## **PLANNING & ZONING COMMISSION**

## **MEETING AGENDA**

FEBRUARY 12, 2024, 7:00 PM

PLANNING & ZONING COMMISSION REGULAR MEETING
HISTORIC CHURCH BUILDING - 403 N 7TH STREET, SANGER, TEXAS



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

#### **INVOCATION AND PLEDGE**

## **CITIZENS COMMENTS**

This is an opportunity for citizens to address the Commission 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 Commission with regard to matters on the agenda will be received at the time the item is considered. The Commission is not allowed to converse, deliberate or take action on any matter presented during citizen input.

## **CONSENT AGENDA**

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

1. Consideration and possible action of the minutes from January 8, 2024, meeting.

## **ACTION ITEMS**

2. Consideration and possible action on the Final Plat of Marley Meadows being 19.653 acres, 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.

## **FUTURE AGENDA ITEMS**

The purpose of this item is to allow the Chairman and Commissioners to bring forward items they wish to discuss at a future meeting, A Commissioner 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 Commission or at the call of the Chairman.

## **INFORMATIONAL ITEMS**

3. Staff will be doing a presentation for the board.

## **ADJOURN**

**NOTE:** The Commission 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 FEBRUARY 9, 2024 at 8:45 A.M.

Stefani Dodson Stefani Dodson, 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.

**DATE:** February 12, 2024

**FROM:** Stefani Dodson, Secretary

**AGENDA ITEM:** Consideration and possible action of the minutes from January 8, 2024, meeting.

**SUMMARY:** 

N/A

**FISCAL INFORMATION:** 

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

## **RECOMMENDED MOTION OR ACTION:**

N/A

## **ATTACHMENTS:**

Minutes from January 8, 2024

## PLANNING & ZONING COMMISSION

## **MEETING MINUTES**

**JANUARY 08, 2024, 7:00 PM** 



PLANNING & ZONING COMMISSION REGULAR MEETING HISTORIC CHURCH BUILDING - 403 N 7TH STREET, SANGER, TEXAS

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

There being a quorum Commissioner Miller called the Planning and Zoning meeting to order at 7:07 P.M.

## **BOARD MEMBERS PRESENT:**

Commissioner, Place 2	Sally Amendola
Commissioner, Place 3	Jackie Turner
Commissioner, Place 4	Allen McAlister
Commissioner, Place 5	Jacob Gastelum
Commissioner, Place 6	Jason Miller
Commissioner, Place 7	Lisa Freeman

## **BOARD MEMBERS ABSENT:**

Commissioner, Place 1 Shane Stone

## **STAFF MEMBERS PRESENT:**

Director of Development Services Ramie Hammonds, and Secretary Stefani Dodson

## **CITIZENS COMMENTS**

No citizens came forward.

## **CONSENT AGENDA**

1. Consideration and possible action of the minutes from December 11, 2023, meeting.

Commissioner Miller makes a motion to approve the consent agenda. Commissioner Freeman seconded the motion.

Voting Yea: Commissioner Amendola, Commissioner Gastelum, Commissioner McAlister, Commissioner Turner. The motion passes unanimously.

## **PUBLIC HEARING ITEMS**

2. Conduct a public hearing on an amendment to Ordinance No. 04-11-22 to amend the planned development language and add 21.17 acres of land described as A0029A R BEEBE, 65B, within the City of Sanger, and generally located south of FM 455 and east of Indian Lane.

Commissioner Miller Opens the Public Hearing at 7:08 P.M.

Director Hammonds goes over the project. She goes over all of the changes they propose in the PD.

Casey McGinnis stood up to speak to the board about their project. He explains that they were able to work with the school to allow them to have some property for their tennis courts. They want to add this property to their development and update the PD.

Commissioner Miller closes the Public Hearing at 7:27 P.M.

 Conduct a public hearing on a request for a Specific Use Permit (SUP) for Outside Sales and Display, on the west end 8.17 acres of land described as A1241A TIERWESTER, TR 165, zoned as Business District 2 (B-2) and generally located on the east side of I-35 at the intersection of South Stemmons and Wood Street.

Commissioner Miller Opens the Public Hearing at 7:28 P.M.

Director Hammonds goes over the SUP explaining their current one is close to the expiration date.

Commissioner Miller closes the Public Hearing at 7:30 P.M.

## **ACTION ITEMS**

4. Consideration and possible action on an amendment to Ordinance No. 04-11-22 to amend the planned development language and add 21.17 acres of land described as A0029A R BEEBE, 65B, within the City of Sanger, and generally located south of FM 455 and east of Indian Lane.

Director Hammonds explains that this is the same project that was presented earlier in the public hearing.

Commissioner McAlister makes a motion to approve with the condition all comments are met by City Council.

Commissioner Freeman seconded the motion.

Voting Yea: Commissioner Miller, Commissioner Gastelum, Commissioner Amendola, Commissioner Turner. The motion passes unanimously.

5. Consideration and possible action on a request for a Specific Use Permit (SUP) for Outside Sales and Display, on the west end 8.17 acres of land described as A1241A TIERWESTER, TR 165, zoned as Business District 2 (B-2) and generally located on the east side of I-35 at the intersection of South Stemmons and Wood Street.

Director Hammonds explains that this is the same project that was presented earlier in the public hearing.

Commissioner Miller makes a motion to approve with a 2-year expiration. Commissioner Gastelum seconded the motion.

Voting Yea: Commissioner McAlister, Commissioner Amendola, Commissioner Freeman, Commissioner Turner. The motion passes unanimously.

 Consideration and possible action on the Preliminary Plat of Duck Creek Ridge, being 1.010 acres, located in the City of Sanger, and generally located on the south side of Duck Creek Road at the intersection of Duck Creek Road and Mesa Drive

Director Hammonds goes over the project explaining the applicant wants to make 4 single family lots from the 1 unplatted tract. She explains they are also needing a side yard setback variance from 8 ft to 7.5 ft. for the current home.

The board had a brief discussion over the right of way and if there was going to be an easement. The applicant explained they have asked for a variance to allow the current right of way to stay as it is a developed neighborhood.

Director Hammonds explained that the variance will be going in front of City Council.

Commissioner Miller makes a motion to approve with the condition all comments are met by City Council.

Commissioner McAlister seconded the motion.

Voting Yea: Commissioner Turner, Commissioner Gastelum, Commissioner Amendola, Commissioner Freeman. The motion passes unanimously.

7. Consideration and possible action on the Preliminary Plat of Duncan Retail, being 5.770 acres, 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.

Director Hammonds goes over the project and explains the applicant wants to create 5 commercial lots from the 1 unplatted lot. She stated there is currently an existing business that is on the property.

Commissioner Miller makes a motion to approve with the condition all comments are met by City Council.

Commissioner Turner seconded the motion.

Voting Yea: Commissioner McAlister, Commissioner Gastelum, Commissioner Amendola, Commissioner Freeman. The motion passes unanimously.

## **FUTURE AGENDA ITEMS**

No items were discussed.

## **INFORMATIONAL ITEMS**

8. FM455 & 1-35 Update

Director Hammonds updates the board on the roadway construction.

## **ADJOURN**

There being no further items Commissioner Miller adjourns the meeting at 7:39 P.M.



**DATE:** February 12, 2024

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

**AGENDA ITEM:** Consideration and possible action on the Final Plat of Marley Meadows being

19.653 acres, 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 1 acre.
- This development is located in the City of Sanger's ETJ
- The house will be served by onsite septic.

## **FISCAL INFORMATION:**

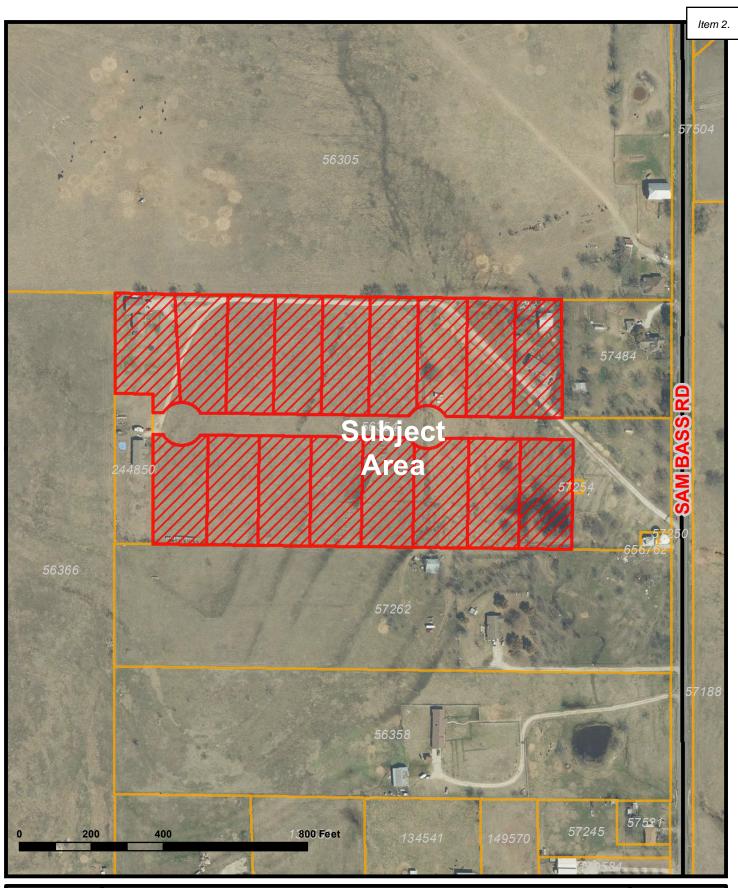
Budgeted: N/A Amount: N/A GL Account: N/A

## **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





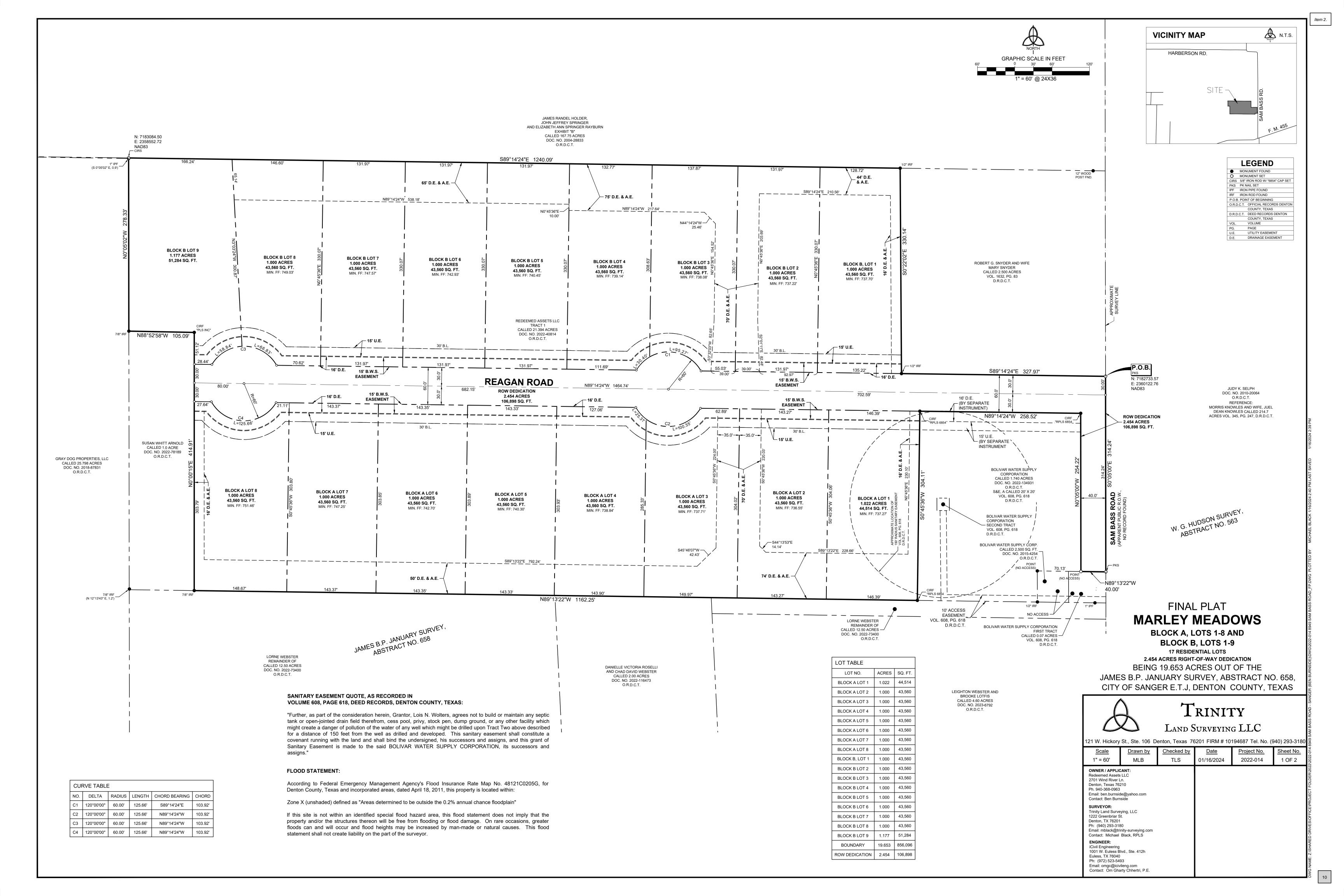


Project Name: Marley Meadows
Final Plat
Project: 24SANZON-0001
City Limits Exhibits









## Item 2.

## 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 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)
- The maintenance of paving, grading and drainage improvements and/or easements shown on this plat are
  the responsibility of the individual property owner and <u>DOES NOT</u> 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:		

## STATE OF TEXAS

**Printed Name** 

## COUNTY OF DENTON §

Signature

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.

Title: Owner

My Commission Expires

## 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
THI

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

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

## 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



Ph: (972) 523-5493

Email: omgc@icivileng.com
Contact: Om Gharty Chhertri, P.E.

# TRINITY

LAND SURVEYING LLC

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

				<u>_</u>	•	
<u>Scale</u>	<u>Drawn by</u>	Checked by	<u>Date</u>	Project No.	Sheet No.	
	MLB	TLS	01/16/2024	2022-014	2 OF 2	
OWNER / APPLIC Redeemed Assets 2701 Wind River L Denton, Texas 762 Ph. 940-368-0963 Email: ben.burnsic Contact: Ben Burn	LLC .n. 210 le@yahoo.com					
SURVEYOR: Trinity Land Surve 1222 Greenbriar S Denton, TX 76201 Ph: (940) 293-318 Email: mblack@tri Contact: Michael	it. 30 nity-surveying.com					
 ENGINEER: iCivil Engineering 1001 W. Euless B Euless, TX 76040						

APPROVAL BLOCK							
Approved:							
Chairman, Planning & Zoning Commission City of Sanger, TX	Date						
Mayor City of Sanger, TX	Date						
Attested by:							
City Secretary, City of Sanger, TX	Date						



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

## SUBDIVISION APPLICATION

Prelimin Plat Min Plat	-		Vacating Plat (Replat Conveyance Plat Plat
Applicant			Owner (if different from applicant)
Name: Michael Blac	k		Name: Ben Burnside
Company: Trinity La	nd S	Surveying LLC	Company: Redeemed Assets LLC
Address: 1222 Gree			Address 2701 Wind River Ln.
City, State, Zip: Dento			City, State, Zip: Denton, Texas 76210
Phone 940-293-318			Phone: 940-368-0963
Fax:	_		Fax:
Email: mblack@trini	ty-s	surveying.com	Email: ben.burnside@yahoo.com
	x x x x x		"x36", folded to 1/4 size)  Fee (Check Payable to City of  Dwner)  npleted)  nts/Traffic & Drainage Studies etc.  nents Provided on a CD/DVD or
Supporting Materials (Lis R Number(s): 56354	t if p	rovided):	
Benja Bun	L	_	11/8/23
Owner's ∜gnature			Date /
Applicant's Signature			Date
Office Use: Reviewed by D	Direc	ctor 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 <a href="mailto:mblack@trinity-surveying.com">mblack@trinity-surveying.com</a>.

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: <a href="mailto:mblack@trinity-surveying.com">mblack@trinity-surveying.com</a></a>
Website: <a href="mailto:www.trinity-surveying.com">www.trinity-surveying.com</a>



September 22, 2023 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 Preliminary Plat

Fourth 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. <u>The drainage study is acceptable for preliminary platting</u>. Please address the comments below with the drainage study in support of the final plat/construction plans.

## General:

- 1. <u>1st 4th Review Comment:</u> Plans and plat are reviewed separately. Please note an accepted drainage study is required prior to plat acceptance.
- 2. <u>1st 4th Review Comment:</u> Please address comments on attached markups and provide <u>annotated responses on markups</u>. All the comments have been addressed and response is provided
- 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.
  - 1<sup>st</sup> Review Response: No Response.
  - 2<sup>nd</sup> Review Comment: Address comments on preliminary plat.
  - 2<sup>nd</sup> 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 Review Comment: Please update all relevant information based of any changes due to comments. All information has been updated based on changes.
- 4. <u>1st 3rd Review Comment:</u> Please note, additional comments may result once models and additional info is provided.
  - 4th Review Comment: Please note, additional comments may result once final drainage study/construction plans/ final plats are provided. Noted

## **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 September 22, 2023 Page 2 of 4

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

1st Review Response: Offsite modeled using UH method 2nd 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.

1st Review Response: With UH method, no increase in peak discharge at the d/s.
2nd 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.

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

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

1st Review Response: HEC-RAS model included for existing, proposed and ultimate condition 2nd 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.

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

4th 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 diches and culverts. Please provide RAS model and verify proposed channels contain the fully developed 100-yr flow with 1' freeboard. Use n=.04 for earthen channel. Include a RAS workmap or add RAS cross sections to the grading plans.

1st Review Response: HEC RAS model included for channels, roadside ditch and culverts 2nd 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.

1st 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.

3rd Review Comment: Please address comments on hydraulic workmap and grading plan.

4th Review Comment: Please address comment on Sheet 12-8 Addressed

Ms. Ramie Hammonds September 22, 2023 Page 3 of 4

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.

 $1^{\text{st}}$  Review Response: HEC RAS model included for channels, roadside ditch and culverts  $2^{\text{nd}}$  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

2<sup>nd</sup> Review Comment: Address side yard swales comment on grading sheets (sheet 8)

2<sup>nd</sup> 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

2<sup>nd</sup> Review Comment: Please use the Ultimate 100yr flow to design the channels.

2<sup>nd</sup> Review Response: Ultimate Condition Utilized.

<u>3rd Review Comment: (a)</u> 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 All comments 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:

Channel bank station adjusted for all cross sections and all channels

- a. Channel bank stations should be adjusted for all cross sections and all channels.
- b. All cross sections must contain the computed water surface elevations. Verified
- 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 revie and revise as necessary for all HEC-RAS models.

  n-value for natural channel = 0.035 DCSRR TABLE IV.3-6
  n-value for engineered channel = 0.040 recommended on earlier review

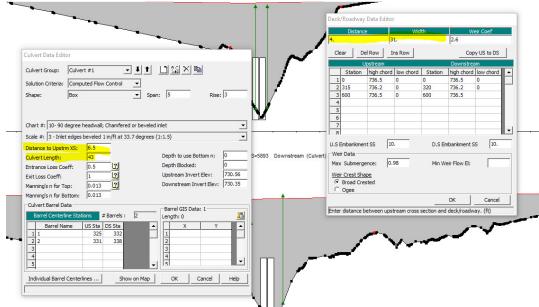
Ms. Ramie Hammonds September 22, 2023 Page 4 of 4

curved cross-sections are straightened e.

g.

Distance and width are now same on both Deck/Roadway editor and culvert editor

d. Ineffective flow areas should not be located within the conveyance area of the proposed culverts (Channel-A structure cross section 5893). Culvert Ineffective flow area station are adjusted e. Flow profiles should not cross (Channel-A 6473 – 6601)
 Additional cross-sections were added to resolve crossing profiles
 Cross sections should not curve (Channel-A 5866 and 5922). Please revise.
 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.



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

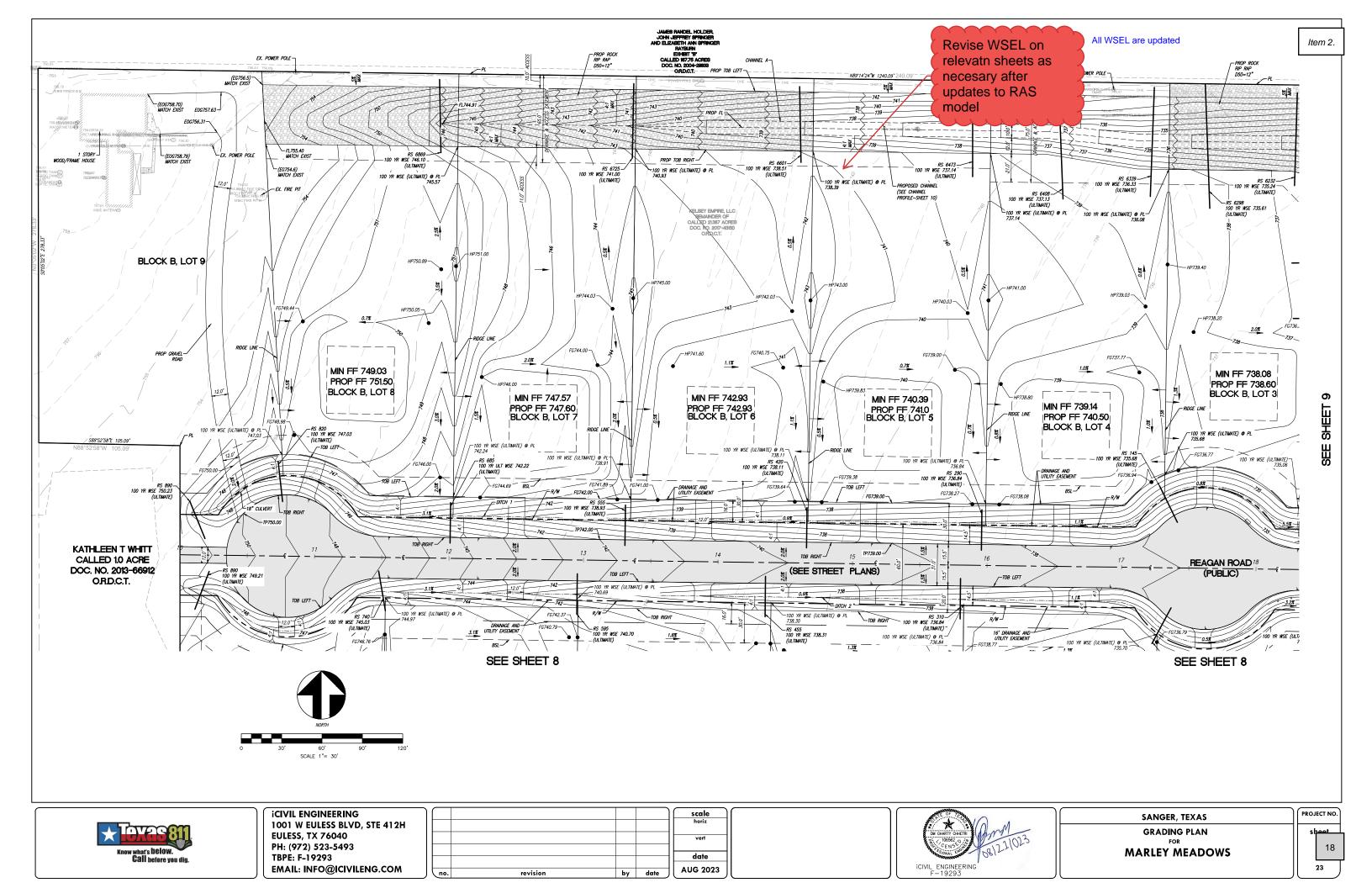
TBPELS Firm No. 312

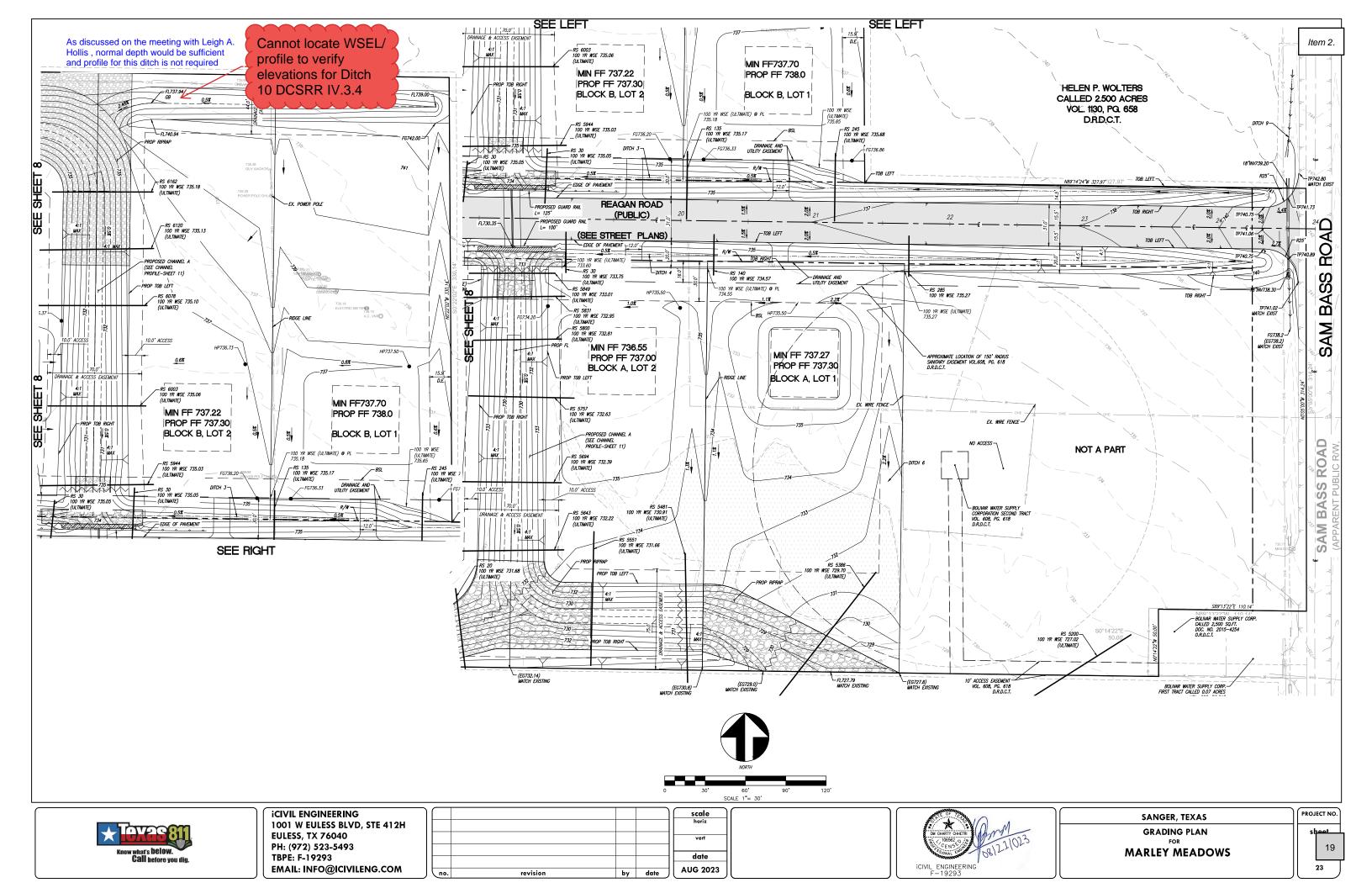
Parker C. Moore, P.E., CFM

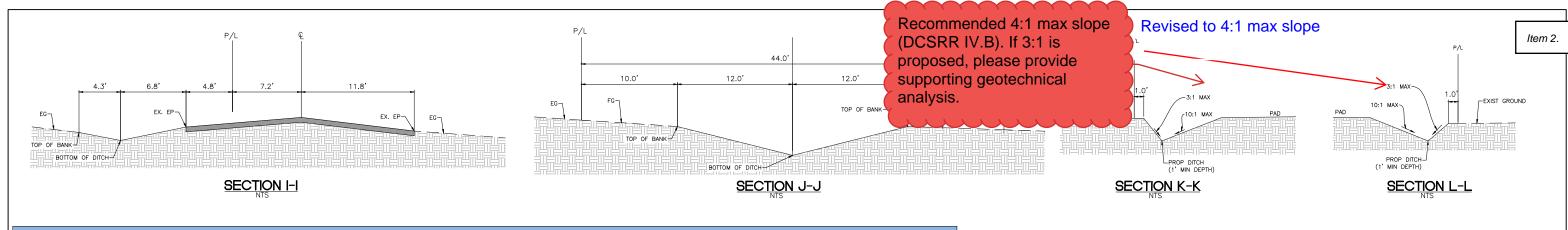
Project Manager

#### Attachment:

Plan Markups







	TIME OF CONCENTRATION CALCULATION																		
AREA CODE SHEET FLOW							SHALLOW CONCENTRATED FLOW						CHANNEL FLOW			TOC (TOTAL)	TOC USED		
AREA CODE	LENGTH (ft)	MANNINGS'S N	P2 (in.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	HIGH ELEV	SH ELEV LOW ELEV LENGTH(ft) SLOPE(ft/ft) VEL.(fps) TOC(hr) TOC(Min.) VEL.(fps) LENGTH (ft) TOC(hr) TOC(M					TOC(Min.)	(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:	ote:																		

, 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.

TIME OF CONC	OF CONCENTRATION CALCULATION															
	SHEET FLOW CHANNEL FLOW 1 CHANNEL FLOW 2 TOC (TOTAL) TOC USED															
AREA CODE	LENGTH (ft)	MANNINGS'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.)	(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:								

. 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

														Please double check
	RUNOFF CALCULATION /												intensity values vs	
Area	DITOLLID	Area	С	CA	TC	11	15	<b>I</b> 10	<b>I</b> 100	Q1	Q5	Q10	Q100	
ID	DITCH ID	(acres)			(min.)	(in /hr.)	(in./hr.)	(in./hr.)	(in./hr.)	(cfs)	(cfs)	(cfs)	(cfs)	COM DCSRR Table IV 1-3
SIDE YARD DITCH	DITCH 0	0.75	0.45	0.34	15	3.34	4.65	5.42	7.87	1.13	1.57	1.83	2.66	DITCH BETWEEN ANY TWO LOTS (TYP.
A1a & A1b	DITCH 1	4.12	0.55	2.27	15	3.34	4.65	5.42	7.87	7.57	10.54	12.28	17.83	HALF OF THE LOT DRAINS TO CHANNEL 1
A2	DITCH 2	1.27	0.71	0.90	15	3.34	4.65	5.42	7.87	3.01	4.19	4.89	7.10	COMPOSITE C=0.71 (CALCULATION PROVIDED ON THIS SHEET
OA1a, OA1b & A3	DITCH 3	4.29	0.45	1.93	15	3.34	4.65	5.42	7.87	6.45	8.98	10.46	15.19	AREA A3+OA1a+OA1b DRAINS TO DITCH 3
A4	DITCH 4	0.45	0.75	0.34	15	3.34	4.65	5.42	7.87	1.13	1.57	1.83	2.66	COMPOSITE C=0.71 (CALCULATION PROVIDED ON THIS SHEET
OA1b	DITCH 5	1.12	0.45	0.50	15	3.34	4.65	5.42	7.87	1.68	2.34	2.73	3.97	DICTH FOR OFFSITE AREA DRAINAGE
OA2	DITCH 6	0.96	0.45	0.43	15	3.34	4.65	5.42	7.87	1.44	2.01	2.34	3.40	DICTH FOR OFFSITE AREA DRAINAGE
OA3	DITCH 7	0.50	0.55	0.28	15	3.34	4.65	5.42	7.87	0.92	1.28	1.49	2.16	DICTH FOR OFFSITE AREA DRAINAGE
OA3 & A5	DITCH 8	5.56	0.45	2.50	15	3.34	4.65	5.42	7.87	8.36	11.63	13.56	19.69	1 ACRE LOTS
OA2-a	DITCH 9	0.20	0.78	0.16	15	3.34	4.65	5.42	7.87	0.52	0.73	0.85	1.23	ROADSIDE DITCH
OA1c	DITCH 10	1.57	0.30	0.47	15	3.34	4 65	5.42	7.87	1.57	2 19	2.55	3.71	DICTH FOR OFFSITE AREA DRAINAGE

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)

Ditches shall maintain 30" minimum depth ( DCSRR IV.B

These are not ditch but rather swales. Ditch/Swale depth revised

revised

17.0)	ED KONOTT	COLITICIENT (DIT	C11-2)
سين	TAL LAND AREA	RUNOFF COEF.	WEIGHTED RUNOFFF COEF.
ASPHALT/CONCRETE	0.41	0.95	0.71
CLAYEY SOIL 5-10%	0.86	0.60	0.71

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

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

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	4.20	4.20	LOT 9	18"	746.78	746.03
10+95.82	0.81	3.51	7.71	LOT 8 & 9	18"	745.29	744.55
12+49.77	0.55	2.38	10.09	LOT 7, 8 & 9	24"	740.53	739.79
13+88.82	0.55	2.38	12.47	LOT 6, 7, 8 & 9	24"	736.92	736.76
15+11.52	0.55	2.38	14.85	LOT 5, 6, 7, 8 & 9	27"	736.08	735.85
16+55.07	0.55	2.38	17.23	LOT 4, 5, 6, 7, 8 & 9	27"	734.59	734.28
17+61.27	0.14	0.60	17.83	LOT 3, 4, 5, 6, 7, 8 & 9	27"	733.38	733.07
			* CULVERT LEN	IGTH=24', MATERIAL=RCP			

DRIVEWAY CULVERT DATA FOR BLK B LOT 1 & 2 CULVERTS								
STREET STATION	CORRESPONDING LOT AREA	TAREA Q100 Q100 TOTAL CONTRIBUTING LOTS/AREA CULVERT SIZE* UPSTREAM INV. DOWNSTREA					DOWNSTREAM INV.	
20+74.17	2.55	9.00	9.00	LOT 1, OA1a & OA1b	18"	734.11	734.01	
19+65,12	1.74	6.16	15.16	LOT 1, 2 & OA1a, OA1b & A3	24"	733,58	733.46	

#### \* CULVERT LENGTH=24', MATERIAL=RCP

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	1.17	1.17	LOT 9	18"	746.82	746.08
12+49.73	0.21	1.17	2.34	LOT 8 & 9	18"	741.58	740.84
13+88.82	0.21	1.17	3.51	LOT 7, 8 & 9	18"	737.83	737.60
15+11.46	0.21	1.17	4.68	LOT 6, 7, 8 & 9	18"	736.59	736.34
16+55.08	0.21	1.17	5.85	LOT 5, 6, 7, 8 & 9	18"	735.12	734.88
17+59.72	0.23	1.23	7.08	LOT 4, 5, 6, 7, 8 & 9	18"	734.05	733.82

\* CULVERT LENGTH=24', MATERIAL=RCP

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	

			ULATION	OFFICH CAPACITY CALC	V-E			
	SECTION DETAILS	TOTAL DITCH DEPTH (ft)	VELOCITY (fps)	WATER DEPTH (ft.)	MANNING'S N	AVERAGE SLOPE (ft/ft)	Q100 (cfs)	DITCH ID
4	SHEET 5 SECTION A-	3.5	3.47	0.91	0.040	0.020	17.83	DITCH 1
A	SHEET 5 SECTION A-	2.5	2.77	0.80	0.040	0.020	7.10	DITCH 2
=	SHEET 6 SECTION F-	2.5	3.32	1.07	0.040	0.020	15.19	DITCH 3
F	SHEET 6 SECTION F-	2.5	2.07	0.55	0.040	0.020	2.66	DITCH 4
L	SHEET 12-B SECTION	1.0	1.25	0.70	0.040	0.005	3.97	DITCH 5
L	SHEET 12-B SECTION	1.0	1.20	0.66	0.040	0.005	3.40	DITCH 6
:-K	SHEET 12-B SECTION I	1.0	1.06	0.56	0.040	0.005	2.16	DITCH 7
	SHEET 8 SECTION E-	4.5	3.20	1.24	0.040	0.015	19.69	DITCH 8
I-I	SHEET 12-B SECTION	1.0	0.80	0.37	0.040	0.005	1.23	DITCH 9
J-J	SHEET 12-B SECTION	3.0	1.56	0.77	0.040	0.0068	3.71	DITCH 10
	1							



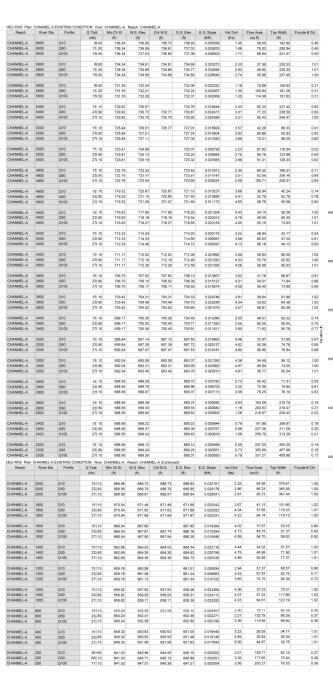
**iCIVIL ENGINEERING** 1001 W EULESS BLVD, STE 412H **EULESS, TX 76040** PH: (972) 523-5493 TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

				scale horiz
				date
no.	revision	by	date	AUG 2023



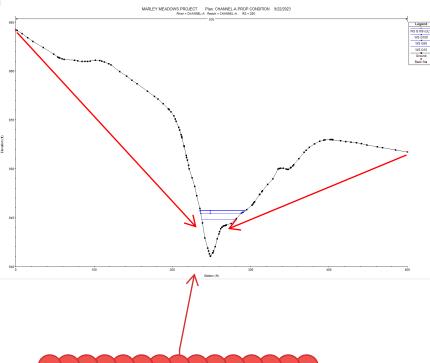
SANGER, TEXAS DITCH AND CULVERT CALCULATIONS **MARLEY MEADOWS** 





Check to ensure no increases in water surface elevations for all storm events or crossing profiles for all channels/ditches

Verified



Channel bank stations should be adjusted for <u>all</u> cross sections and all channels. DCSRR IV.3.4 Please see additional HEC-RAS comments in letter

All Channel all bank stations are updated

#### **CULVERT ANALYSIS**

C-RAS Plan: CHANNEL-A PROP CONDITION River: CHANNEL-A Reach: CHANNEL-A

				Odon. On a district								
Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
CHANNEL-A	5893 Culvert #1	Q10	733.43	732.82	733.14	733.43	736.21	122.60		0.35	6.54	5.77
CHANNEL-A	5893 Culvert #1	Q50	734.34	733.66	733.97	734.34	736.21	184.30		0.70	7.79	7.06
CHANNEL-A	5893 Culvert #1	Q100	734.77	734.05	734.46	734.77	736.21	215.50		0.89	8.36	7.66
CHANNEL-A	5893 Culvert #1	Q100 (ULT)	734.85	734.13	734.53	734.85	736.21	221.50		0.93	8.47	7.78

**ICIVIL ENGINEERING** 

**EULESS, TX 76040** PH: (972) 523-5493

TBPE: F-19293

1001 W EULESS BLVD, STE 412H EMAIL: NFO@ICIVILENG.COM

no.	revision	by	date





## Critical depth still exists

This section barely have any flow. Rip-Rap is provided

16.62 23.93 27.49 28.31

92.70 141.20 165.20 170.90

122.60 184.30 215.50 221.50

151.70 231.70 269.40 275.40

712.02 712.19 712.25 712.26

0.005181 0.006088 0.006353 0.006407

0.023902 0.021528 0.021525 0.021424 3.89 4.32 4.55 4.58

712.26 712.48 712.57 712.58

712.02 712.19 712.25 712.26

733.60 734.52 734.96 735.04

732.82 733.66 734.05 734.13

688.56 688.56 688.56 688.56 670.54 670.54 670.54 670.54 658.09 658.31 658.38 658.40 649.32 649.32 649.32

3(2.90 6(1.90 7:1.60 7(8.40

641.03 641.03 641.03

644.84 645.42 645.68 645.71 644.55 645.13 645.36 645.37 645.33 646.03 646.33 646.37 0.010006 0.009998 0.010001 0.010002

5.63 6.29 6.48

SANGER, TEXAS

**HYDRAULIC WORK MAP** 

PROJECT NO. 21

Item 2.

**MARLEY MEADOWS** 



DATE: 02/07/2024

## 1st 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 Pat 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, 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. <u>The drainage study is acceptable for preliminary platting</u>. Please address the comments below with the drainage study in support of the final plat/construction plans.

#### General:

- 1. <u>1st 5th Review Comment:</u> Plans and plat are reviewed separately. Please note an accepted drainage study is required prior to plat acceptance.
- 2. <u>1st 5th Review Comment:</u> Please address comments on attached markups and provide <u>annotated responses on markups</u>.
- 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.

1<sup>st</sup> Review Response: No Response.

2<sup>nd</sup> 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. <a href="1st-3rd Review Comment:">1st - 3rd Review Comment:</a> 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:**

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.

1st Review Response: Offsite modeled using UH method 2nd 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. 1st Review Response: With UH method, no increase in peak discharge at the d/s.

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

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

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

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

1st Review Response: HEC-RAS model included for existing, proposed and ultimate condition 2nd 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.

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

4th 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 diches and culverts. Please provide RAS model and verify proposed channels contain the fully developed 100-yr flow with 1' freeboard. Use n=.04 for earthen channel. Include a RAS workmap or add RAS cross sections to the grading plans.

1st Review Response: HEC RAS model included for channels, roadside ditch and culverts 2nd 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.

1st 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.

3rd Review Comment: Please address comments on hydraulic workmap and grading plan.

4th Review Comment: Please address comment on Sheet 12-8

Ms. Ramie Hammonds January 24, 2024 Page 3 of 4

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

2<sup>nd</sup> Review Comment: Address side yard swales comment on grading sheets (sheet 8)

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

3rd Review Comment: Addressed.

 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

2<sup>nd</sup> Review Comment: Please use the Ultimate 100yr flow to design the channels.

2<sup>nd</sup> Review Response: Ultimate Condition Utilized.

<u>3rd Review Comment: (a)</u> 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

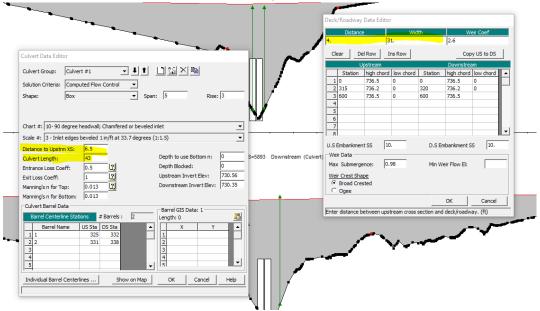
16. The proposed infrastructure (ie inlets, SD, swales, driveway culverts, channels, etc.) included in the drainage study to support the preliminary plat will be reviewed again once the construction plans are available. Update calculations as necessary to correspond to plans.

 $1^{\text{st}}$  Review Response: All proposed infrastructure calculation are included in plan set  $2^{\text{nd}}$  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. <u>5<sup>th</sup> Review Comment</u> 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 revie 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

Pall C. An

#### Attachment:

Plan Markups

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

# **LEGEND**

# RETAINING WALL EXIST. CONTOUR · 10 — PROPOSED CONTOUR EXISTING FENCE EXIST. WATER MAIN EXIST. SEWER MAIN EXIST. STORM MAIN - FLOW DIRECTION

# **PROJECT OWNER:**

REDEEMED ASSETS LLC 2701 WIND RIVER LN, DENTON, TX, 76210-2965

PROP 6" RIP-RAP

PROP PAVEMENT

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

# **ABBREVIATION**



TOP OF BANK

DRAINAGE EASEMENT

B.W.S. BOLIVAR WATER SUPPLY

# PREPARED BY:

**ICIVIL ENGINEERING** 1001 W EULESS BLVD, STE 412H EULESS,TX 76040 TEL.(972) 523-5493 TBPE:F-19293

HARBERSON ROAD PROJECT SITE VICINITY MAP

> 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'

## **SHEET INDEX**

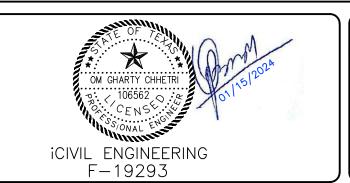
SHEET NO	DESCRIPTION
C.1	COVER SHEET
C.2	GENERAL NOTES
C.3	SURVEY AND PLAT
C.4	DEMOLITION PLAN
C.5	STREET PLAN
C.6	STREET PLAN
C.7	GRADING PLAN
C.8	GRADING PLAN
C.9	GRADING PLAN
C.10-A	PRE PROJECT TOC CALCULATION
C.10-B	PRE DEVELOPMENT DRAINAGE AREA MAP
C.11-A	POST AND ULTIMATE TOC CALCULATION
C.11-B	POST AND ULTIMATE DRAINAGE AREA MAP
C.12-A	DITCH AND CULVERT CALCULATIONS
C.12-B	DITCH AND CULVERT CALCULATIONS
C.13-A	HYDRAULIC WORK MAP
C.13-B	HYDRAULIC WORK MAP
C.13-C	HYDRAULIC WORK MAP
C.13-D	HYDRAULIC WORK MAP
C.14	CHANNEL PROFILE
C.15	CHANNEL PROFILE
C.16	CHANNEL PROFILE
C.17	CULVERT PLAN AND PROFILE
C.18	WATER MAIN PLAN
C.19	WATER MAIN PLAN
C.20	EROSION CONTROL PLAN
C.21	STANDARD DETAILS
C.22	STANDARD DETAILS
C.23	STANDARD DETAILS

EMAIL:INFO@ICIVILENG.COM



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

			scale
			horiz
			vert
			date
revision	by	date	JAN 2024
			•



SANGER, TEXAS	PR
COVER SHEET FOR	
MARLEY MEADOWS	

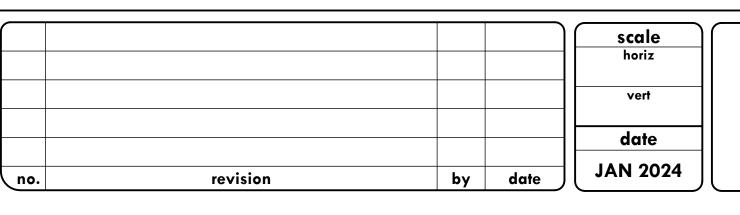
ROJECT NO sheet

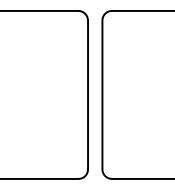


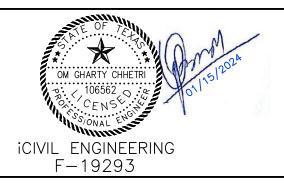
- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT CITY OF SANGER STANDARDS, DENTON COUNTY & TXDOT SPECIFICATIONS. A COPY OF THE CONTRACT DOCUMENTS AND PLANS SHALL BE AVAILABLE ON—SITE AT ALL TIMES BY THE CONTRACTOR.
- 2. ALL COMMUNICATION BETWEEN THE CITY AND THE CONTRACTOR SHALL BE THROUGH 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.
- 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, 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 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 TMUTCD 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.



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







WATER GENERAL NOTES

THE JOBSITE AT ALL TIMES.

1. UNLESS OTHERWISE NOTED ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE APPLICABLE

3. CONTRACTOR SHALL MAINTAIN EXISTING WATER SERVICE AT ALL TIMES DURING CONSTRUCTION

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

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

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

8. ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF FORTY-EIGHT INCHES (48") TO THE TOP OF PIPE.

10. ALL PROPOSED WATER MAINS SHALL BE PRESSURE TESTED, FLUSHED AND STERILIZED AND MEET ALL FEDERAL

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

THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL LOCATIONS, ELEVATIONS AND DIMENSIONS OF ADJACENT AND/OR

OF PUBLIC WATER AND SEWER SYSTEMS. CONTRACTOR SHALL MAINTAIN A COPY OF THE DESIGN DOCUMENTS AT

SPECIFICATIONS AND STANDARDS OF THE BOLIVER WATER SUPPLY CORPORATION.

5. ALL DIMENSIONS SHOWN ARE TO CENTERLINE OF PIPE UNLESS NOTED OTHERWISE

9. ALL WATER MAIN FITTINGS SHALL BE MECHANICAL AND SHALL BE POLYWRAPPED

7. THE CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN PRIOR TO BEGINNING HIS WORK

UTILITY COMPANIES TO LOCATE ALL UNDERGROUND UTILITIES.

6. ALL WATER MAINS SHALL BE C-900, DR-14 PVC PIPE.

AND STATE TESTING REQUIREMENTS.

## SANGER, TEXAS

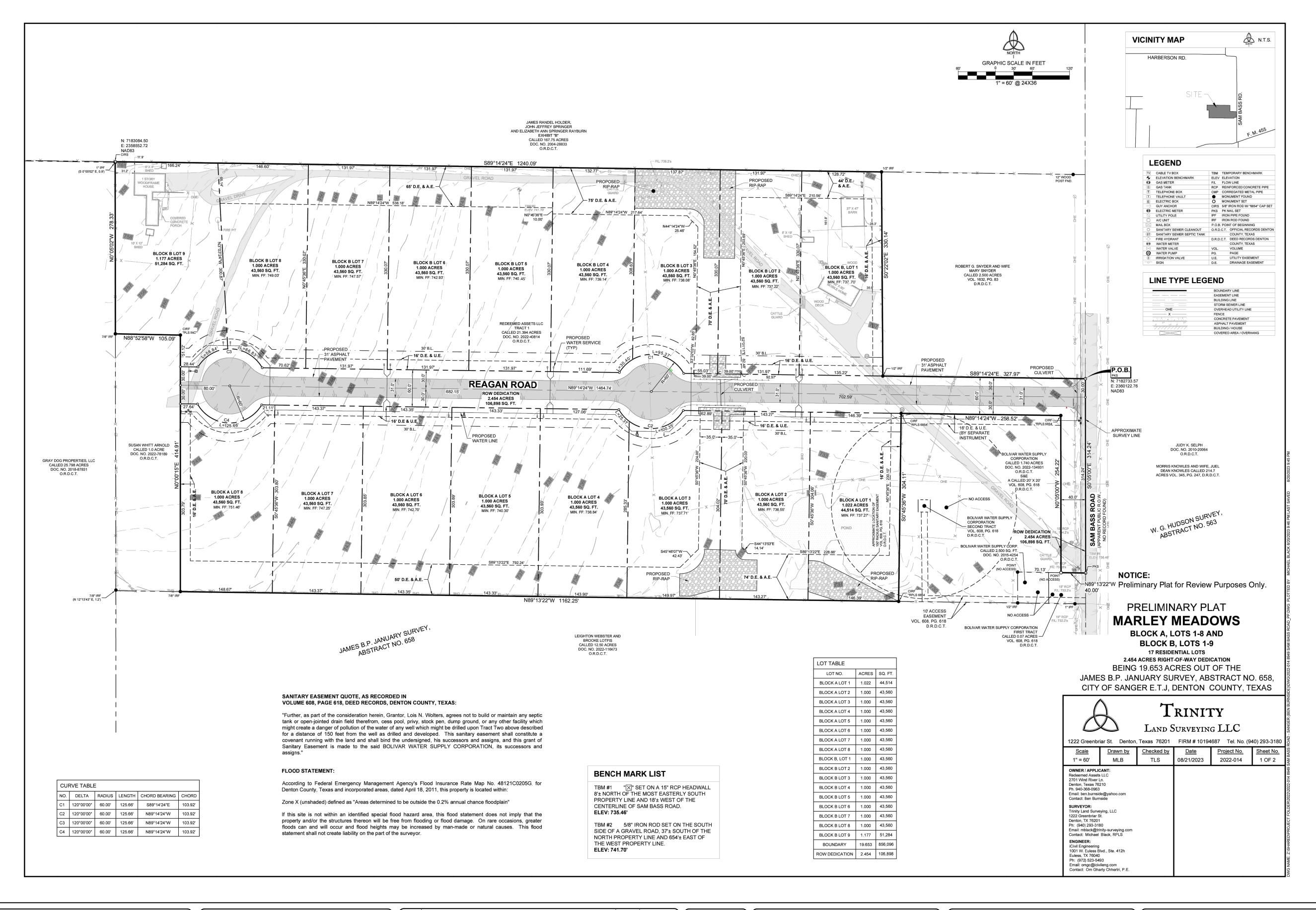
GENERAL NOTES

MARLEY MEADOWS

23

sheet

PROJECT NO





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

scale				
horiz				
vert				
date				
JAN 2024	date	by	revision	).
	_			



SANGER, TEXAS

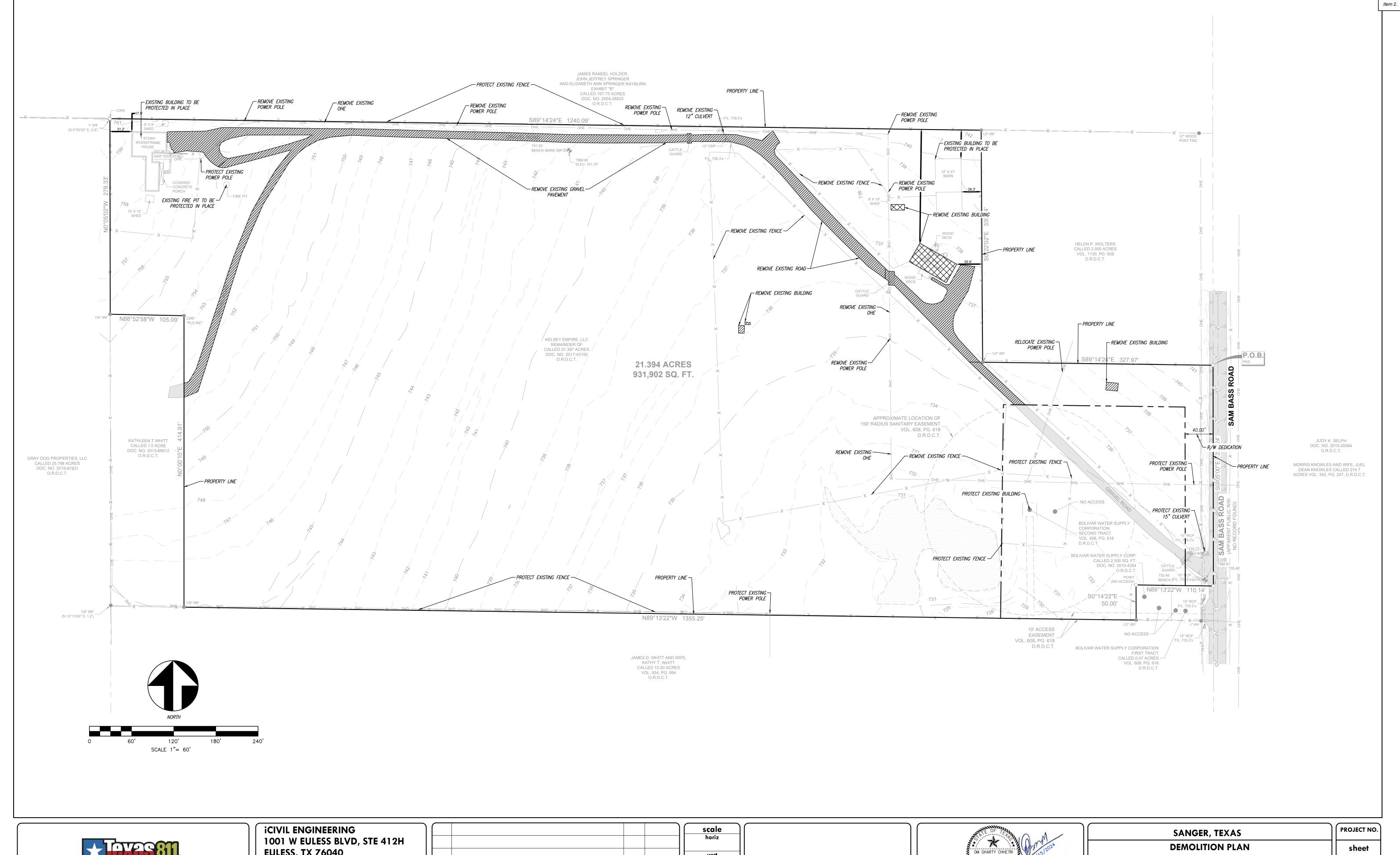
SURVEY & PLAT

FOR

MARLEY MEADOWS

sheet 3 of 23

PROJECT NO.



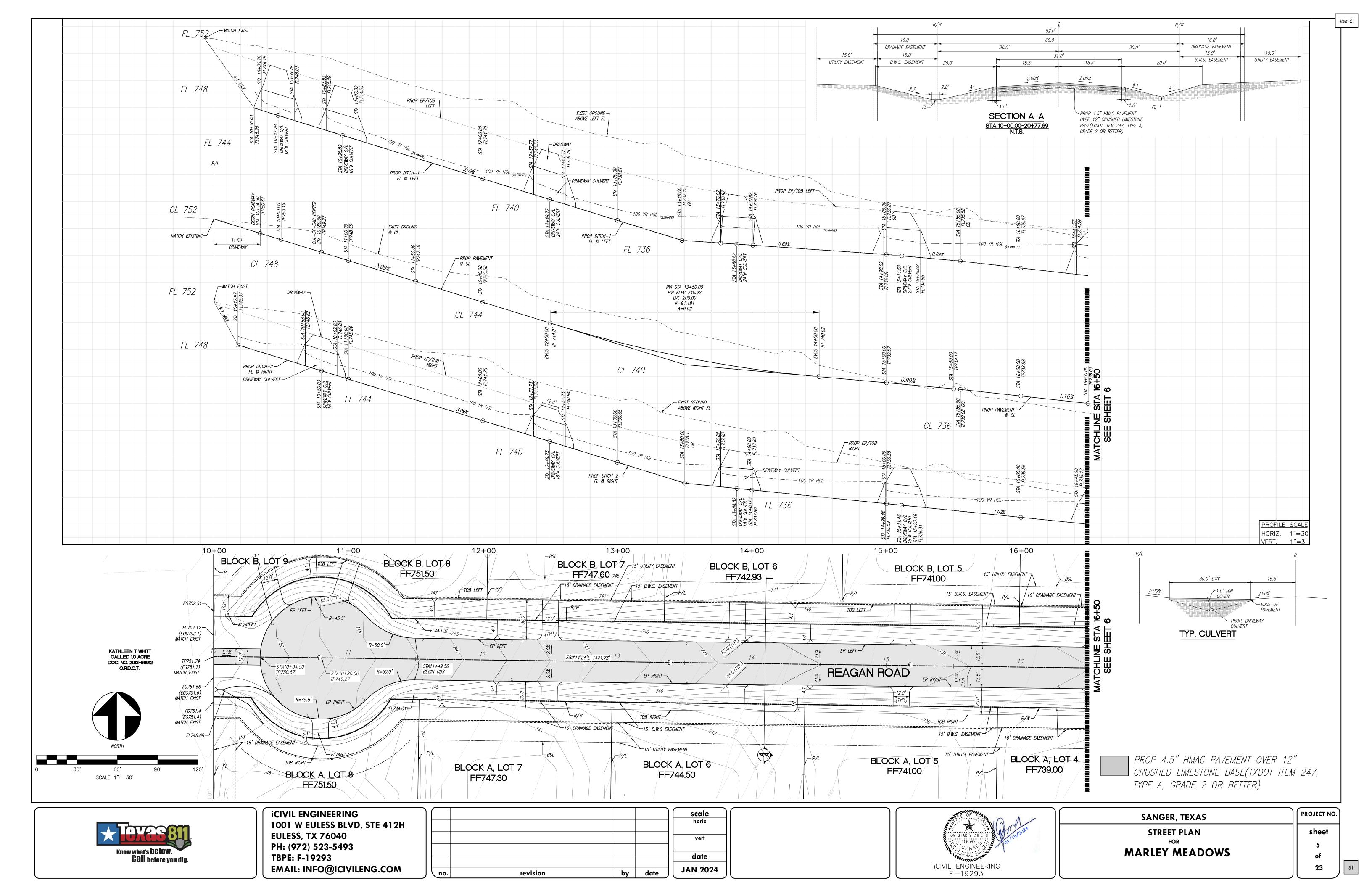


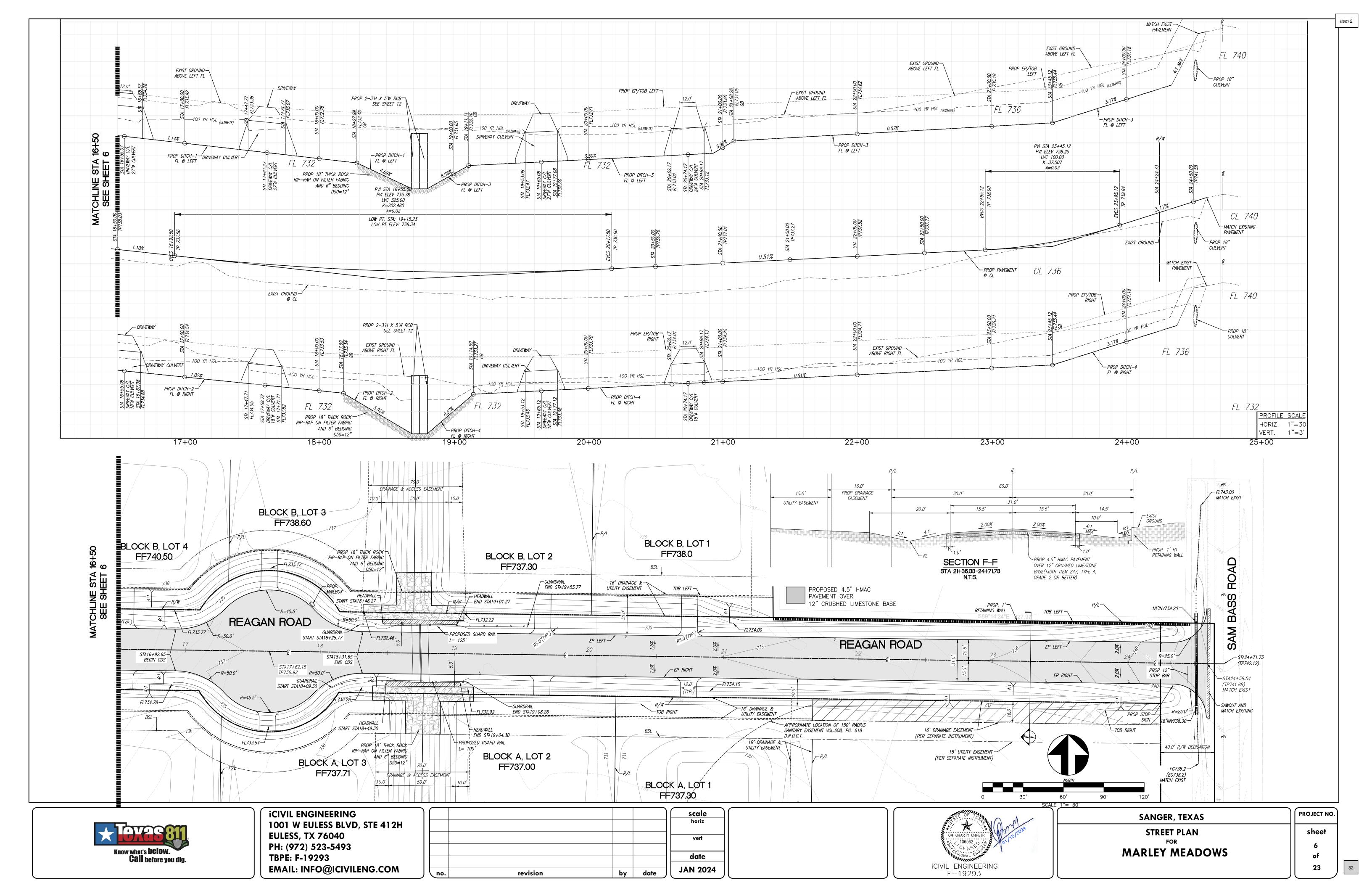
1001 W EULESS BLVD, STE 412H EULESS, TX 76040 PH: (972) 523-5493 TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

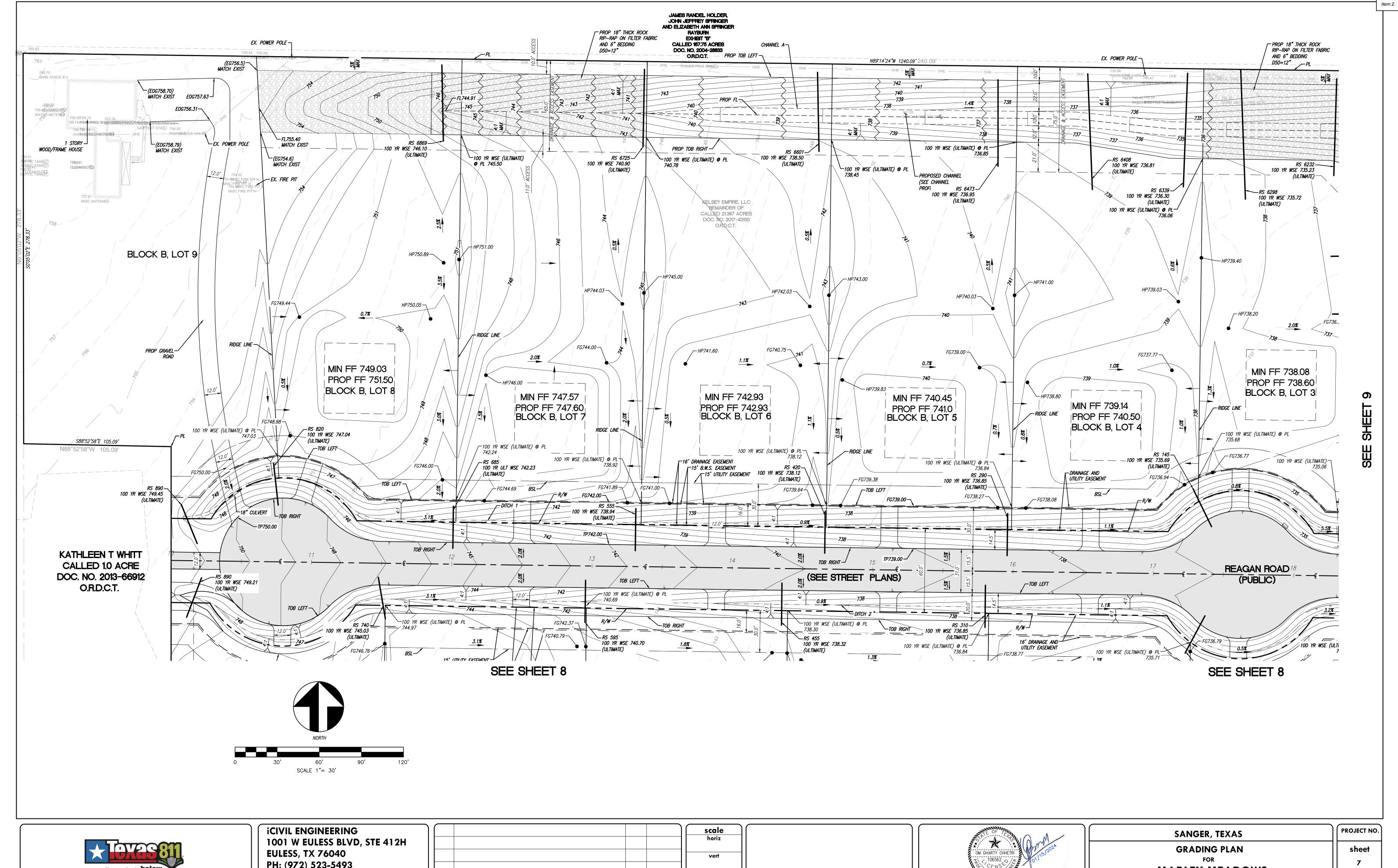
scale				
vert				
date				
JAN 2024	date	by	revision	10.



SANGER, TEXAS	PRC
DEMOLITION PLAN	,
FOR	
MARLEY MEADOWS	



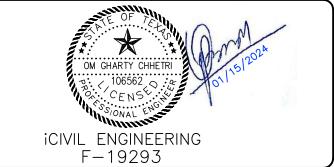






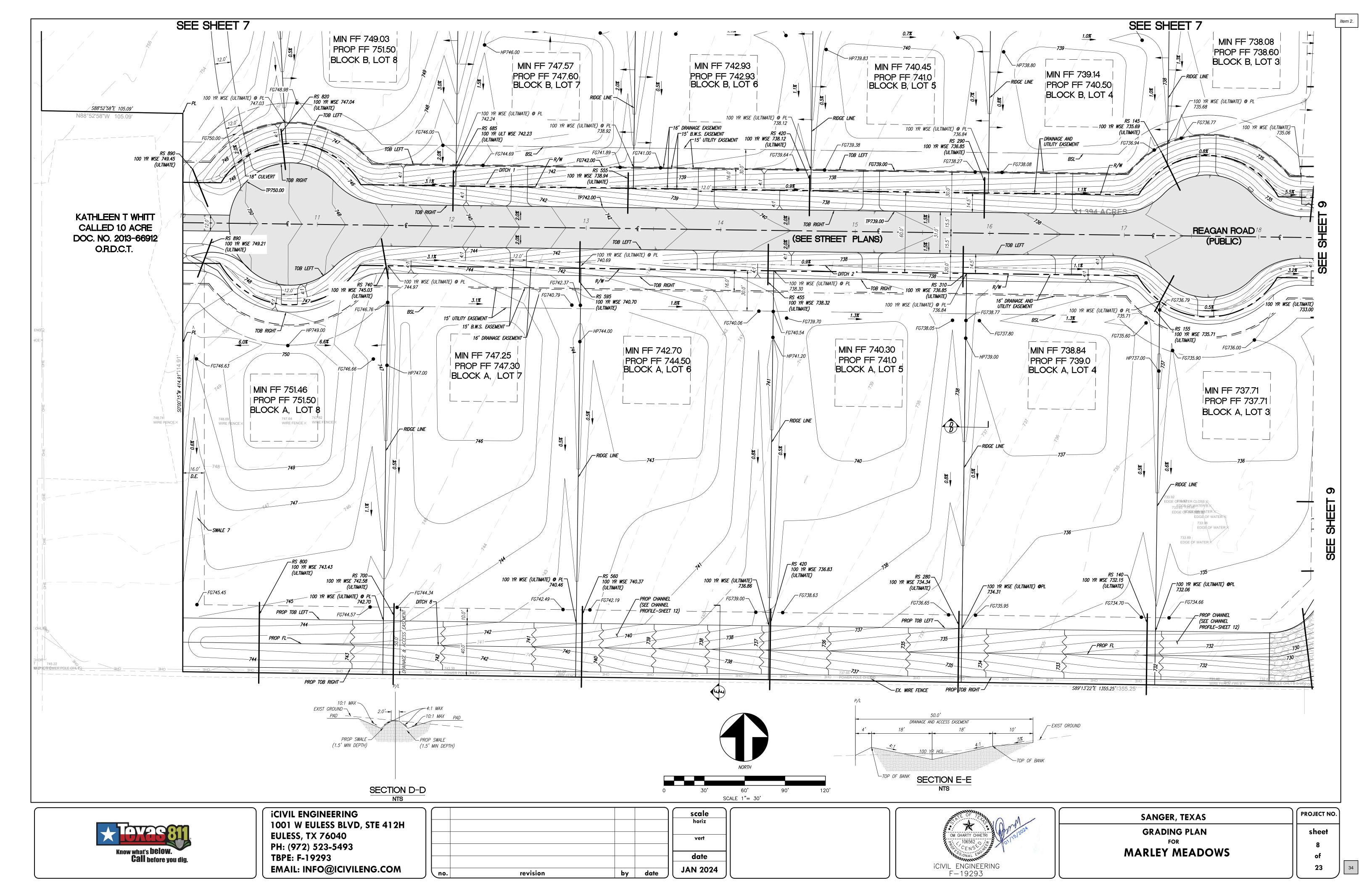
PH: (972) 523-5493 TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

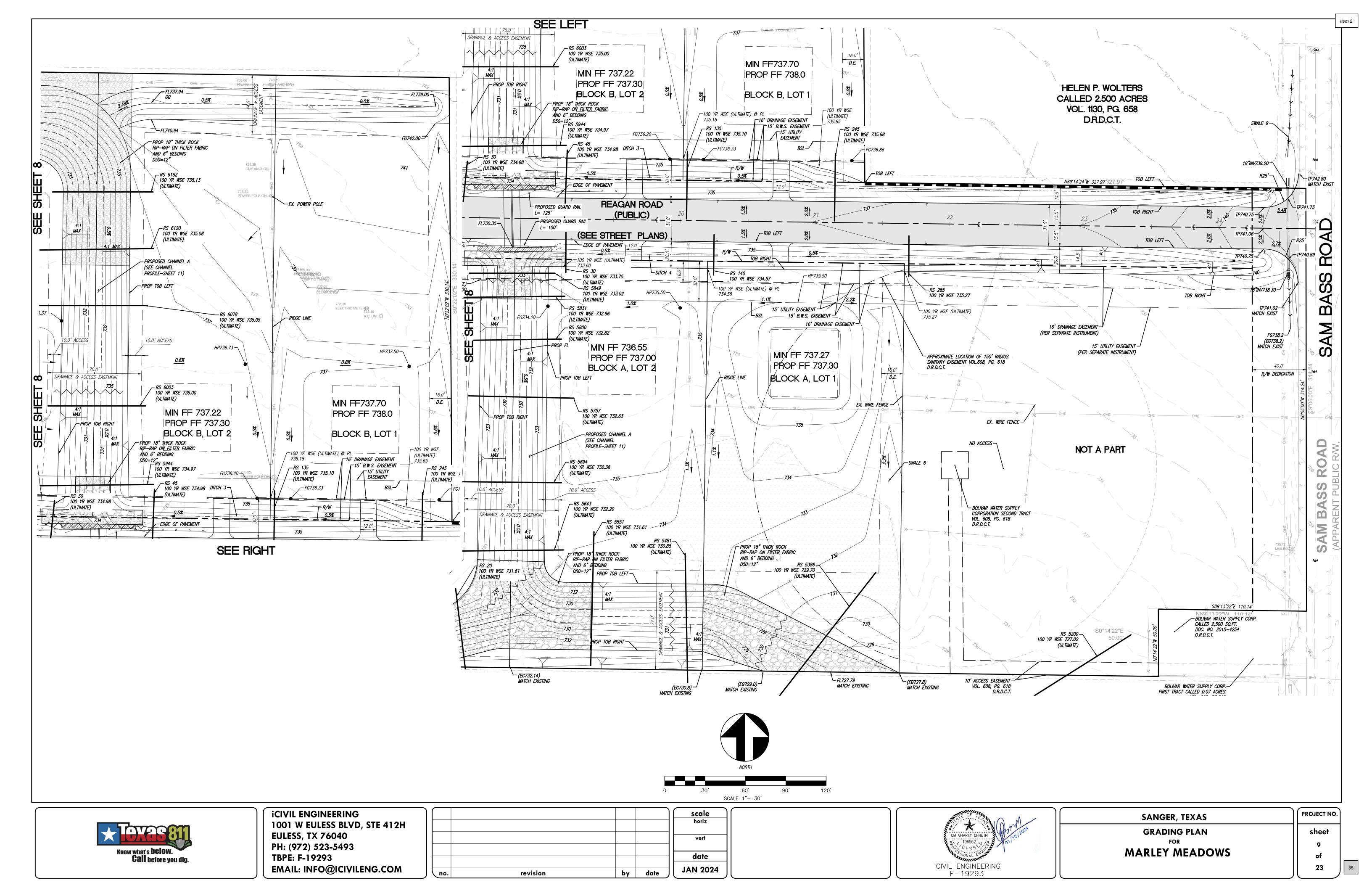
			ì	scale
				horiz
				vert
				date
_	revision	by	date	JAN 2024



**MARLEY MEADOWS** 

23





	TIME OF CONCENTRATION CALCULATION (PRE-PROJECT)																		
SHEET FLOW SHALLOW CONCENTRATED FLOW								CHANNEL FLOW				TOC (TOTAL)	LAG TIME (min.)						
AREA CODE 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)							VEL.(fps)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)	(Min.)	LAG TIME (IIIII.)				
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

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.)		TIME OF CONCENTRATION CALCULATION (PRE-PROJECT)														
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.)	SHEET FLOW SHALLOW CONCENTRATED FLOW TOC./T											TOC (TOTAL)	LAG TIME (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	AREA CODE	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.)	TOO (TOTAL)	EAG TIME (IIIII.)
7 100 0.10 0.00 0.01 12.02 100.0 12.00	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

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)																		
SHEET FLOW SHALLOW CONCENTRATED FLOW CHANNEL						L FLOW		TOC (TOTAL)	LAG TIME (min.)										
AREA CODE	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.)								(Min.)	LAG TIME (IIIII.)									
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

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

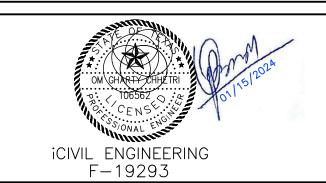
3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3

*	Texas 811.
K	now what's <b>below.</b> <b>Call</b> before you dig.

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

no.	revision	by	date





SANGER, TEXAS	PROJECT NO
PRE-PROJECT TIME OF CONCENTRATION CALCULATION	sheet
FOR	10-A
MARLEY MEADOWS	of

23

PROJECT NO.



<u>Legends</u>

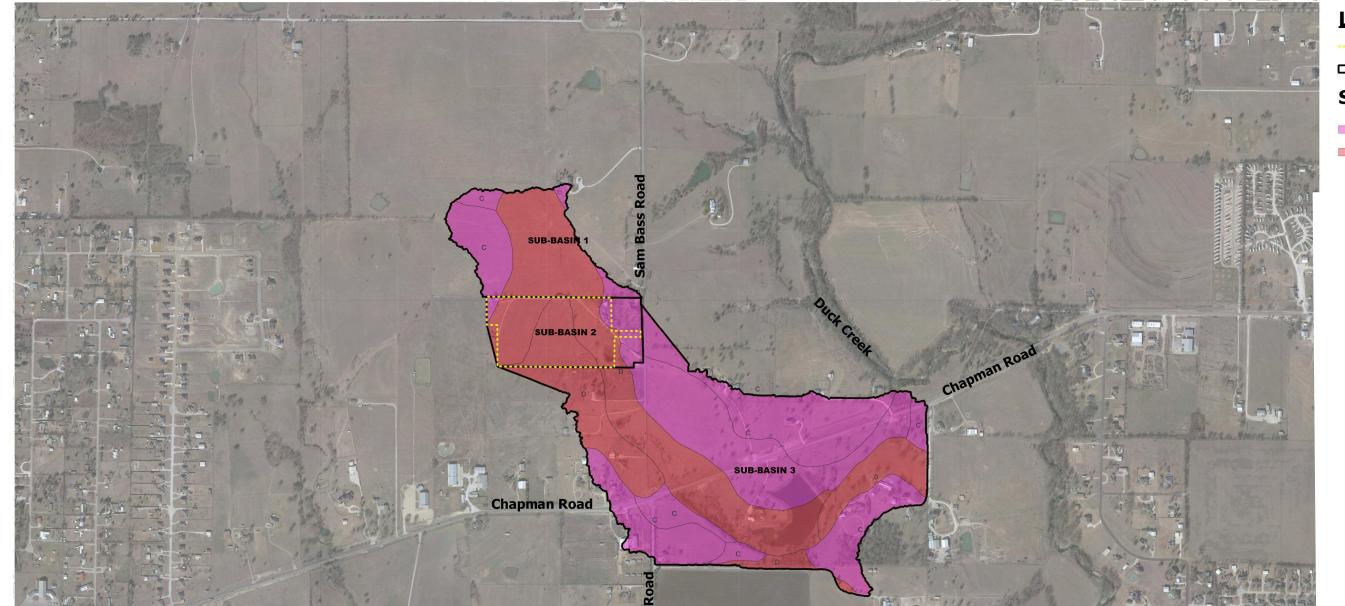
- Project Boundary

Pervious Area

Roof/ConcreteWater Body

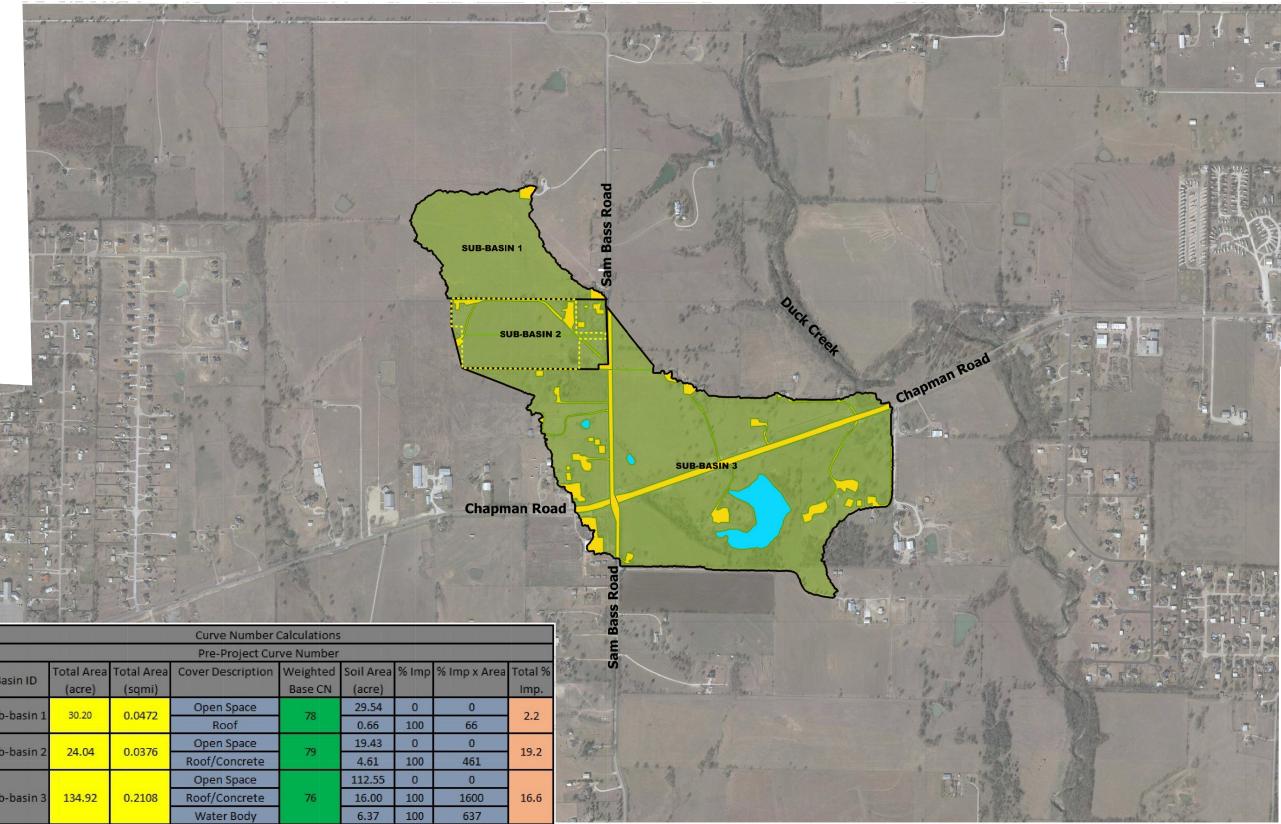
□ Pre-Project Sub-Basin

**Pre-Project Land Use** 





■ C



# <u>Legends</u>

- --- Project Boundary
- Pre-Project Junction Point
- □ Pre-Project Sub-Basin

# Contours

- 10-Ft Interval2-Ft Interval
- TC Flowpath
- Sheet Flow
- -Shallow Conc. Flow
- —Channel Flow

740		750	750		700		689			
	780	740		7	100 CO				720	C
			\$ 80 m				600 (8		<b>700</b>	_
			18 18	SUB-BASIL 1	Pass Ro	8	8		700	T
	750 750	120	20		unction 1	690 800 800 800 800 800 800 800 800 800 8		600	680	77.10
	30 730		170	SUB-B	ASIN 2	To the second se	- CONTRACTOR OF THE PARTY OF TH	Co Road		
	730			180	730		Junction 3 Gene	pman Road		600
			700 720		72 <sup>0</sup> SUB-BA	SIN 3	020	0,640	<b>670</b>	of Jan San San San San San San San San San S
	77.00			Chapman Ro	ad l	100 P				Joseph John John John John John John John Joh
ak in the second	71	7/10	690	720	Road	100		8 60		
	2008	700	630	7000	am Bass	\$ 1 m		610 630	660	
David ID	0 (0 )	Pre-Project Hyd		Outflows (cfs)	8		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The state of the s	一、	3
Basin ID Area (ac) A Sub-Basin 1 30.20	0.0472		TC(min) Lag Time (min)	Q10 Q50 Q100 86.0 131.2 153.5		1	, 1		4.37	351
Junction 1 30.20	0.0472	78 2.2	25.37 15.22	86.0 131.2 153.5	Brace .	A.	And the	Ba Eller		5-1
Sub-Basin 2 24.04 Junction 2 54.24	0.0376 0.0848	9 19.2	20.83 12.50	82.1 119.9 138.1 152.1 232.8 273.1	48 4 4	for your in it is				
Sub-Basin 3 134.92 Junction 3 189.16	0.2108	76 16.6	44.79 26.88	292.4 447.0 524.4 381.6 602.1 713.1		1				- Andrews
					and the state of t	Participation of the Control of the		P. William C.	Strong design people of the district of	188

	and the second s			
0'	1000'	2000' SCALE 1"= 1000'	3000'	4000'



Weighted Base Curve Number

5.05 373.70

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

no.	revision	by	date

scale	11	
horiz		
vert		
date	]	
JAN 2024		



SANGER, TEXAS

PRE DAM

FOR

MARLEY MEADOWS

PROJECT NO.

10-B of 23

						TIM	E OF CONCENT	RATION CALCU	LATION (POST-I	PROJECT & ULT	IMATE DEVELO	OPMENT)							
AREA CODE	ODE SHEET FLOW								SHALLOW	CONCENTRATE	D FLOW				CHANNI	EL FLOW		TOC (TOTAL)	LAG TIME (min.)
AREA CODE	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.)	(Min.)	LAG TIME (IIIII.)
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

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)  SHEET FLOW  CHANNEL FLOW  TOC (TOTAL)											
AREA CODE			SHEET F	LOW			CHANNE	L FLOW		TOC (TOTAL)	LAG TIME (min.)	
AREA CODE	LENGTH (ft)	MANNINGS'S N	P2 (inc.)	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	VEL.(fps)	LENGTH	TOC(hr)	TOC(Min.)	(Min.)	LAG TIME (IIIII.)
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

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 O	F CONCENTRA	NCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)											
AREA CODE			SHEET F	LOW					SHALLOW CO	ONCENTRATED	FLOW				CHANNE	L FLOW		TOC (TOTAL)	LAG TIME (min.)
AREA CODE	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.)	(Min.)	LAG TIME (IIIII.)
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

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

				T	IME OF CONC	ENTRATION C	ALCULATION	I (POST-PRO	JECT & ULTIM	ATE DEVELOP	MENT)					
AREA CODE		SHEET FLOW							EL FLOW 1			CHANNE	L FLOW 2		TOC (TOTAL)	LAG TIME (min.)
AREA CODE	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.)	(MIN.)	LAG TIME (IIIII.)
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

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 CONCENTRA	ONCENTRATION CALCULATION (POST-PROJECT & ULTIMATE DEVELOPMENT)											
ADEA CODE			SHEET F	LOW					SHALLOW CO	ONCENTRATED	FLOW				CHANNE	L FLOW		TOC (TOTAL)	LAG TIME (min.)
AREA CODE LE Sub-Basin 3	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.)	(Min.)	LAG TIME (IIIII.)
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
	<b>5</b>   100   0.15   3.36   0.02   0.16																		

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

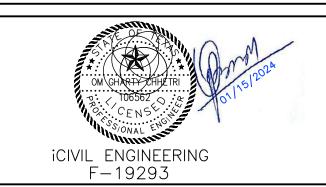
3. P2=3.36 FROM DENTON COUNTY SUBDIVISION RULES & REGULATIONS, PAGE 49, TABLE IV.1-3



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

JAN 20	date	by	revision	•
date				4
vert				
horiz				
scale horiz				

scale	$\overline{}$
vert	
date	
JAN 202	<b>!4</b>



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

sheet

23

PROJECT NO.





Post-Project Junction Point

Project Boundary

□ Post-Project Sub-Basin

**Contours** 

10-Ft Interval 2-Ft Interval

**Post Project TC Flowpath** 

Sheet Flow

<u>Legends</u>

**Contours** 

Post-Project Junction Point

Post Project TC Flowpath

-Shallow Conc. Flow

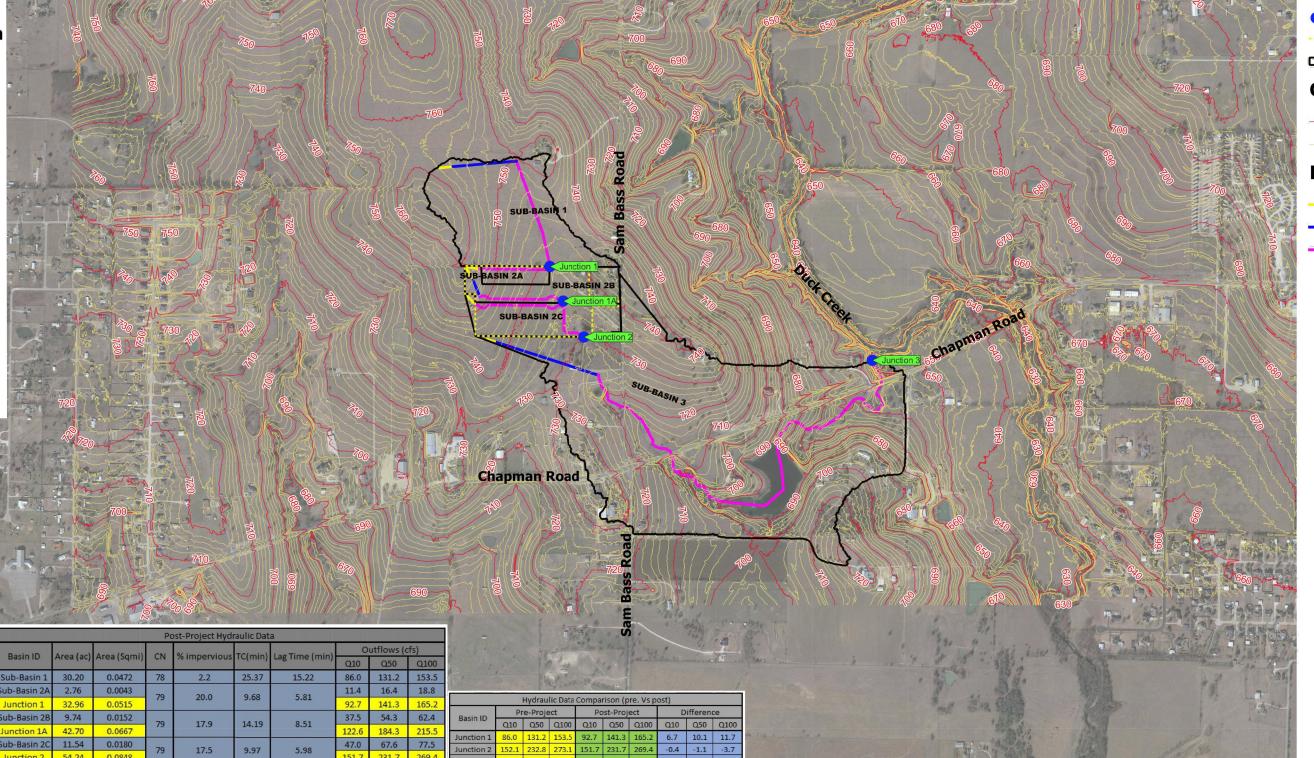
Project Boundary ☐ Ultimate Sub-Basin

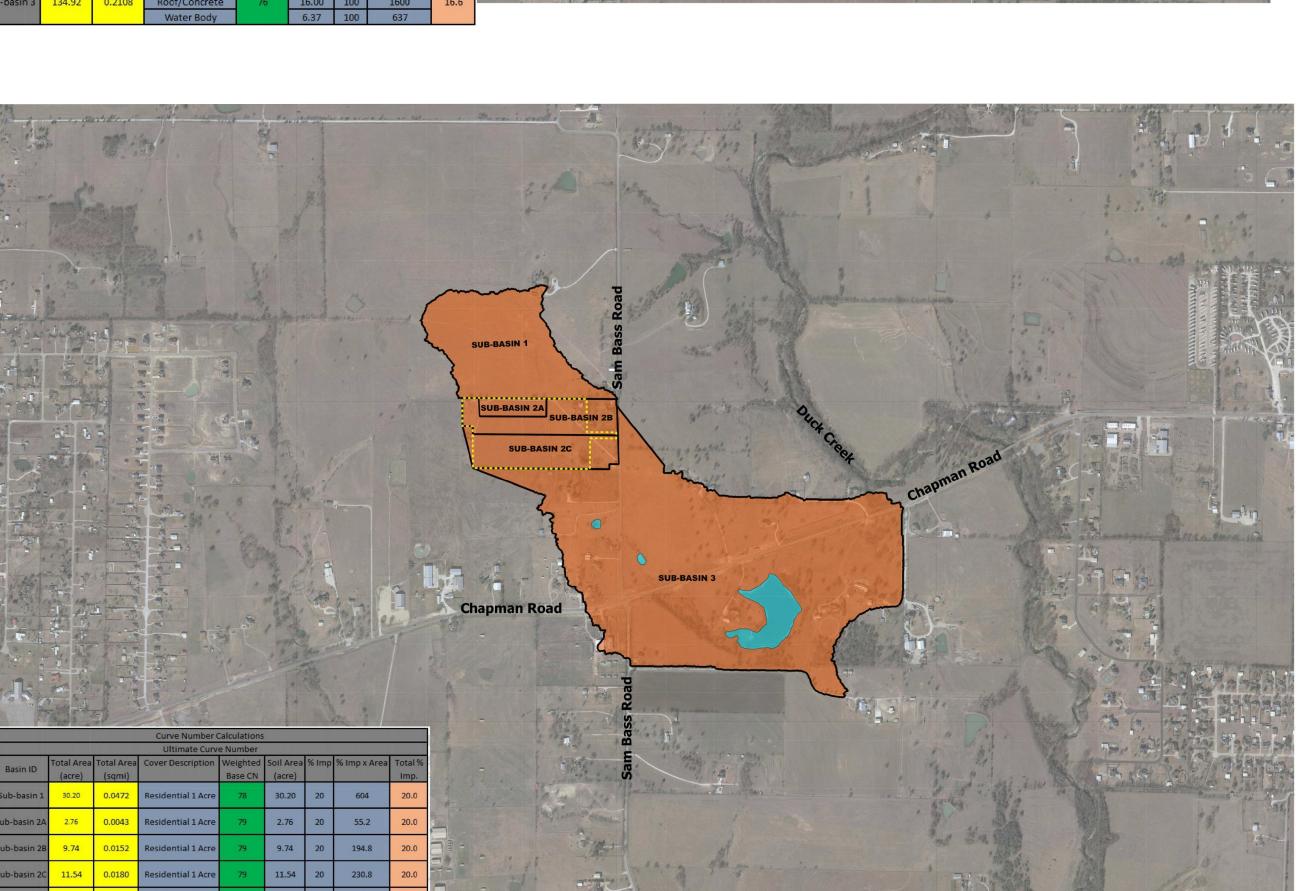
10-Ft Interval 2-Ft Interval

Sheet Flow

-Channel Flow

-Shallow Conc. Flow -Channel Flow





# <u>Legends</u>

<u>Legends</u>

Project Boundary

Pervious Area

Roof/Concrete

Residential 1 Acre

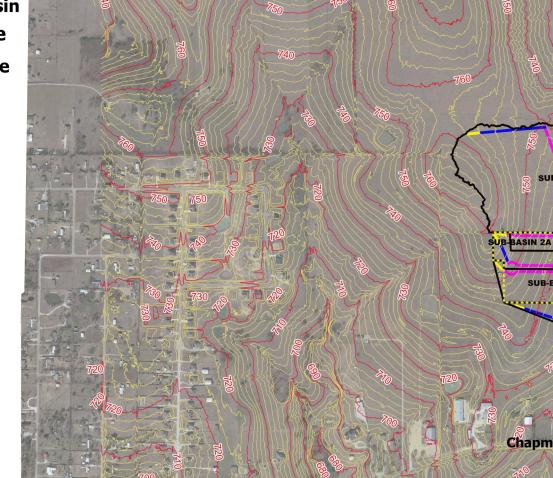
Water Body

□ Post-Project Sub-Basin

**Post-Project Land Use** 

 Project Boundary □ Ultimate Sub-Basin **Ultimate Land Use** 

Residential 1 Acre ■ Water Body



2000' SCALE 1"= 1000' 3000' scale horiz vert

IAN 2024



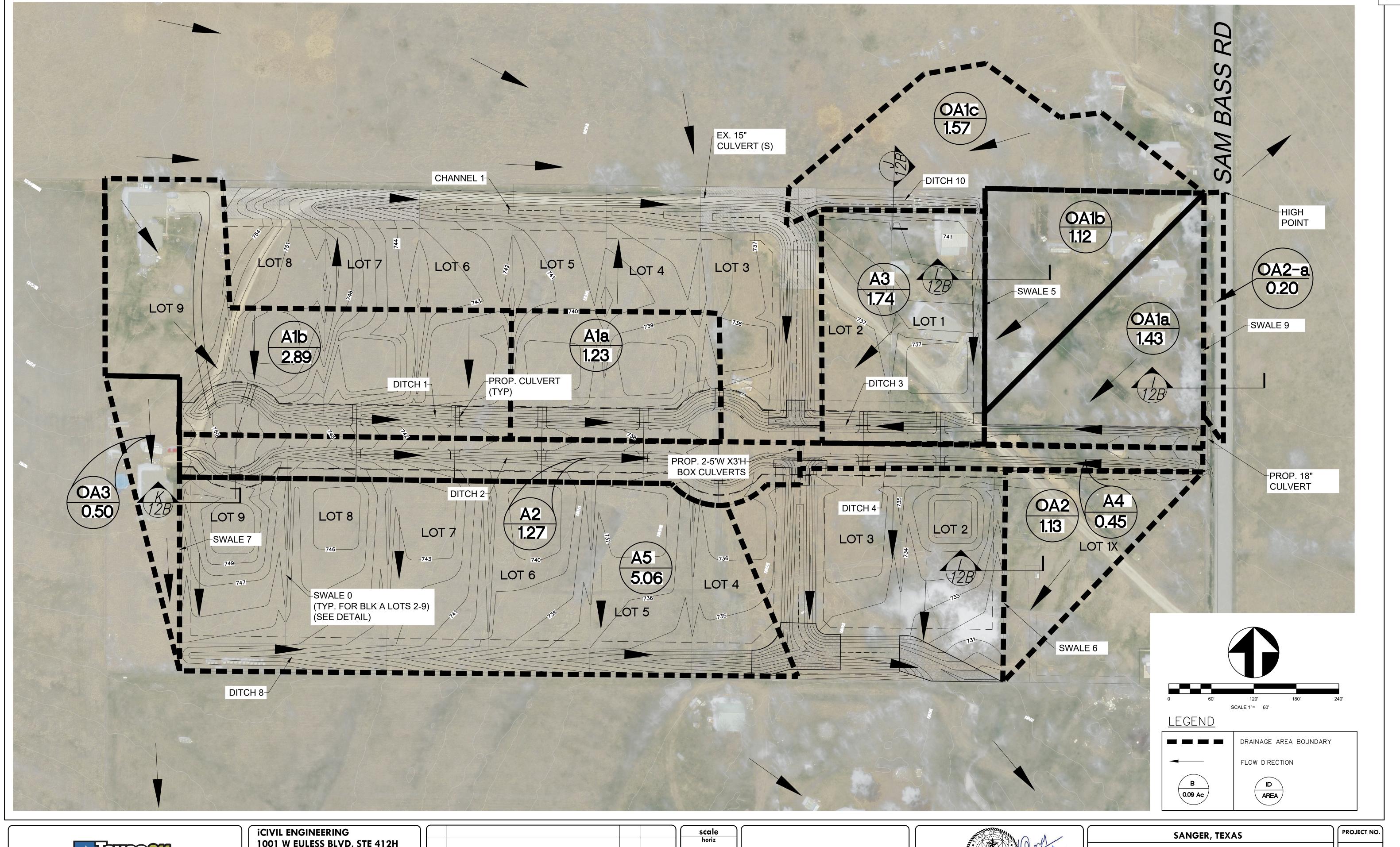


23

**iCIVIL ENGINEERING** 1001 W EULESS BLVD, STE 412H **EULESS, TX 76040** PH: (972) 523-5493 Know what's **below. Call** before you dig. TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

no.	revision	by	date	JAN 202
				date
				vert

iCIVIL ENGINEERING F-19293





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

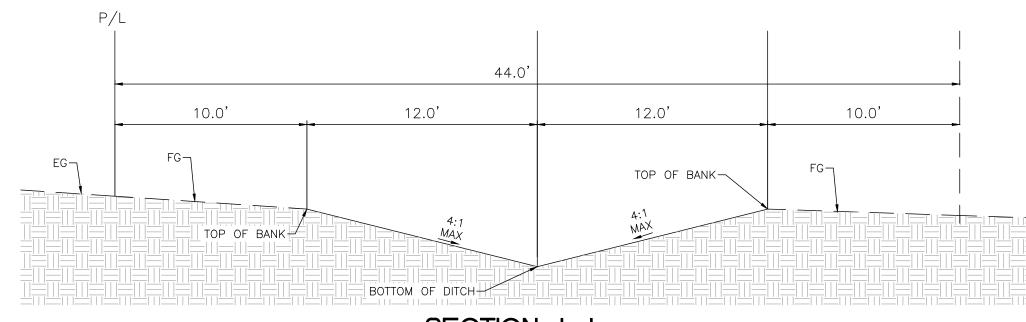
SCC	. 11		
ho			
Vé			
da			
JAN	date	by	revision

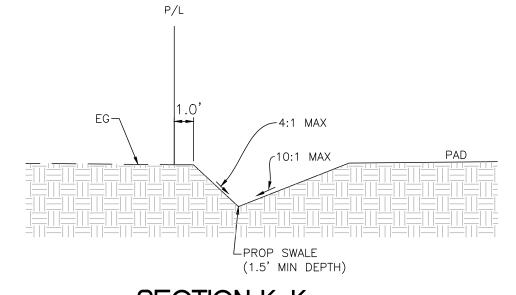
	scale	
	horiz	
	vert	
	_	
	date	
	JAN 2024	
ل	JAN 2024	

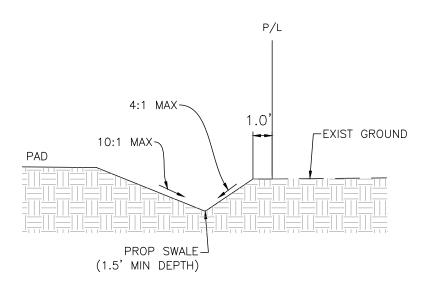


DITCH AND CULVERT CALCULATIONS
FOR
MARLEY MEADOWS

sheet 12-A of 23







SECTION K-K

SECTION L-L

								TIME	OF CONCENT	RATION CALCU	LATION								
AREA CODE			SHEET F	LOW			SHALLOW CONCENTRATED FLOW							CHANNEL FLOW				TOC (TOTAL)	TOC USED
AREA CODE	LENGTH (ft)	MANNINGS'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.)	(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

TIME OF CONC	ME OF CONCENTRATION CALCULATION															
	SHEET FLOW CHANNEL FLOW 1 CHANNEL FLOW 2 T												TOC (TOTAL)	TOC USED		
AREA CODE	LENGTH (ft)	MANNINGS'S N	SLOPE (ft/ft)	TIME(hr.)	TIME(Min.)	VEL.(fps)	LENGTH (ft)	TOC(hr)	TOC(Min.)	VEL.(fps)	LENGTH (ft)	TOC(hr)	TOC(Min.)	(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																			
Area	DITCLLID	Area	С	CA	TC	I1	15	I10	I100	Q1	Q5	Q10	Q100							
ID	DITCH ID	(acres)			(min.)	(in./hr.)	(in./hr.)	(in./hr.)	(in./hr.)	(cfs)	(cfs)	(cfs)	(cfs)	COMMENTS						
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	DICTH 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							

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

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

WEIGHTED RUNOFF COEFFICIENT (DITCH-9)											
LAND USE	TOTAL LAND AREA	RUNOFF COEF.	WEIGHTED RUNOFFF COEF.								
ASPHALT/CONCRETE	0.10	0.95	0.78								
CLAYEY SOIL 5-10%	0.10	0.60	0.76								

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=RCP

	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=RCP

		DRIV	EWAY CULVERT	DATA FOR BLK A LOT 3 TO 8 C	ULVERTS		
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

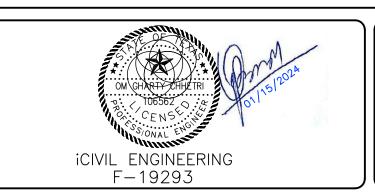
\* CULVERT LENGTH=24', MATERIAL=RCP

		DRIV	EWAY CULVER	T DATA FOR BLK A LOT 1 & 2 C	ULVERTS		
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=RCP						



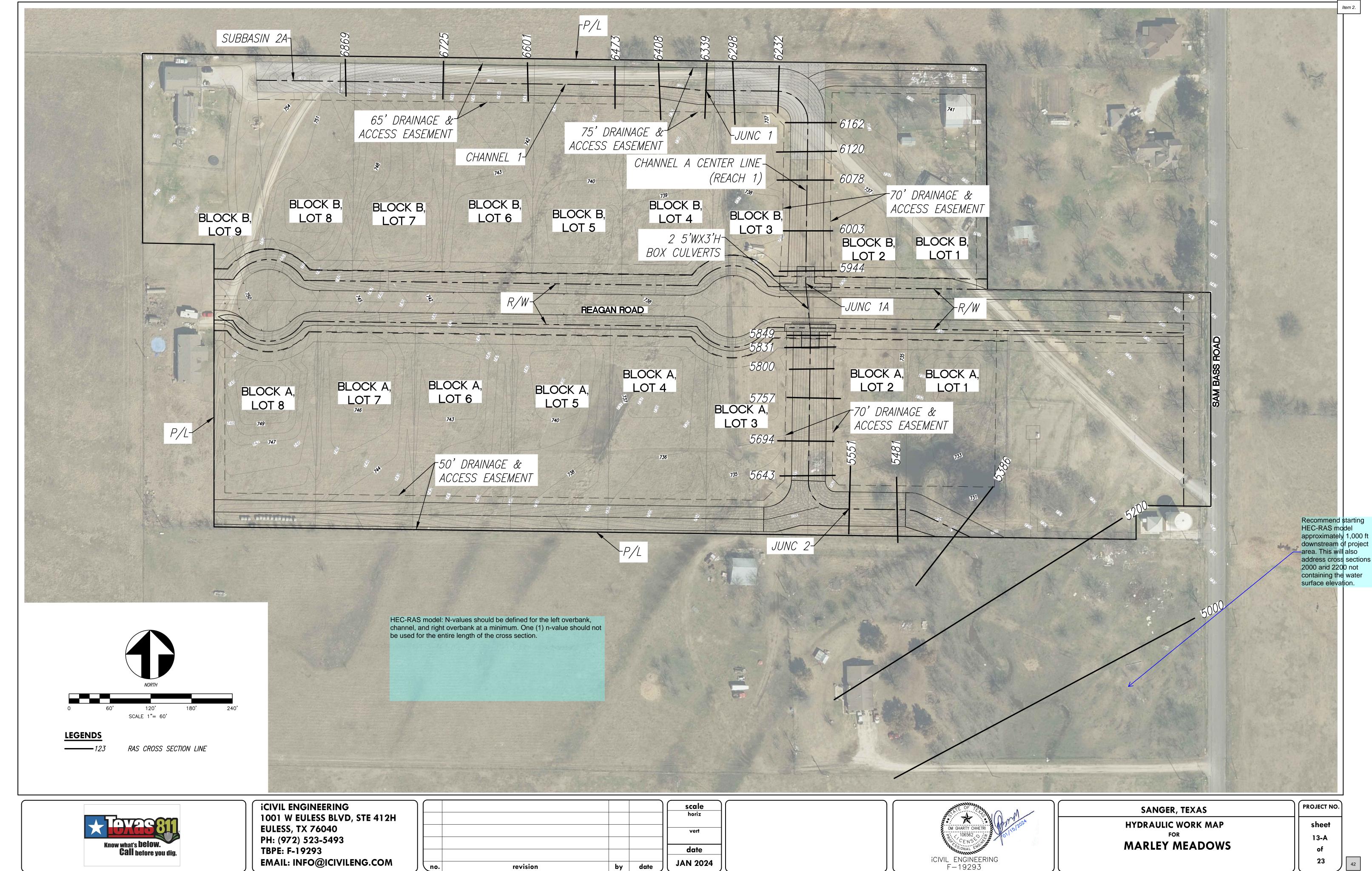
iCIVIL ENGINEERING
1001 W EULESS BLVD, STE 412H
EULESS, TX 76040
PH: (972) 523-5493
TBPE: F-19293
EMAIL: INFO@ICIVILENG.COM

scale			
horiz			
vert			
date			
uuic			
14110004			
JAN 2024	date	by	revision



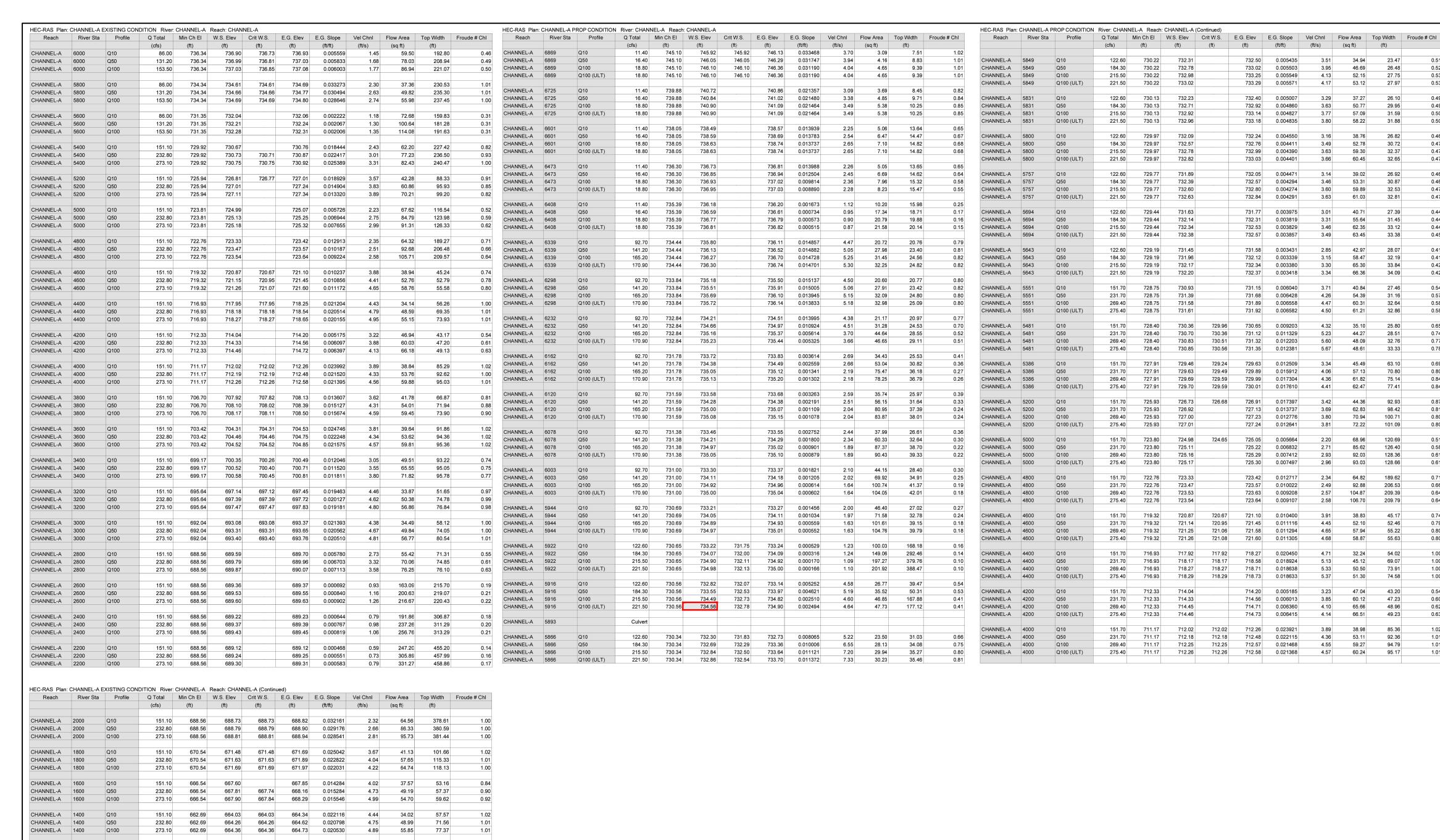
SANGER, TEXAS
DITCH AND CULVERT CALCULATIONS
FOR
MARLEY MEADOWS

sheet
12-B
of
23



revision

by date



CHANNELLA   364	CHANNEL-A CHANNEL-A CHANNEL-A CHANNEL-A CHANNEL-A	5849 5849 5849 5831	Q50 Q100 Q100 (ULT)	184.30 215.50 221.50	730.22 730.22	732.78 732.98		733.02 733.25	0.005503 0.005549	3.95 4.13	46.69 52.15	26.48 27.75	0.5 0.5 0.5
GAMMELA   SERI	CHANNEL-A CHANNEL-A CHANNEL-A CHANNEL-A CHANNEL-A	5849 5849 5831	Q100 Q100 (ULT)	215.50 221.50	730.22	732.98		733.25	0.005549	4.13	52.15	27.75	0.5
CHANNIELA   CAMPINIELA   CAMP	CHANNEL-A CHANNEL-A CHANNEL-A	5849 5831	Q100 (ULT)	221.50									
CHANNELA 961 019 1926 770-19 17222 772-0 0.88807 3.26 77.77 30-10 0. CHANNELA 9631 0490 11452 770-19 17222 772-10 17224 0.88807 3.56 77.77 2.98 10 0.0 CHANNELA 9631 0490 11452 770-19 17227 772-17 17224 0.88807 3.66 76.22 1160 0.0 CHANNELA 9630 0190 1122 0.770-19 17220 772-17 17224 0.88807 3.66 76.22 1160 0.0 CHANNELA 9630 0190 1212 0.0 770-19 17220 772-17 1	CHANNEL-A CHANNEL-A CHANNEL-A	5831			730.22	733.02		733.29	0.005571	4.17	53.12	27.97	0.5
GIANNELLA   1921	CHANNEL-A CHANNEL-A		Q10										0.5
GIANNELLA   1921	CHANNEL-A CHANNEL-A		Q10										
CHAMBELA 581 (100) 716 776 777 7720 7720 77214 0.00467 3.77 5.70 31 8 0 0.00481 0.0048	CHANNEL-A	5831		122.60	730.13	732.23		732.40	0.005007	3.29	37.27	26.10	0.4
CHAMBELLA 2001 CID (17) 221 EG 726 19 722 EG 726 19 722 EG 0.05455 2.5 EG 527 2.5 EG 745		0001	Q50	184.30	730.13	732.71		732.92	0.004860	3.63	50.77	29.95	0.4
CHYMNELA 5000 010 122.00 172.97 7732.00 1732.24 0.00450 3.10 3.07 20.00 0.00 1.00 1.00 1.00 1.00 1.00 1.0	CHANNEL-A												0.5
GHAMPIELA   8600   200   114 30   773 87   773 67   773 67   000411   3.46   52 78   3.77   0.70		5831	Q100 (ULT)	221.50	730.13	732.96		733.18	0.004835	3.80	58.22	31.88	0.5
GHAMPIELA   8600   200   114 30   773 87   773 67   773 67   000411   3.46   52 78   3.77   0.70													
CHANNELA   SIRO   CHO   215.00   729.87   732.78   732.											-		0.4
CHAMBELA 5950 016 (ULT) 22:50 77267 77262 72363 0004491 3.66 69.46 3.565 0 CHAMBELA 5757 016 126.00 725.77 771.90 1726.00 004491 3.46 39.02 25.00 0 CHAMBELA 5757 016 126.00 725.77 771.90 1726.00 004491 3.46 39.02 25.00 0 CHAMBELA 5157 016 126.00 725.77 771.90 1726.00 1726.00 004491 3.46 39.02 25.00 0 CHAMBELA 5961 016 126.00 725.77 771.00 1726.00 1726.00 004491 3.60 61.00 32.00 0 CHAMBELA 5961 016 126.00 725.77 771.00 1726.00 1726.00 1726.00 004491 3.60 61.00 32.00 0 CHAMBELA 5961 016 126.00 725.44 771.00 1726.14 7725.31 0.005976 3.01 40.71 27.50 0 CHAMBELA 5961 016 126.00 726.44 771.00 772.14 1 7725.31 0.005976 3.01 40.71 27.50 0 CHAMBELA 5961 016 126.00 726.44 771.00 772.14 1 7725.31 0.005976 3.01 40.71 27.50 0 CHAMBELA 5961 016 126.00 772.00 772.00 772.00 772.00 772.00 3.00 30.0													
CHANNELA 7577 019 112260 723.77 731.89 732.00 0.00471 3.14 30.02 26.02 0.045Net.A 7577 0100 1143.00 723.77 732.00 732.00 732.00 0.00474 3.00 3.01 3.00 3.01 0.00 114.00 723.77 732.00 732.00 732.00 0.00474 3.00 3.01 3.00 3.01 0.00 07 0.045Net.A 7577 0.000 114.00 732.77 732.00 732.00 0.00474 3.00 3.00 3.00 3.01 0.00 07 0.045Net.A 7577 0.00 115 0.045Net.A 7504 0.00 115 0.0													
CHANNELA 577 069 194.30 728.77 722.90 722.91 0.00.0244 4.00 59.81 33.08.87 0.00.00494 4.00 59.88 32.55 0.00.00494 5.00 59.88 32.55 0.00.00494	CHANNEL-A	3000	Q100 (OL1)	221.50	129.91	132.02		733.03	0.004401	3.00	60.45	32.05	0.4
CHANNELA 577 069 194.30 728.77 722.90 722.91 0.00.0244 4.00 59.81 33.08.87 0.00.00494 4.00 59.88 32.55 0.00.00494 5.00 59.88 32.55 0.00.00494	CHANNEL-A	5757	010	122 60	729 77	731 89		732.05	0.004471	3 14	39.02	26.92	0.4
CHANNELA 5757 0108 275.00 726.77 732.00 726.77 732.00 0.00.0274 3.00 59.88 32.00 0.0  CHANNELA 5757 0108 (ULT) 221.50 726.74 7351.00 7372.40 0.00.0274 3.00 8.00 32.81 0.0  CHANNELA 5964 011 122.50 726.44 732.14 732.26 0.00.03975 3.01 40.07 27.00 0.0  CHANNELA 5964 010 215.00 726.44 732.14 732.26 0.00.03975 3.01 40.07 27.00 0.0  CHANNELA 5964 010 215.00 726.44 732.14 732.26 0.00.03975 3.01 40.07 27.00 0.0  CHANNELA 5964 010 215.00 726.44 732.14 732.26 0.00.03975 3.01 40.07 27.00 0.0  CHANNELA 5964 010 215.00 726.40 732.30 726.00 732.00 0.00.03975 3.01 40.07 27.00 0.0  CHANNELA 5964 010 122.00 726.91 732.47 732.20 0.00.03975 3.00 0.00.03975 3.01 40.07 0.0  CHANNELA 5964 010 122.00 726.91 732.47 732.20 0.00.03975 3.00 0.0  CHANNELA 5964 010 215.00 726.91 732.00 732.00 0.00.03975 3.00 0.0  CHANNELA 5964 010 215.00 726.91 732.00 732.00 732.00 0.00.0390 3.00 6.00 3.00 0.0  CHANNELA 5964 010 215.00 726.91 732.00 732.00 732.37 0.00.03916 3.00 6.00 3.00 0.0  CHANNELA 5964 010 215.00 726.91 732.00 732.00 732.37 0.00.03916 3.00 6.00 3.00 0.0  CHANNELA 5964 010 215.00 726.70 726.90 732.00 732.00 732.37 0.00.03916 3.00 6.00 3.00 0.0  CHANNELA 5964 010 0.00 221.70 726.70 732.00 732.00 732.00 0.00.0390 3.00 6.00 3.00 0.0  CHANNELA 5964 010 0.00 221.70 726.70 732.70 732.00 732.00 0.00.0390 3.00 6.00 3.00 0.0  CHANNELA 5964 010 0.00 221.70 726.00 730.00 730.00 730.00 0.00.0390 4.0													0.4
CHANNEL A 5964 O10 122.00 728.44 751.03 772.74 702.00 702.											-		0.4
CHANNELA 6994 Q10 122 00 729 44 731 03 723 74 0.03976 3.01 40.71 27.30 0.0 CHANNELA 6994 Q10 125 00 729 44 732 14 732 31 0.039876 3.01 40.71 27.30 1.0 CHANNELA 6994 Q10 215 00 729 44 732 34 732 34 0.03820 3.40 25 35 31 2 0.0 CHANNELA 6994 Q10 Q10 125 00 729 44 732 38 72 27 0.03820 3.40 55 45 33 38 0.0 CHANNELA 6994 Q10 122 00 729 19 73 19 72 27 0.03820 3.40 55 45 33 38 0.0 CHANNELA 6994 Q10 125 00 729 19 73 19 73 19 73 19 0.03330 3.0 56 64 33 38 0.0 CHANNELA 6993 Q10 125 00 728 19 73 19 73 19 73 19 73 19 0.03330 3.0 56 65 0.3 33 8 0.0 CHANNELA 6993 Q10 Q10 125 00 728 19 73 19													0.4
CHANNELA   5694   CHO   215.00   729.44   732.34   732.35   0.003810   3.31   55.64   31.46   CHANNELA   5695   CHOULT)   221.50   729.44   732.36   732.57   0.003820   3.40   6.64   33.38   0.0   CHANNELA   5694   CHOULT)   221.50   729.44   732.36   732.57   0.003827   3.40   6.64   33.38   0.0   CHANNELA   5694   CHOULT)   221.50   729.44   732.36   732.57   0.003827   3.40   6.64   33.38   0.0   CHANNELA   5694   CHOULT)   221.50   729.19   731.46   731.58   0.003913   2.85   42.97   2.86   72.97   0.003820   3.40   6.64   33.38   0.0   74.99   731.46   731.58   0.003913   3.25   6.65   3.40   0.0   0.0   0.004820   3.40   0.0			2100 (021)			, , , ,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.00 .20 .	0.00		52.51	• • • • • • • • • • • • • • • • • • • •
CHANNEL A. 5694 C100 C172 2150 728.44 732.34 732.58 0.03387 3.46 0.235 33.12 0.0 CHANNEL A. 5643 0.00 12.260 728.44 732.38 732.58 732.57 0.0 CHANNEL A. 5643 0.00 12.260 728.19 731.46 732.78 0.03387 3.46 2.25 42.67 28.07 0.0 CHANNEL A. 5643 0.00 12.15.00 728.19 731.46 732.17 0.0 0.03380 3.30 0.0 CHANNEL A. 5643 0.00 12.15.00 728.19 731.46 732.17 0.0 0.03380 3.30 5.50 33.34 0.0 CHANNEL A. 5643 0.00 10.1 215.00 728.19 732.00 728.21 722.71 0.00 0.00 0.00 13.15 0.0 0.00 0.00 13.15 0.0 0.00 0.00 13.15 0.0 0.00 0.00 13.15 0.0 0.00 0.00 13.15 0.0 0.00 0.00 13.15 0.0 0.00 0.00 0.00 0.00 13.15 0.0 0.00 0.00 0.00 0.00 0.0 0.00 0.0	CHANNEL-A	5694	Q10	122.60	729.44	731.63		731.77	0.003975	3.01	40.71	27.39	0.4
CHANNEL A. 5694   C100 (LIT)   221 50   729 44   722 38   722 67   0.003867   3.40   6.3 46   33.38   0. CHANNEL A. 5643   C10   122 60   729 19   731.65   731.66   0.00351   2.66   42.97   226.77   0.00461   2.60   2.6											-		0.4
CHANNELA 5643 010 12.00 729.10 731.46 731.60 0.003431 2.86 4.297 28.07 0.0 CHANNELA 5643 050 194.30 729.10 731.46 732.12 0.003333 3.15 58.47 32.19 0.0 CHANNELA 5643 0100 215.50 729.10 732.20 732.37 0.003416 3.34 0.0 6.30 3.34 0.0 0.0 CHANNELA 5651 010 151.70 728.75 731.89 732.20 732.37 0.003416 3.34 0.0 0.0 CHANNELA 5651 030 231.70 728.75 731.89 731.82 0.00340 3.71 40.0 3.15 1.0 0.0 CHANNELA 5651 030 231.70 728.75 731.89 731.82 0.003416 3.34 40.0 0.0 CHANNELA 5651 030 231.70 728.75 731.89 731.82 0.003642 4.2 54.39 31.16 0.0 CHANNELA 5651 030 231.70 728.75 731.89 731.82 0.005642 4.2 54.39 31.16 0.0 CHANNELA 5651 030 030 731.0 289.40 728.70 731.80 731.80 0.006662 4.4 6 0.0 31 32.94 0.0 CHANNELA 5651 030 030 731.70 728.40 730.0 730.0 730.0 730.0 730.6 0.006662 4.4 6 0.0 0.1 3.3 32.94 0.0 CHANNELA 5651 030 030 731.70 728.40 730.0 730.0 730.0 730.6 0.006662 4.4 6 0.0 0.1 3.3 32.94 0.0 CHANNELA 5651 030 030 231.70 728.40 730.0 730.0 730.0 730.6 0.006662 4.4 6 0.0 0.1 3.3 32.94 0.0 CHANNELA 5651 030 030 231.70 728.40 730.0 730.0 730.0 730.6 0.006662 4.3 2 35.10 28.0 0.0 CHANNELA 5651 030 030 231.70 728.40 730.0 730.0 730.0 730.6 0.006662 4.4 6 0.0 0.2 32.70 0.0 CHANNELA 5651 030 030 231.70 728.40 730.0 730.0 730.0 730.6 730.6 0.006662 4.3 2 35.10 0.0 0.0 CHANNELA 5861 030 030 231.70 728.40 730.8 730.0 730.0 730.6 730.6 0.006662 4.3 2 35.10 0.0 0.0 CHANNELA 5861 0100 (ULT) 275.40 728.0 730.8 730.0 730			Q100										0.4
CHANNELA SS43 089 194.30 728.19 731.86 732.12 0.003330 3.15 58.47 32.19 0. CHANNELA SS43 0100 215.50 728.19 732.17 732.47 0.003310 3.34 0.65.30 3.34 0.0 CHANNELA SS51 0100 151.70 728.76 730.83 731.65 0.008040 3.71 4.04 4.72 4.0 CHANNELA SS51 0100 0.286.40 728.75 731.89 731.66 0.008040 3.71 4.0 4.0 4.72 4.0 CHANNELA SS51 0100 (LT) 275.40 728.76 731.89 731.66 0.008040 3.71 4.0 4.0 4.72 4.0 CHANNELA SS51 0100 (LT) 275.40 728.76 731.89 731.60 0.008050 4.47 0.0 31 32.04 0.0 CHANNELA SS51 0100 (LT) 275.40 728.76 731.89 731.60 0.008050 4.47 0.0 31 32.04 0.0 CHANNELA SS51 0100 (LT) 275.40 728.76 731.89 731.60 0.008050 4.47 0.0 31 32.04 0.0 CHANNELA SS51 0100 (LT) 275.40 728.40 730.36 728.96 730.65 0.008020 4.52 3.5 10 25.60 0.0 CHANNELA SS51 0100 (LT) 275.40 730.40 730.30 728.96 730.65 0.008020 4.32 35.10 25.80 0.0 CHANNELA SS51 0100 208.40 7728.40 730.50 730.35 731.52 0.017203 5.23 44.27 28.51 0.0 CHANNELA SS51 0100 208.40 7728.40 730.60 730.50 730.55 0.008020 4.32 32.32 32.76 0.0 CHANNELA SS55 0100 208.40 7728.40 730.60 730.50 730.55 0.008020 4.32 32.32 32.76 0.0 CHANNELA SS55 0100 208.40 728.40 730.60 730.50 730.50 530.17203 5.57 4.65 333 30 0.0 CHANNELA SS58 010 151 170 727.50 728.60 730.60 730.50 730.50 530.17203 5.57 4.65 333 30 0.0 CHANNELA SS58 010 151 170 727.50 727.50 728.60 730.50	CHANNEL-A	5694	Q100 (ULT)	221.50	729.44	732.38		732.57	0.003857	3.49	63.45	33.38	0.4
CHANNELA 5643 090 196.30 729.19 731.08 732.12 0.003330 3.16 58.47 32.19 0. CHANNELA 5643 0100 215.50 729.19 732.07 732.37 0.00314 3.34 69.36 5.30 3.36 0.0 CHANNELA 5643 0100 115.70 728.70 730.30 733.71 0.00314 3.34 69.36 3.40 0.0 CHANNELA 5651 010 151.70 728.70 730.00 731.60 0.006040 3.71 4.04 27.46 0.0 CHANNELA 5651 0100 209.40 728.76 731.50 731.60 0.006040 3.71 4.04 27.46 0.0 CHANNELA 5651 0100 120.70 728.76 731.50 731.60 0.006040 3.71 4.00 41 22.46 0.0 CHANNELA 5651 0100 120.70 728.76 731.50 731.60 0.006040 3.71 4.00 41 22.46 0.0 CHANNELA 5651 0100 120.70 728.70 731.50 731.60 0.006040 4.27 54.39 31.16 0.0 CHANNELA 5651 0100 120.70 728.40 730.50 730.50 730.60 730.60 730.60 730.60 730.60 730.60 730.70 730.													
CHANNELA 5843 Q100 ULT) 22150 72210 732.27 732.34 0.003340 3.30 65.35 33.34 0.0 CHANNELA 5851 Q100 ULT) 22150 72210 732.20 732.37 0.003416 3.34 65.35 34.09 0.0 CHANNELA 5851 Q50 23170 728.75 730.93 731.60 0.00600 3.71 40.04 27.66 0.0 CHANNELA 5851 Q50 23170 728.75 731.90 731.60 0.00600 4.26 74.00 4.26 4.26 4.30 31.16 0.0 CHANNELA 5851 Q50 Q50 Q50 731.60 0.006680 4.26 74.00 4.20 4.20 4.20 4.20 4.20 4.20 4.20	CHANNEL-A	5643	Q10	122.60	729.19	731.45		731.58	0.003431	2.85	42.97	28.07	0.4
CHANNELA 6851 010 15170 728.76 739.80 732.20 738.37 0.003418 3.34 66.36 34.09 0.0  CHANNELA 6851 010 15170 728.75 739.80 731.86 0.009400 3.71 40.94 27.46 0.0  CHANNELA 6851 0100 286.40 728.75 731.86 731.86 0.009408 4.26 4.26 4.38 31.16 0.0  CHANNELA 6851 0100 126.40 728.75 731.86 731.86 0.009428 4.26 4.26 4.38 31.16 0.0  CHANNELA 6851 0100 15170 728.40 730.36 731.86 0.009428 4.26 4.26 4.38 6.31 32.24 0.0  CHANNELA 6481 010 15170 728.40 730.36 729.96 730.65 0.009523 4.32 35.10 25.60 0.0  CHANNELA 6481 050 23170 728.40 730.36 739.86 730.56 50.009523 4.32 35.10 25.60 0.0  CHANNELA 6481 0100 1269.40 728.40 730.85 730.55 731.82 0.012235 5.00 4.27 2.85 11 0.0  CHANNELA 6481 0100 1269.40 728.40 730.85 730.55 731.82 0.012235 5.00 4.27 2.85 11 0.0  CHANNELA 5886 010 151.70 728.40 730.85 730.85 730.56 731.35 0.012235 5.00 4.27 0.0  CHANNELA 5886 010 151.70 728.40 730.85 730.86 730.86 730.86 731.35 0.012235 5.00 4.27 0.0  CHANNELA 5886 010 151.70 727.91 728.40 728.85 728.40 729.86 0.105124 4.08 571.3 79.80 0.0  CHANNELA 5886 010 231.70 727.91 728.80 728.94 729.86 0.105124 4.08 571.3 79.80 0.0  CHANNELA 5886 010 0.0 151.70 727.91 728.80 728.94 729.86 0.105124 4.08 571.3 79.80 0.0  CHANNELA 5886 010 0.0 151.70 727.91 728.80 728.95 728.96 0.017307 4.36 571.9 70.80 0.0  CHANNELA 5886 010 0.0 151.70 727.91 728.80 728.95 728.96 0.017307 4.86 571.9 70.80 0.0  CHANNELA 5886 010 0.0 151.70 727.91 728.80 728.95 728.96 0.017307 4.36 571.9 70.80 0.0  CHANNELA 5886 0100 0.0 151.70 727.91 728.90 728.90 728.90 0.017307 3.80 73.90 73.90 0.0  CHANNELA 5880 010 0.0 151.70 727.93 728.90 728.90 0.007427 4.00 0.00747 4.00 0.0  CHANNELA 5880 00 0.0 0.0 151.70 727.90 728.90 728.90 0.007427 2.00 0.0074	CHANNEL-A	5643	Q50	184.30	729.19	731.96		732.12	0.003339	3.15	58.47	32.19	0.4
CHANNELA 6551 010 15170 728.75 730.83 731.85 0.000940 3.71 40.84 27.46 0.0 CHANNELA 6551 080 231.70 728.75 731.88 731.88 0.0005628 4.28 543.9 31.16 0.0 CHANNELA 5551 0100 0101 299.40 728.75 731.88 731.88 0.0005632 4.50 61.21 32.66 0.0 CHANNELA 5551 0100 (ULT) 275.40 728.75 731.81 731.82 0.0005632 4.50 61.21 32.66 0.0 CHANNELA 5551 0100 (ULT) 275.40 728.40 730.36 729.36 730.56 0.0005632 4.50 61.21 32.66 0.0 CHANNELA 5451 030 299.40 728.40 730.36 729.36 730.56 0.000503 4.32 35.10 25.80 0.0 CHANNELA 5451 0309 231.70 728.40 730.70 730.36 730.36 730.55 0.000503 4.32 35.10 25.80 0.0 CHANNELA 5451 0100 299.40 728.40 730.85 730.51 731.32 0.0112203 5.60 48.09 32.76 0.0 CHANNELA 5451 0100 1299.40 728.40 730.85 730.51 731.32 0.012203 5.60 48.09 32.76 0.0 CHANNELA 5451 0100 1299.40 727.91 729.40 730.85 730.65 731.32 0.012203 5.60 48.09 32.76 0.0 CHANNELA 5386 0100 151.70 727.91 729.56 729.40 728.80 0.01591 5.67 48.01 33.33 0.0 CHANNELA 5386 0100 299.40 727.91 729.50 729.90 729.80 0.01591 4.00 57.11 70.00 0.0 CHANNELA 5386 0100 299.40 727.91 729.80 729.90 729.80 0.015912 4.00 57.11 70.00 0.0 CHANNELA 5200 0100 299.40 727.91 729.80 729.90 729.90 730.01 0.017910 4.41 62.47 77.41 0.0 CHANNELA 5200 0100 299.40 727.91 729.80 729.90 729.90 730.01 0.017910 4.41 62.47 77.41 0.0 CHANNELA 5200 0100 151.70 725.85 725.75 726.62 727.13 0.013277 3.42 44.38 82.23 0.0 CHANNELA 5200 0100 017 151.70 725.85 725.67 726.68 725.91 729.90 729	CHANNEL-A	5643	Q100	215.50	729.19	732.17		732.34	0.003380	3.30	65.30	33.84	0.4
CHANNEL A 5551 O50 221.70 728.76 731.39 731.80 0.006428 4.28 54.39 31.16 0.0 CHANNEL A 5551 O100 269.40 728.75 731.58 731.58 731.58 731.58 0.006582 4.20 6.21 32.26 0.0 CHANNEL A 5551 O100 269.40 728.75 731.51 731.92 0.006582 4.50 61.21 32.26 0.0 CHANNEL A 5551 O100 278.70 728.40 730.36 729.60 730.65 0.006203 4.32 35.10 22.80 0.0 CHANNEL A 5451 Q50 23.170 728.40 730.36 730.36 730.36 731.2 0.011260 5.23 4.47 22.51 0.0 CHANNEL A 5451 Q100 269.40 728.40 730.80 730.36 730.31 0.01250 5.60 4.60 32.76 0.0 CHANNEL A 5451 Q100 LUT) 275.40 728.40 730.80 730.60 731.32 0.012500 5.60 4.60 32.76 0.0 CHANNEL A 5451 Q100 LUT) 275.40 728.40 730.80 730.60 731.33 0.012500 5.60 4.60 0.32.76 0.0 CHANNEL A 5358 Q10 151.70 727.91 729.46 729.44 729.63 0.012500 3.34 4.54 0.61 33.33 0.0 CHANNEL A 5358 Q50 231.70 727.91 729.68 729.44 729.63 0.012500 3.34 4.54 0.63.10 0.0 CHANNEL A 5358 Q100 269.40 727.91 729.68 729.44 729.69 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNEL A 5358 Q100 269.40 727.91 729.68 729.69 729.69 720.89 0.017304 4.36 61.52 75.14 0.0 CHANNEL A 5358 Q100 269.40 727.91 729.67 729.69 720.89 0.017307 4.40 6.57 1.3 77.60 0.0 CHANNEL A 5200 Q10 151.70 727.59 725.93 726.90 727.59 730.01 0.017807 4.41 62.47 77.41 0.0 CHANNEL A 5200 Q10 0.0 151.70 725.93 726.90 727.59 729.59 730.01 0.017807 3.80 72.53 94.2 0.0 CHANNEL A 5200 Q10 0.0 151.70 725.93 726.90 727.00 727.23 0.017377 3.80 62.53 94.4 0.0 CHANNEL A 5200 Q10 0.0 151.70 725.93 726.90 727.00 727.23 0.017377 3.80 62.53 94.4 0.0 CHANNEL A 5200 Q10 0.0 151.70 723.80 725.91 727.00 727.23 0.017276 3.80 70.94 100.71 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	CHANNEL-A	5643	Q100 (ULT)	221.50	729.19	732.20		732.37	0.003418	3.34	66.36	34.09	0.4
CHANNEL A 5551 O50 221.70 728.76 731.39 731.80 0.006428 4.28 54.39 31.16 0.0 CHANNEL A 5551 O100 269.40 728.75 731.58 731.58 731.58 731.58 0.006582 4.20 6.21 32.26 0.0 CHANNEL A 5551 O100 269.40 728.75 731.51 731.92 0.006582 4.50 61.21 32.26 0.0 CHANNEL A 5551 O100 278.70 728.40 730.36 729.60 730.65 0.006203 4.32 35.10 22.80 0.0 CHANNEL A 5451 Q50 23.170 728.40 730.36 730.36 730.36 731.2 0.011260 5.23 4.47 22.51 0.0 CHANNEL A 5451 Q100 269.40 728.40 730.80 730.36 730.31 0.01250 5.60 4.60 32.76 0.0 CHANNEL A 5451 Q100 LUT) 275.40 728.40 730.80 730.60 731.32 0.012500 5.60 4.60 32.76 0.0 CHANNEL A 5451 Q100 LUT) 275.40 728.40 730.80 730.60 731.33 0.012500 5.60 4.60 0.32.76 0.0 CHANNEL A 5358 Q10 151.70 727.91 729.46 729.44 729.63 0.012500 3.34 4.54 0.61 33.33 0.0 CHANNEL A 5358 Q50 231.70 727.91 729.68 729.44 729.63 0.012500 3.34 4.54 0.63.10 0.0 CHANNEL A 5358 Q100 269.40 727.91 729.68 729.44 729.69 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNEL A 5358 Q100 269.40 727.91 729.68 729.69 729.69 720.89 0.017304 4.36 61.52 75.14 0.0 CHANNEL A 5358 Q100 269.40 727.91 729.67 729.69 720.89 0.017307 4.40 6.57 1.3 77.60 0.0 CHANNEL A 5200 Q10 151.70 727.59 725.93 726.90 727.59 730.01 0.017807 4.41 62.47 77.41 0.0 CHANNEL A 5200 Q10 0.0 151.70 725.93 726.90 727.59 729.59 730.01 0.017807 3.80 72.53 94.2 0.0 CHANNEL A 5200 Q10 0.0 151.70 725.93 726.90 727.00 727.23 0.017377 3.80 62.53 94.4 0.0 CHANNEL A 5200 Q10 0.0 151.70 725.93 726.90 727.00 727.23 0.017377 3.80 62.53 94.4 0.0 CHANNEL A 5200 Q10 0.0 151.70 723.80 725.91 727.00 727.23 0.017276 3.80 70.94 100.71 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.													
CHANNEL A 5551 Q160   269.40   728.75   731.58   731.80   0.008558   4.47   60.31   32.64   0.0   CHANNEL A 5551 Q160   151.70   728.40   730.35   729.86   730.85   0.008253   4.50   61.21   32.86   0.0   CHANNEL A 5451 Q160   269.40   728.40   730.35   739.96   730.95   0.008253   4.32   35.10   22.5 80   0.0   CHANNEL A 5451 Q160   269.40   728.40   730.85   730.50   730.35   731.12   0.011329   5.23   44.27   22.5 51   0.0   CHANNEL A 5451 Q160   269.40   728.40   730.85   730.56   730.56   730.35   55.0   48.60   32.76   0.0   CHANNEL A 5451 Q160   269.40   728.40   730.85   730.56   730.56   730.35   0.012381   5.57   48.61   33.33   0.0   CHANNEL A 5451 Q160   269.40   727.91   729.46   729.46   729.85   0.012381   5.57   48.61   63.10   0.0   CHANNEL A 5366 Q59   231.70   727.91   729.69   729.89   739.99   0.017394   4.06   67.13   75.14   0.0   CHANNEL A 5368 Q160   269.40   727.91   729.89   729.99													0.5
CHANNEL A 5591 Q100 (ULT) 275.40 728.75 731.91 739.92 0.005822 4.50 61.21 32.86 0.0  CHANNEL A 5491 Q10 151.70 728.40 730.96 729.86 730.86 0.006033 4.32 35.10 25.80 0.0  CHANNEL A 5491 Q100 LUT) 275.40 728.40 730.83 730.51 731.32 0.01203 5.60 48.09 32.76 0.0  CHANNEL A 5491 Q100 (ULT) 275.40 728.40 730.83 730.51 731.32 0.01203 5.60 48.09 32.76 0.0  CHANNEL A 5396 Q10 151.70 727.91 728.40 730.85 730.56 731.32 0.01200 5.60 48.09 32.76 0.0  CHANNEL A 5396 Q10 151.70 727.91 728.40 730.86 730.56 731.32 0.01200 5.60 48.09 32.76 0.0  CHANNEL A 5396 Q10 727.91 729.46 728.40 730.86 730.56 731.32 0.01200 5.40 48.61 33.33 0.0  CHANNEL A 5396 Q10 727.91 729.96 728.40 728.98 728.90 0.015012 4.06 57.13 70.80 0.0  CHANNEL A 5396 Q10 727.91 729.97 729.98 729.98 729.99 0.017014 4.06 57.13 70.80 0.0  CHANNEL A 5396 Q10 727.91 727.91 729.98 729.90 728.95 729.90 0.017014 4.06 57.13 70.80 0.0  CHANNEL A 5396 Q10 727.91 727.91 728.90 728.95 729.90 0.017014 4.06 57.13 70.80 0.0  CHANNEL A 5200 Q10 T151.70 727.91 728.93 728.00 728.95 730.01 0.017610 4.41 62.47 77.41 0.0  CHANNEL A 5200 Q10 T151.70 728.93 728.00 728.95 729.90 0.017019 3.42 4.43 6.92 52.00 0.014012 0.017610 4.41 62.47 77.41 0.0  CHANNEL A 5200 Q10 T151.70 728.93 728.00 728.95 729.00 0.017019 3.42 4.43 6.92 52.80 52.00 0.014012 0.017610 4.41 62.47 77.41 0.0  CHANNEL A 5200 Q10 L151.70 728.93 728.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95 727.00 728.95													0.5
CHANNELA 5481 010 151.70 728.40 730.36 729.86 730.95 0.000203 4.32 35.10 25.80 0.0 CHANNELA 5481 050 231.70 728.40 730.70 730.36 731.12 0.011329 5.23 44.27 25.51 0.0 CHANNELA 5481 0100 289.40 728.40 730.85 730.55 731.35 0.012203 5.00 48.09 32.76 0.0 CHANNELA 5481 0100 (ULT) 275.40 728.40 730.85 730.56 731.35 0.012381 5.67 48.61 33.33 0.0 CHANNELA 5386 019 151.70 727.91 728.40 728.40 728.40 728.40 730.85 730.56 731.35 0.012381 5.67 48.61 33.33 0.0 CHANNELA 5386 019 151.70 727.91 728.40 728.40 729.85 0.015509 3.34 45.40 6.51.0 0.0 CHANNELA 5386 058 231.70 727.91 728.63 729.48 729.85 0.015509 3.34 45.40 6.51.0 0.0 CHANNELA 5386 0180 289.40 727.91 728.63 729.86 729.89 0.01501 4.36 61.82 75.14 0.0 CHANNELA 5386 0180 728.40 727.91 728.63 729.68 728.59 0.01501 4.36 61.82 75.14 0.0 CHANNELA 5386 0180 728.40 727.91 728.70 728.93 728.60 728.59 0.017304 4.36 61.82 75.14 0.0 CHANNELA 5386 0180 728.40 727.91 728.70 728.70 728.50 728.59 0.017304 4.36 61.82 75.14 0.0 CHANNELA 5200 059 231.70 725.30 725.70 728.70 728.50 728.													0.5
CHANNEL A 5481	CHANNEL-A	5551	Q100 (ULT)	275.40	728.75	731.61		731.92	0.006582	4.50	61.21	32.86	0.5
CHANNELA 5881 C100 2804 O 728.04 730.70 730.70 730.36 731.12 0.011329 5.23 44.27 28.51 0.014NNELA 581 C100 2804 O 728.04 730.85 730.51 731.32 0.012203 5.80 44.80 32.76 0.0 CHANNELA 581 C100 (ULT) 276.40 728.40 730.85 730.55 731.35 0.012381 5.67 48.61 33.33 0.0 CHANNELA 581 C100 (ULT) 276.40 728.40 730.85 730.55 731.35 0.012381 5.67 48.61 33.33 0.0 CHANNELA 5388 C10 151.70 727.91 729.68 729.24 728.83 0.012509 3.34 45.54 6.51 0.0 CHANNELA 5388 C100 288.40 727.91 729.89 729.89 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNELA 5388 C100 (ULT) 275.40 727.91 729.89 729.89 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNELA 5388 C100 (ULT) 275.40 727.91 729.89 729.89 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNELA 5388 C100 (ULT) 275.40 727.91 729.89 729.89 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNELA 5308 C100 (ULT) 275.40 727.91 729.89 728.59 729.89 0.017304 4.36 61.52 75.14 0.0 CHANNELA 5300 C10 (ULT) 275.40 727.91 727.91 729.89 729.70 0.017307 3.42 44.36 92.93 0.0 CHANNELA 5200 C100 288.40 727.91 727.92 727.90 727.93 729.99 729.70 0.017307 3.40 4.36 61.52 75.14 0.0 CHANNELA 5200 C100 288.40 725.83 727.00 727.23 0.012770 3.80 70.94 100.71 0.0 CHANNELA 5200 C100 288.40 725.83 727.00 727.23 0.012770 3.80 70.94 100.71 0.0 CHANNELA 5200 C100 288.40 725.83 727.00 727.23 0.012770 727.24 0.012494 3.81 72.22 10.00 0.0 CHANNELA 5000 C100 288.40 723.80 725.11 725.20 0.00832 2.71 8.56 2 120.40 0.0 CHANNELA 5000 C100 288.40 723.80 725.11 725.20 0.00832 2.71 8.56 2 120.40 0.0 CHANNELA 5000 C100 288.40 723.80 725.11 725.20 0.00832 2.71 8.56 2 120.40 0.0 CHANNELA 5000 C100 288.40 723.80 725.11 725.20 0.007472 2.96 9.30 122.60 6.0 0.0 CHANNELA 4800 C100 288.40 723.80 725.11 725.23 0.007472 2.96 9.30 122.60 6.0 0.0 CHANNELA 4800 C100 288.40 723.80 725.11 725.23 0.007472 2.96 9.30 122.60 6.0 0.0 CHANNELA 4800 C100 288.40 727.80 722.75 723.80 723.81 723.80 0.000907 2.96 9.30 122.60 6.0 0.0 CHANNELA 4800 C100 288.40 719.32 722.76 723.81 723.83 0.000908 2.57 104.87 2.00.90 3.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	011411151 4	5404	0.10	151 70	700.40	700.00	700.00	700.05			25.42	05.00	
CHANNELA 5481 Q100 (ULT) 275.40 728.40 730.85 730.51 731.32 Q.012203 5.60 48.00 32.76 Q.0 CHANNELA 5481 Q100 (ULT) 275.40 728.40 730.85 730.85 730.56 731.35 Q.012303 5.60 48.00 32.76 Q.0 CHANNELA 5388 Q10 151.70 727.91 728.40 730.85 729.89 729.89 Q.015912 4.06 57.13 70.80 Q.0 CHANNELA 5388 Q100 251.70 727.91 728.68 729.68 729.89 Q.015912 4.06 57.13 70.80 Q.0 CHANNELA 5388 Q100 QULT) 275.40 727.91 728.68 729.68 729.89 Q.015912 4.06 57.13 70.80 Q.0 CHANNELA 5388 Q100 QULT) 275.40 727.91 728.69 729.89 729.89 Q.017810 4.11 62.41 77.41 Q.0 Q.0 CHANNELA 5300 Q10 151.70 725.93 726.92 729.59 729.99 Q.017810 4.11 62.47 77.41 Q.0 Q.0 CHANNELA 5200 Q10 251.70 725.93 726.92 727.73 Q.0													
CHANNEL-A 588											-		
CHANNELA 5386													
CHANNELA 5386 Q50 Q50 Q3170 72791 72863 72946 72989 0.015912 4.06 57.13 70.80 0.0 CHANNELA 5386 Q100 Q58-04 72791 728.60 729.56 729.59 728.99 0.017304 4.36 6182 75.14 0.0 CHANNELA 5386 Q100 (ULT) 275.40 727.91 728.70 729.56 730.01 0.017910 4.11 62.47 77.41 0.0 CHANNELA 5386 Q100 (ULT) 275.40 727.91 728.70 729.56 730.01 0.017910 4.11 62.47 77.41 0.0 CHANNELA 5200 Q100 286.40 727.91 728.93 726.73 726.68 726.91 0.017397 3.42 44.36 92.93 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 3.0 0.013737 3.69 62.83 88.42 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 3.80 70.94 100.71 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 3.80 70.94 100.71 0.0 CHANNELA 5200 Q100 286.40 728.93 727.00 727.23 0.012776 3.80 70.94 100.71 0.0 CHANNELA 5200 Q100 ULT) 275.40 728.93 727.01 727.24 0.012641 3.81 72.22 101.09 0.0 CHANNELA 5200 Q100 286.40 723.80 728.81 725.20 0.006864 2.20 88.96 120.80 0.0 CHANNELA 5200 Q100 ULT) 275.40 723.80 725.81 725.20 0.006864 2.20 88.96 120.80 0.0 CHANNELA 5000 Q100 286.40 723.80 725.81 725.20 0.006862 2.71 85.62 128.40 0.0 CHANNELA 5000 Q100 ULT) 275.40 723.80 725.81 725.91 0.007412 2.93 9.20 3 128.96 0.0 CHANNELA 5000 Q100 ULT) 275.40 723.80 725.81 725.91 725.90 0.007412 2.93 9.20 3 128.96 0.0 CHANNELA 4800 Q10 151.70 722.76 723.80 725.17 725.90 0.007412 2.93 9.20 3 128.95 0.0 CHANNELA 4800 Q10 151.70 722.76 723.83 723.47 723.87 0.010022 2.49 92.88 26.55 0.0 CHANNELA 4800 Q10 286.40 722.76 723.83 723.47 723.87 0.010022 2.49 92.88 26.55 0.0 CHANNELA 4800 Q100 286.40 719.32 727.67 723.57 723.57 0.010022 2.49 92.88 26.55 0.0 CHANNELA 4800 Q10 151.70 719.32 727.67 723.57 726.67 721.50 0.01116 4.45 52.10 52.46 0.0 CHANNELA 4800 Q100 128.40 719.32 727.67 723.57 726.67 721.50 0.01116 4.45 52.10 52.46 0.0 CHANNELA 4800 Q100 128.40 719.32 727.67 723.57 726.67 721.50 0.01116 4.45 52.10 52.46 0.0 CHANNELA 4800 Q100 128.40 719.32 727.27 727.57 727.57 728.77 728.67 721.50 0.01116 4.45 52.10 52.46 0.0 CHANNELA 4800 Q100 128.40 719.32 727.67 723.57 721.67 721.50 721.50 0.01116 4.45 52.10 52.46 0.0 CHANN	CHANNEL-A	3401	Q100 (OL1)	275.40	720.40	730.65	730.56	731.33	0.012361	5.67	40.01	33.33	0.7
CHANNELA 5386 Q50 Q510 288.40 727.91 728.63 729.49 729.89 0.015912 4.06 57.13 70.80 0.0 CHANNELA 5386 Q100 Q101 275.40 727.91 728.50 728.50 728.50 728.95 0.017304 4.36 618.2 75.14 0.0 CHANNELA 5386 Q100 Q101 151.70 725.93 728.70 728.50 730.01 0.017810 4.41 62.47 77.41 0.0 CHANNELA 5386 Q100 Q10 151.70 725.93 726.73 726.68 726.91 0.017810 4.41 62.47 77.41 0.0 CHANNELA 5200 Q100 286.40 725.93 726.73 726.68 726.91 0.017807 3.42 44.36 92.93 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 0.013737 3.69 62.83 88.42 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 0.013737 3.69 62.83 88.42 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 0.012776 3.80 70.49 100.71 0.0 CHANNELA 5200 Q100 286.40 725.93 727.00 727.23 0.012776 3.80 70.49 100.71 0.0 CHANNELA 5200 Q100 286.40 725.80 725.80 725.91 727.24 0.012841 3.81 72.22 101.09 0.0 CHANNELA 5200 Q100 286.40 728.80 728.80 728.81 725.25 0.006864 2.20 88.96 120.69 0.0 CHANNELA 5000 Q10 151.70 723.80 725.11 725.20 0.006864 2.20 88.96 120.69 0.0 CHANNELA 5000 Q100 Q26.40 723.80 725.11 725.20 0.006862 2.71 85.62 128.40 0.0 CHANNELA 5000 Q100 Q26.40 723.80 723.81 725.11 725.20 0.007412 2.93 92.03 128.36 0.0 CHANNELA 5000 Q100 Q100 286.40 723.80 723.81 725.51 725.20 0.007412 2.93 92.03 128.36 0.0 CHANNELA 4800 Q10 151.70 722.76 723.83 723.47 725.35 0.007412 2.93 92.03 128.36 0.0 CHANNELA 4800 Q10 151.70 722.76 723.83 723.47 723.87 0.010022 2.49 92.88 26.55 0.0 CHANNELA 4800 Q10 151.70 718.32 727.67 723.54 723.54 0.009208 2.57 104.67 209.39 0.0 CHANNELA 4800 Q10 151.70 718.32 727.67 723.54 723.54 0.009208 2.57 104.67 209.39 0.0 CHANNELA 4800 Q10 151.70 718.32 727.67 723.54 723.54 723.56 0.011116 4.45 52.10 52.46 0.0 CHANNELA 4800 Q10 151.70 718.32 727.67 723.54 723.56 0.009008 2.57 104.67 92.98 93.00 0.0 CHANNELA 4800 Q10 151.70 718.32 727.67 723.54 723.56 0.009008 2.57 104.67 92.98 93.00 0.0 0.009008 2.57 104.67 92.98 93.00 0.0 0.009008 2.57 104.67 92.98 93.00 0.0 0.009008 2.57 104.67 92.98 93.00 0.0 0.009008 2.57 104.67 92.98 93.00 0.0 0.009008 2.57 104.67 92.98 93.00 0.0	CHANNEL-A	5386	O10	151 70	727 91	729 46	729 24	729 63	0.012509	3 34	45 49	63 10	0.6
CHANNEL-A 5386 Q100													0.8
CHANNEL-A 5386 0100 (ULT) 275.40 727.91 729.70 729.59 730.01 0.017610 4.41 62.47 77.41 0.0  CHANNEL-A 5200 010 151.70 725.93 726.73 726.88 728.91 0.017397 3.42 44.38 92.93 0.0  CHANNEL-A 5200 050 231.70 725.93 726.92 727.13 0.01337 3.69 62.83 98.42 0.0  CHANNEL-A 5200 0100 269.40 725.93 727.00 727.23 0.01337 3.69 62.83 98.42 0.0  CHANNEL-A 5200 0100 100 1151.70 725.93 727.00 727.23 0.01327 3.80 70.44 100.71 0.0  CHANNEL-A 5200 0100 0100 126.40 725.93 727.00 727.23 0.01327 3.80 70.44 100.71 0.0  CHANNEL-A 5200 0100 0100 151.70 723.80 724.98 724.65 725.05 0.00684 2.20 68.96 120.69 0.0  CHANNEL-A 5000 050 231.70 723.80 725.11 725.22 20.008832 2.71 85.62 126.40 0.0  CHANNEL-A 5000 050 0100 126.40 723.80 725.16 725.29 0.007412 2.93 92.03 128.36 0.0  CHANNEL-A 5000 0100 151.70 723.80 725.17 725.30 0.007497 2.96 93.03 128.86 0.0  CHANNEL-A 4800 010 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 189.62 0.0  CHANNEL-A 4800 050 231.70 722.76 723.53 723.54 723.55 0.010022 2.49 92.8 206.53 0.0  CHANNEL-A 4800 0100 269.40 722.76 723.53 723.64 0.009018 2.57 104.87 209.39 0.0  CHANNEL-A 4800 0100 275.40 722.76 723.53 723.64 723.64 0.009107 2.58 106.70 209.39 0.0  CHANNEL-A 4800 0100 269.40 722.76 723.53 723.63 0.009208 2.57 104.87 209.39 0.0  CHANNEL-A 4800 0100 275.40 722.76 723.54 723.55 723.64 0.001116 4.45 52.10 52.46 0.0  CHANNEL-A 4800 0100 151.70 719.32 721.76 723.54 723.55 721.45 0.011002 2.58 106.70 209.79 0.0  CHANNEL-A 4800 0100 151.70 719.32 721.14 720.95 721.45 0.01116 4.45 52.10 52.46 0.0  CHANNEL-A 4800 0100 151.70 719.32 721.15 721.00 721.50 0.011305 4.55 5.74 55.20 52.40 0.0  CHANNEL-A 4800 0100 151.70 719.32 721.14 720.95 721.45 0.011305 4.55 5.74 55.20 52.40 0.0  CHANNEL-A 4800 0100 151.70 719.32 721.72 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.92 771.93 0.011305 4.55 5.70 57.44 50.0  CHANNEL-A 4000 010 151.70 771.33 7714.04 771.22 771.92 771.92 771.92 771.93 0.006415 4.14 66.51 4.92 0.0  CHANNEL-A 4000 0100 151.70 771.33 7714.04 771.22 771											-		0.8
CHANNEL-A 5200 Q10 151.70 725.93 726.73 726.86 726.91 0.017397 3.42 44.36 92.93 0. CHANNEL-A 5200 Q100 269.40 725.93 727.00 727.23 0.013737 3.69 62.83 99.42 0. CHANNEL-A 5200 Q100 (100 269.40 725.93 727.00 727.23 0.012776 3.80 70.94 100.71 0. CHANNEL-A 5200 Q100 (11) 275.40 719.32 727.01 727.24 0.012641 3.81 72.22 101.99 0. CHANNEL-A 5000 Q10 151.70 723.80 724.99 724.65 725.05 0.005694 2.20 68.96 120.99 0. CHANNEL-A 5000 Q10 151.70 723.80 725.91 725.91 725.22 0.008832 2.71 85.62 126.40 0. CHANNEL-A 5000 Q100 269.40 723.80 725.11 725.22 0.008832 2.71 85.62 126.40 0. CHANNEL-A 5000 Q100 (11) 275.40 723.80 725.11 725.29 0.007412 2.93 92.03 128.86 0. CHANNEL-A 4800 Q10 151.70 722.76 723.33 725.11 725.29 0.007412 2.93 92.03 128.86 0. CHANNEL-A 4800 Q10 269.40 723.80 725.17 725.30 725.30 725.17 725.30 725.30 725.17 725.30 725.30 725.17 725.30													0.8
CHANNEL-A 5200 Q100 Q100 Q101) 275.40 725.93 726.92 727.13 0.013737 3.69 62.83 98.42 0.0 CHANNEL-A 5200 Q100 Q100 Q101) 275.40 725.93 727.00 727.23 0.013737 3.69 62.83 98.42 0.0 CHANNEL-A 5200 Q100 Q110) 275.40 725.93 727.00 727.24 0.012641 3.81 72.22 100.70 0.0 CHANNEL-A 5200 Q100 Q110) 275.40 725.83 727.01 727.24 0.012641 3.81 72.22 100.079 0.0 CHANNEL-A 5000 Q100 Q100 Q100 Q100 Q100 Q100 Q100	OT WITH LE TY	0000	Q100 (021)	210.10	121.01	720.75	120.00	7.00.01	5.511616		02.11		0.0
CHANNEL-A 5200 Q100 (ULT) 275.40 725.93 727.00 727.24 0.012776 3.80 70.94 100.71 0.0 CHANNEL-A 5200 Q100 (ULT) 275.40 725.93 727.01 727.24 0.012841 3.81 72.22 101.09 0.0 CHANNEL-A 5000 Q10 151.70 723.80 724.98 724.85 725.05 0.005664 2.20 68.96 120.68 0.0 CHANNEL-A 5000 Q50 231.70 723.80 725.11 725.22 0.006632 2.71 85.62 126.40 0.0 CHANNEL-A 5000 Q100 269.40 723.80 725.11 725.22 0.006632 2.71 85.62 126.40 0.0 CHANNEL-A 5000 Q100 269.40 723.80 725.11 725.30 0.07497 2.96 93.03 128.36 0.0 CHANNEL-A 5000 Q100 ULT) 275.40 723.80 725.17 725.30 0.07497 2.96 93.03 126.66 0.0 CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.002477 2.34 64.82 188.62 0.0 CHANNEL-A 4800 Q100 269.40 722.76 723.43 723.53 0.00200 2.24 92.88 20.65.3 0.0 CHANNEL-A 4800 Q100 269.40 722.76 723.54 723.54 723.57 0.01002 2.49 92.88 20.65.3 0.0 CHANNEL-A 4800 Q100 151.70 722.76 723.54 723.54 723.54 0.009107 2.58 106.70 209.79 0.0 CHANNEL-A 4800 Q100 269.40 722.76 723.54 723.54 723.54 0.009107 2.58 106.70 209.79 0.0 CHANNEL-A 4800 Q100 269.40 719.32 722.76 723.54 723.54 0.009107 2.58 106.70 209.79 0.0 CHANNEL-A 4800 Q100 269.40 719.32 722.76 723.54 720.67 721.10 0.014000 3.91 3.88 3.84 51.7 0.0 CHANNEL-A 4800 Q100 269.40 719.32 721.45 720.67 721.10 0.014000 3.91 3.88 3.84 51.7 0.0 CHANNEL-A 4800 Q100 269.40 719.32 721.45 720.67 721.45 0.011116 4.45 52.10 52.46 0.0 CHANNEL-A 4800 Q100 269.40 719.32 721.25 721.06 721.65 0.011294 4.65 67.94 65.22 0.0 CHANNEL-A 4800 Q100 269.40 719.32 721.25 721.06 721.65 0.011294 4.65 67.94 65.22 0.0 CHANNEL-A 4800 Q100 269.40 719.32 721.25 721.06 721.65 0.011506 4.68 58.67 56.53 0.0 CHANNEL-A 4400 Q100 269.40 719.32 721.25 721.06 721.65 0.001506 4.68 58.67 56.52 0.0 CHANNEL-A 4400 Q100 269.40 719.33 718.77 718.7	CHANNEL-A	5200	Q10	151.70	725.93	726.73	726.68	726.91	0.017397	3.42	44.36	92.93	0.8
CHANNEL-A 5200 Q100 (ULT) 275.40 725.93 727.01 727.24 0.012841 3.81 72.22 101.09 0.  CHANNEL-A 5000 Q10 151.70 723.80 724.98 724.96 725.05 0.005664 2.20 68.96 120.69 0.  CHANNEL-A 5000 Q50 231.70 723.80 725.11 725.22 0.006832 2.71 85.62 126.40 0.  CHANNEL-A 5000 Q100 269.40 723.80 725.16 725.29 0.007412 2.93 92.03 128.36 0.0  CHANNEL-A 5000 Q100 ULT) 275.40 723.80 725.17 725.30 0.007497 2.96 93.03 128.66 0.0  CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 188.62 0.0  CHANNEL-A 4800 Q50 231.70 722.76 723.34 723.47 723.57 0.010022 2.49 92.88 206.53 0.0  CHANNEL-A 4800 Q100 129.94 722.76 723.53 723.63 0.009018 2.57 104.87 209.39 0.0  CHANNEL-A 4800 Q100 ULT) 275.40 722.76 723.53 723.63 0.009018 2.57 104.87 209.39 0.0  CHANNEL-A 4800 Q100 ULT) 275.40 722.76 723.54 723.54 723.54 10.010022 2.49 92.88 206.53 0.0  CHANNEL-A 4800 Q100 ULT) 275.40 722.76 723.54 723.54 10.010020 2.55 106.70 209.79 0.0  CHANNEL-A 4800 Q100 Q10 151.70 719.32 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.0  CHANNEL-A 4800 Q100 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.25 721.06 721.56 0.011294 4.65 57.94 55.22 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.25 721.06 721.56 0.011305 4.66 57.94 55.22 0.0  CHANNEL-A 4400 Q10 151.70 716.93 718.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.0  CHANNEL-A 4400 Q10 151.70 716.93 718.97 718.97 718.57 0.018638 5.33 50.50 73.91 1.0  CHANNEL-A 4400 Q10 269.40 719.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.0  CHANNEL-A 4400 Q10 151.70 776.93 718.97 718.29 718.27 718.71 0.018638 5.33 50.50 73.91 1.0  CHANNEL-A 4400 Q10 151.70 776.93 718.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.0  CHANNEL-A 4400 Q10 151.70 771.93 714.94 714.20 714.20 714.20 714.20 714.20 714.20 0.005165 3.22 47.04 43.20 0.0  CHANNEL-A 4400 Q10 151.70 718.93 714.45 714.26 714.20 0.005165 3.23 47.04 43.20 0.0  CHANNEL-A 4200 Q10 151.70 771.93 714.94 714.20 714.20 714.20 714.28 0.002115 4.36 6.51 49.23 0.0  CHANNEL-A 4000 Q10 151.70 771.33 7	CHANNEL-A	5200	Q50	231.70	725.93	726.92		727.13	0.013737	3.69	62.83	98.42	0.8
CHANNEL-A 5000 Q100 (ULT) 275.40 725.93 727.01 727.24 0.012841 3.81 72.22 101.09 0.0  CHANNEL-A 5000 Q10 151.70 723.80 724.98 724.96 725.05 0.005664 2.20 68.96 120.69 0.0  CHANNEL-A 5000 Q50 231.70 723.80 725.11 725.22 0.006832 2.71 85.62 126.40 0.0  CHANNEL-A 5000 Q100 Q100 ULT) 275.40 723.80 725.15 725.29 0.007412 2.93 92.03 128.36 0.0  CHANNEL-A 5000 Q100 (ULT) 275.40 723.80 725.17 725.30 0.007497 2.96 93.03 128.66 0.0  CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 188.62 0.0  CHANNEL-A 4800 Q50 231.70 722.76 723.34 723.57 0.010022 2.49 92.88 206.53 0.0  CHANNEL-A 4800 Q100 269.40 722.76 723.53 723.63 0.00920 2.57 104.87 209.39 0.0  CHANNEL-A 4800 Q100 151.70 719.32 72.76 723.54 723.64 0.009107 2.56 106.70 209.79 0.0  CHANNEL-A 4800 Q100 Q50 231.70 719.32 720.87 720.87 721.10 0.010400 3.91 38.83 45.17 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.26 721.00 0.010400 3.91 38.83 45.17 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.57 721.00 0.010400 3.91 38.83 45.17 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.76 723.55 721.45 0.011116 4.45 52.10 52.46 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.26 721.06 721.56 0.011294 4.65 67.94 55.22 0.0  CHANNEL-A 4800 Q100 269.40 719.32 721.26 721.06 721.56 0.011305 4.66 57.94 55.22 0.0  CHANNEL-A 4400 Q10 250 231.70 716.93 718.92 711.92 718.27 718.2	CHANNEL-A	5200	Q100	269.40	725.93	727.00		727.23	0.012776	3.80	70.94	100.71	0.0
CHANNEL-A 5000 Q50 Q50 Q50 723.170 723.80 725.11 725.22 0.008832 Q.71 85.62 126.40 0. CHANNEL-A 5000 Q100 Q59.40 723.80 725.16 725.29 0.007412 Q.93 92.03 128.86 0. CHANNEL-A 5000 Q100 (ULT) 275.40 723.80 725.16 725.20 0.007412 Q.93 92.03 128.86 0. CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 Q.34 64.82 189.62 0. CHANNEL-A 4800 Q50 Q31.70 722.76 723.47 723.57 0.010022 Q.49 92.88 206.53 0. CHANNEL-A 4800 Q100 Q50 Q51.70 722.76 723.47 723.63 0.009208 Q.57 104.87 209.39 0. CHANNEL-A 4800 Q100 Q50 Q50 Q51.70 722.76 723.47 723.64 0.009107 Q.56 106.70 209.79 0. CHANNEL-A 4800 Q10 Q10 151.70 719.32 72.76 723.54 723.64 0.009107 Q.56 106.70 209.79 0. CHANNEL-A 4600 Q10 Q50 Q51.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0. CHANNEL-A 4600 Q10 Q50 Q50 731.70 719.32 721.14 720.95 721.45 0.011216 4.45 52.10 52.46 0. CHANNEL-A 4600 Q100 Q50 Q50 719.32 721.26 721.06 721.58 0.011294 4.65 57.94 55.22 0. CHANNEL-A 4600 Q100 Q50 Q50 719.32 721.26 721.06 721.58 0.011294 4.65 57.94 55.22 0. CHANNEL-A 4600 Q100 Q50 Q50 719.32 721.26 721.06 721.58 0.011294 4.65 57.94 55.22 0. CHANNEL-A 4400 Q10 Q10 T51.70 716.93 717.92 718.27 0.020450 4.71 32.24 54.02 1. CHANNEL-A 4400 Q50 Q31.70 716.93 718.27 718.27 718.27 0.020450 4.71 32.24 54.02 1. CHANNEL-A 4400 Q10 Q50 Q31.70 716.93 718.27 718.27 718.27 0.020450 5.33 50.50 73.91 1. CHANNEL-A 4400 Q10 D50 Q50 Q31.70 716.93 718.27 718.27 718.27 0.020450 5.33 50.50 73.91 1. CHANNEL-A 4400 Q10 Q10 T51.70 712.33 714.04 718.27 718.27 0.08530 5.33 50.50 73.91 1. CHANNEL-A 4200 Q10 T51.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0. CHANNEL-A 4200 Q10 T51.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0. CHANNEL-A 4200 Q10 T51.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0. CHANNEL-A 4200 Q10 T51.70 712.33 714.04 714.73 0.006330 4.10 65.66 48.96 0. CHANNEL-A 4200 Q10 T51.70 712.33 714.45 714.71 0.006330 4.10 65.66 48.96 0. CHANNEL-A 4200 Q10 T51.70 712.33 714.45 714.71 0.006330 4.10 65.66 53.11 92.36 0. CHANNEL-A 4000 Q10 T51.70 712.33 714.45 714.74 0.006330 4.10 65.	CHANNEL-A	5200	Q100 (ULT)	275.40	725.93				0.012641	3.81	72.22		8.0
CHANNEL-A 5000 Q50 Q50 Q50 723.170 723.80 725.11 725.22 0.008832 2.71 85.62 126.40 0.0 CHANNEL-A 5000 Q100 269.40 723.80 725.16 725.29 0.007412 2.93 92.03 128.86 0.0 CHANNEL-A 5000 Q100 (ULT) 275.40 723.80 725.17 725.27 725.20 0.007412 2.93 92.03 128.86 0.0 CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 189.62 0.0 CHANNEL-A 4800 Q50 231.70 722.76 723.47 723.57 0.010022 2.49 92.88 206.53 0.0 CHANNEL-A 4800 Q100 269.40 722.76 723.53 723.63 0.009208 2.57 104.87 209.39 0.0 CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.63 0.009208 2.57 104.87 209.39 0.0 CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.64 0.009107 2.56 106.70 209.79 0.0 CHANNEL-A 4800 Q50 231.70 719.32 721.67 723.64 723.67 721.10 0.010400 3.91 38.83 45.17 0.0 CHANNEL-A 4600 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0 CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.25 721.06 721.56 0.011294 4.65 57.94 55.22 0.0 CHANNEL-A 4600 Q100 269.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.0 CHANNEL-A 4600 Q100 151.70 719.32 721.26 721.08 721.60 0.011305 4.68 58.87 55.63 0.0 CHANNEL-A 4400 Q100 259.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.0 CHANNEL-A 4400 Q50 231.70 716.93 717.92 718.27 0.020450 4.71 32.24 54.02 1.0 CHANNEL-A 4400 Q50 231.70 716.93 718.27 718.27 718.27 0.020450 4.71 32.24 54.02 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.27 0.020450 5.33 50.50 73.91 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.29 718.29 718.27 0.020450 5.33 50.50 73.91 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.29 718.29 718.27 0.00653 5.33 50.50 73.91 1.0 CHANNEL-A 4200 Q100 151.70 712.33 714.04 718.29 718.27 0.00653 5.33 50.50 73.91 1.0 CHANNEL-A 4200 Q100 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.0 CHANNEL-A 4200 Q100 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.0 CHANNEL-A 4200 Q100 269.40 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.0 CHANNEL-A 4200 Q100 269.40 711.17 712.23 714.04 714.26 0.003921 3.88 38.98 85.36 1.0 CHANNEL-A 4000 Q100 269.40 711.17 712.25													
CHANNEL-A 5000 Q100 Q100 Q269.40 723.80 725.16 725.29 0.007412 2.93 92.03 128.36 0.  CHANNEL-A 5000 Q100 (ULT) 275.40 723.80 725.17 725.30 0.007497 2.96 93.03 128.66 0.  CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 189.62 0.  CHANNEL-A 4800 Q50 231.70 722.76 723.47 723.57 0.010022 2.49 92.88 206.53 0.  CHANNEL-A 4800 Q100 269.40 722.76 723.54 723.53 0.009208 2.57 104.87 209.39 0.  CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.64 0.009107 2.58 106.70 209.79 0.  CHANNEL-A 4800 Q100 151.70 719.32 720.87 720.87 721.10 0.010400 3.91 38.83 45.17 0.  CHANNEL-A 4600 Q10 151.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.  CHANNEL-A 4600 Q100 269.40 719.32 721.26 721.06 721.58 0.011294 4.65 57.94 55.22 0.  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.08 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 Q10 151.70 716.93 718.27 718.27 718.27 718.27 18.2	CHANNEL-A	5000	Q10	151.70	723.80	724.98	724.65	725.05	0.005664	2.20	68.96	120.69	0.5
CHANNEL-A 800 Q10 (ULT) 275.40 723.80 725.17 725.30 0.007497 2.96 93.03 128.66 0.0  CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 189.62 0.0  CHANNEL-A 4800 Q50 231.70 722.76 723.47 723.57 0.010022 2.49 92.88 206.53 0.0  CHANNEL-A 4800 Q100 269.40 722.76 723.53 723.63 0.009208 2.57 104.87 209.39 0.0  CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.54 723.64 0.009107 2.58 106.70 209.79 0.0  CHANNEL-A 4800 Q10 151.70 719.32 720.87 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.0  CHANNEL-A 4600 Q10 151.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0  CHANNEL-A 4600 Q100 269.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.0  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.08 721.08 58.87 55.63 0.0  CHANNEL-A 4600 Q100 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.0  CHANNEL-A 4400 Q10 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.0  CHANNEL-A 4400 Q10 299.40 716.93 718.27 718.27 718.58 0.0118924 5.13 45.12 69.07 1.0  CHANNEL-A 4400 Q100 299.40 716.93 718.27 718.27 718.57 0.018924 5.13 45.12 69.07 1.0  CHANNEL-A 4400 Q100 299.40 716.93 718.29 718.27 718.57 0.018924 5.13 45.12 69.07 1.0  CHANNEL-A 4400 Q100 299.40 716.93 718.29 718.29 718.27 10.018633 5.33 50.50 73.91 1.0  CHANNEL-A 4400 Q100 299.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.0  CHANNEL-A 4200 Q100 151.70 712.33 714.45 714.27 10.018633 5.33 50.50 73.91 1.1  CHANNEL-A 4200 Q50 231.70 712.33 714.45 714.71 0.008360 4.10 65.66 48.96 0.0  CHANNEL-A 4200 Q50 231.70 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.0  CHANNEL-A 4200 Q100 L101 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.0  CHANNEL-A 4000 Q10 T10 T15.70 711.17 712.02 712.02 712.02 712.26 0.023168 4.55 59.27 94.79 1.0  CHANNEL-A 4000 Q10 Q100 Z69.40 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.1  CHANNEL-A 4000 Q100 Q50 231.70 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.1													0.5
CHANNEL-A 4800 Q10 151.70 722.76 723.33 723.42 0.012717 2.34 64.82 189.62 0.0 CHANNEL-A 4800 Q100 269.40 722.76 723.53 723.63 0.009208 2.57 104.87 209.39 0.0 CHANNEL-A 4800 Q100 Q100 ULT) 275.40 722.76 723.54 723.64 0.009107 2.58 106.70 209.79 0.0 CHANNEL-A 4800 Q10 151.70 719.32 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.0 CHANNEL-A 4800 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0 CHANNEL-A 4600 Q100 269.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.0 CHANNEL-A 4600 Q100 151.70 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.0 CHANNEL-A 4600 Q100 151.70 719.32 721.25 721.06 721.08 721.09 0.01305 4.68 58.87 55.63 0.0 CHANNEL-A 4400 Q100 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.27 0.020450 4.71 32.24 54.02 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.27 0.018638 5.33 50.50 73.91 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.0 CHANNEL-A 4200 Q100 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.0 CHANNEL-A 4200 Q50 231.70 712.33 714.45 714.71 0.006360 4.10 66.66 48.96 0.0 CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.73 0.006360 4.10 66.66 48.96 0.0 CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 66.66 48.96 0.0 CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.73 0.006360 4.10 66.65 49.23 0.0 CHANNEL-A 4200 Q50 231.70 712.33 714.46 714.73 0.006360 4.10 66.65 49.23 0.0 CHANNEL-A 4200 Q50 231.70 712.33 714.46 714.73 0.006360 4.10 66.65 49.93 0.0 CHANNEL-A 4200 Q50 231.70 712.33 714.46 714.73 0.006360 4.10 66.65 49.93 0.0 CHANNEL-A 4200 Q50 231.70 712.33 714.46 714.73 0.006360 4.10 66.65 49.93 0.0 CHANNEL-A 4000 Q100 269.40 712.33 714.46 714.73 0.006360 4.10 66.65 49.93 0.0 CHANNEL-A 4000 Q50 231.70 712.33 714.46 714.74 80.0022116 4.36 6.51 49.23 0.0 CHANNE											-		0.6
CHANNEL-A 4800 Q50 231.70 722.76 723.47 723.57 0.010022 2.49 92.88 206.53 0.  CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.53 723.63 0.009208 2.57 104.67 209.39 0.  CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.64 0.009107 2.58 106.70 209.79 0.  CHANNEL-A 4600 Q10 151.70 719.32 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.  CHANNEL-A 4600 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.  CHANNEL-A 4600 Q100 269.40 719.32 721.26 721.56 0.011294 4.65 57.94 55.22 0.  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.60 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 151.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.  CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 151.70 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 275.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 275.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.57 712.57 0.021468 4.55 59.27 94.79 1.	CHANNEL-A	5000	Q100 (ULT)	275.40	723.80	725.17		725.30	0.007497	2.96	93.03	128.66	0.6
CHANNEL-A 4800 Q50 231.70 722.76 723.47 723.57 0.010022 2.49 92.88 206.53 0.  CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.53 723.63 0.009208 2.57 104.67 209.39 0.  CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.64 0.009107 2.58 106.70 209.79 0.  CHANNEL-A 4600 Q10 151.70 719.32 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.  CHANNEL-A 4600 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.  CHANNEL-A 4600 Q100 269.40 719.32 721.26 721.56 0.011294 4.65 57.94 55.22 0.  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.60 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 151.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.  CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 151.70 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 275.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 275.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.46 714.70 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.57 712.57 0.021468 4.55 59.27 94.79 1.													
CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.53 723.64 0.009208 2.57 104.87 209.39 0.0 CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.64 0.009107 2.58 106.70 209.79 0.0 CHANNEL-A 4600 Q10 151.70 719.32 720.87 720.87 721.10 0.010400 3.91 38.83 45.17 0.0 CHANNEL-A 4600 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.0 CHANNEL-A 4600 Q100 269.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.0 CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.60 0.011305 4.68 58.87 55.63 0.0 CHANNEL-A 4400 Q50 231.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.0 CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.28 718.73 0.018633 5.33 50.50 73.91 1.0 CHANNEL-A 4200 Q100 151.70 712.33 714.45 714.45 714.50 0.005185 3.23 47.04 43.20 0.0 CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.45 714.71 0.006360 4.10 65.66 48.96 0.0 CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.26 0.005185 4.14 66.51 49.23 0.0 CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.0 CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.0 CHANNEL-A 4000 Q50 231.70 711.17 712.02 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.0 CHANNEL-A 4000 Q50 231.70 711.17 712.25											-		0.7
CHANNEL-A 4800 Q100 (ULT) 275.40 722.76 723.54 723.64 0.009107 2.58 106.70 209.79 0.  CHANNEL-A 4600 Q10 151.70 719.32 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.  CHANNEL-A 4600 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.  CHANNEL-A 4600 Q100 269.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.08 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.  CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.  CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 151.70 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4400 Q100 151.70 712.33 714.04 714.20 0.06185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q50 231.70 712.33 714.04 714.20 0.06185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q10 269.40 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.													0.6
CHANNEL-A 4600 Q10 151.70 719.32 720.87 720.67 721.10 0.010400 3.91 38.83 45.17 0.  CHANNEL-A 4600 Q50 231.70 719.32 721.14 720.95 721.45 0.011116 4.45 52.10 52.46 0.  CHANNEL-A 4600 Q100 269.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.60 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 151.70 716.93 717.92 718.27 0.020450 4.71 32.24 54.02 1.  CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.  CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4000 Q10 151.70 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 Q100 269.40 711.17 712.25 712.25 712.25 712.25 0.021468 4.55 59.27 94.79 1.													0.6
CHANNEL-A 4600 Q50 Q50 Q50 Q50 Q50 Q50 Q50 Q50 Q50 Q	CHANNEL-A	4000	Q100 (UL1)	2/5.40	722.76	/23.54		/23.64	0.009107	2.58	106.70	209.79	0.6
CHANNEL-A 4600 Q50 Q50 Q50 Q50 Q50 Q50 Q50 Q50 Q50 Q	CHANNEL A	4600	010	151 70	710 22	720 07	720.67	724 40	0.010400	2.04	20 02	AE 17	0.7
CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.25 721.06 721.58 0.011294 4.65 57.94 55.22 0.  CHANNEL-A 4600 Q100 (ULT) 275.40 719.32 721.26 721.08 721.00 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.  CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.  CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.33 714.56 0.006013 3.85 60.12 47.23 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4200 Q100 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q10 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.											-		
CHANNEL-A 4600 Q10 (ULT) 275.40 719.32 721.26 721.08 721.60 0.011305 4.68 58.87 55.63 0.  CHANNEL-A 4400 Q10 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1.  CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1.  CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q50 231.70 712.33 714.04 714.56 0.006013 3.85 60.12 47.23 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 151.70 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4200 Q100 151.70 711.17 712.02 712.02 712.60 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.55 712.57 0.021468 4.55 59.27 94.79 1.													0.7
CHANNEL-A 4400 Q10 151.70 716.93 717.92 717.92 718.27 0.020450 4.71 32.24 54.02 1. CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1. CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1. CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0. CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.56 0.006013 3.85 60.12 47.23 0. CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0. CHANNEL-A 4200 Q100 Q100 712.33 714.46 714.71 0.006360 4.10 65.66 48.96 0. CHANNEL-A 4200 Q100 Q100 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0. CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1. CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1. CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.													0.8
CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1. CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1. CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0. CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.56 0.006013 3.85 60.12 47.23 0. CHANNEL-A 4200 Q100 C99.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0. CHANNEL-A 4200 Q100 ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0. CHANNEL-A 4200 Q100 Q100 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1. CHANNEL-A 4000 Q100 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1. CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.	5.5 HHILL-/1	,550	Q100 (OL1)	210.40	110.02	721.20	121.00	, 21.00	0.011000	7.00	55.61	55.65	0.0
CHANNEL-A 4400 Q50 231.70 716.93 718.17 718.17 718.58 0.018924 5.13 45.12 69.07 1. CHANNEL-A 4400 Q100 269.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1. CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0. CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.56 0.006013 3.85 60.12 47.23 0. CHANNEL-A 4200 Q100 C99.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0. CHANNEL-A 4200 Q100 ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0. CHANNEL-A 4200 Q100 Q100 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1. CHANNEL-A 4000 Q100 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1. CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.	CHANNEL-A	4400	Q10	151.70	716.93	717.92	717.92	718.27	0.020450	4.71	32.24	54.02	1.0
CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.27 718.27 718.71 0.018638 5.33 50.50 73.91 1.  CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.56 0.006013 3.85 60.12 47.23 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4200 Q100 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q10 Q50 231.70 711.17 712.18 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.											-		1.0
CHANNEL-A 4400 Q100 (ULT) 275.40 716.93 718.29 718.29 718.73 0.018633 5.37 51.30 74.58 1.  CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.56 0.006013 3.85 60.12 47.23 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.													1.0
CHANNEL-A 4200 Q10 151.70 712.33 714.04 714.20 0.005185 3.23 47.04 43.20 0.  CHANNEL-A 4200 Q50 231.70 712.33 714.33 714.56 0.006013 3.85 60.12 47.23 0.  CHANNEL-A 4200 Q100 269.40 712.33 714.45 714.71 0.006360 4.10 65.66 48.96 0.  CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.  CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.													1.0
CHANNEL-A         4200         Q50         231.70         712.33         714.33         714.56         0.006013         3.85         60.12         47.23         0.0           CHANNEL-A         4200         Q100         269.40         712.33         714.45         714.71         0.006360         4.10         65.66         48.96         0.0           CHANNEL-A         4200         Q100 (ULT)         275.40         712.33         714.46         714.73         0.006415         4.14         66.51         49.23         0.0           CHANNEL-A         4000         Q10         151.70         711.17         712.02         712.02         712.26         0.023921         3.89         38.98         85.36         1.           CHANNEL-A         4000         Q50         231.70         711.17         712.18         712.18         712.48         0.022115         4.36         53.11         92.36         1.           CHANNEL-A         4000         Q100         269.40         711.17         712.25         712.5         712.57         0.021468         4.55         59.27         94.79         1.													
CHANNEL-A         4200         Q100         269.40         712.33         714.45         714.71         0.006360         4.10         65.66         48.96         0.00           CHANNEL-A         4200         Q100 (ULT)         275.40         712.33         714.46         714.73         0.006415         4.14         66.51         49.23         0.00           CHANNEL-A         4000         Q10         151.70         711.17         712.02         712.02         712.26         0.023921         3.89         38.98         85.36         1.           CHANNEL-A         4000         Q50         231.70         711.17         712.18         712.18         712.48         0.022115         4.36         53.11         92.36         1.           CHANNEL-A         4000         Q100         269.40         711.17         712.25         712.25         712.57         0.021468         4.55         59.27         94.79         1.	CHANNEL-A	4200	Q10	151.70	712.33	714.04		714.20	0.005185	3.23	47.04	43.20	0.5
CHANNEL-A 4200 Q100 (ULT) 275.40 712.33 714.46 714.73 0.006415 4.14 66.51 49.23 0.006415 CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.006415 CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.006415 CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.50 712.	CHANNEL-A	4200	Q50	231.70	712.33	714.33		714.56	0.006013	3.85	60.12	47.23	0.6
CHANNEL-A 4000 Q10 151.70 711.17 712.02 712.02 712.26 0.023921 3.89 38.98 85.36 1.  CHANNEL-A 4000 Q50 231.70 711.17 712.18 712.18 712.48 0.022115 4.36 53.11 92.36 1.  CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.	CHANNEL-A	4200	Q100	269.40	712.33	714.45		714.71	0.006360	4.10	65.66	48.96	0.6
CHANNEL-A         4000         Q50         231.70         711.17         712.18         712.18         712.48         0.022115         4.36         53.11         92.36         1.           CHANNEL-A         4000         Q100         269.40         711.17         712.25         712.25         712.57         0.021468         4.55         59.27         94.79         1.	CHANNEL-A	4200	Q100 (ULT)	275.40	712.33	714.46		714.73	0.006415	4.14	66.51	49.23	0.6
CHANNEL-A         4000         Q50         231.70         711.17         712.18         712.18         712.48         0.022115         4.36         53.11         92.36         1.           CHANNEL-A         4000         Q100         269.40         711.17         712.25         712.25         712.57         0.021468         4.55         59.27         94.79         1.													
CHANNEL-A 4000 Q100 269.40 711.17 712.25 712.25 712.57 0.021468 4.55 59.27 94.79 1.													1.0
													1.0
CHANNEL-A 4000 Q100 (ULT) 275.40 711.17 712.26 712.26 712.58 0.021368 4.57 60.24 95.17 1.													1.0
	CHANNEL-A	4000	Q100 (ULT)	275.40	711.17	712.26	712.26	712.58	0.021368	4.57	60.24	95.17	1.0

CHANNEL-A	3800	Q100	269.40	706.70	708.17	708.10	708.49	0.015598	4.57	59.00	73.74	0.90
CHANNEL-A	3800	Q100 (ULT)	275.40	706.70	708.18	708.11	708.51	0.015755	4.61	59.68	73.99	0.9
011/11/11/12/1		Q.100 (02.1)	210.10	,			7 00.01	0.010100		00.00	10.00	0.0
CHANNEL-A	3600	Q10	151.70	703.42	704.31	704.31	704.53	0.024750	3.82	39.73	91.87	1.02
CHANNEL-A	3600	Q50	231.70	703.42	704.46	704.46	704.75	0.022344	4.34	53.39	94.32	1.02
CHANNEL-A	3600	Q100	269.40	703.42	704.52	704.52	704.84	0.021669	4.55	59.22	95.27	1.02
CHANNEL-A	3600	Q100 (ULT)	275.40	703.42	704.53	704.53	704.85	0.021494	4.58	60.19	95.42	1.02
OTD WHILE TO	0000	Q100 (OL1)	270.10	700.42	704.00	101.00	70-1.00	0.021404	1.00	00.10	00.12	1.02
OLIANDIEL A	0.400	040	454.70	200.47	700.05	700.00	700.40	0.040000	0.00	40.00	00.00	0.71
CHANNEL-A	3400	Q10	151.70	699.17	700.35	700.26	700.49	0.012292	3.08	49.32	93.20	0.7
CHANNEL-A	3400	Q50	231.70	699.17	700.51	700.38	700.71	0.011785	3.57	64.90	94.98	0.76
CHANNEL-A	3400	Q100	269.40	699.17	700.59	700.45	700.80	0.011397	3.74	72.01	95.81	0.76
CHANNEL-A	3400	Q100 (ULT)	275.40	699.17	700.60	700.46	700.82	0.011392	3.77	73.02	95.93	0.76
CHAININEL-A	3400	Q100 (OL1)	275.40	099.17	700.60	700.46	700.62	0.011392	3.11	73.02	95.93	0.70
CHANNEL-A	3200	Q10	151.70	695.64	697.15	697.12	697.45	0.018970	4.43	34.27	51.89	0.96
CHANNEL-A	3200	Q50	231.70	695.64	697.39	697.39	697.72	0.019531	4.57	50.72	74.90	0.98
CHANNEL-A	3200	Q100	269.40	695.64	697.46	697.45	697.82	0.020151	4.86	55.45	76.44	1.0
CHANNEL-A	3200	Q100 (ULT)	275.40	695.64	697.47	697.46	697.84	0.020117	4.89	56.29	76.68	1.0
CHANNEL-A	3000	Q10	151.70	692.04	693.07	693.07	693.38	0.021926	4.42	34.29	58.01	1.0
CHANNEL-A	3000	Q50	231.70	692.04	693.31	693.31	693.65	0.020793	4.69	49.42	73.62	1.0
CHANNEL-A	3000	Q100	269.40	692.04	693.40	693.40	693.75	0.020543	4.80	56.12	79.96	1.0
CHANNEL-A	3000	Q100 (ULT)	275.40	692.04	693.41	693.41	693.77	0.020543	4.82	57.11	80.84	1.01
CHANNEL-A	2800	Q10	151.70	688.56	689.59		689.71	0.005789	2.73	55.54	71.35	0.5
CHANNEL-A	2800	Q50	231.70	688.56	689.79		689.96	0.006692	3.32	69.88	74.82	0.60
CHANNEL-A	2800	Q100	269.40	688.56	689.86		690.06	0.007074	3.56	75.70	75.99	0.63
CHANNEL-A	2800	Q100 (ULT)	275.40	688.56	689.88		690.08	0.007135	3.60	76.59	76.17	0.63
CHANNEL A	2600	Q10	151 70	688.56	689.36		689.37	0.000692	0.93	162.42	215 72	0.19
CHANNEL-A			151.70							163.43	215.73	
CHANNEL-A	2600	Q50	231.70	688.56	689.53		689.55	0.000838	1.16	200.19	219.04	0.2
CHANNEL-A	2600	Q100	269.40	688.56	689.59		689.62	0.000897	1.25	215.26	220.31	0.22
CHANNEL-A	2600	Q100 (ULT)	275.40	688.56	689.61		689.63	0.000906	1.27	217.57	220.51	0.22
		()		2 30.00								
OLIANISES :	0.400	040	45.55	055 ==	000 00		202.25	0.0000		46	000 00	
CHANNEL-A	2400	Q10	151.70	688.56	689.23		689.23	0.000644	0.79	192.34	306.92	0.18
CHANNEL-A	2400	Q50	231.70	688.56	689.37		689.38	0.000765	0.98	236.75	311.24	0.20
CHANNEL-A	2400	Q100	269.40	688.56	689.43		689.45	0.000814	1.06	255.08	313.12	0.2
CHANNEL-A	2400	Q100 (ULT)	275.40	688.56	689.44		689.45	0.000821	1.07	257.91	313.41	0.2
CHANNEL-A	2400	Q100 (OL1)	273.40	000.00	003.44		009.40	0.000021	1.07	257.91	313.41	0.2
CHANNEL-A	2200	Q10	151.70	688.56	689.12		689.12	0.000468	0.61	247.92	455.24	0.1
CHANNEL-A	2200	Q50	231.70	688.56	689.24		689.25	0.000550	0.76	305.25	457.96	0.16
CHANNEL-A	2200	Q100	269.40	688.56	689.29		689.31	0.000581	0.82	329.00	458.79	0.1
CHANNEL-A	2200	Q100 (ULT)	275.40	688.56	689.30		689.31	0.000585	0.83	332.78	458.92	0.17
CHANNEL-A	2000	Q10	151.70	688.56	688.73	688.73	688.82	0.032577	2.35	64.46	378.60	1.0
CHANNEL-A	2000	Q50	231.70	688.56	688.79	688.79	688.90	0.029245	2.69	86.03	380.56	1.00
CHANNEL-A	2000	Q100	269.40	688.56	688.81	688.81	688.94	0.028255	2.83	95.24	381.40	1.00
CHANNEL-A	2000	Q100 (ULT)	275.40	688.56	688.82	688.82	688.94	0.028525	2.86	96.24	381.49	1.00
CHANNEL-A	1800	Q10	151.70	670.54	671.49	671.49	671.69	0.024080	3.63	41.83	102.34	1.00
CHANNEL-A	1800	Q50	231.70	670.54	671.63	671.63	671.88	0.022768	4.03	57.52	115.27	1.0
CHANNEL-A	1800	Q100	269.40	670.54	671.69	671.68	671.96	0.022210	4.21	64.00	117.86	1.0
CHANNEL-A	1800	Q100 (ULT)	275.40	670.54	671.70	671.69	671.97	0.022099	4.24	65.03	118.23	1.0
		, ,										
0114515151	1000	0.40	454.70	202.54	007.00		207.05	0.04.4000	4.04	07.50	50.47	2.01
CHANNEL-A	1600	Q10	151.70	666.54	667.60		667.85	0.014368	4.04	37.59	53.17	0.8
CHANNEL-A	1600	Q50	231.70	666.54	667.80	667.74	668.15	0.015502	4.75	48.79	57.23	0.9
CHANNEL-A	1600	Q100	269.40	666.54	667.89	667.83	668.28	0.015484	4.97	54.25	59.43	0.92
CHANNEL-A	1600	Q100 (ULT)	275.40	666.54	667.91	667.84	668.30	0.015507	5.00	55.07	59.78	0.92
0117111112271	1,000	Q.100 (02.1)	2.0.10	000.01		001.01	000.00	0.010001	- 0.00	00.01	000	0.0.
01144::	1100	040										
CHANNEL-A	1400	Q10	151.70	662.69	664.03	664.03	664.34	0.021970	4.43	34.21	57.74	1.02
CHANNEL-A	1400	Q50	231.70	662.69	664.27	664.27	664.61	0.020406	4.71	49.20	71.78	1.00
CHANNEL-A	1400	Q100	269.40	662.69	664.35	664.35	664.72	0.020624	4.88	55.16	76.85	1.02
CHANNEL-A	1400	Q100 (ULT)	275.40	662.69	664.36	664.36	664.73	0.020623	4.91	56.11	77.58	1.02
517 HAITELTA	1,00	Q 100 (OL1)	213.40	002.05	554.50	554.50	004.73	3.020023	4.01	30.11	11.50	1.02
CHANNEL-A	1200	Q10	151.70	659.78	660.93		661.04	0.007746	2.72	55.76	89.69	0.6
CHANNEL-A	1200	Q50	231.70	659.78	661.12		661.28	0.007541	3.13	73.92	94.20	0.62
CHANNEL-A	1200	Q100	269.40	659.78	661.21		661.38	0.007463	3.29	81.79	96.01	0.63
CHANNEL-A	1200	Q100 (ULT)	275.40	659.78	661.22		661.39	0.007509	3.33	82.81	96.24	0.60
OI IAININEL-A	1200	Q 100 (OLT)	213.40	008.78	001.22		001.39	0.007309	3.33	02.51	90.24	0.6
CHANNEL-A	1000	Q10	151.70	657.16	658.31	658.31	658.66	0.020052	4.78	31.76	138.49	1.00
CHANNEL-A	1000	Q50	231.70	657.16	658.56	658.56	658.98	0.019023	5.20	44.57	170.93	1.00
CHANNEL-A	1000	Q100	269.40	657.16	658.65	658.65	659.11	0.018608	5.45	49.41	175.61	1.00
CHANNEL-A	1000	Q100 (ULT)	275.40	657.16	658.67	658.67	659.13	0.018301	5.47	50.38	176.41	1.00
CHANNEL-A	600	Q10	151.70	650.24	652.09		652.15	0.002436	2.01	75.61	80.36	0.36
CHANNEL-A	600	Q50	231.70	650.24	652.41		652.49	0.002257	2.26	102.64	86.27	0.36
CHANNEL-A	600	Q100	269.40	650.24	652.54		652.63	0.002207	2.36	114.21	88.36	0.3
CHANNEL-A	600	Q100 (ULT)	275.40	650.24	652.57		652.65	0.002197	2.37	116.06	88.68	0.37
CHANNEL-A	400	Q10	151.70	649.32	650.63	650.63	651.06	0.019467	5.23	29.00	34.80	1.0
		~	.51.70	3 70.02	330.00	550.00	551.00	3.0.10407	0.20	20.00	34.00	1.0
HEC-RAS Plan:		ROP CONDITION	River: CHAN	NEL-A Reach	: CHANNEL-A	(Continued)						
	CHANNEL-A P				W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
Reach		Profile	Q Total				L.O. LICV					I I OUGU # OIL
Reach	CHANNEL-A P	Profile	Q Total	Min Ch El								
	River Sta		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach CHANNEL-A		Profile Q50								(sq ft)		1.0
	River Sta		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft) 39.70	(ft)	
CHANNEL-A CHANNEL-A	River Sta	Q50 Q100	(cfs) 231.70 269.40	(ft) 649.32 649.32	(ft) 650.92 651.05	(ft) 650.92 651.05	(ft) 651.45	(ft/ft) 0.018142 0.017683	(ft/s) 5.84	(sq ft) 39.70 44.42	(ft) 38.30	1.0
CHANNEL-A	400 400	Q50	(cfs) 231.70	(ft) 649.32	(ft) 650.92	(ft) 650.92	(ft) 651.45 651.62	(ft/ft) 0.018142	(ft/s) 5.84 6.07	(sq ft) 39.70	(ft) 38.30 39.66	1.0
CHANNEL-A CHANNEL-A	400 400	Q50 Q100	(cfs) 231.70 269.40	(ft) 649.32 649.32	(ft) 650.92 651.05	(ft) 650.92 651.05	(ft) 651.45 651.62	(ft/ft) 0.018142 0.017683	(ft/s) 5.84 6.07	(sq ft) 39.70 44.42 45.14	(ft) 38.30 39.66	1.0

 601.90
 641.03
 645.42
 645.10
 646.03
 0.009998
 6.29
 95.62

 711.60
 641.03
 645.68
 645.36
 646.33
 0.010001
 6.48
 109.82

 T)
 726.40
 641.03
 645.71
 645.37
 646.37
 0.010002
 6.51
 111.64

Reach River Sta Profile Q Total Min Ch El W.S. Elev Crit W.S. E.G. Elev E.G. Slope Vel Chnl Flow Area Top Width Froude # Chl

(cfs) (ft) (ft) (ft) (ft) (ft/ft) (ft/s) (sq ft) (ft)

 151.70
 706.70
 707.92
 707.82
 708.13
 0.013569
 3.62
 41.93

 231.70
 706.70
 708.10
 708.02
 708.38
 0.015082
 4.30
 53.89

HEC-RAS Plan: CHANNEL-A PROP CONDITION River: CHANNEL-A Reach: CHANNEL-A (Continued)

CHANNEL-A 3800 Q50

CHANNEL-A	2000	Q10	151.10	688.56	688.73	688.73	688.82	0.032161	2.32	64.56	378.61	1.00
CHANNEL-A	2000	Q50	232.80	688.56	688.79	688.79	688.90	0.029176	2.66	86.33	380.59	1.00
CHANNEL-A	2000	Q100	273.10	688.56	688.81	688.81	688.94	0.028541	2.81	95.73	381.44	1.00
CHANNEL-A	1800	Q10	151.10	670.54	671.48	671.48	671.69	0.025042	3.67	41.13	101.66	1.02
CHANNEL-A	1800	Q50	232.80	670.54	671.63	671.63	671.89	0.022822	4.04	57.65	115.33	1.01
CHANNEL-A	1800	Q100	273.10	670.54	671.69	671.69	671.97	0.022031	4.22	64.74	118.13	1.00
CHANNEL-A	1600	Q10	151.10	666.54	667.60		667.85	0.014284	4.02	37.57	53.16	0.84
CHANNEL-A	1600	Q50	232.80	666.54	667.81	667.74	668.16	0.015284	4.73	49.19	57.37	0.90
CHANNEL-A	1600	Q100	273.10	666.54	667.90	667.84	668.29	0.015546	4.99	54.70	59.62	0.92
CHANNEL-A	1400	Q10	151.10	662.69	664.03	664.03	664.34	0.022116	4.44	34.02	57.57	1.02
CHANNEL-A	1400	Q50	232.80	662.69	664.26	664.26	664.62	0.020798	4.75	48.99	71.56	1.01
CHANNEL-A	1400	Q100	273.10	662.69	664.36	664.36	664.73	0.020530	4.89	55.85	77.37	1.01
CHANNEL-A	1200	Q10	151.10	659.78	660.88		661.01	0.009934	2.94	51.37	88.57	0.68
CHANNEL-A	1200	Q50	232.80	659.78	661.06		661.24	0.009863	3.43	67.97	92.75	0.71
CHANNEL-A	1200	Q100	273.10	659.78	661.13		661.34	0.010122	3.65	74.75	94.39	0.72
CHANNEL-A	1000	Q10	151.10	656.82	657.83	657.83	658.08	0.023360	4.06	37.23	75.01	1.02
CHANNEL-A	1000	Q50	232.80	656.82	658.05	658.05	658.31	0.024112	4.07	57.22	117.66	1.03
CHANNEL-A	1000	Q100	273.10	656.82	658.11	658.11	658.39	0.023282	4.23	64.61	122.19	1.02
CHANNEL-A	600	Q10	151.10	650.24	652.09	651.59	652.15	0.002407	2.00	75.71	80.39	0.36
CHANNEL-A	600	Q50	232.80	650.24	652.41		652.49	0.002271	2.27	102.75	86.29	0.37
CHANNEL-A	600	Q100	273.10	650.24	652.56		652.65	0.002190	2.36	115.55	88.60	0.36
CHANNEL-A	400	Q10	151.10	649.32	650.63	650.63	651.05	0.019445	5.22	28.93	34.77	1.01
CHANNEL-A	400	Q50	232.80	649.32	650.93	650.93	651.46	0.018149	5.85	39.83	38.34	1.01
CHANNEL-A	400	Q100	273.10	649.32	651.06	651.06	651.63	0.017643	6.09	44.87	39.78	1.01
CHANNEL-A	200	Q10	381.60	641.03	645.96	644.55	646.10	0.002002	3.01	126.71	62.15	0.37
CHANNEL-A	200	Q50	602.10	641.03	646.71	645.13	646.89	0.002001	3.39	177.65	73.04	0.38
CHANNEL-A	200	Q100	713.10	641.03	647.01	645.36	647.21	0.002004	3.56	200.27	76.53	0.39

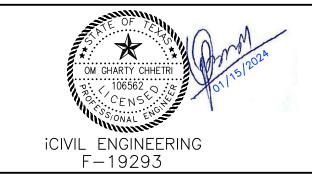
## **CULVERT ANALYSIS**

HEC-RAS Plan: (	CHAININ	EL-A PROP CON	IDITION RIVER C	HANNEL-A R	each. Chainini	EL-A							
Reach		River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
CHANNEL-A	5893	Culvert #1	Q10	733.14	732.82	733.14	733.49	736.22	122.60		0.51	7.33	6.2
CHANNEL-A	5893	Culvert #1	Q50	733.97	733.55	733.97	734.40	736.22	184.30		0.86	8.40	7.8
CHANNEL-A	5893	Culvert #1	Q100	734.82	734.49	734.46	734.82	736.22	215.50		1.65	8.85	9.1
CHANNEL-A	5893	Culvert #1	Q100 (ULT)	734.90	734.56	734.53	734.90	736.22	221.50		1.70	8.93	9.1



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

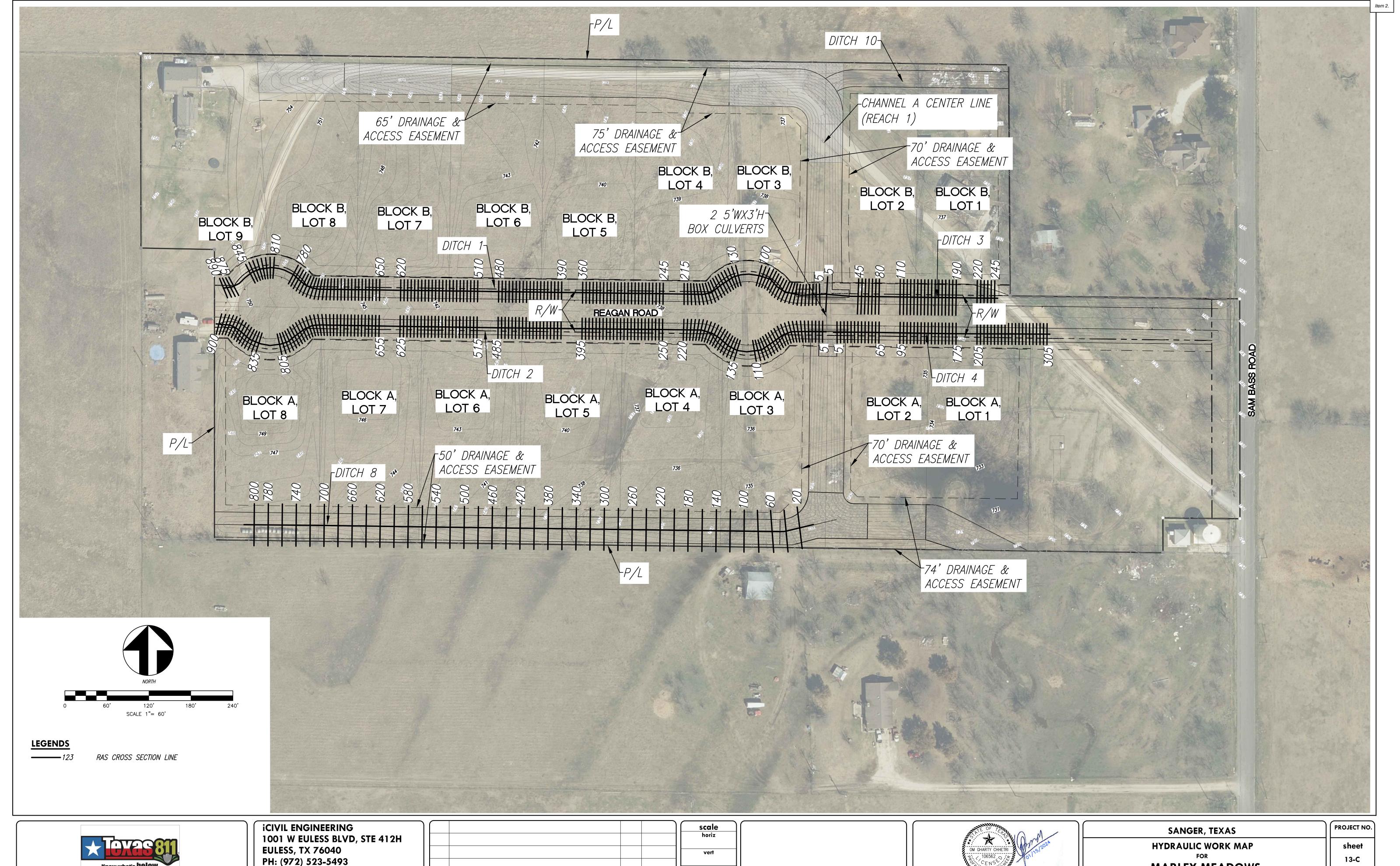
horiz
vert
date
JAN 2024



SANGER, TEXAS **HYDRAULIC WORK MAP MARLEY MEADOWS**  PROJECT NO

23

Item 2.





PH: (972) 523-5493 TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

scale			
horiz			
vert			
date			
14110004			
JAN 2024	date	by	revision



**MARLEY MEADOWS** 

HEC-RAS Pla Reach	an: DITCH-1 F River Sta	River: DIT		Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
TCH-1		Q100 Q100	(cfs) 4.23 4.23	749.24	(ft) 750.23 749.45	(ft) 750.23 749.56	(ft) 750.33 749.86	(ft/ft) 0.041483 0.281809	(ft/s) 2.47 5.12	(sq ft) 1.71 0.82	(ft) 9.13 6.22	1.01
CH-1 CH-1 CH-1	880 875 860	Q100 Q100	4.23 4.23 Culver	2 746.78		749.03 747.22	749.16 747.94	0.070877 0.000503	3.31 0.62	1.27 6.79	6.53 10.22	1.32 0.13
ITCH-1 ITCH-1 ITCH-1	845	Q100 Q100 Q100	4.22 4.22 4.22	2 746.04 2 746.03	747.04 747.04 747.04		747.05 747.05 747.04	0.001062 0.000751 0.000469	0.81 0.71 0.59	5.22 5.97 7.11	9.33 10.09 10.95	0.19 0.16 0.13
ITCH-1 ITCH-1	830	Q100 Q100	4.23	745.82	747.04 747.04 747.04		747.04 747.04 747.04	0.000469 0.000319 0.000213	0.59 0.51 0.44	8.22 9.51	11.80 12.54	0.13 0.11 0.09
ITCH-1 ITCH-1 ITCH-1		Q100 Q100 Q100	4.23 4.23 7.74	2 745.50	747.04	745.90	747.04 747.04 747.04	0.000149 0.000101 0.000235	0.39 0.34 0.54	10.87 12.55 14.40	13.41 14.32 15.30	0.08 0.06 0.10
ITCH-1 ITCH-1	795 775	Q100	Culver 7.74	t 4 744.55	745.23	.5.50	745.34	0.017960	2.68	2.89	7.19	0.74
ITCH-1 ITCH-1 ITCH-1	765	Q100 Q100 Q100	7.74 7.74 7.74	744.41	745.14 744.95 744.73	744.95 744.75	745.25 745.12 744.93	0.019089 0.034602 0.039466	2.70 3.32 3.55	2.86 2.33 2.18	7.36 6.88 6.43	0.76 1.01 1.07
ITCH-1 ITCH-1 ITCH-1	750	Q100 Q100 Q100	7.74 7.74 7.74	743.82	744.55 744.37 744.14	744.56 744.38	744.74 744.56 744.36	0.036870 0.035718 0.044995	3.50 3.45	2.21 2.24 2.06	6.33 6.40 6.14	1.04 1.03
TCH-1 TCH-1 TCH-1	740	Q100 Q100	7.74	743.42		744.17 743.98 743.79	744.16 743.97	0.044995 0.034168 0.044720	3.76 3.40 3.73	2.28 2.07	6.40 6.20	1.14 1.01 1.14
TCH-1 TCH-1 TCH-1	730 725 720	Q100 Q100 Q100	7.74 7.74 7.74	742.94	743.59 743.42 743.26	743.64 743.49 743.35	743.83 743.69 743.56	0.051253 0.060863 0.069432	3.94 4.20 4.41	1.96 1.84 1.76	6.00 5.83 5.70	1.21 1.32 1.40
ITCH-1	715	Q100 Q100	7.74	742.64	743.11	743.20 743.05	743.42 743.27	0.072897 0.070766	4.49 4.44	1.72	5.63 5.69	1.43
ITCH-1 ITCH-1 ITCH-1		Q100 Q100 Q100	7.74 7.74 7.74	742.21	742.82 742.67 742.52	742.91 742.76 742.61	743.14 742.98 742.82	0.078308 0.071199 0.068899	4.57 4.42 4.36	1.69 1.75 1.77	5.71 5.77 5.84	1.48 1.42 1.39
ITCH-1 ITCH-1	690 685	Q100 Q100	7.74	741.90 741.75	742.37 742.22	742.45 742.30	742.66 742.52	0.066859 0.069188	4.32 4.38	1.79 1.77	5.84 5.77	1.38 1.40
ITCH-1 ITCH-1 ITCH-1		Q100 Q100 Q100	7.74 7.74 7.74	741.44		742.14	742.35 742.29 742.26	0.014931 0.006982 0.003015	2.50 1.90 1.39	3.09 4.08 5.57	7.40 8.38 9.70	0.68 0.48 0.32
ITCH-1 ITCH-1 ITCH-1	660	Q100 Q100 Q100	7.74 7.74 7.74	4 740.97	742.23 742.23 742.22		742.25 742.24 742.23	0.001611 0.000866 0.000505	1.10 0.87 0.72	7.03 8.85 10.82	10.80 12.05 13.30	0.24 0.18 0.14
TCH-1 TCH-1	650 635	Q100	10.14 Culver	4 740.53 t	742.22	741.18	742.23	0.000435	0.73	13.88	14.72	0.13
TCH-1 TCH-1 TCH-1		Q100 Q100 Q100	10.14 10.14 10.14	739.59		740.39 740.23 740.10	740.59 740.43 740.30	0.032125 0.026654 0.026410	3.57 3.34 3.33	2.84 3.04 3.05	7.10 7.30 7.29	0.99 0.91 0.91
TCH-1 TCH-1	605 600	Q100 Q100	10.14 10.14	739.31 739.19	739.98 739.84	739.96 739.82	740.16 740.02	0.027319 0.027777	3.37 3.38	3.01 3.00	7.24 7.27	0.92 0.93
TCH-1 TCH-1 TCH-1	595 590 585	Q100 Q100 Q100	10.14 10.14 10.14	738.91	739.70 739.59 739.46	739.68 739.42	739.88 739.75 739.62	0.028951 0.023230 0.024885	3.43 3.17 3.26	2.95 3.20 3.11	7.23 7.47 7.31	0.95 0.85 0.88
TCH-1 TCH-1	580 575	Q100 Q100	10.14 10.14	738.66 738.53	739.34 739.21	739.29 739.17	739.50 739.37	0.024692 0.024666	3.25 3.25	3.12 3.12	7.33 7.32	0.88 0.88
ITCH-1 ITCH-1 ITCH-1	565 560	Q100 Q100 Q100	10.14 10.14 10.14	738.31 738.19	739.03 738.97		739.26 739.15 739.07	0.020306 0.017638 0.013232	3.03 2.86 2.58	3.94	7.85 8.23	0.66
ITCH-1 ITCH-1 ITCH-1	555 550	Q100 Q100 Q100	10.14 10.14 10.14	738.06 737.97			739.01 738.97 738.94	0.008502 0.005602 0.003498	2.19 1.87 1.57	4.63 5.41 6.44	8.85 9.57 10.36	0.53 0.44 0.35
TCH-1 TCH-1	540 535	Q100 Q100	10.14 10.14	4 737.75 4 737.66	738.90 738.89		738.93 738.91	0.002362 0.001645	1.36 1.19	7.46 8.53	11.14 11.90	0.29 0.25
ITCH-1 ITCH-1 ITCH-1	525	Q100 Q100 Q100	10.14 10.14 10.14	4 737.47	738.89 738.89 738.89		738.91 738.90 738.90	0.001165 0.000869 0.000618	1.04 0.94 0.82	9.72 10.83 12.30	12.72 13.35 14.20	0.21 0.18 0.16
ГСН-1 ГСН-1	515 510	Q100 Q100 Q100	10.14 12.53	737.28 736.93	738.88	737.74	738.89 738.89	0.000476 0.000438	0.82 0.75 0.78	13.54 16.15	14.86 15.69	0.14 0.13
ГСН-1 ГСН-1 ГСН-1	495 480 475	Q100 Q100	Culver 12.53 12.53	3 736.72	738.14 738.13		738.16 738.15	0.001381 0.001091	1.18	10.66 11.65	13.23 13.84	0.23 0.21
TCH-1 TCH-1	470 465	Q100 Q100	12.53 12.53	736.59 736.53	738.13 738.13		738.15 738.14	0.000908 0.000766	1.00 0.94	12.47 13.29	14.31 14.75	0.19 0.18
TCH-1 TCH-1 TCH-1	450	Q100 Q100 Q100	12.5 12.5 12.5	3 736.41 3 736.34	738.13 738.12 738.12		738.14 738.13 738.13	0.000632 0.000535 0.000470	0.88 0.82 0.79	14.28 15.19 15.93	15.27 15.75 16.10	0.16 0.15 0.14
TCH-1 TCH-1 TCH-1	445 440	Q100 Q100 Q100	12.53 12.53 12.53	3 736.31 3 736.25	738.12 738.12		738.13 738.13 738.13	0.000402 0.000357 0.000319	0.74 0.71 0.68	16.90 17.67 18.42	16.59 16.93 17.31	0.13 0.12 0.12
ΓCH-1	430	Q100	12.5 12.5 TCH-1 Reach: DI	736.16	738.12	ed)	738.12	0.000319	0.65	18.42 19.24	17.66	0.12
Reach	River Sta	Prof	file Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
TCH-1 TCH-1 TCH-1	425 420 415	Q100 Q100 Q100	12.5 12.5 12.5	736.06	738.12		738.12 738.12 738.12		0.62 0.60 0.58	20.96	18.42	0.10
ITCH-1 ITCH-1	410 405 400	Q100 Q100 Q100	12.5 12.5	735.97 735.94	7 738.11 738.11		738.12 738.12 738.12	0.000190	0.56	22.36 23.24	19.03 19.40	0.09
OITCH-1 OITCH-1	395 390	Q100 Q100	12.5	735.84	738.11	736.58	738.12	0.000158 0.000145 0.000188	0.52 0.51 0.58	24.76	20.01	0.08
ITCH-1 ITCH-1 ITCH-1	375 360 355	Q100 Q100	Culve 14.9 14.9	735.53			736.94 736.93	0.002158 0.001994	1.45 1.41			
ITCH-1 ITCH-1	350 345	Q100 Q100	14.9 14.9	735.44 735.41	736.89 736.88		736.92 736.91	0.001753 0.001555	1.34 1.28	11.11 11.62	13.48 13.79	0.26
DITCH-1 DITCH-1	340 335 330	Q100 Q100 Q100	14.9 14.9 14.9	2 735.31	736.87		736.90 736.89 736.89		1.22 1.17 1.11	12.76	14.46	0.22
DITCH-1	325 320	Q100 Q100	14.9	735.22 735.16	736.86 736.86		736.88 736.88	0.000793	1.06 1.00	14.03 14.94	15.62	0.18
ITCH-1 ITCH-1 ITCH-1	315 310 305	Q100 Q100 Q100	14.9 14.9 14.9	735.03	736.85		736.87 736.87 736.86	0.000674 0.000596 0.000513	0.94 0.90 0.85	16.62	16.44	0.16
ITCH-1 ITCH-1 ITCH-1	300 295 290	Q100 Q100 Q100	14.9 14.9 14.9	734.94 734.88	736.85 736.85		736.86 736.86 736.86	0.000451 0.000388	0.81 0.76 0.73	18.44 19.54	17.31 17.86	0.14 0.13
ITCH-1 ITCH-1	285 280	Q100 Q100	14.9 14.9	734.78 734.72	736.85 736.85		736.86 736.85	0.000301 0.000273	0.70 0.67	21.47 22.28	18.66 19.06	0.11 0.11
ITCH-1 ITCH-1 ITCH-1	275 270 265	Q100 Q100 Q100	14.9 14.9 14.9	734.59	736.85		736.85 736.85 736.85	0.000206	0.64 0.60 0.58	24.73	20.00	0.10
TCH-1 TCH-1	260 255	Q100 Q100	14.9 14.9	734.50 734.44	736.84 736.84		736.85 736.85	0.000169 0.000153	0.56 0.54	26.61 27.63	20.75 21.12	0.08
ITCH-1 ITCH-1 ITCH-1	250 245 230	Q100 Q100	17.3 17.3 Culve	734.34		735.15	736.85 736.85		0.59 0.57			
ITCH-1 ITCH-1	215 210	Q100 Q100	17.3 17.3	734.00 733.96	735.71		735.73 735.73 735.72	0.000902	1.14 1.09 1.03	15.95	16.20	0.19
ITCH-1 ITCH-1 ITCH-1	205 200 195	Q100 Q100 Q100	17.3 17.3 17.3	733.84 733.78	735.71 735.70		735.72 735.72 735.72	0.000657 0.000577	1.03 0.96 0.92	17.95 18.86	17.18 17.63	0.17 0.16
DITCH-1 DITCH-1	190 185 180	Q100 Q100 Q100	17.3 17.3 17.3	31 733.75 31 733.70	735.70 735.70		735.71 735.71 735.71	0.000519 0.000516 0.000452	0.88 0.89 0.84	19.57 19.49		0.15
OITCH-1 OITCH-1	175 170	Q100 Q100	17.3 17.3	733.62 733.59	735.70 735.69		735.71 735.70	0.000395 0.000350	0.79 0.76	21.81 22.80	19.06 19.49	0.13 0.12
ITCH-1 ITCH-1 ITCH-1	165 160 155	Q100 Q100 Q100	17.3 17.3 17.3	733.50	735.69		735.70 735.70 735.70	0.000243	0.70 0.65 0.65	26.61	21.84	0.10
TCH-1 TCH-1	150 145	Q100 Q100	17.3 17.3	733.41 733.36	735.69 735.69		735.70 735.70	0.000229 0.000219	0.64 0.64	26.88 27.24	21.38 21.37	0.10
ITCH-1 ITCH-1 ITCH-1	140 135 130	Q100 Q100 Q100	17.3 17.3 17.9	733.28	735.69	734.06	735.70 735.69 735.69		0.63 0.62 0.62	28.10	21.45	0.09
TCH-1 TCH-1	115 100	Q100	Culve 17.9	ert 02 732.97	7 735.00		735.01	0.000503	0.88	20.32	18.15	0.15
ITCH-1 ITCH-1 ITCH-1	95 90 85	Q100 Q100 Q100	17.9 17.9 17.9	732.89 732.84	734.99 734.99		735.01 735.00 735.00	0.000357	0.84 0.81 0.77	22.13 23.19	19.14 19.58	0.13 0.13
ITCH-1 ITCH-1	80 75 70	Q100 Q100 Q100	17.9 17.9	732.81 732.78	734.99 734.99		735.00 735.00 735.00	0.000317 0.000278	0.74 0.70 0.65	24.34 25.75	20.19 21.13	0.12 0.11
TCH-1 TCH-1	65 60	Q100 Q100	17.9 17.9	732.69 732.65	734.99 734.99		735.00 734.99	0.000224 0.000230	0.64 0.65	27.85 27.41	21.80 21.37	0.10
ITCH-1 ITCH-1 ITCH-1	55 50 45	Q100 Q100 Q100	17.9 17.9 17.9	732.56	734.99		734.99 734.99 734.99	0.000213	0.64 0.64 0.63	27.87	20.98	0.10
OITCH-1 OITCH-1	40 35	Q100 Q100	17.9 17.9	732.47 732.32	7 734.98 2 734.98		734.99 734.99	0.000172 0.000315	0.60 0.75	30.01 24.05	21.50 19.21	0.09 0.12
ITCH-1 ITCH-1 ITCH-1	30 25 20	Q100 Q100 Q100	17.9 17.9 17.9	731.83	734.98		734.99 734.98 734.98		0.85 0.70 0.39	25.77	27.03	0.13
ITCH-1 ITCH-1	15 10	Q100 Q100	17.9 17.9	731.32 731.07	734.98 7 734.98	_	734.98 734.98	0.000022 0.000007	0.26 0.19	68.66 94.13	32.90 31.00	0.03
			17.9 H-1 Reach: DITCH-	1 Profile: Q100		730.98		1	0.15		'	'
	River Sta	#1 Q		(ft) 47.94 747.	(ft) 94 747.91	E.G. OC (ft) 747.94		(cfs)	(cfs)	(ft) 0.	(ft/s)	(ft/s) 49 7.66
TCH-1	795 Culvert # 635 Culvert # 495 Culvert #	#1 Q	2100 7- 2100 7- 2100 7-	47.04 747. 42.23 742. 38.89 738.	03 747.04 22 742.21	746.97 742.23 738.85	748 744	8.81 4.07 0.61	7.74 10.14 12.53	1. 1. 0.	80 5. 83 5. 74 5.	69 8.70 48 8.89 94 6.33
ITCH-1 ITCH-1	375 Culvert # 230 Culvert # 115 Culvert #	#1 Q	2100 7: 2100 7:	38.11 738. 36.85 736. 35.69 735.	11 738.11 84 736.85	738.10 736.80 735.64	739 737	9.16 7.71	14.92 17.31 17.92	1.3	20 6. 13 6.	01 7.15 37 7.95 46 4.94
	Jaivell #	Q		733,	, , , , , , , , , , , , , , , , , , , ,	. 00.04	730	ı		, 0.	, 0.	, 4.J
												iCIVIL
				57	NE	T	011					1001
					AVC		N F	®				EULES PH: (9
											1 1	rm: (Y

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

PH: (972) 523-5493

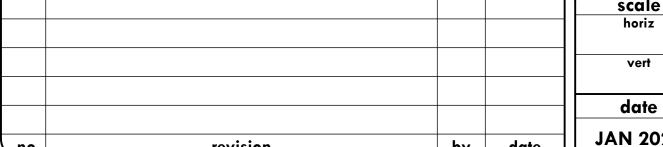
EMAIL: INFO@ICIVILENG.COM

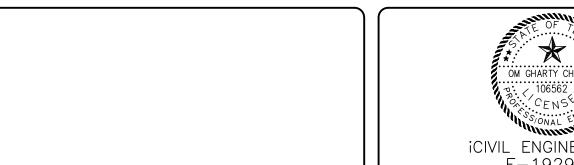
TBPE: F-19293

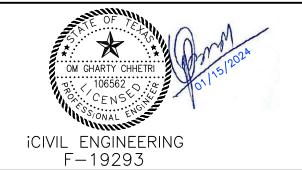
DITCH-2	900 895 890 885	Q100 Q100 Q100	7.13 7.13 7.13	(ft) 748.75 748.62	(ft) 749.47 749.36	(ft) 749.45	(ft) 749.64 749.49	0.029992 0.023132	3.22 2.93	(sq ft) 2.22 2.43	(ft) 6.11 6.34	0.
DITCH-2 DITCH-2 DITCH-2 DITCH-2 DITCH-2 DITCH-2	885		7 13									0.
DITCH-2 DITCH-2 DITCH-2 DITCH-2		Q100	7.13	748.55 748.39	749.21 749.09		749.37 749.23		3.15 3.06	2.27 2.33	6.15 6.21	0.
DITCH-2 DITCH-2	880 875	Q100 Q100	7.13 7.13	748.28 748.12	748.95 748.79	748.91 748.77	749.10 748.96	0.026159	3.09	2.31	6.12 6.05	0.
	870 865 860	Q100 Q100 Q100	7.13 7.13 7.13	748.00 747.84 747.70	748.65 748.54 748.49	748.63	748.81 748.67 748.57	0.028482 0.023424 0.012547	3.16 2.90 2.32	2.26 2.46 3.07	6.15 6.57 7.19	0. 0.
ITCH-2	855 850	Q100 Q100	7.13 7.13 7.13	747.70 747.55 747.43	748.47 748.46		748.52 748.49	0.006762	1.85 1.45	3.86 4.91	7.19 7.99 8.99	0.
ITCH-2 ITCH-2	845 840	Q100 Q100	7.13 7.13	747.26 747.17	748.45 748.45		748.47 748.46	0.001840	1.13	6.29	10.20 11.32	0.
OITCH-2	835 820	Q100	7.13 Culvert	746.82	748.45	747.46	748.46	0.000370	0.63	11.26	13.04	0.
OITCH-2 OITCH-2	805 800	Q100 Q100	7.13 7.13	746.08 746.00	746.85 746.70	746.67	746.97 746.86	0.020477 0.027364	2.84 3.14	2.51 2.27	6.22 6.08	0.
ITCH-2 ITCH-2	795 790	Q100 Q100	7.13 7.13	745.92 745.75	746.59 746.44		746.72 746.59	0.028562	2.90 3.17	2.46 2.25	6.41 6.12	0.
ITCH-2 ITCH-2	785 780	Q100 Q100	7.13 7.13	745.61 745.45	746.29 746.15	746.27 746.12	746.45 746.31	0.028651 0.027746	3.18 3.14	2.24 2.27	6.09 6.10	0.
DITCH-2 DITCH-2	775 770	Q100 Q100	7.13 7.13	745.36 745.18	746.01 745.89	745.99	746.17 746.03	0.028755 0.025613	3.17 3.03	2.25 2.36	6.16 6.32	0. 0.
DITCH-2 DITCH-2	765 760	Q100 Q100	7.13 7.13	745.04 744.92	745.74 745.62	745.72	745.90 745.76	0.027705 0.024737	3.13 3.03	2.28 2.36	6.15 6.16	0.
DITCH-2 DITCH-2	755 750	Q100 Q100	7.13 7.13	744.81 744.59	745.46 745.34	745.45	745.63 745.48	0.030355 0.025193	3.26 3.04	2.19 2.35	5.98 6.16	0.
OITCH-2 OITCH-2	745 740	Q100 Q100	7.13 7.13	744.46 744.31	745.18 745.03	745.16 745.01	745.34 745.19	0.029123 0.031047	3.21 3.28	2.22 2.18	6.01 5.97	0. 0.
DITCH-2	735 730	Q100 Q100	7.13 7.13	744.15 744.00	744.87 744.75	744.85 744.70	745.04 744.89	0.030772 0.024307	3.27 3.00	2.18 2.38	5.98 6.19	0.
DITCH-2 DITCH-2	725 720	Q100 Q100	7.13 7.13	743.87 743.71	744.56 744.44	744.56 744.39	744.74 744.58	0.034886 0.024170	3.43 2.99	2.08 2.38	5.80 6.22	1.
DITCH-2 DITCH-2	715 710	Q100 Q100	7.13 7.13	743.59 743.44	744.26 744.13	744.25 744.09	744.44 744.28	0.033896 0.027032	3.39 3.11	2.10 2.29	5.88 6.12	1. 0.
DITCH-2 DITCH-2	705 700	Q100 Q100	7.13 7.13	743.31 743.18	743.96 743.81	743.95 743.79	744.13 743.97	0.032278 0.029771	3.33 3.23	2.14 2.21	5.94 6.02	0
DITCH-2 DITCH-2	695 690	Q100 Q100	7.13 7.13	743.03 742.84	743.66 743.48	743.64 743.48	743.82 743.66	0.028982 0.034090	3.19 3.40	2.23 2.10	6.07 5.88	0.
OITCH-2 OITCH-2	685 680	Q100 Q100	7.13 7.13	742.68 742.50	743.34 743.25	743.31	743.50 743.37	0.028947 0.018597	3.19 2.71	2.23 2.63	6.08 6.55	0
DITCH-2 DITCH-2	675 670	Q100 Q100	7.13 7.13	742.34 742.15	743.22 743.22		743.29 743.25	0.009416 0.003765	2.10 1.49	3.39 4.78	7.42 8.78	0
ITCH-2 ITCH-2	665 660	Q100 Q100	7.13 7.13	742.00 741.81	743.21 743.21		743.23 743.22		1.18	6.06 7.86	9.87 11.23	0.
ITCH-2 ITCH-2	655 640	Q100	7.13 7.13 Culvert	741.58	743.21	742.20	743.22	0.000346	0.62	11.47	13.00	0.
ITCH-2 ITCH-2	625 620	Q100 Q100	7.13 7.13	740.83 740.71	741.52 741.37	741.34	741.64 741.52	0.020308 0.027332	2.81 3.13	2.54 2.28	6.39 6.12	0.
DITCH-2 DITCH-2	615 610	Q100 Q100	7.13 7.13 7.13	740.71 740.56 740.40	741.23 741.09	741.20 741.06	741.38 741.24	0.027546 0.027444	3.14 3.13	2.27	6.11 6.10	0.
OITCH-2 OITCH-2	605 600	Q100 Q100	7.13 7.13 7.13	740.40 740.25 740.09	740.94 740.81		741.10 740.96	0.028786	3.19 3.08	2.23	6.04 6.14	0.
OITCH-2 OITCH-2	595 590	Q100 Q100	7.13 7.13 7.13		740.70 740.54	740.77	740.96 740.83 740.70	0.022791	2.91 3.21	2.45 2.22	6.36 5.98	0.
ITCH-2 ITCH-2 ITCH-2	585 580	Q100 Q100	7.13 7.13 7.13	739.65 739.56	740.45 740.30	740.52	740.70 740.57 740.45	0.020057	2.80	2.55 2.29	6.38 6.08	0.
ITCH-2 ITCH-2 ITCH-2	575 570	Q100 Q100 Q100	7.13 7.13 7.13	739.44 739.34	740.20 740.09	, 40.21	740.33 740.22		2.87 2.88	2.49 2.48	6.34 6.34	0.
ITCH-2 ITCH-2 ITCH-2	565 560	Q100 Q100 Q100	7.13 7.13 7.13	739.34 739.25 739.15	739.96 739.85		740.22 740.10 739.98	0.024401	3.00 2.91	2.48 2.38 2.45	6.34 6.24 6.33	0.
DITCH-2 DITCH-2 DITCH-2	555 550	Q100 Q100 Q100	7.13 7.13 7.13	739.15 739.03 738.94	739.85 739.75 739.66		739.87 739.77	0.022577 0.021307 0.018389	2.91 2.85 2.71	2.45 2.50 2.64	6.33 6.37 6.52	0.
DITCH-2 DITCH-2 DITCH-2	545 540	Q100 Q100 Q100	7.13 7.13 7.13	738.94 738.84 738.72	739.66 739.58 739.54		739.77 739.68 739.61	0.018389 0.015198 0.010472	2.71 2.51 2.18	2.64 2.84 3.26	6.52 6.81 7.30	0.
DITCH-2 DITCH-2 DITCH-2	540 535 530	Q100 Q100 Q100	7.13 7.13 7.13	738.72 738.62 738.50	739.54 739.50 739.49		739.61 739.56 739.53	0.010472 0.007282 0.004380	2.18 1.91 1.58	3.26 3.74 4.52	7.78	0. 0.
ITCH-2 ITCH-2 ITCH-2	530 525 520	Q100 Q100 Q100	7.13 7.13 7.13	738.50 738.38 738.28	739.49 739.48 739.47		739.53 739.51 739.49	0.004380 0.002954 0.001981	1.58 1.36 1.17	4.52 5.24 6.08	8.55 9.19 9.89	0.
ITCH-2 ITCH-2	515 500	Q100	7.13 7.13 Culvert	737.84	739.48	738.55	739.48	0.000562	0.75	9.50	11.54	0.
ITCH-2 ITCH-2	485 480	Q100 Q100	7.13 7.13	737.60 737.68	738.56 738.48		738.60 738.56	0.005810 0.011945	1.77 2.30	4.02 3.11	7.78 7.11	0.
ITCH-2	475 470	Q100 Q100	7.13 7.13	737.62 737.56	738.43 738.39		738.50 738.46	0.009919	2.14 1.97	3.33	7.35 7.68	0.
ITCH-2	465	Q100	7.13	737.47	738.36		738.42		1.85	3.85	7.91	0.
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope (ft/ft)	Vel Chnl	Flow Area	Top Width	Froude # Ch
OITCH-2	460 455	Q100 Q100	(cfs) 7.13				(ft) 738.38	0.005439	(ft/s) 1.71 1.60	(sq ft) 4.17 4.46		
DITCH-2 DITCH-2 DITCH-2	450	Q100	7.13 7.13 7.13	737.25	738.30	)	738.36 738.34 738.32	0.003704	1.48	4.81	8.81	0
DITCH-2 DITCH-2	445 440 435	Q100 Q100 Q100	7.13 7.13 7.13	737.12	738.28		738.30 738.29	0.002475	1.35 1.28 1.16	5.28 5.59 6.15	9.45	0
DITCH-2	430	Q100	7.13	737.00	738.26	3	738.28	0.001640	1.09	6.53	10.24	0
DITCH-2 DITCH-2	425 420	Q100 Q100	7.13 7.13	736.94	738.25	i	738.27 738.27	0.001185	0.97	6.90 7.37	10.89	0
DITCH-2 DITCH-2	415	Q100 Q100	7.13 7.13	736.87	738.24		738.26 738.25	0.000853	0.91	7.85 8.34	11.59	0
DITCH-2 DITCH-2	405	Q100 Q100	7.13 7.13	736.78	738.24		738.25 738.25	0.000558	0.79	9.02 9.78	12.55	
DITCH-2 DITCH-2	395 380	Q100	7.13 Culvert						0.60	11.88		
DITCH-2 DITCH-2	365 360	Q100 Q100	7.13	736.28	737.20		737.31 737.27	0.009591	1.84 2.12	3.87	7.34	0
DITCH-2 DITCH-2	355 350	Q100 Q100	7.13 7.13	736.19	737.10	)	737.22 737.17	0.008938	2.16	3.31 3.46	7.46	0.
DITCH-2 DITCH-2 DITCH-2	345 340 335	Q100 Q100 Q100	7.13 7.13 7.13	736.12	737.02	!	737.12 737.08 737.04	0.007889	2.07 1.97 1.94	3.44 3.62 3.68	7.65	0.
DITCH-2 DITCH-2 DITCH-2	335 330 325	Q100 Q100 Q100	7.13 7.13 7.13	736.06	736.95	i	737.04 737.00 736.97	0.006966	1.94 1.88 1.82	3.80 3.91	7.85	0.
DITCH-2 DITCH-2 DITCH-2	325 320 315	Q100 Q100 Q100	7.13 7.13 7.13	736.00	736.89	)	736.97 736.94 736.91	0.005915		3.91 4.04 4.24	8.10	0
DITCH-2 DITCH-2	310 305	Q100 Q100	7.13 7.13 7.13	735.84	736.85	i	736.88 736.86	0.004033	1.53	4.66	8.69	0
DITCH-2 DITCH-2	300 295	Q100 Q100	7.13 7.13 7.13	735.72	736.82	!	736.85 736.83	0.002776		5.36 5.69	9.30	0
DITCH-2 DITCH-2 DITCH-2	295 290 285	Q100 Q100 Q100	7.13 7.13 7.13	735.59	736.80	)	736.83 736.82 736.81	0.001955	1.17	6.11 6.50	9.91	0
DITCH-2	280	Q100	7.13	735.47	736.79	)	736.80	0.001322	1.01	7.07	10.65	0
DITCH-2 DITCH-2	275 270	Q100 Q100	7.13 7.13	735.41	736.78		736.80 736.79	0.000954	0.95 0.89	7.53 7.99	11.34	0
DITCH-2 DITCH-2	265 260	Q100 Q100	7.13 7.13	735.34	736.77	'	736.78 736.78	0.000682	0.84	9.06	12.06	0
DITCH-2 DITCH-2	255 250	Q100 Q100	7.13 7.13	735.10			736.78 736.77		0.74	9.59 11.83		
DITCH-2	235	Q100	7.13	734.87			735.89		1.52	4.70		
DITCH-2 DITCH-2	215	Q100 Q100	7.13 7.13	734.75		)	735.87 735.84	0.004503	1.69 1.59	4.21 4.47		0
DITCH-2 DITCH-2	205	Q100 Q100	7.13 7.13	734.66	735.77	,	735.82 735.80	0.003127	1.52	4.68 5.14	9.17	0
DITCH-2 DITCH-2	195 190	Q100 Q100	7.13 7.13	734.57	735.75	1	735.79 735.77	0.002428	1.36 1.26	5.26 5.64	9.53	0
DITCH-2 DITCH-2	185	Q100 Q100	7.13 7.13	734.52	735.73	1	735.76 735.75	0.001737	1.21	5.90 6.40	10.18	0
DITCH-2 DITCH-2	175 170	Q100 Q100	7.13 7.13	734.46	735.72		735.74 735.73	0.001223	1.03 0.97	6.92 7.38	11.20	0
DITCH-2 DITCH-2	165	Q100 Q100	7.13 7.13	734.38	735.71		735.73 735.72	0.000866	0.90	7.90 8.38	11.90	0
DITCH-2 DITCH-2	155 150	Q100 Q100	7.13 7.13	734.31	735.70	)	735.72 735.71	0.000689	0.82	8.71 9.04	12.08	0
DITCH-2 DITCH-2	145	Q100 Q100	7.13 7.13	734.13	735.70	)	735.71 735.71	0.000527	0.75 0.71	9.52 10.01	12.73	0
DITCH-2 DITCH-2	135 120	Q100	7.13 Culvert				735.70		0.64	11.11		0
DITCH-2 DITCH-2	110	Q100 Q100	7.13 7.13	733.89	734.76	3	734.85 734.82	0.008685		4.67 3.50	7.57	
DITCH-2 DITCH-2	100 95	Q100 Q100	7.13 7.13	733.78	734.67	,	734.78 734.73	0.008219	2.03 2.01	3.51 3.55	7.52	0
DITCH-2 DITCH-2	90 85	Q100 Q100	7.13 7.13	733.69	734.57	'	734.69 734.64	0.009248	2.09 2.09	3.41 3.41	7.38	0
DITCH-2 DITCH-2	80 75	Q100 Q100	7.13 7.13	733.64	734.50		734.60 734.55	0.007692	2.06 1.94	3.47 3.68	7.81	0
DITCH-2 DITCH-2	70 65	Q100 Q100	7.13 7.13	733.52	734.42		734.52 734.48	0.007954	1.92 1.96	3.72 3.63	7.76	0
DITCH-2 DITCH-2	60 55	Q100 Q100	7.13 7.13	733.38	734.35	5	734.44 734.40	0.006936	1.90 1.88	3.74 3.80	7.81	0
DITCH-2 DITCH-2	50 45	Q100 Q100	7.13 7.13	733.31	734.28		734.37 734.33	0.005858	1.88 1.76	3.79 4.05	8.09	0
DITCH-2 DITCH-2	40 35	Q100 Q100	7.13 7.13	733.28 733.33	734.24		734.30 734.22	0.007036 0.034692	1.88	3.79 2.11	7.87 6.01	
DITCH-2	30	Q100	7.13	733.03	733.69	733.69			3.50	2.03		
Reach	lan: DITCH-2 River Sta	River: DITCH-2	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Ch
DITCH-2	25	Q100	(cfs) 7.13				(ft) 733.45		(ft/s) 3.63	(sq ft) 1.96		
DITCH-2 DITCH-2	20 15	Q100 Q100	7.13 7.13	731.75	732.85	i	732.87	0.001987	3.66 1.30	1.95 5.47	7.30	0
DITCH-2 DITCH-2	10	Q100 Q100	7.13 7.13		732.86 732.86		732.86 732.86		0.63 0.26	11.31 27.21	17.23 17.48	
DITCH-2												

735.78 736.83 736.86 0.003486 1.45 4.92 8.92 0.34 DITCH-4 40 Q100 2.51 733.38 733.96 734.00 0.008613 1.56 1.61 5.15 735.72 736.82 736.83 0.002776 1.33 5.36 9.30 0.31 DITCH-4 35 Q100 2.51 733.32 733.91 733.96 0.009434 1.62 1.55 5.02 736.81 736.83 0.002383 1.25 5.80 9.58 0.009434 1.62 1.55 5.02 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
DITCH 0	900	0100	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	0.4
DITCH-8	800 780	Q100	19.79	742.22	743.43		743.49	0.005115	1.90	10.44	17.16	0.4
DITCH-8		Q100 Q100	19.79 19.79	742.16	743.33		743.39 743.28	0.005169 0.005273	1.90 1.93	10.39 10.25	17.09 16.76	0.4
DITCH-8	760 740	Q100	19.79	742.09 741.94	743.23 743.10		743.20	0.005273	2.06	9.62	15.82	0.4
DITCH-8	720	Q100	19.79	741.84	743.10		743.17	0.000050	2.75	7.20	13.67	0.40
DITCH-8	700	Q100	19.79	741.59	742.58		743.00	0.013033	2.73	6.77	12.87	0.7
DITCH-8	680	Q100	19.79	741.39	742.36		742.72	0.014788	3.00	6.60	12.96	0.74
DITCH-8	660	Q100	19.79	741.29	741.96		742.41		2.90	6.83	13.37	0.72
DITCH-8	640	Q100	19.79		741.96		742.09	0.015116 0.014763	2.90	6.90	13.46	0.71
DITCH-8	620	Q100	19.79	740.66 740.41	741.87		741.79	0.014763	2.07	6.78	13.31	0.72
DITCH-8	600	Q100	19.79		741.06				2.92	6.82	13.33	0.72
			19.79	740.07	741.06		741.19	0.015120	2.90			0.7
DITCH-8	580 560	Q100 Q100	19.79	739.73 739.45	740.78		740.90 740.54	0.013631 0.022477	3.35	7.11 5.90	13.65 12.51	0.86
DITCH-8	540	Q100	19.79		739.85	739.82	740.05		3.33	5.49	11.91	0.00
DITCH-8	520	Q100	19.79	738.98 738.45	739.34	739.30	739.52	0.026892 0.025087	3.47	5.49	12.51	0.90
DITCH-8	500		19.79	737.92	739.34	739.30	739.02	0.023067	3.46	5.71	12.44	0.90
DITCH-8	480	Q100 Q100				720 21			3.40		12.62	0.85
DITCH-8	460	Q100	19.79 19.79	737.48 736.98	738.37 737.83	738.31 737.81	738.54 738.04	0.021999 0.028753	3.69	5.96 5.37	11.86	0.00
			19.79			737.01						
DITCH-8	440 420	Q100	19.79	736.45	737.38	700.00	737.54 737.05	0.020369 0.029804	3.27 3.74	6.05	12.33 11.71	0.82
DITCH-8		Q100		735.95	736.83	736.82				5.28		
DITCH-8	400	Q100	19.79	735.48	736.41		736.56	0.018538	3.14	6.31	12.77	0.79
DITCH-8	380	Q100	19.79	735.12	736.07		736.21	0.016927	3.00	6.59	13.32	0.75
DITCH-8	360	Q100	19.79	734.73	735.72		735.86	0.017501	3.04	6.51	13.22	0.76
DITCH-8	340	Q100	19.79	734.42	735.39		735.53	0.015970	2.96	6.68	13.18	0.73
DITCH-8	320	Q100	19.79	734.12	735.05		735.20	0.017316	3.06	6.46	12.87	0.76
DITCH-8	300	Q100	19.79	733.73	734.71		734.85	0.016994	3.04	6.51	12.95	0.76
DITCH-8	280	Q100	19.79	733.36	734.34		734.50	0.018665	3.15	6.29	12.71	0.79
DITCH-8	260	Q100	19.79	733.06	734.01		734.15	0.016202	2.96	6.68	13.35	0.74
DITCH-8	240	Q100	19.79	732.73	733.66		733.81	0.017873	3.09	6.41	12.95	0.77
DITCH-8	220	Q100	19.79	732.34	733.32		733.46	0.017209	3.02	6.55	13.29	0.76
DITCH-8	200	Q100	19.79	732.00	732.98		733.12	0.016727	2.98	6.63	13.42	0.75
DITCH-8	180	Q100	19.79	731.70	732.61		732.76	0.018825	3.12	6.34	13.10	0.79
DITCH-8	160	Q100	19.79	731.34	732.34		732.45	0.012097	2.71	7.31	13.42	0.65
DITCH-8	140	Q100	19.79	730.95	732.15		732.25	0.008676	2.51	7.89	12.57	0.56
DITCH-8	120	Q100	19.79	730.66	731.87		732.02	0.014354	3.08	6.42	10.86	0.71
												0.54
												0.34
												0.22
												0.15
DITCH-8	20	Q100	19.79	729.25	731.61	730.29	731.62	0.000408	0.83	23.92	20.13	0.13
DITCH-8 DITCH-8 DITCH-8 DITCH-8 DITCH-8	100 80 60 40 20	Q100 Q100 Q100 Q100 Q100 Q100	19.79 19.79 19.79 19.79 19.79	730.39 729.98 729.57 729.46 729.25	731.69 731.69 731.64 731.62 731.62	730.29	731.80 731.69 731.65 731.63 731.62	0.007958 0.002956 0.001125 0.000532 0.000408	2.59 1.78 1.24 0.92 0.83	7.65 11.10 15.94 21.45 23.92	10.66 10.75 12.95 15.50 18.69 20.13	





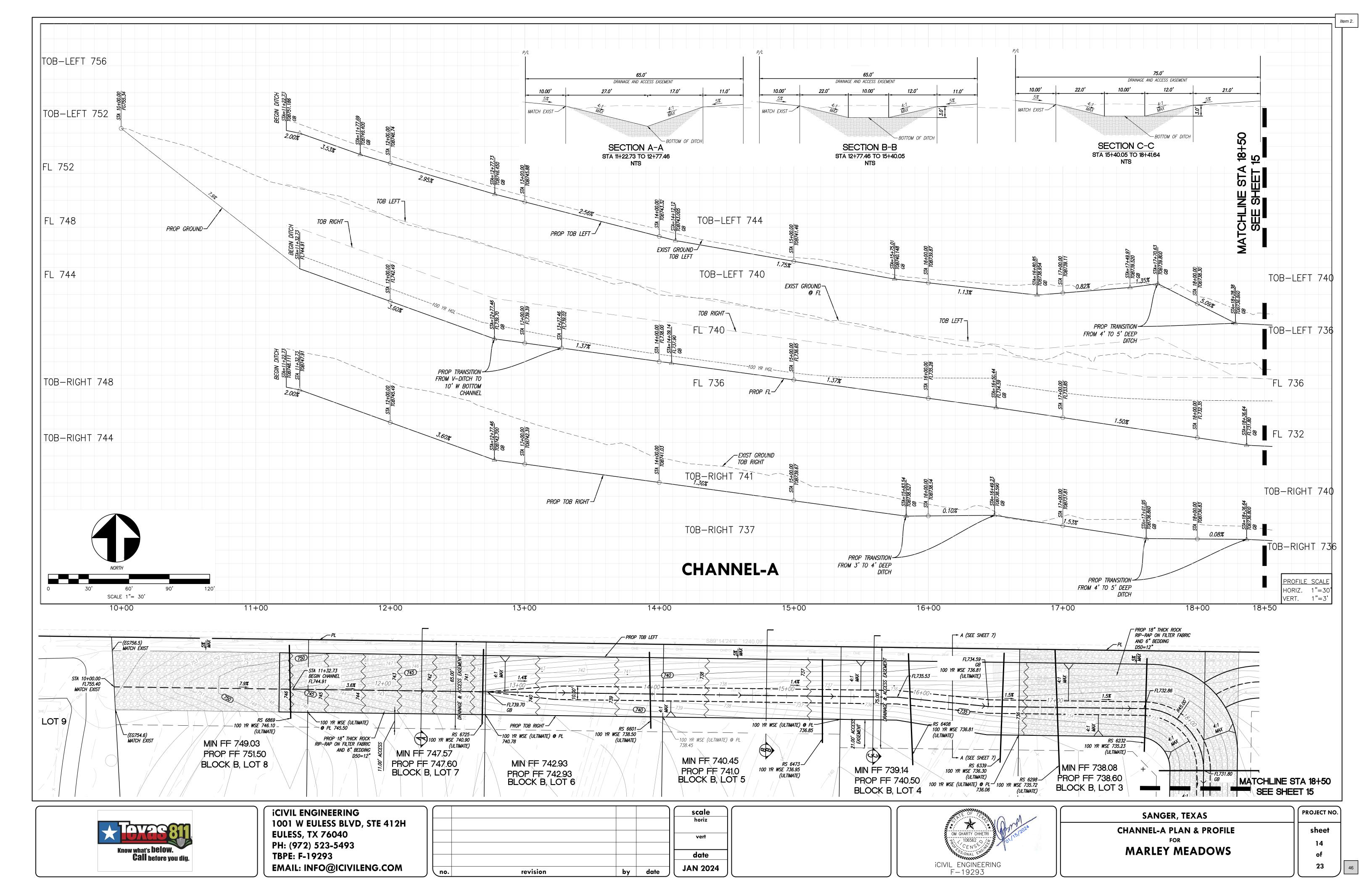


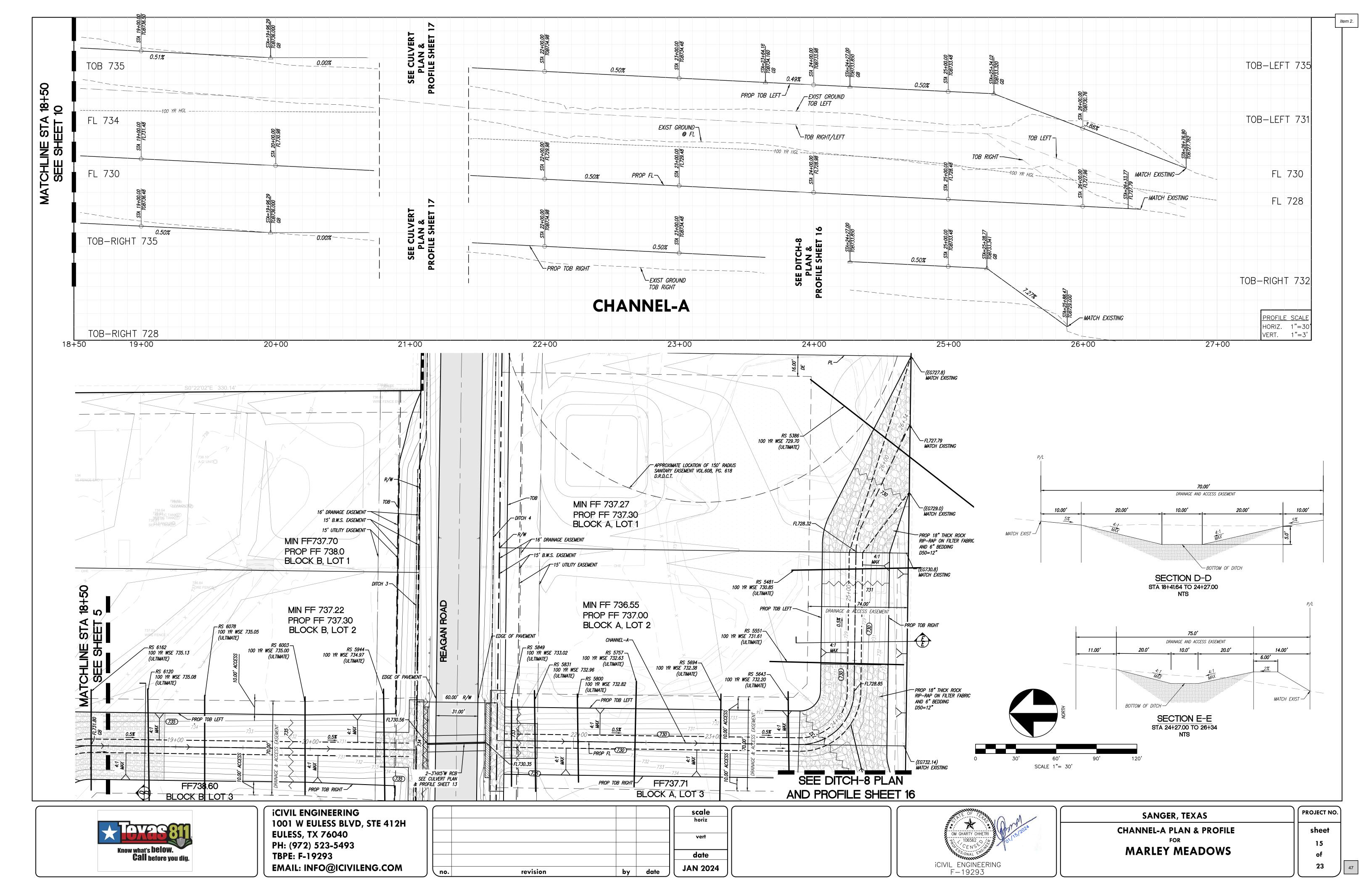
SANGER, TEXAS HYDRAULIC WORK MAP FOR **MARLEY MEADOWS**  PROJECT NO.

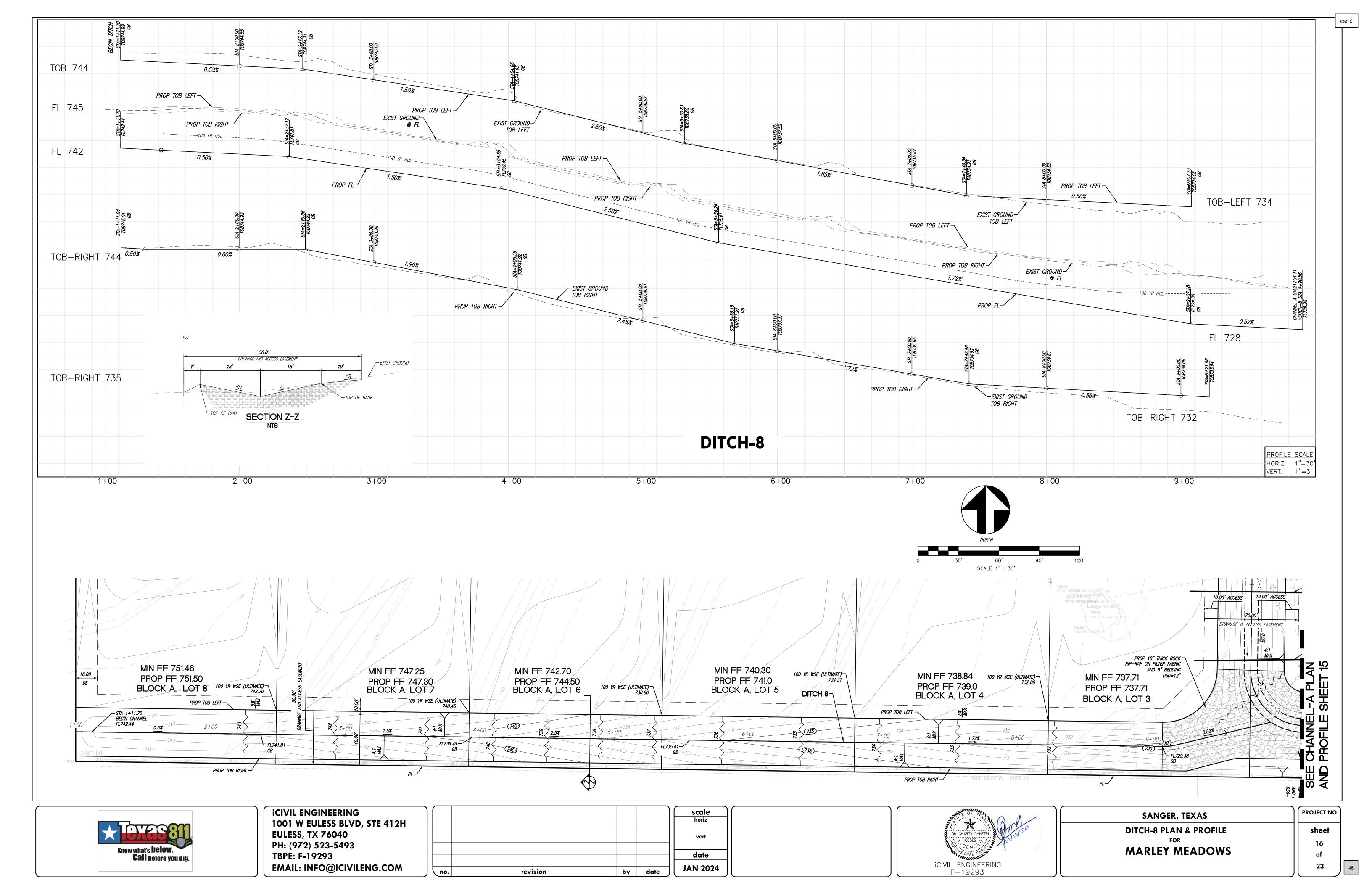
sheet

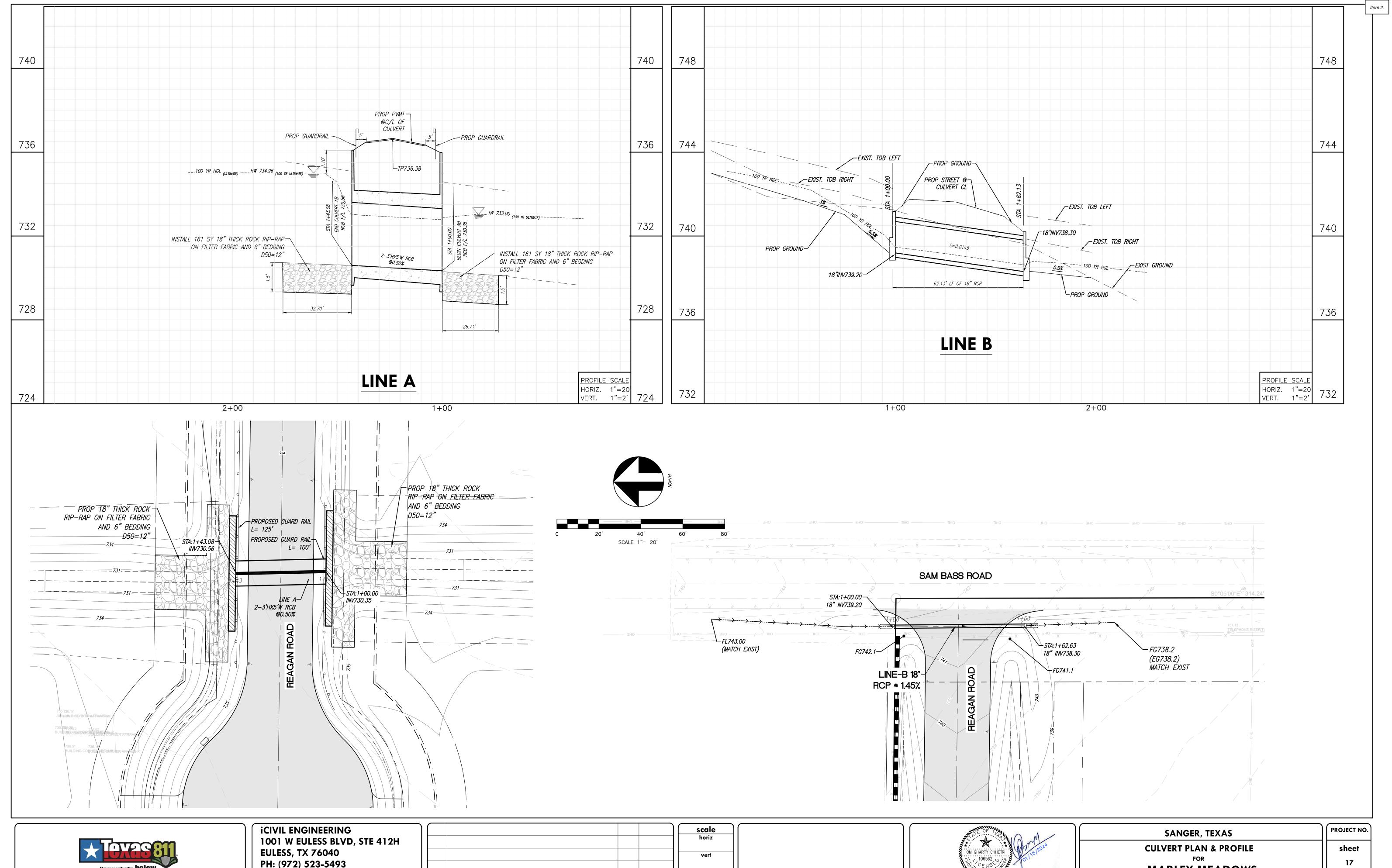
23

Item 2.



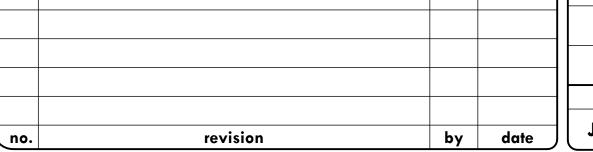




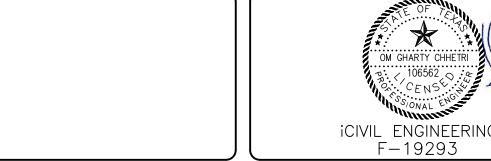




PH: (972) 523-5493 TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

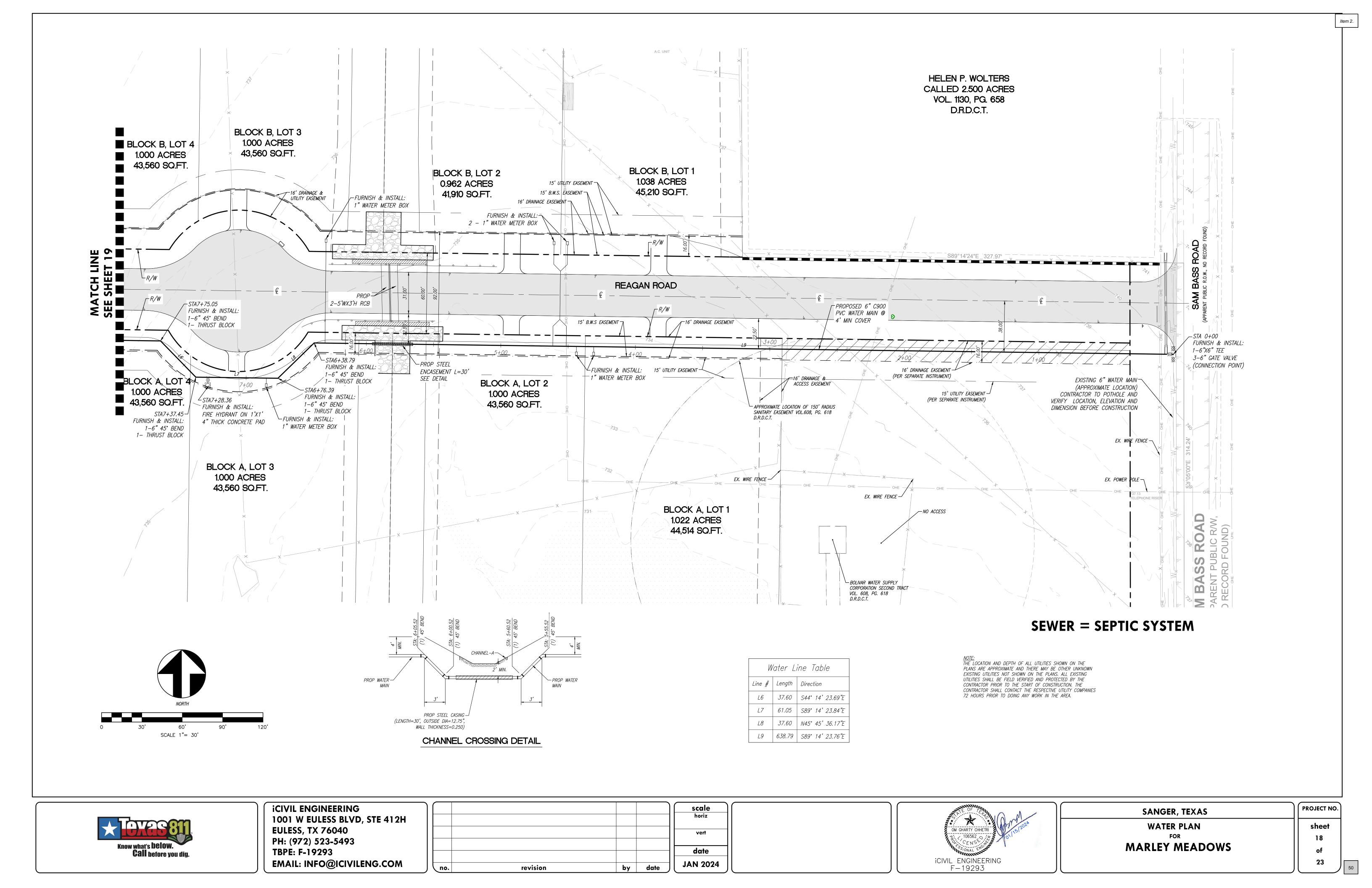


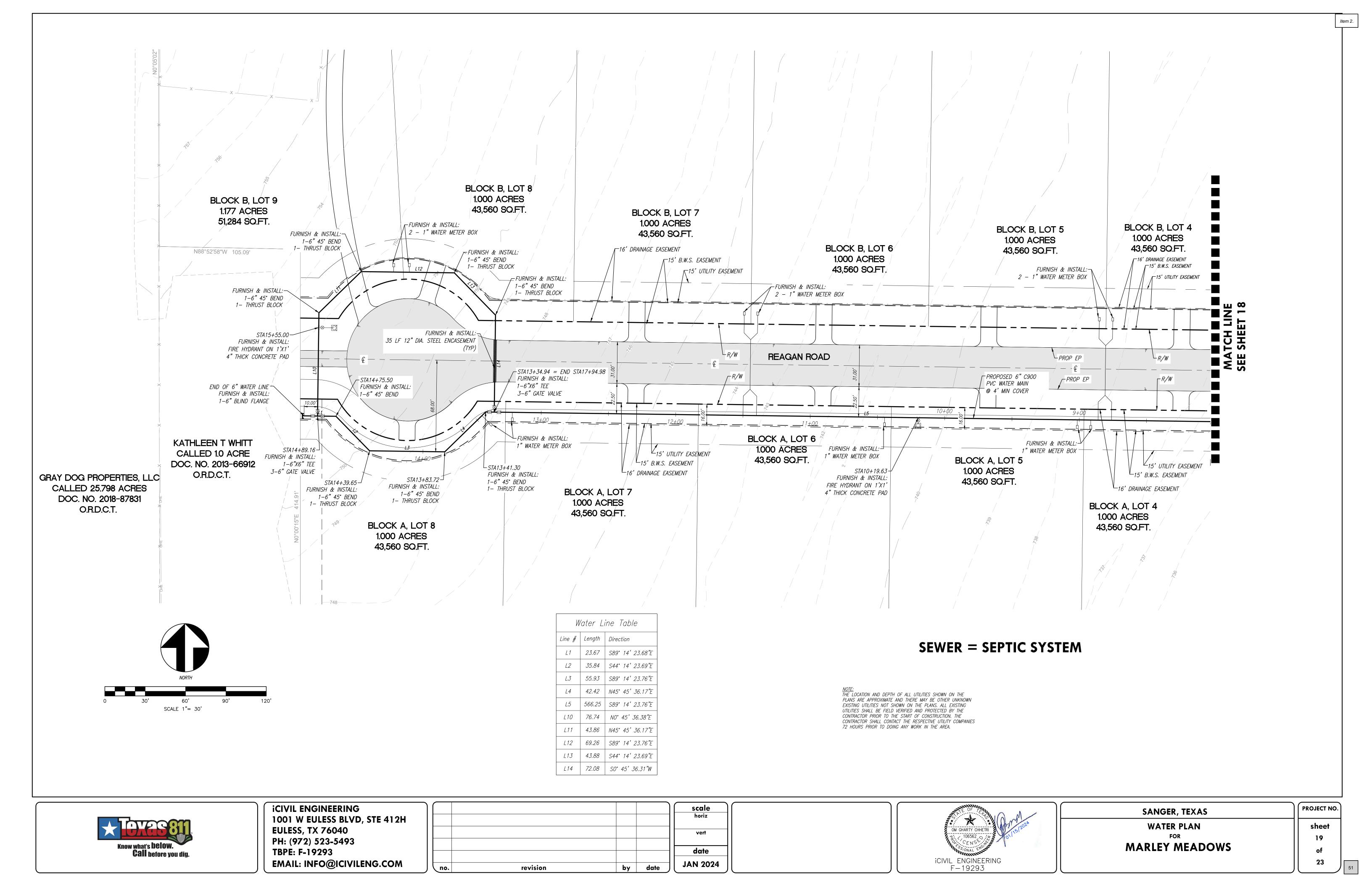
0.00	
horiz	
vert	
	١
date	ı
JAN 2024	

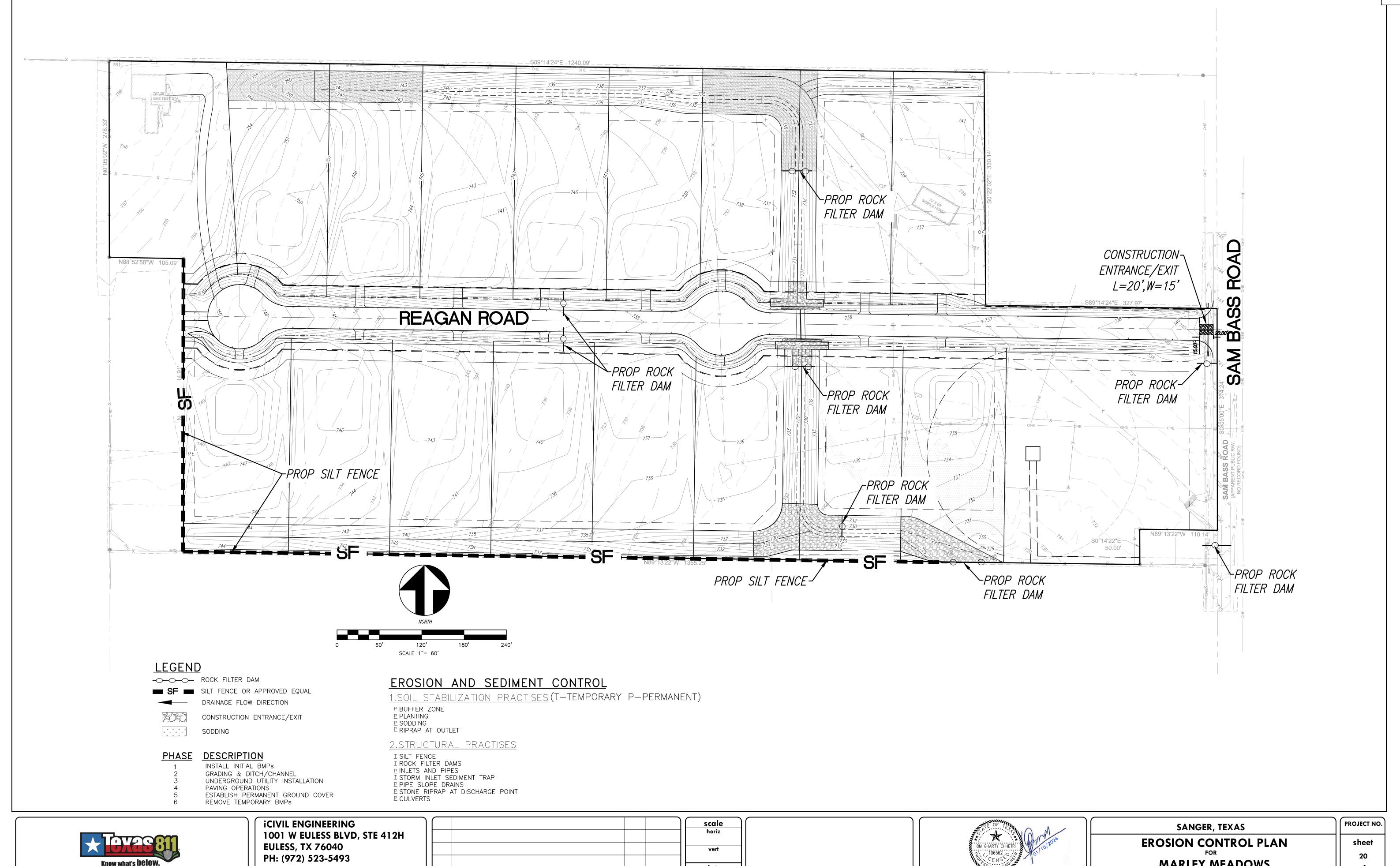


AFE OF TENED	SANG
I GHARTY CHHETRI	CULVERT P
CENST NOT	MARLEY
ENGINEERING	

EY MEADOWS

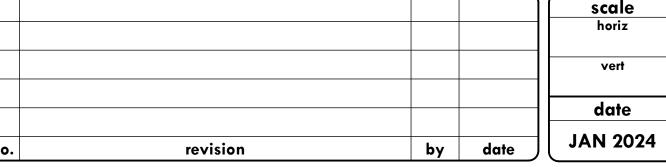






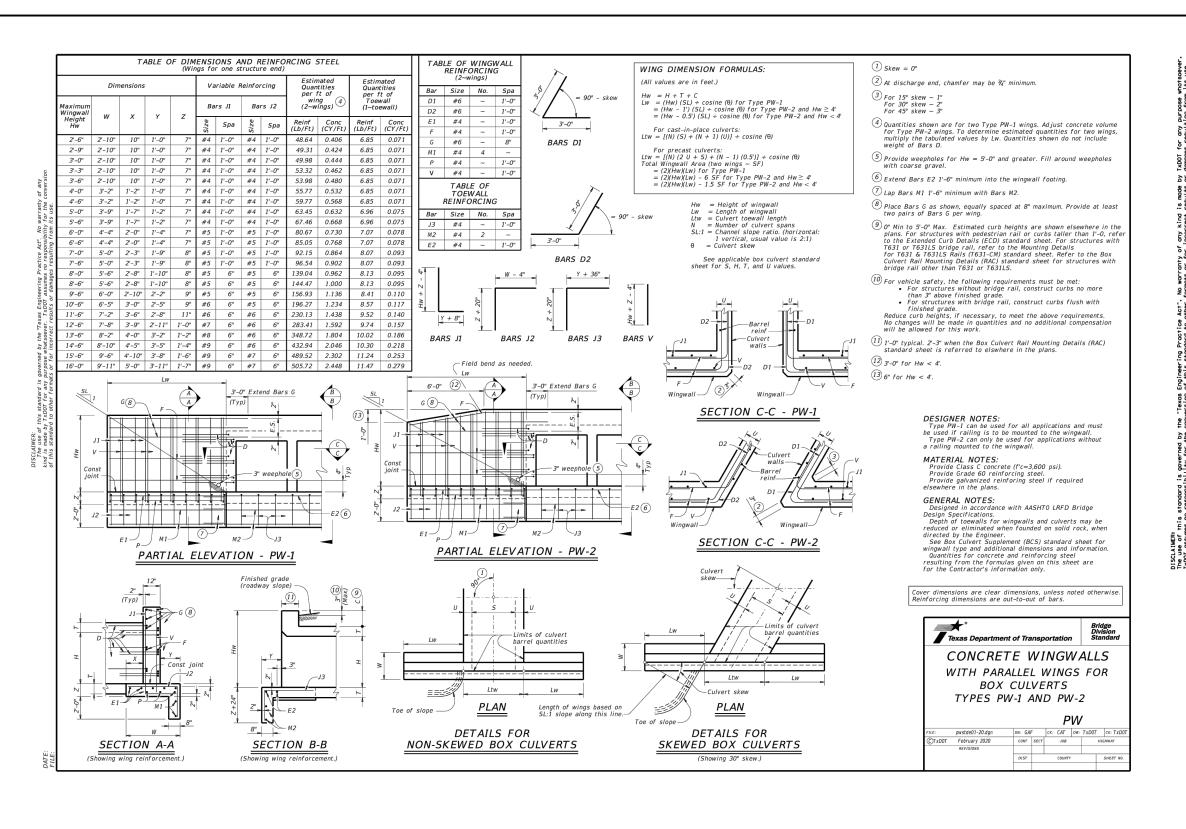


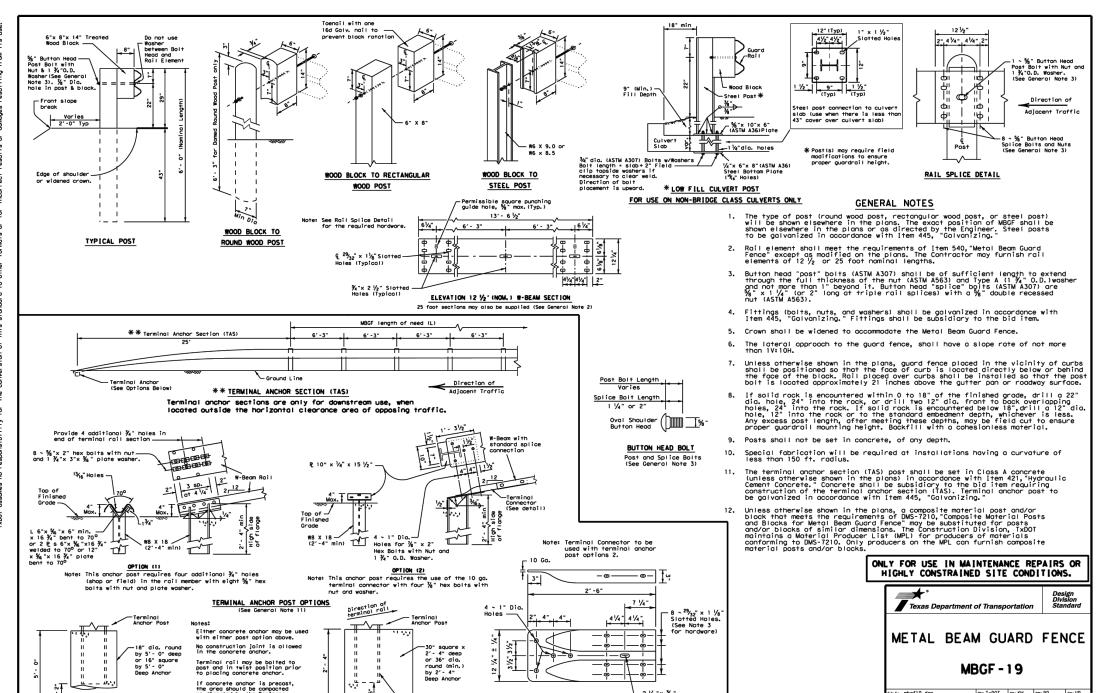
TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM





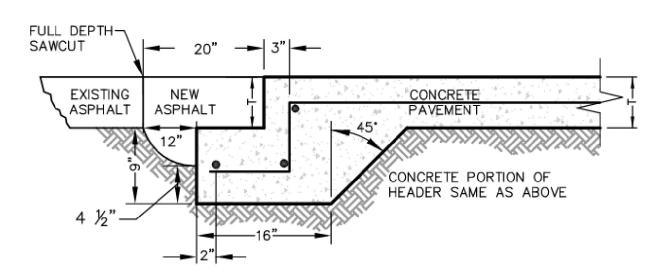
**MARLEY MEADOWS** 





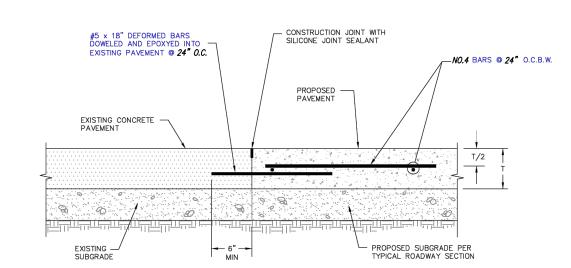
TERMINAL CONNECTOR

For connection hardware to concrete rails, see the MBGF transition standards.

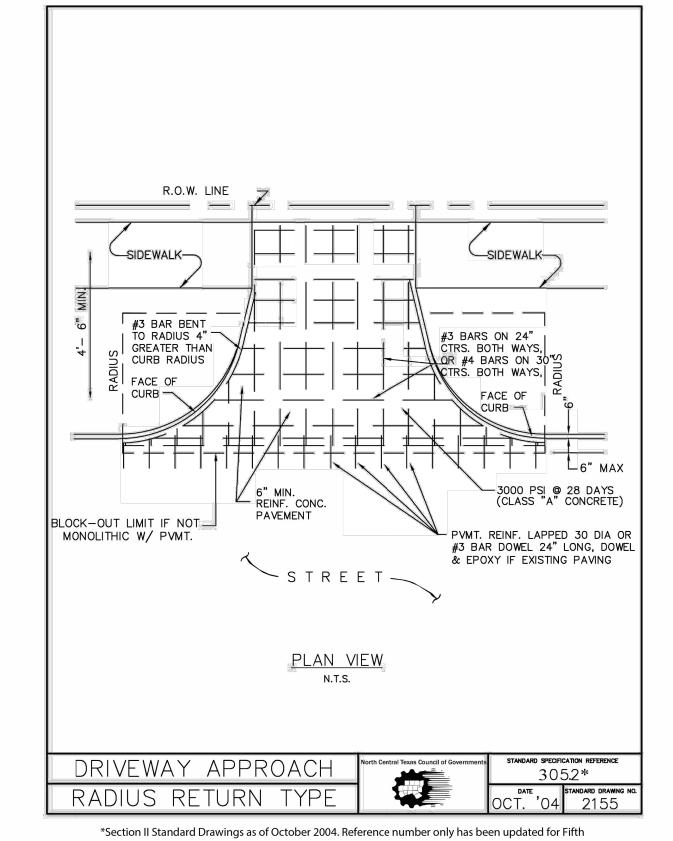


STREET HEADER AT ASPHALT PAVEMENT

 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.



CONSTRUCTION JOINT (BETWEEN EXISTING & PROPOSED PAVEMENT)



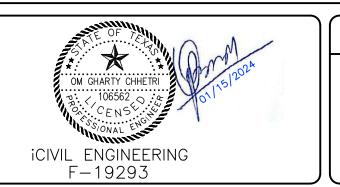
TERMINAL CONCRETE ANCHOR OPTIONS
(See General Note 11)

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



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

date					
JAN 2024	date	by	revision		<b>o.</b>



SANGER, TEXAS

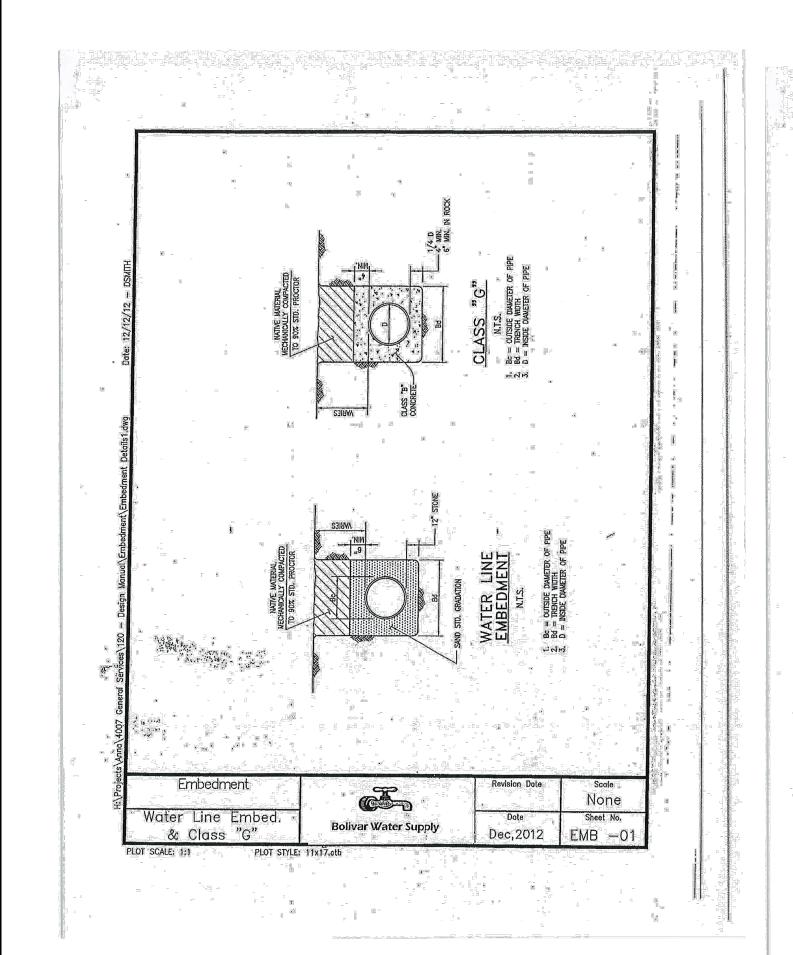
DETAILS
FOR

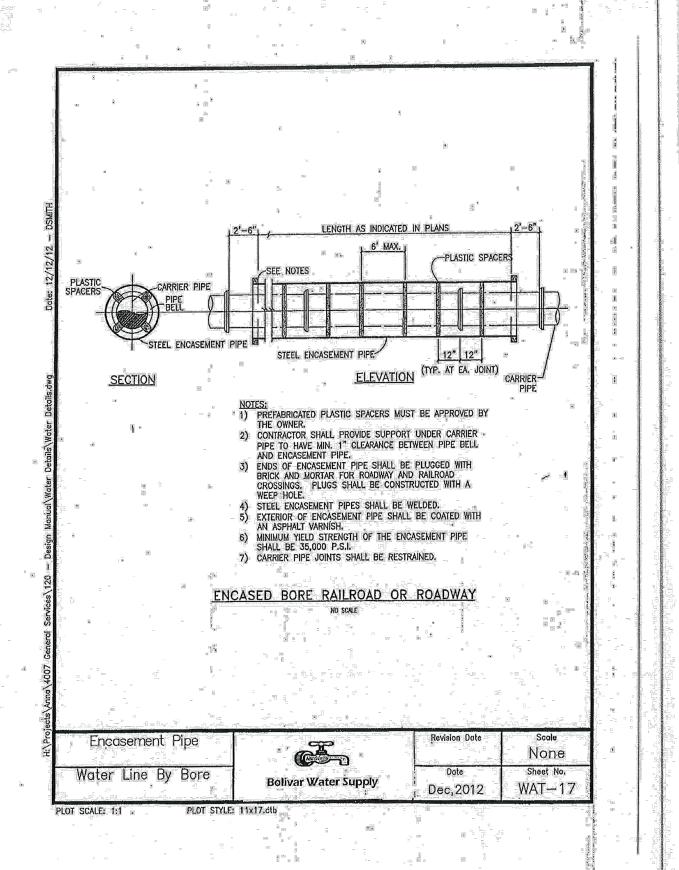
MARLEY MEADOWS

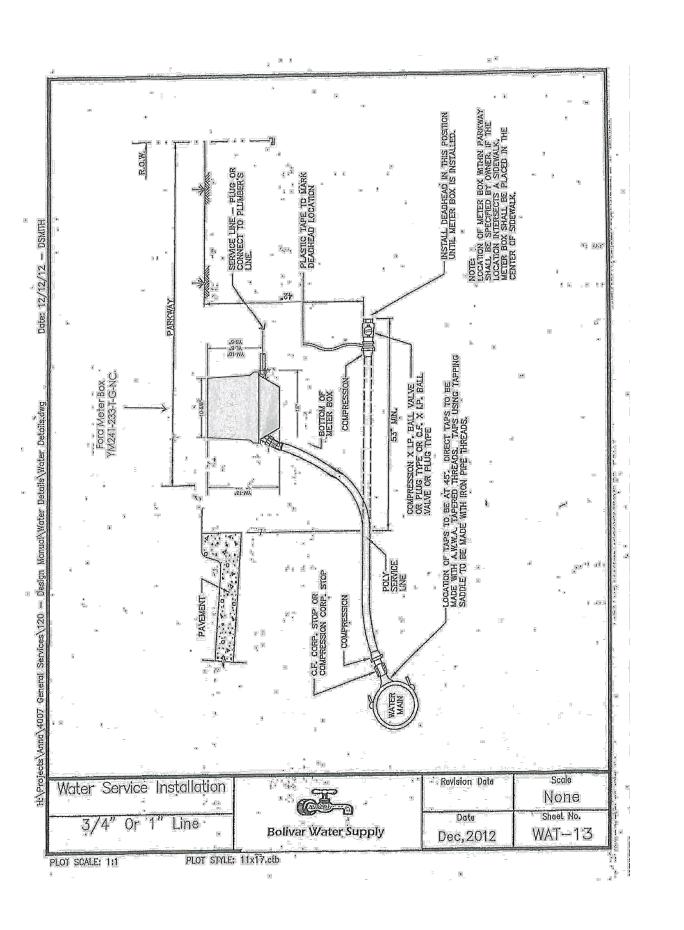
PROJECT NO.

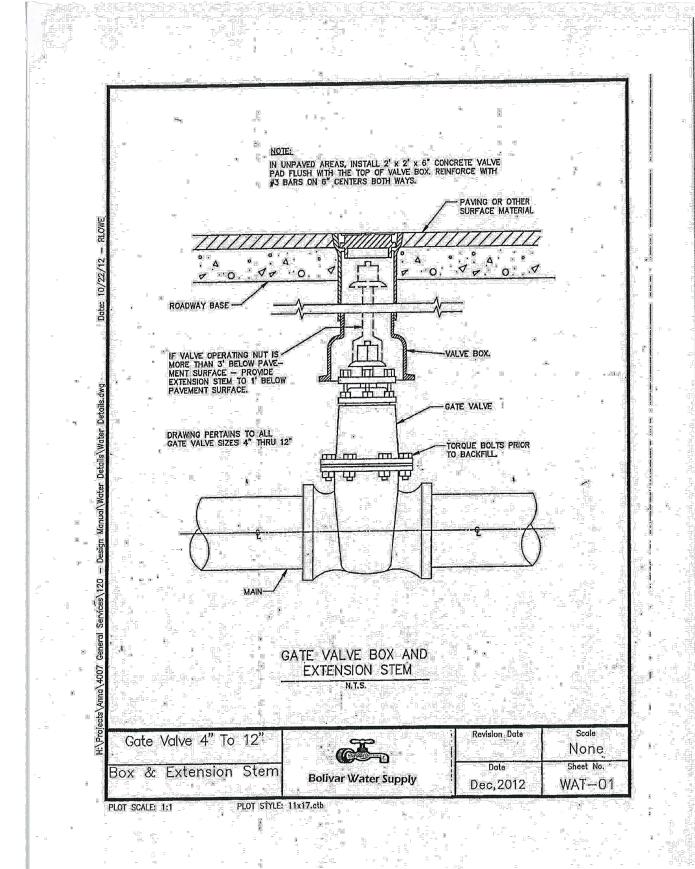
21 of 23

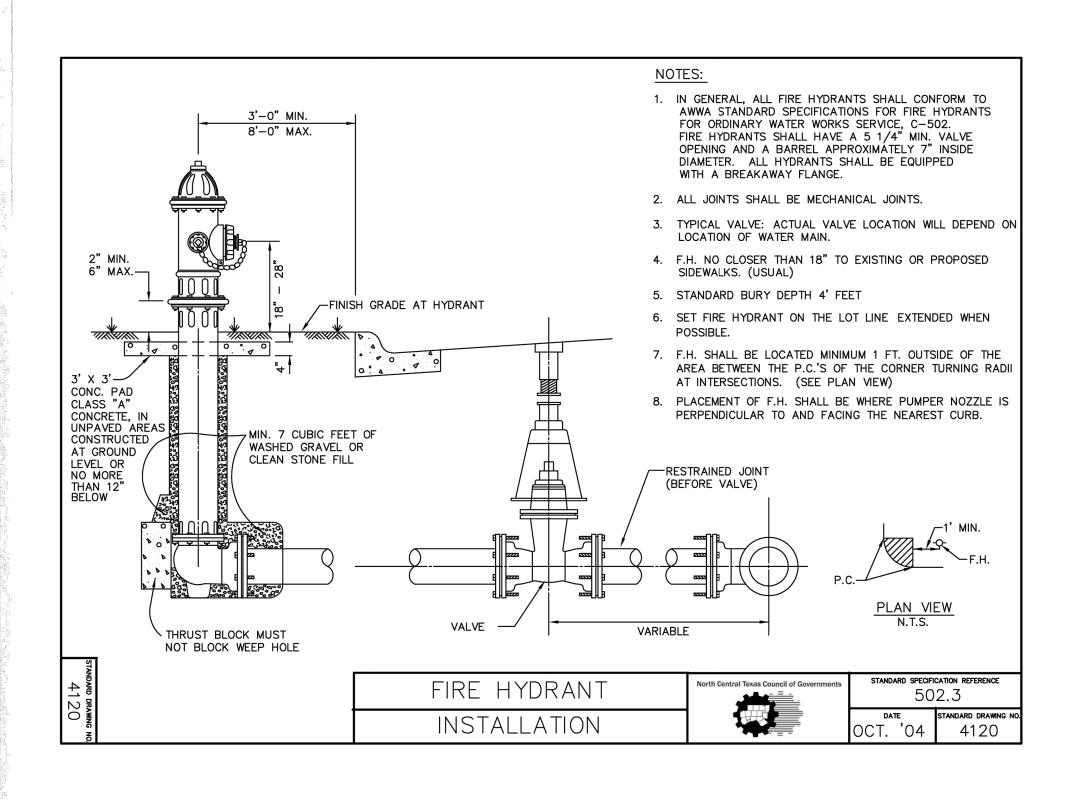








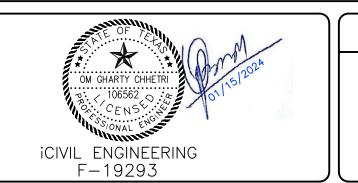




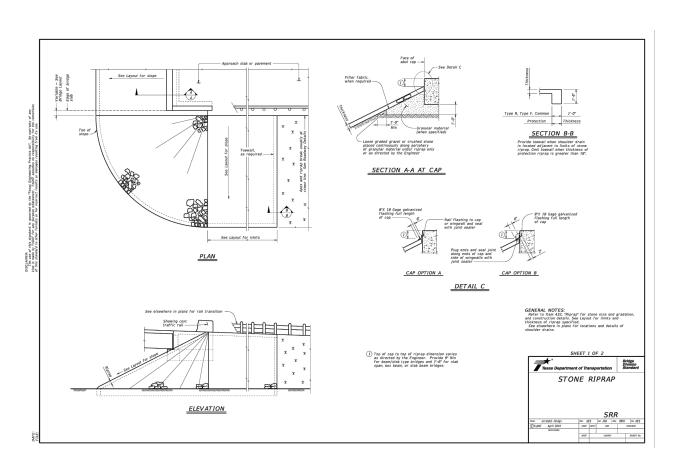


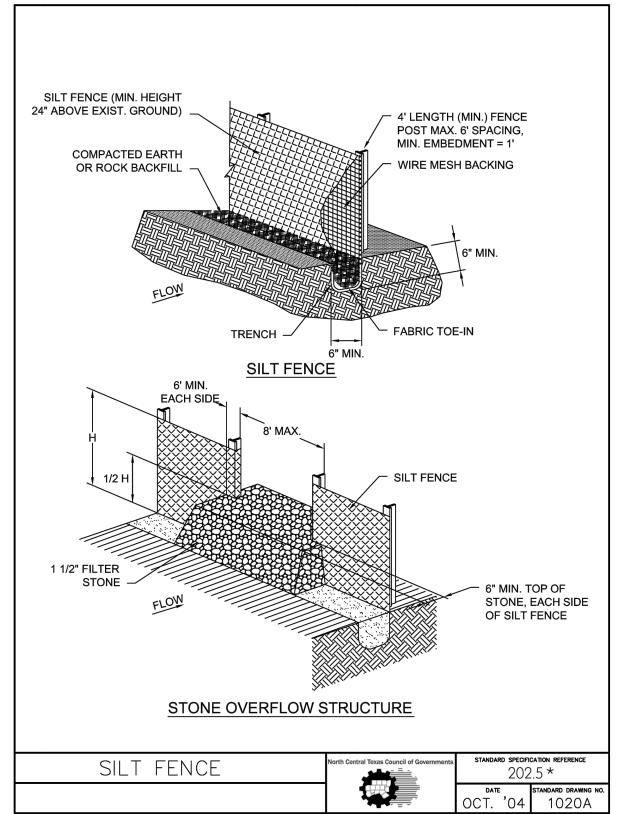
**iCIVIL ENGINEERING** 1001 W EULESS BLVD, STE 412H **EULESS, TX 76040** PH: (972) 523-5493 TBPE: F-19293 EMAIL: INFO@ICIVILENG.COM

scale				
horiz				
vert				
date				
JAN 2024		_		
JAN 2024	date	by	revision	no.

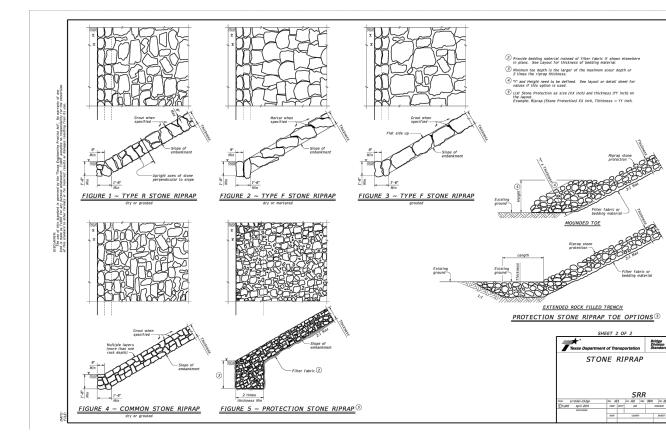


SANGER, TEXAS	PROJECT NO.
DETAILS	sheet
FOR	22
MARLEY MEADOWS	of





\*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.* 



## 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.

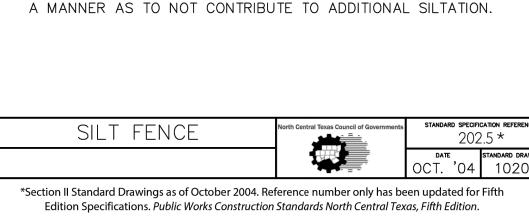
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

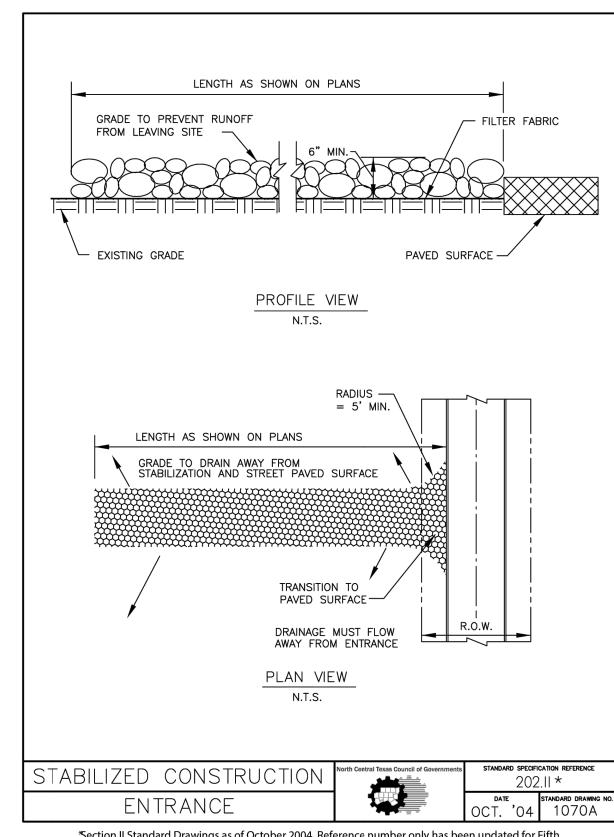
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

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.





\*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*.

## 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

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

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.

STABILIZED	CONSTRUCTION	North Central Texas Council of Governments	standard specifi 202	CATION REFERENCE
ENT	RANCE		OCT. '04	STANDARD DRAWNG NO.

\*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*.



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

scale horiz				
vert				
date				
JAN 2024	date	by	revision	no.



SANGER, TEXAS

DETAILS
FOR

MARLEY MEADOWS

PROJECT NO.

sheet 23 of 23

**DATE:** February 12, 2024

**FROM:** Stefani Dodson, Secretary

**AGENDA ITEM:** Staff will be doing a presentation for the board.

**SUMMARY:** 

N/A

**FISCAL INFORMATION:** 

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

### **RECOMMENDED MOTION OR ACTION:**

N/A

## **ATTACHMENTS:**