OJD Engineering
The Benchmark
F#-4393

November 19, 2020

Texas Commission on Environmental Quality
Attn: Water Quality Division
Application Review and Processing Team (MC-148)
P.O. Box 13087
Austin, Texas 78711-3087

Re: City of Childress Wastewater Treatment Plant Permit #WQ0010076003

Wastewater Permitting Team:

On behalf of the City of Childress, we are submitting a major amendment request to their existing Wastewater Treatment Plant Permit, No. WQ0010076003. Enclosed is 1 original and 3 copies of the permit amendment/renewal packet. The City's permit fees have been paid.

This if for the City's west wastewater treatment plant that serves the TDCJ Roach Unit, TDCJ boot camp, TxDoT district office and a few smaller producers. The majority of the flow coming into the plant is produced by the TDCJ units. A couple of years ago, the TDCJ bootcamp was closed, and they currently do not house any offenders. Because of this, the flows entering the plant have been reduced significantly. Prior to this closure the City was recording flowrates above 0.40 MGD. During this period, the City received violations and was fined because the plant did not have enough capacity to meet the 21-day detention time due to the fact the additional units required in their existing permit were never fully constructed. To correct the issues at the plant, the City has been working with the Texas Water Development Board (TWDB) to get funds to upgrade the facility to meet proposed permit application that is attached. The City has gotten official notice that the funds have been awarded to them, and we are currently pressing forward with permitting and design.

Over the past couple of years since the boot camp closed, the influent rarely exceeds 0.20 MGD. For these flow rates, the detention and storage requirements are being met, however, TDCJ will not guarantee that the bootcamp will not reopen anytime soon, nor will they guarantee that additional beds at the prison will not be needed. For this reason, the City of Childress is requesting a major amendment

with an interim and final phase that will accommodate the existing conditions as well as the addition of the bootcamp should it be reopened. The existing facility is comprised of a lift station, facultative lagoon and storage pond. Effluent from the storage pond is used for irrigation on 232 acres of land. We are proposing to use the existing storage pond as a waste stabilization pond for the interim phase, and construct a new storage pond from which effluent will be pumped to the irrigation acreage. For this interim phase, the design flow is proposed to be 0.21 MGD.

For the final phase, if the flows increased due to the bootcamp reopening or the plat receives additional flows from the prison, the waste stabilization pond would be converted to a facultative lagoon (it is currently built per facultative lagoon standards). This would double the facultative lagoon capacity (primary treatment). The storage pond that is to be built for the interim phase would still be utilized as such. The design flow for the final phase is proposed to be 0.42 MGD.

The attached permit application provides the backup data that shows how the proposed phases/units will comply with the TCEQ rules and regulations. The permit application will not be submitted within the 180-day timeframe due to the process required to get awarded the TWDB funds. We have requested, and have received approval to extend the 180-day filing deadline as stipulated in (TAC) Section 305.65. Attached is a copy of the approval letter from Lane Thomas.

Please to not hesitate or reach out to me with questions or concerns.

Sincerely,

Che Shadle, P.E.
Vice President
OJD Engineering, L.P.
F-4393

Cc: Kevin Hodges
City of Childress

From: Lane Thomas <lane.thomas@tceq.texas.gov>
Date: November 9, 2020 at 9:51:31 AM CST
To: Travis Timm <Travis.Timm@tceq.texas.gov>, Che Shadle <Che.Shadle@ojdengineering.com>
Cc: Firoj Vahora <firoj.vahora@tceq.texas.gov>, Jerrod Mendoza <Jerrod.Mendoza@tceq.texas.gov>
Subject: RE: Childress West Plant Permit No. WQ0010076003

November 9, 2020

Che Shadle, P.E.
Vice President
OJD Engineering
2420 Lakeview Drive
Amarillo, Texas 79109

Re: 180-Day Extension Request to Renew TPDES Permit No.WQ0010076003
Customer: City of Childress (CN600333769)
Regulated Entity: City of Childress Airport WWTP (RN101312521)

Dear Mr. Chadle:

Thank you for contacting the Texas Commission on Environmental Quality (TCEQ). We have received your request to extend the 180-day filing deadline as stipulated in the TCEQ rule 30 Texas Administrative Code (TAC) Section §305.65.

Submittal of an application to renew the wastewater permit for the City of Childress Airport WWTP, located in Childress County, Texas, must be received prior to the permit expiration date. An extension to the application filing deadline is being granted as requested until December 1, 2020.

If you should have any questions, please feel free to contact me at 512.239.6815 or at lane.thomas@tceq.texas.gov.

Sincerely,

Lane Thomas
TCEQ
Water Quality Division
Applications Review and Processing Team (MC 148)
P.O. Box 13087
Austin, TX 78711-3087
Cell: 512-239-6815 Fax: 512-239-4430

From: Travis Timm <Travis.Timm@tceq.texas.gov>
Sent: Friday, November 6, 2020 3:07 PM
To: Che Shadle <Che.Shadle@ojdengineering.com>
Cc: Firoj Vahora <firoj.vahora@tceq.texas.gov>; Lane Thomas <lane.thomas@tceq.texas.gov>; Jerrod

Mendoza <Jerrod.Mendoza@tceq.texas.gov>
Subject: RE: Childress West Plant Permit No. WQ0010076003

Che,

We will process your extension request. Please be sure to submit the application prior to the expiration of the existing permit.

Thanks,
Travis Timm
ARP Team Lead | Water Quality Division
Texas Commission on Environmental Quality

Please consider whether it is necessary to print this e-mail

From: Firoj Vahora <firoj.vahora@tceq.texas.gov>
Sent: Friday, November 6, 2020 2:52 PM
To: Che Shadle <Che.Shadle@ojdengineering.com>
Cc: Travis Timm <Travis.Timm@tceq.texas.gov>; Firoj Vahora <firoj.vahora@tceq.texas.gov>; Louis Herrin <louis.herrin@tceq.texas.gov>
Subject: RE: Childress West Plant Permit No. WQ0010076003

Che:

As we discussed, for submitting permit application deadline issues, please contact Travis Timm, Team Leader, Application Review & Processing Team. He should be able to help.

For any Chapter 217 issues, please contact Louis C. Herrin, III, P.E.

I will be more than happy to work with you permitting issues but few other issues, you may have to deal with appropriate staff which I am referring to you.

Thanks,

Firoj Vahora, Team Leader
Municipal Permits Team (MC 148)
Wastewater Permitting Section
Water Quality Division, TCEQ
email: firoj.vahora@tceq.texas.gov
phone: 512-239-4540

How is our Customer Service? Fill out our online customer satisfactory survey at
www.texq.texas.gov/customersurvey

From: Che Shadle <Che.Shadle@ojdengineering.com>
Sent: Friday, November 6, 2020 9:32 AM
To: Firoj Vahora <firoj.vahora@tceq.texas.gov>
Subject: Childress West Plant Permit No. WQ0010076003

Firoj

The City of Childress has gotten funding to address the issues at the west plant via the Texas Water Development Board. We have had meetings with the TDCJ regarding the prison and boot camp that discharges into the plant. The boot camp is closed, and they have no current plans to reopen it; however, they won't say that it will never be used. They City is seeing flows well below what they were getting a couple of years ago; however, they will still need two facultative lagoons, but only one storage pond. I am going to put a fairly large buffer in the average daily flow (450,000 gallons/day), which is near the max the plat as stated above can handle, but is well over what is coming into the plant now (250,000 gallons/day). I saying all that to say this. The permit documentation will be completed and sent in next week. Due to the time it took to get the funding, work with TDCJ and do all the design calculations, it won't be submitted early, but it will be in prior to the expiration date (12/1/20). We are requesting the a variance to the early submittal requirement due to the process we have been through listed above.

Sincerely,

Che Shadle, P.E.
OJD Engineering, LP, Vice President
2420 Lakeview Drive
Amarillo, TX 79109
ph: 806.352.7117 fax: 806.352.7188
www.ojdengineering.com
che.shadle@ojdengineering.com
Engineering: F-4393 Surveying: F-10090900

ORIGINAL

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

LIST OF ATTACHMENTS

1. Core Data Form
2. Flow Diagram
3. Site Drawing
4. Design Calculations
5. Wind Rose
6. Solids Waste Management
7. Liner Certification
8. FEMA Map
9. Annual Cropping Plan
10. USGS Map
11. Well Log Information
12. Groundwater Quality Assessment
13. Soil Map and Soil Analyses
14. Water Balance
15. Affected Landowners
16. Buffer Zone Map
17. Photos
18. Correspondence
19. Mailing Labels

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT: City of Childress

PERMIT NUMBER: WQ0010076003

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Original USGS Map	☒	☐
Administrative Report 1.1	☒	☐	Affected Landowners Map	☒	☐
SPIF	☐	☒	Landowner Disk or Labels	☒	☐
Core Data Form	☒	☐	Buffer Zone Map	☒	☐
Technical Report 1.0	☒	☐	Flow Diagram	☒	☐
Technical Report 1.1	☒	☐	Site Drawing	☒	☐
Worksheet 2.0	☐	☒	Original Photographs	☒	☐
Worksheet 2.1	☐	☒	Design Calculations	☒	☐
Worksheet 3.0	☒	☐	Solids Management Plan	☒	☐
Worksheet 3.1	☒	☐	Water Balance	☒	☐
Worksheet 3.2	☐	☒			
Worksheet 3.3	☐	☒			
Worksheet 4.0	☐	☒			
Worksheet 5.0	☐	☒			
Worksheet 6.0	☒	☐			
Worksheet 7.0	☐	☒			

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region _____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

APPLICATION FOR A DOMESTIC WASTEWATER PERMIT ADMINISTRATIVE REPORT 1.0

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 29)

Indicate the amount submitted for the application fee (check only one).

Flow	New/Major Amendment	Renewal
<0.05 MGD	$350.00 ☐	$315.00 ☐
≥0.05 but <0.10 MGD	$550.00 ☐	$515.00 ☐
≥0.10 but <0.25 MGD	$850.00 ☐	$815.00 ☐
≥0.25 but <0.50 MGD	$1,250.00 ☒	$1,215.00 ☐
≥0.50 but <1.0 MGD	$1,650.00 ☐	$1,615.00 ☐
≥1.0 MGD	$2,050.00 ☐	$2,015.00 ☐

Minor Amendment (for any flow) $150.00 ☐

Payment Information:

Mailed — Check/Money Order Number: 014048

Check/Money Order Amount: $1,250.00

Name Printed on Check: City of Childress

EPAY — Voucher Number: Click here to enter text.

Copy of Payment Voucher enclosed? Yes ☐

Section 2. Type of Application (Instructions Page 29)

☐ New TPDES

☒ Major Amendment *with* Renewal

☐ Major Amendment *without* Renewal

☐ Renewal without changes

☐ New TLAP

☐ Minor Amendment *with* Renewal

☐ Minor Amendment *without* Renewal

☐ Minor Modification of permit

For amendments or modifications, describe the proposed changes: Click here to enter text.

For existing permits:

Permit Number: WQ0010010076003

EPA I.D. (TPDES only): TX Click here to enter text.

Expiration Date: 12/1/2020

Section 3. Facility Owner (Applicant) and Co-Applicant Information (Instructions Page 29)

A. The owner of the facility must apply for the permit.

What is the Legal Name of the entity (applicant) applying for this permit?

City of Childress

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)

If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at http://www15.tceq.texas.gov/crpub/

CN: 600333769

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in *30 TAC § 305.44*.

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Kevin Hodges

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text

Title: City Manager

B. Co-applicant information. Complete this section only if another person or entity is required to apply as a co-permittee.

What is the Legal Name of the co-applicant applying for this permit?

Click here to enter text

(The legal name must be spelled exactly as filed with the TX SOS, with the County, or in the legal documents forming the entity.)

If the co-applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at: http://www15.tceq.texas.gov/crpub/

CN: Click here to enter text

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in *30 TAC § 305.44*.

Prefix (Mr., Ms., Miss): Click here to enter text

First and Last Name: Click here to enter text

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text

Title: Click here to enter text

Provide a brief description of the need for a co-permittee: Click here to enter text

C. Core Data Form

Complete the Core Data Form for each customer and include as an attachment. If the

customer type selected on the Core Data Form is **Individual**, complete **Attachment 1** of Administrative Report 1.0.

Attachment: Click here to enter text.

Section 4. Application Contact Information (Instructions Page 30)

This is the person(s) TCEQ will contact if additional information is needed about this application. Provide a contact for administrative questions and technical questions.

A. Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Kevin Hodges

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: City Manager

Organization Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 937-3684 Ext.: Click here to enter text. Fax No.: (940) 937-6420

E-mail Address: kl-hodges@att.net

Check one or both: ☒ Administrative Contact ☐ Technical Contact

B. Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Eddie Taylor

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: Outside Superintendent

Organization Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 937-3684 Ext.: Click here to enter text. Fax No.: (940) 937-6420

E-mail Address: dirplbwrks@att.net

Check one or both: ☐ Administrative Contact ☒ Technical Contact

Section 5. Permit Contact Information (Instructions Page 30)

Provide two names of individuals that can be contacted throughout the permit term.

A. Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Kevin Hodges

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: City Manager

Organization Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 937-3684 Ext.: Click here to enter text. Fax No.: (940) 937-6420

E-mail Address: kl-hodges@att.net

B. Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Clint Green

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: Engineering Technician/Designer

Organization Name: OJD Engineering, LP

Mailing Address: 2420 Lakeview Drive

City, State, Zip Code: Amarillo, Texas 79110

Phone No.: (806) 352-7117 Ext.: Click here to enter text. Fax No.: (806) 352-7188

E-mail Address: clint.green@ojdengineering.com

Section 6. Billing Information (Instructions Page 30)

The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits ***in effect on September 1 of each year***. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (using form TCEQ-20029).

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Mauro Hernandez

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: Accounts Payable

Organization Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 732-6025 Ext.: Click here to enter text. Fax No.: (940) 937-6420

E-mail Address: mhernandez@childresstexas.net

Section 7. DMR/MER Contact Information (Instructions Page 31)

Provide the name and complete mailing address of the person delegated to receive and submit Discharge Monitoring Reports (EPA 3320-1) or maintain Monthly Effluent Reports.

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Eddie Taylor

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: Outside Superintendent

Organization Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 937-3684 Ext.: Click here to enter text. Fax No.: (940) 937-6420

E-mail Address: dirplbwrks@att.net

DMR data is required to be submitted electronically. Create an account at: https://www.tceq.texas.gov/permitting/netdmr/netdmr.html.

Section 8. Public Notice Information (Instructions Page 31)

A. Individual Publishing the Notices

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Kevin Hodges

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: City Manager

Organization Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 937-3684 Ext.: Click here to enter text. Fax No.: (940) 937-6420

E-mail Address: kl-hodges@att.net

B. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package

Indicate by a check mark the preferred method for receiving the first notice and instructions:

☐ E-mail Address

☐ Fax

☒ Regular Mail

C. Contact person to be listed in the Notices

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: Kevin Hodges

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: City Manager

Organization Name: City of Childress

Phone No.: (940) 937-3684 Ext.: Click here to enter text.

E-mail: kl-hodges@att.net

D. Public Viewing Information

If the facility or outfall is located in more than one county, a public viewing place for each county must be provided.

Public building name: Childress City Hall

Location within the building: Front Desk

Physical Address of Building: 315 Commerce Street

City: Childress County: Childress

Contact Name: Kevin Hodges

Phone No.: (940) 937-3684 Ext.: Click here to enter text.

E. Bilingual Notice Requirements:

This information **is required** for **new, major amendment, and renewal applications**. It is not required for minor amendment or minor modification applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

1. Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?

   ☐ Yes ☒ No

   If **no**, publication of an alternative language notice is not required; **skip to** Section 9 below.

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

   ☐ Yes ☐ No

3. Do the students at these schools attend a bilingual education program at another location?

   ☐ Yes ☐ No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?

   ☐ Yes ☐ No

5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? Click here to enter text.

Section 9. Regulated Entity and Permitted Site Information (Instructions

Page 33)

A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. **RN**101612521

Search the TCEQ's Central Registry at http://www15.tceq.texas.gov/crpub/ to determine if the site is currently regulated by TCEQ.

B. Name of project or site (the name known by the community where located):

Airport Wastewater Treatment Plant

C. Owner of treatment facility: City of Childress

Ownership of Facility: ☒ Public ☐ Private ☐ Both ☐ Federal

D. Owner of land where treatment facility is or will be:

Prefix (Mr., Ms., Miss): Click here to enter text

First and Last Name: Click here to enter text

Mailing Address: Click here to enter text

City, State, Zip Code: Click here to enter text

Phone No.: Click here to enter text E-mail Address: Click here to enter text

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: Click here to enter text

E. Owner of effluent disposal site:

Prefix (Mr., Ms., Miss): Click here to enter text

First and Last Name: City of Childress

Mailing Address: P.O. Box 1087

City, State, Zip Code: Childress, Texas 79201

Phone No.: (940) 937-3684 E-mail Address: kl-hodges@att.net

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: Click here to enter text

F. Owner of sewage sludge disposal site (if authorization is requested for sludge disposal on property owned or controlled by the applicant):

Prefix (Mr., Ms., Miss): Click here to enter text

First and Last Name: Click here to enter text

Mailing Address: Click here to enter text

City, State, Zip Code: Click here to enter text

Phone No.: Click here to enter text E-mail Address: Click here to enter text

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: Click here to enter text.

Section 10. TPDES Discharge Information (Instructions Page 34)

A. Is the wastewater treatment facility location in the existing permit accurate?

☐ Yes ☐ No

If **no**, **or a new permit application**, please give an accurate description:

N/A – No Discharge

B. Are the point(s) of discharge and the discharge route(s) in the existing permit correct?

☒ Yes ☐ No

If **no**, **or a new or amendment permit application**, provide an accurate description of the point of discharge and the discharge route to the nearest classified segment as defined in 30 TAC Chapter 307:

Click here to enter text.

City nearest the outfall(s): Click here to enter text.

County in which the outfalls(s) is/are located: Click here to enter text.

Outfall Latitude: Click here to enter text. Longitude: Click here to enter text.

C. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If **yes**, indicate by a check mark if:

☐ Authorization granted ☐ Authorization pending

For **new and amendment** applications, provide copies of letters that show proof of contact and the approval letter upon receipt.

Attachment: Click here to enter text.

D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge.

Click here to enter text.

Section 11. TLAP Disposal Information (Instructions Page 36)

A. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☒ Yes ☐ No

If **no, or a new or amendment permit application**, provide an accurate description of the disposal site location:

Click here to enter text

B. City nearest the disposal site: Childress

C. County in which the disposal site is located: Childress

D. Disposal Site Latitude: 34.441538 Longitude: -100.293267

E. For **TLAPs**, describe the routing of effluent from the treatment facility to the disposal site:

Interim-The facility consists of a lift station, facultative lagoon, waste stabilization pond and a storage pond. From the storage pond, the effluent is pumped for irrigation. Final-Effluent consists of a lift station, two (2) facultative lagoons, and a storage pond. From the storage pond, the effluent is pumped for irrigation.

F. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:

Grassy Creek

Section 12. Miscellaneous Information (Instructions Page 37)

A. Is the facility located on or does the treated effluent cross American Indian Land?

☐ Yes ☒ No

B. If the existing permit contains an onsite sludge disposal authorization, is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No ☒ Not Applicable

If No, or if a new onsite sludge disposal authorization is being requested in this permit application, provide an accurate location description of the sewage sludge disposal site.

Click here to enter text

C. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☐ Yes ☒ No

If yes, list each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application:

Click here to enter text

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following information:

Account number: Click here to enter text Amount past due: Click here to enter text

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If **yes**, please provide the following information:

Enforcement order number: Click here to enter text Amount past due: Click here to enter text

Section 13. Attachments (Instructions Page 38)

Indicate which attachments are included with the Administrative Report. Check all that apply:

☐ Lease agreement or deed recorded easement, if the land where the treatment facility is located or the effluent disposal site are not owned by the applicant or co-applicant.

☒ Original full-size USGS Topographic Map with the following information:

- Applicant's property boundary
- Treatment facility boundary
- Labeled point of discharge for each discharge point (TPDES only)
- Highlighted discharge route for each discharge point (TPDES only)
- Onsite sewage sludge disposal site (if applicable)
- Effluent disposal site boundaries (TLAP only)
- New and future construction (if applicable)
- 1 mile radius information
- 3 miles downstream information (TPDES only)
- All ponds.

☐ Attachment 1 for Individuals as co-applicants

☐ Other Attachments. Please specify: Click here to enter text

Section 14. Signature Page (Instructions Page 39)

If co-applicants are necessary, each entity must submit an original, separate signature page.

Permit Number: WQ0010076003

Applicant: City of Childress

Certification:

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

I further certify that I am authorized under 30 Texas Administrative Code § 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory name (typed or printed): Carey Preston

Signatory title: Mayor

Signature: _____ Date: 3-6-2020

(Use blue ink)

Subscribed and Sworn to before me by the said Cary Preston

on this 6th day of March, 20 20.

My commission expires on the 4th day of June, 20 21.

Florine Bentley

Notary Public

[SEAL]

FLORINE BENTLEY
Notary ID #129445689
My Commission Expires
June 4, 2021

Childress

County, Texas

DOMESTIC ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 41)

A. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable:

- ☒ The applicant's property boundaries
- ☒ The facility site boundaries within the applicant's property boundaries
- ☒ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
- ☒ The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
- ☐ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
- ☐ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
- ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
- ☒ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
- ☒ The property boundaries of all landowners surrounding the effluent disposal site
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
- ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located

B. ☒ Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided.

C. Indicate by a check mark in which format the landowners list is submitted:

☐ Readable/Writeable CD ☒ Four sets of labels

D. Provide the source of the landowners' names and mailing addresses: TDCJ Office

E. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):

Click here to enter text.

Section 2. Original Photographs (Instructions Page 44)

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.

☒ At least one original photograph of the new or expanded treatment unit location

☐ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.

☒ At least one photograph of the existing/proposed effluent disposal site

☒ A plot plan or map showing the location and direction of each photograph

Section 3. Buffer Zone Map (Instructions Page 44)

A. Buffer zone map. Provide a buffer zone map on 8.5 x 11-inch paper with all of the following information. The applicant's property line and the buffer zone line may be distinguished by using dashes or symbols and appropriate labels.

- The applicant's property boundary;
- The required buffer zone; and
- Each treatment unit; and
- The distance from each treatment unit to the property boundaries.

B. Buffer zone compliance method. Indicate how the buffer zone requirements will be met. Check all that apply.

☐ Ownership

☒ Restrictive easement

☐ Nuisance odor control

☐ Variance

C. Unsuitable site characteristics. Does the facility comply with the requirements regarding unsuitable site characteristic found in 30 TAC § 309.13(a) through (d)?

☒ Yes ☐ No

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if the mailing the payment.

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- **Do not mail this form with the application form.**
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Fee Code: WQP **Waste Permit No:** WQ0010076003

1. Check or Money Order Number: 014048
2. Check or Money Order Amount: $1,250.00
3. Date of Check or Money Order: 11/06/2020
4. Name on Check or Money Order: City of Childress
5. APPLICATION INFORMATION

   Name of Project or Site: Airport Wastewater Treatment Plant

   Physical Address of Project or Site: Click here to enter text

   If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

Staple Check or Money Order in This Space

CITY OF CHILDRESS CHILDRESS, TEXAS 79201

014048

01-0243 ** TCEQ ** 014048 11/06/2020

DATE	I.D.	PO #	DESCRIPTION	AMOUNT
11/06/2020	202011063364	WATER	TCEQ	1,250.00
	PERMIT; WQ0000100760003			

CHECK TOTAL 1,250.00

THIS CHECK IS PROTECTED BY A VOID PANTOGRAPH, MICROPRINT SIGNATURE LINE AND A HEAT SENSITIVE PADLOCK ICON. ADDITIONAL SECURITY FEATURES ARE LISTED ON BACK.

CITY OF CHILDRESS

P.O. BOX 1087
CHILDRESS, TEXAS 79201
(940) 937-3683

FIRST BANK AND TRUST
CHILDRESS, TEXAS

88-254/1113

014048

Check #
014048

VOID AFTER 60 DAYS

BANK		DATE	AMOUNT
AP	VENDOR: 01-0243	11/06/2020	$*****1,250.00

PAY TO THE ORDER OF: ---- ONE THOUSAND TWO HUNDRED FIFTY & 00/100 DOLLARS ----

** TCEQ **
FINANCIAL ADMIN DIVISION, MC21
PO BOX 13087
AUSTIN, TX 78711-3087

MP
MAYOR

MP
CITY MGR - SECY.

"014048" "111302545" "141 4256"

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OJD Engineering
The Benchmark
F#-4393

COPIES (3)

Wellington | Amarillo | Wolfforth

ph: 806.352.7117 2420 Lakeview Dr. Amarillo, TX 79109 fax: 806.352.7188

www.**OJD**Engineering.com

ATTACHMENT 1
(CORE DATA FORM)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 60033769		RN 101612521

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

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

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

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

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

City of Childress

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
	7560004842		

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

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

12. Number of Employees
☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☐ Yes ☐ No

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

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

P.O. Box 1087

City	State	ZIP	ZIP + 4
Childress	TX	79201	

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	kl-hodges@att.net

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(940) 937-3684		(940) 937-6420

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC.)

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

City of Childress

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

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	located 3.75 miles west from intersection of Hwy 62 & US Hwy 287.							
26. Nearest City					State		Nearest ZIP Code	
Childress					TX		79201	
27. Latitude (N) In Decimal:	34.439056			28. Longitude (W) In Decimal:	-100.2918			
Degrees	Minutes		Seconds	Degrees	Minutes		Seconds	
34	26		20.60	-100	17		30.48	

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
4952		22132	

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

34. Mailing Address:	P.O. Box 1087							
	City	Childress	State	TX	ZIP	79201	ZIP + 4	
35. E-Mail Address:	kl-hodges@att.net							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(940) 937-3684		(940) 937-6420

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WW00100760003			

SECTION IV: Preparer Information

40. Name:	Clint Green	41. Title:	Engineering Technician/Designer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(806) 352-7117		(806) 352-7188	clint.green@ojdengineering.com

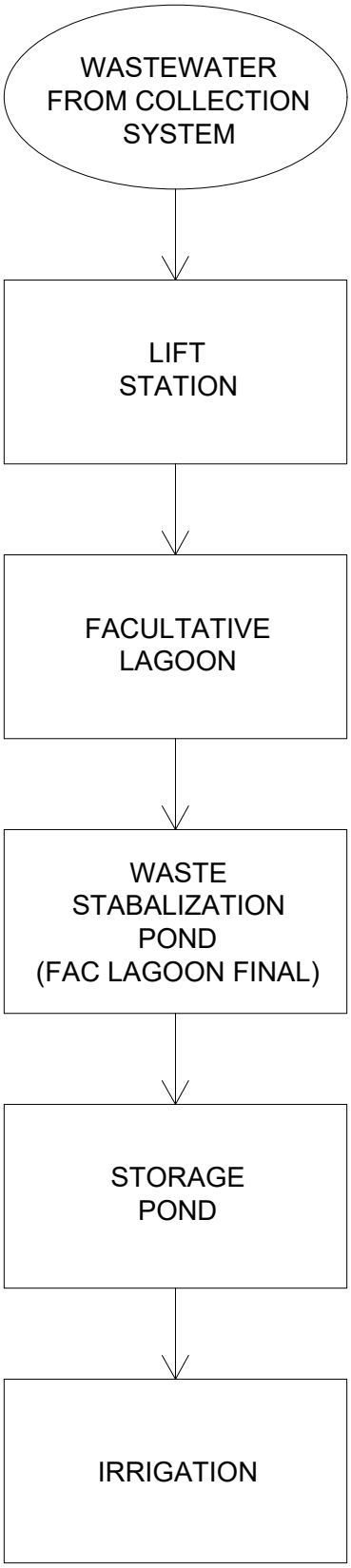
SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	OJD Engineering, LP	Job Title:	Engineering Technician/Designer
Name*(In Print)* :	Clint Green	Phone:	(806) 352-7117
Signature:		Date:	11/9/20

ATTACHMENT 2
(FLOW DIAGRAM)

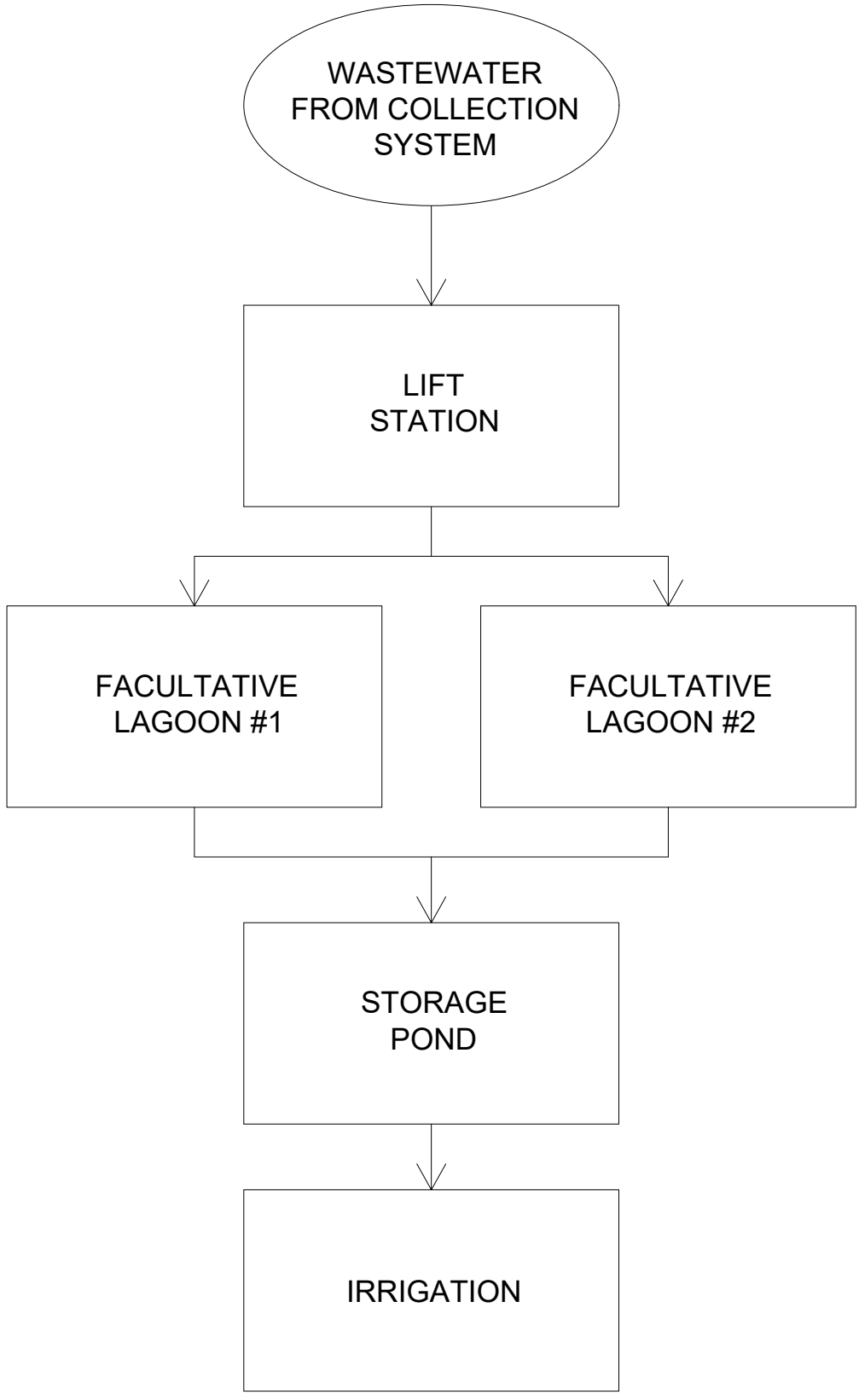
ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com



INTERIM FLOW DIAGRAM

OJD Engineering, L.P.
Consulting Engineers & Surveyors
F-4393

806-352-7117
2420 Lakeview Dr.
Amarillo, TX 79109



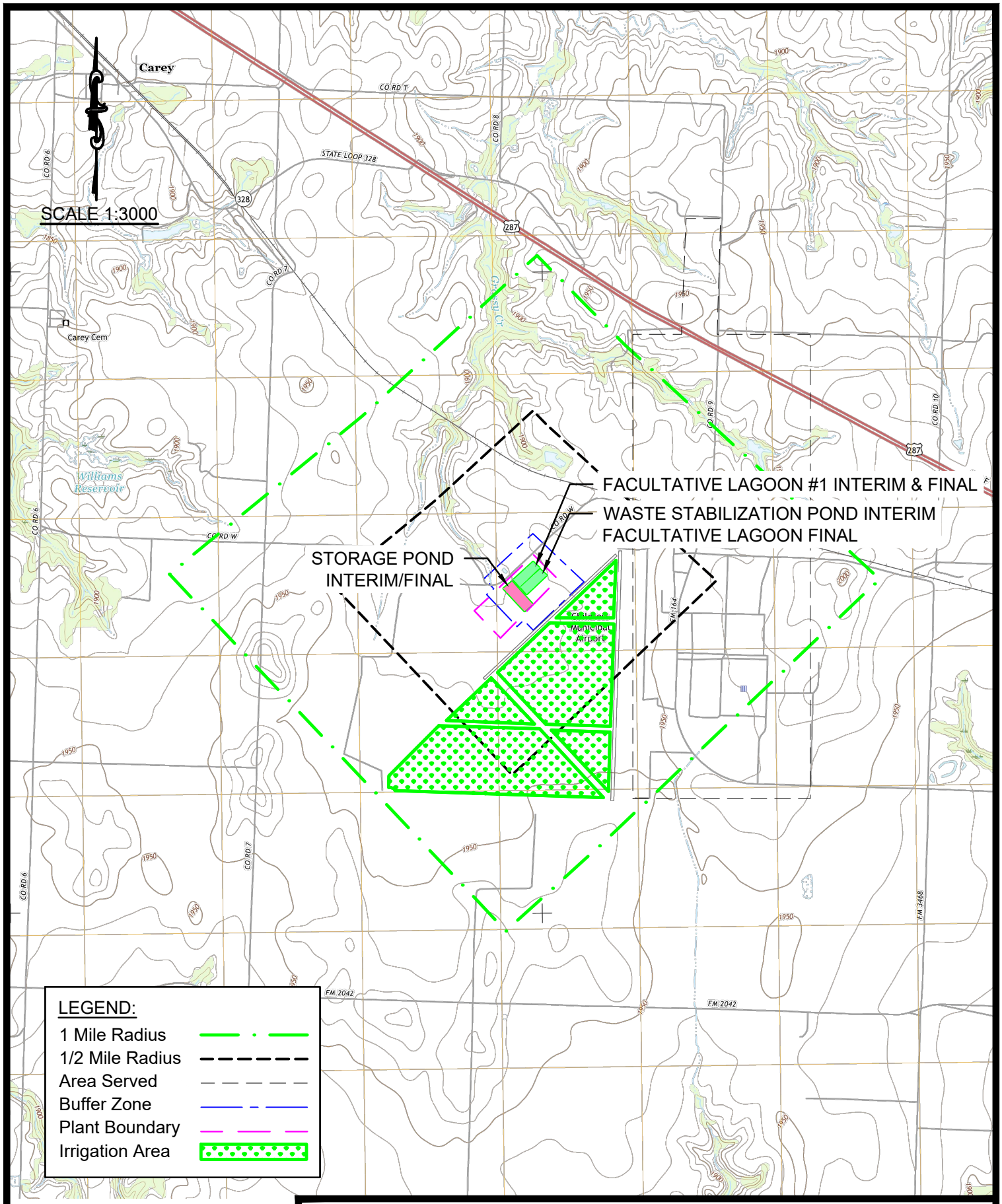
FINAL FLOW DIAGRAM

OJD Engineering, L.P.
Consulting Engineers & Surveyors
F-4393

806-352-7117
2420 Lakeview Dr.
Amarillo, TX 79109

ATTACHMENT 3
(SITE DRAWING)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com



SITE DRAWING

OJD Engineering, L.P.
Consulting Engineers & Surveyors
F-4393
806-352-7117
2420 Lakeview Dr.
Amarillo, TX 79109

ATTACHMENT 4
(DESIGN CALCULATIONS)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

CHILDRESS WASTEWATER TREATMENT PLANT DESIGN (Interim Phase)

Total Design Flow	0.21	MGD
Design Wastewater BOD	250	mg/l
Total BOD Loading	438	lb/day
Total BOD Loading - Irrig Pond	219	lb/day
Max Allowed Loading - Fac Lagoon	150	lb/ac/day
BOD Reduction	50	%
Max Allowed Loading - Irrigation Pond	75	lb/ac/day
Min Area - Fac Lagoon	2.9	acres

Minimum Dimensions	Min Area ac	Min Area sf	T Width ft	T Length ft
Fac Lagoons	2.92	127,152	206	618
Storage Ponds	See Water Balance Storage Calculations			

Design Dimensions	Length ft	Width ft	Actual Area sf	Actual Area ac	Avg Depth ft	Volume Storage cf
Fac Lagoon 1	613	207	126,891	2.9	8	1,015,128
Interim Waste Stab./ Final Fac Lagoon 2	613	207	126,891	2.9	8	1,015,128
Storage Pond 1	686	200	137,200	3.15	6	823,200
Total Pod Area				8.98		2,853,456

CHILDRESS WASTEWATER TREATMENT PLANT DESIGN (Final Phase)

Total Design Flow	0.42	MGD
Design Wastewater BOD	250	mg/l
Total BOD Loading	876	lb/day
Total BOD Loading - Irrig Pond	438	lb/day
Max Allowed Loading - Fac Lagoon	150	lb/ac/day
BOD Reduction	50	%
Max Allowed Loading - Irrigation Pond	75	lb/ac/day
Min Area - Fac Lagoon	5.84	acres

Minimum Dimensions	Min Area	Min Area	T Width	T Length
	ac	sf	ft	ft
Fac Lagoons	5.84	254,303	291	873
Storage Ponds	See Water Balance Storage Calculations			

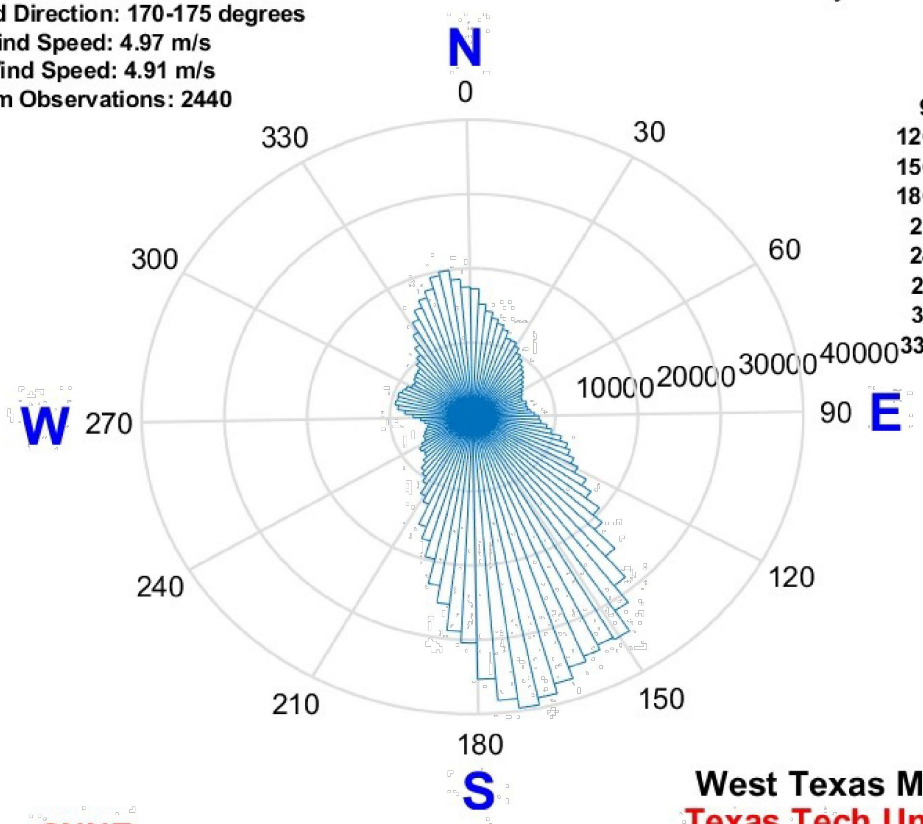
Design Dimensions	Length	Width	Actual Area	Actual Area	Avg Depth	Volume Storage
	ft	ft	sf	ac	ft	cf
Fac Lagoon 1	613	207	126,891	2.91	8	1,015,128
Interim Waste Stab./ Final Fac Lagoon 2	613	207	126,891	2.91	8	1,015,128
Storage Pond 1	686	200	137,200	3.15	6	823,200
Total Pod Area				8.98		2,853,456

ATTACHMENT 5
(WIND ROSE)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

Number of Observations: 1427813
Prevailing Wind Direction: 170-175 degrees
Mean Scaler Wind Speed: 4.97 m/s
Mean Vector Wind Speed: 4.91 m/s
Number of Calm Observations: 2440

Percent Observations by Direction (degrees):
0-30: 7.8%
30-60: 5.0%
60-90: 3.9%
90-120: 6.2%
120-150: 13.4%
150-180: 21.4%
180-210: 12.4%
210-240: 5.1%
240-270: 3.5%
270-300: 5.1%
300-330: 5.6%
330-360: 10.1%



CHIL
Childress 2NNE
Childress County

West Texas Mesonet
Texas Tech University
www.mesonet.ttu.edu

WIND ROSE

OJD Engineering, L.P.
Consulting Engineers & Surveyors
F-4393
806-352-7117
2420 Lakeview Dr.
Amarillo, TX 79109

ATTACHMENT 6
(SOLIDS WASTE MANAGEMENT)

ph: 806.352.7117 2420 Lakeview Dr. Amarillo, TX 79109 fax: 806.352.7188
www.OJDEngineering.com

Sludge Management and Disposal (Final Phase)

SOLIDS GENERATED

Design Criteria: 4200 Persons @ 0.17 lbs solids/person/day

Solids Volume: $\frac{4200 \times 0.17 \times 365}{62.4 \text{ lbs./cu. ft.}}$

= 4176.4 cu. ft/year of solids

Design Life: 100 years

V = 4176.4 cu. ft./yr X 100 yrs.

100% Design Flow	=	417644 cu. ft. solids
75% Design Flow	=	313233 cu. ft. solids
50% Design Flow	=	208822 cu. ft. solids
25% Design Flow	=	104411 cu. ft. solids

FACULTATIVE LAGOON - DESIGN LIFE

DESIGN LIFE - SLUDGE HOLDING VOLUME

Solids Produced = 4176 cu. ft./year

Area at Bottom of Basin(Total of 2 lagoons) = 541 ft. x 135 ft. x 2(Fac Lagoons) = 146070 sq. ft.

Area at Top of Basin(Total of 2 lagoons) = 598 ft. x 192 ft. x 2 (Fac Lagoons)= 229632 sq. ft.

Average Area = 187851 sq. ft.

Depth = 6.5 ft.

Volume of Basin = 187851 sq. ft. x 6.5 ft. = 1221031.5 cu. ft.

Design Life = 1221032 cf / 4176 cf/yr = **292** **YEARS**

The plant is currently 30 Years Old (Solids Handling Units)

ATTACHMENT 7
(LINER CERTIFICATION)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

Liner Certification

The two facultative lagoons were built per TCEQ rules in 1990 – no Liner Certification is available for these.

The storage pond is to be constructed once the permit is approved. The Liner Certification for the pond will be submitted upon completion.

ATTACHMENT 8
(FEMA MAP)

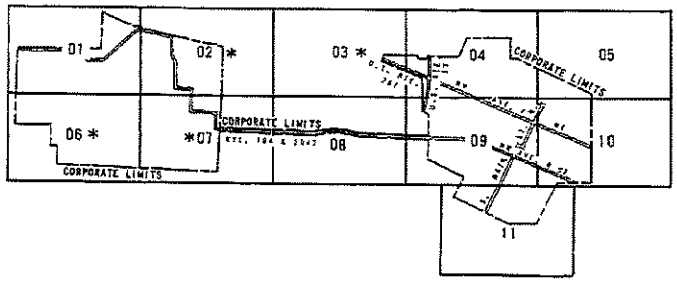
ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

These maps may not include all Special Flood Hazard Areas in the community. After a more detailed study, the Special Flood Hazard Areas shown on these maps may be modified, and other areas added.

Consult NFIA Servicing Company or local insurance agent or broker to determine if properties in this community are eligible for flood insurance.

Initial Identification Date: JUNE 14, 1974

COMMUNITY No. 480125A



LEGEND

Levee

Sea Wall

SPECIAL FLOOD HAZARD AREA ZONE A
IDENTIFICATION DATE: (DATE)

CONVERTED BY LETTER
EFFECTIVE 8/1/87

*NOT PRINTED (NO SPECIAL FLOOD HAZARD AREA)

MAP REVISED OCTOBER 17, 1975 : SHOW CURVILINEAR BOUNDARY, ADD SFHA, REDUCE SFHA, CHANGE COMMUNITY BOUNDARY.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

CITY OF CHILDRESS, TX
(CHILDRESS CO.)

MAP INDEX

FIA FLOOD HAZARD BOUNDARY MAPS

No H 01-11

ATTACHMENT 9
(ANNUAL CROPPING PLAN)

ph: 806.352.7117 2420 Lakeview Dr. Amarillo, TX 79109 fax: 806.352.7188
www.OJDEngineering.com

ANNUAL CROPPING PLAN

Crops to be Irrigated

The crops to be irrigated are cotton, winter wheat and Bermuda Grass. The cotton will be grown and irrigated in the summer months and the wheat will be grown and irrigated in the winter months the same 146 acres. The Bermuda Grass is grown on the 86 acres tract of land. The location of the irrigation acreage is shown on site map and on the Soils Map.

Nutrient Requirements

The nutrient requirements are based on the average annual yield for each crop:

Cotton – 2 Bales per Acre
Wheat – 45 Bushels per Acre
Bermuda Grass – 2000 lbs per Acre per Cut (3 Cuts/Year)

Average annual nutrient uptake during the growing season for these crops is estimated to be as follows:

Cotton:	Nitrogen - 100 pounds per acre per year
	Phosphate - 30 pounds per acre per year
	Potash - 40 pounds per acre per year
Wheat:	Nitrogen -80 pounds per acre per year
	Phosphate - 30 pounds per acre per year
	Potash - 50 pounds per acre per year
Bermuda Grass	Nitrogen -300 pounds per acre per year
	Phosphate - 70 pounds per acre per year
	Potash - 270 pounds per acre per year

Supplemental Watering Requirements

The application of the treated effluent is the only supplemental watering that will be done.

Salt Tolerances

The soil salinity , which the relative yield of a crop will be reduced by ten percent, is expressed as the electrical conductivity of the average saturation extract of the soil rood zone (mmhos/cm). In effect, this would be the upper limit of the salinity tolerance of the crop. Ideally, a zero percent reduction in crop production is desired. The range of electrical conductivity for zero reduction and 10% reduction in crop production for each crop is as follows:

Cotton:	6.0 mmhos/cm – 8.0 mmhos/cm
Wheat:	6.0 mmhos/cm – 8.0 mmhos/cm
Bermuda Grass:	8.0 mmhos/cm – 12.0 mmhos/cm

Harvesting Methods

Cotton is grown and irrigated through the summer months and harvested in the fall. Wheat is grown and irrigated through the winter months as a cover crop. Bermuda grass is grown and irrigated through the summer months. Harvesting occurs throughout the summer, typically three (3) cuts.

NITROGEN APPLICATION RATE

$L = N/2.7C$

where

L = Maximum annual liquid loading (ac-ft/ac/yr) based on nitrogen uptake
C = Effluent nitrogen concentration
N = Annual crop nitrogen requirement + 20% volatilization (lb/acre)

For Childress West Plant:
C = 27.7 mg/l (Effluent Analysis)
N = 300 lb/acre x 1.2 = 360 lb/acre (bermuda)
N = 75 lb/acre x 1.2 = 90 lb/acre (wheat)
N = 100 lb/acre x 1.2 = 120 lb/acre (cotton)
N(weighted) = 221

L = Allowable application rate= 2.95 ac-ft/ac/yr

Design application rate (Interim Phase) = 0.82 ac-ft/ac/yr
Design application rate (Final Phase) = 1.83 ac-ft/ac/yr

ATTACHMENT 10
(USGS MAP & WELL DATA)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

CAREY QUADRANGLE
TEXAS-CHILDRESS CO.
7.5-MINUTE SERIES

1 MILE RADIUS
½ MILE RADIUS
BUFFER ZONE
FACULTATIVE LAGOON #1 INTERIM & FINAL
WATER WELL #1238602 W/ 150' BUFFER
WATER WELL #1238505 W/ 150' BUFFER
WASTE STABILIZATION POND INTERIM
FACULTATIVE LAGOON FINAL
WATER WELL #1238502 W/ 150' BUFFER
STORAGE POND
INTERIM/FINAL
TREATMENT PLANT BOUNDARY
EFFLUENT DISPOSAL SITE/IRRIGATED AREAS

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 14S
10 000-foot ticks: Texas Coordinate System of 1983 (north zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2014
Roads..... U.S. Census Bureau, 2014 - 2015
Names.....GNIS, 2015
Hydrography.....National Hydrography Dataset, 2014
Contours.....National Elevation Dataset, 2007
Boundaries.....Multiple sources; see metadata file 1972 - 2015

Wetlands.....FWS National Wetlands Inventory 1977 - 2014

MN 5° 34' 99 MILS
GN 0° 44' 13 MILS
UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
LD
Grid Zone Designation
14S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.19

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Estelline
2 Estelline SE
3 Smithdale
4 Tell North
5 Childress
6 Tell South
7 Hell Roaring Creek
8 Buckle L Ranch
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

NSN 7643016393987
NGA REF NO. USGSX24K72E3

CAREY, TX
2016

ATTACHMENT 11
(WELL LOG INFORMATION)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

Texas Water Development Board
Well Schedule

State Well No. 12 38 502 **Previous Well No.** 336 **County** Childress 075

River Basin Red 02 **Zone** 2 **Region** 05 **Lat.** 34 26 17 **Long.** 100 19 14 **Source of Coord.** 3

Owner's Well No. _____ **Location** ____ 1/4, ____ 1/4, **Section** ____, **Block** ____, **Survey** ____

Owner M Caroline **Driller**

Address _____ **Tenant/Oper.** _____

Date Drilled _____ **Depth** 72 **Source of Depth Datum** S **Altitude** 1925 **Source of Alt. Datum** M

Aquifer Whitehorse 313WTRS **Well Type** W **User** _____

Well Construction Const. Method _____ Casing Material _____

Completion _____ Screen Material _____

Lift Data Pump Mfr. _____ Type _____ No. Stages _____

Bowls Diam. _____ in. Setting _____ ft. Column Diam. _____ in.

Motor Mfr. _____ Fuel or Power _____ Horsepower _____

Yield Flow _____ GPM Pump _____ GPM Meas.,Rept.,Est. _____ Date _____

Performance Test Date _____ Length of Test _____ Production _____ GPM

Static Level ____ ft. Pumping Level ____ ft. Drawdown ____ ft. Sp.Cap. ____ GPM/ft.

Quality (Remarks _____

Water Use Primary Stock S Secondary _____ Tertiary _____

Other Data Available Water Level Y Water Quality Y Logs _____ Other Data _____

Water Levels Date	12 06 1940	Meas.	43.87
Date		Meas.	
Date		Meas.	

Casing or Blank Pipe (C)
Well Screen or Slotted Zone (S)
Open Hole (O)
Cemented from ___ to ___

	Diam. (in.)	Setting (feet) From	To
1	5 1/2		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

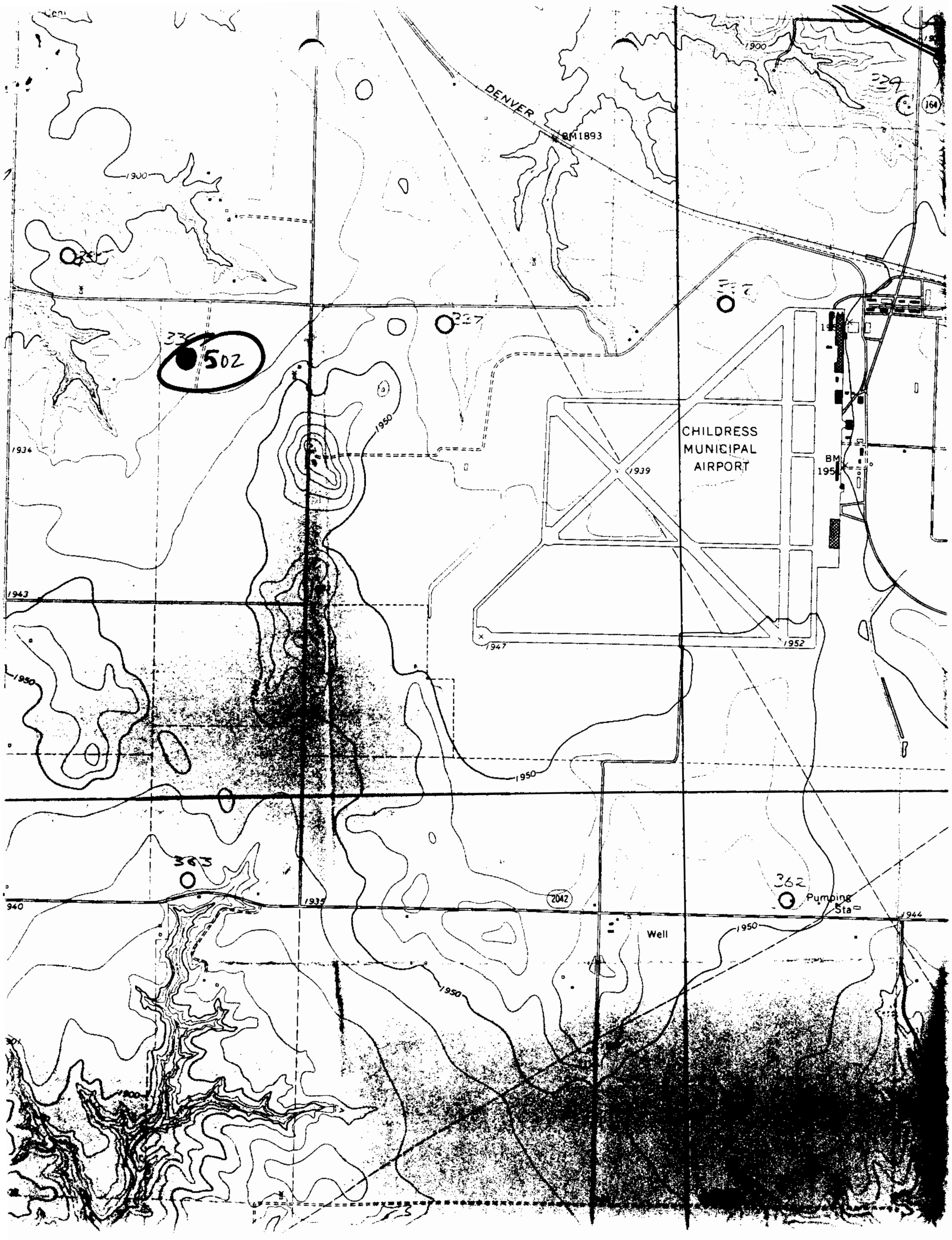
(20 max)

Recorded By Robert Ozmon **Date Record Collected or Updated** 08 09 1991 **Reporting Agency** 01

Remarks

1 _____
2 _____
3 _____
4 _____
5 _____ Aquifer _____
6 _____ Well No. 12-38-502

900052
11/21/89


DENVER
BM1893
1900
1934
1943
1950
CHILDRESS
MUNICIPAL
AIRPORT
1939
1947
1952
BM
164
502
227
363
362
2042
1935
Pumping
Sta
Well
1944
940

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 12-38-502

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	1238502
County	Childress
River Basin	Red
Groundwater Management Area	6
Regional Water Planning Area	A - Panhandle
Groundwater Conservation District	Gateway GCD
Latitude (decimal degrees)	34.438056
Latitude (degrees minutes seconds)	34° 26' 17" N
Longitude (decimal degrees)	-100.320833
Longitude (degrees minutes seconds)	100° 19' 15" W
Coordinate Source	+/- 10 Seconds
Aquifer Code	313WTRS - Whitehorse Group
Aquifer	Other
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1925
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	72
Well Depth Source	Measured
Drilling Start Date	
Drilling End Date	
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Stock
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Piston
Pump Depth (feet below land surface)	
Power Type	Windmill
Annular Seal Method	
Surface Completion	
Owner	M. Caradine
Driller	
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	
Last Update Date	

Remarks	

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

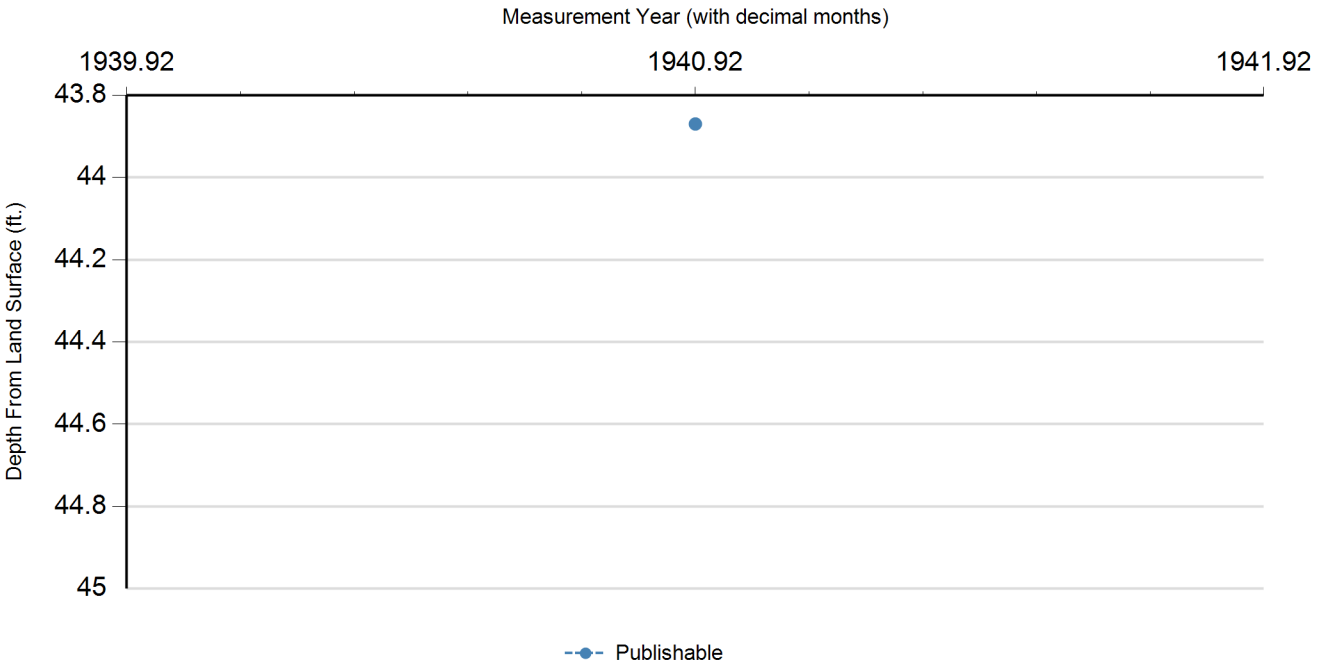
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	12/6/1940		43.87		1881.13	1	U.S. Geological Survey	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 12/5/1940 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** U.S. Geological Survey

Sampled Aquifer: Whitehorse Group

Analyzed Lab: University of Texas **Reliability:**

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		109.8	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		134	mg/L	
00910	CALCIUM (MG/L)		583	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		130	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		1833	mg/L	
00920	MAGNESIUM (MG/L)		92	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		106	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		1.57		
00932	SODIUM, CALCULATED, PERCENT		15	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)	calculated	155	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		1724	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2855	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board
Well Schedule

State Well No. 12 38 505 **Previous Well No.** 337 **County** Childress 075

River Basin Red 02 **Zone** 2 **Region** 05 **Lat.** 34 26 22 **Long.** 100 18 25 **Source of Coord.** 2

Owner's Well No. _____ **Location** ____ 1/4, ____ 1/4, **Section** ____, **Block** ____, **Survey** ____

Owner W. F. Isacks

Driller

Address _____ Tenant/Oper. _____

Date Drilled _____ Depth 62 Source of Depth Datum 5 Altitude 1932 Source of Alt. Datum M

Aquifer Whitehorse 313WTAS Well Type W User _____

Well Construction Const. Method _____ Casing Material _____

Completion _____ Screen Material _____

Lift Data Pump Mfr. _____ Type _____ No. Stages _____

Bowls Diam. _____ in. Setting _____ ft. Column Diam. _____ in.

Motor Mfr. _____ Fuel or Power _____ Horsepower _____

Yield Flow ____ GPM Pump ____ GPM Meas.,Rept.,Est. _____ Date ____

Performance Test Date _____ Length of Test _____ Production _____ GPM

Static Level ____ ft. Pumping Level ____ ft. Drawdown ____ ft. Sp.Cap. ____ GPM/ft.

Quality (Remarks _____

Water Use Primary Stock 5 Secondary _____ Tertiary _____

Other Data Available Water Level Y Water Quality Y Logs _____ Other Data _____

Date	12 06 1940	Meas. 48 • 65	
Water Levels Date		Meas. •	
Date		Meas. •	

Casing or Blank Pipe (C)
Well Screen or Slotted Zone (S)
Open Hole (O)
Cemented from ___ to ___

	Diam. (in.)	Setting (feet) From	To
1	5½		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

(20 max)

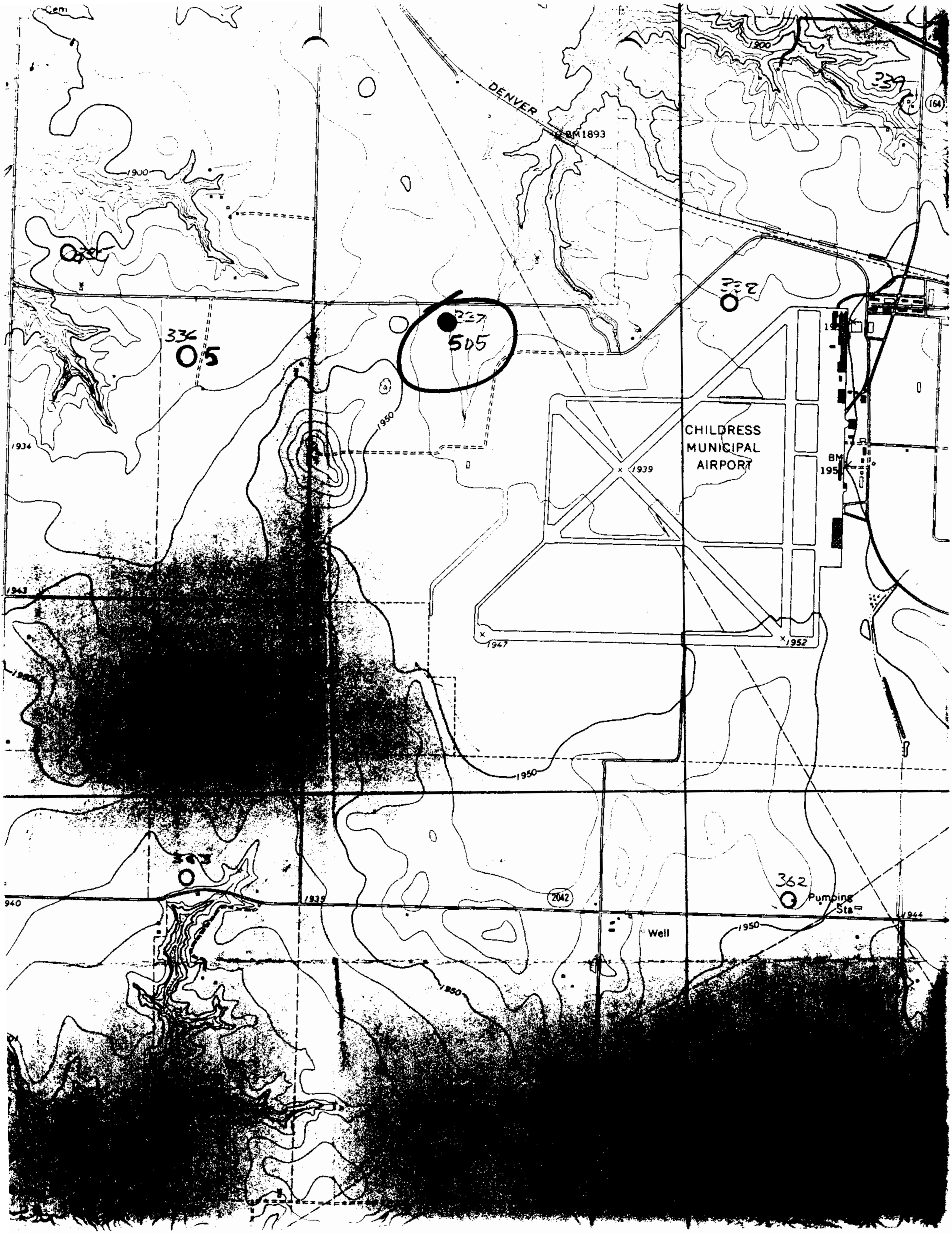
Recorded By Robert Ozment Date Record Collected or Updated 08 09 1991 Reporting Agency 01

Remarks

Aquifer _____

Well No. 12.38505

900052
11/21/89



DENVER
BM1893
1900
1950
1939
1947
1952
1944
1943
CHILDRESS
MUNICIPAL
AIRPORT
2042
164
Well
Pumping
Sta
336
505
362

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 12-38-505

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	1238505
County	Childress
River Basin	Red
Groundwater Management Area	6
Regional Water Planning Area	A - Panhandle
Groundwater Conservation District	Gateway GCD
Latitude (decimal degrees)	34.439445
Latitude (degrees minutes seconds)	34° 26' 22" N
Longitude (decimal degrees)	-100.307223
Longitude (degrees minutes seconds)	100° 18' 26" W
Coordinate Source	+/- 5 Seconds
Aquifer Code	313WTRS - Whitehorse Group
Aquifer	Other
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1932
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	62
Well Depth Source	Measured
Drilling Start Date	
Drilling End Date	
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Stock
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Piston
Pump Depth (feet below land surface)	
Power Type	Windmill
Annular Seal Method	
Surface Completion	
Owner	W. Isacks
Driller	
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	
Last Update Date	

Remarks	

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

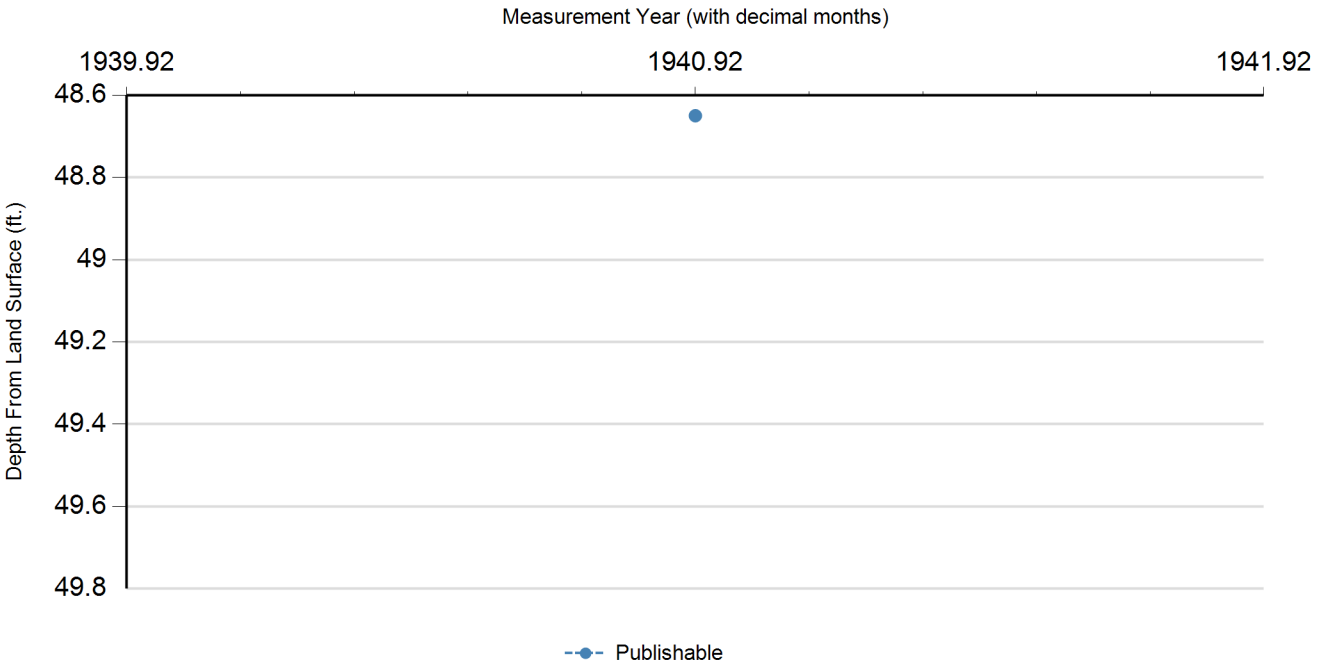
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	12/6/1940		48.65		1883.35	1	U.S. Geological Survey	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 11/6/1940 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** U.S. Geological Survey

Sampled Aquifer: Whitehorse Group

Analyzed Lab: University of Texas **Reliability:**

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		90.14	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		110	mg/L	
00910	CALCIUM (MG/L)		550	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		88	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		1870	mg/L	
00920	MAGNESIUM (MG/L)		121	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		1.82		
00932	SODIUM, CALCULATED, PERCENT		17	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)	calculated	181	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		1973	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2967	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board
Well Schedule

State Well No. 12 38 602 **Previous Well No.** 338 **County** Childress 075

River Basin Red 02 **Zone** 2 **Region** 05 **Lat.** 34 26 26 **Long.** 100 17 20 **Source of Coord.** 2

Owner's Well No. _____ **Location** ____ 1/4, ____ 1/4, **Section** ____, **Block** ____, **Survey** ____

Owner G W Johnson

Driller

Address _____ Tenant/Oper. _____

Date Drilled _____ Depth 108 Source of Depth Datum 5 Altitude 1940 Source of Alt. Datum m

Aquifer Whitehorse 313WTRS Well Type W User _____

Well Construction Const. Method _____ Casing Material _____

Completion _____ Screen Material _____

Lift Data Pump Mfr. _____ Type _____ No. Stages _____

Bowls Diam. _____ in. Setting _____ ft. Column Diam. _____ in.

Motor Mfr. _____ Fuel or Power _____ Horsepower _____

Yield Flow _____ GPM Pump _____ GPM Meas.,Rept.,Est. _____ Date _____

Performance Test Date _____ Length of Test _____ Production _____ GPM

Static Level ____ ft. Pumping Level ____ ft. Drawdown ____ ft. Sp.Cap. ____ GPM/ft.

Quality (Remarks _____

Water Use Primary Stock 5 Secondary _____ Tertiary _____

Other Data Available Water Level N Water Quality Y Logs _____ Other Data _____

	Date	Meas.
Water Levels		

Casing or Blank Pipe (C)
Well Screen or Slotted Zone (S)
Open Hole (O)
Cemented from ___ to ___

	Diam. (in.)	Setting (feet) From	To
1	5½		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

(20 max)

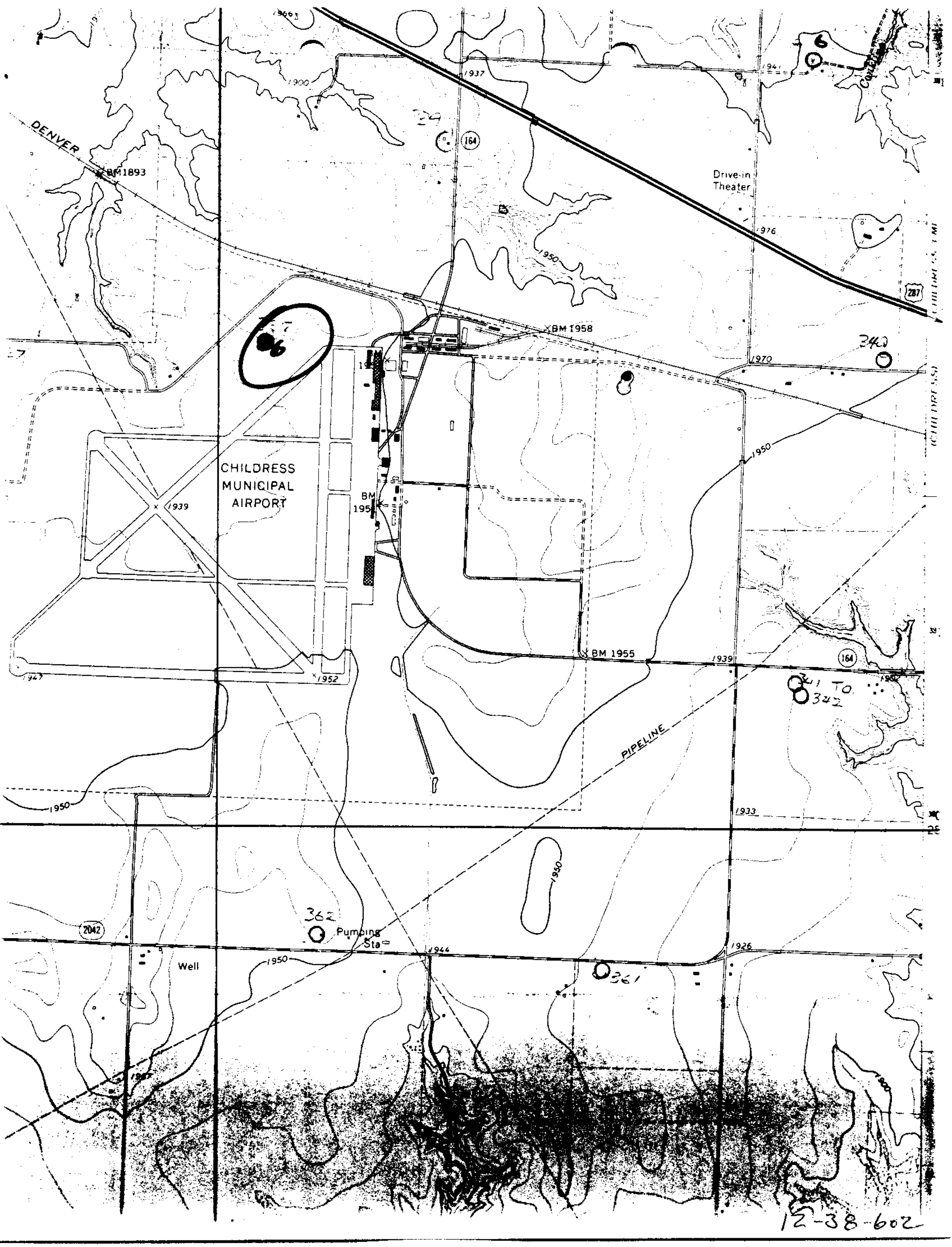
Recorded By Robert Ozment Date Record Collected or Updated _____ Reporting Agency 01

Remarks

Aquifer _____

Well No. 12-38-602

900052
11/21/89



CHILDRESS
MUNICIPAL
AIRPORT
DENVER
BM1893
BM 1958
BM 1955
Drive-in
Theater
PIPELINE
Pumping
Sta
Well
164
287
2042
1900
1937
1950
1939
1952
1947
1976
1970
1933
1944
1926
340
341 TO
342
361
362
12-38-602

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 12-38-602

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	1238602
County	Childress
River Basin	Red
Groundwater Management Area	6
Regional Water Planning Area	A - Panhandle
Groundwater Conservation District	Gateway GCD
Latitude (decimal degrees)	34.440556
Latitude (degrees minutes seconds)	34° 26' 26" N
Longitude (decimal degrees)	-100.289167
Longitude (degrees minutes seconds)	100° 17' 21" W
Coordinate Source	+/- 5 Seconds
Aquifer Code	313WTRS - Whitehorse Group
Aquifer	Other
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1940
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	108
Well Depth Source	Measured
Drilling Start Date	
Drilling End Date	
Drilling Method	
Borehole Completion	

Well Type	Withdrawal of Water
Well Use	Stock
Water Level Observation	None
Water Quality Available	Yes
Pump	
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	G. Johnson
Driller	
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	
Last Update Date	

Remarks	

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements

No Data Available

Water Quality Analysis

Sample Date: 11/6/1940 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** U.S. Geological Survey

Sampled Aquifer: Whitehorse Group

Analyzed Lab: University of Texas **Reliability:**

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		85.22	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		104	mg/L	
00910	CALCIUM (MG/L)		406	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		20	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		1436	mg/L	
00920	MAGNESIUM (MG/L)		103	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		1.41		
00932	SODIUM, CALCULATED, PERCENT		15	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)	calculated	123	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		1398	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2101	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

ATTACHMENT 12
(GROUNDWATER QUALITY ASSESSMENT)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

City of Childress West Treatment Plant Permit No. WQ0010076003

Groundwater Quality Assessment

The City of Childress, Childress County, Texas is providing a Groundwater Quality Assessment for the impact of the waste disposal system on the groundwater located within one mile of the disposal site and wastewater ponds.

The City of Childress is responsible for collecting and treating wastewater for the City of Childress. The City of Childress owns and operates the wastewater treatment plant that treats and discharges 0.21 million gallons of wastewater daily during its interim phase and 0.42 million gallons of wastewater daily during its final phase. Influent undergoes aerobic and anaerobic processes in integrated facultative lagoons. From the on-site storage pond, it is pumped for irrigation.

The City of Childress wastewater treatment plant has 3 wells located within one mile of the disposal site and wastewater ponds. Well logs for each of the wells have been provided along with this assessment. Regular monitoring of the water quality and enforcement of environmental protection laws are used to control pollution from discharge associated with the plant. Based on the analysis results generated by monthly monitoring there is no impact of the waste disposal system on the groundwater in the disposal site area.

The Blaine Aquifer is a minor aquifer located at the east end of the High Plains in North Texas. The aquifer is part of the Permian Blaine Formation, which is composed of red silty shale, gypsum, anhydrite, salt, and dolomite. The formation consists of cycles of marine and nonmarine sediments deposited in a broad, shallow sea that once covered the southwestern United States. Saturated thickness reaches 300 feet in the aquifer, but freshwater saturated thickness averages 137 feet. Groundwater occurs primarily in solution channels and caverns within the beds of anhydrite and gypsum and dissolution of these minerals contributes to the overall poor quality of the water.

Groundwater in the Blaine Aquifer is typically brackish. Although some wells contain slightly saline water, with total dissolved solids between 1,000 and 3,000 milligrams per liter, most contain moderately saline water, with total dissolved solids between 3,000 and 10,000 milligrams per liter, exceeding secondary drinking water standards for Texas. Sulfate values are also well in excess of the secondary drinking water standard of 300 milligrams per liter.

No significant water level declines have occurred in wells measured by the TWDB. Groundwater for domestic and livestock purposes is available from

shallow wells over most of the aquifer's extent. Water is also used for some municipal, industrial, and irrigation purposes.

A pond liner for the City of Childress Wastewater Treatment Plant is not available. A storage pond is to be constructed once the permit is approved. The Liner Certification will be submitted upon completion.

ph: 806.352.7117 2420 Lakeview Dr. Amarillo, TX 79109 fax: 806.352.7188
www.OJDEngineering.com

ATTACHMENT 13
(SOIL MAP & SOIL ANALYSIS)

ph: 806.352.7117 2420 Lakeview Dr. Amarillo, TX 79109 fax: 806.352.7188
www.OJDEngineering.com

SOILS MAP

OJD Engineering, L.P.
Consulting Engineers & Surveyors
F-4393

806-352-7117
2420 Lakeview Dr.
Amarillo, TX 79109

SOIL ANALYSIS REPORT

CLIENT: 41493	PKCC PAUL REYNOLDS PO BOX 778 CLARENDON, TX 79226

Servi-Tech Laboratories
www.servitechlabs.com

6921 S. Bell
Amarillo, TX 79109
800.557.7509
806.677.0093
Fax 806.677.0329

LAB NO:	26030 - 26038
INVOICE NO:	157035
DATE RECEIVED:	3/16/2020
DATE REPORTED:	04/22/2020

METHOD USED:			2:1 Water-Soil		2:1 Water-Soil	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP										
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
GROWER: CITY OF CHILDRESS										FIELD ID: WEST PIVOT											
26030	N/2	0 - 6	8.5		0.15	Lo	0.9	2.6	5	92	376	9	16	3390	429	122					
26031	N/2	6 - 18	8.7		0.16	Lo	0.6	4.1	15	43	226	16	58	3360	536	188					
26032	N/2	18 - 30	8.9		0.20	Hi	0.4	6.1	22	24	160	25	90	4830	485	271					
26033	S/2	0 - 6	8.6		0.18	Lo	0.7	3.4	6	59	324	13	23	3170	434	158					
26034	S/2	6 - 18	8.4		0.11	No	0.5	2.6	9	34	195	9	32	2320	493	168					
26035	S/2	18 - 30	8.5		0.21	No	0.4	7.0	25	11	140	15	54	2390	483	221					
GROWER: CITY OF CHILDRESS										FIELD ID: EAST PIVOT											
26036		0 - 6	8.4		0.13	No	0.9	7.7	14	94	281	14	25	2560	550	156					
26037		6 - 18	8.6		0.17	No	0.6	3.7	13	25	193	14	50	3190	609	251					
26038		18 - 30	9.0		0.26	Hi	0.6	1.6	6	8	137	24	86	7750	515	426					

Analyses are representative of the samples submitted. Samples are retained 30 days after report of analysis. Explanations of soil analysis terms are available upon request.

Reviewed and Approved By: Rachel Spaulding, Data Review Coordinator

09/02/2020 10:53 am

SOIL ANALYSIS REPORT

CLIENT: 41493	PKCC PAUL REYNOLDS PO BOX 778 CLARENDON, TX 79226

Servi-Tech Laboratories
www.servitechlabs.com

6921 S. Bell
Amarillo, TX 79109
800.557.7509
806.677.0093
Fax 806.677.0329

LAB NO:	26030 - 26038
INVOICE NO:	157035
DATE RECEIVED:	3/16/2020
DATE REPORTED:	04/22/2020

METHOD USED: KCl Extr. | TKN

Lab Number	Sample ID	Sample Depth	Ammonium Nitrogen ppm	Ammonium Nitrogen lb. /A	Total N ppm	TKN ppm
	GROWER: CITY OF CHILDRESS				FIELD ID: WEST PIVOT	
26030	N/2	0 - 6	3	5	551	548
26031	N/2	6 - 18	3	11	305	301
26032	N/2	18 - 30	3	11	62	56
26033	S/2	0 - 6	3	5	334	331
26034	S/2	6 - 18	3	11	71	68
26035	S/2	18 - 30	4	14	66	59
	GROWER: CITY OF CHILDRESS				FIELD ID: EAST PIVOT	
26036		0 - 6	5	9	357	349
26037		6 - 18	4	14	230	226
26038		18 - 30	4	14	52	<50

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P2O5	K2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
	GROWER: CITY OF CHILDRESS						FIELD ID: WEST PIVOT										
26030	N/2																
26031	N/2																
26032	N/2																
26033	S/2																
26034	S/2																
26035	S/2																
	GROWER: CITY OF CHILDRESS						FIELD ID: EAST PIVOT										
26036																	
26037																	
26038																	

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na
22	0	4	77	16	2
23	0	3	74	20	4
30	0	1	81	14	4
21	0	4	76	17	3
17	0	3	68	24	4
17	0	2	69	23	6
19	0	4	68	24	4
23	0	2	71	22	5
31	0	1	79	14	6

Analyses are representative of the samples submitted. Samples are retained 30 days after report of analysis. Explanations of soil analysis terms are available upon request.

Reviewed and Approved By: Rachel Spaulding, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT:	PKCC PAUL REYNOLDS PO BOX 778 CLARENDON, TX 79226
41493	

Servi-Tech Laboratories
www.servitechlabs.com

6921 S. Bell
Amarillo, TX 79109
800.557.7509
806.677.0093
Fax 806.677.0329

LAB NO:	26030 - 26038
INVOICE NO:	157035
DATE RECEIVED:	3/16/2020
DATE REPORTED:	04/22/2020

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 26032, 26038

The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Lab Number(s): 26035, 26037

SODIUM - CAUTION (5% to 8% Na): The exchangeable soil sodium (as % Na) is moderately high for medium-textured soils and may indicate a developing problem. If irrigated, an irrigation water analysis can help identify the sodium source. Contact the laboratory for details.

Lab Number(s): 26030, 26033, 26036

Servi-Tech Laboratory fertilizer recommendations were not requested.

Lab Number(s): 26032, 26038

SODIUM - CAUTION (4% to 7% Na): The exchangeable soil sodium (as % Na) is moderately high for fine-textured soils and may indicate a developing problem. If irrigated, an irrigation water analysis can help identify the sodium source. Contact the laboratory for details.

Analyses are representative of the samples submitted. Samples are retained 30 days after report of analysis. Explanations of soil analysis terms are available upon request.

Reviewed and Approved By: Rachel Spaulding, Data Review Coordinator

ATTACHMENT 14
(WATER BALANCE)

ph: 806.352.7117
2420 Lakeview Dr. Amarillo, TX 79109
fax: 806.352.7188
www.OJDEngineering.com

CHILDRESS WATER BALANCE (Interim Phase)

(INCHES/ACRE IRRIGATED)

	AVG PRECIP	AVG RUNOFF	AVG INFILT RAIN	EVAPO-TRANS	REQD LEACH	TOTAL WATER NEEDS	EFFL NEEDED ROOT ZONE	EVAP FROM PONDS SURFACE	EFFL TO LAND	CONSUMP FROM PONDS
JAN	0.81	0.04	0.77	2.55	0.46	3.02	2.25	0.12	2.64	2.77
FEB	1.03	0.11	0.92	2.94	0.52	3.46	2.54	0.13	2.99	3.12
MAR	1.48	0.30	1.18	4.82	0.94	5.77	4.59	0.20	5.40	5.59
APR	2.26	0.77	1.49	2.74	0.32	3.06	1.57	0.23	1.85	2.07
MAY	3.28	1.53	1.75	5.80	1.05	6.85	5.10	0.24	0.00	0.24
JUN	3.38	1.61	1.77	7.48	1.48	8.96	7.18	0.31	8.45	8.76
JUL	2.10	0.67	1.43	9.24	2.02	11.26	9.83	0.35	11.56	11.90
AUG	2.66	1.06	1.61	7.81	1.61	9.42	7.82	0.32	9.20	9.51
SEP	2.64	1.04	1.60	6.49	1.27	7.76	6.16	0.24	7.24	7.49
OCT	2.07	0.65	1.42	5.19	0.98	6.17	4.74	0.21	0.00	0.21
NOV	1.03	0.11	0.92	1.65	0.19	1.84	0.92	0.17	1.08	1.25
DEC	0.85	0.05	0.80	2.29	0.39	2.68	1.88	0.12	2.21	2.33
	23.60	7.93	15.67	59.00	11.24	70.24	54.57	2.62	52.62	55.24

Basis:

Runoff: SCS method CN = 81

Watershed Storage (S) in. = 2.36

Leaching: Electrical Conductivity Effluent (Ce) = 1.8 millimhos/cm

Maximum Allowable Conductivity Soil Solution = 8.7 millimhos/cm

Irrigation efficiency: 0.85

Irrigated acreage: 232

Effluent Supplied: 210000 gal/day

Analysis:

	Year		Monthly Average	
	In/Ac	MG	In/Ac	MG
Effluent required (irrig + evap):	55.2	348.0	4.6	29.0
Effluent supplied MGD 0.21	12.1	76.7	1.01	6.4
Effluent defecit:	43.1	271.3	3.6	22.6

CHILDRESS STORAGE VOLUME REQUIREMENTS (Interim Phase)

(INCHES/ACRE IRRIGATED)

	REC'D FOR APPL	PRECIP 25 YR WORST	RUNOFF 25 YR WORST	INFILT RAIN	AVAILABLE WATER	EVAP 25 YR WORST	WATER NEEDS	STORAGE	CUM STORAGE	APPL RATE
JAN	1.01	1.37	0.25	1.12	2.13	0.11	3.02	-1.32	-1.98	.90
FEB	1.01	1.75	0.45	1.30	2.31	0.12	3.46	-1.65	-3.63	.89
MAR	1.01	2.51	0.95	1.56	2.58	0.17	5.77	-4.11	-7.74	.84
APR	1.01	3.84	1.98	1.86	2.87	0.20	3.06	-0.60	-8.34	.81
MAY	1.01	5.56	3.48	2.08	3.09	0.21	6.85	-4.81	-13.15	.80
JUN	1.01	5.73	3.63	2.10	3.11	0.27	8.96	-7.33	-20.48	.74
JUL	1.01	3.56	1.75	1.81	2.82	0.31	11.26	-10.41	-30.89	.71
AUG	1.01	4.51	2.55	1.96	2.97	0.28	9.42	-8.05	-38.94	.73
SEP	1.01	4.47	2.52	1.96	2.97	0.22	7.76	-6.03	-44.97	.80
OCT	1.01	3.51	1.71	1.80	2.81	0.19	6.17	-4.31	-49.29	.83
NOV	1.01	1.74	0.44	1.30	2.31	0.15	1.84	0.23	0.23	.86
DEC	1.01	1.44	0.28	1.16	2.17	0.11	2.68	-0.88	-0.66	.90
	12.14	39.98	19.98	20.00	32.13	2.32	70.24			0.8182655 (ac-ft/ac/yr)

Basis:

Received for application: Average effluent flow to wastewater treatment plant

Acres irrigated: 232
Irrigation efficiency: 0.85

Analysis:

Maximum storage required = (1.98) in/irrig ac (1,666,355.1) ft^3

Total available storage at full capacity of all ponds = 2,255,850 ft^3

CHILDRESS WATER BALANCE (Final Phase)

(INCHES/ACRE IRRIGATED)

	AVG PRECIP	AVG RUNOFF	AVG INFILT RAIN	EVAPO-TRANS	REQD LEACH	TOTAL WATER NEEDS	EFFL NEEDED ROOT ZONE	EVAP FROM PONDS SURFACE	EFFL TO LAND	CONSUMP FROM PONDS
JAN	0.81	0.04	0.77	2.55	0.46	3.02	2.25	0.12	2.64	2.77
FEB	1.03	0.11	0.92	2.94	0.52	3.46	2.54	0.13	2.99	3.12
MAR	1.48	0.30	1.18	4.82	0.94	5.77	4.59	0.20	5.40	5.59
APR	2.26	0.77	1.49	2.74	0.32	3.06	1.57	0.23	1.85	2.07
MAY	3.28	1.53	1.75	5.80	1.05	6.85	5.10	0.24	0.00	0.24
JUN	3.38	1.61	1.77	7.48	1.48	8.96	7.18	0.31	8.45	8.76
JUL	2.10	0.67	1.43	9.24	2.02	11.26	9.83	0.35	11.56	11.90
AUG	2.66	1.06	1.61	7.81	1.61	9.42	7.82	0.32	9.20	9.51
SEP	2.64	1.04	1.60	6.49	1.27	7.76	6.16	0.24	7.24	7.49
OCT	2.07	0.65	1.42	5.19	0.98	6.17	4.74	0.21	0.00	0.21
NOV	1.03	0.11	0.92	1.65	0.19	1.84	0.92	0.17	1.08	1.25
DEC	0.85	0.05	0.80	2.29	0.39	2.68	1.88	0.12	2.21	2.33
	23.60	7.93	15.67	59.00	11.24	70.24	54.57	2.62	52.62	55.24

Basis:

Runoff: SCS method CN = 81

Watershed Storage (S) in. = 2.36

Leaching: Electrical Conductivity Effluent (Ce) = 1.8 millimhos/cm

Maximum Allowable Conductivity Soil Solution = 8.7 millimhos/cm

Irrigation efficiency: 0.85

Irrigated acreage: 232

Effluent Supplied: 420000 gal/day

Analysis:

	Year		Monthly Average	
	In/Ac	MG	In/Ac	MG
Effluent required (irrig + evap):	55.2	348.0	4.6	29.0
Effluent supplied MGD 0.21	24.3	153.3	2.02	12.8
Effluent defecit:	31.0	194.7	2.6	16.2

CHILDRESS STORAGE VOLUME REQUIREMENTS (Final Phase)

(INCHES/ACRE IRRIGATED)

	REC'D FOR APPL	PRECIP 25 YR WORST	RUNOFF 25 YR WORST	INFILT RAIN	AVAILABLE WATER	EVAP 25 YR WORST	WATER NEEDS	STORAGE	CUM STORAGE	APPL RATE
JAN	2.02	1.37	0.25	1.12	3.15	0.11	3.02	-0.31	1.06	1.91
FEB	2.02	1.75	0.45	1.30	3.32	0.12	3.46	-0.64	0.41	1.90
MAR	2.02	2.51	0.95	1.56	3.59	0.17	5.77	-3.09	-2.68	1.85
APR	2.02	3.84	1.98	1.86	3.88	0.20	3.06	0.41	-2.27	1.82
MAY	2.02	5.56	3.48	2.08	4.10	0.21	6.85	-3.80	-6.07	1.81
JUN	2.02	5.73	3.63	2.10	4.12	0.27	8.96	-6.32	-12.39	1.75
JUL	2.02	3.56	1.75	1.81	3.83	0.31	11.26	-9.40	-21.79	1.72
AUG	2.02	4.51	2.55	1.96	3.98	0.28	9.42	-7.04	-28.83	1.74
SEP	2.02	4.47	2.52	1.96	3.98	0.22	7.76	-5.02	-33.85	1.81
OCT	2.02	3.51	1.71	1.80	3.82	0.19	6.17	-3.30	-37.15	1.84
NOV	2.02	1.74	0.44	1.30	3.32	0.15	1.84	1.24	1.24	1.88
DEC	2.02	1.44	0.28	1.16	3.18	0.11	2.68	0.13	1.37	1.92
	24.27	39.98	19.98	20.00	44.27	2.32	70.24			1.8295539 (ac-ft/ac/yr)

Basis:

Received for application: Average effluent flow to wastewater treatment plant

Acres irrigated: 232

Irrigation efficiency: 0.85

Analysis:

Maximum storage required = 1.37 in/irrig ac 1,151,018.0 ft^3

Total available storage at full capacity of all ponds = 2,255,850 ft^3

CHILDRESS WATER BALANCE DATA-CROP PLAN
EVAPOTRANSPIRATION

	MAY		JUN		JUL		AUG		SEP		OCT	
CROP	AC	IN	AC	IN	AC	IN	AC	IN	AC	IN	AC	IN
Grass	86	6.6	86	7.4	86	8.2	86	7.6	86	5.7	86	4.6
Wheat												
Cotton	146	5.4	146	7.5	146	9.8	146	8.0	146	7.0	146	5.5
AVERAGE		5.8		7.5		9.2		7.8		6.5		5.2

	NOV		DEC		JAN		FEB		MAR		APR	
CROP	AC	IN	AC	IN	AC	IN	AC	IN	AC	IN	AC	IN
Grass	86	2.8	86	2.2	86	2.2	86	2.6	86	4.3	86	5.6
Wheat			146	2.3	146	2.8	146	3.1	146	5.1		
Cotton	146	1.0									146	1.1
AVERAGE		1.6		2.3		2.6		2.9		4.8		2.7

Source: Mean Crop Consumptive Use and Free-Water Evaporation for Texas
Borrelli, Fedler, and Gregory (Sorgum)

Mean Crop Consumptive Use and Free-Water Evaporation for Texas
Borrelli, Fedler, and Gregory (Wheat)

Combined Curve Number 81
Soils Group C
Hydraulic Condition Good

#QUAD	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
307	1995	3.2	3.69	5.08	5.56	5.72	7.84	8.87	7.72	5.07	6.89	4.89	4.48	69.01
307	1996	3.28	5.56	5.95	7.87	8.53	8.54	9.1	7.51	4.88	6.2	3.4	4.92	75.74
307	1997	3.65	3.35	6.57	6.07	5.58	6.63	9.39	7.66	6.96	4.87	3.84	1.95	66.52
307	1998	2.93	2	5.51	6.16	6.49	10.86	11.12	8.08	7.59	6.27	2.6	2.01	71.62
307	1999	5.39	4.06	3.73	7.36	7.13	8.13	9.38	8.73	6.03	6.2	5.39	4.54	76.31
307	2000	7.1	3.59	3.94	4.47	4.8	5.4	6.78	7.51	7.16	3.6	3.73	2.18	60.28
307	2001	1.13	1.71	2.94	5.45	5.61	8.56	10.97	8.2	6.02	6.11	3.99	2.72	63.41
307	2002	3.18	3.22	5.17	5.13	6.11	8.33	7.92	9.14	6.61	3.87	3.31	3.14	65.13
307	2003	2.77	2.25	4.45	6.06	6.27	6.39	10.22	8.9	5.84	5.16	4.28	2.99	65.58
307	2004	2.06	3.86	4.88	4.9	6.87	7.12	8.01	7.2	6.77	3.81	2.89	3.04	61.41
307	2005	2.65	2.16	4.75	5.87	4.83	7.96	8.8	6.98	7.23	4.69	5.09	4.04	65.05
307	2006	5.88	4.19	5.22	6.47	6.86	9.07	9.98	8.51	6.1	5.64	4.72	2.2	74.84
307	2007	2.37	3.8	3.92	4.5	3.6	5.2	7	8.13	6.1	7	4.21	4.04	59.87
307	2008	1.76	3.49	5.79	5.85	5.94	9.13	9.12	7.57	5.42	5.13	4.54	3.51	67.25
307	2009	2.83	4.62	6.07	6.21	5.82	7.77	8.7	8.67	5.2	3.7	4.93	2.22	66.74
307	2010	1.96	3.08	5.27	6.63	5.87	8.45	6.56	7.81	6.44	5.98	5.95	3.92	67.92
307	2011	2.53	3.35	5.35	7.96	8.09	12.04	11.81	11.53	8.13	6.29	4.82	1.78	83.68
307	2012	3.25	3.27	5.69	5.99	6.79	7.94	9.25	8.4	6.92	5.64	5.16	3.4	72.07
307	2013	3	3.48	6.21	5.77	6.81	8.93	8.64	8.45	7.16	6	4.67	2.63	72.29
307	2014	4.18	2.36	5.65	6.71	7.09	7.27	8.04	8.71	5.88	5.84	3.62	1.99	68.12
307	2015	2.11	2.68	4.12	5.49	4.91	6.64	8.57	8.02	7.73	6.12	4.47	3.25	64.05
307	2016	2.66	4.28	5.72	5.43	5.36	6.45	8.89	7.41	4.95	6.08	4.56	3.23	65.13
307	2017	2.04	4.11	5.93	5.28	6.42	7.4	8.42	5.88	5.76	5.23	4.98	3.4	65.21
307	2018	4.33	4.57	4.9	5.66	7.94	9.02	9	7.98	4.57	3.31	3.52	2.93	68.99
307	2019	2.64	3.59	3.43	3.56	3.81	6.96	8.64	9.2	6.88	5.94	3.55	3.75	61.66
Avg		3.16	3.45	5.05	5.86	6.13	7.92	8.93	8.16	6.30	5.42	4.28	3.13	67.92
% Avg		4.6%	5.1%	7.4%	8.6%	9.0%	11.7%	13.1%	12.0%	9.3%	8.0%	6.3%	4.6%	100%
25 Yr Min		2.78	3.04	4.45	5.16	5.40	6.98	7.87	7.19	5.55	4.78	3.78	2.76	59.75

EVAPORATION

#QUAD	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
307	1995	3.2	3.69	1.08	1.84	6.21	6.63	2.3	6.81	6.37	0.82	0.01	1.01	39.98
307	1996	0.04	0.1	0.4	0	2.69	3.45	5.22	3.37	3.6	1.53	0.48	0.46	21.35
307	1997	0.59	2.85	0	10.02	3.58	3.46	1.64	4.49	3.46	2.05	0.7	2.75	35.59
307	1998	0.46	2.69	3.39	0.4	1.35	0.37	0.69	0.96	0.43	3.98	1.38	0.14	16.24
307	1999	1.74	0.07	2.3	3.62	5.88	3.05	0.67	1.81	1.85	0.85	0	0.64	22.47
307	2000	0.15	0.37	4.94	3.42	1.19	7.87	0.96	0.09	0.07	3.63	1.56	0.75	25
307	2001	1.34	1.44	1.63	0.11	6.7	0.62	0.41	3.61	2.33	0.02	2.97	0.05	21.23
307	2002	0.91	0.73	0.95	1.8	1.09	3.45	3.77	1.73	1.76	4.86	0.41	1.59	23.06
307	2003	0	0.21	0.78	1.72	1.94	6.61	0.11	1.56	1.5	0.57	0.56	0.01	15.57
307	2004	1.87	2.19	3.25	3.17	0.02	6.9	1.83	2.94	0.98	2.4	6.63	0.46	32.64
307	2005	1.78	0.71	0.86	1.07	2.38	1.4	1.62	2.54	1.49	1.37	0	0.07	15.29
307	2006	0.06	0.19	2.18	1.09	2.8	0.69	1.03	3.89	3.13	4.56	0.4	3.11	23.13
307	2007	1.17	0.29	5.05	1.5	4.68	3.91	2.13	2.58	2.45	0.26	0.01	1.61	25.64
307	2008	0.01	0.74	0.68	1.44	2.9	2.85	1.32	3.87	5.95	4.12	0.08	0	23.96
307	2009	0.06	0.4	0.58	2.97	1.41	3.34	3.32	2.32	3.35	1.54	0.23	0.69	20.2
307	2010	1.44	1.65	0.96	6.4	2.04	3.48	5.27	1.03	2.31	2.47	0.76	0.02	27.82
307	2011	0.08	0.42	0.05	0.03	0.59	0.35	1.2	0.24	1.04	3	1.79	1.43	10.23
307	2012	0.14	0.79	1.92	1.23	1.99	3.65	0.71	2.2	3.35	0.15	0.05	0.46	16.64
307	2013	1.53	2.23	0.14	0.63	0.81	3.9	2.67	2.64	2.7	1.64	0.81	0.98	20.68
307	2014	0	0.36	0.34	0.7	3.72	4.05	3.2	2.27	2.34	0.49	1.3	0.37	19.14
307	2015	1.02	0.47	0.53	4.46	12.06	3.58	4.32	1.98	0.5	3.05	2.43	1.6	36
307	2016	0.43	0.56	0.43	2.18	6.57	3.16	2.51	4.71	2.44	0.57	1.43	1.17	26.16
307	2017	2.02	2.02	2.37	2.46	0.88	2.08	2.28	4.85	4.36	1.64	0.06	0.06	25.08
307	2018	0.01	0.51	0.76	0.36	3.99	3.42	1.36	2.28	4.26	5.68	0.55	0.89	24.07
307	2019	0.19	0.07	1.47	3.98	4.53	2.29	1.95	1.81	3.98	0.56	1.03	0.87	22.73
		0.8096	1.03	1.4816	2.264	3.28	3.3824	2.0996	2.6632	2.64	2.0724	1.0252	0.8476	23.596
% Avg		3%	4%	6%	10%	14%	14%	9%	11%	11%	9%	4%	4%	
25 Yr Max		1.37	1.75	2.51	3.84	5.56	5.73	3.56	4.51	4.47	3.51	1.74	1.44	39.98

PRECIPITATION

ATTACHMENT 15
(AFFECTED LANDOWNERS MAP)

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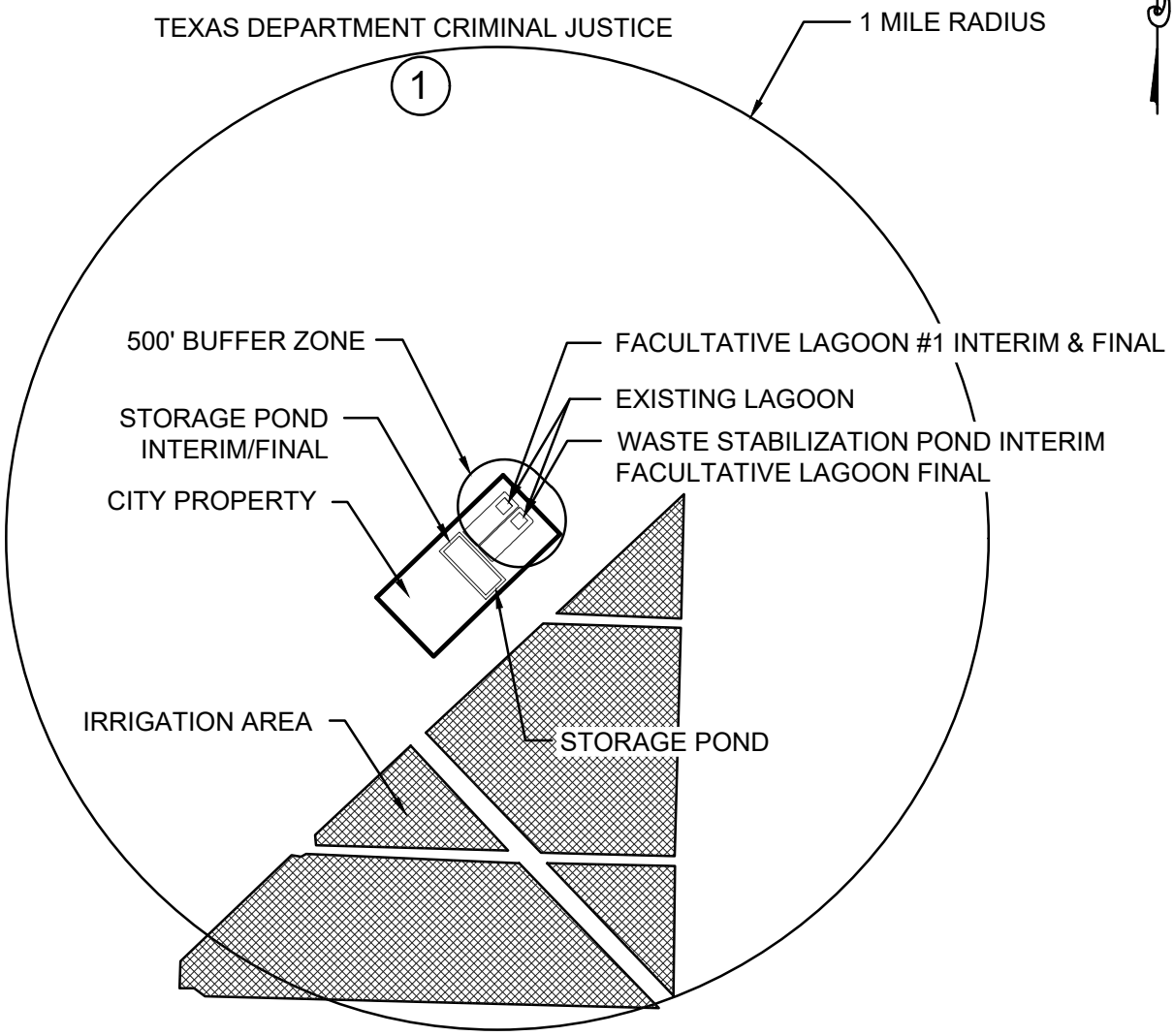
fax: 806.352.7188
www.OJDEngineering.com



NOTE:

THE TEXAS DEPARTMENT CRIMINAL JUSTICE OWNS THE AREA SURROUNDING THE CITY'S PROPERTY. THE CITY OWNS THE AREA WHERE THE PLANT IS AND THE IRRIGATION AREAS.

CITY OF CHILDRESS
WWTP PERMIT APPLICATION
AFFECTED LANDOWNER MAP

SCALE: 1" = 2000'	REVISION DATE:	DRAWING NUMBER:
DATE: November 2020	NEW DATE	

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Consulting Engineers & Surveyors
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Amarillo, TX 79109

ATTACHMENT 16
(BUFFER ZONE MAP)

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2420 Lakeview Dr. Amarillo, TX 79109
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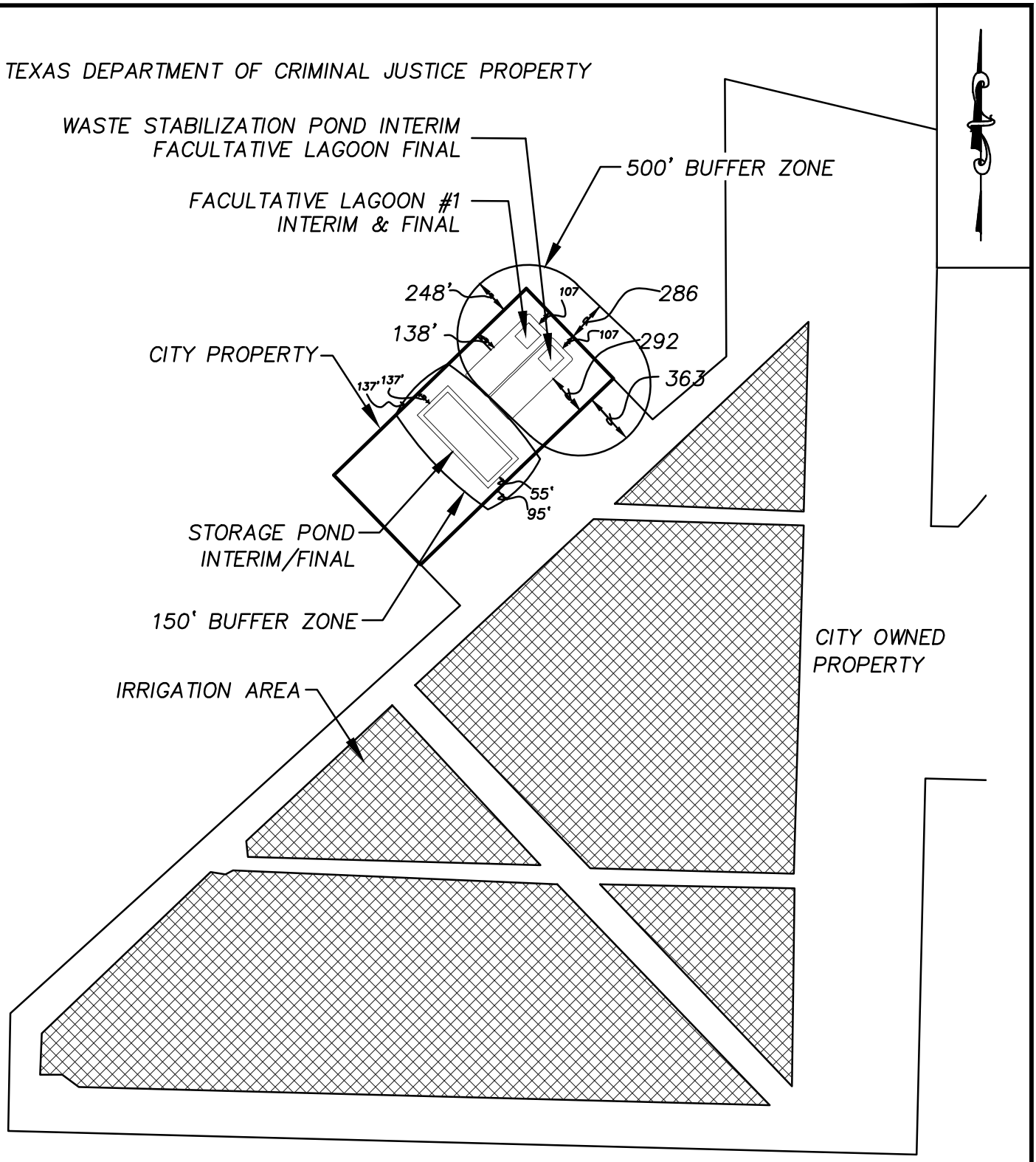

CITY OF CHILDRESS
WWTP PERMIT APPLICATION
BUFFER ZONE MAP

SCALE: 1" = 1000'	REVISION DATE:	DRAWING NUMBER:
DATE: November 2020		

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Amarillo, TX 79109

ATTACHMENT 17
(PHOTOS)

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SOUTH


NORTHEAST

CORRESPONDENCE

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