of Sanger website on April 10, 2024, at 4:15 PM.

**/s/Kelly Edwards**

Kelly Edwards, City Secretary

The Historical Church is wheelchair accessible. Request for additional accommodations or sign interpretation or other special assistance for disabled attendees must be requested 48 hours prior to the meeting by contacting the City Secretary's Office at 940.458.7930.



# CITY COUNCIL COMMUNICATION

**DATE:** April 15, 2024

**FROM:** Kelly Edwards, City Secretary

**AGENDA ITEM:** Consideration and possible action on the minutes from the April 1, 2024, meeting.

**SUMMARY:**

N/A

**FISCAL INFORMATION:**

Budgeted: N/A

Amount: \$0.00

GL Account: N/A

**RECOMMENDED MOTION OR ACTION:**

Approve the minutes from the meeting on April 1, 2024.

**ATTACHMENTS:**

City Council minutes

# CITY COUNCIL MEETING MINUTES



**APRIL 01, 2024, 7:00 PM**

**CITY COUNCIL REGULAR MEETING  
HISTORIC CHURCH BUILDING - 403 N 7TH STREET, SANGER, TEXAS**

## **CALL THE REGULAR MEETING TO ORDER AND ESTABLISH A QUORUM**

Mayor Muir called the regular meeting to order at 7:00 p.m.

## **COUNCILMEMBERS PRESENT**

Mayor	Thomas Muir
Mayor Pro Tem, Place 2	Gary Bilyeu
Councilmember, Place 1	Marissa Barrett
Councilmember, Place 3	Dennis Dillon
Councilmember, Place 4	Allen Chick
Councilmember, Place 5	Victor Gann

## **COUNCILMEMBERS ABSENT**

None

## **STAFF MEMBERS PRESENT:**

City Manager John Noblitt, City Secretary Kelly Edwards, City Attorney Hugh Coleman, Finance Director Clayton Gray, Director of Development Services Ramie Hammonds, Marketing and Civic Engagement Director Donna Green, and Police Chief Tyson Cheek.

## **INVOCATION AND PLEDGE**

Councilmember Chick gave the Invocation. The Pledge of Allegiance was led by Councilmember Gann.

## **CITIZENS COMMENTS**

No one addressed the Council.

## CONSENT AGENDA

1. Consideration and possible action on the minutes from the March 12, 2024, meeting.
2. Consideration and possible action on the minutes from the March 18, 2024, meeting.
3. Consideration and possible action to accept a donation of wireless internet to include all necessary equipment and the monthly service in Porter Park from Nortex Communication and authorize the City Manager to sign the donation agreement.
4. Consideration and possible action on Interlocal Cooperation Agreement for shared Governance Communications and Dispatch Services System with the Denton County Sheriff's Office and the City of Sanger, Denton County, Texas.
5. Consideration and possible action on the Final Plat of the Bentley Addition, being 1.064 acres of land described as A0658A JANUARY TR 33A, 34A, and 35A(PT) located in the City of Sanger's ETJ, and generally located on the east side of FM 2450 approximately 162 feet north of the intersection of FM 2450 and FM 455.
6. Consideration and possible action on the Preliminary Plat of Duncan Retail, being 5.770 acres of land described as A1241A TIERWESTER, TR 222(PT), located in the City of Sanger, and generally located on the east side of the I-35 Frontage Road approximately 60 feet north of the intersection of I-35 Frontage Road and S 5th Street.
7. Consideration and possible action on the Preliminary Plat of the Church Street Addition, being 1.01 acres, of land located A1241A TIERWESTER, TR 175, 1.012 ACRES, OLD DCAD SHT 3, TR 12, located in the City of Sanger, and generally located on the east side of South Stemmons Frwy at the intersection of I-35 Frontage Road and Church Street.
8. Consideration and possible action to purchase three new Ford F150 Responder Patrol Trucks from Silsbee Ford utilizing TIPS Purchasing Cooperative.
9. Consideration and possible action selecting First United Bank as the City's bank depository and authorizing the City Manager to execute all necessary depository documents.

Mayor Muir removed Item 3 and Item 4 from the consent agenda for further discussion.

Motion to approve Items 1-2 and Items 5-9 made by Councilmember Bilyeu Seconded by Councilmember Dillon.

Ayes: Barrett, Bilyeu, Chick, Dillon, and Gann.

Nays: None

Motion passed unanimously.

### Consent Item 3

Joey Anderson, Nortex Communication, provided an overview of the donation and mentioned that Nortex would provide a report to the Council at a future meeting regarding the installation of fiber in the city limits.

Motion to approve **Item 3** made by Councilmember Bilyeu Seconded by Councilmember Gann.

Ayes: Barrett, Bilyeu, Chick, Dillon, and Gann.

Nays: None

Motion passed unanimously.

### Consent Item 4

City Manager Noblitt provided an overview of the difference of the budgeted and contract amounts.

Motion to approve **Item 4** made by Councilmember Bilyeu Seconded by Councilmember Dillon.

Ayes: Barrett, Bilyeu, Chick, Dillon, and Gann.

Nays: None

Motion passed unanimously.

## **FUTURE AGENDA ITEMS**

No new items.

## **INFORMATIONAL ITEMS**

10. Properties for Release from the Extra Territorial Jurisdiction Per Texas Local Government Code 42.101 and 42.104.

Discussion ensued regarding those properties and no action taken by the Council

11. Financial Statements January 2024 and February 2024
12. Disbursements Report February 2024

**ADJOURN**

There being no further business, Mayor Muir adjourned the meeting at 7:17 p.m.

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Thomas E. Muir, Mayor

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Kelly Edwards, City Secretary





**CITY OF SANGER, TEXAS**

**ORDINANCE #04-06-24**

**AN ORDINANCE OF THE CITY OF SANGER TEXAS, TO IMPOSE AN ADDITIONAL PENALTY FOR COLLECTION COSTS; PROVIDING FOR THE REPEAL OF ALL ORDINANCES IN CONFLICT; PROVIDING A CUMULATIVE CLAUSE; PROVIDING FOR A SEVERABILITY CLAUSE; AND PROVIDING A SAVINGS CLAUSE; AUTHORIZING PUBLICATION; AND ESTABLISHING AN EFFECTIVE DATE.**

**WHEREAS**, the City of Sanger (the “City”) is a home rule municipality regulated by state law and Charter; and

**WHEREAS**, the Texas Property Tax Code, §33.07 provides that a taxing unit may impose an additional penalty to defray the costs of collection of delinquent property taxes that remain delinquent after July 1; and

**WHEREAS**, the Texas Property Tax Code, §33.08, provides that a taxing unit may provide that taxes that become delinquent on or after June 1, under §§ 26.07, 26.15, 31.03, 31.031, 31.032, 31.04, incur an additional penalty to defray the costs of collection; and

**WHEREAS**, , the Texas Property Tax Code, §33.11, provides that a taxing unit may provide that taxes assessed against tangible Personal Property incur an additional penalty to defray the costs of collection if not paid within sixty days after the date that the taxes become delinquent; and

**WHEREAS**, §§ 33.07, 33.08 and 33.11, provide that the amount of such additional penalty may not exceed the amount of compensation specified in the applicable contract with an attorney under §6.30 to be paid in connection with the collection of delinquent taxes; and

**WHEREAS**, Chapter 372, Texas Local Government Code provides for the creation of Public Improvement Districts (PID) by municipalities, and for the assessment and collection of Assessments by the municipality creating the PID; and

**WHEREAS**, Chapter 372, Texas Local Government Code provides that any delinquent PID assessments may be collected at the same time and in the same manner as a delinquent property taxes due to the municipality; and

**WHEREAS**, The City of Sanger may establish one or more PIDS in accordance with Chapter 372, Texas Local Government Code; and

**WHEREAS**, the City Council of the City of Sanger, Texas has determined that it is in the public interest to insure the prompt payment of delinquent taxes and any future delinquent PID assessments; and

**WHEREAS**, the City Council finds that the passage of this Ordinance is in the best interest of the citizens of Sanger.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SANGER, TEXAS:**

**SECTION 1.** There shall be imposed on delinquent property taxes and future delinquent PID assessments that become due or are delinquent on the dates described in §§ 33.07, 33.08 and 33.11, Texas Property Tax Code, in the amount of compensation specified in the most recent contract entered into under §6.30, Texas Property Tax Code by the City of Sanger, with McCreary, Veselka, Bragg & Allen, P.C. for the collection of delinquent property taxes and delinquent PID assessments. Taxes that remain delinquent on July 1<sup>st</sup>, incur an additional penalty of twenty percent (20%) of the amount of taxes, penalty, and interest due; such an additional penalty is to defray costs of collection due to the contract with the City's attorney. The execution of such a contract subsequent to this resolution shall amend this resolution to specify a penalty on such delinquent taxes and any future delinquent PID assessments in the amount of compensation specified in that contract, effective of even date with that contract.

**SECTION 2.** That all matters stated in the preamble are found to be true and correct and are incorporated herein as if copied in their entirety.

**SECTION 3.** It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses, phrases, and words of this Ordinance are severable and, if any word, phrase, clause, sentence, paragraph, or section of this Ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining portions of this Ordinance, since the same would have been enacted by the City Council without the incorporation in this Ordinance or any such unconstitutional word, phrase, clause, sentence, paragraph, or section.

**SECTION 4.** That this Ordinance shall be cumulative of all other City Ordinances and all other provisions of other Ordinances adopted by the City which are inconsistent with the terms or provisions of this Ordinance are hereby repealed.

**SECTION 5.** This ordinance will take effect immediately from and after its passage and the publication of the caption, as the law and Charter in such case provides.

**PASSED AND APPROVED** by the City Council of the City of Sanger, Texas, on this 15<sup>th</sup> day of April, 2024.

**APPROVED:**

\_\_\_\_\_  
**Thomas E. Muir, Mayor**

**ATTEST:**

\_\_\_\_\_  
**Kelly Edwards, City Secretary**

**APPROVED TO FORM:**

\_\_\_\_\_  
**Hugh Coleman, City Attorney**



**MCCREARY, VESELKA, BRAGG & ALLEN, P.C.**  
**AMENDED CONTRACT FOR THE COLLECTION OF**  
**DELINQUENT PROPERTY TAXES AND ASSESSMENTS**

STATE OF TEXAS

§

COUNTY OF DENTON

§

§

THIS CONTRACT is made and entered into by and between the **CITY OF SANGER, TEXAS (The City)**, acting herein by and through its governing body, and **McCREARY, VESELKA, BRAGG & ALLEN, P.C. (The Firm)**, 700 Jeffrey Way, Suite 100, P.O. Box 1269, Round Rock, Texas 78680.

**I.**

**The City** agrees to employ and does hereby employ **The Firm** to enforce by suit or otherwise the collection of all delinquent property taxes, penalty and interest owing to **The City**. Current year property taxes which become delinquent within the period of this contract shall become subject to the terms of the contract upon the following conditions:

- A. Taxes on *real property* that become delinquent during the term of this contract that are not delinquent for any prior years become subject to the terms of this contract on July 1<sup>st</sup> of the year in which the taxes become delinquent.
- B. Taxes on *tangible personal property* that become delinquent during the term of this contract become subject to the terms of this contract if not paid within sixty days of the date on which the taxes become delinquent.
- C. Taxes on *property* that become delinquent during the term of this contract that are delinquent for prior years and are the subject of a suit to collect the prior years' delinquent taxes become subject to the terms of this contract on the first day of delinquency as defined by the Texas Property Tax Code.

**II.**

**The City** further agrees to employ and does hereby employ **The Firm** to enforce by suit or otherwise the collection of all delinquent **Assessments**, penalty, and interest owed to **The City** on property located within any **Public Improvement District (PID)** created by **The City** pursuant to Chapter 372, Texas Local Government Code, as amended (or any successor statute) at the same time and in the same manner as the collection of delinquent property taxes, penalty, and interest as authorized by this contract, provided that any Service and Assessment Plan for any **PID** imposes collection deadlines, penalties, interest, and attorney's fees consistent with the Texas Property Tax Code.

**The City** shall do likewise for any other special **District** or **Zone**, created by **The City** pursuant to Texas law, including, but not limited to, any **Tax Increment Reinvestment Zone (TIRZ)**, **Transportation Reinvestment Zone (TRZ)**, or any other assessment that is collected at the same time and in the same manner as delinquent property taxes, penalties, interest, and attorney's fees consistent with the Texas Property Tax Code.

**III.**

**The City** agrees to furnish all necessary delinquent tax and **PID** or other assessment information to **The Firm** on all property within the boundaries of **The City** and any **PID, District** or **Zone** created by **The City**. **The City** hereby authorizes **The Firm** to determine the name, identity and location of necessary parties and to procure necessary legal descriptions of property and hereby assigns to **The Firm** the right to recover the costs of obtaining such information.

**IV.**

**The Firm** is to advise **The City** of errors, double assessments or other discrepancies coming under observation during the progress of the work.

**V.**

**The Firm** is to intervene on behalf of **The City** in all suits for ad valorem taxes hereafter filed by any other taxing unit on property located within its boundaries.

**VI.**

**The Firm** agrees to make delinquent tax collection progress reports to **The City** on request.

**VII.**

**The City** agrees to pay **The Firm**, for services rendered, a fee of Twenty Per Cent (20%) of all delinquent taxes, penalty and interest collected by **The City** for years covered by this contract. The penalty imposed pursuant to Sections 33.07, 33.08 and 33.11 of the Texas Property Tax Code is not subject to this contractual fee. **The City** has previously adopted and does hereby reaffirm the adoption of the additional penalty provided by Sections 33.07, 33.08 and 33.11 of the Texas Property Tax Code. All fees provided for in this contract shall become the property of **The Firm** at the time payment of taxes, penalty and interest is made to **The City**. **The City** or its designated tax collector shall pay fees due **The Firm** monthly.

**VIII.**

This contract is drawn to cover a period of one (1) year beginning July 1, 2024 and ending June 30, 2024. Thereafter, this contract shall automatically renew and continue in full force and effect after the initial period from year to year for additional twelve-month periods beginning on July 1<sup>st</sup> of each year on the same terms and conditions unless either party delivers written notice to the other party of its intent to terminate this contract at least sixty (60) days prior to each anniversary date of this contract. The anniversary date is July 1, 2025, and July 1<sup>st</sup> of each subsequent year. On termination of this contract, **The Firm** shall have an additional six (6) months after termination to reduce to judgment and sale all tax collection lawsuits filed and collect all bankruptcy claims filed prior to the termination date and provided further that **The Firm** shall handle to conclusion all suits in which trial court judgments are obtained during the period of this contract and which are appealed by any party. In case of such termination, **The Firm** shall be entitled to receive and retain all compensation of fees due up to the date of said termination. In consideration of the terms and compensation herein stated, **The Firm** hereby accepts said employment and undertakes the performance of this contract as above written.

**IX.**

**The Firm** acknowledges that the Texas Government Code requires certain written verifications from Item 5. company entering into a contract with a Texas governmental entity. Accordingly, **The Firm** verifies that:

- A. **The Firm** does not boycott Israel and will not boycott Israel during the term of this contract;
- B. **The Firm** does not boycott energy companies and will not boycott energy companies during the term of this contract;
- C. **The Firm** does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or a firearm trade association and will not discriminate against a firearm entity or firearm trade association during this contract;
- D. **The Firm** does not engage in business with Iran, Sudan, or any foreign terrorist organization designated as such by the United States Secretary of State and will not engage in business with any such entity, Iran, or Sudan during the term of this contract, and furthermore;
- E. **The Firm** is not listed by the Texas Comptroller as a company known to have contracts with or provide services to a foreign terrorist organization.

**X.**

The contract is executed on behalf of **The City** by the presiding officer of its governing body who is authorized to execute this instrument by order heretofore passed and duly recorded in its minutes.

WITNESS the signatures of all parties hereto in duplicate originals this, the \_\_\_\_ day of \_\_\_\_\_, 2024.

CITY OF SANGER, TEXAS

By: \_\_\_\_\_,  
John Noblitt  
City Manager

Approved as to Form

By: \_\_\_\_\_  
Hugh Coleman

City Attorney

MCCREARY, VESELKA, BRAGG & ALLEN, P.C.  
Attorneys at Law  
700 Jeffrey Way, Suite 100  
Round Rock, Texas 78665

By: \_\_\_\_\_  
Craig Morgan  
Managing Attorney, Denton Branch Office





# CITY COUNCIL COMMUNICATION

**DATE:** April 15, 2024

**FROM:** Ramie Hammonds, Development Services Director

**AGENDA ITEM:** Consideration and possible action on the Final Plat of Marley Meadows being 19.653 acres described as A0658A JANUARY TR 3, located in the City of Sanger’s ETJ, and generally located on the west side of Sam Bass Road and approximately 1307 feet north of the intersection of FM 455 and Sam Bass Road.

**SUMMARY:**

- The applicant is proposing to create 17 single-family lots from 1 unplatted tract.
- This site is located on the west side of Sam Bass Road.
- The lots have a minimum of 1 acre.
- This development is located in the City of Sanger’s ETJ
- The house will be served by onsite septic.
- The Planning and Zoning Commission recommended approval with the condition all comments were satisfied.

**FISCAL INFORMATION:**

Budgeted: N/A

Amount: N/A

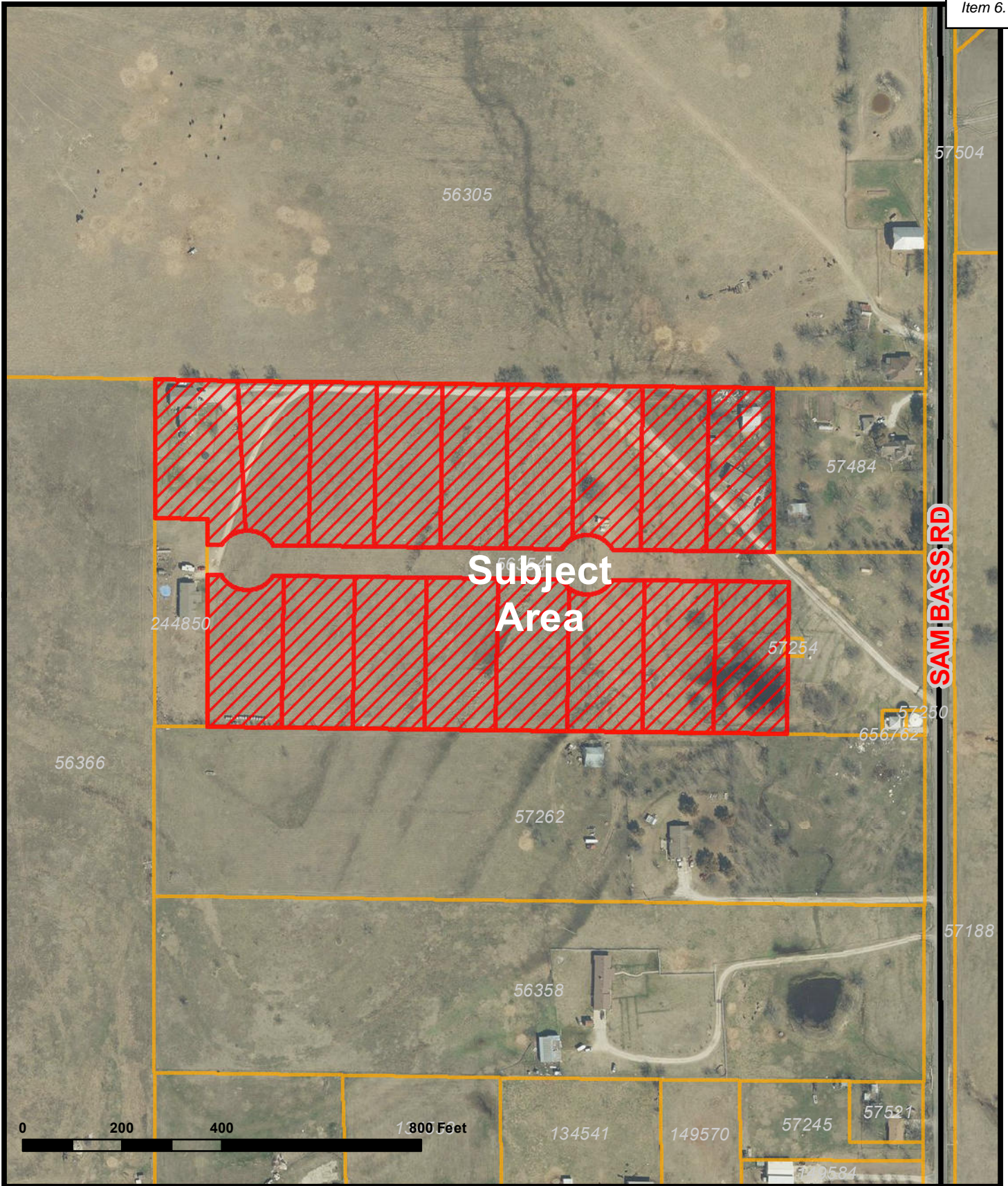
GL Account: N/A

**RECOMMENDED MOTION OR ACTION:**

Staff recommends DENIAL based on the condition attached comments have not been satisfied.

**ATTACHMENTS:**

- Location Map
- Final Plat
- Application
- Letter of Intent
- Planning Comments
- Engineering Comments



Subject Area

SAMBASSRD



Project Name: Marley Meadows  
 Final Plat  
 Project: 24SANZON-0001

 City Limits  Exhibits

DISCLAIMER:  
 This map was generated by GIS data provided by the Sanger GIS Department. The City of Sanger does not guarantee the correctness or accuracy of any features on this map. These map products are for illustration purposes only and are not suitable for site-specific decision making. GIS data is subject to constant changes, and may not be complete, accurate or current.  
 Date: 1/22/2023 4:08:57 PM  
 Doc Name: 23SANZON-0003\_Marley Meadows Prelim Plat





**DEVELOPMENT SERVICES**  
201 Bolivar Street/PO Box 1729 \* Sanger, TX 76266  
940-458-2059(office) www.sangertexas.org  
**SUBDIVISION APPLICATION**

Preliminary  
Plat Minor  
Plat

Final  
Plat/Replat  
Amended Plat

Vacating Plat  
Conveyance  
Plat

Applicant	Owner (if different from applicant)
Name: <b>Michael Black</b>	Name: <b>Ben Burnside</b>
Company: <b>Trinity Land Surveying LLC</b>	Company: <b>Redeemed Assets LLC</b>
Address: <b>1222 Greenbriar St.</b>	Address <b>2701 Wind River Ln.</b>
City, State, Zip: <b>Denton, Texas 76201</b>	City, State, Zip: <b>Denton, Texas 76210</b>
Phone <b>940-293-3180</b>	Phone: <b>940-368-0963</b>
Fax:	Fax:
Email: <b>mblack@trinity-surveying.com</b>	Email: <b>ben.burnside@yahoo.com</b>

**Submittal Checklist**

<input checked="" type="checkbox"/>	Pre-Application Conference (Date: <u>2 / 15 / 2022</u> )
<input type="checkbox"/>	One (1) Paper Copy of Plat (24"x36", folded to 1/4 size)
<input checked="" type="checkbox"/>	Letter of Intent
<input checked="" type="checkbox"/>	Non-Refundable Application Fee (Check Payable to City of Sanger)
<input checked="" type="checkbox"/>	Application Form (Signed by Owner)
<input checked="" type="checkbox"/>	Applicable Plat Checklist (Completed)
<input checked="" type="checkbox"/>	Additional Required Documents/Traffic & Drainage Studies etc.
<input checked="" type="checkbox"/>	One (1) PDF Copy of all Documents Provided on a CD/DVD or Emailed to <a href="mailto:development@sangertexas.org">development@sangertexas.org</a>

Supporting Materials (List if provided): \_\_\_\_\_

R Number(s): 56354

Ben Burnside  
Owner's Signature

11/8/23  
Date

[Signature]  
Applicant's Signature

4/5/2024  
Date

Office Use: Reviewed by Director of Development Services     /     /    

City of Sanger  
201 Bolivar / P.O. Box 1729  
Sanger, TX 76266

940-458-2059 (office)

www.sangertexas.org

Effective Date: 02/11/2020

February 7, 2024

Ms. Ramie Hammonds  
Development Services Director/Building Official  
City of Sanger  
201 Bolivar St.  
P.O. Box 1729  
Sanger, Tx. 76266

**Re: Final Plat Letter of Intent – Marley Meadows**

Ms. Hammonds,  
On behalf of our client, Redeemed Assets LLC, we respectfully submit this letter of Intent for the attached Final Plat for the Marley Meadows project.

*Marley Meadows* is a proposed 19.653 acre subdivision within the City of Sanger ETJ. The project is located north of FM 455 on Sam Bass Road, more specifically, 8949 Sam Bass Road.

*Marley Meadows* proposes to create 1 dedicated street and 17 residential lots.

We appreciate your review and consideration of our request. If you have any questions or require additional information, please contact me at (940) 293-3180 or by email at [mblack@trinity-surveying.com](mailto:mblack@trinity-surveying.com).

Sincerely,

**Michael L. Black, RPLS #6854 (Tx) PLS #1982 (Ok)**

**Trinity Land Surveying LLC**

Firm # 10194687

1222 Greenbriar St.

Denton, Texas 76201

Ph. 940-293-3180

Email: [mblack@trinity-surveying.com](mailto:mblack@trinity-surveying.com)

Website: [www.trinity-surveying.com](http://www.trinity-surveying.com)



**DATE: 02/07/2024**

**1<sup>st</sup> REVIEW COMMENTS – Final Plat (Marley Meadows)**

The request is for a Final Plat of Marley Meadows containing 17 lots, being approximately 19.653 acres in the JAMES B.P. JANUARY SURVEY, ABSTRACT NO. 658, prepared by Trinity Land Surveying, submitted on 01/16/2024. Below are the comments that should be addressed before City Council approval. Resubmit the revised plat along with a response letter addressing all comments.

**Planning**

Provide the following

1. Show the centerline of existing streets. Dimensions from centerline to edges of existing and proposed right of way on both sides of the centerline.
2. Notation to be added; “Minimum finished floor elevations are at least 2 feet about the 100-year flood plain.”
3. Notation to be added; “The subject property does not lie within a 100-year floodplain according to the Community Panel No.\_\_\_\_\_, dated\_\_\_\_, of the National Flood Insurance Rate maps for Denton County, Texas.”
4. A signed and notarized copy of private restriction (if any), that is filed for the record in the office of the County Clerk shall be provided with the Final Plat.

**Informational Comments**

1. The property is within the Sanger ETJ.
2. The Final Plat will be scheduled for the Planning and Zoning (P&Z) Commission meeting on Monday, February 12, 2024, and the City Council meeting on Monday, March 4, 2024.



January 24, 2023  
AVO 37449.004

Ms. Ramie Hammonds  
Development Services Director/Building Official  
City of Sanger  
201 Bolivar Street  
P.O. Box 1729  
Sanger, Texas 76266

Re: **Marley Meadows Final Plat -Review #1**

Dear Ms. Hammonds,

Halff Associates, Inc. was requested by the City of Sanger to review the Final Plat for Marley Meadows. The submittal was prepared by Trinity Land Surveying LLC and was dated January 16, 2024

We have completed our review and offer the following comments:

**Final Plat Comments**

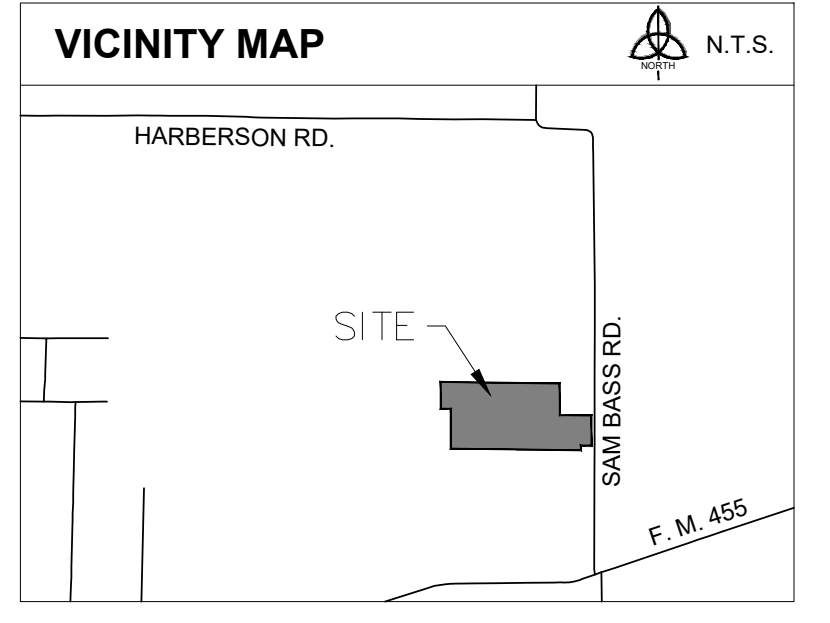
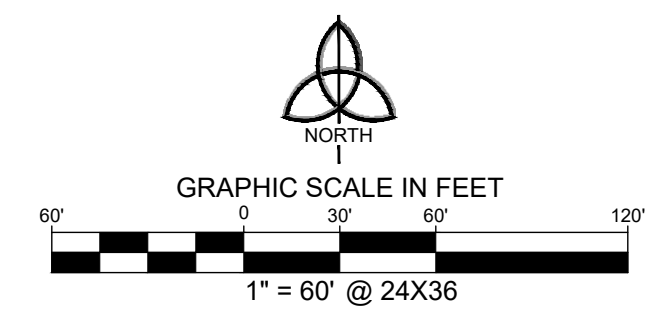
1. Please address comments on attached markups and provide annotated responses on markups. Please note, not all comments are written on letter since some comments are easier to show and explain on the markups. Please annotate markup with responses.
2. Provide language for easement by separate instrument.
3. Location of easement must be established, pins set and shown in the actual location. The exact layout must be known and recorded per ordinance 10.104(d)(10)(H)
4. Plat language shall match ordinance 10.104.

The Engineer shall revise the plans in accordance with the above comments and/or provide a written response that addresses each comment. If you have any questions or need additional information, please do not hesitate to call me at (214) 937-3928.

Sincerely,

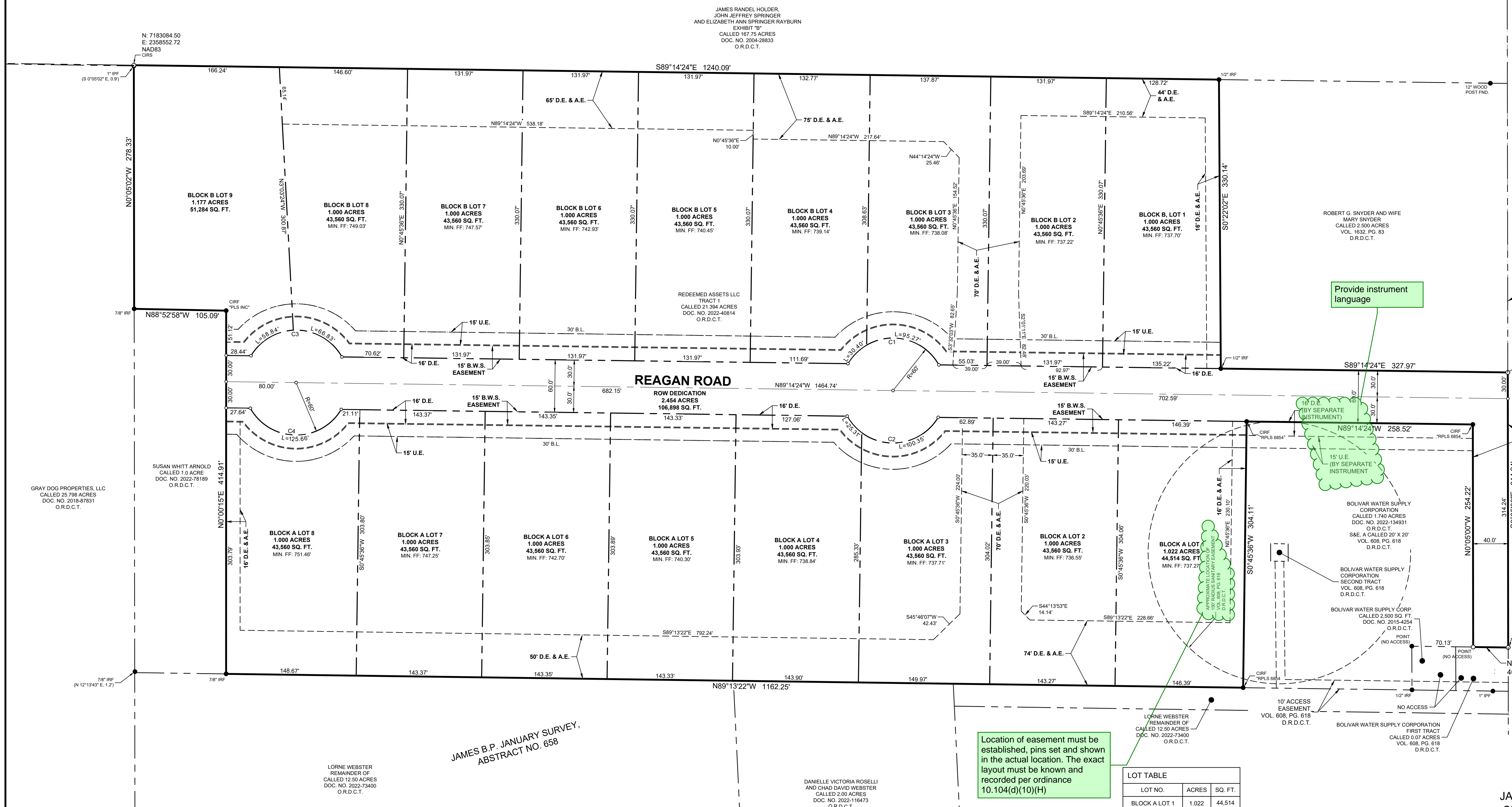
A handwritten signature in black ink, appearing to read "Jamie Akomer".

Jamie Akomer, PE, PMP  
**HALFF ASSOCIATES, INC.**  
Firm No. 0312  
Attachments: Plat markups



**LEGEND**

- MONUMENT FOUND
- MONUMENT SET
- CRS: 5/8" IRON ROD W/ "6854" CAP SET
- PKS: PK NAIL SET
- IRF: IRON PIPE FOUND
- IRF: IRON ROD FOUND
- P.O.B: POINT OF BEGINNING
- O.R.D.C.T: OFFICIAL RECORDS DENTON COUNTY, TEXAS
- D.R.D.C.T: DEED RECORDS DENTON COUNTY, TEXAS
- VOL: VOLUME
- PG: PAGE
- U.E: UTILITY EASEMENT
- D.E: DRAINAGE EASEMENT



P.O.B.  
PKS  
N: 7182733.57  
E: 2360122.76  
NAD83

JUDY K. SELPH  
DOC. NO. 2010-20064  
O.R.D.C.T.  
REFERENCE:  
MORRIS KNOWLES AND WIFE, JUEL DEAN KNOWLES CALLED 214.7 ACRES VOL. 345, PG. 247, D.R.D.C.T.

W. G. HUDSON SURVEY,  
ABSTRACT NO. 563

**FINAL PLAT  
MARLEY MEADOWS**  
BLOCK A, LOTS 1-8 AND  
BLOCK B, LOTS 1-9  
17 RESIDENTIAL LOTS  
2.454 ACRES RIGHT-OF-WAY DEDICATION  
BEING 19.653 ACRES OUT OF THE  
JAMES B.P. JANUARY SURVEY, ABSTRACT NO. 658,  
CITY OF SANGER E.T.J., DENTON COUNTY, TEXAS

**TRINITY**  
LAND SURVEYING LLC

121 W. Hickory St., Ste. 106 Denton, Texas 76201 FIRM # 10194687 Tel. No. (940) 293-3180

Scale	Drawn by	Checked by	Date	Project No.	Sheet No.
1" = 60'	MLB	TLS	01/16/2024	2022-014	1 OF 2

**OWNER / APPLICANT:**  
Redeemed Assets LLC  
2701 Wind River Ln.  
Denton, Texas 76201  
Ph: (940) 368-0963  
Email: ben.burnside@yahoo.com  
Contact: Ben Burnside

**SURVEYOR:**  
Trinity Land Surveying, LLC  
1222 Greenbriar St.  
Denton, TX 76201  
Ph: (940) 293-3180  
Email: mblack@trinity-surveying.com  
Contact: Michael Black, RPLS

**ENGINEER:**  
Civil Engineering  
1001 W. Euless Blvd., Ste. 412h  
Euless, TX 76040  
Ph: (972) 523-5493  
Email: omg@civileng.com  
Contact: Om Gharty Chhetri, P.E.

**LOT TABLE**

LOT NO.	ACRES	SQ. FT.
BLOCK A LOT 1	1.022	44,514
BLOCK A LOT 2	1.000	43,560
BLOCK A LOT 3	1.000	43,560
BLOCK A LOT 4	1.000	43,560
BLOCK A LOT 5	1.000	43,560
BLOCK A LOT 6	1.000	43,560
BLOCK A LOT 7	1.000	43,560
BLOCK A LOT 8	1.000	43,560
BLOCK B LOT 1	1.000	43,560
BLOCK B LOT 2	1.000	43,560
BLOCK B LOT 3	1.000	43,560
BLOCK B LOT 4	1.000	43,560
BLOCK B LOT 5	1.000	43,560
BLOCK B LOT 6	1.000	43,560
BLOCK B LOT 7	1.000	43,560
BLOCK B LOT 8	1.000	43,560
BLOCK B LOT 9	1.177	51,284
BOUNDARY	19.653	856,096
ROW DEDICATION	2.454	106,898

Location of easement must be established, pins set and shown in the actual location. The exact layout must be known and recorded per ordinance 10.104(d)(10)(H)

**SANITARY EASEMENT QUOTE, AS RECORDED IN VOLUME 608, PAGE 618, DEED RECORDS, DENTON COUNTY, TEXAS:**

"Further, as part of the consideration herein, Grantor, Lois N. Wolters, agrees not to build or maintain any septic tank or open-jointed drain field therefrom, cess pool, privy, stock pen, dump ground, or any other facility which might create a danger of pollution of the water of any well which might be drilled upon Tract Two above described for a distance of 150 feet from the well as drilled and developed. This sanitary easement shall constitute a covenant running with the land and shall bind the undersigned, his successors and assigns, and this grant of Sanitary Easement is made to the said BOLIVAR WATER SUPPLY CORPORATION, its successors and assigns."

**FLOOD STATEMENT:**

According to Federal Emergency Management Agency's Flood Insurance Rate Map No. 48121C0205G, for Denton County, Texas and incorporated areas, dated April 18, 2011, this property is located within:

Zone X (unshaded) defined as "Areas determined to be outside the 0.2% annual chance floodplain"

If this site is not within an identified special flood hazard area, this flood statement does not imply that the property and/or the structures thereon will be free from flooding or flood damage. On rare occasions, greater floods can and will occur and flood heights may be increased by man-made or natural causes. This flood statement shall not create liability on the part of the surveyor.

**CURVE TABLE**

NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD
C1	120°00'00"	60.00'	125.66'	S89°14'24"E	103.92'
C2	120°00'00"	60.00'	125.66'	N89°14'24"W	103.92'
C3	120°00'00"	60.00'	125.66'	N89°14'24"W	103.92'
C4	120°00'00"	60.00'	125.66'	N89°14'24"W	103.92'

General Notes :

- The grid bearings and coordinates shown hereon are based on grid north of the Texas Coordinate System of 1983, North Central Zone (4202), North American Datum of 1983(2011).
- All corners are 5/8" iron rods set with a plastic cap stamped "RPLS 6854" unless otherwise noted.
- Minimum Finished Floor Elevations on lots were provided by iCivil Engineering, (972) 523-5493.
- The purpose of this plat is to create 17 residential lots from a previously unplatted tract of land.
- No 100-year floodplain exists on the site.
- This property lies within the ETJ of the City of Sanger, Texas.
- All lots comply with the minimum size requirements of the zoning district.
- This property may be subject to charges related to impact fees and the applicant should contact the City regarding any applicable fees due.
- All common areas, drainage easements, and detention facilities will be owned and maintained by the HOA/POA. Any common area within the City's right-of-way will require a facilities agreement, to be reviewed and approved by the City.
- Notice – selling a portion of this addition by metes and bounds is a violation of City ordinance and State Law and is subject to fines and withholding of utilities and building permits.
- This plat does not alter or remove existing deed restrictions, if any, on this property.
- Water service to be provided by Bolivar Water Supply, 4161 FM 455 West, Sanger, Texas (940) 458-3931
- Sanitary sewer to be handled by facilities approved by the Denton County Public Health.
- Electric Service to be provided by: CoServ Energy, 7701 I-35E Frontage Road, Corinth, Texas 76210, (940) 321-7800
- The maintenance of paving, grading and drainage improvements and/or easements shown on this plat are the responsibility of the individual property owner and **DOES NOT** constitute acceptance of same for maintenance purposes by Denton County.
- All surface drainage easements shall be kept clear of fences, buildings, foundation, plantings and other obstructions to the operation and maintenance of the drainage facility.
- Blocking the flow of water or constructing improvements in surface drainage easements, and filling or obstructing the floodway is prohibited.
- Denton County will not be responsible for any damage, personal injury or loss of life or property occasioned by flooding or flooding conditions.
- The existing creeks or drainage channels traversing along or across the addition will remain as open channels and will be maintained by the individual property owners of the lot or lots that are traversed by or adjacent to the drainage courses along or across the lots.
- Construction not complete within two years of the Commissioners Court approval shall be subject to current County Subdivision Rules and Regulations.
- A driveway culvert permit must be obtained from the Road and Bridge Department by the owner of each lot prior to the construction, installation or placement of any driveway access improvements within the dedicated right-of-way.
- No construction, without written approval from Denton County shall be allowed within an identified "FIRM" floodplain area, and then only after a detailed floodplain development permit including engineering plans and studies show that no rise in the Base Flood Elevation (BFE) will result, that no flooding will result, that no obstruction to the natural flow of water will result; and subject to all owners of the property affected by such construction becoming a party to the request. Where construction is permitted, all finished floor elevations shall be a minimum of two feet above the 100-year flood elevation.
- Denton County shall not be responsible for maintenance of private streets, drives, emergency access easements, recreation areas and open spaces; and the owners shall be responsible for the maintenance of private streets, drives, emergency access easements, recreation areas and open spaces, and said owners agree to indemnify and hold harmless Denton County from all claims, damages and losses arising out of or resulting from performance of the obligations of said owners set forth in this paragraph.

OWNER'S CERTIFICATE

STATE OF TEXAS §

COUNTY OF DENTON §

WHEREAS Redeemed Assets LLC, is the owner of the land shown on this plat within the area described by metes and bounds as follows:

BEING a tract of land situated in the James B. P. January Survey, Abstract No. 658, City of Sanger E.T.J., Denton County, Texas and being part of a called 21.394 acre tract described in a Warranty Deed to Redeemed Assets LLC, as recorded in Document No. 2022-40814 of the Official Records of said county, and being more particularly described by metes and bounds as follows:

BEGINNING at a PK nail set in Sam Bass Road (an apparent public right-of-way, no record found), same being the most easterly northeast corner of said 21.394 acre tract and the southeast corner of a called 2.500 acre tract described in a Deed to Robert G. Snyder and wife, Mary Snyder, as recorded in Volume 1632, Page 83 of the Deed Records of said county; (NOTE: BEARINGS AND DISTANCES ARE BASED ON U. S. STATE PLANE NAD 1983 COORDINATES, TEXAS CENTRAL ZONE - 4203);

THENCE South 00°05'00" East, along said Sam Bass Road and the most easterly east line of said 21.394 acre tract, a distance of 314.24 feet to a pk nail set for the northeast corner of a called 0.07 acre tract described in a General Warranty Deed, Access Easement and Sanitary Easement to Bolivar Water Supply Corporation, as recorded in Volume 608, Page 618 of said Deed Records;

THENCE North 89°13'22" West, leaving said Sam Bass Road and along the north line of said 0.07 acre tract, a distance of 40.00 feet to a point for the most easterly southeast corner of a called 1.740 acre tract described in a General Warranty Deed to Bolivar Water Supply Corporation, as recorded in Document No. 2022-134931 of said Official Records;

THENCE North 00°05'00" West, along the east line of said 1.740 acre tract, being 40 feet from and parallel with the east line of said 21.394 acre tract, a distance of 254.22 feet to a 5/8 inch iron rod with a yellow cap, stamped "RPLS 6854", found for the northeast corner of said 1.740 acre tract;

THENCE North 89°14'24" West, along the north line of said 1.740 acre tract, a distance of 258.52 feet to a 5/8 inch iron rod with a yellow cap, stamped "RPLS 6854", found for the northwest corner of said 1.740 acre tract;

THENCE South 00°45'36" West, along the west line of said 1.740 acre tract, a distance of 304.11 feet to a 5/8 inch iron rod with a yellow cap, stamped "RPLS 6854", found on the north line of a called 12.50 acre tract described in a General Warranty Deed to Lorne Webster, as recorded in Document No. 2022-73400 of said Official Records and the south line of said 21.394 acre tract, for the southwest corner of said 1.740 acre tract;

THENCE North 89°13'22" West, along the south line of said 21.394 acre tract, a distance of 1,162.25 feet to a 7/8 inch iron rod found for the southeast corner of a called 1.0 acre tract described in a Quit Claim Deed to Susan Whitt Arnold, as recorded in Document No. 2022-78189 of said Official Records and the most southerly southwest corner of said 21.394 acre tract;

THENCE North 00°00'15" East, leaving the north line of said 12.50 acre tract and along the east line of said 1.0 acre tract and the most southerly west line of said 21.394 acre tract, a distance of 414.91 feet to a iron rod with a cap, stamped "PLS INC", found for the northeast corner of said 1.0 acre tract and an inner "L" corner of said 21.394 acre tract;

THENCE North 88°52'58" West, along the north line of said 1.0 acre tract and the most westerly south line of said 21.394 acre tract, a distance of 105.09 feet to a 7/8 inch iron rod found on the east line of a called 25.798 acre tract described in a General Warranty Deed to Gray Dog Properties, LLC, as recorded in Document No. 2018-87831 of said Official Records, for the northwest corner of said 1.0 acre tract and the most westerly southwest corner of said 21.394 acre tract;

THENCE North 00°05'02" West, along the east line of said 25.798 acre tract and the most northerly west line of said 21.394 acre tract, a distance of 278.33 feet to a 5/8 inch iron rod with a yellow cap, stamped "RPLS 6854", set on the south line of Exhibit "B", a called 167.75 acre tract, for the northeast corner of said 25.798 acre tract and the northwest corner of said 21.394 acre tract;

THENCE South 89°14'24" East, along the south line of said 167.75 acre tract and the most northerly north line of said 21.394 acre tract, a distance of 1,240.09 feet to a 1/2 inch iron rod found for the northwest corner of the aforementioned 2.500 acre tract and the most northerly northeast corner of said 21.394 acre tract;

THENCE South 00°22'02" East, along the west line of said 2.500 acre tract and the most northerly east line of said 21.394 acre tract, a distance of 330.14 feet to a 1/2 inch iron rod found for the southwest corner of said 2.500 acre tract and an inner "L" corner of said 21.394 acre tract;

THENCE South 89°14'24" East, along the south line of said 2.500 acre tract and the most easterly north line of said 21.394 acre tract, a distance of 327.97 feet to the POINT OF BEGINNING and containing 856,096 square feet or 19.653 acres of land, more or less.

OWNER'S DEDICATION

STATE OF TEXAS §

COUNTY OF DENTON §

NOW THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

THAT, Redeemed Assets LLC, acting herein by and through its duly authorized officer, does hereby adopt this plat designating the herein above described property as MARLEY MEADOWS, an addition to the City of Sanger, Texas, and does hereby dedicate to the public use forever by fee simple title, free and clear of all liens and encumbrances, all streets, thoroughfares, alleys, fire lanes, drive aisles, parks, and watercourses, and to the public use forever easements for sidewalks, storm drainage facilities, utilities and any other property necessary to serve the plat and to implement the requirements of the subdivision regulations and other City codes and do hereby bind ourselves, our heirs, successors and assigns to warrant and to forever defend the title on the land so dedicated. Further, the undersigned covenants and agrees that he/she shall maintain all easements and facilities in a state of good repair and functional condition at all times in accordance with City codes and regulations. No buildings, fences, trees, shrubs, or other improvements or growths shall be constructed or placed upon, over, or across the easements as shown, except that landscape improvements may be installed, if approved by the City of Sanger. The City of Sanger and public utility entities shall have the right to access and maintain all respective easements without the necessity at any time of procuring permission from anyone.

WITNESS MY HAND, this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

BY: Ben Burnside

By: \_\_\_\_\_ Signature Title: Owner

STATE OF TEXAS §

COUNTY OF DENTON §

BEFORE ME, the undersigned authority, on this day personally appeared Ben Burnside, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed, in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on the \_\_\_\_\_ day of \_\_\_\_\_, 2024.

Notary Public, State of Texas

Printed Name My Commission Expires

persons

KNOW ALL MEN BY

SURVEYOR'S CERTIFICATION

KNOW ALL MEN BY THESE PRESENTS:

That I, Michael L. Black, do hereby certify that I prepared this plat and the field notes made a part thereof from an actual and accurate survey of the land and that the corner monuments shown thereon were properly placed under my personal supervision, in accordance with the Subdivision regulations of the Extra Territorial Jurisdiction of the City of Sanger, Texas.

Michael L. Black Registered Professional Land Surveyor No. 6854

STATE OF TEXAS §

COUNTY OF DENTON §

BEFORE ME, the undersigned, a Notary Public in and for The State of Texas, on this day personally appeared Michael L. Black, known to me to be the person and officer whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the \_\_\_\_\_ day of \_\_\_\_\_, 2024.

Notary Public, State of Texas

PRELIMINARY THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

FINAL PLAT MARLEY MEADOWS BLOCK A, LOTS 1-8 AND BLOCK B, LOTS 1-9 17 RESIDENTIAL LOTS 2.454 ACRES RIGHT-OF-WAY DEDICATION BEING 19.653 ACRES OUT OF THE JAMES B.P. JANUARY SURVEY, ABSTRACT NO. 658, CITY OF SANGER E.T.J, DENTON COUNTY, TEXAS

TRINITY LAND SURVEYING LLC 121 W. Hickory St., Ste. 106 Denton, Texas 76201 FIRM # 10194687 Tel. No. (940) 293-3180

Table with 6 columns: Scale, Drawn by, Checked by, Date, Project No., Sheet No.

OWNER / APPLICANT: Redeemed Assets LLC 2701 Wind River Ln Denton, Texas 76201 Ph: (940)-368-0963 Email: ben.burnside@yahoo.com Contact: Ben Burnside

SURVEYOR: Trinity Land Surveying, LLC 1222 Greenbriar St. Denton, TX 76201 Ph: (940) 293-3180 Email: mblack@trinity-surveying.com Contact: Michael Black, RPLS

ENGINEER: Civil Engineering 1001 W. Euless Blvd., Ste. 412h Euless, TX 76040 Ph: (972) 523-5493 Email: omcg@icivileng.com Contact: Om Gharty Chhetri, P.E.

APPROVAL BLOCK table with rows for Chairman, Mayor, and City Secretary of Sanger, TX, each with a Date field.





January 24, 2024  
AVO 37449

Ms. Ramie Hammonds  
Development Services Director/Building Official  
City of Sanger  
201 Bolivar Street  
P.O. Box 1729  
Sanger, Texas 76266

Re: **Marley Meadows – Drainage Study in support of the Final Plat**  
3rd Review

Dear Ms. Hammonds,

Halff Associates, Inc. was requested by the City of Sanger to provide a review of the drainage study and downstream assessment in support of the Preliminary Plat for the Marley Meadows development. The drainage study was prepared by iCivil Engineering and is dated January 2023. Comments were provided February 7, 2023. A second submittal was provided May 16, 2023 and comments were provided May 30, 2023. A third submittal was received June 28, 2023. A fourth submittal was received September 14, 2023. Please refer to the Denton County Subdivision Rules and Regulations dated July 2009 for drainage criteria; hereafter referred to as Criteria Manual.

We have completed our review. **The drainage study is acceptable for preliminary platting.** Please address the comments below with the drainage study in support of the final plat/construction plans.

**General:**

1. **1st – 5th Review Comment:** Plans and plat are reviewed separately. Please note an accepted drainage study is required prior to plat acceptance.
2. **1st – 5th Review Comment:** Please address comments on attached markups and provide **annotated responses on markups.**
3. Please provide minimum finished floor elevations 2' above fully developed 100-yr water surface elevation for lots adjacent to proposed channels/roadside ditches on the plat.  
1st Review Response: No Response.  
2nd Review Comment: Address comments on preliminary plat.  
2nd Review Response: **Noted**  
**3rd Review Comment:** It appears the Ultimate 100yr WSEL's used to determine the min FFE do not match the Ultimate Conditions RAS model at some locations.
  - a. Please reconcile WSEL's on Grading Sheets with the RAS model.
  - b. Please provide the reference cross section on the Grading Sheet.
  - c. Please show all RAS cross sections on the Hydraulic Workmap/s.**4th & 5th Review Comment:** Please update all relevant information based of any changes due to comments.
4. **1st - 3rd Review Comment:** Please note, additional comments may result once models and additional info is provided.  
**4th & 5th Review Comment:** Please note, additional comments may result once final drainage study/construction plans/ final plats are provided.

**Hydrology and Hydraulics:**

5. Please apply the existing conditions C values to the proposed conditions runoff calculations for the offsite areas; for a pre- and post- development analysis, the offsite runoff stays constant. Please

Ms. Ramie Hammonds  
 January 24, 2024  
 Page 2 of 4

update the outfall discharge summaries according to the changes in the calculated existing and proposed runoff. Verify any flow increases.

1<sup>st</sup> Review Response: Offsite modeled using UH method

2<sup>nd</sup> Review Comment: Addressed.

6. It appears proposed flow is increased at the south outfall (DP "C"), please extend the hydrologic and hydraulic analysis through the zone of influence per the 10% rule and demonstrate no adverse impacts to downstream properties (no significant increases in water surface elevation and velocities). A proposed development of 19.65 acres will require an overall analysis of 196.5 acres.

1<sup>st</sup> Review Response: With UH method, no increase in peak discharge at the d/s.

2<sup>nd</sup> Review Comment: Please include onsite drainage area maps showing the flowpaths in greater detail. Please include the time of concentration parameters, calculations, and assumptions. Reconcile with HMS model.

2<sup>nd</sup> Review Response: HMS Reconciled, Calculation added

3<sup>rd</sup> Review Comment: Noted.

7. Please provide a pre- and post- HEC-RAS analysis for receiving creek thru the zone of influence and demonstrate no significant increase in water surface elevation and velocity in existing channels. Also, verify no increases to the backwater at upstream culvert. Include RAS model with next submittal.

1<sup>st</sup> Review Response: With SCS UH method, no increase in peak discharge at the d/s. RAS model included

2<sup>nd</sup> Review Comment: Noted. Verify after addressing HMS comments.

2<sup>nd</sup> Review Response: Updated.

3<sup>rd</sup> Review Comment: Noted

8. Please provide an Ultimate Conditions Drainage Area Map. Provide calculated runoff for a fully developed condition and design the channel going through the site to contain the fully developed 100-year flow with 1-ft. freeboard. Provide an ultimate conditions RAS model as well.

1<sup>st</sup> Review Response: HEC-RAS model included for existing, proposed and ultimate condition

2<sup>nd</sup> Review Comment: It appears that only existing and proposed RAS models were included in the submittal. Please include Ultimate Conditions Flows with Proposed Geometry.

2<sup>nd</sup> Review Response: ULTIMATE CONDITION ADDED TO MODELS.

3<sup>rd</sup> Review Comment: Addressed. Address comments on the RAS workmaps and provide annotated responses.

4<sup>th</sup> Review Comment: Addressed

9. Please provide channel cross sections with hydraulic parameters for proposed channels. Please note, a HEC-RAS model is required to confirm water surface profiles in channels, roadside ditches and culverts. Please provide RAS model and verify proposed channels contain the fully developed 100-yr flow with 1' freeboard. Use  $n=0.04$  for earthen channel. Include a RAS workmap or add RAS cross sections to the grading plans.

1<sup>st</sup> Review Response: HEC RAS model included for channels, roadside ditch and culverts

2<sup>nd</sup> Review Comment: Noted.

10. Channels must be designed to standards. Please refer to criteria manual Section IV-B and section IV3.4 (trapezoidal, 4:1 SS, 1' freeboard from 100-yr fully developed water surface elevation to top of bank, etc). Provide drainage easements with adequate access; include 10' beyond top of bank on both sides.

1<sup>st</sup> Review Response: Revised the slopes to 4:1

2<sup>nd</sup> Review Comment: Please address comments on channel profile sheets and hydraulic workmap.

2<sup>nd</sup> Review Response: Addressed.

3<sup>rd</sup> Review Comment: Please address comments on hydraulic workmap and grading plan.

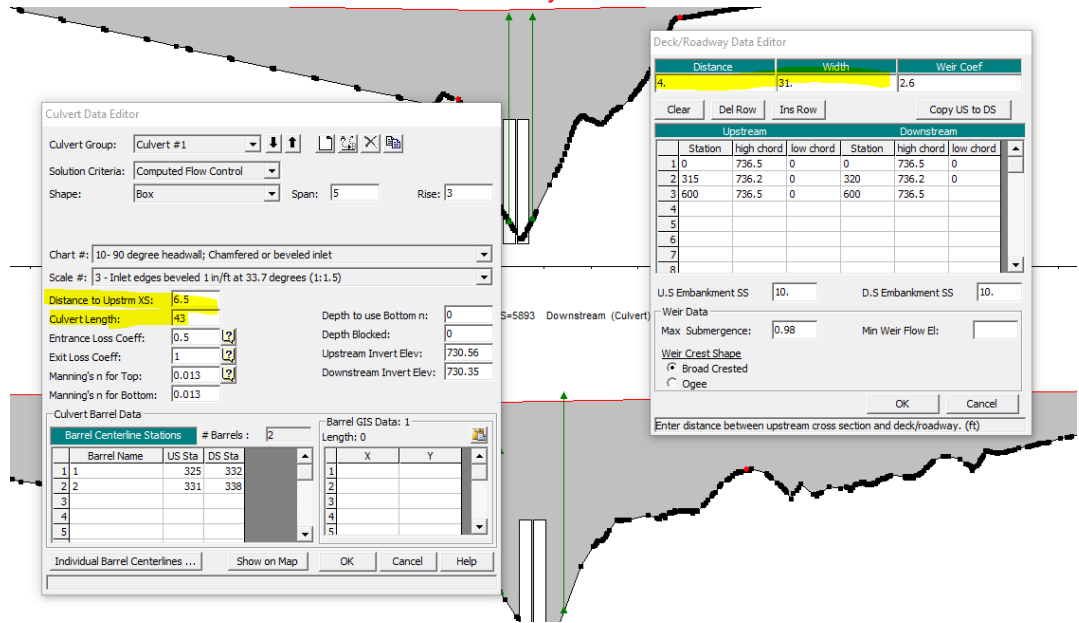
4<sup>th</sup> Review Comment: Please address comment on Sheet 12-8

5th Review Comment: Addressed

11. Provide RAS model for all proposed roadside ditches (Criteria Manual Section IV.3.4) including Sam Bass Road. Include proposed culverts and driveway culverts and verify the 100-yr fully developed flow is contained within the right of way. If not contained within ROW, additional DE must be dedicated to contain the fully developed 100-yr water surface elevation.  
1st Review Response: HEC RAS model included for channels, roadside ditch and culverts  
2nd Review Comment: Noted.
12. Please ensure side yard swales contain the 100yr WSEL and do not drain to the adjacent lots. Provide a typical section with hydraulic parameters. Ensure the typical section is feasible in each of the lots according to the grading plan.  
1st Review Response: side ditch sized to contain 100 yr discharge  
2nd Review Comment: Address side yard swales comment on grading sheets (sheet 8)  
2nd Review Response:  
3rd Review Comment: Addressed.
13. Verify the roadside ditch on Sam Bass Road does not drain to the proposed Street A roadside ditch.  
1st Review Response: Samross culvert does not drain to the proposed street, flow is only 1.23 cfs  
2nd Review Comment: Noted.
14. Show and label proposed culvert crossing on street plan and profile. Include 100-yr HGL. Please use a min of 18". Design culvert to pass the fully developed 100-yr flood event with 1' freeboard. Use RAS to evaluate backwater and tailwater at proposed culvert.  
1st Review Response: culvert crossing is included in plan set  
2nd Review Comment: Noted.
15. Provide Plan and profile for all proposed channels. Show and label the fully developed 100-yr water surface profile and left and right top of bank; verify 1' freeboard. Include culverts and verify 1' freeboard to top of road.  
1st Review Response: Channel profile with 100 yr wse is included in plan set  
2nd Review Comment: Please use the Ultimate 100yr flow to design the channels.  
2nd Review Response: Ultimate Condition Utilized.  
3rd Review Comment: (a) It appears the flow change at cross section 5551 does not match the HMS model. Please verify, reconcile and revise. (b) Address comments on sheet 9 and 13 and provide annotated responses.  
4th Review Comment: a) Addressed b) Please address comments on Sheets 7, 9, 12-8, and 13B  
5th Review Comment: Addressed
16. The proposed infrastructure (ie inlets, SD, swales, driveway culverts, channels, etc.) included in the drainage study to support the preliminary plat will be reviewed again once the construction plans are available. Update calculations as necessary to correspond to plans.  
1st Review Response: All proposed infrastructure calculation are included in plan set  
2nd Review Comment: Addressed.
17. 4th Review Comment: Please review and revise HEC-RAS models for the following comments DCSRR IV.3.4:
  - a. Channel bank stations should be adjusted for all cross sections and all channels. OK
  - b. All cross sections must contain the computed water surface elevations.
    - i. 5th Review Comment - XS 2000 & 2200. Recommend cutting off HEC-RAS model approximately 1,000 ft downstream of project area.

Ms. Ramie Hammonds  
 January 24, 2024  
 Page 4 of 4

- c. For Channel-A, why does the n-value decrease (0.04 to 0.035) when transitioning from engineered ditch to the natural, existing channel? Please review and revise as necessary for all HEC-RAS models. **OK**
- d. Ineffective flow areas should not be located within the conveyance area of the proposed culverts (Channel-A structure cross section 5893). **OK**
- e. Flow profiles should not cross (Channel-A 6473 – 6601) **OK**
- f. Cross sections should not curve (Channel-A 5866 and 5922). Please revise. **OK**
- g. Please review and revise all structure data in the HEC-RAS models. Distance and width should be the same in both the Deck/Roadway editor and culvert editor. **OK**



- h. **5th Review Comment-** N-values should be defined for the left overbank, channel, and right overbank at a minimum. One (1) n-value should not be used for the entire length of the cross section.

The Engineer shall revise the hydrologic study and/or plans in accordance with the above comments and/or provide a written response that addresses each comment. If you have any questions or need additional information, please do not hesitate to call me at (214) 937-3953.

Sincerely,  
 HALFF  
 TBPELS Firm No. 312

Parker C. Moore, P.E., CFM  
 Project Manager

**Attachment:**

- Plan Markups

# CIVIL PLANS FOR MARLEY MEADOWS SAM BASS ROAD SANGER, TEXAS

## SHEET INDEX

SHEET NO	DESCRIPTION
C.1	COVER SHEET
C.2	GENERAL NOTES
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C.13-A	HYDRAULIC WORK MAP
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C.13-C	HYDRAULIC WORK MAP
C.13-D	HYDRAULIC WORK MAP
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C.16	CHANNEL PROFILE
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C.20	EROSION CONTROL PLAN
C.21	STANDARD DETAILS
C.22	STANDARD DETAILS
C.23	STANDARD DETAILS

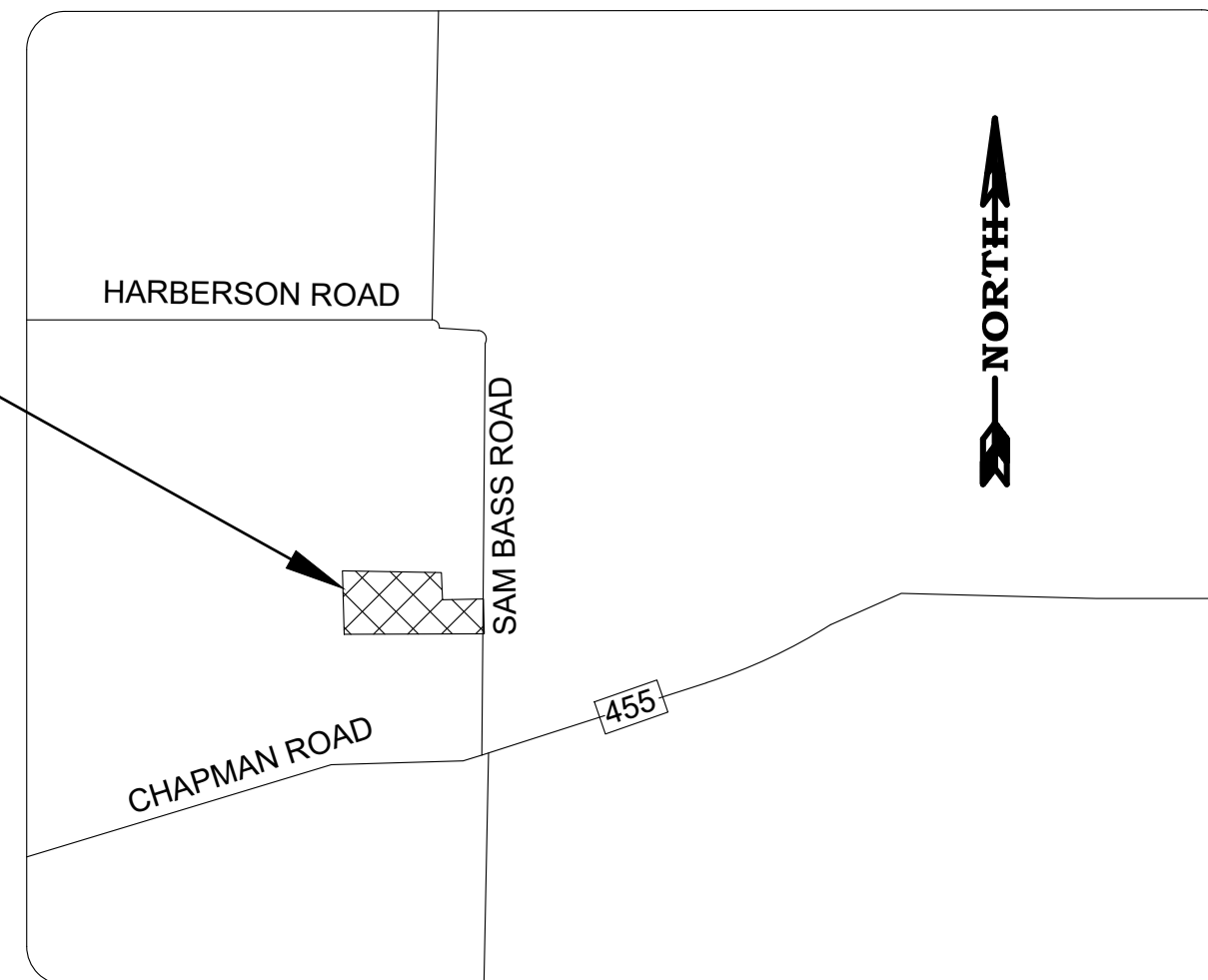
### LEGEND

- ■ ■ ■ ■ RETAINING WALL
- 10 — EXIST. CONTOUR
- 10 — PROPOSED CONTOUR
- X-X- EXISTING FENCE
- W — EXIST. WATER MAIN
- S — EXIST. SEWER MAIN
- STM — EXIST. STORM MAIN
- ▶ FLOW DIRECTION
- ▨ SAWCUT, REMOVE AND REPLACE
- ▩ PROP 6" RIP-RAP
- ▭ PROP PAVEMENT
- ▩ PROP LANDSCAPE

### ABBREVIATION

- TC TOP OF CURB
- TP TOP OF PAVEMENT
- FS FINISH SURFACE
- FG FINISH GRADE
- CF CURB FACE
- FL FLOWLINE
- HP HIGH POINT
- LP LOW POINT
- TG TOP OF GRATE
- GB GRADE BREAK
- P/L PROPERTY LINE
- R/W RIGHT OF WAY
- TRW TOP OF RETAINING WALL
- TF TOP OF FOOTING
- RH RETAINED HEIGHT
- SW SIDEWALK
- OHE. OVERHEAD ELECTRICITY
- WM WATER METER
- PP POWER POLE
- TOC TOP OF CLEANOUT
- SHLD SHOULDER
- UE UTILITY EASEMENT
- TOD TOP OF DITCH
- RCB REINFORCED CONCRETE BLOCK
- TOB TOP OF BANK
- DE DRAINAGE EASEMENT
- B.W.S. BOLIVAR WATER SUPPLY

## PROJECT SITE



## VICINITY MAP

NOT TO SCALE

**PROJECT OWNER:**  
REDEEMED ASSETS LLC  
2701 WIND RIVER LN,  
DENTON, TX, 76210-2965

**PROPERTY ADDRESS:**  
8949 SAM BASS ROAD  
SANGER, TX 76266

**TOPOGRAPHIC SURVEY BY:**  
TRINITY LAND SURVEYING LLC  
1222 GREENBRIAR ST.  
DENTON, TX 76201  
FIRM NO. :10194687  
TEL. NO. (940) 293-3180

**PREPARED BY:**  
iCIVIL ENGINEERING  
1001 W EULESS BLVD, STE 412H  
EULESS, TX 76040  
TEL.(972) 523-5493  
TBPE:F-19293  
EMAIL:INFO@ICIVILENG.COM

**BENCHMARK:**  
TBM#1 "X" SET ON A 15'RCP HEADWALL  
8'± NORTH OF THE EASTERLEY SOUTH  
PROPERTY LINE AND 18'± WEST OF THE  
CENTERLINE OF SAM BASS ROAD.  
ELEV: 735.46'

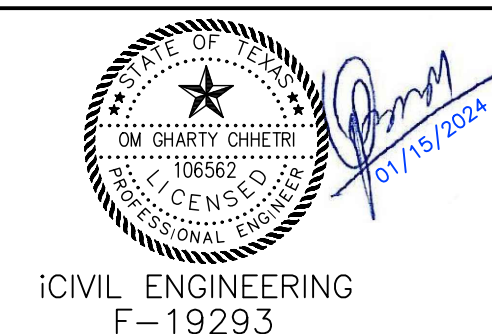
TBM#2 5/8" IRON ROD SET ON THE SOUTH  
SIDE OF A GRAVEL ROAD, 37'± SOUTH OF  
THE  
NORTH PROPERTY LINE AND 654'± EAST OF  
THE WEST PROPERTY LINE.  
ELEV: 741.70'



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JAN 2024



**SANGER, TEXAS**  
**COVER SHEET**  
FOR  
**MARLEY MEADOWS**

**PROJECT NO.**  
**sheet**  
1  
of  
23

**GENERAL NOTES**

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT CITY OF SANGER STANDARDS, DENTON COUNTY & TXDOT SPECIFICATIONS. A COPY OF THE CONTRACT DOCUMENTS AND PLANS SHALL BE AVAILABLE ON-SITE AT ALL TIMES BY THE CONTRACTOR.
2. ALL COMMUNICATION BETWEEN THE CITY AND THE CONTRACTOR SHALL BE THROUGH THE ENGINEERING CONSTRUCTION INSPECTOR AND ENGINEER OF RECORD ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE APPROPRIATE DEPARTMENT FOR INSPECTIONS OF WORK NOT FALLING UNDER THE PUBLIC WORKS CONSTRUCTION PERMIT.
3. THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND THERE MAY BE OTHER UNKNOWN EXISTING UTILITIES NOT SHOWN ON THE PLANS. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND PROTECTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. (ALSO SEE GENERAL NOTE NO. 4.4) THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES 72 HOURS PRIOR TO DOING ANY WORK IN THE AREA:
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE FOLLOWING:
  - 4.1. PREVENT ANY PROPERTY DAMAGE TO PROPERTY OWNER'S POLES, FENCES, SHRUBS, MAILBOXES, ETC
  - 4.2. LOCATE, VERIFY WORKING CONDITION AND PROTECT ALL EXISTING SPRINKLER SYSTEMS LINES AND HEADS (IF ANY) WITHIN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. REMOVE, ADJUST AND REINSTALL IN GOOD CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION; REPLACE, IF IN DIRECT CONFLICT, WITH THE SAME OR BETTER QUALITY MATERIAL AND APPURTENANCES, ALL AT THE CONTRACTOR'S OWN EXPENSE.
  - 4.3. PROVIDE ACCESS TO ALL DRIVES DURING CONSTRUCTION.
  - 4.4. PROTECT ALL UNDERGROUND AND OVERHEAD UTILITIES AND REPAIR ANY DAMAGES. (ALSO SEE GENERAL NOTE NO. 3.)
  - 4.5. NOTIFY ALL UTILITY COMPANIES AND VERIFY LOCATION OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
  - 4.6. PROVIDE CONSTRUCTION STAKING OF PUBLIC IMPROVEMENTS CONSTRUCTED WITHIN ANY RIGHT-OF-WAY. STAKING SHALL BE PERFORMED BY A SURVEYOR LICENSED IN THE STATE OF TEXAS.
  - 4.7. COOPERATE WITH THE UTILITY COMPANIES WHERE UTILITIES ARE REQUIRED OR SPECIFIED TO BE RELOCATED.
  - 4.8. WORK IN CLOSE PROXIMITY TO AND PROTECT EXISTING UTILITY MAINS, TRAFFIC LIGHTS AND POLES.
  - 4.9. ANY ITEM NOT SPECIFICALLY CALLED OUT TO BE REMOVED SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO REMOVING THAT ITEM OR IT SHALL BE REPLACED AT THE CONTRACTOR'S OWN EXPENSE.
  - 4.10. ANY TREE, SHRUB, OR GRASSED AREAS DAMAGED BY THE CONTRACTOR'S WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE TO EXISTING OR BETTER CONDITION.
5. IN THE PREPARATION OF THE PLANS AND SPECIFICATIONS, THE ENGINEER OF RECORD HAS ENDEAVORED TO INDICATE THE LOCATION OF EXISTING UNDERGROUND UTILITIES. IT IS NOT GUARANTEED THAT ALL LINES OR STRUCTURES HAVE BEEN SHOWN ON THE PLANS. THE CONTRACTOR SHALL REQUEST FOR LINE LOCATES AS DIRECTED IN ITEM #3. THE ENGINEER OF RECORD SHALL BE NOTIFIED ABOUT ANY CONFLICTS TO PROVIDE WRITTEN DIRECTION AND REVISED PLANS AS REQUIRED.
6. VERIFICATION OF THE CONDITION OF EXISTING COUNTY UTILITIES PRIOR TO CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL REQUEST FOR LINE LOCATES AS DIRECTED IN ITEM #3.
7. THE LOCATION FOR THE DISPOSAL OF CONSTRUCTION MATERIAL AND SPOILS SHALL BE ACCEPTED BY THE COUNTY PRIOR TO THE START OF CONSTRUCTION AS REFLECTED WITHIN THE STORMWATER POLLUTION PREVENTION PLAN.
8. ALL PHASES OF CONSTRUCTION MUST BE COORDINATED WITH THE ENGINEER OF RECORD. ALSO, THE CONTRACTOR IS REQUIRED TO COORDINATE WITH THE ADJACENT PROPERTY OWNERS AND THE COUNTY IN ORDER TO MINIMIZE CONFLICTS IN TRAFFIC FLOW OR OTHER OPERATIONS.
9. IT SHALL BE UNLAWFUL FOR ANY PERSON TO LAY, CONSTRUCT, BUILD, GRADE, GRAVEL, PAVE, SURFACE, EXCAVATE, RESURFACE, OR DO ANY WORK IN OR UPON ANY PUBLIC STREET, ALLEY, EASEMENT, THOROUGHFARE, PUBLIC PLACE, OR CONNECT TO PUBLIC WATER AND WASTEWATER MAINS WITHIN THE COUNTY, WITHOUT FIRST HAVING OBTAINED A PERMIT TO DO SUCH WORK FROM THE DIRECTOR OF PUBLIC WORKS, AND WITHOUT HAVING PAID A PERMIT FEE TO THE COUNTY. THE PERMITTEE SHALL NOTIFY THE COUNTY OF THE CONSTRUCTION STARTUP DATE AND AN EXPECTED COMPLETION DATE.
10. FIELD ADJUSTMENTS MAY BE NECESSARY AND SHALL BE CARRIED OUT AS DIRECTED IN WRITTEN FORM, AND REVISED PLANS AS NEEDED, BY THE ENGINEER OF RECORD. THE ADJUSTMENTS SHALL BE COORDINATED WITH THE CONTRACTOR AND THE ENGINEERING CONSTRUCTION INSPECTOR.
11. THE CONTRACTOR SHALL VERIFY, LOCATE, AND PROTECT EXISTING WATER, WASTEWATER, FIBER OPTIC CABLE/PATHWAYS (COUNTY AND FRANCHISE UTILITY), TRAFFIC SIGNALS AND APPURTENANCES, STORM DRAINAGE, NATURAL GAS, PETROLEUM PIPELINES, ELECTRIC AND TELEPHONE MAINS AND SERVICES AND RESTORE SERVICE IN CASE OF ANY DAMAGE.
12. THE PERMITTED CONTRACTOR MAKING CONNECTIONS/EXTENSIONS TO EXISTING PUBLIC UTILITIES SHALL BE SOLELY RESPONSIBLE FOR BACKFILL OF THE UTILITY TRENCH, AND ANY PAVING REPAIRS REQUIRED FOR COMPLETION OF THE CONNECTION/EXTENSION. ALL PAVING REPAIRS SHALL COMPLY WITH THE CURRENT COUNTY STANDARD DETAILS. THIRD PARTY WORK, NOT COVERED BY THE PERMITTEES PERMIT AND MAINTENANCE BOND, SHALL NOT BE ACCEPTED.
13. SHEETING, SHORING, AND BRACING: THE CONTRACTOR WILL ABIDE BY ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS GOVERNING EXCAVATION. TRENCH'S SIDE SLOPES SHALL MEET OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS THAT ARE IN EFFECT AT THE TIME OF CONSTRUCTION. SHEETING SHORING AND BRACING SHALL BE REQUIRED IF SIDE SLOPE STANDARDS ARE NOT MET. A PULL BOX, MEETING OSHA STANDARDS, WILL BE ACCEPTABLE. THE CONTRACTOR SHALL SUBMIT SITE SPECIFIC, DETAILED PLANS AND SPECIFICATIONS FOR TRENCH SAFETY SYSTEMS THAT MEET OSHA STANDARDS HAT ARE IN EFFECT AT THE TIME OF DEVELOPMENT OF PROJECT WHEN TRENCH EXCAVATION WILL EXCEED A DEPTH OF FIVE (5) FEET. THESE PLANS WILL BE SEALED BY AN ENGINEER REGISTERED BY THE STATE OF TEXAS AND SUBMITTED TO THE COUNTY PRIOR TO OBTAINING RELEASE OF THE PUBLIC WORKS CONSTRUCTION PERMIT.
14. THE ROAD OR STREETS SHALL CONSIST OF AT LEAST 2" OF HOT-MIX ASPHALTIC CONCRETE OVERLAY.THE FLEXIBLE BASE SHALL BE MIN OF 22' WIDE AND BE TO A DEPTH OF 4" COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.THE FLEXIBLE BASE SHALL BE EITHER:
  - A.COVERED WITH A PRIMER AT AN APPLICATION RATE OF 1/3 GALLON PER SQUARE YARD
15. THE CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR REVIEW AND ACCEPTANCE BY THE COUNTY PRIOR TO ANY PLACEMENT FOR ANY PUBLICLY DEDICATED INFRASTRUCTURE.
16. ALL EXISTING GRADES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE BASED ON THE BEST INFORMATION AVAILABLE. GRADES SHALL BE VERIFIED AND ANY DISCREPANCY BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD FOR EVALUATION AND ADJUSTMENTS AS NEEDED.
17. ALL BACKFILL FOR DITCH LINES ARE TO BE MECHANICALLY TAMPED TO 95% STD PROCTOR DENSITY (ASTM D698), AT A MOISTURE CONTENT NEAR OPTIMUM (-2% TO +2%, OR AS SPECIFIED BY THE ENGINEER OF RECORD). COSTS OF TESTING SERVICES FOR PRIVATE DEVELOPMENT, ON INFRASTRUCTURE THAT IS TO BE DEDICATED TO THE COUNTY, SHALL BE PAID BY THE DEVELOPER/CONTRACTOR. TESTING SHALL COMPLY WITH THE COUNTY STANDARDS AND THE CURRENT STANDARD DETAILS. ALL TEST REPORTS FOR PUBLIC INFRASTRUCTURE SHALL BE PROVIDED TO THE COUNTY IN A TIMELY MANNER. COSTS FOR RE-TESTING AFTER NOTED FAILURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
18. CONTRACTOR TO FILL ALL VOIDS UNDER EXISTING PAVEMENT WHEN INSTALLING NEW LINE. ALSO ALL DITCH LINES MUST BE FILLED AT THE END OF EACH DAY'S WORK. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE PROPER COUNTY DEPARTMENTS FOR ANY TRENCHES THAT ARE TO LEFT OPEN OVERNIGHT AND SHALL PROPERLY MARK AND PROTECT THE TRENCH.
19. ALL PIPES SHALL BE KEPT FREE OF TRASH AND DIRT AT ALL TIME. AT THE END OF EACH DAY, THE PIPE SHALL BE TEMPORARILY SEALED/CONNECTED. ALL PIPE INSTALLATION SHALL BE PERFORMED AS RECOMMENDED PER THE PIPE MANUFACTURER.
20. THE CONTRACTOR SHALL KEEP THE EXISTING FIRE HYDRANT(S), IF ANY IN SERVICE AT ALL TIMES, TO THE EXTENT POSSIBLE. THE CONTRACTOR SHALL BAG OR MARK FIRE HYDRANTS PROPERTY AND NOTIFY THE FIRE DEPARTMENT UPON REMOVING ANY HYDRANT FROM SERVICE. CONSTRUCTION THAT CAUSES THE INTERRUPTION OF WATER SUPPLY FOR FIRE SUPPRESSION MAY REQUIRE A FIRE WATCH TO BE PERFORMED BY THE FIRE DEPARTMENT. COSTS FOR FIRE WATCH SERVICES ARE AT THE CONTRACTOR'S EXPENSE.
21. THE CONTRACTOR SHALL MAINTAIN THE EXISTING WATER MAINS IN SERVICE DURING ALL PHASES OF CONSTRUCTION. LEAKS CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. LEAKS ALONG THE EXISTING WATER MAIN CLOSE TO THE WORKING AREA, CAUSED BY VIBRATION, ETC. (DURING WORKING HOURS) SHALL BE REPAIRED BY THE CONTRACTOR WITH THE COUNTY ONLY PROVIDING THE REQUIRED PARTS. THE COUNTY WILL REPAIR ALL LEAKS IF THE CONTRACTOR IS NOT ON THE JOB-SITE (PRIMARILY AFTER WORKING HOURS); IF THE LEAK IS DIRECTLY CAUSED BY THE CONTRACTOR AND NOT REPAIRED, ALL CHARGES INCURRED SHALL BE BILLED TO THE CONTRACTOR.
22. ALL CUTTING AND PLUGGING OF THE EXISTING WATER MAIN, WHERE SPECIFIED ON THE PLANS, SHALL INCLUDE ALL LABOR, FITTINGS AND APPURTENANCES REQUIRED TO PERFORM THIS WORK.
23. THE CONTRACTOR SHALL CONTACT THE ASSIGNED INSPECTOR FOR THE OPERATION OF ALL WATER VALVES & SCHEDULING OF SERVICES BY WATER/WASTEWATER.
24. THE CONTRACTOR SHALL MAINTAIN THE EXISTING WATER MAINS AND SERVICES IN OPERATION WHEN INSTALLING NEW WATER MAINS. THIS SHALL INCLUDE ANY TEMPORARY CONNECTIONS, IF REQUIRED.
25. THE CONTRACTOR MUST NOTIFY EACH PROPERTY OWNER A MINIMUM OF 24 HOURS PRIOR TO SHUTTING OFF WATER FOR CONNECTION TO NEW MAIN. THE CONTRACTOR SHALL NOTIFY THE ENGINEERING CONSTRUCTION INSPECTOR A MINIMUM OF 72 HOURS IN ADVANCE FOR ALL WATER OR WASTEWATER LOCATES OR SHUT OFFS OF WATER. THE LENGTH OF TIME FOR WATER SHUTDOWNS SHALL BE LIMITED TO AS NEEDED TO PERFORM THE REQUIRED WORK.
26. THE CONTRACTOR SHALL MAINTAIN THE EXISTING WASTEWATER MAINS AND SERVICES IN OPERATION WHEN INSTALLING NEW WASTEWATER MAINS. THIS SHALL INCLUDE ANY TEMPORARY CONNECTIONS, IF REQUIRED.
27. THE MAXIMUM DEFLECTION OF PIPE JOINTS SHALL NOT EXCEED THAT RECOMMENDED BY THE PIPE MANUFACTURE. IF IT IS NECESSARY TO DEFLECT THE PIPE (GREATER THAT THE RECOMMENDED AMOUNT) THE CONTRACTOR SHALL PROVIDE FITTINGS AS NEEDED.
28. PRIOR TO THE START OF CONSTRUCTION, COUNTY WATER/WASTEWATER REPRESENTATIVE AND THE CONTRACTOR SHALL MAKE A DRY RUN TO THE SYSTEM TO INSURE, TO THE EXTENT POSSIBLE, THAT THE UTILITY CAN BE FOUND AND SECURED. ANY ISSUES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD TO PROVIDE WRITTEN DIRECTION AND PROVIDE REVISED PLANS AS NEEDED.
29. TRAFFIC CONTROL PLANS SHALL BE SUBMITTED TO THE COUNTY. THE TRAFFIC CONTROL PLAN AND BARRICADES SHALL MAINTAIN TRAFFIC FLOW AND SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE TMTUCD AND PREPARED BY A WORK ZONE CERTIFIED TECHNICIAN. TRAFFIC CONTROL PLANS SHALL BE SUBMITTED A MINIMUM OF TWO WEEKS IN ADVANCE OF WORK COMMENCING. TEMPORARY STREET CLOSURE REQUESTS SHALL BE SUBMITTED IN WRITING.
30. ALL PAVEMENT MARKINGS, INCLUDING RAISED PAVEMENT MARKERS, LANE STRIPING, TRANSVERSE MARKINGS, SIGNS AND OTHER TRAFFIC CONTROL DEVICES, DISTURBED DURING CONSTRUCTION SHALL BE MAINTAINED, REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
31. SEED/SOD SHALL BE FURNISHED TO ESTABLISH GROUND COVER OVER ALL DISTURBED AREAS AS AN EROSION CONTROL MEASURE. THE CONTRACTOR SHALL NOT WAIT UNTIL THE COMPLETION OF THE ENTIRE PROJECT BEFORE DOING THIS WORK.
32. ALL SANITARY SEWER AND WATER MAIN CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY OR EASEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) GUIDELINES FOR CONSTRUCTION OF PUBLIC WATER AND SEWER SYSTEMS. CONTRACTOR SHALL MAINTAIN A COPY OF THE DESIGN DOCUMENTS AT THE JOBSITE AT ALL TIMES.
33. THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE DEVELOPMENT PLANS RELEASED FOR CONSTRUCTION. THE CONTRACTOR SHALL INSURE THAT ALL EROSION CONTROL MEASURES ARE MAINTAINED AT ALL TIMES IN A CONDITION ACCEPTABLE TO THE PUBLIC WORKS ENGINEERING INSPECTOR.
34. THE CONTRACTOR SHALL NOT ALLOW SOIL AND DEBRIS TO ENTER EXISTING INLETS. ALL INLETS SHALL BE PROTECTED DURING CONSTRUCTION.
35. THE CONTRACTOR SHALL NOT DISPOSE OF WASTE OR ANY OTHER MATERIALS INTO STREAMS OR WATERWAYS. EXCESS MATERIAL SHALL BE HAULED OFF-SITE EACH DAY AND WILL NOT BE ALLOWED TO ACCUMULATE.
36. THE CONTRACTOR SHALL NOT BURY RUBBISH OR WASTE MATERIALS ON-SITE. BURNING MATERIALS WILL NOT BE ALLOWED WITHOUT PROPER WRITTEN AUTHORIZATION FROM THE RUSK FIRE DEPARTMENT.
37. THE CONTRACTOR SHALL WET DOWN THE CONSTRUCTION SITE AS DIRECTED BY THE COUNTY TO PREVENT BLOWING DUST.
38. THE CONTRACTOR SHALL CLEAN STREETS ADJACENT TO THE CONSTRUCTION SITE TO REMOVE MATERIALS DEPOSITED BY CONSTRUCTION VEHICLES ENTERING AND LEAVING THE CONSTRUCTION SITE.
39. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE AND MONITOR ALL WARNING AND SAFETY DEVICES (FLASHING LIGHTS, BARRICADES, SIGNS, ETC.) AS DEEMED NECESSARY BY THE COUNTY. WARNING AND SAFETY DEVICES SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
40. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY IN THE FIELD THE LOCATIONS, ELEVATIONS AND SIZES OF CONFLICTING AND / OR ADJACENT UTILITIES IN ADVANCE OF BEGINNING CONSTRUCTION.
41. THE COUNTY STANDARD DETAILS SHALL SUPERSEDE ANY DETAILS CONTAINED WITHIN THE PLAN SET.
42. THE CONTRACTOR SHALL COMPLY TO RULES AND REGULATIONS OF NEW SUBDIVISIONS IN DENTON COUNTY, TEXAS EFFECTIVE AS OF APRIL 24, 2018.

**WATER GENERAL NOTES**

1. UNLESS OTHERWISE NOTED ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS AND STANDARDS OF THE BOLIVER WATER SUPPLY CORPORATION.
2. ALL WATER MAIN CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY OR EASEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) GUIDELINES FOR CONSTRUCTION OF PUBLIC WATER AND SEWER SYSTEMS. CONTRACTOR SHALL MAINTAIN A COPY OF THE DESIGN DOCUMENTS AT THE JOBSITE AT ALL TIMES.
3. CONTRACTOR SHALL MAINTAIN EXISTING WATER SERVICE AT ALL TIMES DURING CONSTRUCTION.
4. THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE CITY AND UTILITY COMPANY RECORDS AND PLANS, AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL LOCATIONS, ELEVATIONS AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT HIS EXPENSE. THE CITY OF SANGER ENGINEERING DEPARTMENT SHALL BE NOTIFIED WHEN PROPOSED WATER LINE GRADES CONFLICT WITH EXISTING UTILITY LINES. AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING CONSTRUCTION IN THE VICINITY OF EXISTING UTILITIES, THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES TO LOCATE ALL UNDERGROUND UTILITIES.
5. ALL DIMENSIONS SHOWN ARE TO CENTERLINE OF PIPE UNLESS NOTED OTHERWISE
6. ALL WATER MAINS SHALL BE C-900, DR-14 PVC PIPE.
7. THE CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN PRIOR TO BEGINNING HIS WORK.
8. ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF FORTY-EIGHT INCHES (48") TO THE TOP OF PIPE.
9. ALL WATER MAIN FITTINGS SHALL BE MECHANICAL AND SHALL BE POLYWRAPPED.
10. ALL PROPOSED WATER MAINS SHALL BE PRESSURE TESTED, FLUSHED AND STERILIZED AND MEET ALL FEDERAL AND STATE TESTING REQUIREMENTS.



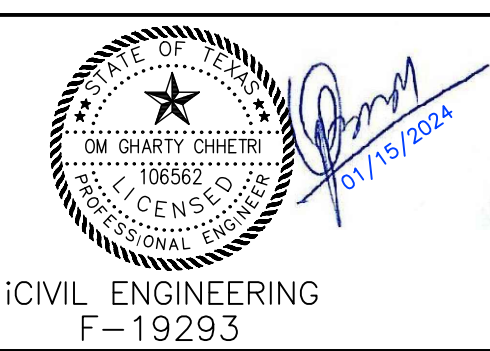
**iCIVIL ENGINEERING**  
**1001 W EULESS BLVD, STE 412H**  
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**PH: (972) 523-5493**  
**TBPE: F-19293**  
**EMAIL: INFO@ICIVILENG.COM**

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**JAN 2024**

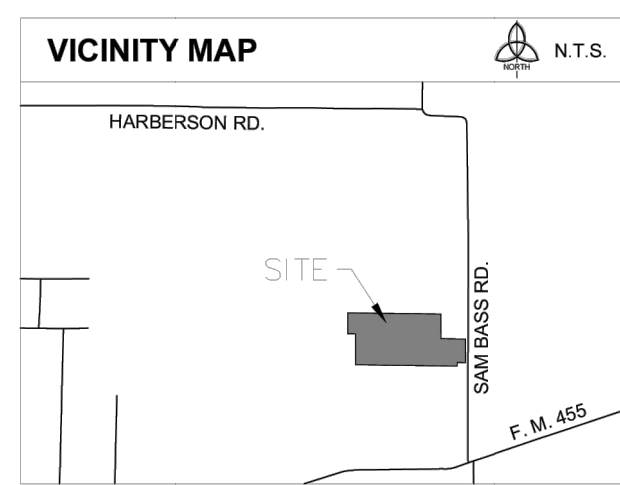
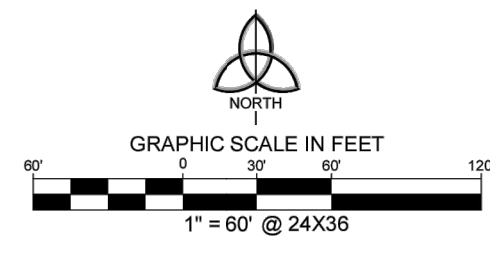
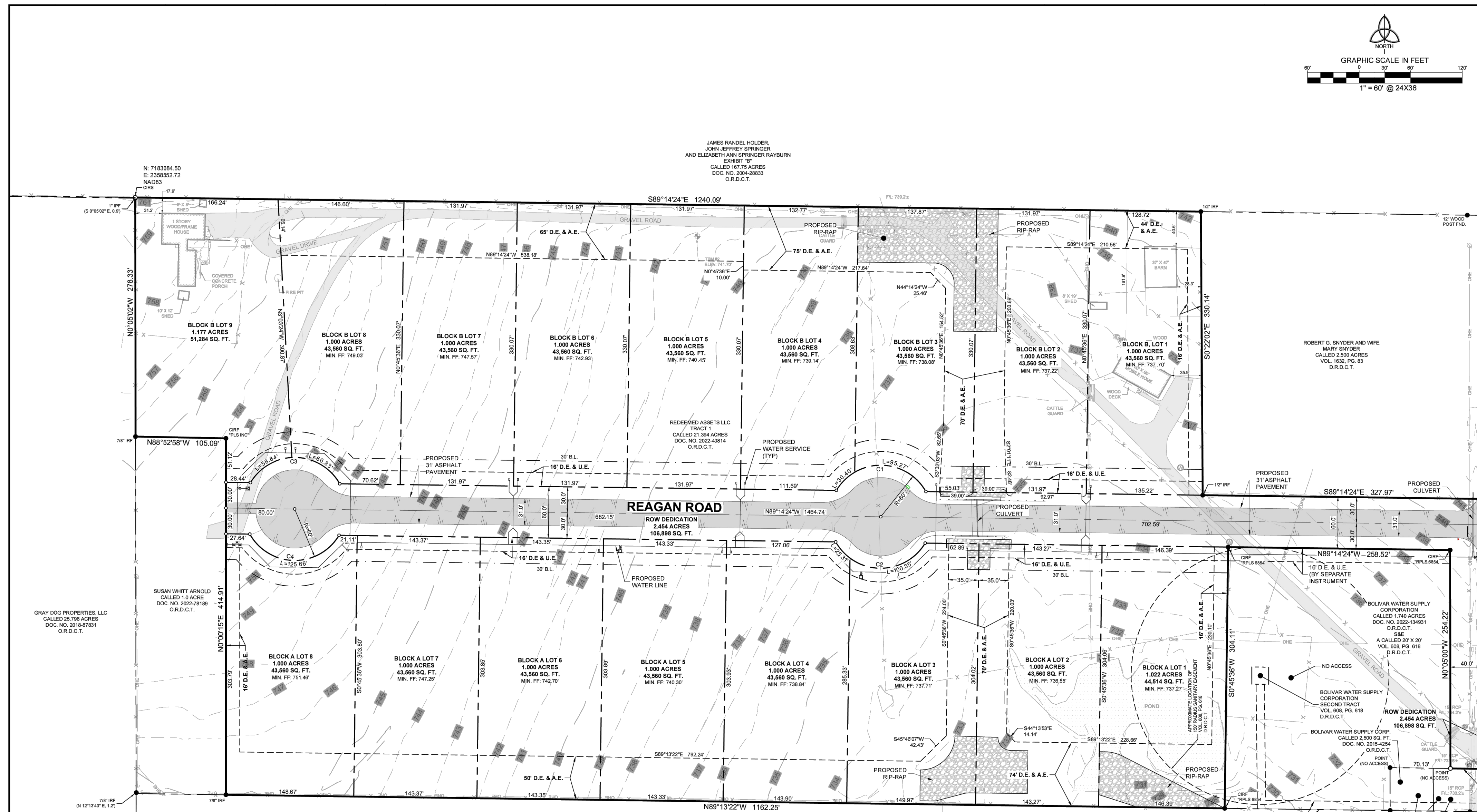


**SANGER, TEXAS**

**GENERAL NOTES**  
FOR  
**MARLEY MEADOWS**

**PROJECT NO.**

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**2**  
**of**  
**23**



**LEGEND**

TV	CABLE TV BOX	TBM	TEMPORARY BENCHMARK
EM	ELEVATION BENCHMARK	ELEV	ELEVATION
GA	GAS TANK	FL	FLOW LINE
T	TELEPHONE BOX	RCP	REINFORCED CONCRETE PIPE
TV	TELEPHONE VAULT	CMF	CORROSIATE METAL PIPE
EA	ELECTRIC BOX	MON	MONUMENT FOUND
GA	GUY ANCHOR	IRP	IRON PIPE FOUND
EM	ELECTRIC METER	PKS	PK NAIL SET
UL	UTILITY POLE	IRP	IRON PIPE FOUND
AG	AG LIMIT	IRP	IRON PIPE FOUND
MB	MAIL BOX	P.C.B.	POINT OF BEGINNING
CS	SANITARY SEWER CLEANOUT	O.R.D.C.T.	OFFICIAL RECORDS DENTON COUNTY, TEXAS
ST	SANITARY SEWER SEPTIC TANK	O.R.D.C.T.	DEED RECORDS DENTON COUNTY, TEXAS
WM	WATER METER	VOL	VOLUME
WV	WATER VALVE	PG	PAGE
WP	WATER PUMP	U.E.	UTILITY EASEMENT
IPV	IRRIGATION VALVE	D.E.	DRAINAGE EASEMENT
SI	SIEN		

**LINE TYPE LEGEND**

---	BOUNDARY LINE
- - -	EASEMENT LINE
---	BUILDING LINE
---	STORM SEWER LINE
---	OVERHEAD UTILITY LINE
X	FENCE
---	CONCRETE PAVEMENT
---	ASPHALT PAVEMENT
---	BUILDING/HOUSE
---	COVERED AREA / OVERHANG

P.O.B.  
N 7182735.57  
E 2380122.76  
NAD83

JUDY K. SELPH  
DOC. NO. 201020944  
O.R.D.C.T.

MORRIS KNOWLES AND WIFE, JUEL  
DEAN KNOWLES CALLED 214.7  
ACRES VOL. 345, PG. 247, D.R.D.C.T.

W. G. HUDSON SURVEY,  
ABSTRACT NO. 563

**NOTICE:**  
Preliminary Plat for Review Purposes Only.

**PRELIMINARY PLAT  
MARLEY MEADOWS  
BLOCK A, LOTS 1-8 AND  
BLOCK B, LOTS 1-9**

17 RESIDENTIAL LOTS  
2.454 ACRES RIGHT-OF-WAY DEDICATION  
BEING 19.653 ACRES OUT OF THE  
JAMES B.P. JANUARY SURVEY, ABSTRACT NO. 658,  
CITY OF SANGER E.T.J., DENTON COUNTY, TEXAS

**TRINITY**  
LAND SURVEYING LLC

1222 Greenbriar St., Denton, Texas 76201 FIRM # 10194687 Tel. No. (940) 293-3180

Scale	Drawn by	Checked by	Date	Project No.	Sheet No.
1" = 60'	MLB	TLS	08/21/2023	2022-014	1 OF 2

**OWNER / APPLICANT:**  
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Contact: Ben Burmesde

**SURVEYOR:**  
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Denton, TX 76201  
Ph: (940) 293-3180  
Email: mlba@trinity-surveying.com  
Contact: Michael Black, RPLS

**ENGINEER:**  
ICivil Engineering  
1001 W. Euleless Blvd., Ste. 412h  
Euleless, TX 76040  
Ph: (972) 523-5493  
Email: cmrp@icivileng.com  
Contact: Om Gharty Chhetri, P.E.

**LOT TABLE**

LOT NO.	ACRES	SQ. FT.
BLOCK A LOT 1	1.022	44,514
BLOCK A LOT 2	1.000	43,560
BLOCK A LOT 3	1.000	43,560
BLOCK A LOT 4	1.000	43,560
BLOCK A LOT 5	1.000	43,560
BLOCK A LOT 6	1.000	43,560
BLOCK A LOT 7	1.000	43,560
BLOCK A LOT 8	1.000	43,560
BLOCK B LOT 1	1.000	43,560
BLOCK B LOT 2	1.000	43,560
BLOCK B LOT 3	1.000	43,560
BLOCK B LOT 4	1.000	43,560
BLOCK B LOT 5	1.000	43,560
BLOCK B LOT 6	1.000	43,560
BLOCK B LOT 7	1.000	43,560
BLOCK B LOT 8	1.000	43,560
BLOCK B LOT 9	1.177	51,284
BOUNDARY	19.653	856,096
ROW DEDICATION	2.454	106,898

**BENCH MARK LIST**

TBM #1 15" RCP SET ON A 15" RCP HEADWALL 8'± NORTH OF THE MOST EASTERLY SOUTH PROPERTY LINE AND 18'± WEST OF THE CENTERLINE OF SAM BASS ROAD. ELEV. 735.46'

TBM #2 5/8" IRON ROD SET ON THE SOUTH SIDE OF A GRAVEL ROAD, 37'± SOUTH OF THE NORTH PROPERTY LINE AND 654'± EAST OF THE WEST PROPERTY LINE. ELEV. 741.70'

**SANITARY EASEMENT QUOTE, AS RECORDED IN VOLUME 608, PAGE 618, DEED RECORDS, DENTON COUNTY, TEXAS:**

"Further, as part of the consideration herein, Grantor, Lois N. Wolters, agrees not to build or maintain any septic tank or open-jointed drain field therefrom, cess pool, privy, stock pen, dump ground, or any other facility which might create a danger of pollution of the water of any well which might be drilled upon Tract Two above described for a distance of 150 feet from the well as drilled and developed. This sanitary easement shall constitute a covenant running with the land and shall bind the undersigned, his successors and assigns, and this grant of Sanitary Easement is made to the said BOLIVAR WATER SUPPLY CORPORATION, its successors and assigns."

**FLOOD STATEMENT:**  
According to Federal Emergency Management Agency's Flood Insurance Rate Map No. 48121C0205G, for Denton County, Texas and incorporated areas, dated April 18, 2011, this property is located within:  
Zone X (unshaded) defined as "Areas determined to be outside the 0.2% annual chance floodplain"  
If this site is not within an identified special flood hazard area, this flood statement does not imply that the property and/or the structures thereon will be free from flooding or flood damage. On rare occasions, greater floods can and will occur and flood heights may be increased by man-made or natural causes. This flood statement shall not create liability on the part of the surveyor.

**CURVE TABLE**

NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD
C1	120°00'00"	60.00'	125.68'	S89°14'24"E	103.92'
C2	120°00'00"	60.00'	125.68'	N89°14'24"W	103.92'
C3	120°00'00"	60.00'	125.68'	N89°14'24"W	103.92'
C4	120°00'00"	60.00'	125.68'	N89°14'24"W	103.92'

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

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1001 W EULESS BLVD, STE 412H  
EULESS, TX 76040  
PH: (972) 523-5493  
TBPE: F-19293  
EMAIL: INFO@ICIVILENG.COM

no.	revision	by	date

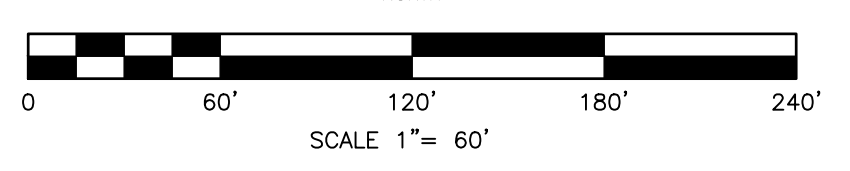
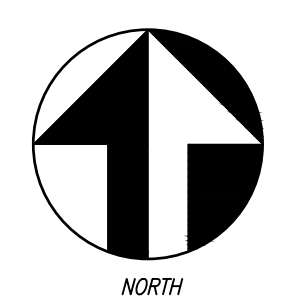
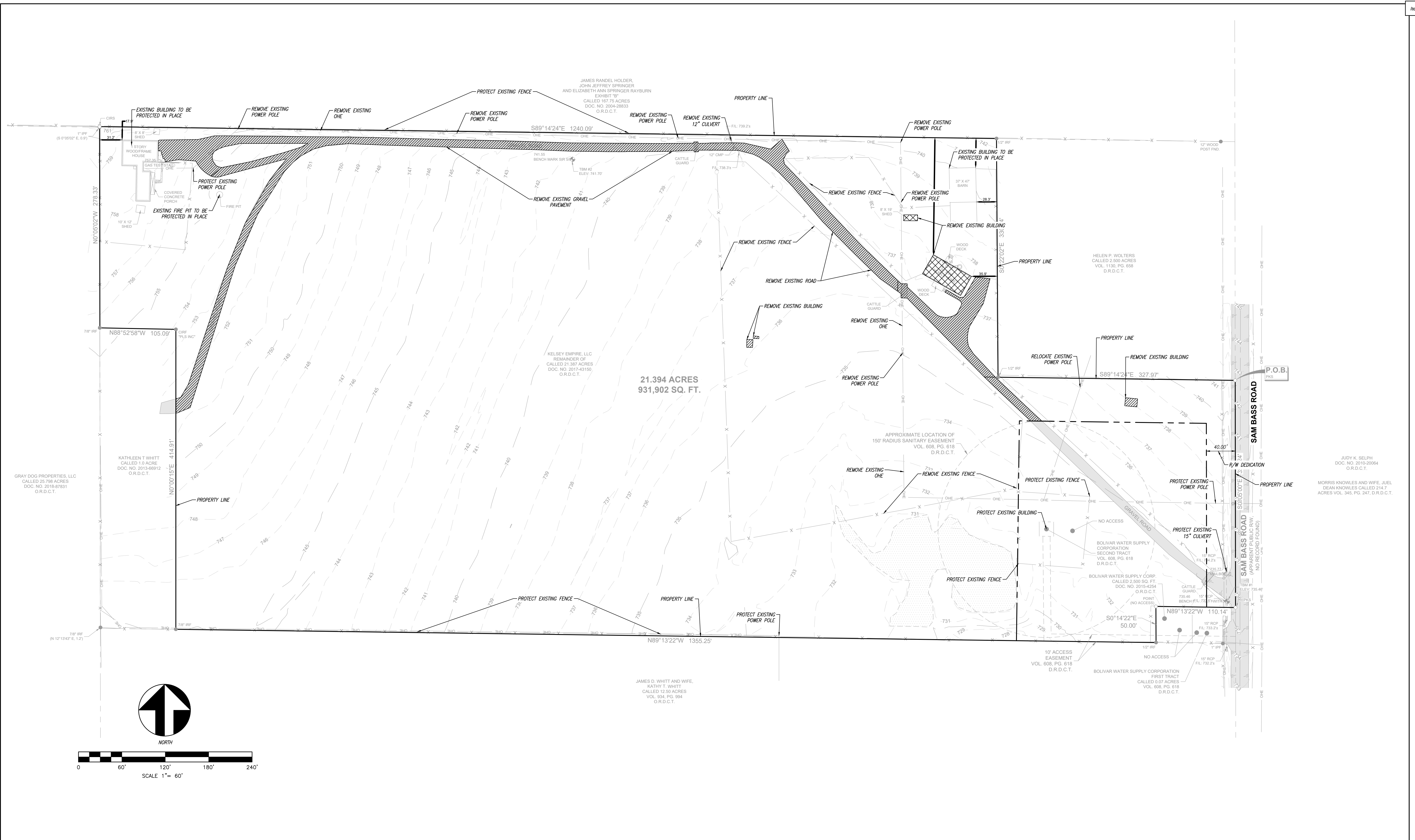
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vert  
date  
JAN 2024



**iCIVIL ENGINEERING**  
F-19293

**SANGER, TEXAS**  
SURVEY & PLAT  
FOR  
**MARLEY MEADOWS**

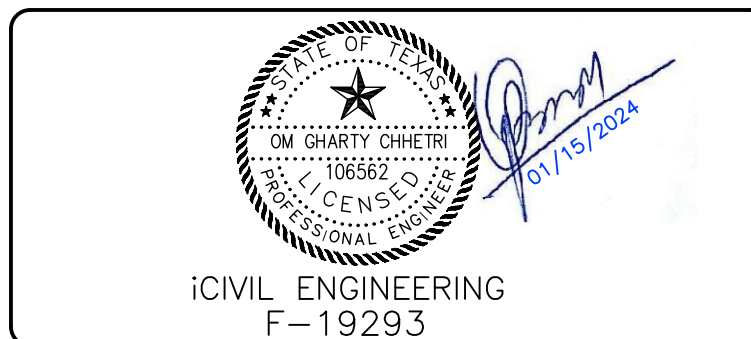
PROJECT NO.  
sheet  
3  
of  
23



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 EULESS, TX 76040  
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 TBPE: F-19293  
 EMAIL: INFO@ICIVILENG.COM

no.	revision	by	date

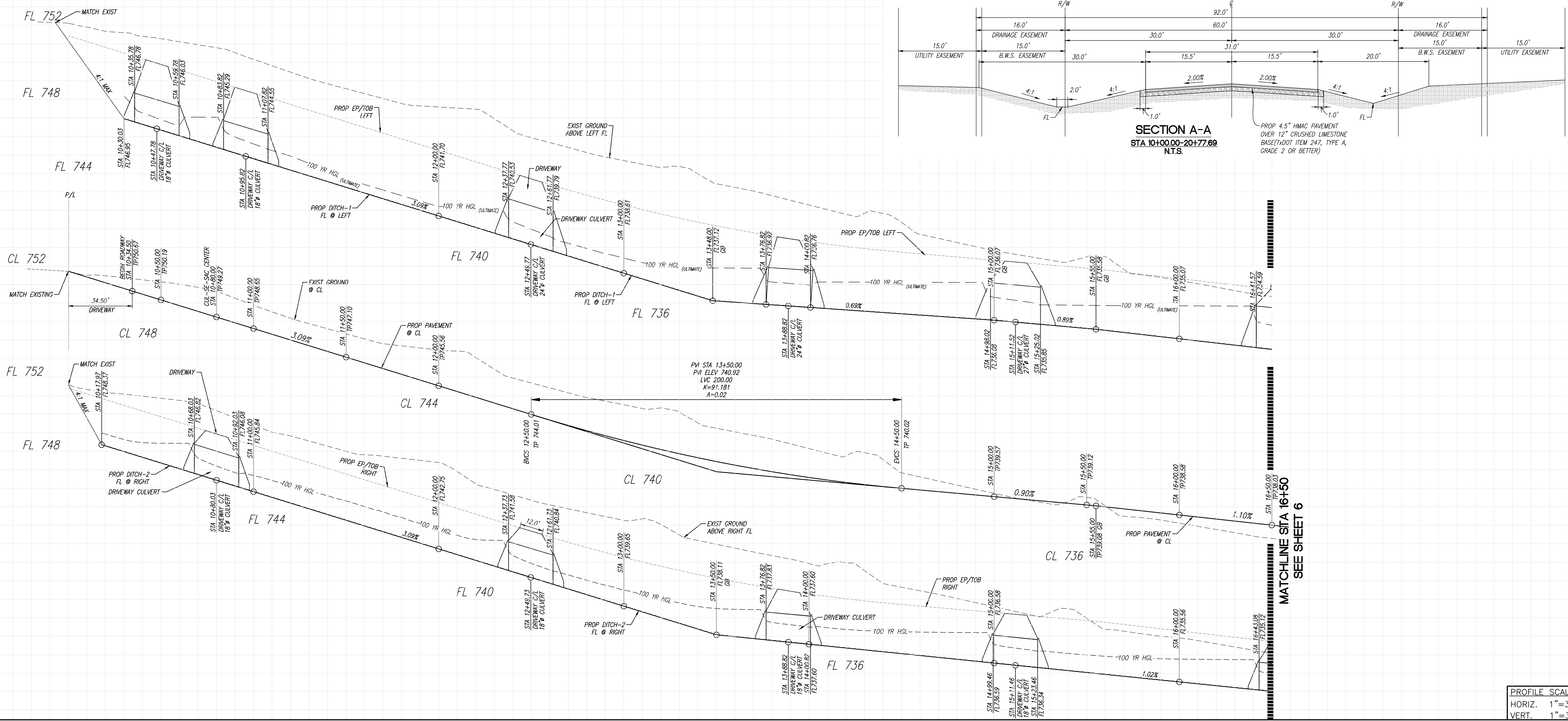
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**JAN 2024**



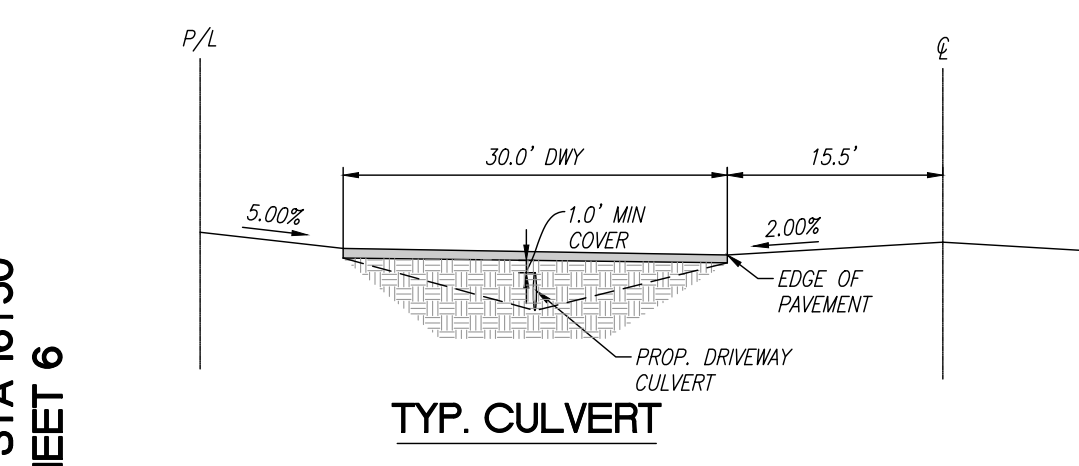
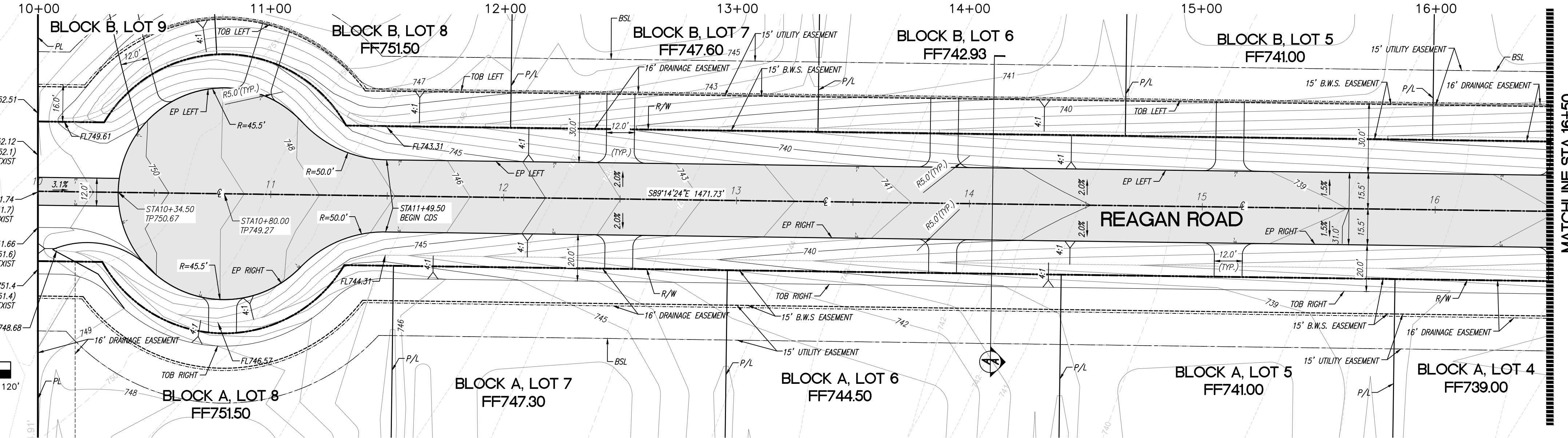
**SANGER, TEXAS**  
**DEMOLITION PLAN**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
sheet  
4  
of  
23





PROFILE SCALE  
 HORIZ. 1"=30'  
 VERT. 1"=3'



PROP 4.5" HMAc PAVEMENT OVER 12" CRUSHED LIMESTONE BASE(TXDOT ITEM 247, TYPE A, GRADE 2 OR BETTER)

KATHLEEN T WHITT  
 CALLED 10 ACRE  
 DOC. NO. 2003-86992  
 ORD.G.T.

SCALE 1"=30'

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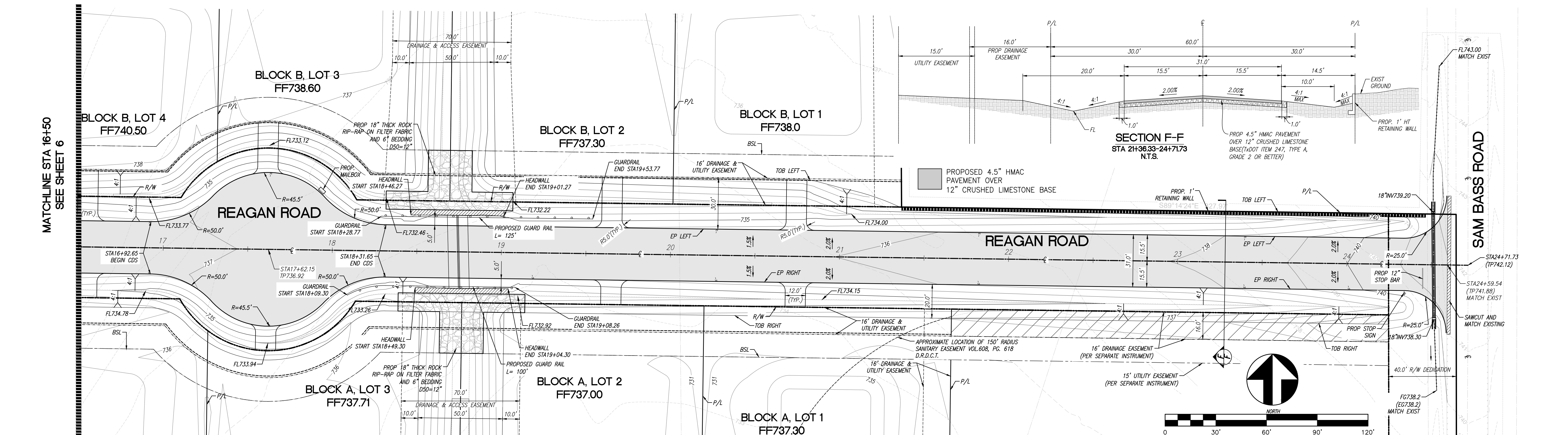
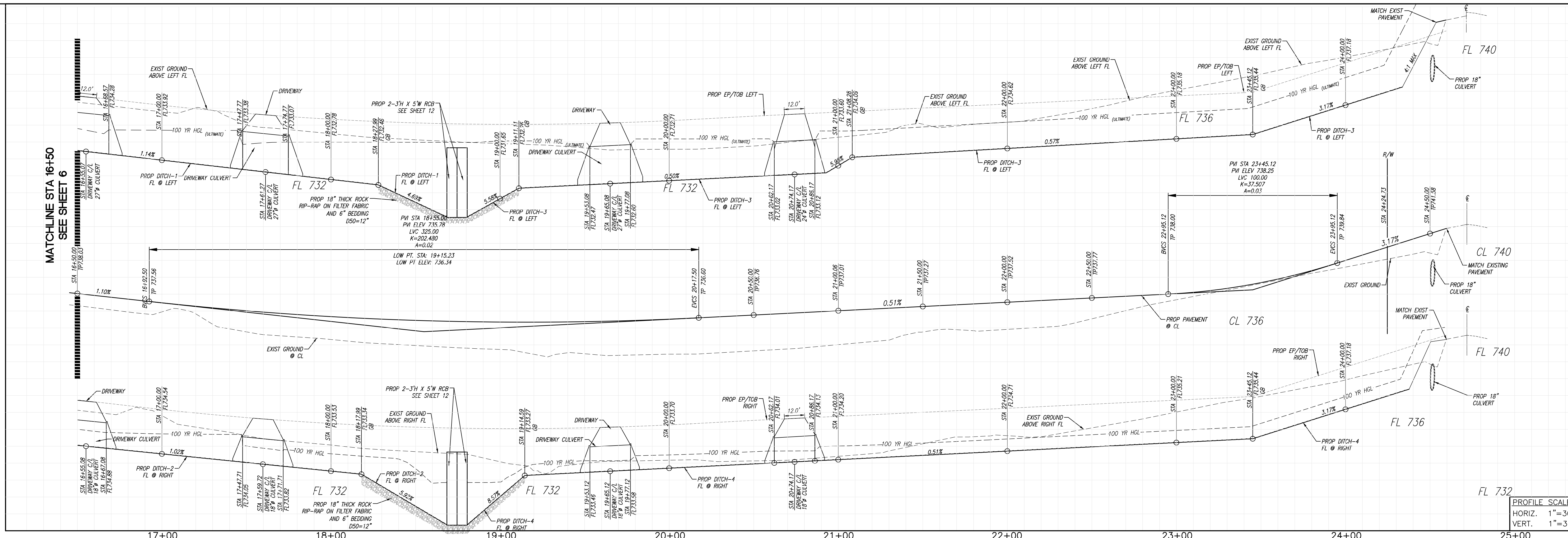
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**JAN 2024**

iCIVIL ENGINEERING  
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**SANGER, TEXAS**  
**STREET PLAN**  
 FOR  
**MARLEY MEADOWS**

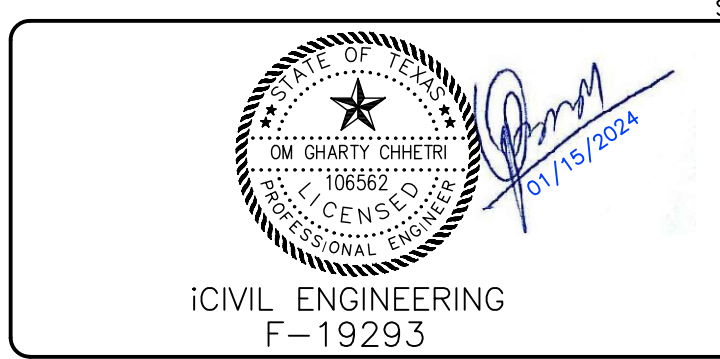
PROJECT NO.  
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 5  
 of  
 23



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no.	revision	by	date

scale  
 horiz  
 vert  
 date  
**JAN 2024**



**SANGER, TEXAS**  
**STREET PLAN**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 6  
 of  
 23



SEE SHEET 7

SEE SHEET 7

MIN FF 749.03  
PROP FF 751.50  
BLOCK B, LOT 8

MIN FF 747.57  
PROP FF 747.60  
BLOCK B, LOT 7

MIN FF 742.93  
PROP FF 742.93  
BLOCK B, LOT 6

MIN FF 740.45  
PROP FF 741.0  
BLOCK B, LOT 5

MIN FF 739.14  
PROP FF 740.50  
BLOCK B, LOT 4

MIN FF 738.08  
PROP FF 738.60  
BLOCK B, LOT 3

KATHLEEN T WHITT  
CALLED 10 ACRE  
DOC. NO. 2013-66912  
O.R.D.C.T.

REAGAN ROAD (PUBLIC)

(SEE STREET PLANS)

MIN FF 751.46  
PROP FF 751.50  
BLOCK A, LOT 8

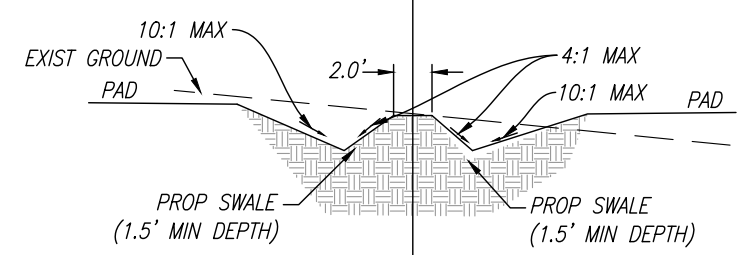
MIN FF 747.25  
PROP FF 747.30  
BLOCK A, LOT 7

MIN FF 742.70  
PROP FF 744.50  
BLOCK A, LOT 6

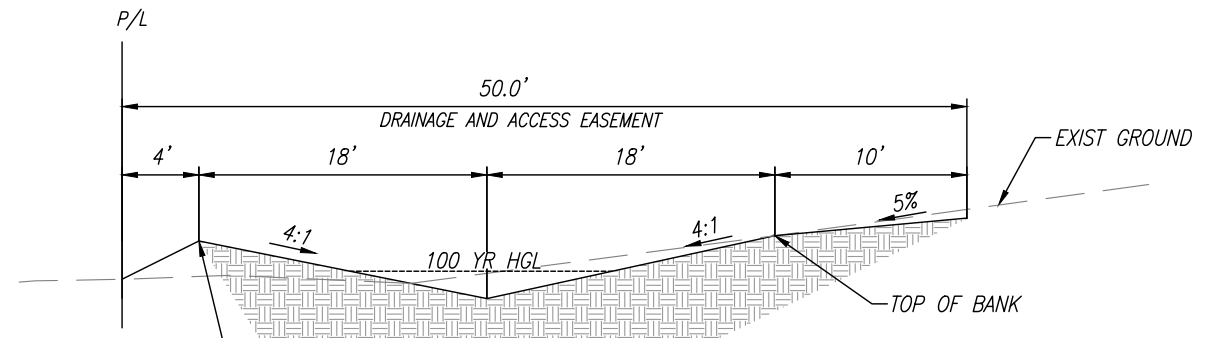
MIN FF 740.30  
PROP FF 741.0  
BLOCK A, LOT 5

MIN FF 738.84  
PROP FF 739.0  
BLOCK A, LOT 4

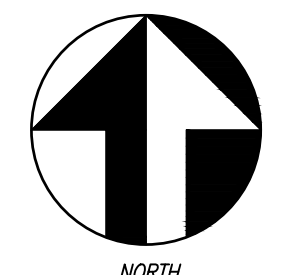
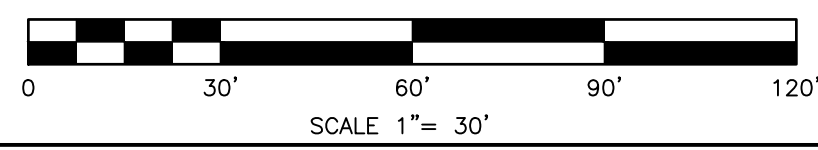
MIN FF 737.71  
PROP FF 737.71  
BLOCK A, LOT 3



SECTION D-D  
NTS



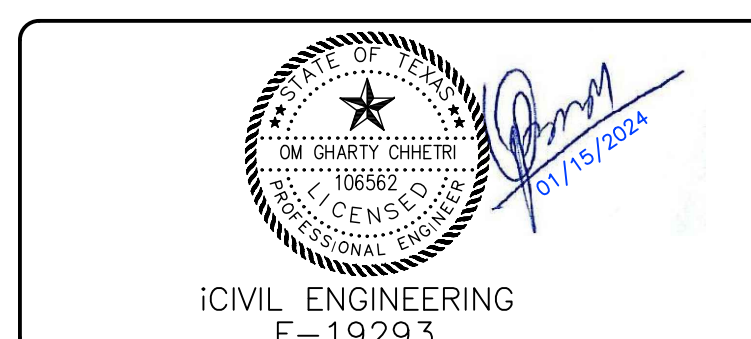
SECTION E-E  
NTS



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JAN 2024

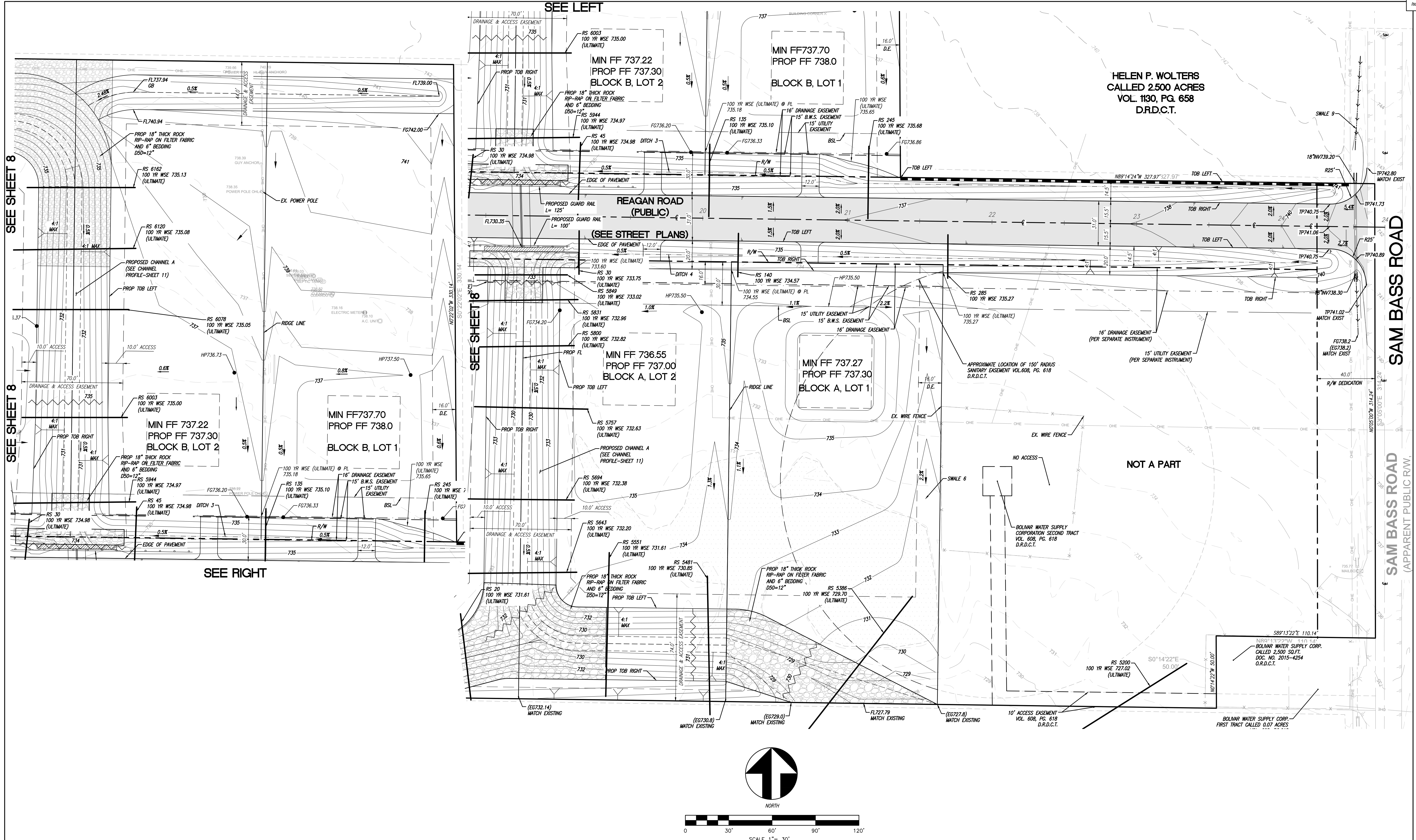


**SANGER, TEXAS**  
**GRADING PLAN**  
FOR  
**MARLEY MEADOWS**

PROJECT NO.  
sheet  
8  
of  
23

SEE SHEET 9

SEE SHEET 9

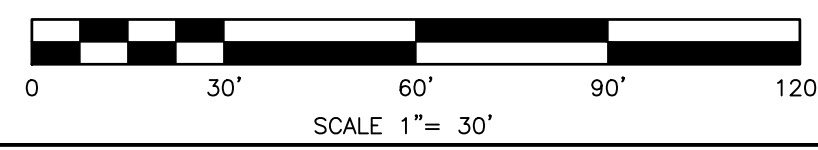
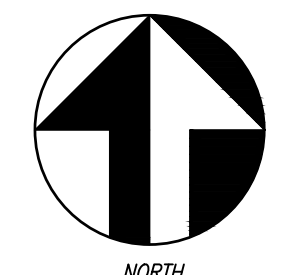


HELEN P. WOLTERS  
CALLED 2.500 ACRES  
VOL. 1130, PG. 658  
D.R.D.C.T.

SAM BASS ROAD  
(APPARENT PUBLIC R/W)

NOT A PART

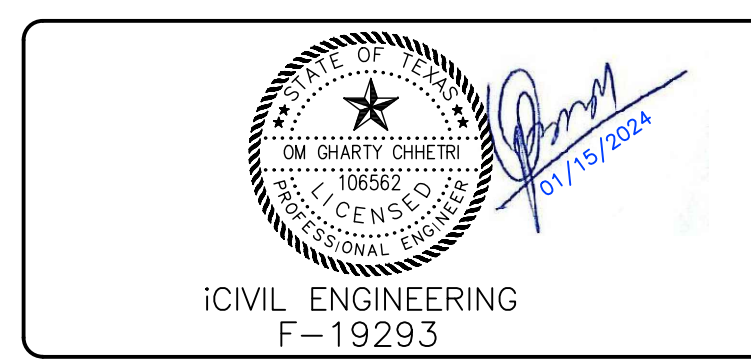
BOLINAR WATER SUPPLY CORP.  
CALLED 2,500 SQ.FT.  
DOC. NO. 2015-4254  
O.R.D.C.T.



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horiz  
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date  
JAN 2024



SANGER, TEXAS  
GRADING PLAN  
FOR  
**MARLEY MEADOWS**

PROJECT NO.  
sheet  
9  
of  
23

TIME OF CONCENTRATION CALCULATION (PRE-PROJECT)																			
AREA CODE	SHEET FLOW						SHALLOW CONCENTRATED FLOW						CHANNEL FLOW				TOC (TOTAL) (Min.)	LAG TIME (min.)	
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH	TOC(hr)			TOC(Min.)
Sub-Basin 1	100	0.15	3.36	0.01	0.21	12.62	756.0	750.0	660	0.01	1.60	0.11	6.88	3.12	1100.00	0.10	5.88	25.37	15.22

NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

TIME OF CONCENTRATION CALCULATION (PRE-PROJECT)															
AREA CODE	SHEET FLOW						SHALLOW CONCENTRATED FLOW						TOC (TOTAL)	LAG TIME (min.)	
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)			TOC(Min.)
Sub-Basin 2 (Pre)	100	0.15	3.36	0.01	0.21	12.62	756.0	729.0	1282	0.021	2.60	0.14	8.22	20.83	12.50

NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

TIME OF CONCENTRATION CALCULATION (PRE-PROJECT)																			
AREA CODE	SHEET FLOW						SHALLOW CONCENTRATED FLOW						CHANNEL FLOW			TOC (TOTAL) (Min.)	LAG TIME (min.)		
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH			TOC(hr)	TOC(Min.)
Sub-Basin 3	100	0.15	3.36	0.02	0.16	9.56	743.0	724.0	1060	0.02	2.20	0.13	8.03	3.12	5092.00	0.45	27.20	44.793	26.88

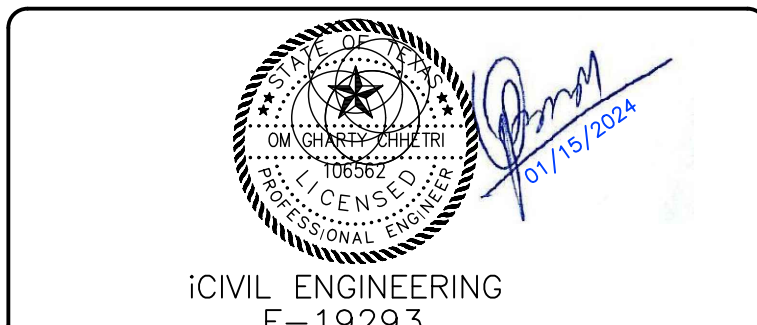
NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
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 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3



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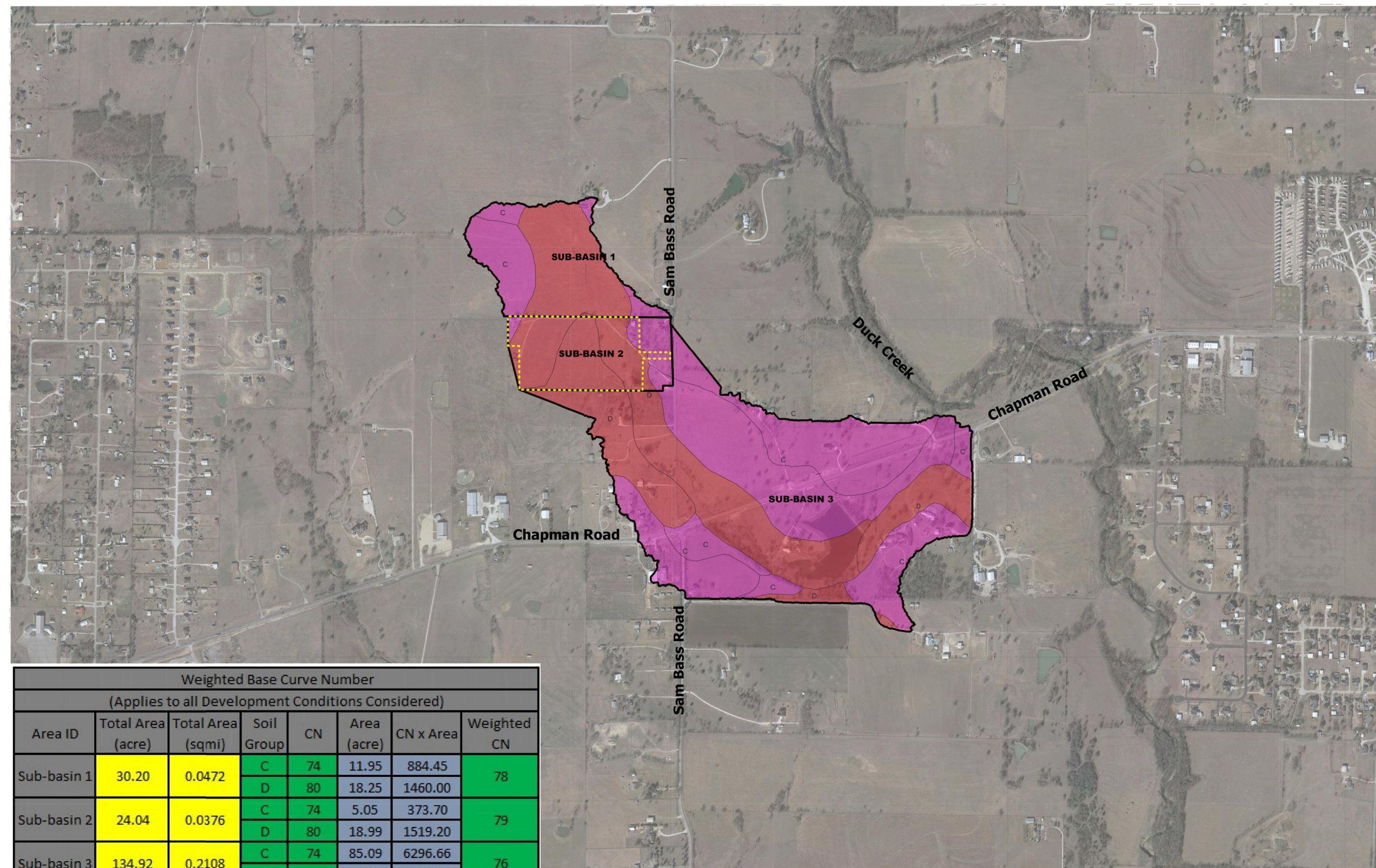
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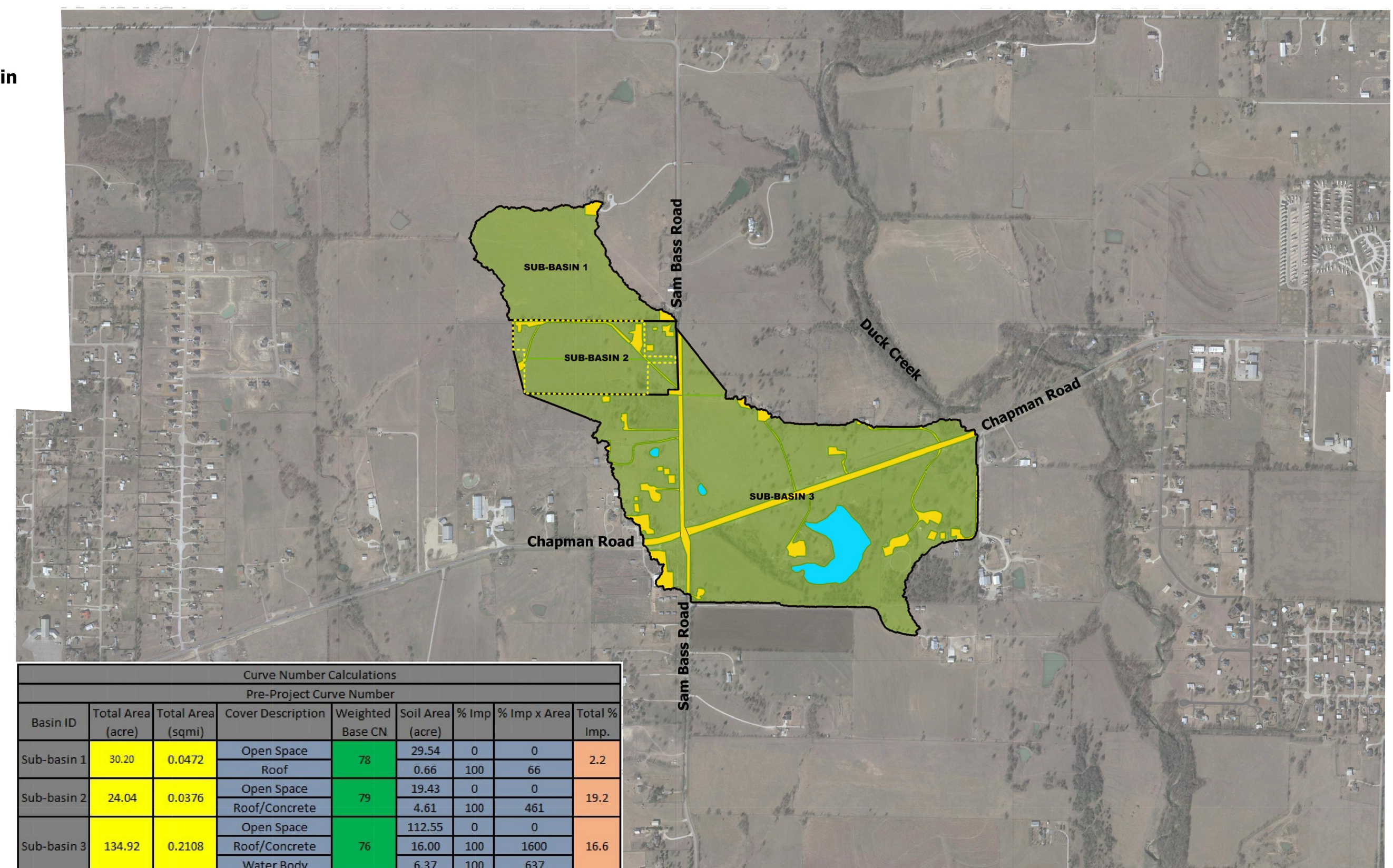
**SANGER, TEXAS**  
**PRE-PROJECT TIME OF CONCENTRATION CALCULATION**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 10-A  
 of  
 23



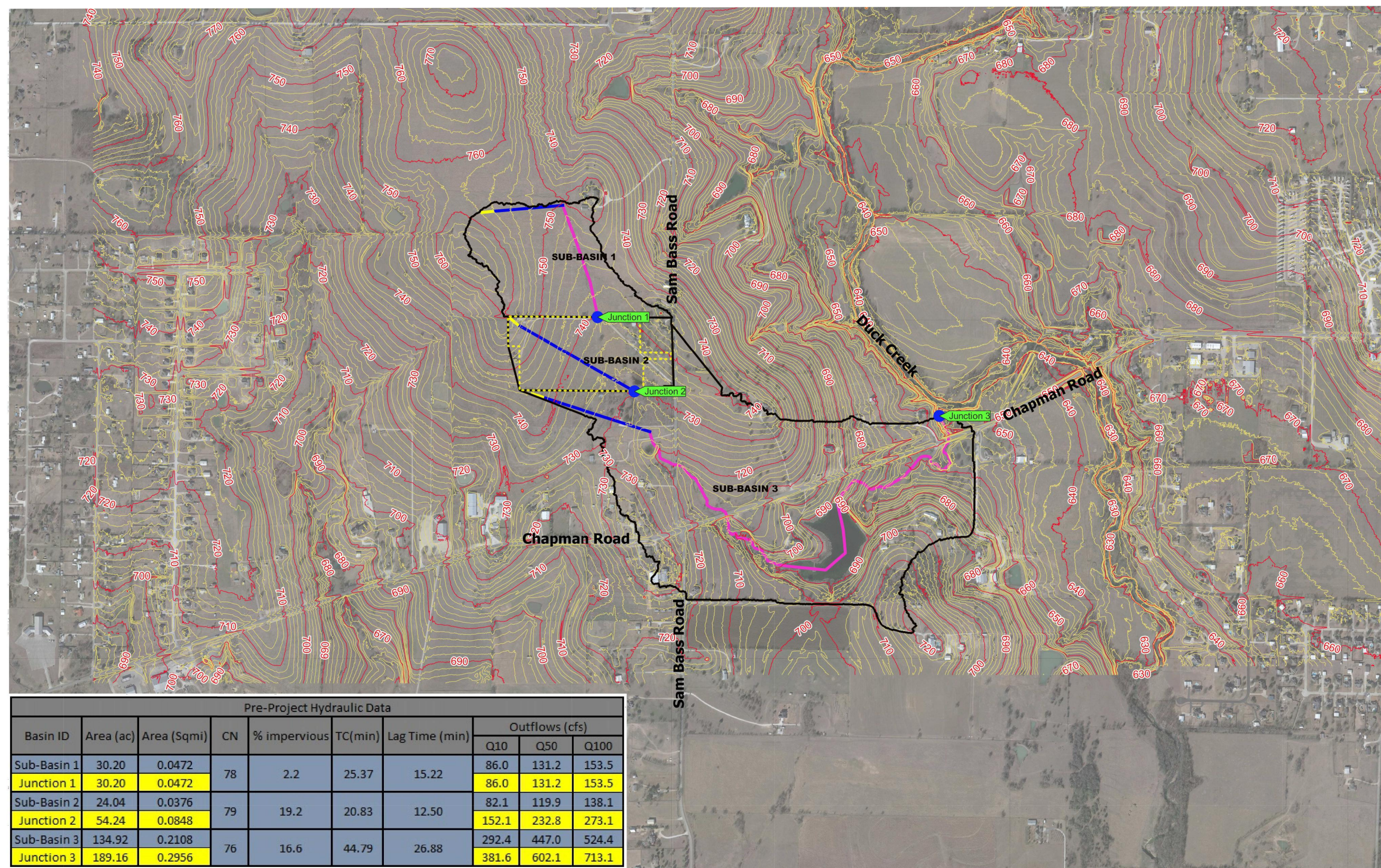
Weighted Base Curve Number (Applies to all Development Conditions Considered)							
Area ID	Total Area (acre)	Total Area (sqmi)	Soil Group	CN	Area (acre)	CN x Area	Weighted CN
Sub-basin 1	30.20	0.0472	C	74	11.95	884.45	78
			D	80	18.25	1460.00	
Sub-basin 2	24.04	0.0376	C	74	5.05	373.70	79
			D	80	18.99	1519.20	
Sub-basin 3	134.92	0.2108	C	74	85.09	6296.66	76
			D	80	49.83	3986.40	

- Legends**
- Project Boundary
  - Pre-Project Sub-Basin
  - Soils Group
  - C
  - D



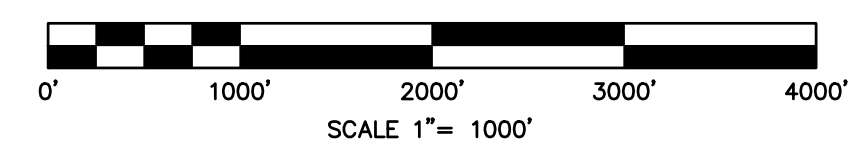
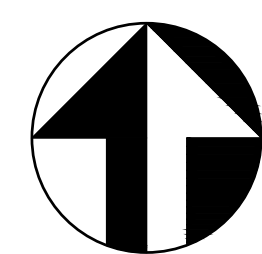
Curve Number Calculations								
Pre-Project Curve Number								
Basin ID	Total Area (acre)	Total Area (sqmi)	Cover Description	Weighted Base CN	Soil Area (acre)	% Imp	% Imp x Area	Total % Imp.
Sub-basin 1	30.20	0.0472	Open Space	78	29.54	0	0	2.2
			Roof	78	0.66	100	66	
Sub-basin 2	24.04	0.0376	Open Space	79	19.43	0	0	19.2
			Roof/Concrete	79	4.61	100	461	
Sub-basin 3	134.92	0.2108	Open Space	76	112.55	0	0	16.6
			Roof/Concrete	76	16.00	100	1600	
			Water Body	76	6.37	100	637	

- Legends**
- Project Boundary
  - Pre-Project Sub-Basin
  - Pervious Area
  - Pre-Project Land Use
  - Roof/Concrete
  - Water Body



Pre-Project Hydraulic Data									
Basin ID	Area (ac)	Area (Sqmi)	CN	% Impervious	TC(min)	Lag Time (min)	Outflows (cfs)		
							Q10	Q50	Q100
Sub-Basin 1	30.20	0.0472	78	2.2	25.37	15.22	86.0	131.2	153.5
Junction 1	30.20	0.0472	78	2.2	25.37	15.22	86.0	131.2	153.5
Sub-Basin 2	24.04	0.0376	79	19.2	20.83	12.50	82.1	119.9	138.1
Junction 2	54.24	0.0848	79	19.2	20.83	12.50	152.1	232.8	273.1
Sub-Basin 3	134.92	0.2108	76	16.6	44.79	28.88	292.4	447.0	524.4
Junction 3	189.16	0.2956	76	16.6	44.79	28.88	381.6	602.1	713.1

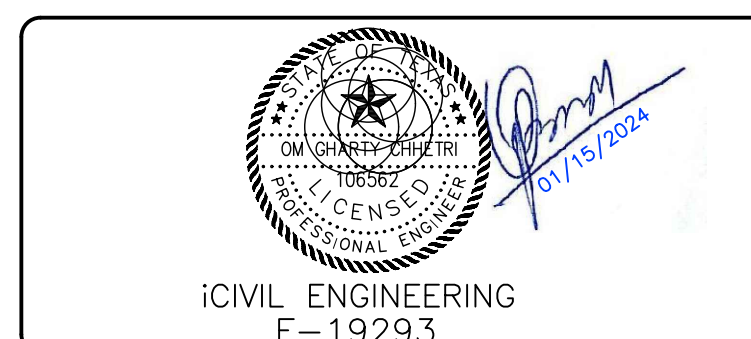
- Legends**
- Project Boundary
  - Pre-Project Junction Point
  - Pre-Project Sub-Basin
  - Contours
  - 10-Ft Interval
  - 2-Ft Interval
  - TC Flowpath
  - Sheet Flow
  - Shallow Conc. Flow
  - Channel Flow



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vert  
date  
**JAN 2024**



**SANGER, TEXAS**  
**PRE DAM**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 10-B  
 of  
 23

TIME OF CONCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)																				
AREA CODE	SHEET FLOW						SHALLOW CONCENTRATED FLOW						CHANNEL FLOW						TOC (TOTAL) (Min.)	LAG TIME (min.)
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)			
Sub-Basin 1	100	0.15	3.36	0.01	0.21	12.62	756.0	750.0	660	0.01	1.60	0.11	6.88	3.12	1100.00	0.10	5.88	25.37	15.22	

NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

TIME OF CONCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)												
AREA CODE	SHEET FLOW					CHANNEL FLOW			TOC (TOTAL) (Min.)	LAG TIME (min.)		
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	VEL.(fps)	LENGTH			TOC(hr)	TOC(Min.)
Sub-Basin 2A	100	0.15	3.36	0.03	0.14	8.13	7.85	731	0.03	1.55	9.68	5.81

NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

TIME OF CONCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)																				
AREA CODE	SHEET FLOW						SHALLOW CONCENTRATED FLOW						CHANNEL FLOW						TOC (TOTAL) (Min.)	LAG TIME (min.)
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)			
Sub-Basin 2B	100	0.15	3.36	0.02	0.16	9.56	756.0	751.5	276	0.02	1.60	0.05	2.88	7.85	825	0.03	1.75	14.19	8.51	

NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

TIME OF CONCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)																
AREA CODE	SHEET FLOW						CHANNEL FLOW 1				CHANNEL FLOW 2				TOC (TOTAL) (Min.)	LAG TIME (min.)
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)		
Sub-Basin 2C	100	0.15	3.36	0.05	0.11	6.63	7.85	900.00	0.03	1.91	5.38	462	0.02	1.43	9.97	5.98

NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

TIME OF CONCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)																				
AREA CODE	SHEET FLOW						SHALLOW CONCENTRATED FLOW						CHANNEL FLOW						TOC (TOTAL) (Min.)	LAG TIME (min.)
	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)			
Sub-Basin 3	100	0.15	3.36	0.02	0.16	9.56	743.0	724.0	1060	0.02	2.20	0.13	8.03	3.12	5092.00	0.45	27.20	44.793	26.88	

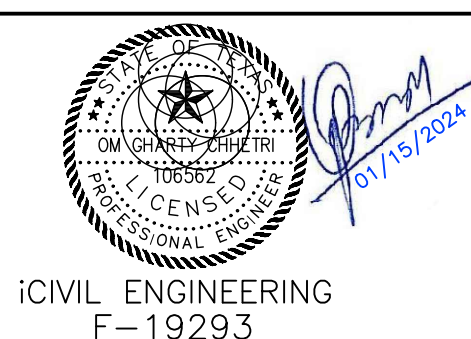
NOTE:  
 1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )  
 2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1  
 3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3



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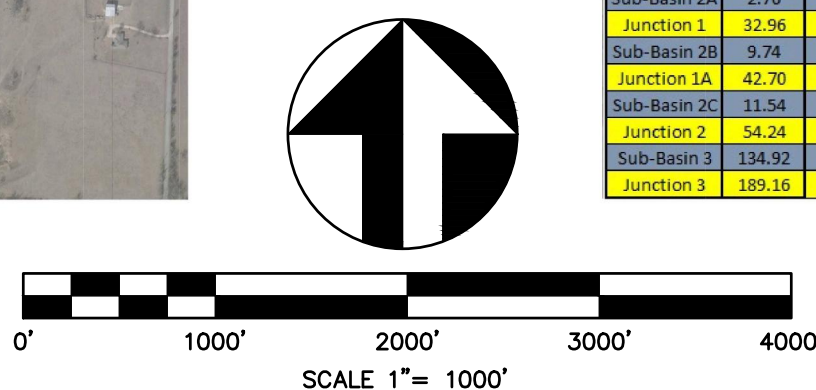
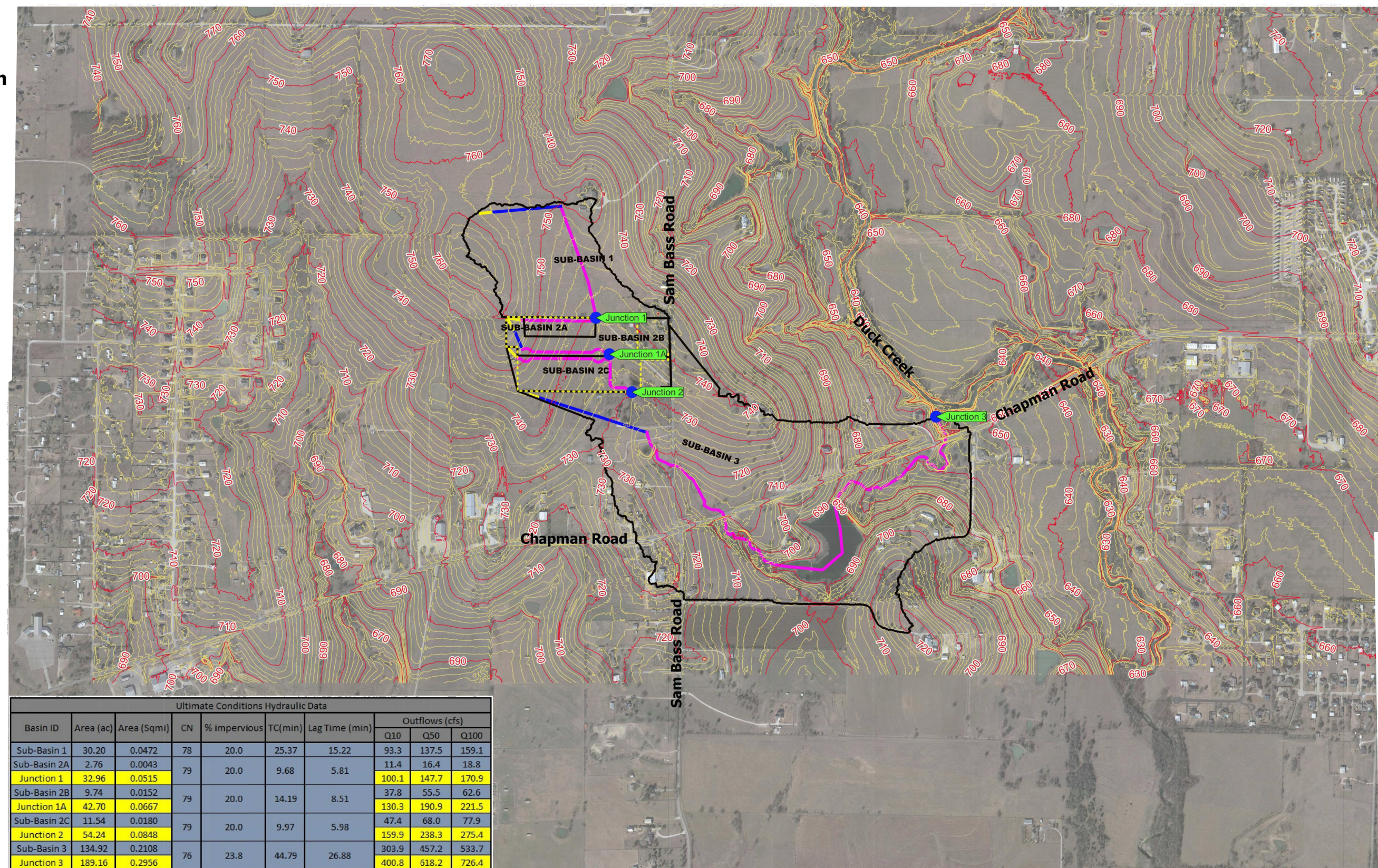
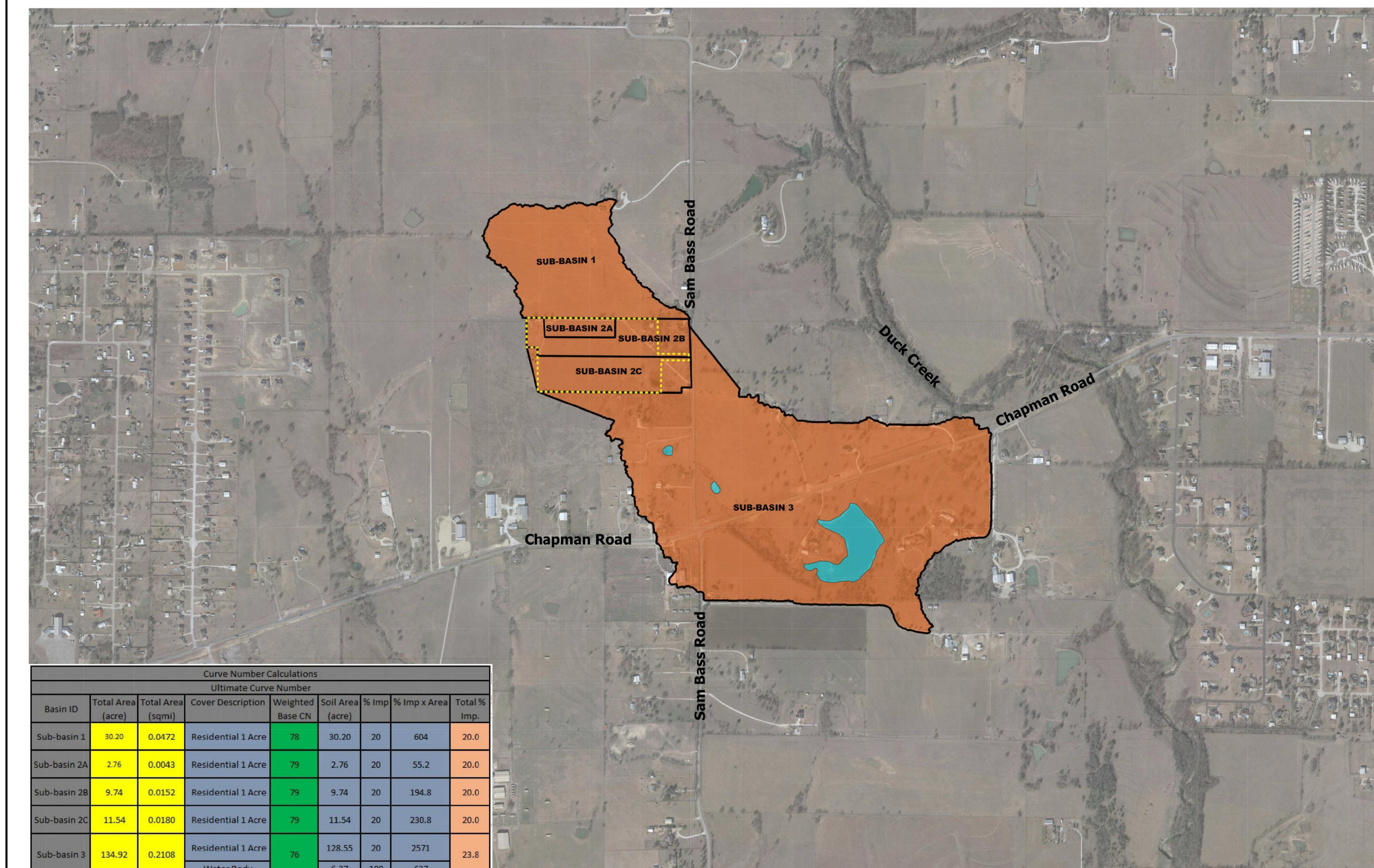
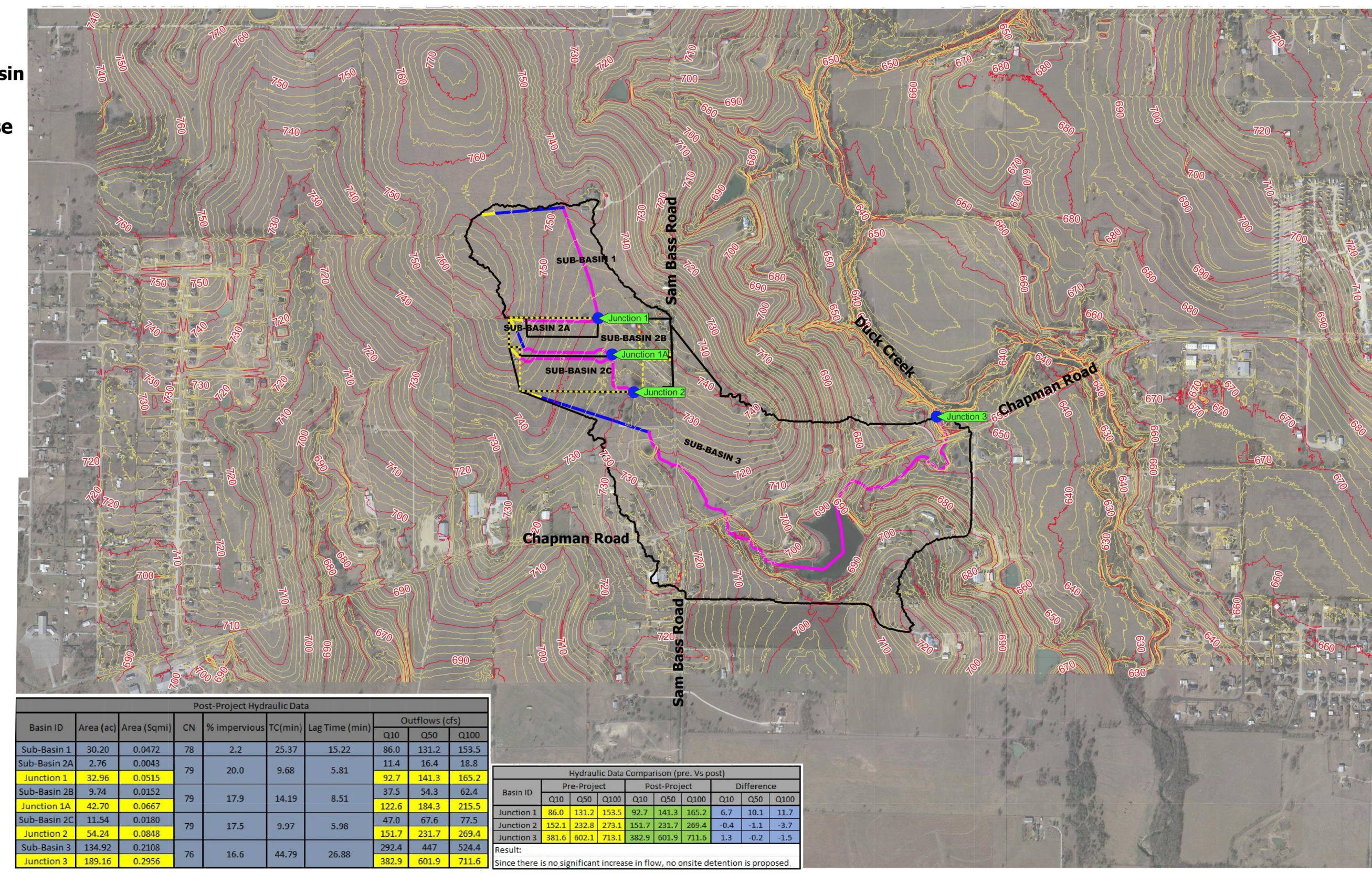
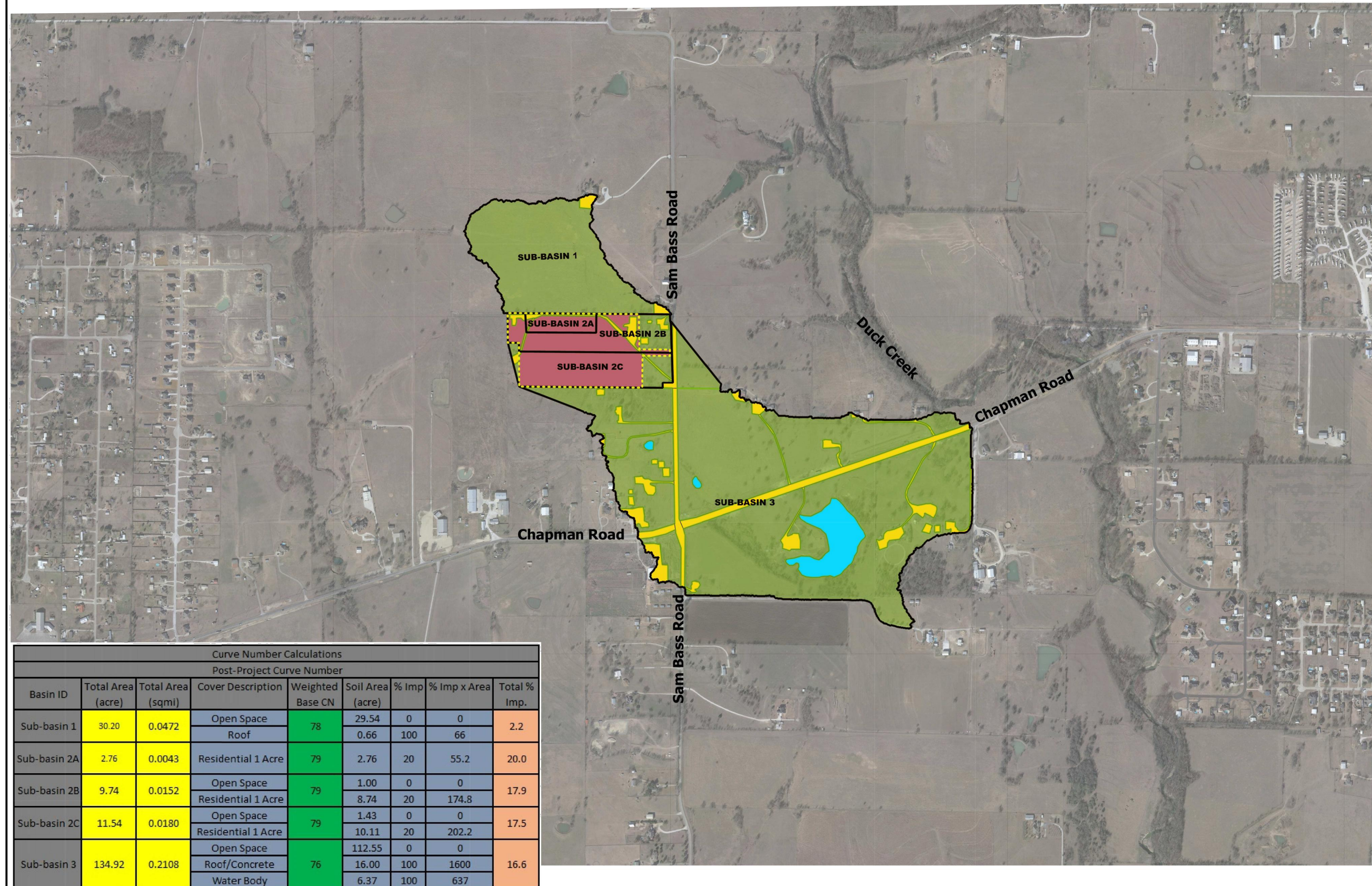
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**SANGER, TEXAS**  
**POST-PROJECT & ULT. DEV. TIME OF CONCENTRATION**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
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 11-A  
 of  
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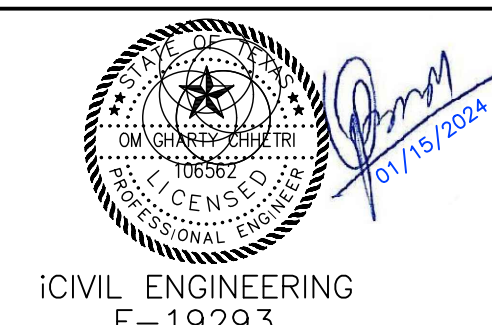




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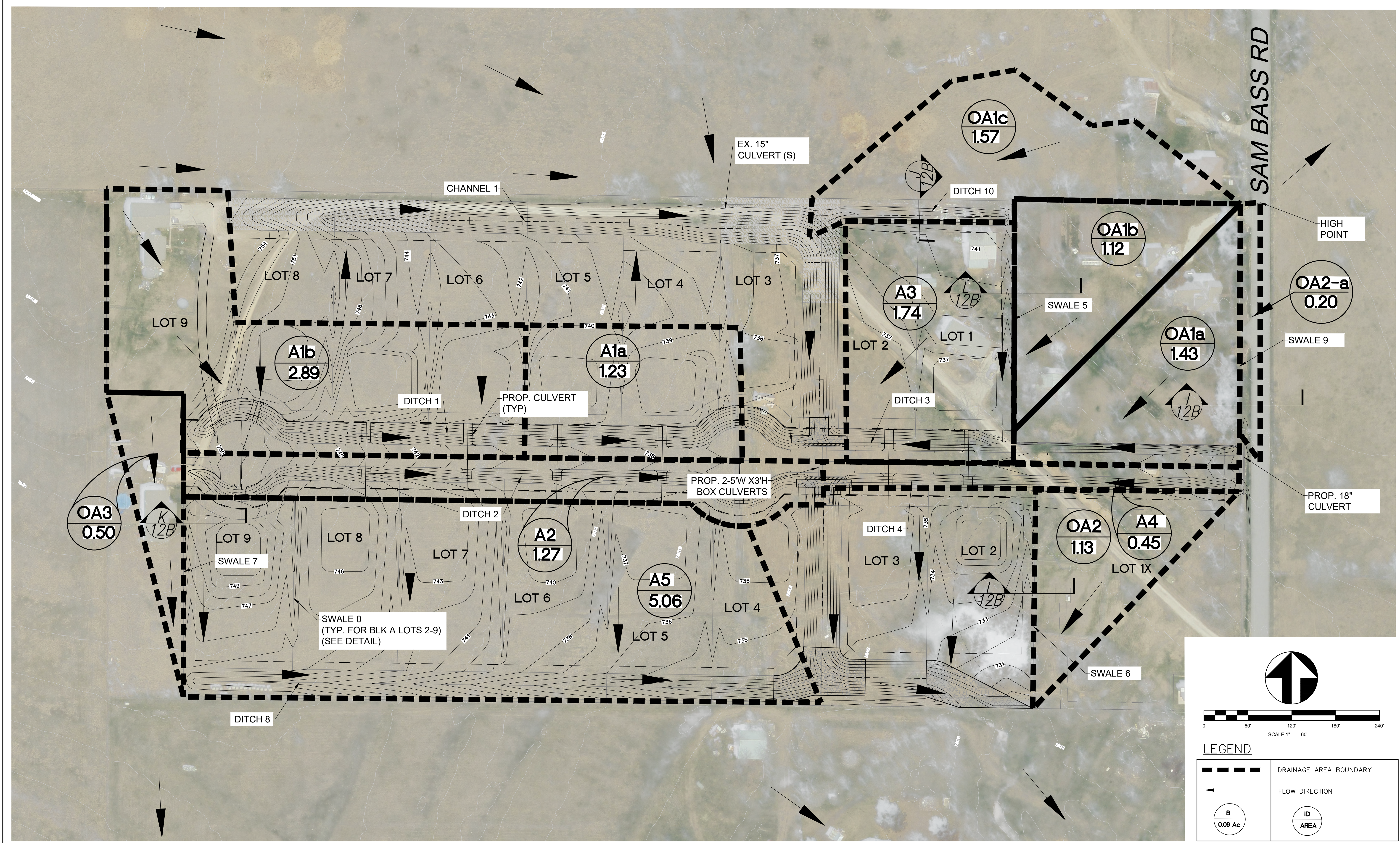
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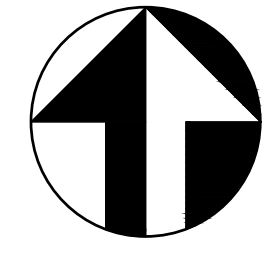
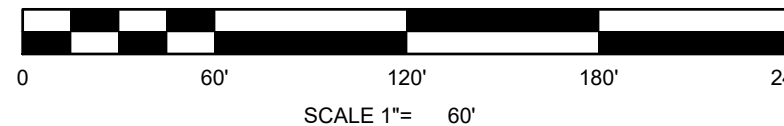
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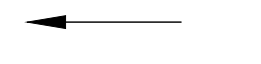
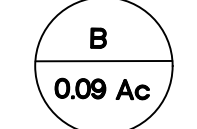

**SANGER, TEXAS**  
**POST AND ULTIMATE DAM**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
sheet  
11-B  
of  
23



  
  
 SCALE 1"= 60'

**LEGEND**


	DRAINAGE AREA BOUNDARY
	FLOW DIRECTION
	
	AREA



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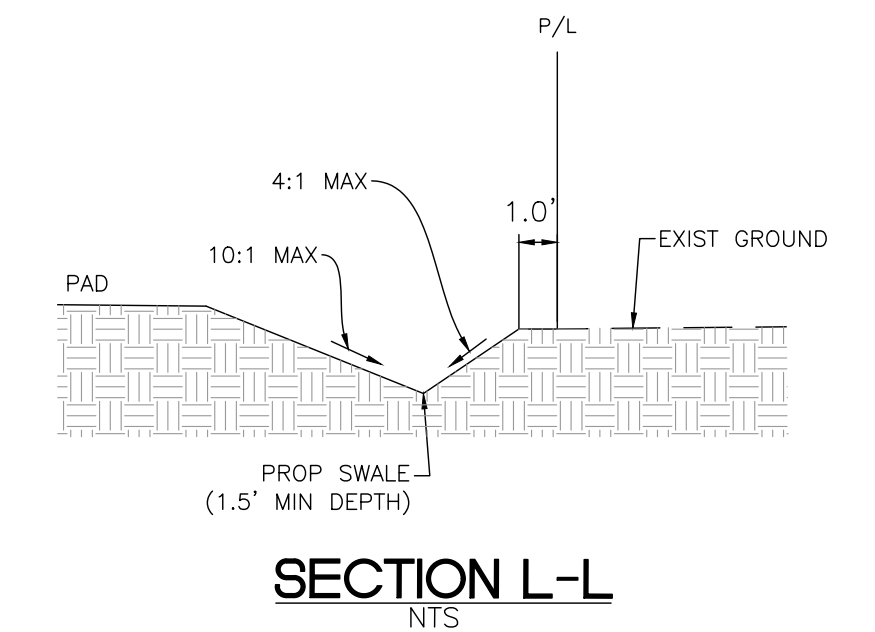
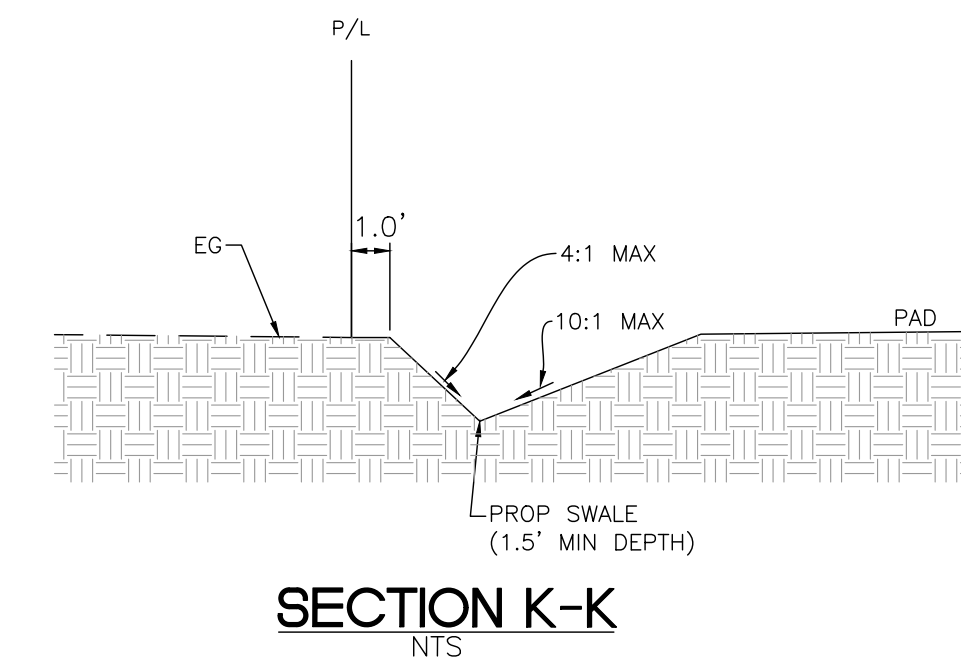
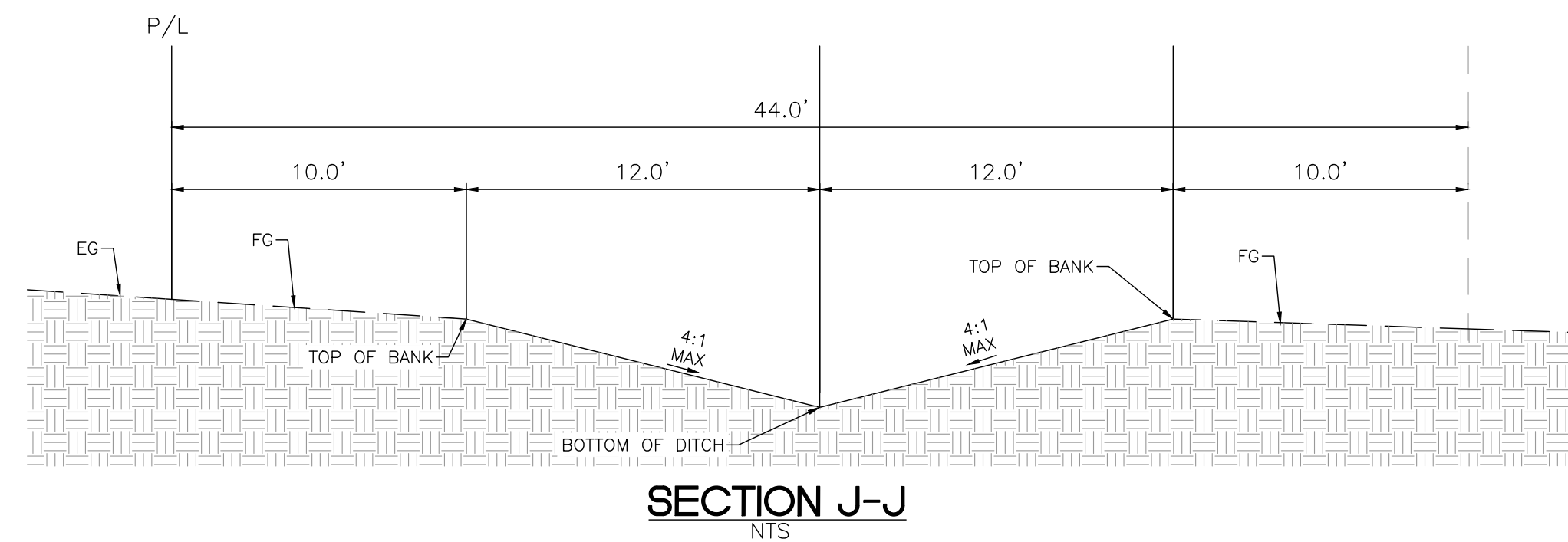
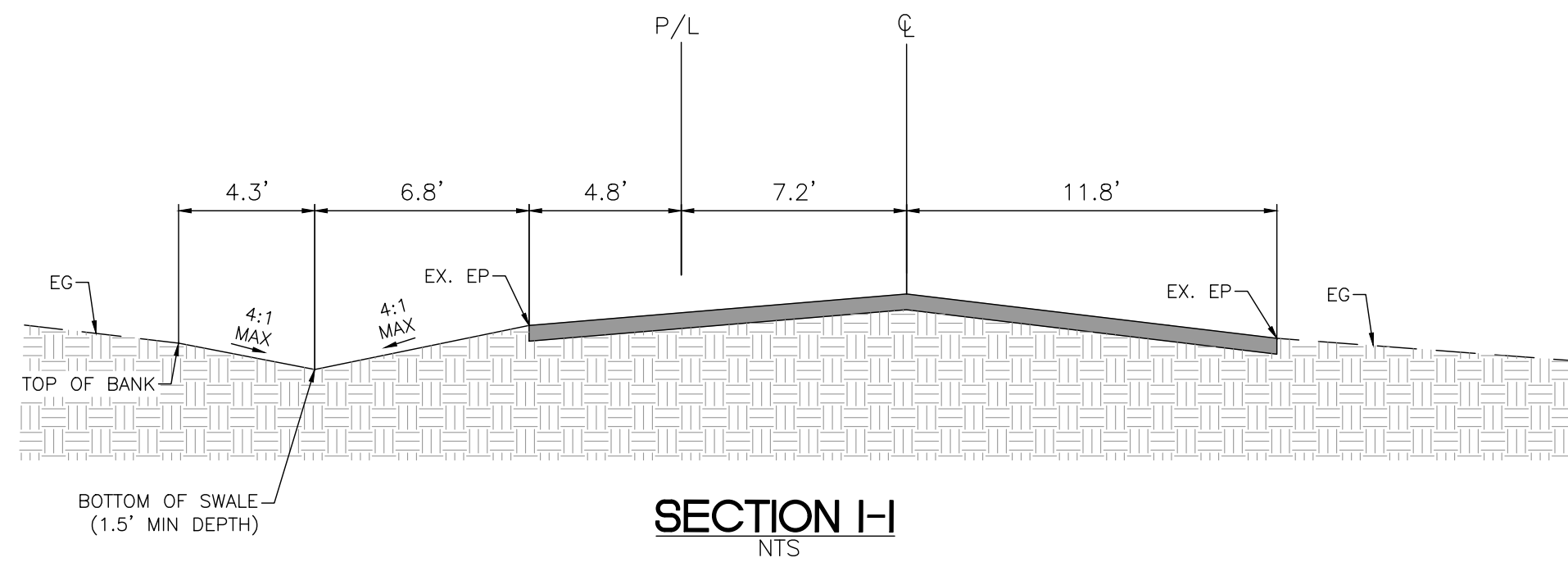
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**JAN 2024**

  
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**SANGER, TEXAS**  
**DITCH AND CULVERT CALCULATIONS**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 12-A  
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AREA CODE	TIME OF CONCENTRATION CALCULATION																		
	SHEET FLOW						SHALLOW CONCENTRATED FLOW						CHANNEL FLOW				TOC (TOTAL) (Min.)	TOC USED	
	LENGTH (ft)	MANNING'S N	P2 (in.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	LOW ELEV	LENGTH(ft)	SLOPE(ft/ft)	VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH (ft)	TOC(hr)			TOC(Min.)
A1a & A1b	100	0.15	3.36	0.02	0.16	9.56	753.0	751.0	185	0.01	1.60	0.03	1.93	7.85	825	0.03	1.75	13.24	15.00

- NOTE:
1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )
  2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1
  3. P2 = 3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS TABLE IV. 1-3

AREA CODE	TIME OF CONCENTRATION CALCULATION															
	SHEET FLOW						CHANNEL FLOW 1				CHANNEL FLOW 2				TOC (TOTAL) (Min.)	TOC USED
	LENGTH (ft)	MANNING'S N	P2 (in.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	VEL.(fps)	LENGTH (ft)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH (ft)	TOC(hr)	TOC(Min.)		
A2	100	0.15	3.36	0.05	0.11	6.63	7.85	900.00	0.03	1.91	5.38	462	0.02	1.43	9.97	15.00

NOTE:

1. VALUE OF MANNING'S N FOR SHEET FLOW = 0.15 (FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 56, TABLE IV.1-6 )
2. VELOCITY FOR SHALLOW CONCENTRATED FLOW IS TAKEN FROM TR 55 FIGURE 3-1
3. P2 = 3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS TABLE IV. 1-3

RUNOFF CALCULATION														COMMENTS
Area ID	DITCH ID	Area (acres)	C	CA	TC (min.)	I1 (in./hr.)	I5 (in./hr.)	I10 (in./hr.)	I100 (in./hr.)	Q1 (cfs)	Q5 (cfs)	Q10 (cfs)	Q100 (cfs)	
SIDE YARD SWALE	SWALE 0	0.75	0.45	0.34	15	3.31	4.85	5.50	7.91	1.12	1.64	1.86	2.67	SWALE BETWEEN ANY TWO LOTS (TYP. FOR BLK A LOT 2-9 SEE DETAILS)
A1a & A1b	DITCH 1	4.12	0.55	2.27	15	3.31	4.85	5.50	7.91	7.50	10.99	12.46	17.92	HALF OF THE LOT DRAINS TO CHANNEL 1
A2	DITCH 2	1.27	0.71	0.90	15	3.31	4.85	5.50	7.91	2.98	4.37	4.96	7.13	COMPOSITE C=0.71 (CALCULATION PROVIDED ON THIS SHEET)
OA1a, OA1b & A3	DITCH 3	4.29	0.45	1.93	15	3.31	4.85	5.50	7.91	6.39	9.36	10.62	15.27	AREA A3+OA1a+OA1b DRAINS TO DITCH 3
A4	DITCH 4	0.45	0.75	0.34	15	3.31	4.85	5.50	7.91	1.12	1.64	1.86	2.67	COMPOSITE C=0.71 (CALCULATION PROVIDED ON THIS SHEET)
OA1b	SWALE 5	1.12	0.45	0.50	15	3.31	4.85	5.50	7.91	1.67	2.44	2.77	3.99	SWALE FOR OFFSITE AREA DRAINAGE
OA2	SWALE 6	0.96	0.45	0.43	15	3.31	4.85	5.50	7.91	1.43	2.10	2.38	3.42	SWALE FOR OFFSITE AREA DRAINAGE
OA3	SWALE 7	0.50	0.55	0.28	15	3.31	4.85	5.50	7.91	0.91	1.33	1.51	2.18	SWALE FOR OFFSITE AREA DRAINAGE
OA3 & A5	DITCH 8	5.56	0.45	2.50	15	3.31	4.85	5.50	7.91	8.28	12.13	13.76	19.79	1 ACRE LOTS
OA2-a	SWALE 9	0.20	0.78	0.16	15	3.31	4.85	5.50	7.91	0.52	0.76	0.86	1.23	ROADSIDE SWALE
OA1c	DITCH 10	1.57	0.30	0.47	15	3.31	4.85	5.50	7.91	1.56	2.28	2.59	3.73	DITCH FOR OFFSITE AREA DRAINAGE

- NOTE:
- C VALUE FOR SINGLE FAMILY RESIDENTIAL 1 ACRE LOTS = 0.45 (DENTON COUNTY SUBDIVISION RULES & REGULATIONS TABLE IV.1-4)
  - C VALUE FOR SINGLE FAMILY RESIDENTIAL 1/2 ACRE LOTS = 0.55 (DENTON COUNTY SUBDIVISION RULES & REGULATIONS TABLE IV.1-4)
  - C VALUE FOR STREET = 0.95 (DENTON COUNTY SUBDIVISION RULES & REGULATIONS TABLE IV.1-4)
  - C VALUE FOR CLAYEY SOIL, AVERAGE, 5-10% = 0.60 (DENTON COUNTY SUBDIVISION RULES & REGULATIONS TABLE IV.1-4)
- THE VALUE FOR RAINFALL INTENSITY IS TAKEN FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 47-48-49, TABLE IV.1-3

V-DITCH & SWALE CAPACITY CALCULATION							
DITCH ID	Q100 (cfs)	AVERAGE SLOPE (ft/ft)	MANNING'S N	WATER DEPTH (ft.)	VELOCITY (fps)	TOTAL DITCH/SWALE DEPTH (ft)	SECTION DETAILS
DITCH 1	17.92	0.020	0.040	0.91	3.47	3.5	SHEET 5 SECTION A-A
DITCH 2	7.13	0.020	0.040	0.80	2.77	2.5	SHEET 5 SECTION A-A
DITCH 3	15.27	0.020	0.040	1.07	3.32	2.5	SHEET 6 SECTION F-F
DITCH 4	2.67	0.020	0.040	0.55	2.07	2.5	SHEET 6 SECTION F-F
SWALE 5	3.99	0.005	0.040	0.70	1.25	1.5	SHEET 12-B SECTION L-L
SWALE 6	3.42	0.005	0.040	0.66	1.20	1.5	SHEET 12-B SECTION L-L
SWALE 7	2.18	0.005	0.040	0.56	1.06	1.5	SHEET 12-B SECTION K-K
DITCH 8	19.79	0.015	0.040	1.24	3.20	4.5	SHEET 8 SECTION E-E
SWALE 9	1.23	0.005	0.040	0.37	0.80	1.5	SHEET 12-B SECTION I-I
DITCH 10	3.73	0.0068	0.040	0.77	1.56	3.0	SHEET 12-B SECTION J-J

WEIGHTED RUNOFF COEFFICIENT (DITCH-2)			
LAND USE	TOTAL LAND AREA	RUNOFF COEF.	WEIGHTED RUNOFF COEF.
ASPHALT/CONCRETE	0.41	0.95	0.71
CLAYEY SOIL 5-10%	0.86	0.60	

WEIGHTED RUNOFF COEFFICIENT (DITCH-4)			
LAND USE	TOTAL LAND AREA	RUNOFF COEF.	WEIGHTED RUNOFF COEF.
ASPHALT/CONCRETE	0.19	0.95	0.75
CLAYEY SOIL 5-10%	0.26	0.60	

WEIGHTED RUNOFF COEFFICIENT (DITCH-9)			
LAND USE	TOTAL LAND AREA	RUNOFF COEF.	WEIGHTED RUNOFF COEF.
ASPHALT/CONCRETE	0.10	0.95	0.78
CLAYEY SOIL 5-10%	0.10	0.60	

DRIVEWAY CULVERT DATA FOR BLK B LOT 3 TO 9							
STREET STATION	CORRESPONDING LOT AREA	Q100	Q100 TOTAL	CONTRIBUTING LOTS/AREA	CULVERT SIZE*	UPSTREAM INV.	DOWNSTREAM INV.
10+47.78	0.97	4.22	4.22	LOT 9	18"	746.78	746.03
10+95.82	0.81	3.52	7.74	LOT 8 & 9	18"	745.29	744.55
12+49.77	0.55	2.39	10.14	LOT 7, 8 & 9	24"	740.53	739.79
13+88.82	0.55	2.39	12.53	LOT 6, 7, 8 & 9	24"	736.92	736.76
15+11.52	0.55	2.39	14.92	LOT 5, 6, 7, 8 & 9	27"	736.08	735.85
16+55.07	0.55	2.39	17.31	LOT 4, 5, 6, 7, 8 & 9	27"	734.59	734.28
17+61.27	0.14	0.61	17.92	LOT 3, 4, 5, 6, 7, 8 & 9	27"	733.38	733.07

\* CULVERT LENGTH=24', MATERIAL=RPC

DRIVEWAY CULVERT DATA FOR BLK B LOT 1 & 2 CULVERTS							
STREET STATION	CORRESPONDING LOT AREA	Q100	Q100 TOTAL	CONTRIBUTING LOTS/AREA	CULVERT SIZE*	UPSTREAM INV.	DOWNSTREAM INV.
20+74.17	2.55	9.08	9.08	LOT 1, OA1a & OA1b	18"	734.11	734.01
19+65.12	1.74	6.19	15.27	LOT 1, 2 & OA1a, OA1b & A3	24"	733.58	733.46

\* CULVERT LENGTH=24', MATERIAL=RPC

DRIVEWAY CULVERT DATA FOR BLK A LOT 3 TO 8 CULVERTS							
STREET STATION	CORRESPONDING LOT AREA	Q100	Q100 TOTAL	CONTRIBUTING LOTS/AREA	CULVERT SIZE*	UPSTREAM INV.	DOWNSTREAM INV.
10+80.03	0.21	1.18	1.18	LOT 9	18"	746.82	746.08
12+49.73	0.21	1.18	2.36	LOT 8 & 9	18"	741.58	740.84
13+88.82	0.21	1.18	3.54	LOT 7, 8 & 9	18"	737.83	737.60
15+11.46	0.21	1.18	4.72	LOT 6, 7, 8 & 9	18"	736.59	736.34
16+55.08	0.21	1.18	5.90	LOT 5, 6, 7, 8 & 9	18"	735.12	734.88
17+59.72	0.22	1.24	7.13	LOT 4, 5, 6, 7, 8 & 9	18"	734.05	733.82

\* CULVERT LENGTH=24', MATERIAL=RPC

DRIVEWAY CULVERT DATA FOR BLK A LOT 1 & 2 CULVERTS							
STREET STATION	CORRESPONDING LOT AREA	Q100	Q100 TOTAL	CONTRIBUTING LOTS/AREA	CULVERT SIZE*	UPSTREAM INV.	DOWNSTREAM INV.
20+74.17	0.29	1.62	1.62	A4	18"	734.13	734.01
19+65.12	0.16	0.89	2.51	A4	18"	733.58	733.46

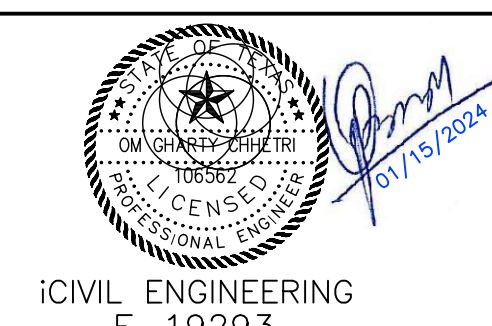
\* CULVERT LENGTH=24', MATERIAL=RPC



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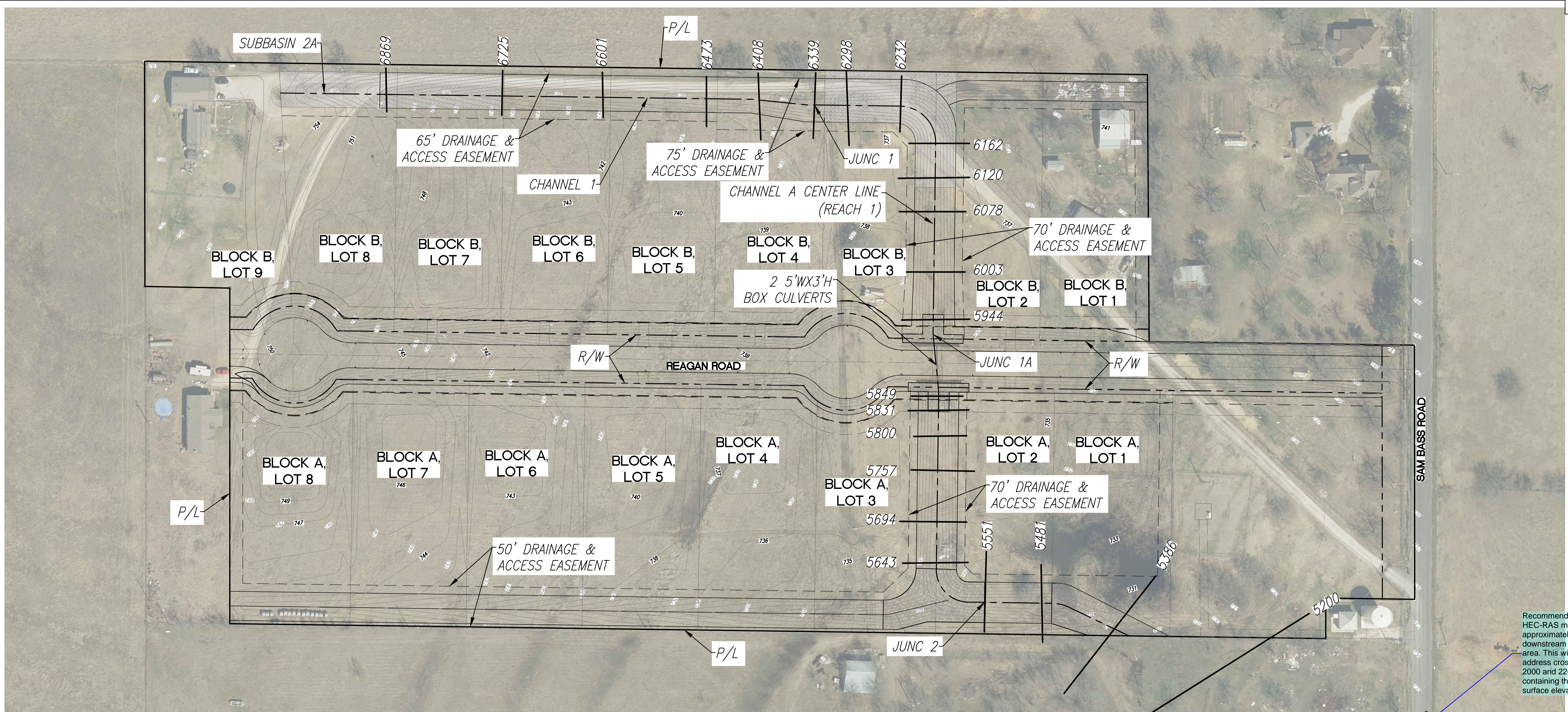
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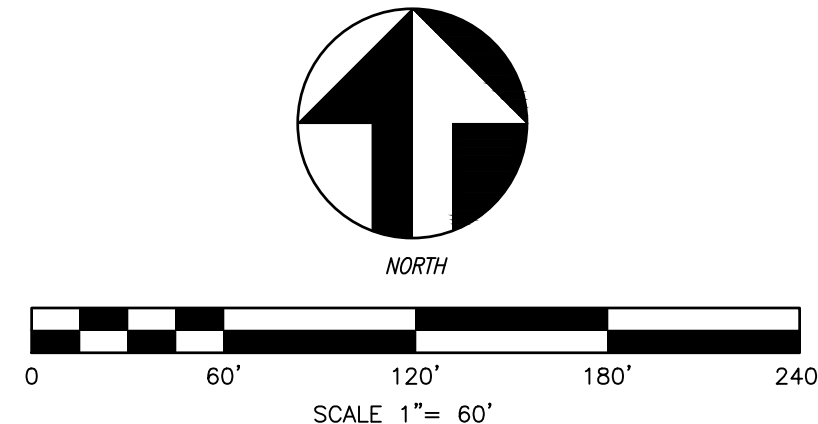
SANGER, TEXAS  
**DITCH AND CULVERT CALCULATIONS**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
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 12-B  
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 23



Recommend starting HEC-RAS model approximately 1,000 ft downstream of project area. This will also address cross sections 2000 and 2200 not containing the water surface elevation.

HEC-RAS model: N-values should be defined for the left overbank, channel, and right overbank at a minimum. One (1) n-value should not be used for the entire length of the cross section.



**LEGENDS**  
 123 RAS CROSS SECTION LINE

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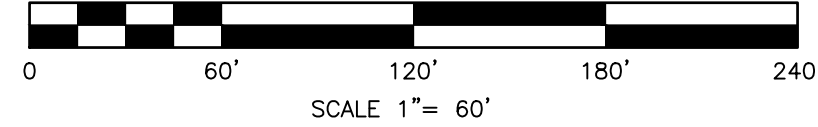
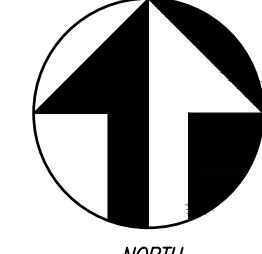
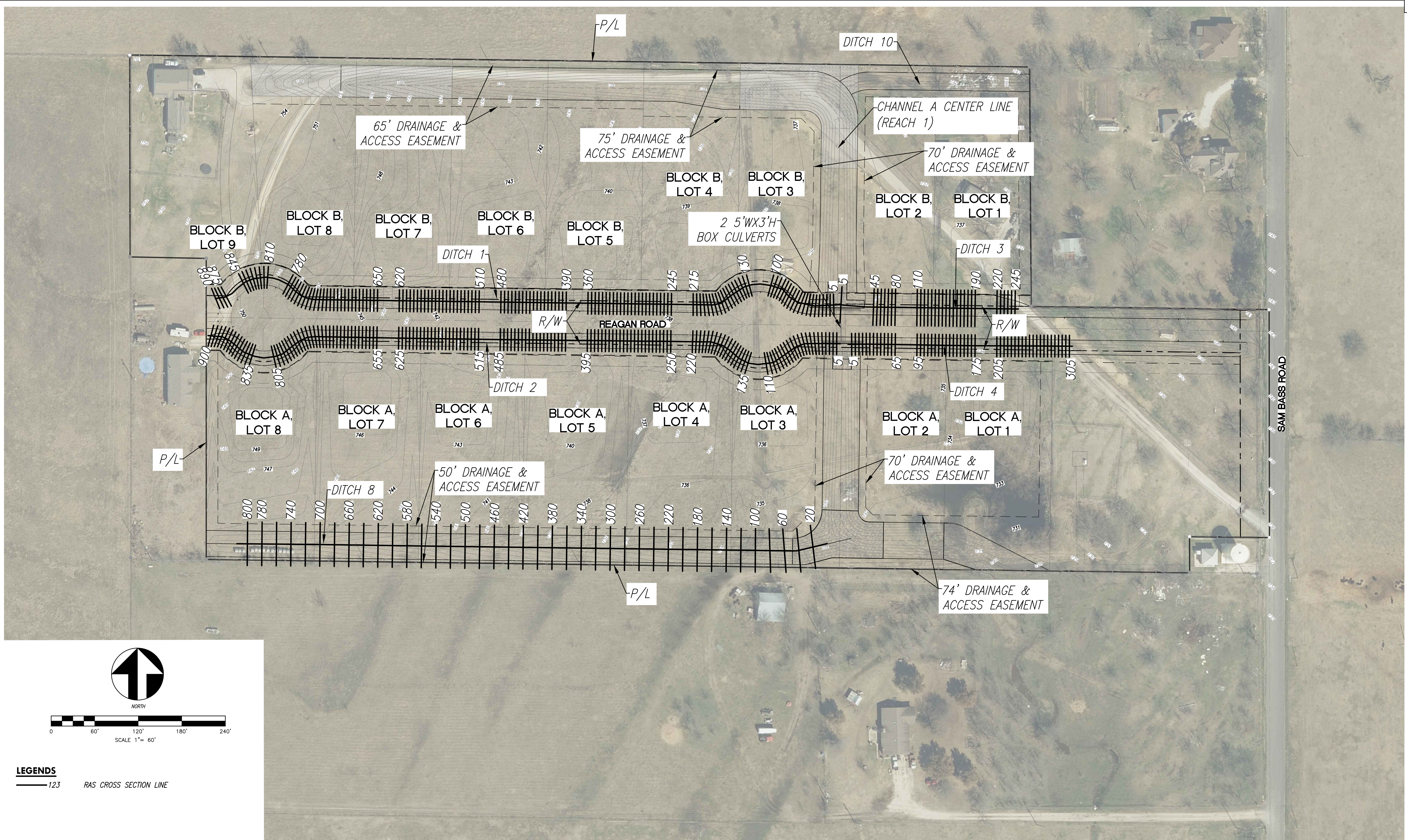
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iCIVIL ENGINEERING  
 F-19293

**SANGER, TEXAS**  
**HYDRAULIC WORK MAP**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 13-A  
 of  
 23





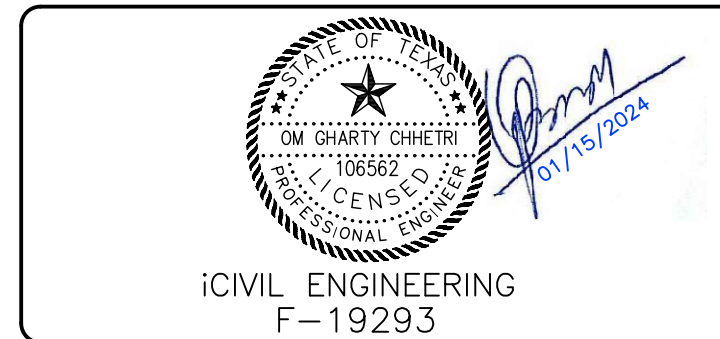
**LEGENDS**  
 123 RAS CROSS SECTION LINE



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**JAN 2024**



**SANGER, TEXAS**  
**HYDRAULIC WORK MAP**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 13-C  
 of  
 23

Table with columns: REGRAS Plan, River, Ditch, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-1 850 Q100 to DITCH-1 430 Q100.

Table with columns: REGRAS Plan, River, Ditch-2, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-2 900 Q100 to DITCH-2 465 Q100.

Table with columns: REGRAS Plan, River, Ditch-3, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-3 820 Culvert#1 Q100 to DITCH-3 110 Q100.

Table with columns: REGRAS Plan, River, Ditch-4, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-4 800 Q100 to DITCH-4 20 Q100.

Table with columns: REGRAS Plan, River, Ditch-1, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-1 425 Q100 to DITCH-1 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-2, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-2 460 Q100 to DITCH-2 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-3, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-3 460 Q100 to DITCH-3 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-4, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-4 305 Q100 to DITCH-4 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-1, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-1 215 Q100 to DITCH-1 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-2, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-2 460 Q100 to DITCH-2 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-3, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-3 460 Q100 to DITCH-3 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-4, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-4 220 Q100 to DITCH-4 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-1, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-1 850 Culvert#1 Q100 to DITCH-1 5 Culvert#1 Q100.

Table with columns: REGRAS Plan, River, Ditch-2, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-2 25 Q100 to DITCH-2 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-3, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-3 110 Culvert#1 Q100 to DITCH-3 5 Q100.

Table with columns: REGRAS Plan, River, Ditch-4, Profile, Q Total, Min Ch El, W.S. Elev, Cnt W.S., E.G. Elev, E.G. Slope, Vel Chnl, Flow Area, Top Width, Froude # Chl. Rows include DITCH-4 190 Culvert#1 Q100 to DITCH-4 5 Q100.

Logo for CIVIL ENGINEERING 1001 W EULESS BLVD, STE 412H EULESS, TX 76040. Includes phone (972) 523-5493, website TBPE: F-19293, and email INFO@CIVILENG.COM.

Revision table with columns: no., revision, by, date. Includes a 'scale horiz' label and a 'date' field with 'JAN 2024'.

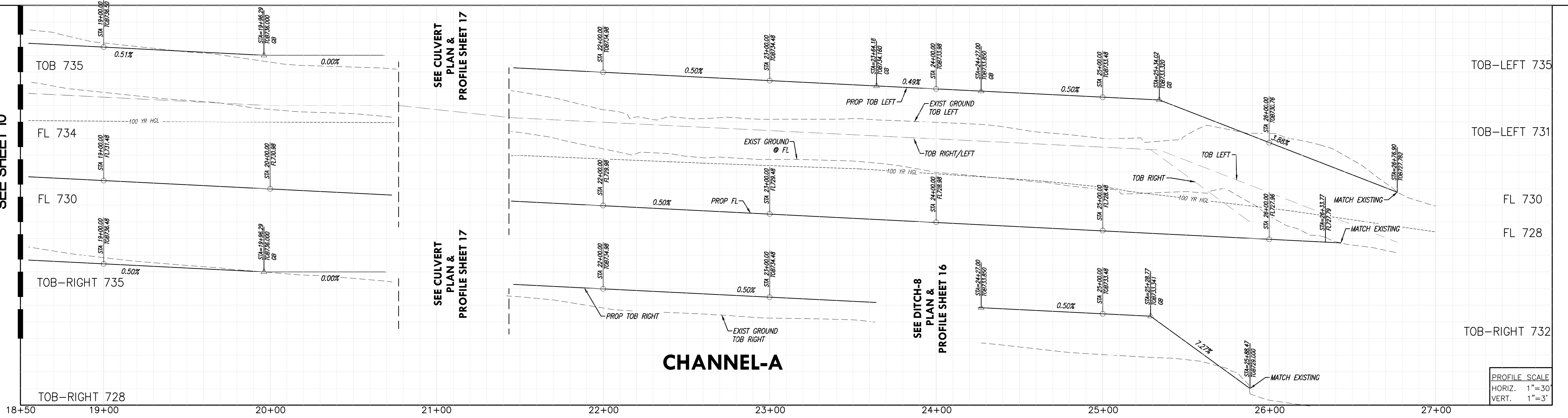
Professional Engineer Seal for SANGER, TEXAS. The seal includes the text 'SANGER, TEXAS HYDRAULIC WORK MAP FOR MARLEY MEADOWS' and 'ICIVIL ENGINEERING F-19293'. A signature and date '01/15/2024' are present.

PROJECT NO. sheet 13-D of 23. Includes the text 'SANGER, TEXAS HYDRAULIC WORK MAP FOR MARLEY MEADOWS' and 'ICIVIL ENGINEERING F-19293'.



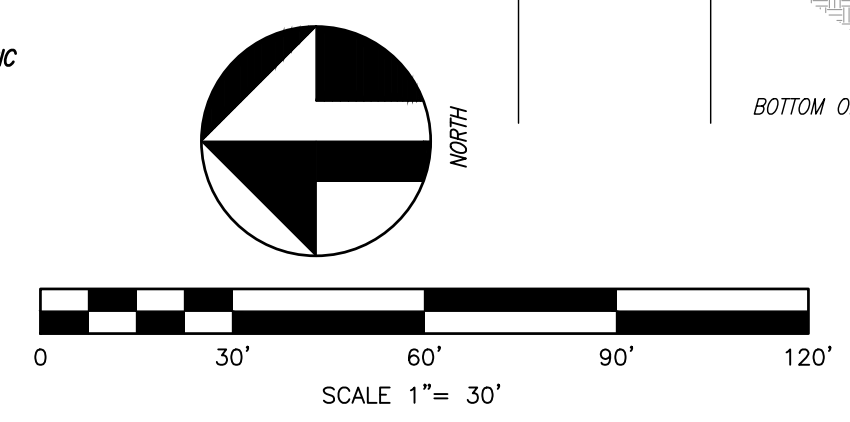
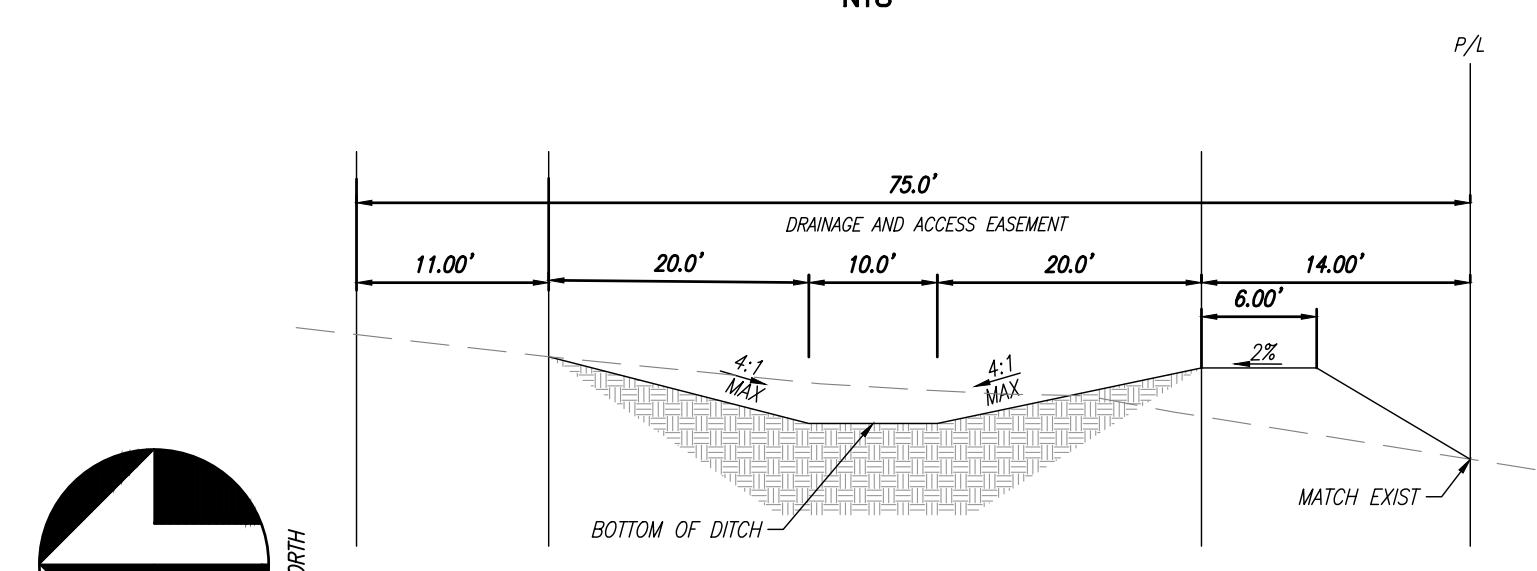
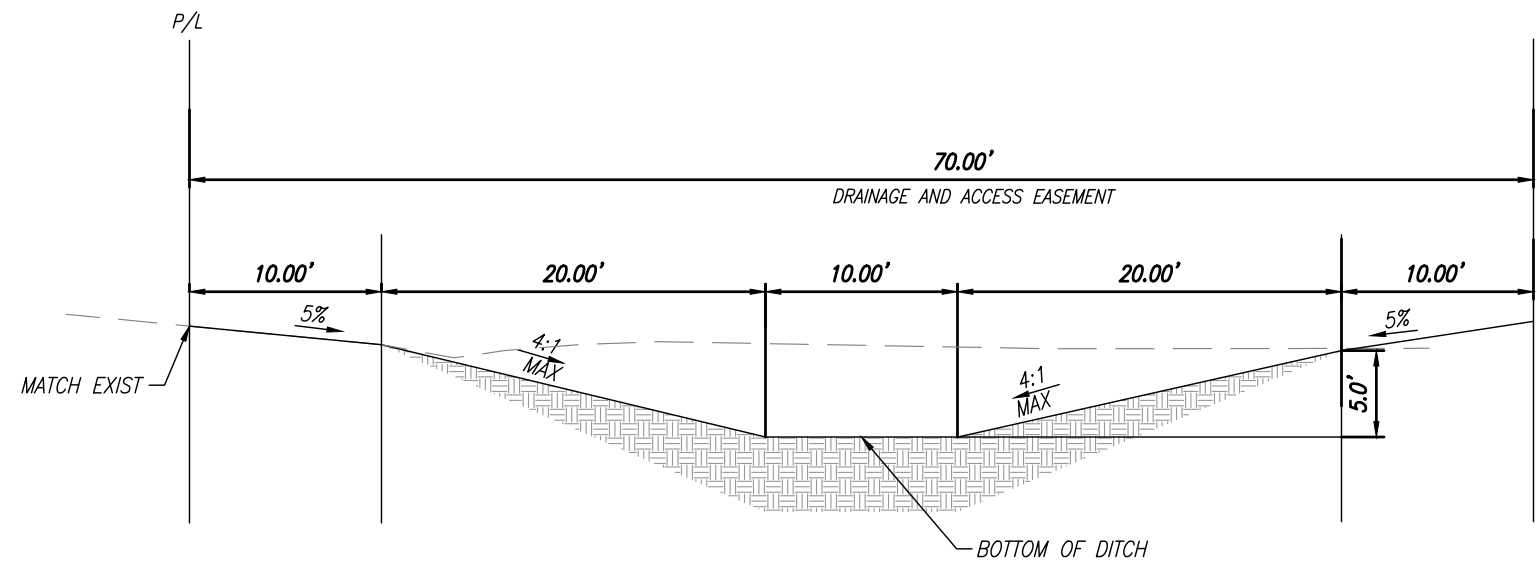
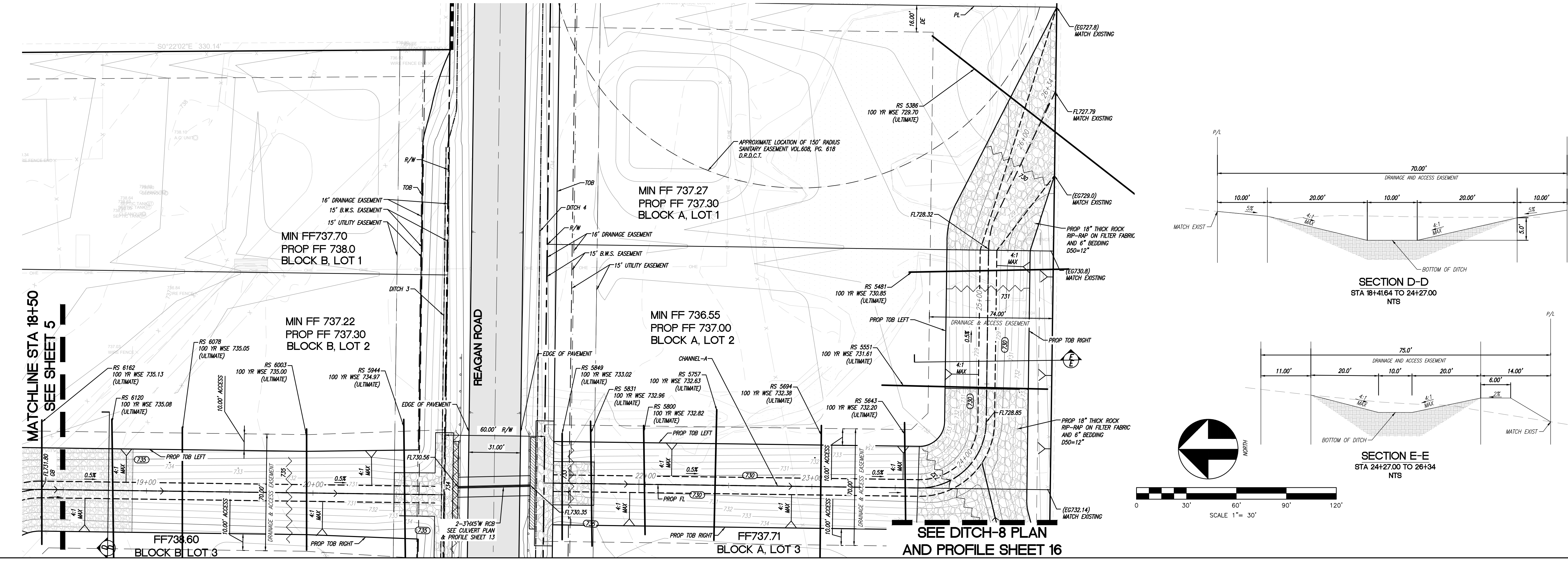


MATCHLINE STA 18+50  
SEE SHEET 10



### CHANNEL-A

PROFILE SCALE  
 HORIZ. 1"=30'  
 VERT. 1"=3'



SEE DITCH-8 PLAN  
 AND PROFILE SHEET 16

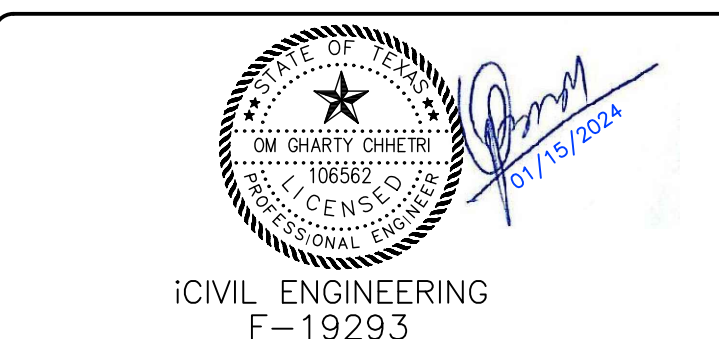
MATCHLINE STA 18+50  
SEE SHEET 5



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 EMAIL: INFO@ICIVILENG.COM

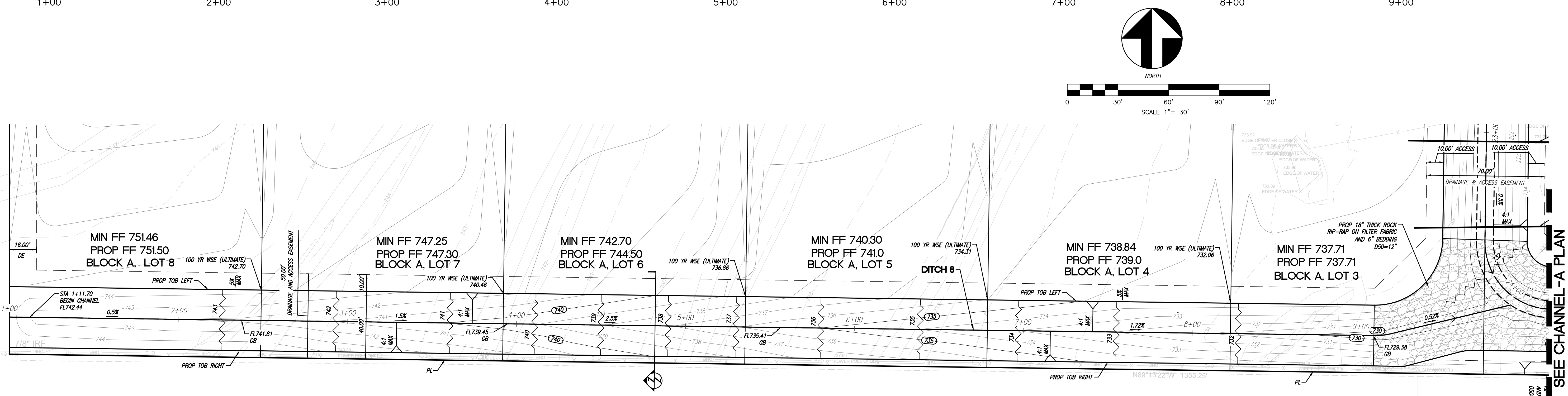
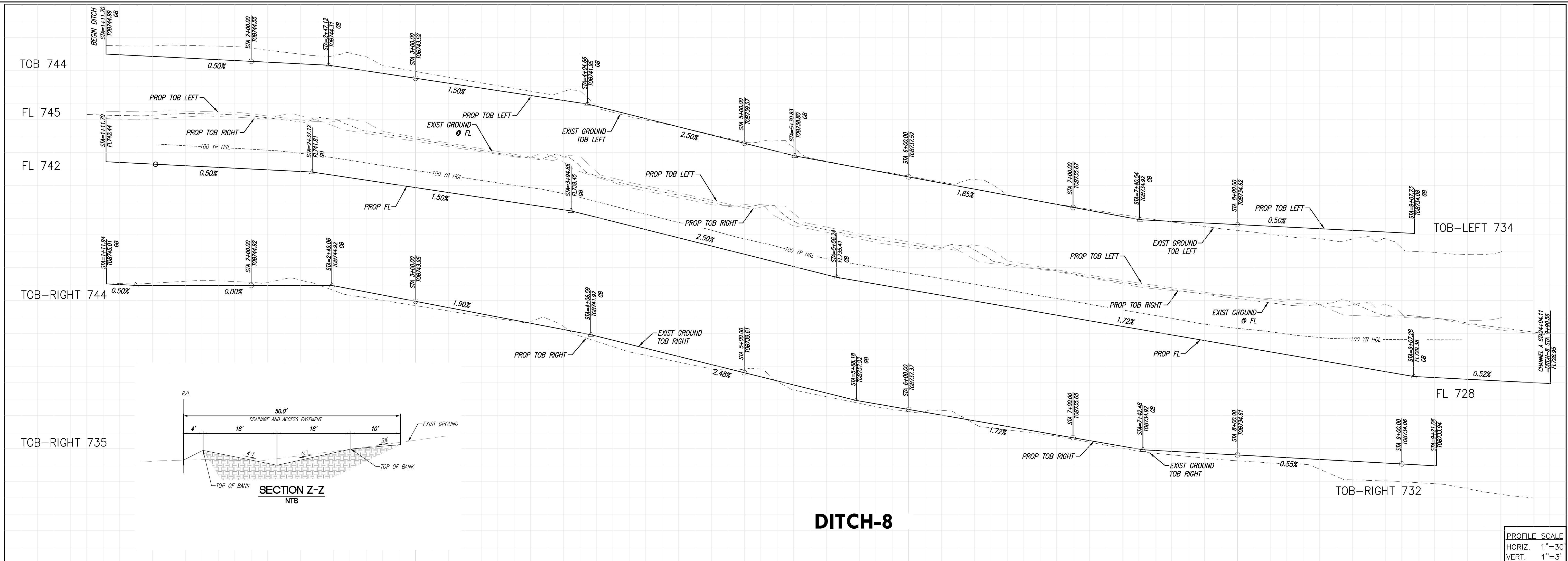
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 date  
**JAN 2024**



**SANGER, TEXAS**  
**CHANNEL-A PLAN & PROFILE**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 15  
 of  
 23



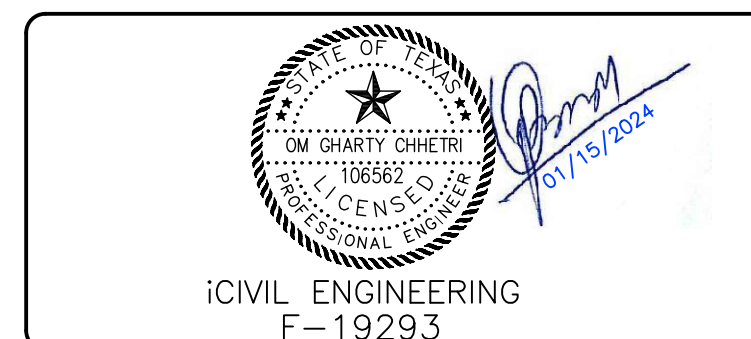
SEE CHANNEL-A PLAN AND PROFILE SHEET 15



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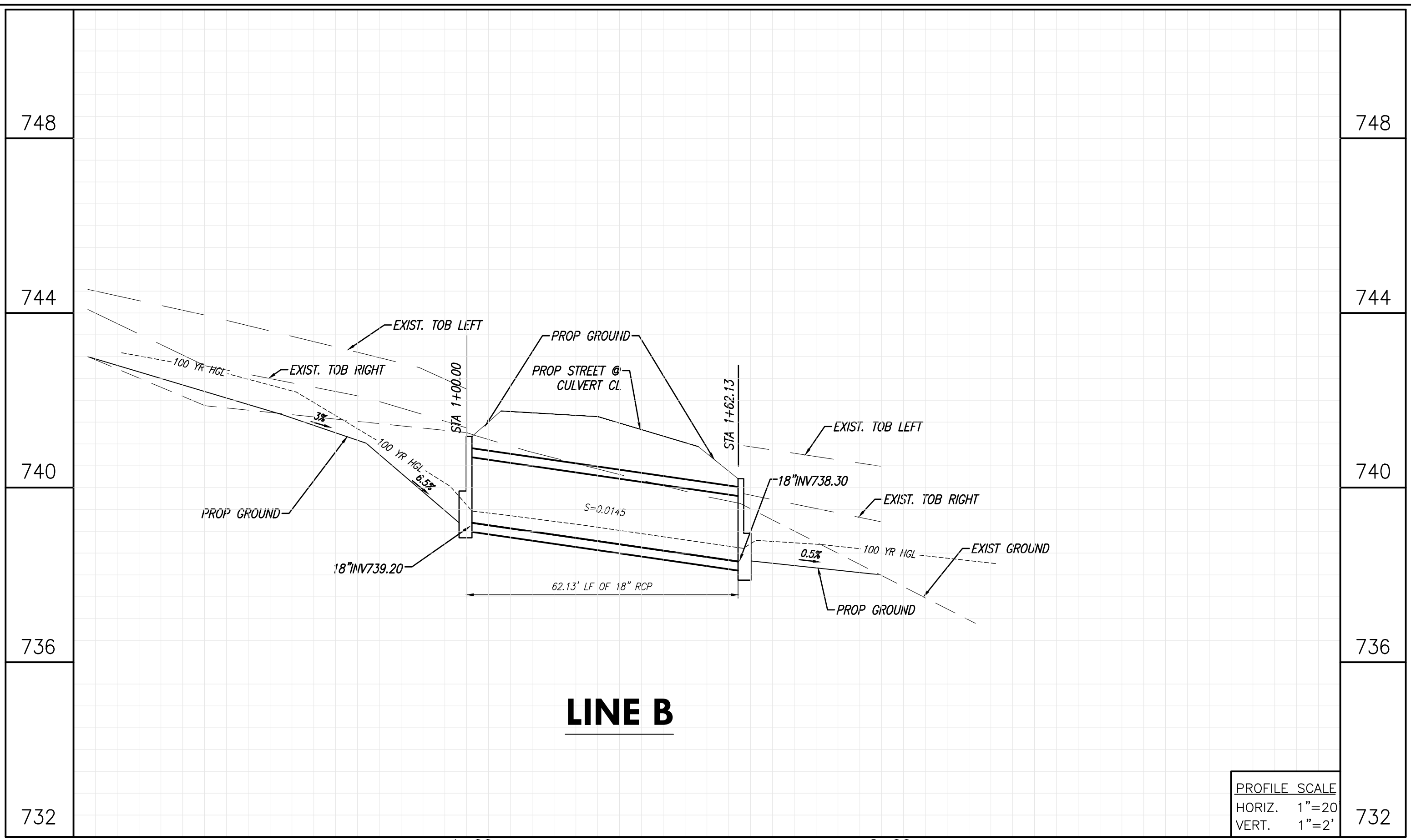
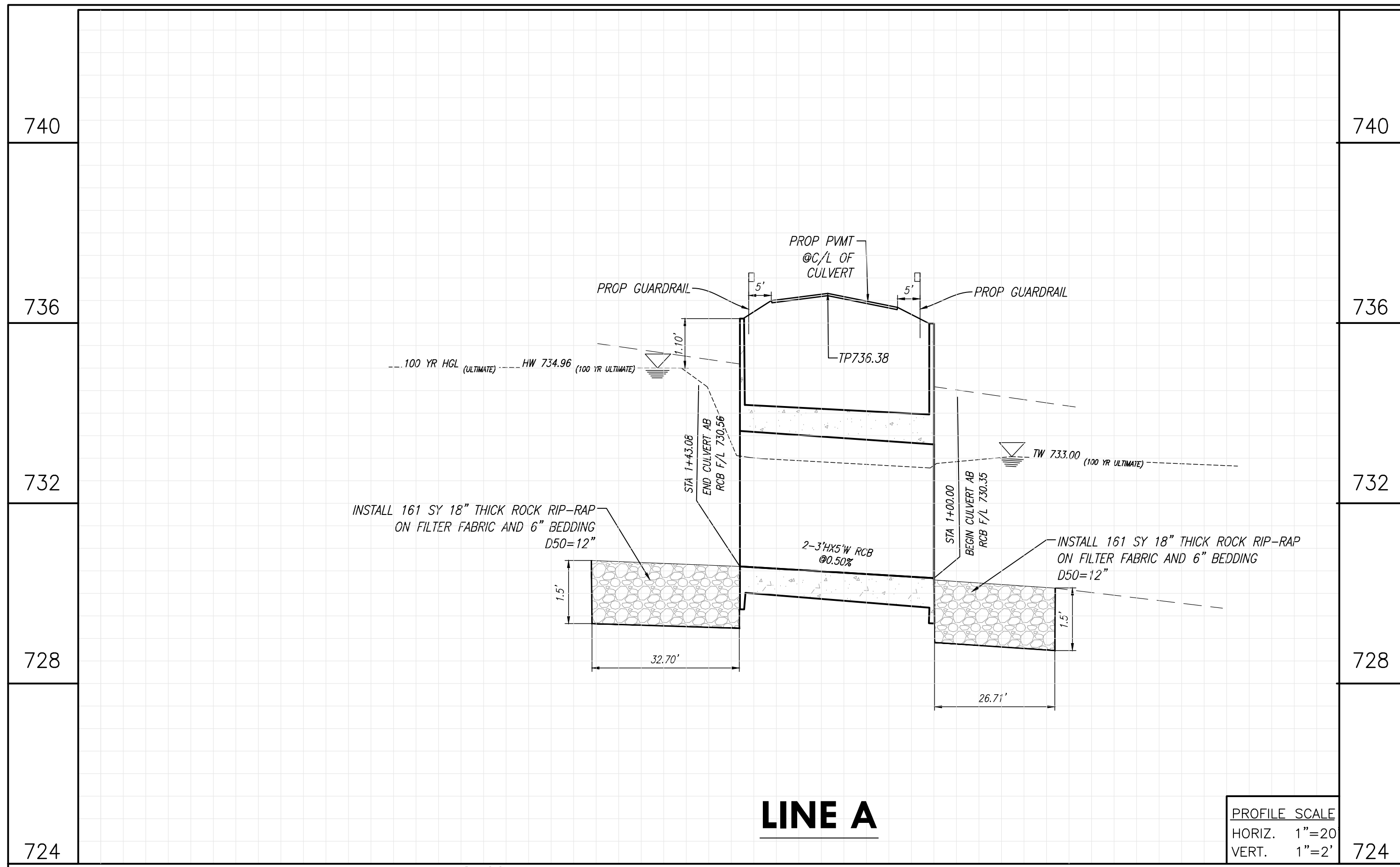
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**JAN 2024**



**SANGER, TEXAS**  
**DITCH-8 PLAN & PROFILE**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 16  
 of  
 23

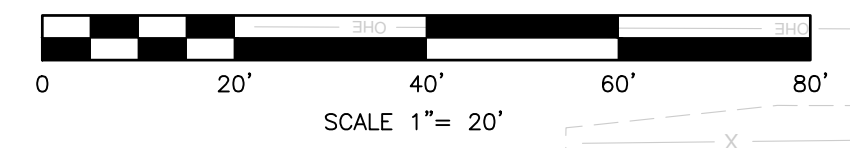
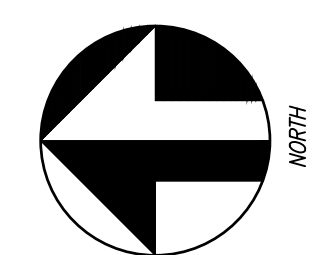
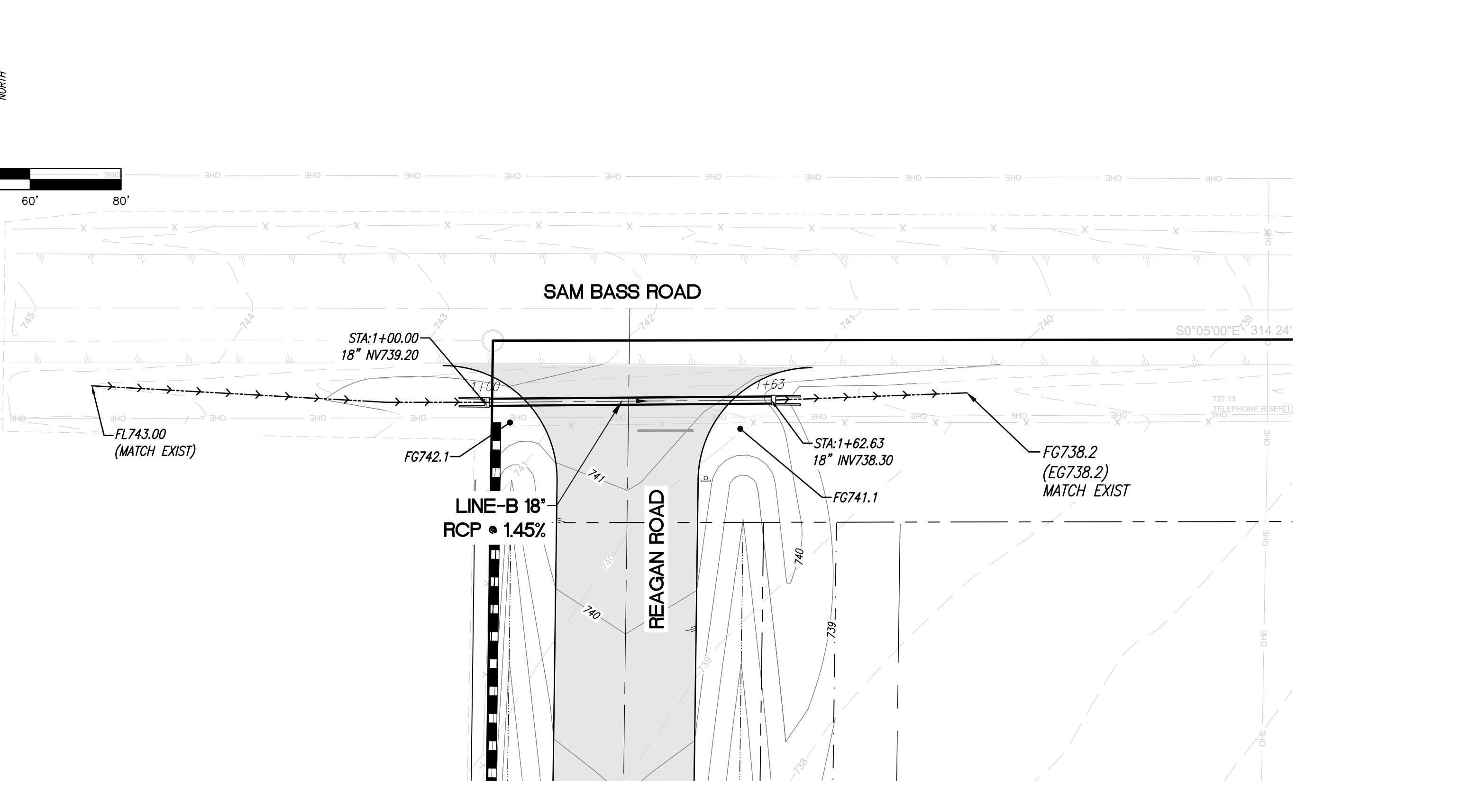
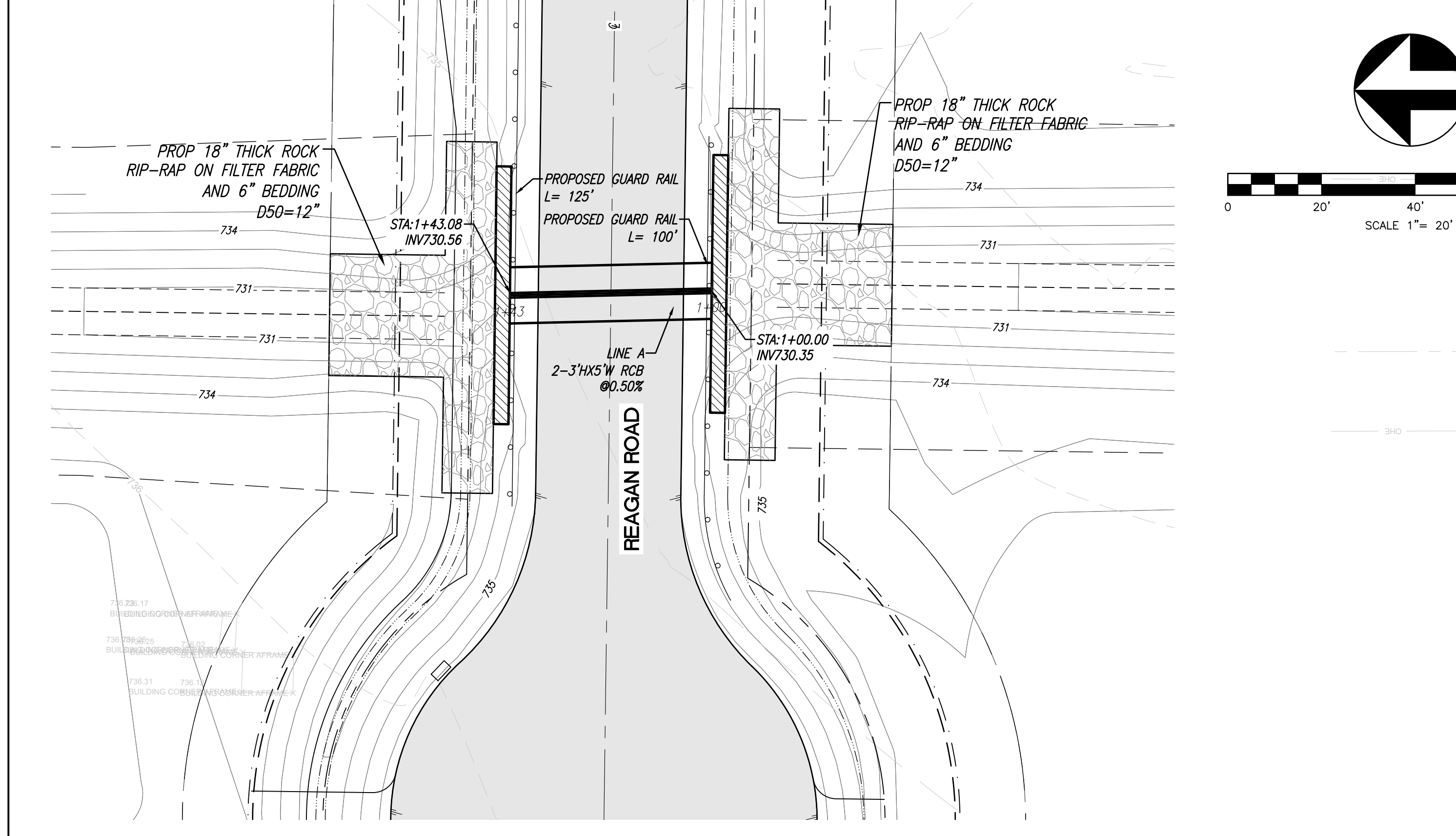


740 736 732 728 724

748 744 740 736 732

2+00 1+00

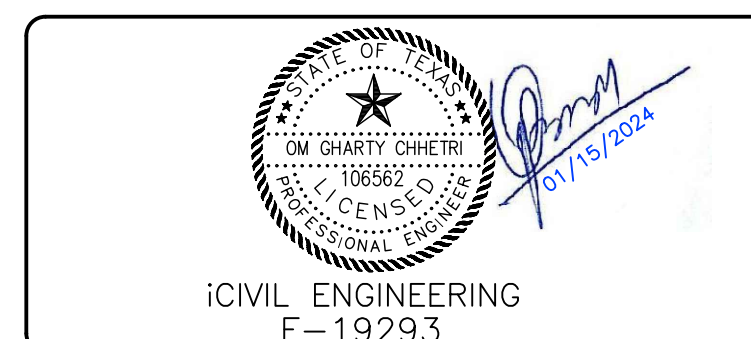
1+00 2+00



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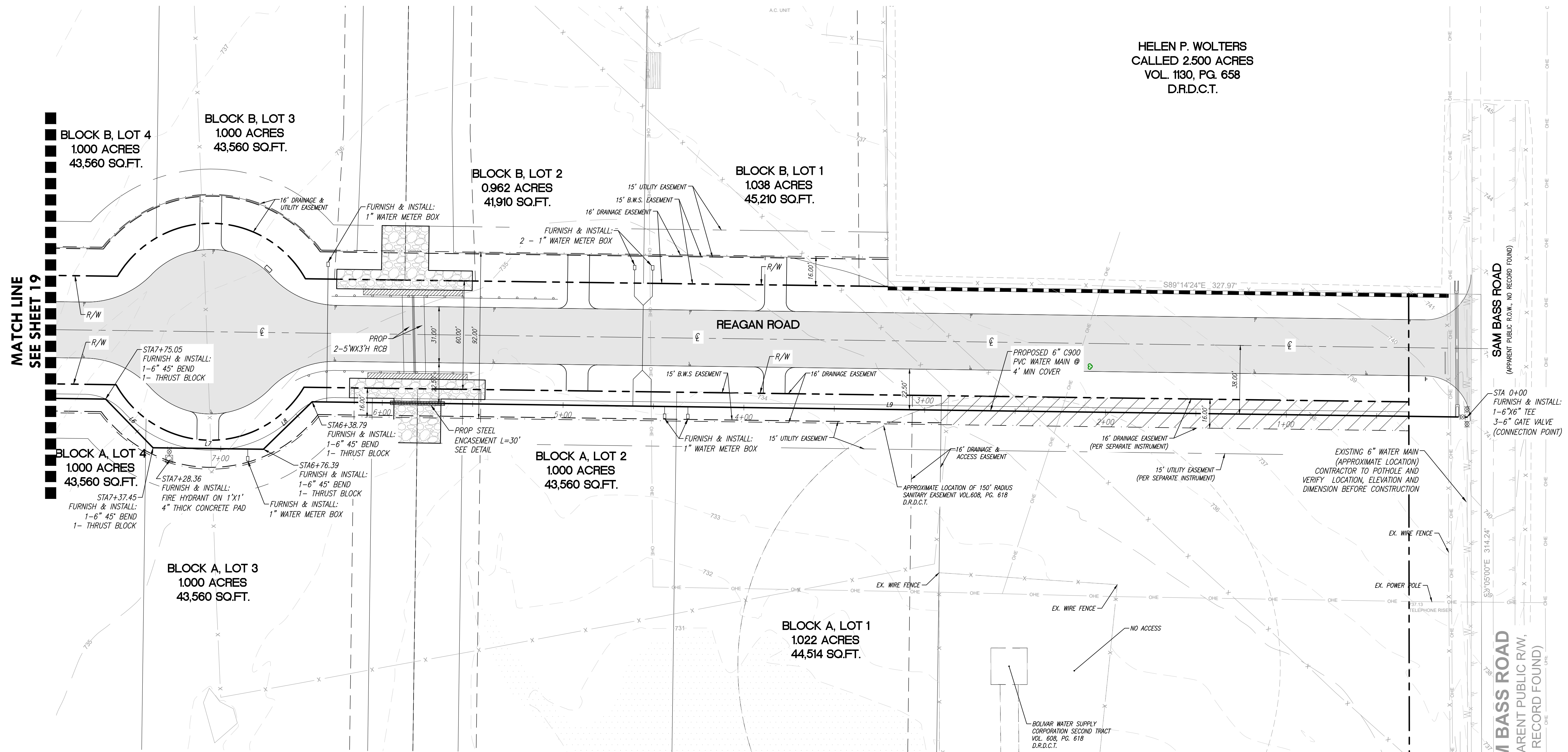
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**JAN 2024**



**SANGER, TEXAS**  
**CULVERT PLAN & PROFILE**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 17  
 of  
 23

HELEN P. WOLTERS  
CALLED 2.500 ACRES  
VOL. 1130, PG. 658  
D.R.D.C.T.



MATCH LINE  
SEE SHEET 19

BLOCK B, LOT 4  
1.000 ACRES  
43,560 SQ.FT.

BLOCK B, LOT 3  
1.000 ACRES  
43,560 SQ.FT.

BLOCK B, LOT 2  
0.962 ACRES  
41,910 SQ.FT.

BLOCK B, LOT 1  
1.038 ACRES  
45,210 SQ.FT.

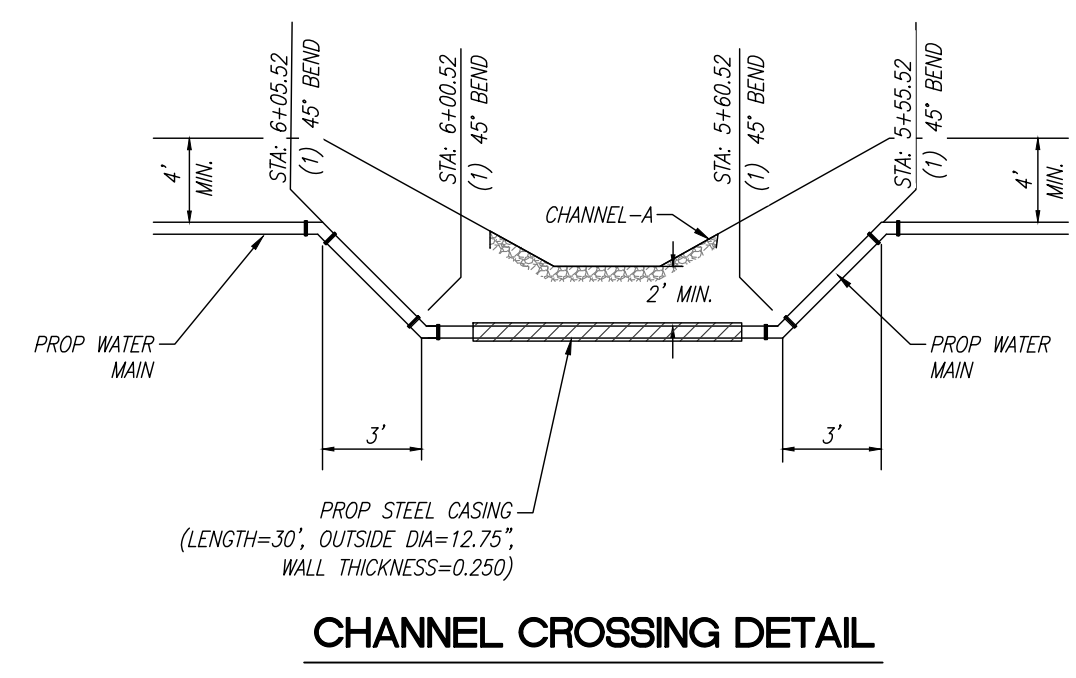
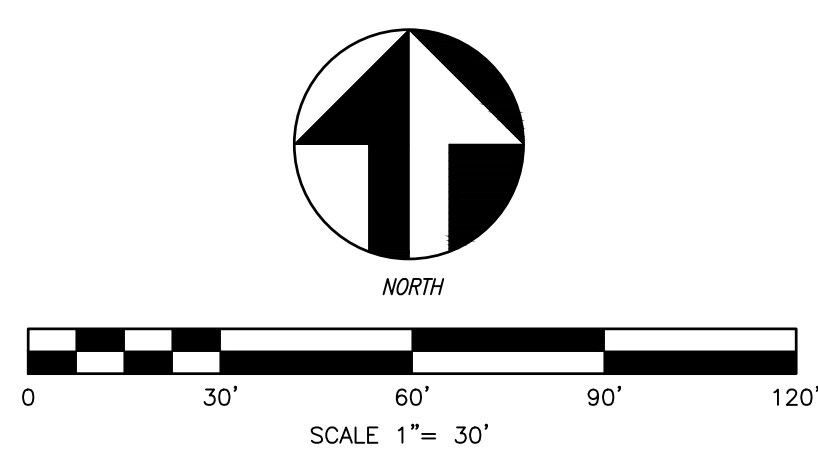
BLOCK A, LOT 4  
1.000 ACRES  
43,560 SQ.FT.

BLOCK A, LOT 3  
1.000 ACRES  
43,560 SQ.FT.

BLOCK A, LOT 2  
1.000 ACRES  
43,560 SQ.FT.

BLOCK A, LOT 1  
1.022 ACRES  
44,514 SQ.FT.

**SEWER = SEPTIC SYSTEM**



Line #	Length	Direction
L6	37.60	S44° 14' 23.69"E
L7	61.05	S89° 14' 23.84"E
L8	37.60	N45° 45' 36.17"E
L9	638.79	S89° 14' 23.76"E

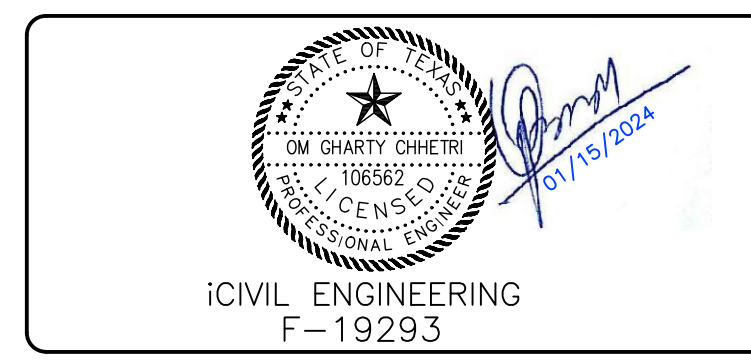
NOTE:  
THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND THERE MAY BE OTHER UNKNOWN EXISTING UTILITIES NOT SHOWN ON THE PLANS. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND PROTECTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES 72 HOURS PRIOR TO DOING ANY WORK IN THE AREA.



**iCIVIL ENGINEERING**  
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EULESS, TX 76040  
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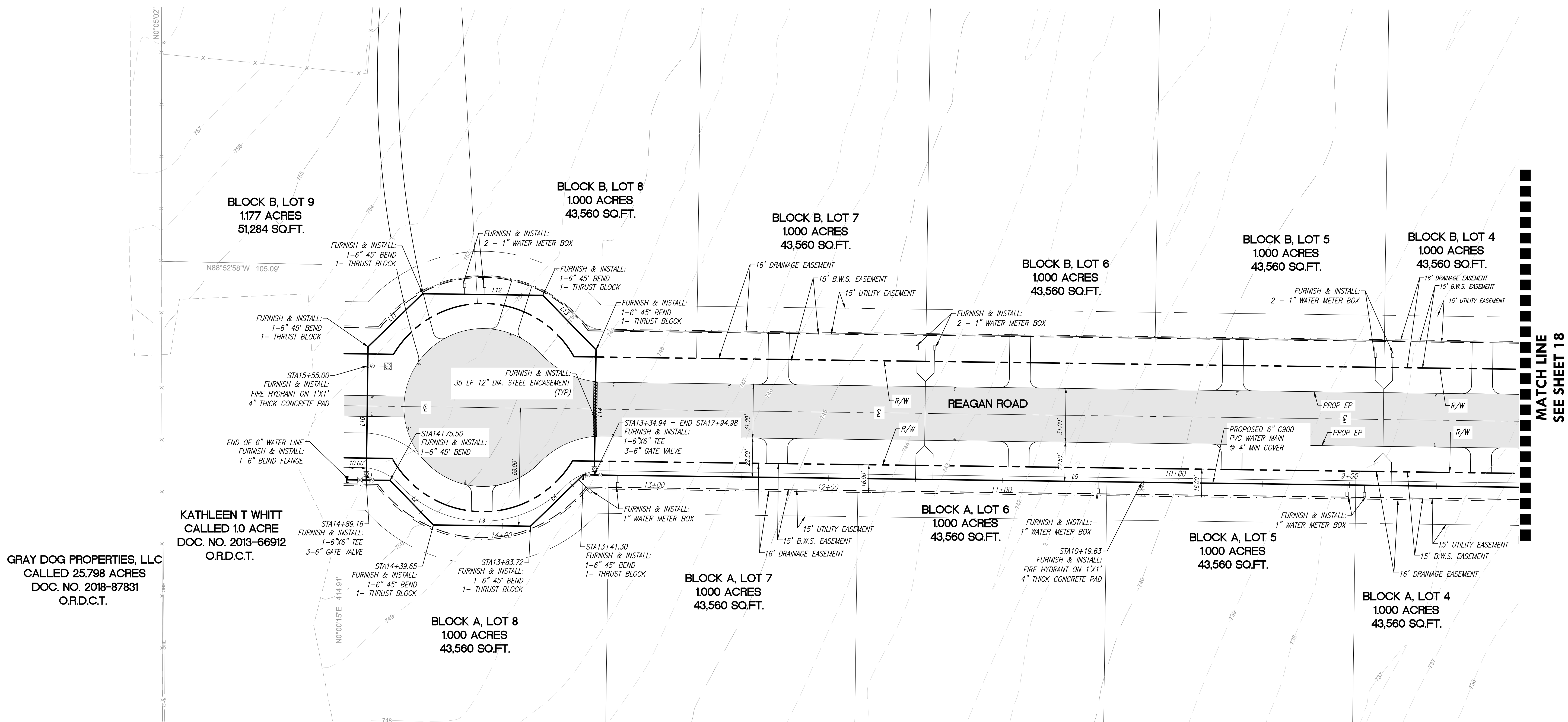
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**JAN 2024**



**SANGER, TEXAS**  
**WATER PLAN**  
FOR  
**MARLEY MEADOWS**

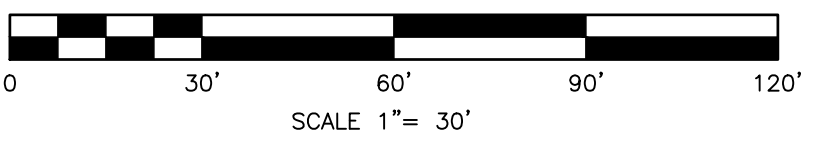
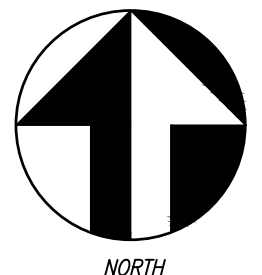
PROJECT NO.  
sheet  
18  
of  
23



MATCH LINE  
SEE SHEET 18

GRAY DOG PROPERTIES, LLC  
CALLED 25.798 ACRES  
DOC. NO. 2018-87831  
O.R.D.C.T.

KATHLEEN T WHITT  
CALLED 1.0 ACRE  
DOC. NO. 2013-66912  
O.R.D.C.T.



Line #	Length	Direction
L1	23.67	S89° 14' 23.68"E
L2	35.84	S44° 14' 23.69"E
L3	55.93	S89° 14' 23.76"E
L4	42.42	N45° 45' 36.17"E
L5	566.25	S89° 14' 23.76"E
L10	76.74	N0° 45' 36.38"E
L11	43.86	N45° 45' 36.17"E
L12	69.26	S89° 14' 23.76"E
L13	43.88	S44° 14' 23.69"E
L14	72.08	S0° 45' 36.31"W

**SEWER = SEPTIC SYSTEM**

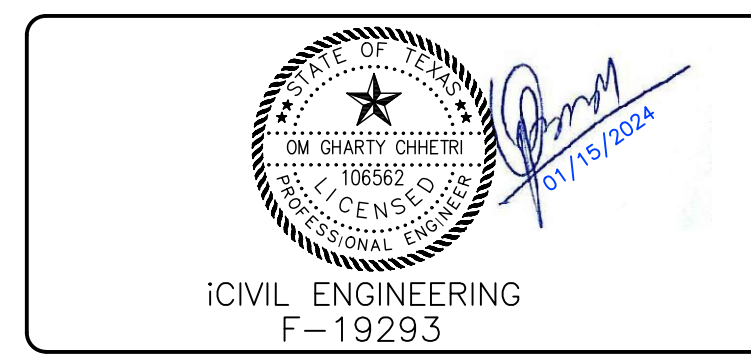
NOTE:  
THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND THERE MAY BE OTHER UNKNOWN EXISTING UTILITIES NOT SHOWN ON THE PLANS. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND PROTECTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES 72 HOURS PRIOR TO DOING ANY WORK IN THE AREA.



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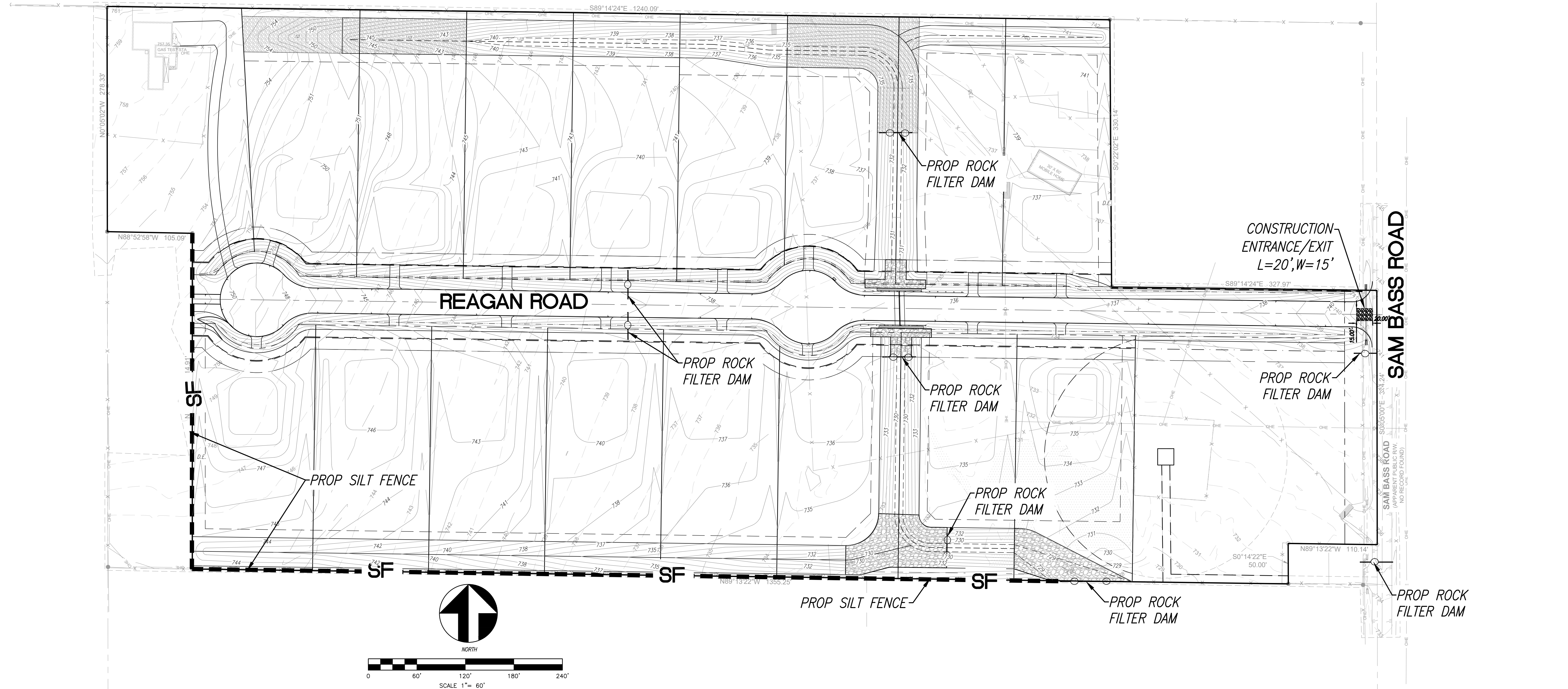
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**JAN 2024**



**SANGER, TEXAS**  
**WATER PLAN**  
FOR  
**MARLEY MEADOWS**

PROJECT NO.  
sheet  
19  
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23



**LEGEND**

- ROCK FILTER DAM
- SILT FENCE OR APPROVED EQUAL
- DRAINAGE FLOW DIRECTION
- CONSTRUCTION ENTRANCE/EXIT
- SODDING

**PHASE DESCRIPTION**

- |   |                                  |
|---|----------------------------------|
| 1 | INSTALL INITIAL BMPs             |
| 2 | GRADING & DITCH/CHANNEL          |
| 3 | UNDERGROUND UTILITY INSTALLATION |
| 4 | PAVING OPERATIONS                |
| 5 | ESTABLISH PERMANENT GROUND COVER |
| 6 | REMOVE TEMPORARY BMPs            |

**EROSION AND SEDIMENT CONTROL**

**1. SOIL STABILIZATION PRACTISES (T-TEMPORARY P-PERMANENT)**

- BUFFER ZONE
- PLANTING
- SODDING
- RIPRAP AT OUTLET

**2. STRUCTURAL PRACTISES**

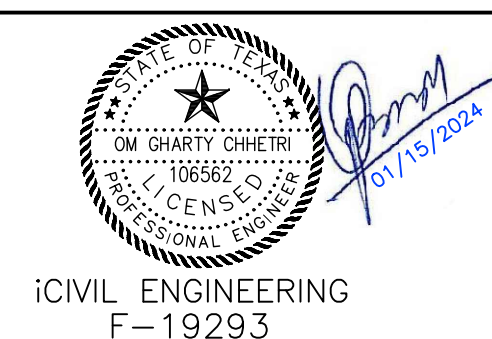
- SILT FENCE
- ROCK FILTER DAMS
- INLETS AND PIPES
- STORM INLET SEDIMENT TRAP
- PIPE SLOPE DRAINS
- STONE RIPRAP AT DISCHARGE POINT
- CULVERTS



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**JAN 2024**



**SANGER, TEXAS**  
**EROSION CONTROL PLAN**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
 sheet  
 20  
 of  
 23

TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure only)									
Maximum Wingwall Height (H)	Dimensions			Variable Reinforcing		Estimated Quantities per Ft. of (Wingwall)		Estimated Quantities per Ft. of (Wingwall)	
	W	X	Z	Bars J1	Bars J2	Rein. (lb/ft)	Conc. (CY/ft)	Rein. (lb/ft)	Conc. (CY/ft)
2'-0"	2'-10"	10'	1'-0"	#4	1-0"	48.54	0.460	6.85	0.071
2'-2"	2'-10"	10'	1'-0"	#4	1-0"	49.31	0.474	6.85	0.071
2'-4"	2'-10"	10'	1'-0"	#4	1-0"	49.98	0.484	6.85	0.071
2'-6"	2'-10"	10'	1'-0"	#4	1-0"	50.52	0.492	6.85	0.071
2'-8"	2'-10"	10'	1'-0"	#4	1-0"	50.98	0.498	6.85	0.071
2'-10"	2'-10"	10'	1'-0"	#4	1-0"	51.37	0.503	6.85	0.071
3'-0"	2'-10"	10'	1'-0"	#4	1-0"	51.71	0.507	6.85	0.071
3'-2"	2'-10"	10'	1'-0"	#4	1-0"	52.00	0.510	6.85	0.071
3'-4"	2'-10"	10'	1'-0"	#4	1-0"	52.25	0.513	6.85	0.071
3'-6"	2'-10"	10'	1'-0"	#4	1-0"	52.46	0.516	6.85	0.071
3'-8"	2'-10"	10'	1'-0"	#4	1-0"	52.63	0.518	6.85	0.071
3'-10"	2'-10"	10'	1'-0"	#4	1-0"	52.77	0.520	6.85	0.071
4'-0"	2'-10"	10'	1'-0"	#4	1-0"	52.88	0.522	6.85	0.071
4'-2"	2'-10"	10'	1'-0"	#4	1-0"	52.96	0.523	6.85	0.071
4'-4"	2'-10"	10'	1'-0"	#4	1-0"	53.01	0.524	6.85	0.071
4'-6"	2'-10"	10'	1'-0"	#4	1-0"	53.04	0.525	6.85	0.071
4'-8"	2'-10"	10'	1'-0"	#4	1-0"	53.06	0.525	6.85	0.071
4'-10"	2'-10"	10'	1'-0"	#4	1-0"	53.07	0.526	6.85	0.071
5'-0"	2'-10"	10'	1'-0"	#4	1-0"	53.08	0.526	6.85	0.071
5'-2"	2'-10"	10'	1'-0"	#4	1-0"	53.08	0.526	6.85	0.071
5'-4"	2'-10"	10'	1'-0"	#4	1-0"	53.08	0.526	6.85	0.071
5'-6"	2'-10"	10'	1'-0"	#4	1-0"	53.08	0.526	6.85	0.071
5'-8"	2'-10"	10'	1'-0"	#4	1-0"	53.08	0.526	6.85	0.071
5'-10"	2'-10"	10'	1'-0"	#4	1-0"	53.08	0.526	6.85	0.071

**WING DIMENSION FORMULAS:**  
 (All values are in feet.)  
 $H = H_1 + T + C$   
 $L = (H/12) \times \cosine(B)$  for Type PW-1  
 $L = (H/12) \times \cosine(B)$  for Type PW-2 and  $H_1 = C + (H - C) / \cosine(B)$  for Type PW-2 and  $H_1 = C + (H - C) / \cosine(B)$  for Type PW-1.  
 For cast-in-place culverts:  
 $L = (H/12) \times \cosine(B) + 1.1(1.5) \times \cosine(B)$   
 Total Wingwall Area (sq. ft.) =  $(2)(W)(L) + 6.5F$  for Type PW-2 and  $H_1 = C + (H - C) / \cosine(B)$  for Type PW-1.  
 For precast culverts:  
 $L = (H/12) \times \cosine(B) + 1.1(1.5) \times \cosine(B)$   
 Total Wingwall Area (sq. ft.) =  $(2)(W)(L) + 6.5F$  for Type PW-2 and  $H_1 = C + (H - C) / \cosine(B)$  for Type PW-1.

**TABLE OF REINFORCING**

Bar	Size	No.	Spd.
D1	#4	1-0"	1-0"
D2	#4	1-0"	1-0"
E1	#4	1-0"	1-0"
F	#4	1-0"	1-0"
G	#4	1-0"	1-0"
H	#4	1-0"	1-0"
I	#4	1-0"	1-0"
J1	#4	1-0"	1-0"
J2	#4	1-0"	1-0"
K	#4	1-0"	1-0"
L	#4	1-0"	1-0"
M	#4	1-0"	1-0"
N	#4	1-0"	1-0"
O	#4	1-0"	1-0"
P	#4	1-0"	1-0"
Q	#4	1-0"	1-0"
R	#4	1-0"	1-0"
S	#4	1-0"	1-0"
T	#4	1-0"	1-0"
U	#4	1-0"	1-0"
V	#4	1-0"	1-0"
W	#4	1-0"	1-0"
X	#4	1-0"	1-0"
Y	#4	1-0"	1-0"
Z	#4	1-0"	1-0"

**DESIGNER NOTES:**  
 1. The PW-1 can be used for all applications and must be used if it is to be mounted on the wingwall.  
 2. The PW-2 can only be used for applications without a railing mounted to the wingwall.  
**MATERIAL NOTES:**  
 Provide Class C concrete (f'c=3,600 psi).  
 Provide Class 60 reinforcing steel.  
 Provide galvanized reinforcing steel if required.  
**GENERAL NOTES:**  
 Designed in accordance with AASHTO LRFD Bridge Design Specifications.  
 Details of concrete and reinforcement are shown as directed by the Engineer.  
 See the Culvert Substructure (SCS) standard sheet for wingwall type and additional dimensions and information.  
 Quantity take-off for concrete and reinforcing steel resulting from this drawing shall be the responsibility of the contractor.  
 Cover dimensions and clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

**CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2**

**SECTION C-C - PW-1**  
**SECTION C-C - PW-2**

**DETAILS FOR NON-SKEWED BOX CULVERTS**  
**DETAILS FOR SKEWED BOX CULVERTS**

**WOOD BLOCK TO RECTANGULAR WOOD POST**  
**WOOD BLOCK TO STEEL POST**

**TYPICAL POST**  
**WOOD BLOCK TO ROUND WOOD POST**

**ELEVATION 12 1/2" INCL. 8-BEAM SECTION**  
 2x8 beam section may also be substituted (see General Note 2).

**FOR USE ON NON-WIDING CLASS CULVERTS ONLY**

**GENERAL NOTES:**

- The type of post (round wood post, rectangular wood post, or steel post) will be shown as per the plans. The location of MBGF post shall be determined in accordance with Item 405, "Culverting".
- Post placement shall meet the requirements of Item 405, "Metal Beam Guard Fence" except as modified on the plans. The contractor may furnish roll elements of 12, 15, or 25 foot nominal lengths.
- Unless otherwise shown in the plans, guard fence placed in the vicinity of curves shall be placed so that the face of curb is located directly in line of center line of the block. Roll placed over curb shall be installed so that the post bolt is located approximately 21 inches above the gutter top or roadway surface.
- If solid rock is encountered within 2 to 18" of the finished grade, drill a 2" dia. hole, 24" into the rock, or drill a 2" dia. hole, 12" into the rock and 12" into the soil. If solid rock is encountered below 18" or 12" dia. hole, 12" into the rock or the proposed roadway depth, the hole shall be filled with concrete to a depth of 12" above the gutter top or roadway surface.
- Posts shall not be set in concrete, or any depth.
- Special fabrication will be required on installations having a curvature of less than 150 ft. radius.
- The terminal anchor section (TAS) post shall be set in Class C concrete. Concrete shall be placed in the 6" dia. hole in the 12" dia. hole. The construction of the terminal anchor section (TAS) terminal anchor post shall be as shown on the plans.
- Unless otherwise shown in the plans, a composite material post and/or block that meets the requirements of Item 405, "Composite Material Posts and Blocks for Metal Beam Guard Fence" may be substituted for the MBGF post and/or block. The contractor shall be responsible for providing the material and for obtaining the necessary approvals.

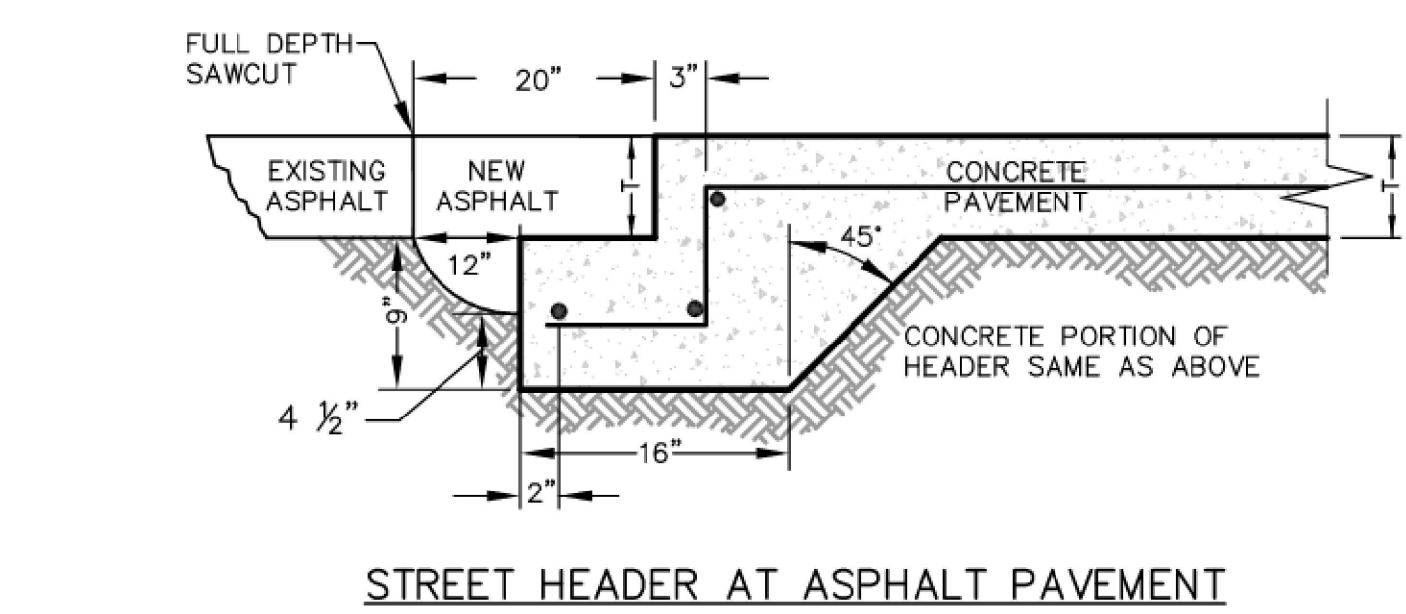
**ONLY FOR USE IN MAINTENANCE REPAIRS OR HIGHLY CONSTRAINED SITE CONDITIONS.**

**METAL BEAM GUARD FENCE MBGF-19**

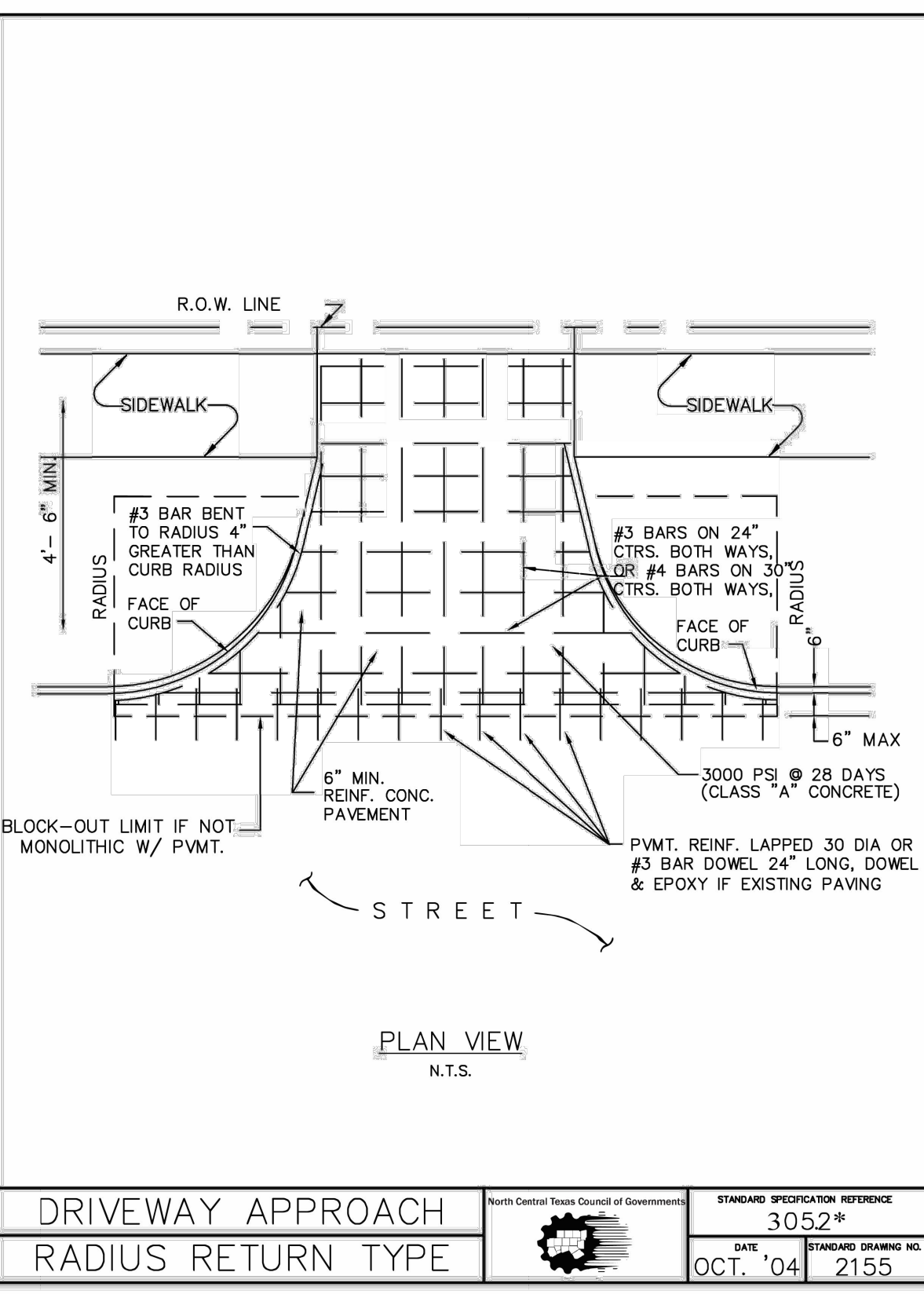
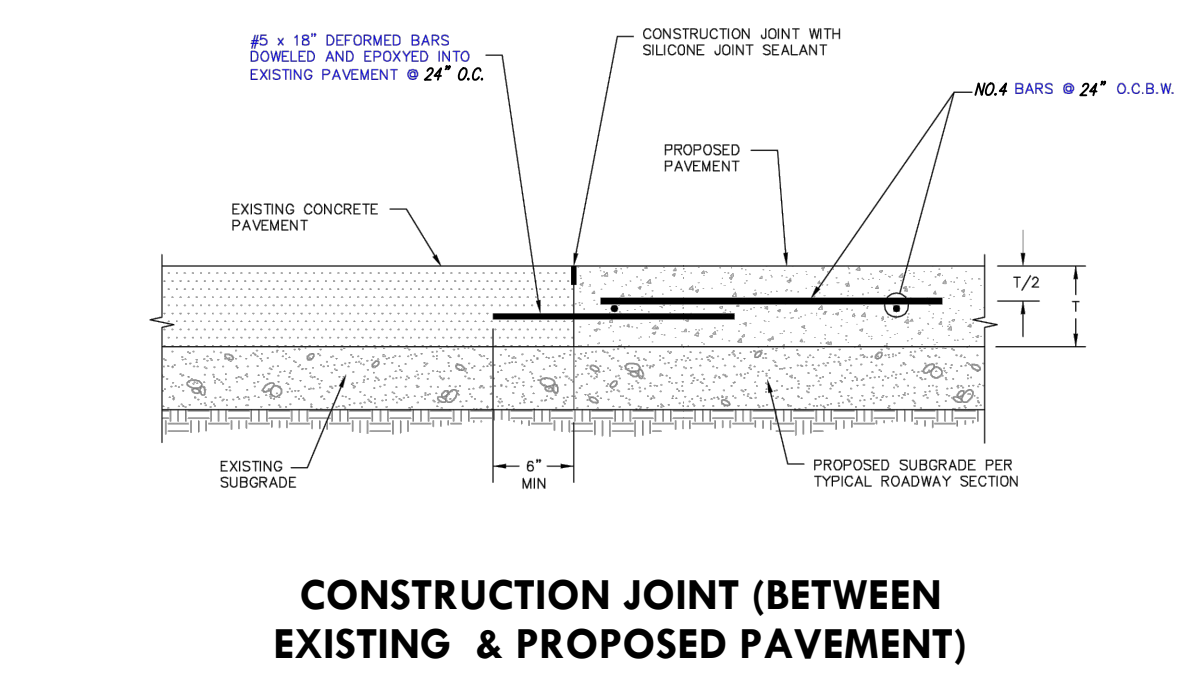
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**Texas Department of Transportation**

DATE: \_\_\_\_\_



- NOTES:**
- PAVEMENT BARS TO BE BENT DOWN INTO HEADER.
  - HEADER AND PAVEMENT TO BE MONOLITHIC.
  - NEW ASPHALT SHALL MATCH PROPOSED PAVEMENT THICKNESS WITH TOP 2" TYPE D AND THE REMAINING ASPHALT SHALL BE TYPE B PER TxDOT SPECIFICATIONS.



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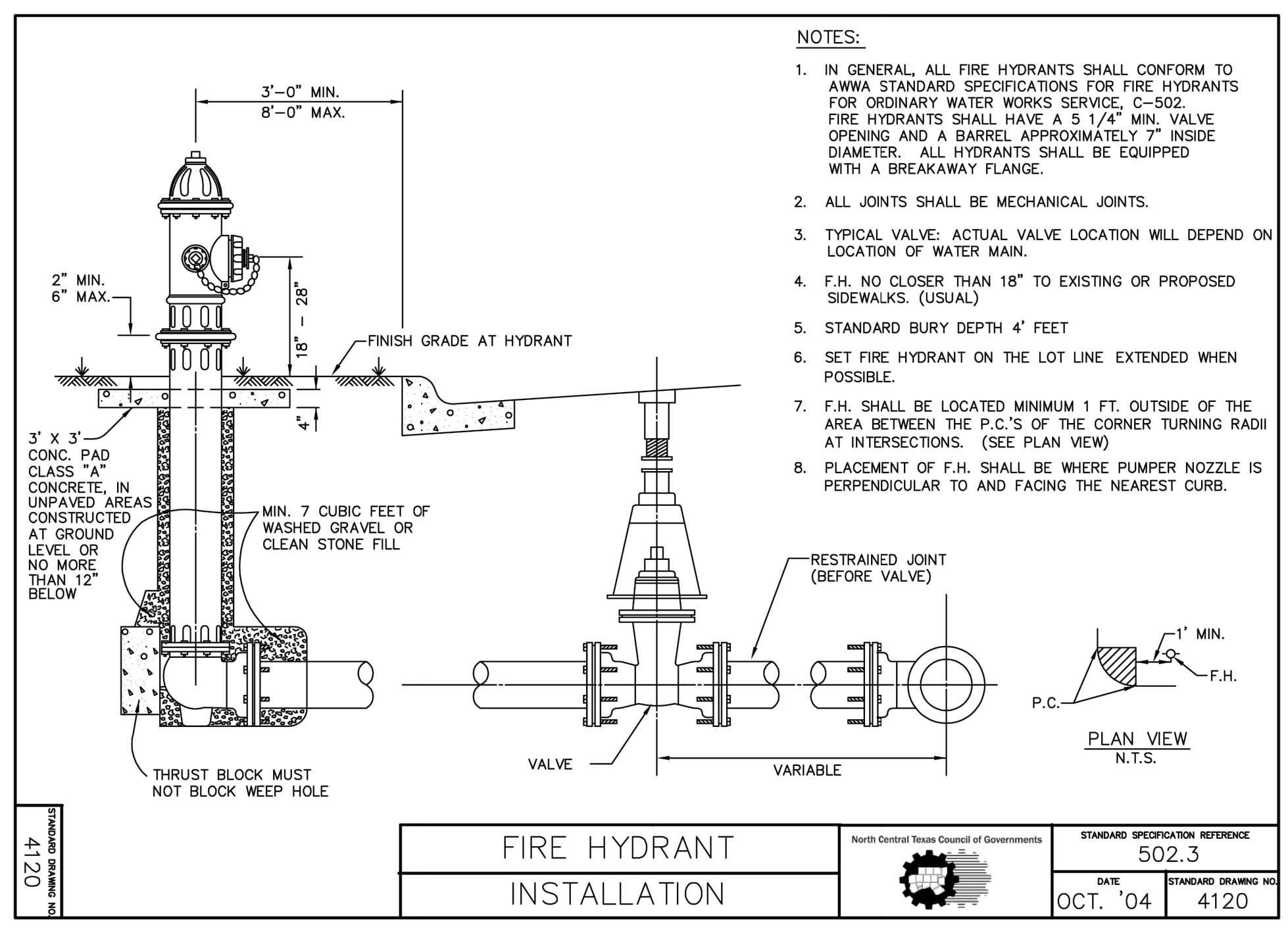
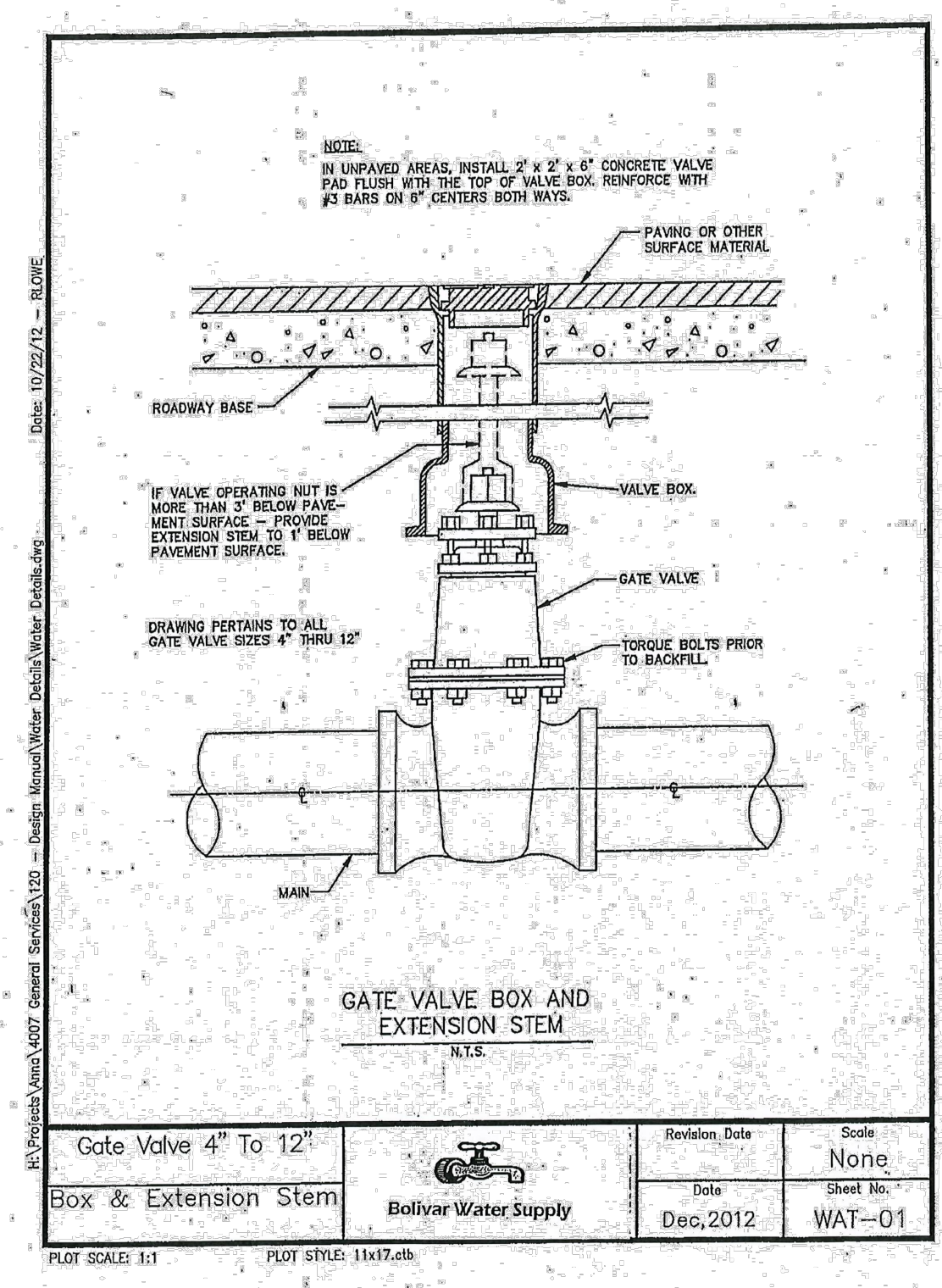
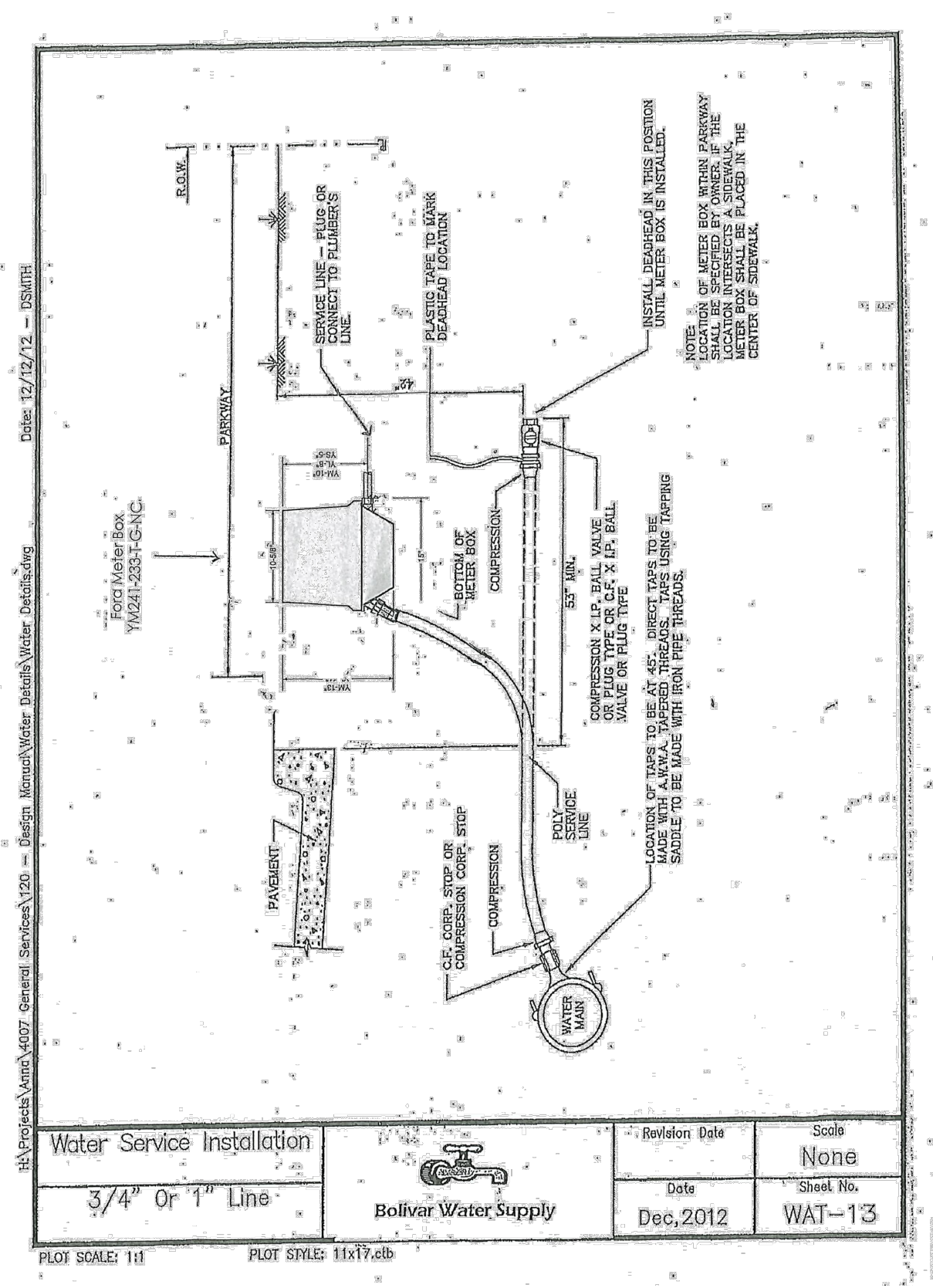
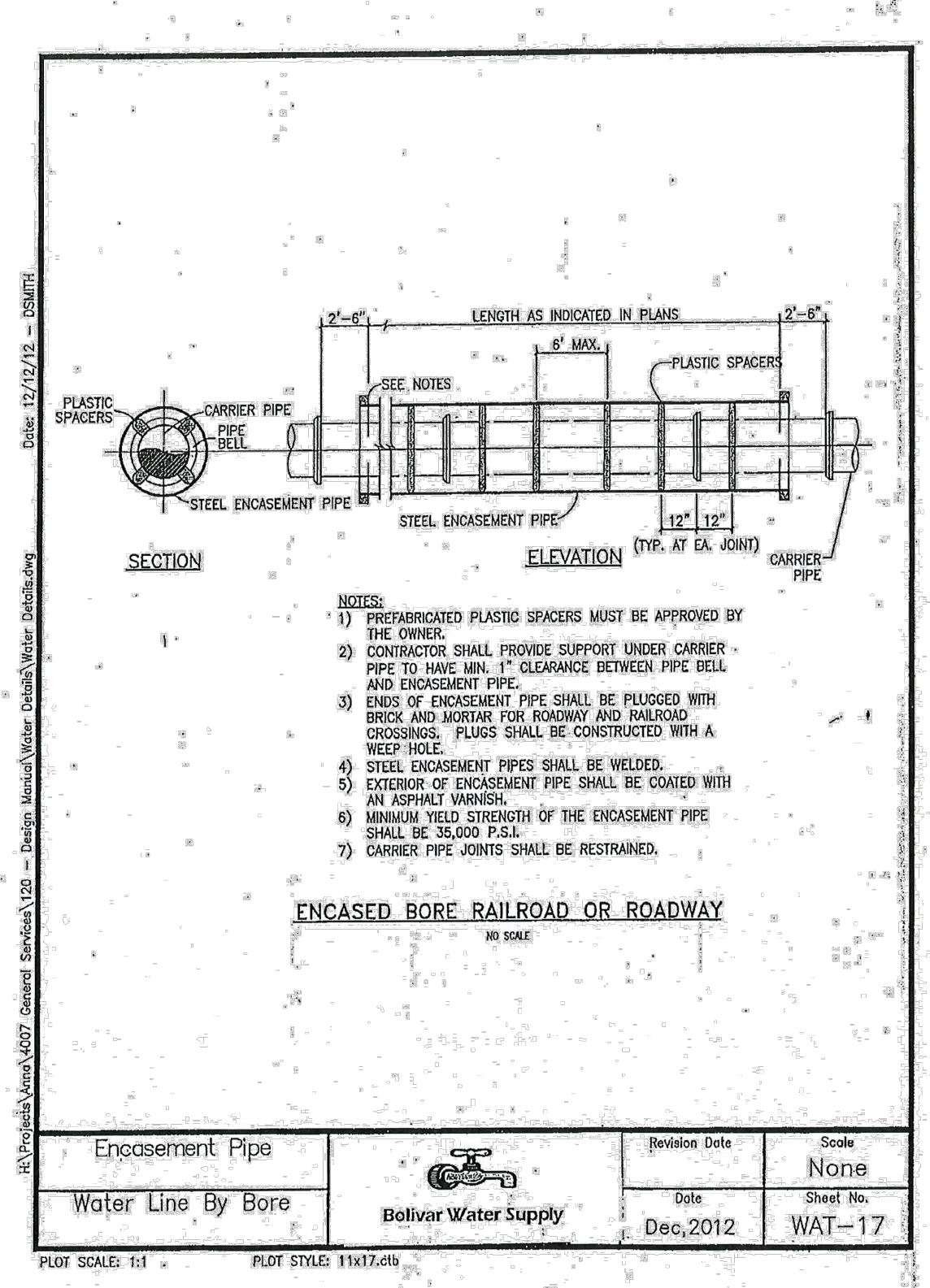
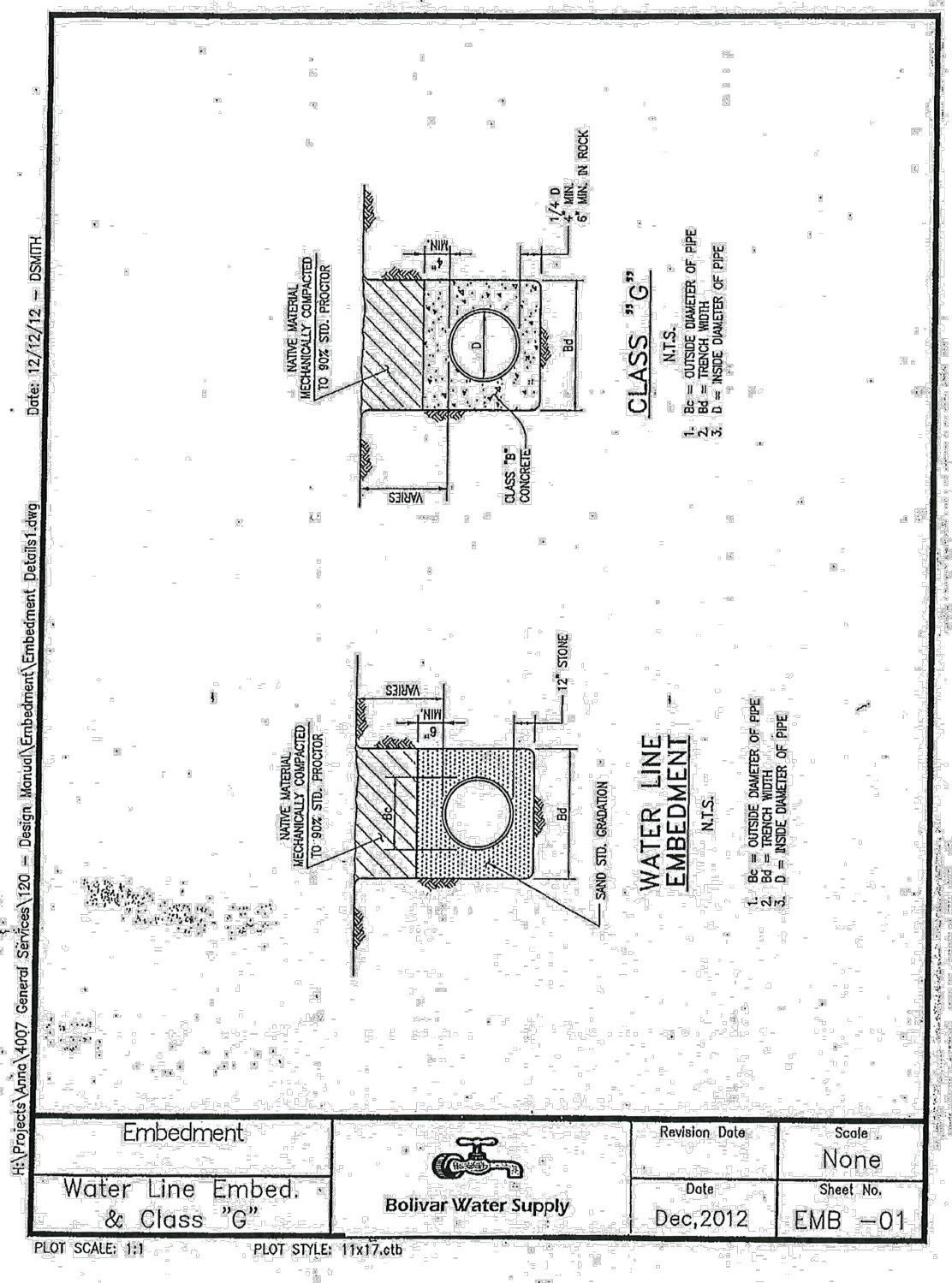
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**SANGER, TEXAS**  
**DETAILS FOR MARLEY MEADOWS**

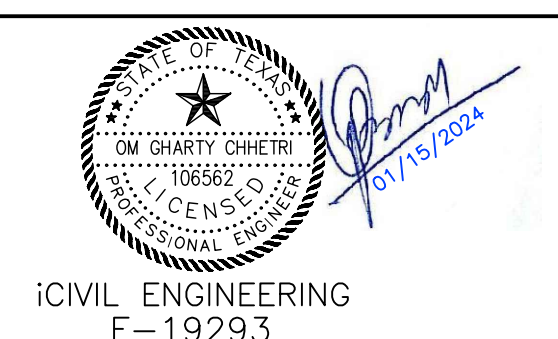
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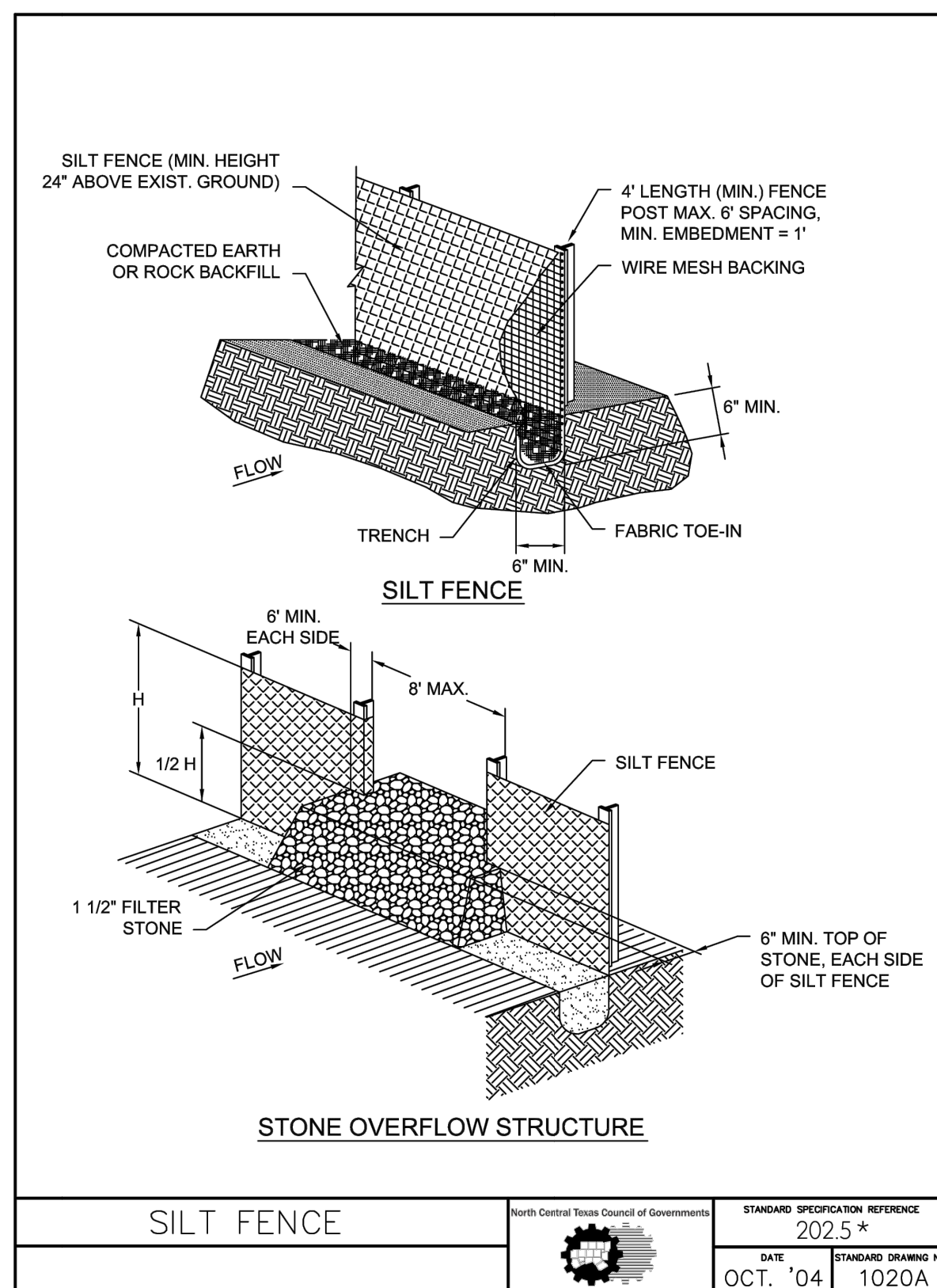
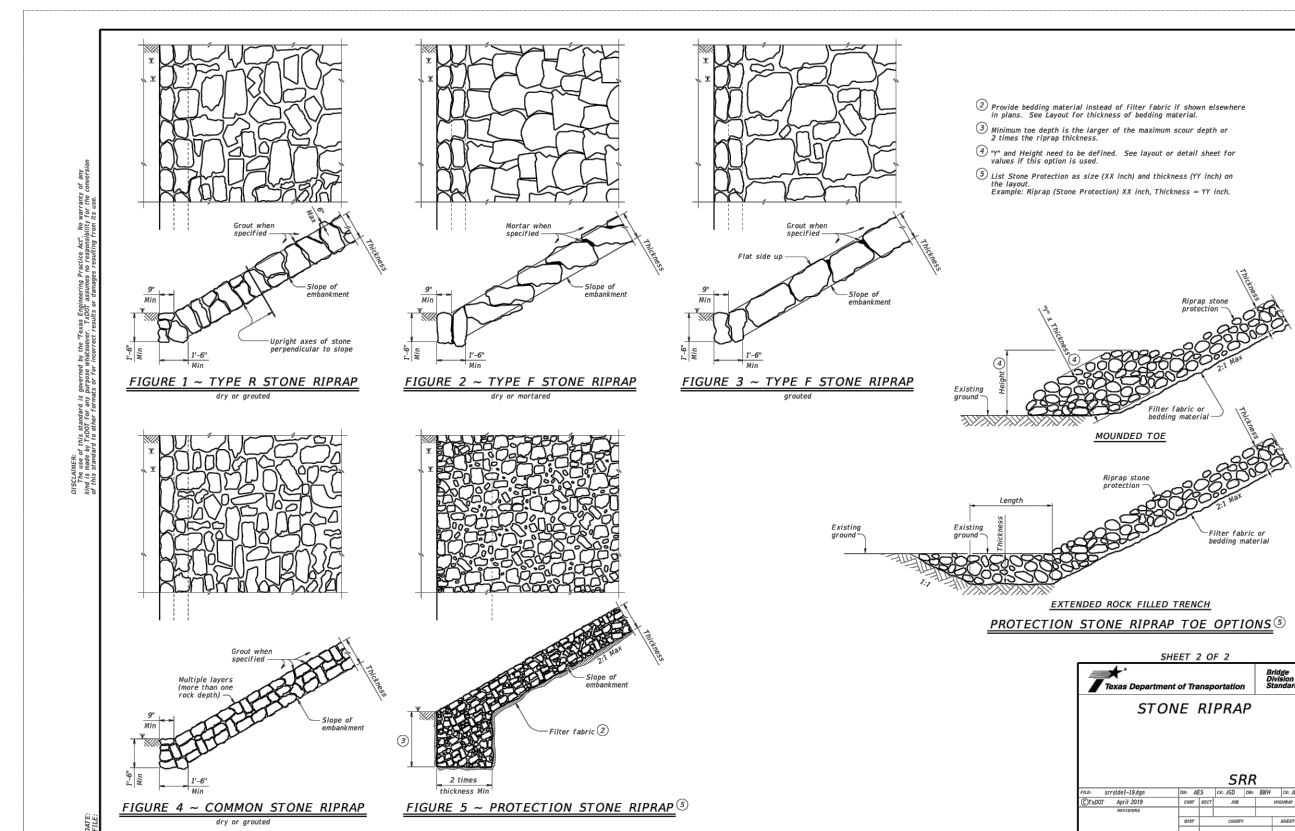
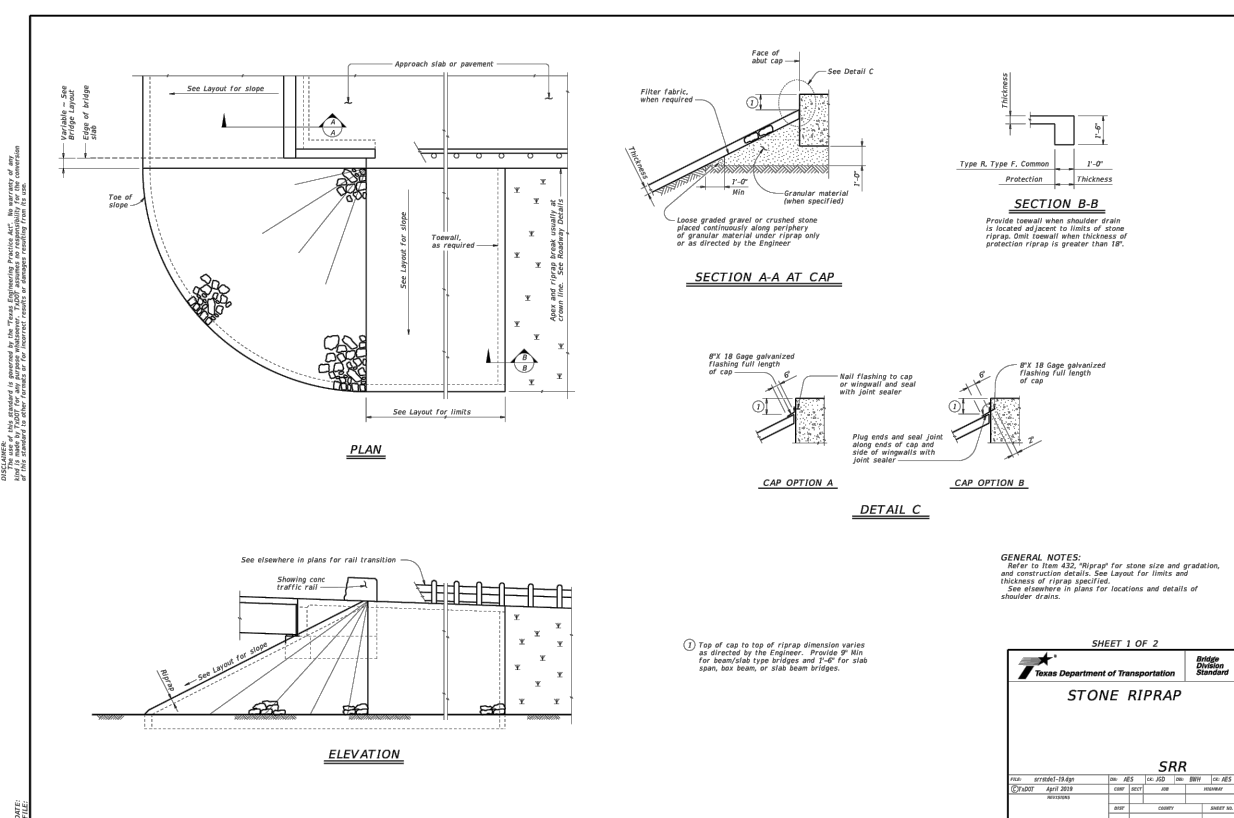
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**SANGER, TEXAS**  
**DETAILS**  
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**MARLEY MEADOWS**

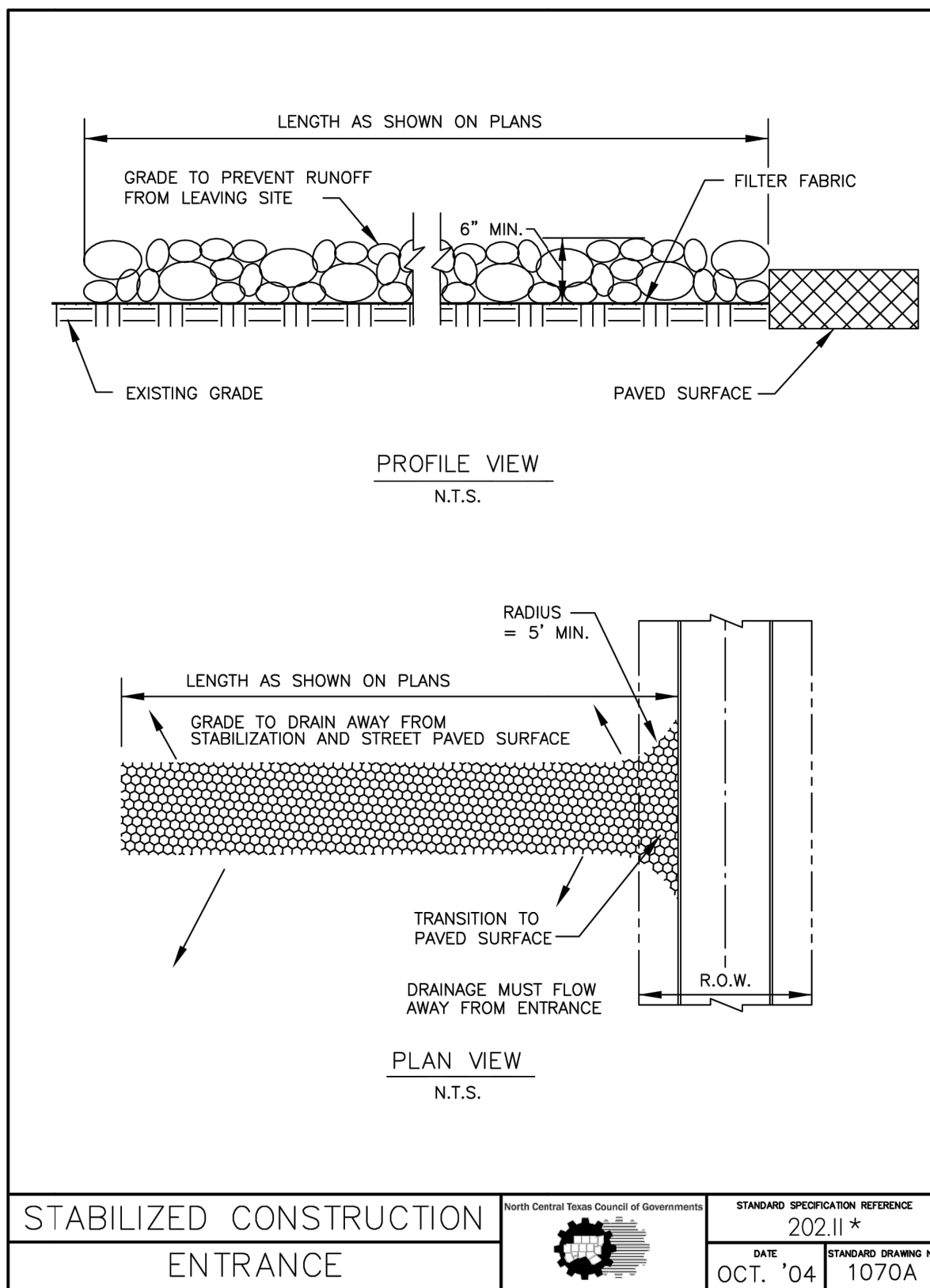
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**SILT FENCE GENERAL NOTES:**

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



**STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:**

1. STONE SHALL BE 3 TO 5 INCH DIAMETER COARSE AGGREGATE.
2. LENGTH SHALL BE AS SPECIFIED IN THE SWPPP.
3. THE THICKNESS SHALL NOT BE LESS THAN 12 INCHES.
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
8. PREVENT SHORTCUTTING OF THE FULL LENGTH OF THE CONSTRUCTION ENTRANCE BY INSTALLING BARRIERS AS NECESSARY.
9. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

\*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

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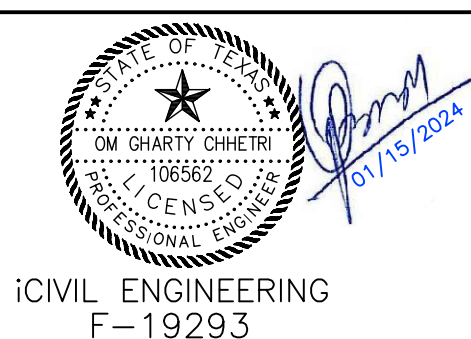
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**SANGER, TEXAS**  
**DETAILS**  
 FOR  
**MARLEY MEADOWS**

PROJECT NO.  
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# CITY COUNCIL COMMUNICATION

**DATE:** April 15, 2024

**FROM:** Jim Bolz, Director of Public Works

**AGENDA ITEM:** Conduct a public hearing on Ordinance #04-07-24 amending Sanger’s Water Conservation and Drought Contingency Plan.

**SUMMARY:**

- Over the years, major Regional Water Districts have been working on aligning their drought contingency plans
- Goal is to align all the plans in the region, so the drought stages are the same
- Allowing for less confusion and uniformity among all cities and water districts in the region
- Allowing for area-wide advertising to get the message out
- Upper Trinity has amended their plan and is asking us to do the same

**FISCAL INFORMATION:**

Budgeted: N/A                                      Amount: N/A                                      GL Account: N/A

**RECOMMENDED MOTION OR ACTION:**

- Staff recommends approval

**ATTACHMENTS:**

- Water Conservation Plan
- Drought Contingency Plan
- Water Utility Profile
- Ordinance # 04-07-24

# **SANGER TEXAS**

## **WATER CONSERVATION PLAN**

**MAY 2024**



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**Water Conservation Plan for  
City of Sanger  
May 2024**

**SECTION 1**

**Introduction and Objectives**

Water supply has always been a key issue in the development of Texas. In recent years, the growing population and economic development of North Central Texas have led to increasing demands for water. Additional supplies to meet higher demands will be expensive and difficult to develop. Therefore, we must make efficient use of existing supplies - - to minimize the need for new resources.

Effective water conservation can postpone or reduce the need for the development of new water supplies, minimize the associated environmental impacts, and reduce the high cost of water supply development. Even with robust conservation measures, new water sources will be needed; conservation alone is not enough. To respond to the growing population of this region, the planning for new water resources must continue. The City of Sanger considers water conservation (including reuse of reclaimed wastewater) an integral part of this planning process and water supply development process.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality ("TCEQ") has promulgated guidelines and requirements governing the development of water conservation plans for Public Water Suppliers. The City of Sanger developed its original plans for water conservation and drought contingency in April 2014, later amended in July 2016. This update of the Water Conservation Plan (the "Plan") has been coordinated with the suggested model water conservation plan prepared by Upper Trinity Regional Water District ("UTRWD") for its Members and Customers, such as the City of Sanger; and is consistent with the latest TCEQ requirements outlined below.

Water is a basic tenant in all aspects of sustainability. Water conservation is one critical element of a water supplier's effort to meet future water supply needs, in an economical manner and without sacrificing quality of life standards. The following are the central objectives of this Plan:

- Reduce water consumption from levels that would prevail without conservation efforts;
- Reduce the loss and waste of water, as evidenced by per capita use;
- Provide support and incentives to retail customers to maintain and continue sound conservation practices;
- Continue to improve efficiency in the use of water and
- Extend the adequacy of current water supplies by reducing the pace of growth in the annual water demand.

## 1.1 Texas Commission on Environmental Quality Rules

TCEQ rules governing the development of water conservation plans for Public Water Suppliers, such as the City of Sanger, are contained in Title 30, Part 1, Chapter 288, Subchapter A, and Rule 288.2 of the Texas Administrative Code (“TAC”). A copy of these rules is included in Appendix A. The rules define a water conservation plan as:

“A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water.”

New rules amending 30 TAC Chapter 288 were approved by TCEQ commissioners on November 14, 2012, and made effective on December 6, 2012. The following is a summary of the key changes:

- A utility profile must be prepared in accordance with the Texas Water Use Methodology; water use data must include total gallons per capita per day (GPCD) and residential GPCD;
- All Public Water Suppliers must classify water sales and uses into the most detailed level of water use data currently available to the record management system (e.g., (i) residential (single-family and multi-family), (ii) commercial, (iii) institutional, (iv) industrial, (v) agricultural and (vi) wholesale);
- Five-year and ten-year targets for water savings must include goals for municipal use in total GPCD and residential GPCD and
- The term “unaccounted-for uses of water” is replaced with “water loss.”

### A. Minimum Water Conservation Plan Requirements

The minimum requirements for water conservation plans for municipal uses by Public Water Suppliers required by TCEQ are summarized below.

- *Utility Profile:* In accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total GPCD and residential GPCD), water supply system data, and wastewater system data. (Section 2)
- *Record Management System:* Allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the following sectors: (i) residential (single-family and multi-family), (ii) commercial, (iii) institutional, (iv) industrial, (v) agricultural and (vi) wholesale). (Section 3)

- *Goals:* Specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use, in total GPCD and residential GPCD. The goals established by a Public Water Supplier are not enforceable under this subparagraph. (Section 4)
- *Accurate Metering Devices:* Metering devices have an accuracy of plus or minus five percent (5%) for measuring water diverted from the source of supply. (Section 5.1)
- *Universal Metering, Testing, Repair and Replacement:* A program for universal metering of both customer and public uses of water, for meter testing and repair and for periodic meter replacement. (Section 5.2)
- *Determination and Control of Water Loss:* Specific measures to determine and control water loss. The measures may include periodic visual inspections along distribution pipelines and periodic audits of the water system for illegal connections or abandoned services. (Section 5.3)
- *Continuing Public Education Program:* A continuing public education and information program regarding water conservation is required as part of the Plan. (Section 5.4)
- *Non-Promotional Water Rate Structure:* A water rate structure that is not “promotional,” that is, rates that discourage waste and excessive use of water such as increasing block rate instead of volume discounts. (Section 5.5)
- *Landscape Water Management Strategy:* Implementing and achieving the efficient use and stewardship of water in landscape irrigation, including watering a maximum of two days per week and time-of-day watering provisions. It is an optional strategy within the TCEQ regulations. However, UTRWD requires that the City of Sanger implement a landscape water management ordinance as part of the Plan. (Section 5.6)
- *Reservoir Systems Operational Plan:* If applicable, providing for the coordinated operation of reservoirs owned by the water supply entity within a common watershed or river basin to optimize available water supplies. (Section 5.7)
- *Means of Implementation and Enforcement:* The regulations require a strategy for implementing and enforcing the provisions of this Plan, as evidenced by an ordinance, resolution, or tariff, and a description of the authority by which the Plan is enforced. (Section 8)
- *Coordination with Regional Water Planning Group:* Document that the Plan has been coordinated with the Regional Water Planning Group to ensure consistency with the appropriate approved regional water plan. (Section 9)



B. Additional Requirements for Larger Public Water Suppliers

Water conservation plans for municipal uses by Public Drinking Water Suppliers serving a population of 5,000 or more and/or a projected population of 5,000 or more within the 10 years subsequent to the effective date of this Plan must include the elements summarized below.

- *Program of Leak Detection, Repair, and Water Loss Accounting:* A program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control water loss. (Section 6.1)
- *Wholesale Customer Requirements:* If applicable, a requirement in every wholesale water supply contract entered into or renewed after the official adoption of the water conservation plan, including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in Title 30 TAC Chapter 288. (Section 6.2)

C. Enhanced Water Conservation Program Strategies

TCEQ rules identify the following strategies as optional if they are necessary to achieve the stated water conservation goals of the Plan.

- Conservation-oriented water rates and water rate structures (Section 5.5);
- Adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition (Section 7.1);
- A program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
- Reuse and/or recycling of wastewater and/or gray water, where feasible and appropriate (Section 7.2);
- A program for pressure control and/or reduction in the distribution system and/or for customer connections (Section 7.3);
- A method for monitoring the effectiveness and efficiency of the Plan (Section 7.4 and Section 10) and
- Any other water conservation practice, method, or technique that the Public Water Supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan (Section 7.5 – 7.10).

This Plan sets forth a program of long-term measures under which the City of Sanger can improve the overall efficiency of water use and conserve its water resources. Short-term measures that respond to specific water management conditions (i.e., periods of drought,

unusually high water demands, unforeseen equipment or system failure or contamination of a water supply source) are provided in the City of Sanger's Drought Contingency Plan.

## SECTION 2

### Water Utility Profile

Appendix B to this Plan provides the utility profile as recommended by TCEQ. The utility profile must be in accordance with the Texas Water Use Methodology developed by the Texas Water Development Board ("TWDB") and TCEQ to include information regarding population and customer data, water use data, water supply system data (including total GPCD and residential GPCD) and wastewater system data. A copy of the utility profile for the City of Sanger will also be provided to UTRWD.

## SECTION 3

### Record Management System

The City of Sanger's current record management system is able to classify water use data into the following sectors: Residential (single-family and multi-family), commercial, institutional, industrial, and agricultural. When feasible the City of Sanger will upgrade its software to be capable of reporting detailed water use data to include all sectors (residential, commercial, institutional, industrial, agricultural, and wholesale).

## SECTION 4

### Water Conservation Planning Goals

TCEQ rules require the adoption of specific water conservation goals as part of the Plan. The City of Sanger has developed 5-year and 10-year target water-saving goals (see Table 4.1 below) for municipal use in total GPCD and residential GPCD. Specific water conservation strategies are discussed in the subsequent sections of this Plan. The goals of this Plan include the following:

- Maintain accurate supply source metering to measure and account for the amount of water diverted from the source of supply;
- Maintain a program of universal metering, meter replacement and repair and periodic meter replacement;
- Maintain the level of water loss in the City of Sanger's water system below 15% annually;

- Raise public awareness of water conservation and encourage responsible public behavior through a coordinated public education and information program;
- Continue to implement a water rate structure to encourage water conservation;
- Implement and enforce the Plan by officially adopting the Plan through an ordinance/resolution/tariff, describing the authority by which the City of Sanger will implement and enforce the Plan and documenting coordination with the Region C Water Planning Group;
- Maintain a program of leak detection and repair;
- Decrease waste in lawn irrigation by implementing and enforcing landscape water management regulations and

**Table 4.1  
Municipal Per Capita Target Water Saving Goals**

	<b>Historic 5-yr Average</b>	<b>Baseline</b>	<b>5-yr Goal for year 2029</b>	<b>10-yr Goal for year 2034</b>
Total GPCD <sup>1</sup>	<b>95</b>	<b>110</b>	<b>90</b>	<b>90</b>
Residential GPCD <sup>2</sup>	<b>71</b>	<b>100</b>	<b>70</b>	<b>70</b>
Water Loss (GPCD) <sup>3</sup>	<b>14.35</b>	<b>10</b>	<b>9</b>	<b>8</b>
Water Loss (%) <sup>4</sup>	<b>13.91%</b>	<b>10%</b>	<b>8%</b>	<b>7%</b>

1. Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365
2. Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365
3. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
4. Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

## SECTION 5

### Basic Water Conservation Strategies

This section outlines the City of Sanger’s basic water conservation program strategies that are planned to be implemented to achieve or exceed the stated water conservation goals above.

## 5.1 Accurate Supply Source Metering

The City of Sanger uses the following source(s) of water: groundwater pumped plus treated surface water supplied by UTRWD. The City of Sanger meters all water delivered into the distribution system from each water well site using meters having an accuracy of plus or minus five percent (2%). The City of Sanger currently calibrates its meters at each water well site regularly and regularly checks the calibration of each meter at three-year intervals.

For surface water, UTRWD measures all water delivered to the City of Sanger using meters with an accuracy of plus or minus two percent (2%) in accordance with American Water Works Association (“AWWA”) standards. Said meters are calibrated annually in accordance with AWWA standards. When necessary, UTRWD repairs or replaces meters not conforming to an accuracy of plus or minus two percent (2%).

## 5.2 Universal Metering, Meter Testing and Repair, and Periodic Meter Replacement

Water usage for all customers of the City of Sanger, including public and governmental users, is metered. The City of Sanger will continue to implement its meter testing and calibration program of its service connections to identify any water loss and to determine if the meter readings are outside the acceptable range according to AWWA standards.

Meters registering any unusual or questionable readings are tested for accuracy. Inaccurate meters are repaired or replaced as needed. The City of Sanger replaces meters at 10 to 15-year intervals depending on meter size. Repair or replacement of larger general service meters is generally provided at 5-year intervals.

The City of Sanger understands the benefits of Advanced Metering Infrastructure (AMI), including greater customer service opportunities and alerting retail customers of potential leaks. The City of Sanger is currently implementing a new AMI system to improve conservation efforts.

## 5.3 Determination and Control of Water Loss

Water loss is the difference between the amount of water produced or received and the amount delivered to retail, public, and governmental users - - plus authorized but unmetered uses. Water loss can include several categories:

- Inaccuracies in retail meters;
- Accounts which are being used but have not yet been added to the billing system;

- Losses due to water main breaks and leaks in the water distribution system;
- Losses due to illegal connections and theft and
- Unmetered uses such as firefighting, flushing water mains, and water for public buildings and water treatment plants.

Measures to control water loss are part of the routine operations of the City of Sanger. Field crews and other personnel are expected to look for and report evidence of leaks in the water distribution system. Personnel are trained to watch for and report signs of illegal connections so they can be quickly addressed.

Water loss is calculated in accordance with the water utility profile in Appendix B. With the measures described in this Plan, the goal for the City of Sanger is to maintain its water loss below fifteen percent (15%) annually. If water loss exceeds this goal, the City of Sanger will complete an audit of its water distribution system to determine the source(s) of and reduce the water loss.

According to the Texas Water Code Section 16.0121, all retail public water suppliers are required to submit a water loss audit once every five years. Retail public water suppliers with either an active financial obligation with the TWDB or having more than 3,300 connections must submit a water loss audit every year. The City of Sanger will complete the water loss audit every year as required and will be the primary tool that will be used to monitor water loss.

#### **5.4 Continuing Public Education and Information Program**

The ultimate success of any water conservation program is dependent on an informed public. Individual retail customers must have an awareness of the benefits and needs of water conservation. They must also know how to contribute to the success of the Plan. The City of Sanger's public education and information program is designed to provide information to as many retail customers as possible. The City of Sanger works in collaboration with UTRWD to provide this information. The City of Sanger will promote its water conservation strategies outlined in this Plan as well as the measures and activities discussed below.

- **Informative School Program.** Provide water conservation information to area schools. This may consist of providing literature and coloring books, classroom presentations, demonstrations, etc. Staff may also coordinate with local schools to have Upper Trinity staff make presentations and demonstrations about water conservation and watershed protection, including an Enviroscope watershed model, rainfall simulator, stream erosion trailer, etc.
- **Literature Program.** Insert water conservation information with water bills at least twice per year as well as make information available to the public at utility offices

or other public places. Information may include material developed by the City of Sanger's staff using material obtained from UTRWD, Texas A&M AgriLife, TWDB, TCEQ, and other sources that pertain to water conservation in general and specific to landscape irrigation conservation.

- **Special Events and Promotions.** Make available promotional/educational items at special events focusing on water conservation in the landscape, home, and business. Items may include Texas SmartScape® bookmarks, water bottles, toilet leak test kits, water conservation coloring books, etc.
- **Website.** Make information on water conservation available on the City of Sanger's website and include links to sites with good information about water conservation, such as Texas SmartScape, AgriLife Water University, TWDB, and TCEQ.
- **Speaking Engagements.** Notify local organizations, schools, and civic groups that City of Sanger's staff, and staff of UTRWD, are available to make presentations on the importance of water conservation and the best ways to save water.

As a demonstration project, UTRWD maintains a water conservation garden to showcase the beauty and practicality of a water-conserving landscape. The conservation garden includes over 100 varieties of plants that are either native to North Texas or well adapted to the area and is available for use by the City of Sanger, garden clubs, developers, or other civic groups who desire to advance their knowledge and use of water conservation practices in home and business landscapes.

Other best management practices that may be included as part of the public education and information program:

- Public service announcements;
- Water efficient landscape judging/competition and
- Awards/certificates to recognize water-efficient commercial users – recognize water-saving landscape designs

## **5.5 Non-Promotional Water Rate Structure**

The City of Sanger has adopted an increasing block water rate structure that is intended to encourage water conservation and discourage waste and excessive use of water.

### **Water Service Rates**

#### **Residential Rates**

(a) The rates to be charged by the city for water services for residential customers are hereby established as set forth below:

\$27.00 minimum per unit served	0-1,000 gallons
\$4.80 per thousand gallons	1,001-4,999 gallons
\$5.27 per thousand gallons	5,000-14,999 gallons
\$6.58 per thousand gallons	15,000-29,999 gallons
\$9.53 per thousand gallons	30,000+ gallons

Commercial / Industrial Rates

(b) The rates to be charged by the city for water services for commercial/industrial customers are hereby established as set forth below:

\$35.16 minimum per unit served	0-1,000 gallons
\$5.57 per thousand gallons	1,001-4,999 gallons
\$6.04 per thousand gallons	5,000-14,999 gallons
\$6.83 per thousand gallons	15,000-29,999 gallons
\$8.42 per thousand gallons	30,000+ gallons

(c) Multi-family Dwellings: Where multi-family dwellings are served by a single water service line, the total water usage will be divided by the number of occupied units. The bill calculated from the per unit usage derived therefore shall be multiplied by the number of occupied units to determine the amount due. It shall be the responsibility of the owner or manager to notify the city by the 20<sup>th</sup> of each month on what the occupied count is for the month, then the highest count in the last twelve months will be used to calculate the bill.

(d) Multi-unit Commercial Structures: Where existing commercial tenants are served by a single water meter, the total water usage will be divided by the number of tenants, and the bill calculated from the per-tenant usage derived therefore shall be multiplied by the number of tenants to determine the amount due. The minimum per unit charge will be \$35.16 for 0-1,000 gallons. No new multi-unit connections will be allowed. In all new or newly divided commercial buildings, each tenant space shall be required to have its own water meter.

(e) Manufactured Home Parks: Where manufactured home parks are served by a single water service line, the total water usage will be billed to the owner of the park based on the number of occupied units. The bill calculated from the per unit usage derived therefore shall be multiplied by the number of occupied units

to determine the amount due. It shall be the responsibility of the park owner or manager to notify the city by the 20<sup>th</sup> of each month on what the occupied count is for the month. If the city is not notified by the 20<sup>th</sup> of the month, then the highest count in the last twelve months will be used to calculate the bill.

### 5.6 Landscape Water Management Program/Ordinances

The City of Sanger seeks to promote the efficient use and stewardship of water and to help UTRWD provide a consistent message throughout its service area. The City of Sanger has implemented the following landscape water management strategies:

- Watering Maximum of Two Days Per Week. Limit outdoor watering (automatic systems or hose-end sprinklers) to no more than two (2) days per week. Watering with hand-held hoses, soaker hoses or drip irrigation is allowed at any time.

Last Digit of Address	Allowed Watering Day
EVEN	Monday and Thursday
ODD	Tuesday and Friday

- Time of Week. Limit outdoor watering (automatic systems or hose-end sprinklers) to no more than two (2) days per week. Watering with hand-held hoses, soaker hoses, or drip irrigation is allowed at any time.
- Time of Day Watering. No outdoor watering with automatic irrigation systems or hose-end sprinklers from 10:00 a.m. to 6:00 p.m. on any day of the year. Watering with hand-held hoses, soaker hoses, or drip irrigation systems is allowed at any time.

These strategies will be actively promoted by City of Sanger through public information programs and enforcement for mandatory compliance by its customers.

An additional strategy that may be implemented, if deemed necessary, is to require all non-residential retail customers to have their irrigation systems inspected and repairs and/or adjustments made by a licensed irrigator every three (3) years.

Over the next five (5) years, the City of Sanger plans to evaluate the feasibility and merits of an optional rebate program to encourage greater efficiency in outdoor irrigation systems. A rebate program may include one or more of the following concepts:

- Rain/freeze sensors for irrigation systems;
- Smart controllers for irrigation systems;
- Other outdoor water conservation incentive programs.



In addition, the City of Sanger and UTRWD have implemented the 'Water My Yard' outdoor watering management program in the City of Sanger's service area. The 'Water My Yard' website, WaterMyYard.org, allows residents to receive weekly lawn watering recommendations, which are given in minutes of runtime. Recommendations are based on data from three weather stations that UTRWD maintains, as well as the landscape's needs, to prevent unnecessary overwatering. 'Water My Yard' is provided at no cost to residents, and the City of Sanger will promote 'Water My Yard' in utility bills, newsletters, and websites as appropriate.

Additional strategies that may be adopted to reduce waste in landscape irrigation include:

- Require all new irrigation systems to include rain and freeze sensors;
- Require all new irrigation systems to comply with state design and installation standards (TAC Title 30, Part 1, Chapter 344);

### **5.7 Reservoir Systems Operations Plan**

Not applicable to the City of Sanger because the City of Sanger does not own any reservoirs.

## **SECTION 6**

### **Requirements for Larger Public Drinking Water Suppliers**

Water conservation plans for municipal uses by Public Drinking Water Suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the ten (10) years after the effective date of this Plan must include the elements below.

#### **6.1 Leak Detection, Repair, and Water Loss Program**

Most water leaks, illegal connections, abandoned water services, or other means of water loss are discovered through the visual observation of field crews and other personnel or are reported by the public. The City of Sanger trains its personnel (e.g., meter readers, maintenance crews, etc.) to look for and report evidence of water leaks in the water distribution system to the appropriate department. Personnel are asked to watch for and report signs of illegal connections and abandoned services. All leaks are repaired as soon as possible, and all illegal connections and abandoned services are investigated as soon as possible to maintain a sound water system. Areas of the water distribution

system in which numerous leaks and line breaks occur are programmed for replacement, as funds are available.

Specialized, state-of-the-art leak detection equipment is available to utilities in Texas to borrow free of charge from the Conservation Division of the TWDB to reduce water loss by detecting water leaks within the water distribution system.

## **6.2 Water Conservation Plans by Wholesale Customers**

The City of Sanger will receive authorization from the UTRWD Board of Directors before providing wholesale water services to any successive wholesale customers. The City of Sanger has language in its wholesale water supply contract with these entities requiring said entity to develop and implement a water conservation plan or water conservation measures using the applicable elements in 30 TAC Chapter 288, and having similar conservation strategies as provided in this Plan.

## **SECTION 7**

### **Additional Water Conservation Strategies**

[The City of Sanger has selected the following additional water conservation strategies, described below, to achieve the water conservation goals of the plan.

#### **7.1 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures**

The State of Texas has required water-conserving fixtures in new construction and renovations since 1992, with standards updated in 2010 (Texas Administrative Code, Title 30, Section 290.252). The State's standards call for flows of no more than 2.2 gallons per minute (gpm) at a pressure of 60 pounds per square inch (psi) for faucets, 2.5 gpm for showerheads at 80 psi, 1.28 gallons per flush for toilets, 0.5 gallons per flush for urinals, and 1.6 gpm for commercial pre-rinse spray valves. Similar standards are now required nationally under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures. The City of Sanger has incorporated these plumbing code standards into its building regulations.

Over the next five (5) years, the City of Sanger plans to evaluate the feasibility and merits of an optional rebate program to encourage the replacement of older fixtures with water-conserving fixtures. A rebate program may include one or more of the following concepts:

- High-efficiency toilet replacement and rebate;
- Pressure reduction in the system or for individual customers;

- Rain/freeze sensors for irrigation systems;
- Smart controllers for irrigation systems;
- High-efficiency showerhead and sink aerators replacement;
- High-efficiency clothes washer rebates or
- Other indoor water conservation incentive programs.

## **7.2 Reuse and Recycling of Wastewater and/or Gray Water**

The City of Sanger cooperates with UTRWD in the promotion of and achieving reuse of treated effluent on a regular basis.

## **7.3 Pressure Control Program**

The City of Sanger has determined a reasonable system pressure for each pressure zone in its retail distribution system and has installed internal pressure control stations and customer service pressure regulators where needed.

## **7.4 Means for Measuring Success**

The City of Sanger will make every effort to measure and quantify water savings achieved through its programs. The water-saving results will be used to monitor the effectiveness and efficiency of the City of Sanger's water conservation program. The results will also be regularly reported to UTRWD.

## **7.5 Water Conserving Landscaping**

As part of its public education program, the City of Sanger encourages its retail customers to incorporate Texas SmartScape® principles into their respective landscapes. Texas SmartScape was developed through the North Central Texas Council of Governments in cooperation with cities, utilities, and other agencies to educate citizens on the ecological, economic, and aesthetic benefits of using landscape plants, shrubs, grasses, and trees that are native or adapted to the regional climate and local conditions. Using Texas SmartScape principles can be both practical and beautiful, using earth-friendly techniques that conserve water resources and protect water quality.

## **7.6 Watershed Protection**

Protecting our watershed is a priority need for every citizen and every community. As a double benefit, strategies that promote water conservation also tend to protect the quality

of water resources. Using earth-friendly techniques, such as native and adaptive plant materials and organic techniques for landscaped areas, requires less water and less use of fertilizers, pesticides and other chemicals. Overuse or improper use of fertilizer, pesticides, and other chemicals from landscape activities is also a major source of pollutants that find their way into water resources.

The City of Sanger is participating in UTRWD's coordinated program for watershed protection aimed at educating the public about protecting local watersheds and water quality. To help communicate the important role that watersheds have in the water supply for this region, UTRWD created a watershed logo and sign for Customers, such as the City of Sanger, to use. The City of Sanger has installed 8 watershed signs along roadways/waterways as a constant reminder that we need to keep our watersheds clean.

### **7.7 Irrigation System Evaluations / Technical Assistance**

To improve water conservation and efficiency in landscape watering practices, the City of Sanger, in cooperation with UTRWD, provides technical assistance to retail customers (residential, industrial, commercial, and institutional). The City of Sanger has partnered with UTRWD to provide irrigation system evaluations to retail customers at no cost. During the evaluation, the licensed irrigator may identify potential system leaks, diagnose equipment malfunctions, and recommend equipment upgrades to enhance water efficiency. During the evaluation, education about good landscape watering practices and the use of earth-friendly materials is also shared with the retail customer.

### **7.8 Industrial, Commercial, and Institutional (ICI) Audits**

The City of Sanger in coordination with UTRWD, offers an outreach program to assist large water users find ways to operate more efficiently, save water and energy, and lower their costs. Water savings are realized as the ICI customers implement audit recommendations. In addition to these audits, ICI customers who have implemented said recommendations and have taken proactive steps in using water more wisely and efficiently are publicly recognized.

In 2018, the Denton County Commissioners Court agreed to make the Property Assessed Clean Energy (PACE) financing program available to non-residential property owners. The PACE program provides low-cost, long-term financing for energy and water efficiency upgrades for commercial, industrial, institutional, and multi-family properties. The City of Sanger may promote this to ICI customers to encourage water use reduction.

### **7.9 In-House Water Conservation Efforts**

The City of Sanger has implemented an in-house water conservation program, including the following elements:

- The City of Sanger uses native or adapted drought-tolerant plants, trees, and shrubs in the majority of its landscapes;
- Irrigation at City of Sanger facilities occurs during off-peak times at night and early morning to avoid evaporation losses;
- Irrigation is limited to the amount needed to promote the survival and health of plants and lawns, including limitation on frequency and time-of-day watering (see Section 5.6);
- Irrigation will be avoided on Saturday and Sunday if possible, since these are periods of high water use by the public and
- Irrigation will be accomplished with treated wastewater effluent wherever feasible and practicable.

### **7.10 Water Conservation Coordinator**

UTRWD requires each Customer, such as the City of Sanger, to designate a Water Conservation Coordinator. State law now requires utilities with 3,300 connections or more to designate a Water Conservation Coordinator, according to Section 13.146 of the Texas Water Code. The Conservation Coordinator is responsible for the preparation, implementation, and enforcement of the City of Sanger's water conservation and drought contingency plans, as well as the preparation and submittal of annual conservation status reports and implementation of the City of Sanger's conservation program.

## **SECTION 8**

### **Implementation and Enforcement**

A copy of the City of Sanger's ordinance/resolution/tariff indicating the official adoption of the water conservation plan is provided in Appendix C. The Water Conservation Coordinator is authorized to implement and enforce the Plan as described in Section 7.10. Such responsibilities may involve:

- Overseeing the execution and administration of all Plan elements;
- Supervising the keeping of records for the program verification and assessing the program's effectiveness and
- Making recommendations for changes in the Plan as needed.

## **SECTION 9**

### **Coordination with Regional Water Planning Group and UTRWD**

The City of Sanger has coordinated with the Region C Water Planning Group and UTRWD to ensure consistency with the approved regional water plan and UTRWD's

water conservation plan. The City of Sanger sent a copy of the draft ordinance(s) or resolution(s) implementing the Plan and the water utility profile to UTRWD for review and approval. After adoption, the City of Sanger sent the final ordinance(s) or resolution(s), the Plan, and the adopted water profile to UTRWD. Appendix D includes a copy of the letter sent to the Chair of Region C Water Planning along with the City of Sanger's Plan.

## SECTION 10

### Review and Update of Water Conservation Plan and Annual Reports

As required by TCEQ rules, the City of Sanger will review and update this Plan every five (5) years. The Plan will be updated as appropriate based on an assessment of previous five-year and ten-year targets and any other new or updated information. The next revision of the Plan is due by May 1, 2029. Any revised Plan must be submitted to the TCEQ within 90 days of adoption and include an implementation report as provided in Appendix E. The revised plan must also be submitted to the TWDB within 90 days of adoption.

The City of Sanger is also required to submit an annual report. Annual reports are due to TWDB by May 1 of each year to report the City of Sanger's progress in implementing its water conservation plan. Said report will be used to monitor the effectiveness and efficiency of the City of Sanger's water conservation program. The results of the annual report may also be used to plan conservation-related activities for the following year. The City of Sanger will send a copy of the annual report to UTRWD by March 31 of each year.

## Appendix A.

TCEQ Requirements for a Water Conservation Plan (Title 30, Part 1, Chapter 288, Subchapter A and Rule 288.2 of TAC)

(a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:

(A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;

(B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph:

(i) residential;

(I) single family;

(II) multi-family;

(ii) commercial;

(iii) institutional;

(iv) industrial;

(v) agricultural; and,

(vi) wholesale.

(C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

(D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;

(E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;

(F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);

(G) a program of continuing public education and information regarding water conservation;

(H) a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water;

(I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and

(J) a means of implementation and enforcement which shall be evidenced by:

(i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and

(ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and



(K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:

(A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;

(B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

(3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:

(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;

(C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

(D) reuse and/or recycling of wastewater and/or graywater;

(E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;

(F) a program and/or ordinance(s) for landscape water management;

(G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and

(H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a

memorandum of understanding between the commission and the Texas Water Development Board.

(c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

**Appendix B.**  
Water Utility Profile



### UTILITY PROFILE FOR RETAIL WATER SUPPLIER

#### CONTACT INFORMATION

Name of Utility: CITY OF SANGER

Public Water Supply Identification Number (PWS ID): TX0610006

Certificate of Convenience and Necessity (CCN) Number: 10196

Surface Water Right ID Number: \_\_\_\_\_

Wastewater ID Number: \_\_\_\_\_

Contact: First Name: Jim Last Name: Bolz

Title: \_\_\_\_\_

Address: PO Box 1729 City: Sanger State: TX

Zip Code: 76266 Zip+4: \_\_\_\_\_ Email: jbolz@sangertexas.org

Telephone Number: 9404582571 Date: 3/14/2024

Is this person the designated Conservation Coordinator?  Yes  No

Regional Water Planning Group: C

Groundwater Conservation District: \_\_\_\_\_

Our records indicate that you:

- Received financial assistance of \$500,000 or more from TWDB
- Have 3,300 or more retail connections
- Have a surface water right with TCEQ

**A. Population and Service Area Data**

1. Current service area size in square miles: \_\_\_\_\_



**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

2. Historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2023	9,650	0	9,650
2022			
2021			
2020	9,156	0	9,156
2019			

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2030	11,932	0	11,932
2040	16,154	0	16,154
2050	21,872	0	21,872
2060	29,616	0	29,616
2070	40,107	0	40,107

4. Described source(s)/method(s) for estimating current and projected populations.

Used current annual growth rate of 3.08% and carried it out to 2070



### UTILITY PROFILE FOR RETAIL WATER SUPPLIER

**B. System Input**

System input data for the previous five years.  
Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2023	279,766,254	83,637,153	0	363,403,407	103
2022					
2021					
2020	224,737,886	65,830,361	0	290,568,247	87
2019					
Historic Average	252,252,070	74,733,757	0	326,985,827	95

**C. Water Supply System**

- 1. Designed daily capacity of system in gallons \_\_\_\_\_
- 2. Storage Capacity
  - 2a. Elevated storage in gallons: 1,200,000
  - 2b. Ground storage in gallons: 1,300,000



**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

**D. Projected Demands**

1. The estimated water supply requirements for the next ten years using population trends, historical water use, economic growth, etc

Year	Population	Water Demand (gallons)
2025	10,253	385,461,536
2026	10,569	397,341,555
2027	10,894	409,559,930
2028	11,230	422,191,850
2029	11,576	435,199,720
2030	11,932	448,583,540
2031	12,299	462,380,905
2032	12,677	476,591,815
2033	13,067	491,253,865
2034	13,469	506,367,055

2. Description of source data and how projected water demands were determined.

I used our high year historic demand of 103 gpcd, multiplied by 365 days/year, multiplied by the projected population for each year.

**E. High Volume Customers**

1. The annual water use for the five highest volume **RETAIL** customers.

Customer	Water Use Category	Annual Water Use	Treated or Raw
City of Sanger Wastewater Plant	Commercial	12,387,400	Treated
Stonewood Resorts LLC	Commercial	9,645,000	Treated
The Trails of Sanger	Commercial	9,131,700	Treated
City of Sanger Porter Park	Commercial	7,154,200	Treated
Stonewood Resorts LLC	Commercial	5,255,000	Treated

2. The annual water use for the five highest volume **WHOLESALE** customers.

Customer	Water Use Category	Annual Water Use	Treated or Raw
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**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

**F. Utility Data Comment Section**

Additional comments about utility data.

**Section II: System Data**

**A. Retail Water Supplier Connections**

1. List of active retail connections by major water use category.

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	3,264	91.92 %
Residential - Multi-Family	27	0.76 %
Industrial	7	0.20 %
Commercial	213	6.00 %
Institutional	40	1.13 %
Agricultural	0	0.00 %
<b>Total</b>	<b>3,551</b>	<b>100.00 %</b>

2. Net number of new retail connections by water use category for the previous five years.

Year	Net Number of New Retail Connections						
	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2023							
2022							
2021							
2020							
2019							





**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

**B. Accounting Data**

The previous five years' gallons of RETAIL water provided in each major water use category.

Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2023	228,163,600	23,411,400	4,796,100	35,228,600	20,448,000	0	312,047,700
2022	215,467,900	22,593,600	4,265,000	30,400,800	24,576,900	0	297,304,200
2021	187,576,900	20,353,500	7,466,700	26,910,500	15,030,700	0	257,338,300
2020	188,931,300	22,119,100	6,038,600	31,011,400	26,156,300	0	274,256,700
2019	177,599,100	23,458,500	1,194,200	71,409,800	0	0	273,661,600

**C. Residential Water Use**

The previous five years residential GPCD for single family and multi-family units.

Year	Total Residential GPCD
2023	71
2022	0
2021	0
2020	0
2019	0
Historic Average	71



**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

**D. Annual and Seasonal Water Use**

1. The previous five years' gallons of treated water provided to RETAIL customers.

Month	Total Gallons of Treated Water				
	2023	2022	2021	2020	2019
January	24,406,233	23,699,565	24,335,374	17,600,770	20,798,684
February	20,899,360	22,547,997	24,569,165	17,001,894	18,697,620
March	24,526,115	24,737,467	27,734,625	21,027,204	22,021,226
April	24,107,683	25,943,704	22,710,395	21,187,602	22,980,615
May	27,517,149	28,399,245	23,294,293	23,586,630	21,836,526
June	31,782,978	38,516,270	24,553,582	29,513,674	23,370,458
July	33,539,451	49,544,671	30,573,144	34,691,747	31,058,451
August	42,994,596	46,011,292	32,496,878	32,778,412	29,905,557
September	35,252,474	37,527,539	31,645,790	22,791,630	30,394,706
October	27,913,761	35,880,562	26,524,864	25,722,984	22,899,736
November	23,926,189	24,614,933	22,258,762	20,210,807	17,740,519
December	27,867,247	24,112,822	21,402,917	21,549,210	19,091,992
<b>Total</b>	<b>344,733,236</b>	<b>381,536,067</b>	<b>312,099,789</b>	<b>287,662,564</b>	<b>280,796,090</b>



**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

2. The previous five years' gallons of raw water provided to RETAIL customers.

Month	Total Gallons of Raw Water				
	2023	2022	2021	2020	2019
January		0	0	0	0
February		0	0	0	0
March		0	0	0	0
April		0	0	0	0
May		0	0	0	0
June		0	0	0	0
July		0	0	0	0
August		0	0	0	0
September		0	0	0	0
October		0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
<b>Total</b>	0	0	0	0	0

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2023	108,317,025	344,733,236
2022	134,072,233	381,536,067
2021	87,623,604	312,099,789
2020	96,983,833	287,662,564
2019	84,334,466	280,796,090
<b>Average in Gallons</b>	102,266,232.20	321,365,549.20



## UTILITY PROFILE FOR RETAIL WATER SUPPLIER

### E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2023	50,575,588	14	0.00 %
2022			0.00 %
2021			0.00 %
2020	12,679,444	4	0.00 %
2019			0.00 %
Average	31,627,516	9	0.00 %

### F. Peak Day Use

Average Daily Water Use and Peak Day Water Use for the previous five years.

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2023	944,474	1177358	1.2466
2022	1,045,304	1457306	1.3941
2021	855,067	952430	1.1139
2020	788,116	1054172	1.3376
2019	769,304	916678	1.1916

### G. Summary of Historic Water Use

Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	199,547,760	91.92 %	70.53 %
Residential - Multi-Family	22,387,220	0.76 %	7.91 %
Industrial	4,752,120	0.20 %	1.68 %
Commercial	38,992,220	6.00 %	13.78 %
Institutional	17,242,380	1.13 %	6.09 %
Agricultural	0	0.00 %	0.00 %



### UTILITY PROFILE FOR RETAIL WATER SUPPLIER

H. System Data Comment Section

**Section III: Wastewater System Data**

A. Wastewater System Data

- 1. Design capacity of wastewater treatment plant(s) in gallons per day:
- 2. List of active wastewater connections by major water use category.

Water Use Category	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal	3,291		3,291	92.68 %
Industrial	7		7	0.20 %
Commercial	213		213	6.00 %
Institutional	40		40	1.13 %
Agricultural	0		0	0.00 %
<b>Total</b>	<b>3,551</b>		<b>3,551</b>	<b>100.00 %</b>

3. Percentage of water serviced by the wastewater system: 100.00 %



**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

4. Number of gallons of wastewater that was treated by the utility for the previous five years.

Month	Total Gallons of Treated Water				
	2023	2022	2021	2020	2019
January	20,110,000	19,180,000	21,690,000	25,420,000	21,712,000
February	26,670,000	19,380,000	17,700,000	26,738,000	18,690,000
March	30,480,000	20,600,000	22,270,000	30,132,000	24,289,000
April	24,140,000	23,770,000	26,710,000	29,220,000	24,361,000
May	25,980,000	25,090,000	36,940,000	26,753,000	25,496,000
June	25,040,000	24,210,000	30,580,000	25,020,000	25,145,000
July	26,880,000	20,310,000	22,510,000	20,398,000	18,968,000
August	25,440,000	21,620,000	21,200,000	18,879,000	19,915,000
September	22,770,000	18,860,000	17,050,000	21,300,000	17,535,000
October	30,210,000	19,830,000	18,660,000	18,600,000	17,803,000
November	23,020,000	21,090,000	20,000,000	16,380,000	21,427,000
December	27,960,000	22,640,000	19,700,000	17,960,000	19,030,000
<b>Total</b>	<b>308,700,000</b>	<b>256,580,000</b>	<b>275,010,000</b>	<b>276,800,000</b>	<b>254,371,000</b>

5. Could treated wastewater be substituted for potable water?

- Yes     No

**B. Reuse Data**

1. Data by type of recycling and reuse activities implemented during the current reporting period.

Type of Reuse	Total Annual Volume (in gallons)
On-site Irrigation	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (park,golf courses)	0
Agricultural	
Discharge to surface water	
Evaporation Pond	
Other	
<b>Total</b>	<b>0</b>



**UTILITY PROFILE FOR RETAIL WATER SUPPLIER**

**C. Wastewater System Data Comment**

Additional comments and files to support or explain wastewater system data listed below.

**Appendix C.**

**Ordinance or Resolution from Governing Body Adopting the Water Conservation Plan**



**CITY OF SANGER, TEXAS**

**ORDINANCE 04-07-24**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SANGER, DENTON COUNTY, TEXAS, AMENDING THE CITY OF SANGER CODE OF ORDINANCES, CHAPTER 13 “UTILITIES,” ARTICLE 13.2200 “WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN,” SECTION 13.2201 “PLAN,” TO AMEND THE WATER CONSERVATION, AND DROUGHT CONTINGENCY PLAN; PROVIDING A PENALTY CLAUSE AND PROVIDING A SERVERABILITY CLAUSE AND PROVIDING FOR THE REPEAL OF ALL ORDINANCE IN CONFLICT; PROVIDING FOR NO CULPABLE MENTAL STATE BEING REQUIRED FOR CONVICTION; DECLARING ADOPTION OCCURRING AT A MEETING OPEN TO THE PUBLIC; PROVIDING FOR PUBLICATION AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, the City recognizes that the amount of water available to its customers is limited and subject to depletion during periods of extended drought; and

**WHEREAS**, the Texas Water Code and applicable rules of the Texas Commission on Environmental Quality require a Water Conservation and Drought Contingency Plan (the “Plans”); and

**WHEREAS**, the Drought Contingency Plan provides measures that may be needed during drought conditions, during an emergency and/or when water use approaches the system supply that helps reduce water usage and temporarily reduce demand placed on the City’s water system, and

**WHEREAS**, the Water Conservation Plan establishes certain rules and policies for the orderly and efficient management of water supplies to reduce consumption, reduce waste and improve water use efficiency; and

**WHEREAS**, public notice has been given and the public has had an opportunity to provide input on the Drought Contingency Plan

**WHEREAS**, the City Council finds that the passage of this Ordinance is in the best interest of the citizens of Sanger.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SANGER, TEXAS:**

**SECTION 1. Chapter 13 “Utilities”, Article 13.2200 “Water Conservation and Drought Contingency Plan”, Section 13.2201 “Plan” of the Code of Ordinances of the City of Sanger, Texas be amended by amending Section 13.2201 “Plan” to read as follows:**

**Section 13.2201. Plan**

The city’s Water Conservation and Drought Contingency Plan attached to Ordinance 04-06-24 as Exhibit A is hereby adopted and the regulations contained therein are subject to enforcement as if set out in full and made a part of this article.

**SECTION 2.** Exhibit “A,” attached to Ordinance 04-7-19 and adopted on April 1, 2019, is amended in its entirety to read as set forth in Exhibit “A”, attached hereto and incorporated herein by referenced for all intents and purposes.

**SECTION 3.** Any person, firm, or corporation who shall violate any of the provisions of this article shall be guilty of a misdemeanor and upon conviction shall be fined in an amount not to exceed the sum of two thousand dollars (\$2,000.00) for each offense, and each and every day such offense shall continue shall be deemed to constitute a separate offense.

**SECTION 4.** If any section, article, paragraph, sentence, clause, phrase or word in this ordinance, or application thereof to any person or circumstance is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of the ordinance and the City Council hereby declares it would have passed such remaining portions of the ordinance despite such invalidity, which remaining portions shall remain in full force and effect.

**SECTION 5.** An offense committed before the effective date of this ordinance is governed by the prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed, and the former law is continued in effect for this purpose.

**SECTION 6.** Neither allegation nor evidence of a culpable mental state is required proof of an offense under this ordinance.

**SECTION 7.** It is hereby officially found and determined that the meeting at which this ordinance is passed was open to the public as required and that public notice of the time, place, and purpose of said meeting was given as required by law.

**SECTION 8.** This ordinance will take effect immediately from and after its passage and the publication of the caption, as the law and Charter in such cases provide.

**PASSED AND APPROVED** by the City Council of the City of Sanger, Texas, on this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

**APPROVED:**

\_\_\_\_\_  
**Thomas E. Muir, Mayor**

**ATTEST:**

\_\_\_\_\_  
**Kelly Edwards, City Secretary**

**APPROVED AS TO FORM:**



---

**Courney Goodman-Morris**  
**Interim City Attorney**  
4894-5638-6481, v. 1

# **SANGER TEXAS**

## **DROUGHT CONTINGENCY PLAN**

**MAY 2024**



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# Drought Contingency Plan for City of Sanger

*May 2024*

## SECTION 1

### Introduction and Objectives

The purpose of this Drought Contingency Plan (the "Plan") is to provide for drought contingency measures for the City of Sanger as required by the Texas Commission on Environmental Quality ("TCEQ") and the Upper Trinity Regional Water District ("UTRWD"). Such contingency measures may be needed during drought conditions, during an emergency and when water use approaches the Regional Treated Water System ("System") supply or the capacity of treatment and delivery facilities. Examples of drought or emergency conditions include low levels of water supply lakes, unusually high water demands, unforeseen equipment/system failure, or contamination of the water supply source.

The City of Sanger developed its original plans for drought contingency in March 2014, later amended in July 2016. This update of the Plan has been coordinated with the suggested model drought contingency plan prepared by UTRWD for its Members and Customers, such as the City of Sanger, and is consistent with TCEQ's model drought contingency plan and the latest requirements outlined below. The provisions and responses outlined in this Plan are intended to be uniformly applied among UTRWD's Members and Customers.

The City of Sanger uses the following source(s) of water: groundwater pumped plus treated surface water supplied by UTRWD. The total combined amount from these sources is normally sufficient to provide water for residential and commercial customers and to maintain adequate reserve quantities and pressure from storage facilities to meet emergency and firefighting demands.

Drought is a frequent and inevitable factor in the climate of Texas. Therefore, it is vital to plan for the effect that droughts will have on the use, allocation, and conservation of water in the region. Drought contingency planning is one critical element of a water supplier's effort to reduce peak water demands and extend water supplies. The following are the central objectives of this Plan:

- Help assure reliability of water service to retail customers;
- Conserve the available water supply in times of drought and emergency;
- Maintain adequate water supplies for domestic use, sanitation, and fire protection;
- Protect and preserve public health, welfare, and safety;
- Minimize the adverse impacts of water supply shortages and
- Minimize the adverse impacts of emergency conditions affecting water supply.

## SECTION 2

### Applicable Rules of the Texas Commission on Environmental Quality

TCEQ rules governing the development of drought contingency plans for Municipal Uses by Public Water Suppliers, such as the City of Sanger, are contained in Title 30, Part 1, Chapter 288,

Subchapter B and Rule 288.20 of the Texas Administrative Code ("TAC"). A copy of these rules is included in Appendix A. The rules define a drought contingency plan as:

"A strategy or a combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies."

Minimum Drought Contingency Plan Requirements

The minimum requirements contained in the TAC for drought contingency plans are covered in this Plan as follows:

Rule	Subject	Section
288.20(a)(1)(A)	Informing the Public & Providing Opportunity For Input	Section 3
288.20(a)(1)(B)	Provisions for Continuing Public Education & Information	Section 4
288.20(a)(1)(C)	Coordination with the Regional Water Planning Group	Section 10
288.20(a)(1)(D)	Criteria for Initiation Monitoring & Termination of Stages	Section 7
288.20(a)(1)(E)	Drought and Emergency Response Stages	Section 7
288.20(a)(1)(F)	Targets to be Achieved During Drought	Section 7
288.20(a)(1)(G)	Water Supply & Demand Mgmt. Measures for Each Stage	Section 7
288.20(a)(1)(H)	Procedures for Initiation & Termination of Drought Stages	Section 7
288.20(a)(1)(I)	Procedures for Granting Variances	Section 8
288.20(a)(1)(J)	Procedures for Enforcement of Mandatory Restrictions	Section 9
288.20(a)(2)	Drought Plans for Privately-Owned Utilities	Section 12
288.20(a)(3)	Consultation with Wholesale Suppliers	Section 7
288.20(b)	Notification of Implementation of Mandatory Measures	Section 7
288.20(c)	Review & Update of Plan	Section 11

Also included in this Plan are statements of authorization (Section 5) and application (Section 6).

**SECTION 3**

**Public Involvement**

The City of Sanger previously provided an opportunity for public input in the development of this Plan by the following means:

- Provided written notice of the draft Plan and the opportunity for the public to comment by newspaper on March 22, 2024, posted notice prior to adoption;
- Made the draft Plan available on the City of Sanger’s website;
- Provided a copy of the draft Plan to anyone requesting a copy and
- Held a public meeting at 7:00 PM on April 1, 2024, at the Historic Church, located at 403 N. 7<sup>th</sup> Street, and provided written notice to the public concerning the draft Plan and meeting.

## SECTION 4

### Provisions for Continuing Public Education and Information

The City of Sanger will provide public information about the Plan at least annually, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by any of the following means:

- Prepare bulletins/newsletters describing the Plan and make said bulletins/newsletters available in utility bills, public facilities, or other appropriate places;
- Make the Plan and its requirements available on the City of Sanger website;
- Include information about this Plan and water conservation on the City of Sanger website, and as part of its bulletins/newsletters, public service announcements, media reports and
- Notify local organizations, schools, and civic groups that City of Sanger staff members are available to make presentations on the Plan (usually in conjunction with presentations on water conservation programs).

When provisions of the Plan are activated or when a drought response stage changes, the City of Sanger will notify local media of the relevant issues, the appropriate drought response stage, and the specific actions required of the public. The provisions of the Plan are mandatory and therefore, TCEQ shall be notified within five (5) business days. The information will also be publicized on the [City of Sanger website]. Billing inserts may also be used as an appropriate means of disseminating information to the public.

## SECTION 5

### Authorization

The City Manager, or official designee, is hereby authorized and directed to implement the applicable provisions of this Plan upon the determination that such implementation is necessary to protect public health, safety, and welfare, and to comply with applicable regulations or contractual requirements. Except as otherwise provided in the Plan, the City Manager, or official designee, shall have the authority to initiate, enforce, and terminate the measures provided herein for a drought or other water supply emergency. Due to the need to enact water use reduction measures for drought mitigation or other water supply emergencies, no other entities, including homeowners' associations, shall enact liens, fines, or other punitive measures against residents due to negative effects that may occur to landscape plants. The authority to implement and enforce the Drought Contingency Plan is established in Ordinance No. 04-06-24, as provided in Appendix B.



## SECTION 6

### Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City of Sanger. The terms “person” and “customer” as used in the Plan include individuals, corporations, institutions, partnerships, associations, and all other legal entities.

## SECTION 7

### Drought Contingency Plan - - Emergency Response Stages

The City Manager, or official designee, may order the initiation or termination of a drought response stage or water emergency when one or more of the trigger conditions for that stage are met as provided in this Section. The triggering criteria described below are based on the ability of the City of Sanger to deliver treated water to its customers and/or the ability of UTRWD to deliver treated water to the City of Sanger. Water supply and/or demand conditions are monitored by both the City of Sanger and UTRWD on a regular basis to determine when conditions warrant initiation or termination of a drought response stage.

#### 7.1 Initiation of Drought Response Stages

The following actions will be taken when a drought response stage is initiated:

- The public will be notified through local media, the City of Sanger website, and other appropriate methods as described in Section 3 above;
- Unless otherwise implemented by UTRWD, the City of Sanger will notify UTRWD by telephone with a follow-up letter, e-mail, or fax to confirm the implementation of any drought response stage and to provide relevant details and
- **The City of Sanger will also notify the Executive Director of the TCEQ within five (5) business days.**

When specific drought response stages are announced by UTRWD, the City of Sanger and other entities receiving water from UTRWD are required to implement the appropriate measures. For other trigger conditions not announced by UTRWD, the City Manager, or official designee, may implement contingency measures based on local conditions affecting the City of Sanger; or for good cause may decide not to order the implementation of a drought response stage or water emergency even though one or more trigger criteria for the stages are met. Various factors are taken into account when making a decision about such stages, including circumstances unique to the City of Sanger, the time of the year, weather conditions, the anticipation of replenished water supplies, use of an alternate water resource, or the anticipation that additional facilities will become available on a timely basis to meet needs. The reason for such a decision will be documented and communicated to UTRWD for the record.

## 7.2 Termination of Drought Response Stages

The following actions will be taken when a drought response stage is terminated:

- The public will be notified through local media, the City of Sanger website, and other appropriate methods as described in Section 3 above;
- UTRWD will be notified by telephone with a follow-up letter, e-mail, or fax to confirm the particular drought response stage has been terminated and
- **The City of Sanger will also notify the Executive Director of the TCEQ within five (5) business days.**

The City Manager, or official designee, may decide not to order the termination of a drought response stage or water emergency even though the conditions for termination of the stage are met. Various factors could influence such a decision about whether to end a specific stage, including circumstances unique to the City of Sanger, the time of the year, weather conditions, and conditions within the local water distribution system or anticipation of other relevant factors that warrant continuation of measures for the drought stage. The reason for such a decision will be documented and communicated to UTRWD for the record.

## 7.3 Drought and Emergency Response Stages

### A. Stage 1 – Water Watch

#### Requirements for Initiation

The following are key conditions, any one of which may trigger this stage:

- UTRWD has announced Stage 1 – Water Watch, which may be a result of:
  - The total raw water supply in water supply lakes available to UTRWD has dropped below 75% (25% depleted) during the time period from April 1 to October 31; or
  - The total raw water supply in the water supply lakes available to Upper Trinity has dropped below 80% (20% depleted) during the time period from November 1 to March 31; or
  - Dallas Water Utilities (a source of raw water to UTRWD) has initiated Stage 1 and given notice to UTRWD; or
  - UTRWD, with the concurrence of the Board of Directors, finds that conditions warrant the declaration of Stage 1; or
- Water demand has reached or exceeded 80% of delivery capacity for three consecutive days; or
- Water demand is **approaching** a level that will cause a reduced delivery capacity for all or part of the distribution system, as determined by the City of Sanger or
- The water supply system has a **significant limitation** due to failure of or damage to important water system components.

### Goal

Stage 1 is intended to raise public awareness of potential drought and water emergency problems. The goal for water use reduction under Stage 1 is five percent (5%) of total daily water use that otherwise would have occurred in the absence of drought contingency measures. If circumstances warrant, the City Manager can set a goal for greater or lesser water use reduction.

### Water Use Restrictions for Reducing Demand

Under this stage, customers will be requested to conserve water through mandatory and voluntary measures and to comply with restrictions on certain non-essential water use as provided below. Specific measures to be implemented during the stage will be determined by the City of Sanger's City Manager or official designee. The City Manager, or official designee, may also take other actions not listed if deemed necessary.

- Require reduction of water use through mandatory, maximum two-days-per-week landscape irrigation schedule for automatic irrigation systems and hose-end sprinklers. Irrigation of landscaped areas and building foundations is permitted at any time if it is by means of a hand-held hose, drip irrigation, or soaker hose system. Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems may be limited to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6, or 8) and for locations without addresses, and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9). Apartments, office building complexes, or other properties containing multiple addresses may be identified by the lowest address number.)
- Require reduction of water use through mandatory time-of-day landscape irrigation schedule. No outdoor watering with automatic irrigation systems and hose-end sprinklers can occur from 10:00 a.m. to 6:00 p.m. Irrigation of landscaped areas and building foundations is permitted at any time if it is by means of a hand-held hose, drip irrigation, or soaker hose systems.
- Restrict washing of any motor vehicle, motorbike, boat, trailer, airplane or other vehicle to the use of a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash facility or commercial service station. Companies with an automated on-site vehicle washing facility may wash their vehicles at any time.
- Encourage a reduction in the frequency of draining and refilling swimming pools.
- Encourage customers to avoid waste during recreational use (water used for leisure and entertainment purposes) from faucets, hoses, or hydrants.
- Increase public education efforts on ways to reduce water use.

- Review internal operational conditions and capabilities by the City of Sanger and intensify efforts on leak detection and repair.
- Be alert to internal non-essential water use by the City of Sanger (examples include vehicle washing, operation of ornamental fountains, landscape uses for parks or medians, etc.).

#### Termination

Stage 1 may terminate when UTRWD terminates its Stage 1 condition or when the circumstances that caused the initiation of Stage 1 – Water Watch no longer prevail.

### **B. Stage 2 – Water Warning**

#### Requirements for Initiation

The following are key conditions, any one of which may trigger this stage:

- UTRWD has initiated Stage 2 – Water Warning, which may be a result of:
  - The total raw water supply in water supply lakes available to UTRWD has dropped below 60% (40% depleted) during the time period from April 1 to October 31; or
  - The total raw water supply in the water supply lakes available to Upper Trinity has dropped below 65% (35% depleted) during the time period from November 1 to March 31; or
  - Dallas Water Utilities has initiated Stage 2 and given notice to UTRWD; or
  - UTRWD, with the concurrence of the Board of Directors, finds that conditions warrant the declaration of Stage 2; or
- Water demand has reached or exceeded 85% of delivery capacity for three consecutive days; or
- Water demand **has reached** a level that is causing a reduced delivery capacity for all or part of the distribution system, as determined by the City of Sanger; or
- The water supply system is **unable to deliver water at normal rates** due to failure of or damage to major water system components or
- A significant deterioration in the quality of a water supply, being affected by a natural or man-made source.

#### Goal

The goal for water use reduction under Stage 2 is a ten percent 10% reduction in the use that would otherwise have occurred in the absence of drought contingency measures. If circumstances warrant, the City Manager can set a goal for greater or lesser water use reduction.

### Water Use Restrictions for Reducing Demand

Under this stage, customers will be requested to continue following the mandatory measures to conserve water and to comply with restrictions on certain non-essential water uses as provided below. Specific measures to be implemented during this stage will be determined by the City Manager or official designee. The City Manager, or official designee, may also take other actions not listed if deemed necessary. All requirements of Stage 1 shall remain in effect during Stage 2, plus the following incremental or new measures:

- Require reduction of water use through a mandatory maximum one-day-per-week landscape irrigation schedule. This includes irrigation of landscaped areas with automatic irrigation systems and hose-end sprinklers. Irrigation of landscaped areas and building foundations is permitted at any time if it is by means of a hand-held hose, drip irrigation, or soaker hose system.
- The establishment of new sod and other landscaping plants is prohibited.
- Prohibit recreational water use (water used for leisure and entertainment purposes) including use of faucets or hoses in such a manner that creates runoff or other wastes.
- Prohibit the filling, draining, and refilling of existing swimming pools, wading pools, Jacuzzis, and hot tubs except to maintain structural integrity, proper operation, and maintenance or to alleviate a public safety risk. Existing pools may add water to replace losses from normal use and evaporation. Permitting of new swimming pools, wading pools, Jacuzzis, and hot tubs is prohibited. If a permit for a new swimming pool, wading pool, Jacuzzi, and hot tub was received prior to implementation of Stage 2, the owner may fill with water no more than one time, if necessary, to prevent structural damage.
- Prohibit the operation of ornamental fountains or ponds that use potable water except where supporting aquatic life or water quality.
- Further accelerate public education efforts on ways to reduce water use.
- Continue intensified leak detection and repair activities by the City of Sanger on water pipes and mains.
- Reduce internal water use by the City of Sanger, except where water is supplied from treated wastewater effluent (examples include: restricting irrigation to a day-of-week watering schedule; no hosing off paved areas, buildings, windows, or other hard surfaces; no vehicle washing except on the premises of a commercial car wash).
- Initiate engineering studies to evaluate alternatives to mitigate drought conditions should conditions worsen.

- The City of Sanger is restricted to day-of-week and time-of-day landscape watering schedules except for parks and golf courses that utilize non-potable water or groundwater for irrigation.
- Require reduction of water use through day-of-week landscape watering schedule for private parks and golf courses.
- Announce enforcement efforts and penalties for noncompliance.

#### Termination

Stage 2 may terminate when UTRWD terminates its Stage 2 condition or when the circumstances that caused the initiation of Stage 2 no longer prevail. Upon termination of Stage 2, Stage 1 – Water Watch will remain in effect unless otherwise announced by the Sanger City or UTRWD.

### C. Stage 3 – Water Emergency

#### Requirements for Initiation

The following are key conditions, any one of which may trigger Stage 3:

- UTRWD has initiated Stage 3 – Water Emergency, which may be a result of:
  - The total raw water supply in water supply lakes available to UTRWD has dropped below 45% (55% depleted) during the time period from April 1 to October 31; or
  - The total raw water supply in the water supply lakes available to Upper Trinity has dropped below 50% (50% depleted) during the time period from November 1 to March 31; or
  - Dallas Water Utilities has initiated Stage 3 and given notice to UTRWD; or
  - UTRWD, with the concurrence of the Board of Directors, finds that conditions warrant the declaration of Stage 3; or
- Water demand has reached or exceeded 90% of delivery capacity for three consecutive days; or
- Water demand **exceeds** the delivery capacity for all or part of the distribution system, as determined by the City of Sanger; or
- The water supply system is **unable to deliver** water in **adequate quantities** due to failure of or damage to major water system components; or
- Interruption of one or more water supply source(s).
- Natural or man-made contamination of the water supply source that threatens water availability.

### Goal

The goal for water use reduction under Stage 3 is a reduction of twenty percent 20% in the use that would otherwise have occurred in the absence of drought contingency measures. If circumstances warrant, the City Manager can set a goal for greater or lesser water use reduction.

### Water Use Restrictions for Reducing Demand

Customers will comply with the requirements and mandatory restrictions on non-essential and other water uses as provided below. Specific measures to be implemented during this stage will be determined by the City Manager or official designee. The City Manager, or official designee, may also take other actions not listed if deemed necessary. All requirements of Stage 1 and Stage 2 shall remain in effect during Stage 3, plus the following incremental or new measures:

- Outdoor irrigation is prohibited. Irrigation of landscaped areas and building foundations is permitted one day per week and for a maximum of two hours between 6:00 p.m. and 10:00 a.m. if it is by means of a hand-held hose, drip irrigation, or soaker hose system.
- Use of water to wash any motor vehicle, motorbike, boat, trailer or other vehicle not occurring on the premises of a commercial vehicle wash facility or commercial service stations is prohibited. Further, such washing may be exempt from these requirements if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and commercial vehicles used to transport food and perishables.
- Hosing and washing of paved areas, buildings, structures, windows, or other surfaces are prohibited except by variance and performed by a professional service using high-efficiency equipment.
- Prohibit operation of splash pads.
- Landscape watering of parks, golf courses, and athletic fields with potable water is prohibited. Exception for golf course greens and tee boxes which may be hand watered as needed. Variances may be granted by the water provider under special circumstances.
- Prohibit non-essential internal water use by the City of Sanger, except where water is supplied from treated wastewater effluent.
- No restrictions on commercial nurseries, construction (except for planting and establishing sod and other landscape plants which is prohibited), patio misters, and for dust abatement.
- Step-up enforcement activities.
- Implement utilization of alternative water sources if available.

### Termination

Stage 3 may terminate when UTRWD terminates its Stage 3 condition or when the circumstances that caused the initiation of Stage 3 no longer prevail. Upon termination of Stage 3, Stage 2 – Water Warning will be initiated unless otherwise announced by the City of Sanger or UTRWD.

## **SECTION 8**

### **Variances**

The City Manager, or official designee, may grant temporary variances for existing water uses otherwise prohibited under this Plan if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person requesting the variance;
- Compliance with this Plan cannot be accomplished due to technical or other limitations and
- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variances may be granted or denied at the discretion of the City Manager, or official designee. However, no variances shall be granted under any circumstance if the City of Sanger is in Stage 3 – Water Emergency. All petitions for variances should be in writing and should include the following information:

- Name and address of the owner and a licensed Texas irrigator responsible for the variance;
- Purpose of water use;
- Specific provisions from which relief is requested;
- Detailed statement of the adverse effect of the provision from which relief is requested;
- Description of the relief requested including a proposed irrigation plan;
- Monthly report verifying the goal reductions;
- Period of time for which the variance is sought;
- On-call personnel with contact information for 24-hour a-day repair response within one hour of notice;
- Alternative measures that will be taken to reduce water use;
- Other pertinent information.



## SECTION 9

### Enforcement

Mandatory water use restrictions are imposed in Stages 1, 2, and 3 of the Plan. These mandatory water use restrictions will be enforced by any combination of warnings, reconnection fees, suspension of service, monetary penalties, citations, and fees as follows and authorized by the governing body:

- On the first violation, customers will be notified by a sign or door hanger that they have violated the mandatory water use restriction;
- On the second violation, the City of Sanger may request the resident to disconnect its irrigation system; or, if the resident doesn't comply with said request, the City of Sanger may disconnect said irrigation system. In addition, the City of Sanger may post notification of violation with reconnection fees and possible monetary penalties;
- On the third violation, the City of Sanger will disconnect water service and post notification of the violation with reconnection fees, fines, and/or citations;
- The City of Sanger maintains the right, at any violation level, to disconnect irrigation systems and/or total water services to a customer with reconnection fees and possible monetary penalties authorized by action of the governing body and
- The City Manager or official designee may implement any provision of the enforcement process of this Plan.
- Any police officer, code enforcement officer, and/or Public Works staff having jurisdiction may issue a citation for any violation.

## SECTION 10

### Coordination with Regional Water Planning Group, UTRWD and Others

The City of Sanger has coordinated with the Region C Water Planning Group and UTRWD to ensure consistency with the approved regional water plan and UTRWD's drought contingency plan. The City of Sanger sent a copy of the draft ordinance(s) or resolution(s) implementing the Plan to UTRWD for review and approval. After adoption, the City of Sanger sent the final ordinance(s) or resolution(s) and the Plan to UTRWD. Appendix C includes a copy of a letter sent to the Chair of the Region C Water Planning Group along with the City of Sanger's Plan.

## SECTION 11

### Review and Update of Drought Contingency Plan

As required by TCEQ rules, the City of Sanger will review and update this Plan every five years. The Plan will be updated as appropriate based on new or updated information, such as the adoption or revision of the regional water plan, or based on new or updated information related to the City of Sanger's service area, population, water supply, transmission system and, for compliance with UTRWD requirements. The next revision of the drought contingency plan must be prepared, adopted, and submitted to TCEQ's Executive Director no later than May 1, 2029. Any revised Plan must be submitted to TCEQ within 90 days of adoption by the community water system.

## SECTION 12

### Drought Contingency Plans For Privately-Owned Water Utilities

Any privately-owned or independent water utilities that are located within the service area of the City of Sanger shall prepare a drought contingency plan in accordance with TCEQ requirements contained in the TAC, Title 30, Part 1, Chapter 288, Subchapter B and Rule 288.20, and incorporate such plan into their tariff.

**APPENDIX A**  
**TCEQ Minimum Requirements of a**  
**Drought Contingency Plan for Municipal Uses by Public Water Suppliers**  
**(Subchapter B, Rule §288.20)**  
**Effective October 7, 2004**

(a) A drought contingency plan for a retail public water supplier, where applicable, must include the following minimum elements.

(1) Minimum requirements. Drought contingency plans must include the following minimum elements.

(A) Preparation of the plan shall include provisions to actively inform the public and affirmatively provide an opportunity for public input. Such acts may include but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.

(B) Provisions shall be made for a program of continuing public education and information regarding the drought contingency plan.

(C) The drought contingency plan must document coordination with the regional water planning groups for the service area of the retail public water supplier to ensure consistency with the appropriate approved regional water plans.

(D) The drought contingency plan must include a description of the information to be monitored by the water supplier, and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.

(E) The drought contingency plan must include drought or emergency response stages providing for the implementation of measures in response to at least the following situations:

(i) reduction in the available water supply up to a repeat of the drought of record;

(ii) water production or distribution system limitations;

(iii) supply source contamination; or

(iv) system outage due to the failure or damage of major water system components (e.g., pumps).

(F) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the

targets. The goals established by the entity under this subparagraph are not enforceable.

(G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:

(i) curtailment of non-essential water uses; and

(ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).

(H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.

(I) The drought contingency plan must include procedures for granting variances to the plan.

(J) The drought contingency plan must include procedures for the enforcement of mandatory water use restrictions, including the specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.

(2) Privately owned water utilities. Privately owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such a plan into their tariff.

(3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.

(b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.

(c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

**APPENDIX B**  
**Copy of Ordinance or Resolution Adopted**  
**by City Council or Governing Body**

**CITY OF SANGER, TEXAS**

**ORDINANCE 04-07-24**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SANGER, DENTON COUNTY, TEXAS, AMENDING THE CITY OF SANGER CODE OF ORDINANCES, CHAPTER 13 "UTILITIES," ARTICLE 13.2200 "WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN," SECTION 13.2201 "PLAN," TO AMEND THE WATER CONSERVATION, AND DROUGHT CONTINGENCY PLAN; PROVIDING A PENALTY CLAUSE AND PROVIDING A SERVERABILITY CLAUSE AND PROVIDING FOR THE REPEAL OF ALL ORDINANCE IN CONFLICT; PROVIDING FOR NO CULPABLE MENTAL STATE BEING REQUIRED FOR CONVICTION; DECLARING ADOPTION OCCURRING AT A MEETING OPEN TO THE PUBLIC; PROVIDING FOR PUBLICATION AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, the City recognizes that the amount of water available to its customers is limited and subject to depletion during periods of extended drought; and

**WHEREAS**, the Texas Water Code and applicable rules of the Texas Commission on Environmental Quality require a Water Conservation and Drought Contingency Plan (the "Plans"); and

**WHEREAS**, the Drought Contingency Plan provides measures that may be needed during drought conditions, during an emergency and/or when water use approaches the system supply that helps reduce water usage and temporarily reduce demand placed on the City's water system, and

**WHEREAS**, the Water Conservation Plan establishes certain rules and policies for the orderly and efficient management of water supplies to reduce consumption, reduce waste and improve water use efficiency; and

**WHEREAS**, public notice has been given and the public has had an opportunity to provide input on the Drought Contingency Plan

**WHEREAS**, the City Council finds that the passage of this Ordinance is in the best interest of the citizens of Sanger.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SANGER, TEXAS:**

**SECTION 1. Chapter 13 "Utilities", Article 13.2200 "Water Conservation and Drought Contingency Plan", Section 13.2201 "Plan" of the Code of Ordinances of the City of Sanger, Texas be amended by amending Section 13.2201 "Plan" to read as follows:**

**Section 13.2201. Plan**

The city’s Water Conservation and Drought Contingency Plan attached to Ordinance 04-06-24 as Exhibit A is hereby adopted and the regulations contained therein are subject to enforcement as if set out in full and made a part of this article.

**SECTION 2.** Exhibit “A,” attached to Ordinance 04-7-19 and adopted on April 1, 2019, is amended in its entirety to read as set forth in Exhibit “A”, attached hereto and incorporated herein by referenced for all intents and purposes.

**SECTION 3.** Any person, firm, or corporation who shall violate any of the provisions of this article shall be guilty of a misdemeanor and upon conviction shall be fined in an amount not to exceed the sum of two thousand dollars (\$2,000.00) for each offense, and each and every day such offense shall continue shall be deemed to constitute a separate offense.

**SECTION 4.** If any section, article, paragraph, sentence, clause, phrase or word in this ordinance, or application thereof to any person or circumstance is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of the ordinance and the City Council hereby declares it would have passed such remaining portions of the ordinance despite such invalidity, which remaining portions shall remain in full force and effect.

**SECTION 5.** An offense committed before the effective date of this ordinance is governed by the prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed, and the former law is continued in effect for this purpose.

**SECTION 6.** Neither allegation nor evidence of a culpable mental state is required proof of an offense under this ordinance.

**SECTION 7.** It is hereby officially found and determined that the meeting at which this ordinance is passed was open to the public as required and that public notice of the time, place, and purpose of said meeting was given as required by law.

**SECTION 8.** This ordinance will take effect immediately from and after its passage and the publication of the caption, as the law and Charter in such cases provide.

**PASSED AND APPROVED** by the City Council of the City of Sanger, Texas, on this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

**APPROVED:**

\_\_\_\_\_  
**Thomas E. Muir, Mayor**

**ATTEST:**

\_\_\_\_\_  
**Kelly Edwards, City Secretary**

**APPROVED AS TO FORM:**



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**Courney Goodman-Morris**  
**Interim City Attorney**  
4894-5638-6481, v. 1



**APPENDIX C**  
**Coordination with Regional Planning Group**

**CITY OF SANGER, TEXAS**

**ORDINANCE 04-07-24**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SANGER, DENTON COUNTY, TEXAS, AMENDING THE CITY OF SANGER CODE OF ORDINANCES, CHAPTER 13 “UTILITIES,” ARTICLE 13.2200 “WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN,” SECTION 13.2201 “PLAN,” TO AMEND THE WATER CONSERVATION, AND DROUGHT CONTINGENCY PLAN; PROVIDING A PENALTY CLAUSE AND PROVIDING A SERVERABILITY CLAUSE AND PROVIDING FOR THE REPEAL OF ALL ORDINANCE IN CONFLICT; PROVIDING FOR NO CULPABLE MENTAL STATE BEING REQUIRED FOR CONVICTION; DECLARING ADOPTION OCCURRING AT A MEETING OPEN TO THE PUBLIC; PROVIDING FOR PUBLICATION AND PROVIDING FOR AN EFFECTIVE DATE.**

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**APPROVED:**

\_\_\_\_\_  
**Thomas E. Muir, Mayor**

**ATTEST:**

\_\_\_\_\_  
**Kelly Edwards, City Secretary**

**APPROVED AS TO FORM:**



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**Courtney Goodman-Morris**  
**Interim City Attorney**  
4894-5638-6481, v. 1



**CITY OF SANGER, TEXAS**

**ORDINANCE 04-07-24**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SANGER, DENTON COUNTY, TEXAS, AMENDING THE CITY OF SANGER CODE OF ORDINANCES, CHAPTER 13 “UTILITIES,” ARTICLE 13.2200 “WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN,” SECTION 13.2201 “PLAN,” TO AMEND THE WATER CONSERVATION, AND DROUGHT CONTINGENCY PLAN; PROVIDING A PENALTY CLAUSE AND PROVIDING A SERVERABILITY CLAUSE AND PROVIDING FOR THE REPEAL OF ALL ORDINANCE IN CONFLICT; PROVIDING FOR NO CULPABLE MENTAL STATE BEING REQUIRED FOR CONVICTION; DECLARING ADOPTION OCCURRING AT A MEETING OPEN TO THE PUBLIC; PROVIDING FOR PUBLICATION AND PROVIDING FOR AN EFFECTIVE DATE.**

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**SECTION 3.** Any person, firm, or corporation who shall violate any of the provisions of this article shall be quality of a misdemeanor and upon conviction shall be fines in an amount not to exceed the sum of two thousand dollars (\$2,000.00) for each offense, and each and every day such offense shall continue shall be deemed to constitute a separate offense.

**SECTION 4.** If any section, article, paragraph, sentence, clause, phase or word in this ordinance, or application thereof to any person or circumstance is held invalid or unconstitutional by a court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of the ordinance and the City Council hereby declares it would have passed such remaining portions of the ordinance despite such invalidity, which remaining portions shall remain in full force and effect.

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**SECTION 8.** This ordinance will take effect immediately from and after its passage and the publication of the caption, as the law and Charter in such cases provide.

**PASSED AND APPROVED** by the City Council of the City of Sanger, Texas, on this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

**APPROVED:**

\_\_\_\_\_  
**Thomas E. Muir, Mayor**

**ATTEST:**

\_\_\_\_\_  
**Kelly Edwards, City Secretary**

**APPROVED AS TO FORM:**

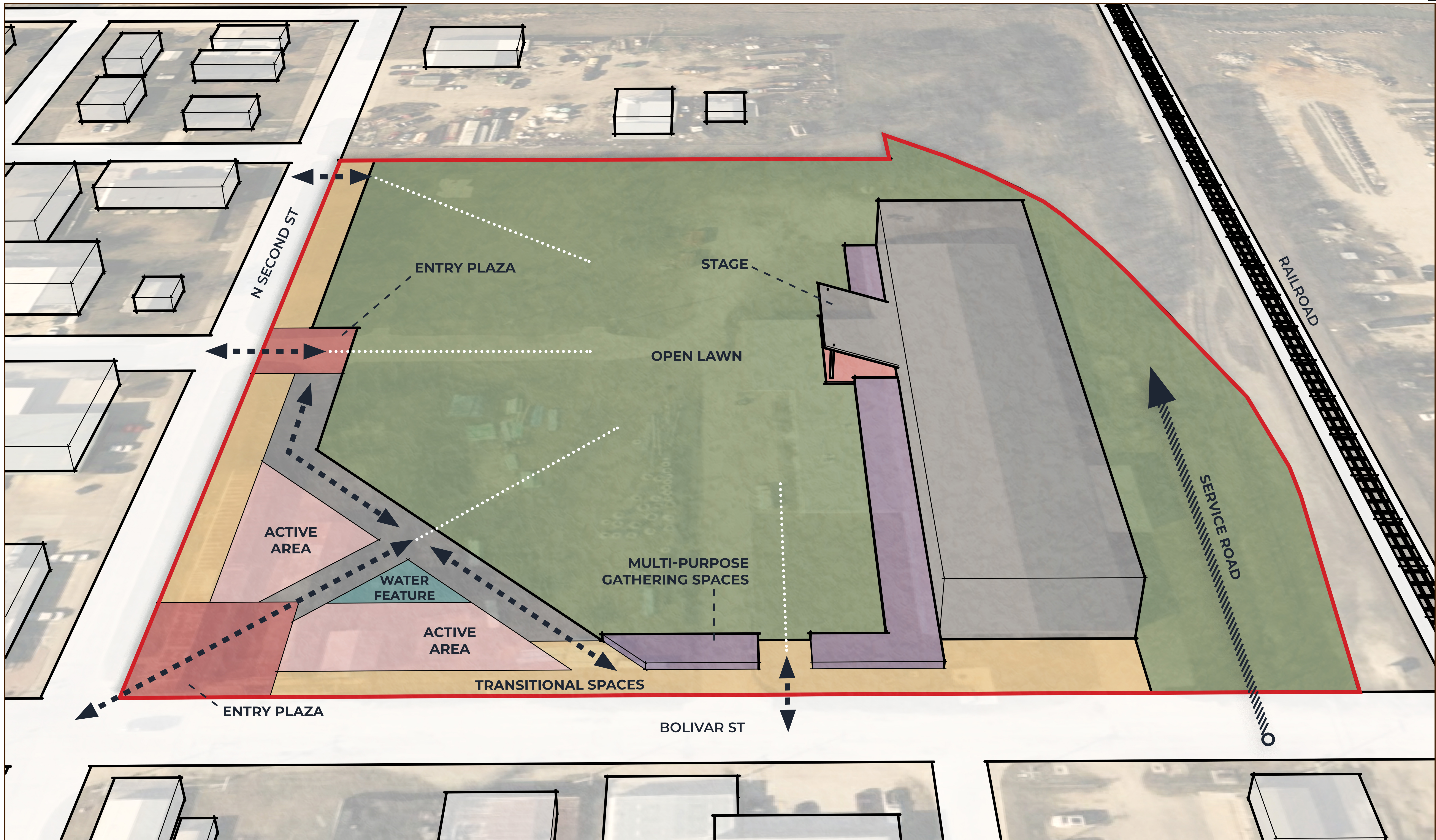


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**Courtney Goodman-Morris**  
**Interim City Attorney**  
4894-5638-6481, v. 1









Chris Felan  
Vice President  
Rates & Regulatory Affairs

March 26, 2024

City Official

Re: Rider GCR - Rate Filing under Docket No. 10170

Enclosed is Atmos Energy Corp., Mid-Tex Division's Statement of Rider GCR applicable for the April 2024 billing periods. This Statement details the gas cost component of the residential, commercial, and industrial sales rates for customers within your city. This filing is for informative purposes only and no action is required on your city's part.

Should you have any questions, please let me know.

Sincerely,

A handwritten signature in black ink that reads "Chris Felan".

Chris Felan  
Vice President, Rates and Regulatory Affairs  
Atmos Energy, Mid-Tex Division

Attachment

ATMOS ENERGY CORPORATION  
MID-TEX DIVISION  
STATEMENT OF RIDER GCR  
**April, 2024**  
PREPARED IN ACCORDANCE WITH  
GAS UTILITIES DOCKET NO. 10170

Item 10.

**Part (a) - Mid-Tex Commodity Costs**

Line	(a)	(b)			
1	Estimated Gas Cost per Unit:	\$0.23429			
2	Estimated City Gate Deliveries:	88,552,280			
3	Estimated Gas Cost:	\$20,746,914			
4	Lost and Unaccounted For Gas %	2.5932%			
5	Estimated Lost and Unaccounted for Gas	\$538,009			
6	Total Estimated City Gate Gas Cost:	\$21,284,923			
7	Estimated Sales Volume:	121,628,510			
8	Estimated Gas Cost Factor - (EGCF)	0.17500			
9	Reconciliation Factor - (RF):	0.00000			
10	Taxes (TXS):	0.00000			
11	Adjustment - (ADJ):	0.00000			
12	Gas Cost Recovery Factor - (GCRF) (Taxable)	0.17500	per Ccf	Btu Factor 0.1005	Per MMBtu \$1.7413
13	Customer Rate Relief - (CRR) (Non-Taxable)	0.11000	per Ccf	0.1005	\$1.0945

**Part (b) - Pipeline Services Costs**

Line	(a)	(b)	(c)	(d)	(e)
			Rate R - Residential	Rate C - Commercial	Rate I - Industrial Service Rate T - Transportation <sup>1</sup>
	<u>Fixed Costs</u>				
14	Fixed Costs Allocation Factors [Set by GUD 10170]	100.0000%	64.3027%	30.5476%	5.1497%
15	a. Current Month Fixed Costs of Pipeline Services	\$55,787,354	35,872,775	17,041,698	2,872,881
16	b. Plus: Second Prior Month Recovery Adjustment	\$0	\$0	\$0	\$0
17	Net Fixed Costs	\$55,787,354	\$35,872,775	\$17,041,698	\$2,872,881
	<u>Commodity Costs</u>				
18	a. Estimated Commodity Cost of Pipeline Services	\$3,397,487	2,078,296	1,029,168	290,023
19	b. Plus: Second Prior Month Recovery Adjustment	\$0	\$0	\$0	\$0
20	Net Commodity Cost of Pipeline Services	\$3,397,487	\$2,078,296	\$1,029,168	\$290,023
21	<b>Total Estimated Pipeline Costs (Line 16 + Line 19)</b>	\$59,184,841	\$37,951,071	\$18,070,866	\$3,162,904
22	Estimated Billed Volumes		66,851,500 Ccf	46,447,250 Ccf	4,935,190 MMBtu
23	Pipeline Cost Factor (PCF) [Line 20 / Line 21] (Taxable)		0.56770 Ccf	0.38910 Ccf	\$0.6409 MMBtu
24	Gas Cost Recovery Factor - (GCRF) [Line 12] (Taxable)		0.17500 Ccf	0.17500 Ccf	\$1.7413 MMBtu
25	Customer Rate Relief - (CRR) (Non-Taxable)		0.11000 Ccf	0.11000 Ccf	\$1.0945 MMBtu
26	<b>Rider GCR</b>		0.85270 Ccf	0.67410 Ccf	Rate I - \$3.4767 MMBtu
27					Rate T - \$0.6409 MMBtu

<sup>1</sup> Industrial Service and Transportation are reported in MMBtu. An MMBtu conversion factor of .1005 is used to convert from Ccf.