#### TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



#### DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT: <u>Moore Farm Water Control & Improvement District No. 1</u>

#### PERMIT NUMBER: New Permit

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

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

# 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 Ai	mend	ment Renewal
<0.05 MGD	\$350.00 🗆		\$315.00 🗆
≥0.05 but <0.10 M	AGD \$550.00 □		\$515.00 🗆
≥0.10 but <0.25 M	MGD \$850.00 □		\$815.00 <b>□</b>
≥0.25 but <0.50 M	AGD \$1,250.00 □		\$1,215.00
≥0.50 but <1.0 M	GD \$1,650.00 □		\$1,615.00
≥1.0 MGD	\$2,050.00 🖂		\$2,015.00 🗆
Minor Amendmen	t (for any flow) $150.00$		
Payment Information	tion:		
Mailed	Check/Money Order Numbe	r: <u>100</u>	)7
	Check/Money Order Amoun	it: <u>\$2,</u>	050.00
	Name Printed on Check: Ma	urice	E Moore III
EPAY	Voucher Number:	to er	iter text.
Copy of Pay	ment Voucher enclosed?		Yes 🗆
Soction 2 Tra	o of Application (Instr	uctiv	one Rago 20)
Section 2. Typ	be of Application (inst	ucui	Sils Page 29)
$\boxtimes$ New TPDES			New TLAP
□ Major Amend	ment <u>with</u> Renewal		Minor Amendment <u>with</u> Renewal
□ Major Amend	ment <u>without</u> Renewal		Minor Amendment <u>without</u> Renewal
□ Renewal with	out changes		Minor Modification of permit
For amendments of	or modifications, describe the	propo	osed changes: <u>N/A</u>
For existing perm	its:		
Permit Number: W	000N/A		
EPA I.D. (TPDES or	nlv): TXN/A		
Expiration Data:	NT / A		
Expiration Date:	$\frac{1N}{A}$		

### 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?

Moore Farm WCID No. 1

(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 <u>http://www15.tceq.texas.gov/crpub/</u>

CN: <u>603248667</u>

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): <u>Mr.</u>

First and Last Name: <u>Rob Soper</u>

Credential (P.E, P.G., Ph.D., etc.):

Title: <u>District President</u>

**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?

<u>N/A</u>

(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: <u>http://www15.tceq.texas.gov/crpub/</u>

CN: <u>N/A</u>

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): <u>N/A</u> First and Last Name: <u>N/A</u> Credential (P.E, P.G., Ph.D., etc.): <u>N/A</u> Title: <u>N/A</u>

Provide a brief description of the need for a co-permittee:  $\underline{N/A}$ 

#### 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: <u>Attachment A</u>

#### 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): <u>Mr.</u>			
	First and Last Name: <u>Jonathan Nguyen</u>			
	Credential (P.E, P.G., Ph.D., etc.):	st.		
	Title: <u>Permit Specialist</u>			
	Organization Name: <u>Quiddity Engineering</u>			
	Mailing Address: <u>3100 Alvin Devane Blvd, Suite 150</u>			
	City, State, Zip Code: <u>Austin, TX 78741</u>			
	Phone No.: <u>512-685-5156</u> Ext.:	Fax No.:	Click	here to enter text.
	E-mail Address: jnguyen@quiddity.com			
	Check one or both: 🛛 Administrative Contact		$\boxtimes$	Technical Contact
B.	Prefix (Mr., Ms., Miss): <u>Ms.</u>			
	First and Last Name: <u>Michelle Troy</u>			
	Credential (P.E, P.G., Ph.D., etc.): <u>P.E.</u>			
	Title: <u>Senior Project Manager</u>			
	Organization Name: <u>Quiddity Engineering</u>			
	Mailing Address: <u>4500 Mercantile Plaza Dr, Suite 210</u>			
	City, State, Zip Code: <u>Fort Worth, TX 76137</u>			
	Phone No.: <u>682-268-2202</u> Ext.:	Fax No.:	Click	here to enter text.
	E-mail Address: <u>mtroy@quiddity.com</u>			
	Check one or both: <ul> <li>Administrative Contact</li> </ul>		$\boxtimes$	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): <u>Mr.</u>

First and Last Name: <u>Rob Soper</u>

	Credential (P.E, P.G., Ph.D., etc.):
	Title: <u>District President</u>
	Organization Name: <u>Moore Farm WCID No. 1</u>
	Mailing Address: <u>14755 Preston Rd, Suite 600</u>
	City, State, Zip Code: <u>Dallas, TX 75254</u>
	Phone No.: <u>972-788-1600</u> Ext.: Fax No.:
	E-mail Address: <u>mkoehne@coatsrose.com</u>
B.	Prefix (Mr., Ms., Miss): <u>Mr.</u>
	First and Last Name: <u>J. Marc Myers</u>
	Credential (P.E, P.G., Ph.D., etc.):
	Title: <u>District Vice President</u>
	Organization Name: <u>Moore Farm WCID No. 1</u>
	Mailing Address: <u>14755 Preston Rd, Suite 600</u>
	City, State, Zip Code: <u>Dallas, TX 75254</u>
	Phone No.: <u>972-788-1600</u> Ext.: Fax No.:
	E-mail Address: mkoehne@coatsrose.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): <u>Ms.</u>	
First and Last Name: <u>Cindy Schmidt</u>	
Credential (P.E, P.G., Ph.D., etc.):	er text
Title: <u>District Bookkeeper</u>	
Organization Name: <u>L&amp;S District Services, LLC</u>	
Mailing Address: <u>PO Box 170</u>	
City, State, Zip Code: <u>Tomball, TX 77377</u>	
Phone No.: <u>713-356-7542</u> Ext.:	Fax No.: Click here to enter text
E-mail Address: <u>bloggins@gmail.com</u>	

#### 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): <u>Mr.</u>

First and Last Name: <u>J. Marc Myers</u>	
Credential (P.E, P.G., Ph.D., etc.):	
Title: <u>District Vice President</u>	
Organization Name: Moore Farm WCID No. 1	
Mailing Address: <u>14755 Preston Rd, Suite 600</u>	
City, State, Zip Code: <u>Dallas, TX 75254</u>	
Phone No.: <u>972-788-1600</u> Ext.: Fax No.:	
E-mail Address: mkoehne@coatsrose.com	

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: Jonathan Nguyen

Credential (P.E, P.G., Ph.D., etc.):

Title: <u>Permit Specialist</u>

Organization Name: <u>Quiddity Engineering</u>

Mailing Address: 3100 Alvin Devane Blvd, Suite 150

City, State, Zip Code: <u>Austin, TX 78741</u>

Phone No.: <u>512-685-5156</u> Ext.:

Fax No.:

E-mail Address: jnguyen@quiddity.com

# 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): <u>Mr.</u>

First and Last Name: <u>Jonathan Nguyen</u>

Credential (P.E, P.G., Ph.D., etc.):

Title: Organization Name: <u>Quiddity Engineering</u> Phone No.: <u>512-685-5156</u> Ext.: E-mail: jnguyen@quiddity.com

#### **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: <u>Riter C. Hulsey Public Library</u>

Location within the building:

Physical Address of Building: 301 N. Rockwall Ave.

City: Terrell

County: <u>Kaufman</u>

Contact Name:

Phone No.: <u>972-551-6663</u> Ext.:

#### 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? <u>Spanish</u>

# 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** 

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

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

Moore Farm WCID No. 1 WWTF

C. Owner of treatment facility: <u>Moore Farm WCID No. 1</u>

Ownership of Facility: 🛛	Public		Private		Both		Federal
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**D.** Owner of land where treatment facility is or will be:

Prefix (Mr., Ms., Miss):

First and Last Name: Moore Farm WCID No. 1

Mailing Address: <u>14755 Preston Rd, Suite 600</u>

City, State, Zip Code: Dallas, TX 75254

E-mail Address: <u>mkoehne@coatsrose.com</u>

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: <u>N/A</u>

Phone No.: 972-788-1600

- E. Owner of effluent disposal site:
  - Prefix (Mr., Ms., Miss): <u>N/A</u>

First and Last Name: <u>N/A</u>

Mailing Address: <u>N/A</u>

City, State, Zip Code: <u>N/A</u>

Phone No.: <u>N/A</u>

#### E-mail Address: N/A

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: <u>N/A</u>

**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): <u>N/A</u>

First and Last Name: <u>N/A</u>

Mailing Address: <u>N/A</u>

City, State, Zip Code: <u>N/A</u>

Phone No.: <u>N/A</u>

E-mail Address: <u>N/A</u>

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: <u>N/A</u>

### 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:

Approximately 0.35 miles southwest of the intersection of County Road 245 and County Road 243, in Kaufman County, Texas 75160.

- **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:

<u>To Little High Point Creek, thence to High Point Creek, thence to Big Brushy Creek, thence to Kings Creek, thence to Cedar Creek Reservoir in Segment No. 0818 of the Trinity River Basin</u>

City nearest the outfall(s): <u>Terrell</u>

County in which the outfalls(s) is/are located: <u>Kaufman</u>

Outfall Latitude: <u>32.804411</u>

Longitude: <u>-96.309061</u>

**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

tion granted 🛛 🗖 Authorization pending

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

Attachment: <u>N/A</u>

**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.

<u>N/A</u>

#### 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:

N/A

- **B.** City nearest the disposal site: N/A
- **C.** County in which the disposal site is located: N/A
- **D.** Disposal Site Latitude: <u>N/A</u> Longitude: <u>N/A</u>
- E. For TLAPs, describe the routing of effluent from the treatment facility to the disposal site:

<u>N/A</u>

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

<u>N/A</u>

# 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.

N/A			

- **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:

Jonat	han	Ngu	yen
		-	

**D.** Do you owe any fees to the TCEQ?

Yes	$\boxtimes$	No

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

Account number: <u>N/A</u>

Amount past due: <u>N/A</u>

- E. Do you owe any penalties to the TCEQ?
  - 🗆 Yes 🖾 No

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

Enforcement order number: <u>N/A</u>

Amount past due: <u>N/A</u>

# 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: <u>See List of Attachments</u>

#### Section 14. Signature Page (Instructions Page 39)

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

Permit Number: New Permit

Applicant: Moore Farm WCID No. 1

#### 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): Rob Soper

Signatory title: District President

Signature:

Date: DECONCOL 5,2022

(Ose blue lik)	
Subscribed and Sworn to before me by the said	

on this	5th	day of	December	,20,22.
My commis	sion expires on the_	204	_day of August	, 20 <u>23</u> .

Notary Public

[SEAL]

County, Texas



#### Section 15. Plain Language Summary (Instructions Page 40)

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

If you are subject to the alternative language notice requirements in <u>30 Texas Administrative Code</u> <u>\$39.426</u>, **you must provide a translated copy of the completed plain language summary in** <u>the appropriate alternative language as part of your application package</u>. For your convenience, a Spanish template has been provided below.

# ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS

#### DOMESTIC WASTEWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

1. Enter applicant's name here. (2. Enter Customer Number here (i.e., CN6#########).) 3. Choose from the drop-down menu. 4. Enter name of facility here. 5. Enter Regulated Entity Number here (i.e., RN1#######). 6. Choose from the drop-down menu. 7. Enter facility description here. The facility 8. Choose from the drop-down menu. located 9. Enter location here. , in 10. Enter city name here., 11. Enter county name here. County, Texas 12. Enter zip code here.

13. Enter summary of application request here. *<<For TLAP applications include the following sentence, otherwise delete:>>* This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain<sup>14</sup>. List all expected pollutants here. 15. Enter types of wastewater discharged here. 16. Choose from the drop-down menu. treated by 17. Enter a description of wastewater treatment used at the facility here.

# PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS TPDES o TLAP

#### AGUAS RESIDUALES DOMÉSTICAS

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no son representaciones federales exigibles de la solicitud de permiso.

Introduzca el nombre del solicitante aquí. (2. Introduzca el número de cliente aquí (es decir, CN6 #########).)
 Elija del menú desplegable. 4. Introduzca el nombre de la instalación aquí. 5.
 Introduzca el número de entidad regulada aquí (es decir, RN1 #########).
 Elija del menú desplegable. 7. Introduzca la descripción de la instalación aquí. . La instalación 8. Elija del menú desplegable. ubicado 9. Introduzca la ubicación aquí. , en 10. Introduzca el nombre de la ciudad aquí. , Condado de 11. Introduzca el nombre del condado aquí. , Texas 12. Introduzca el código postal aquí. .
 Introduzca el resumen de la solicitud de solicitud aquí. <<</li>
 *Para las aplicaciones de TLAP incluya la siguiente oración, de lo contrario, elimine:>>* Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan14. Liste todos los contaminantes esperados aquí. 15. Introduzca los tipos de aguas residuales descargadas aquí. 16. Elija del menú desplegable. tratado por 17. Introduzca una descripción del tratamiento de aguas residuales utilizado en la instalación aquí.

# 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:

 $\boxtimes$  USB Drive  $\square$  Four sets of labels

- **D.** Provide the source of the landowners' names and mailing addresses: <u>Kaufman CAD</u>
- **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):

<u>N/A</u>

# 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)?



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

### SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

#### FOR AGENCIES REVIEWING DOMESTIC TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:	
Application type:RenewalMajor Application	nendmentNinor AmendmentNew
County:	Segment Number:
Admin Complete Date:	_
Agency Receiving SPIF:	
Texas Historical Commission	U.S. Fish and Wildlife
Texas Parks and Wildlife Department	U.S. Army Corps of Engineers

#### This form applies to TPDES permit applications only. (Instructions, Page 53)

The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

**Do not refer to a response of any item in the permit application form**. Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee: <u>Moore Farm WCID No. 1</u>

Permit No. WQ00 New Permit

EPA ID No. TX New Permit

Address of the project (or a location description that includes street/highway, city/vicinity, and county):

Approximately 0.35 miles southwest of the intersection of County Road 245 and County Road 243, in Kaufman County, Texas 75160.

Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

Prefix (Mr., Ms., Miss): <u>Mr.</u>

First and Last Name: Jonathan Nguyen

Credential (P.E, P.G., Ph.D., etc.):

Title: <u>Permit Specialist</u>

Mailing Address: <u>3100 Alvin Devane Blvd</u>, <u>Suite 150</u>

City, State, Zip Code: <u>Austin, TX 78741</u>

Phone No.: <u>512-685-5156</u> Ext.:

Fax No.:

E-mail Address: jnguyen@quiddity.com

- 2. List the county in which the facility is located: Kaufman
- 3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.
   Property owner is the permittee.
- 4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

<u>To Little High Point Creek, thence to High Point Creek, thence to Big Brushy Creek, thence to Kings Creek, thence to Cedar Creek Reservoir in Segment No. 0818 of the Trinity River Basin</u>

5. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

Provide original photographs of any structures 50 years or older on the property.

Does your project involve any of the following? Check all that apply.

- Proposed access roads, utility lines, construction easements
- □ Visual effects that could damage or detract from a historic property's integrity
- □ Vibration effects during construction or as a result of project design
- Additional phases of development that are planned for the future
- Sealing caves, fractures, sinkholes, other karst features

- Disturbance of vegetation or wetlands
- 6. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

Approximately 10 acres will be used for the treatment plant.

7. Describe existing disturbances, vegetation, and land use: Current land use is agricultural.

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

- 8. List construction dates of all buildings and structures on the property: <u>No existing buildings</u>
- 9. Provide a brief history of the property, and name of the architect/builder, if known. <u>N/A</u>

# 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

#### Fee Code: WQP Waste Permit No:

- 1. Check or Money Order Number: 1007
- 2. Check or Money Order Amount: \$2,050.00
- 3. Date of Check or Money Order: 12/05/2022
- 4. Name on Check or Money Order: TCEO
- 5. APPLICATION INFORMATION
  - Name of Project or Site: Moore Farm WCID No. 1

Physical Address of Project or Site: 14755 Preston Rd, Suite 600 Dallas, TX 75254

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

HWY 205 FARM LTD MAURICE E MOORE III 3890 W NORTHWEST HWY STE 660 DALLAS, TX. 75220	1215122	1007 62-15/311
PAY TO THE TCEO	1\$20	5000
Two Thasand Fifly	Dalared 100 Dollars	Photo Safe
Payable Al: 225 Uberly Streel, New York, NY 10281	7	Drivits en baze
FOR MELTE FASTING ID NO. 1		<b>B</b> \$ <b>7</b>
1:0311001571: 690003719	36º 57002	

# BY OVERNIGHT/EXPRESS MAIL

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

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# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY **DOMESTIC WASTEWATER PERMIT APPLICATION**

# **DOMESTIC TECHNICAL REPORT 1.0**

The Following Is Required For All Applications Renewal, New, And Amendment

# Section 1. Permitted or Proposed Flows (Instructions Page 51)

#### A. Existing/Interim I Phase

Design Flow (MGD): <u>0.20</u> 2-Hr Peak Flow (MGD): <u>0.80</u> Estimated construction start date: <u>10/2023</u> Estimated waste disposal start date: <u>1/2024</u>

#### **B. Interim II Phase**

Design Flow (MGD): <u>0.50</u> 2-Hr Peak Flow (MGD): <u>2.00</u> Estimated construction start date: <u>6/2024</u> Estimated waste disposal start date: <u>7/2025</u>

#### C. Final Phase

Design Flow (MGD): <u>1.60</u> 2-Hr Peak Flow (MGD): <u>6.40</u> Estimated construction start date: <u>7/2026</u> Estimated waste disposal start date: <u>9/2027</u>

#### D. Current operating phase: not yet constructed

Provide the startup date of the facility:

# Section 2. Treatment Process (Instructions Page 51)

#### A. Treatment process description

Provide a detailed description of the treatment process. Include the type of

Page 1 of 80

**treatment plant, mode of operation, and all treatment units.** Start with the plant's head works and finish with the point of discharge. Include all sludge processing and drying units. **If more than one phase exists or is proposed in the permit, a description of** *each phase* **must be provided**. Process description:

Soo A	ttachmont I	Cum	alamontal	Technical Doport
JUCE F	AUIACIIIIIIEIIU I 7	- ວແມ	Ulemental	

Port or pipe diameter at the discharge point, in inches: <u>not yet constructed</u>

#### **B.** Treatment Units

In Table 1.0(1), provide the treatment unit type, the number of units, and dimensions (length, width, depth) **of each treatment unit, accounting for** *all* **phases of operation**.

Treatment Unit Type	Number of	Dimensions (L x W x D)
	Units	
See Attachment I		

Table 1.0(1) - Treatment Units

#### C. Process flow diagrams

Provide flow diagrams for the existing facilities and **each** proposed phase of construction.

Attachment: <u>Attachment J</u>

# Section 3. Site Drawing (Instructions Page 52)

Provide a site drawing for the facility that shows the following:

- The boundaries of the treatment facility;
- The boundaries of the area served by the treatment facility;
- If land disposal of effluent, the boundaries of the disposal site and all storage/holding ponds; and
- If sludge disposal is authorized in the permit, the boundaries of the land application or disposal site.

#### Attachment: <u>Attachment K</u>

Provide the name and a description of the area served by the treatment facility.

The plant will serve a residential subdivision located approximately 1.5 miles
north of the City of Terrell.

# Section 4. Unbuilt Phases (Instructions Page 52)

Is the application for a renewal of a permit that contains an unbuilt phase or

phases?

Yes □ No ⊠

**If yes**, does the existing permit contain a phase that has not been constructed within five years of being authorized by the TCEQ?

Yes 🗆 🛛 No 🗆

**If yes**, provide a detailed discussion regarding the continued need for the unbuilt phase. Failure to provide sufficient justification may result in the Executive Director recommending denial of the unbuilt phase or phases.

<u>N/A</u>

### Section 5. Closure Plans (Instructions Page 53)

Have any treatment units been taken out of service permanently, or will any units be taken out of service in the next five years?

Yes 🗆

If yes, was a closure plan submitted to the TCEQ?

No 🖂

Yes 🗆 No 🗆

If yes, provide a brief description of the closure and the date of plan approval.

<u>N/A</u>

# Section 6. Permit Specific Requirements (Instructions Page 53)

For applicants with an existing permit, check the *Other Requirements* or *Special Provisions* of the permit.

A. Summary transmittal

Have plans and specifications been approved for the existing facilities and each proposed phase?

Yes 🗆 🛛 No 🖂

If yes, provide the date(s) of approval for each phase:

Provide information, including dates, on any actions taken to meet a requirement or provision pertaining to the submission of a summary transmittal letter. Provide a copy of an approval letter from the TCEQ, if applicable.

Will be approved prior to construction

#### **B.** Buffer zones

Have the buffer zone requirements been met?

Yes 🗆 🛛 No 🗆

Provide information below, including dates, on any actions taken to meet the conditions of the buffer zone. If available, provide any new documentation

relevant to maintaining the buffer zones. Will be met by ownership of buffer zone area

#### C. Other actions required by the current permit

Does the *Other Requirements* or *Special Provisions* section in the existing permit require submission of any other information or other required actions? Examples include Notification of Completion, progress reports, soil monitoring data, etc.

Yes 🗆 🛛 No 🗆

**If yes**, provide information below on the status of any actions taken to meet the conditions of an *Other Requirement* or *Special Provision*.

N/A

#### D. Grit and grease treatment

#### 1. Acceptance of grit and grease waste

Does the facility have a grit and/or grease processing facility onsite that treats and decants or accepts transported loads of grit and grease waste that are discharged directly to the wastewater treatment plant prior to any treatment?

Yes 🗆 🛛 No 🖾

If No, stop here and continue with Subsection E. Stormwater Management.

#### 2. Grit and grease processing

Describe below how the grit and grease waste is treated at the facility. In your description, include how and where the grit and grease is introduced to the treatment works and how it is separated or processed. Provide a flow diagram showing how grit and grease is processed at the facility.

# 3. Grit disposal

Does the facility have a Municipal Solid Waste (MSW) registration or permit for grit\_disposal?

Yes 🗆 🛛 No 🗆

**If No**, contact the TCEQ Municipal Solid Waste team at 512-239-0000. Note: A registration or permit is required for grit disposal. Grit shall not be combined with treatment plant sludge. See the instruction booklet for additional information on grit disposal requirements and restrictions.

Describe the method of grit disposal.

#### 4. Grease and decanted liquid disposal

Note: A registration or permit is required for grease disposal. Grease shall not be combined with treatment plant sludge. For more information, contact the TCEQ Municipal Solid Waste team at 512-239-0000.

Describe how the decant and grease are treated and disposed of after grit separation.

# E. Stormwater management

#### 1. Applicability

Does the facility have a design flow of 1.0 MGD or greater in any phase?

Yes 🖂 🛛 No 🗆

Does the facility have an approved pretreatment program, under 40 CFR Part 403?

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Yes □ No ⊠

**If no to both of the above**, then skip to Subsection F, Other Wastes Received.

#### 2. MSGP coverage

Is the stormwater runoff from the WWTP and dedicated lands for sewage disposal currently permitted under the TPDES Multi-Sector General Permit (MSGP), TXR050000?

Yes □ No ⊠

**If yes**, please provide MSGP Authorization Number and skip to Subsection F, Other Wastes Received:

TXR05 Include the or TXRNE

If no, do you intend to seek coverage under TXR050000?

Yes 🛛 🛛 No 🗆

#### 3. Conditional exclusion

Alternatively, do you intend to apply for a conditional exclusion from permitting based TXR050000 (Multi Sector General Permit) Part II B.2 or TXR050000 (Multi Sector General Permit) Part V, Sector T 3(b)?

Yes □ No ⊠

If yes, please explain below then proceed to Subsection F, Other Wastes

Received:

<u>N/A</u>

#### 4. Existing coverage in individual permit

Is your stormwater discharge currently permitted through this individual TPDES or TLAP permit?

Yes 🗆 🛛 No 🖂

**If yes**, provide a description of stormwater runoff management practices at the site that are authorized in the wastewater permit then skip to Subsection F, Other Wastes Received.

<u>N/A</u>

# 5. Zero stormwater discharge

Do you intend to have no discharge of stormwater via use of evaporation or other means?

Yes 🗆 🛛 No 🖂

If yes, explain below then skip to Subsection F. Other Wastes Received. N/A

Note: If there is a potential to discharge any stormwater to surface water in the state as the result of any storm event, then permit coverage is required under the MSGP or an individual discharge permit. This requirement applies to all areas of facilities with treatment plants or systems that treat, store, recycle, or reclaim domestic sewage, wastewater or sewage sludge (including dedicated lands for sewage sludge disposal located within the onsite property boundaries) that meet the applicability criteria of above. You have the option of obtaining coverage under the MSGP for direct discharges, (recommended), or obtaining coverage under this individual permit.

# 6. Request for coverage in individual permit

Are you requesting coverage of stormwater discharges associated with your treatment plant under this individual permit?

Yes 🗆 🛛 No 🖂

**If yes**, provide a description of stormwater runoff management practices at the site for which you are requesting authorization in this individual wastewater permit and describe whether you intend to comingle this discharge with your treated effluent or discharge it via a separate dedicated stormwater outfall. Please also indicate if you intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

N/A

Note: Direct stormwater discharges to waters in the state authorized through this individual permit will require the development and implementation of a stormwater pollution prevention plan (SWPPP) and will be subject to additional monitoring and reporting requirements. Indirect discharges of stormwater via headworks recycling will require compliance with all individual permit requirements including 2-hour peak flow limitations. All stormwater discharge authorization requests will require additional information during the technical review of your application.

#### F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed? No 🖂

Yes 🗆

If yes, a Sewage Sludge Solids Management Plan is required. See Example 5 in the instructions.

#### G. Other wastes received including sludge from other WWTPs and septic waste

# 1. Acceptance of sludge from other WWTPs

Does the facility accept or will it accept sludge from other treatment plants at the facility site?

Yes 🗆 No 🖂

#### If yes, attach sewage sludge solids management plan. See Example 5 of the instructions.

In addition, provide the date that the plant started accepting sludge or is anticipated to start accepting sludge, an estimate of monthly sludge

acceptance (gallons or millions of gallons), an estimate of the BOD<sub>5</sub>

concentration of the sludge, and the design BOD<sub>5</sub> concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

N/A

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

# 2. Acceptance of septic waste

Is the facility accepting or will it accept septic waste?

Yes □ No ⊠

If yes, does the facility have a Type V processing unit?

Yes 🗆 🛛 No 🗆

If yes, does the unit have a Municipal Solid Waste permit?

Yes □ No □

**If yes to any of the above**, provide a the date that the plant started accepting septic waste, or is anticipated to start accepting septic waste, an estimate of monthly septic waste acceptance (gallons or millions of gallons), an estimate of the BOD<sub>5</sub> concentration of the septic waste, and the design

BOD<sub>5</sub> concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

<u>N/A</u>

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

#### 3. Acceptance of other wastes (not including septic, grease, grit, or RCRA, CERCLA or as discharged by IUs listed in Worksheet 6)

Is the facility accepting or will it accept wastes that are not domestic in nature excluding the categories listed above?

Yes □ No ⊠

**If yes**, provide the date that the plant started accepting the waste, an estimate how much waste is accepted on a monthly basis (gallons or millions of gallons), a description of the entities generating the waste, and any distinguishing chemical or other physical characteristic of the waste. Also note if this information has or has not changed since the last permit action.

<u>N/A</u>

#### Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 58)

Is the facility in operation? Yes □ No ⊠

If no, this section is not applicable. Proceed to Section 8.

**If yes**, provide effluent analysis data for the listed pollutants. *Wastewater treatment facilities* complete Table 1.0(2). W*ater treatment facilities* discharging filter backwash water, complete Table 1.0(3).

Note: The sample date must be within 1 year of application submission.

Dollutant	Average	Max	No. of	Sample	Sample
Pollutalit	Conc.	Conc.	Samples	Туре	Date/Time
CBOD <sub>5</sub> , mg/l					
Total Suspended Solids, mg/l					
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l					
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l					
Chloride, mg/l					
Total Phosphorus, mg/l					
pH, standard units					
Dissolved Oxygen*, mg/l					
Chlorine Residual, mg/l					
<i>E.coli</i> (CFU/100ml) freshwater					
Entercocci (CFU/100ml)					

#### Table 1.0(2) - Pollutant Analysis for Wastewater Treatment Facilities

Pollutant	Average	Max	No. of	Sample	Sample
ronutant	Conc.	Conc.	Samples	Туре	Date/Time
saltwater					
Total Dissolved Solids, mg/l					
Electrical Conductivity,					
µmohs/cm, †					
Oil & Grease, mg/l					
Alkalinity (CaCO <sub>3</sub> )*, mg/l					

\*TPDES permits only

**†TLAP** permits only

Table 1.0(3) - Pollutant Analysis for Water Treatment Facilities

Pollutant	Average	Max	No. of	Sample	Sample
	Conc.	Conc.	Samples	Туре	Date/Time
Total Suspended Solids, mg/l					
Total Dissolved Solids, mg/l					
pH, standard units					
Fluoride, mg/l					
Aluminum, mg/l					
Alkalinity (CaCO <sub>3</sub> ), mg/l					

# Section 8. Facility Operator (Instructions Page 60)

Facility Operator Name: will be selected prior to construction

Facility Operator's License Classification and Level: N/A

Facility Operator's License Number: <u>N/A</u>

### Section 9. Sewage Sludge Management and Disposal (Instructions Page 60)

#### A. Sludge disposal method

Identify the current or anticipated sludge disposal method or methods from the

following list. Check all that apply.

- □ Permitted landfill
- Permitted or Registered land application site for beneficial use
- Land application for beneficial use authorized in the wastewater permit
- Permitted sludge processing facility
- □ Marketing and distribution as authorized in the wastewater permit
- Composting as authorized in the wastewater permit
- Permitted surface disposal site (sludge monofill)
- Surface disposal site (sludge monofill) authorized in the wastewater permit
- Transported to another permitted wastewater treatment plant or permitted sludge processing facility. If you selected this method, a written statement or contractual agreement from the wastewater treatment plant or permitted sludge processing facility accepting the sludge must be included with this application.
- $\Box$  Other:

#### B. Sludge disposal site

Disposal site name: <u>will be selected prior to construction</u> TCEQ permit or registration number: <u>N/A</u> County where disposal site is located: <u>N/A</u>

#### C. Sludge transportation method

Method of transportation (truck, train, pipe, other): <u>will be selected prior to</u>

construction

Name of the hauler: N/A

Hauler registration number: <u>N/A</u>

Sludge is transported as a:

Liquid 🛛	semi-liquid 🗆
----------	---------------

semi-solid 🗆	]
--------------	---

solid 🗆

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# Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 60)

#### A. Beneficial use authorization

Does the existing permit include authorization for land application of sewage sludge for beneficial use?

Yes 🗆 🛛 No 🖂

**If yes**, are you requesting to continue this authorization to land apply sewage sludge for beneficial use?

Yes 🗆 No 🗆

If yes, is the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)** attached to this permit application (see the instructions for details)?

Yes 🗆 🛛 No 🗆

#### **B.** Sludge processing authorization

Does the existing permit include authorization for any of the following sludge processing, storage or disposal options?

Sludge Composting	Yes 🗆	No 🖂
Marketing and Distribution of sludge	Yes 🗆	No 🖂
Sludge Surface Disposal or Sludge Monofill	Yes 🗆	No 🖂
Temporary storage in sludge lagoons	Yes 🗆	No 🖂

**If yes** to any of the above sludge options and the applicant is requesting to continue this authorization, is the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)** attached to this permit application?

Yes 🗆 🛛 No 🗆

#### Section 11. Sewage Sludge Lagoons (Instructions Page 61)

Does this facility include sewage sludge lagoons?

Yes 🗆 🛛 No 🖾

If yes, complete the remainder of this section. If no, proceed to Section 12.

#### A. Location information

The following maps are required to be submitted as part of the application. For each map, provide the Attachment Number.

- Original General Highway (County) Map: Attachment:
- USDA Natural Resources Conservation Service Soil Map: Attachment:
- Federal Emergency Management Map: Attachment:
- Site map:

Attachment:

Discuss in a description if any of the following exist within the lagoon area.

Check all that apply.



- Soils with flooding classification
- Overlap an unstable area
- □ Wetlands
- □ Located less than 60 meters from a fault
- $\Box$  None of the above

#### Attachment:

If a portion of the lagoon(s) is located within the 100-year frequency flood plain, provide the protective measures to be utilized including type and size of protective structures:

#### **B.** Temporary storage information

Provide the results for the pollutant screening of sludge lagoons. These results are in addition to pollutant results in Section 7 of Technical Report 1.0.

Nitrate Nitrogen, mg/kg:

Total Kjeldahl Nitrogen, mg/kg:

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg:

Phosphorus, mg/kg:

Page 15 of 80
Potassium, mg/kg:
pH, standard units:
Ammonia Nitrogen mg/kg:
Arsenic: Dick here to enter text
Cadmium: Click here to enter text
Chromium: Click here to enter text
Copper: Click here to enter text
Lead: Click here to enter text
Mercury: Click here to enter text
Molybdenum: Click here to enter text
Nickel: Click here to enter text
Selenium: Click here to enter text
Zinc: Click here to enter text
Total PCBs: Click here to enter text
Provide the following information: Volume and frequency of sludge to the lagoon(s):
Total dry tons stored in the lagoons(s) per 365-day period:
enter text.
Total dry tons stored in the lagoons(s) over the life of the unit:
enter text.
C. Liner information
Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of 1x10 <sup>-7</sup> cm/sec? Yes I No I
<b>If yes</b> , describe the liner below. Please note that a liner is required.

# D. Site development plan

Provide a detailed description of the methods used to deposit sludge in the

lagoon(s):

Attach the following documents to the application.

• Plan view and cross-section of the sludge lagoon(s)

# Attachment:

• Copy of the closure plan

# Attachment:

• Copy of deed recordation for the site

# Attachment:

• Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

#### Attachment:

• Description of the method of controlling infiltration of groundwater and surface water from entering the site

Attachment:

• Procedures to prevent the occurrence of nuisance conditions

# Attachment:

# E. Groundwater monitoring

Is groundwater monitoring currently conducted at this site, or are any wells available for groundwater monitoring, or are groundwater monitoring data otherwise available for the sludge lagoon(s)?

Yes 🗆 🛛 No 🗆

If groundwater monitoring data are available, provide a copy. Provide a profile of soil types encountered down to the groundwater table and the depth to the shallowest groundwater as a separate attachment.

Attachment:

# Section 12. Authorizations/Compliance/Enforcement

# (Instructions Page 63)

#### A. Additional authorizations

Does the permittee have additional authorizations for this facility, such as reuse authorization, sludge permit, etc?

Yes 🗆 🛛 No 🖾

**If yes**, provide the TCEQ authorization number and description of the authorization:

<u>N/A</u>

#### **B.** Permittee enforcement status

Is the permittee currently under enforcement for this facility?

Yes □ No ⊠

Is the permittee required to meet an implementation schedule for compliance or enforcement?

Yes □ No ⊠

**If yes** to either question, provide a brief summary of the enforcement, the implementation schedule, and the current status:

N/A

# Section 13. RCRA/CERCLA Wastes (Instructions Page 63)

#### A. RCRA hazardous wastes

Has the facility received in the past three years, does it currently receive, or will it receive RCRA hazardous waste?

Yes 🗆 🛛 No 🖂

#### B. Remediation activity wastewater

Has the facility received in the past three years, does it currently receive, or will it receive CERCLA wastewater, RCRA remediation/corrective action wastewater or other remediation activity wastewater?

Yes 🗆 🛛 No 🖂

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# C. Details about wastes received

**If yes** to either Subsection A or B above, provide detailed information concerning these wastes with the application.

Attachment: <u>N/A</u>

# Section 14. Laboratory Accreditation (Instructions Page 64)

All laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*, which includes the following general exemptions from National Environmental Laboratory Accreditation Program (NELAP) certification requirements:

- The laboratory is an in-house laboratory and is:
  - periodically inspected by the TCEQ; or
  - located in another state and is accredited or inspected by that state; or
  - performing work for another company with a unit located in the same site; or
  - performing pro bono work for a governmental agency or charitable organization.
- The laboratory is accredited under federal law.
- The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review 30 TAC Chapter 25 for specific requirements.

The following certification statement shall be signed and submitted with every application. See the *Signature Page* section in the Instructions, for a list of designated representatives who may sign the certification.

#### CERTIFICATION:

I certify that all laboratory tests submitted with this application meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.

Printed Name: Rob Soper

Title: District President

Signature: 12 5 Date:

# DOMESTIC TECHNICAL REPORT 1.1

# The following is required for new and amendment applications

# Section 1. Justification for Permit (Instructions Page 66)

# A. Justification of permit need

Provide a detailed discussion regarding the need for any phase(s) not currently permitted. Failure to provide sufficient justification may result in the Executive Director recommending denial of the proposed phase(s) or permit.

See Attachment L – Justification for Plant Construction

# B. Regionalization of facilities

Provide the following information concerning the potential for regionalization of domestic wastewater treatment facilities:

# 1. Municipally incorporated areas

If the applicant is a city, then Item 1 is not applicable. Proceed to Item 2 Utility CCN areas.

Is any portion of the proposed service area located in an incorporated city?

Yes  $\Box$  No  $\boxtimes$  Not Applicable  $\Box$ 

If yes, within the city limits of: N/A

If yes, attach correspondence from the city.

Attachment: <u>N/A</u>

If consent to provide service is available from the city, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the city versus the cost of the proposed facility or expansion attached.

Attachment: <u>N/A</u>

# 2. Utility CCN areas

Page 21 of 80

Is any portion of the proposed service area located inside another utility's CCN area?

Yes □ No ⊠

**If yes**, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the CCN facilities versus the cost of the proposed facility or expansion.

# Attachment: <u>N/A</u>

# 3. Nearby WWTPs or collection systems

Are there any domestic permitted wastewater treatment facilities or collection systems located within a three-mile radius of the proposed facility?

Yes 🗆 🛛 No 🖂

**If yes**, attach a list of these facilities that includes the permittee's name and permit number, and an area map showing the location of these facilities.

#### Attachment: <u>N/A</u>

**If yes**, attach copies of your certified letters to these facilities **and** their response letters concerning connection with their system.

#### Attachment: <u>N/A</u>

Does a permitted domestic wastewater treatment facility or a collection system located within three (3) miles of the proposed facility currently have the capacity to accept or is willing to expand to accept the volume of wastewater proposed in this application?

Yes 🗆 🛛 No 🗆

**If yes**, attach an analysis of expenditures required to connect to a permitted wastewater treatment facility or collection system located within 3 miles versus the cost of the proposed facility or expansion.

Attachment: <u>N/A</u>

# Section 2. Organic Loading (Instructions Page 67)

Is this facility in operation?

Yes □ No ⊠

If no, proceed to Item B, Proposed Organic Loading.

Page 22 of 80

**If yes**, provide organic loading information in Item A, Current Organic Loading

# A. Current organic loading

Facility Design Flow (flow being requested in application):

Average Influent Organic Strength or BOD<sub>5</sub> Concentration in mg/l:

Average Influent Loading (lbs/day = total average flow X average BOD<sub>5</sub> conc. X 8.34):

Provide the source of the average organic strength or BOD<sub>5</sub> concentration.

#### **B.** Proposed organic loading

This table must be completed if this application is for a facility that is not in operation or if this application is to request an increased flow that will impact organic loading.

Source	Total Average Flow (MGD)	Influent BOD <sub>5</sub> Concentration (mg/l)				
Municipality	1.60	250-325				
Subdivision						
Trailer park - transient						
Mobile home park						
School with cafeteria and showers						
School with cafeteria,						

 Table 1.1(1) - Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD <sub>5</sub> Concentration (mg/l)				
no showers						
Recreational park, overnight use						
Recreational park, day use						
Office building or						
factory						
Motel						
Restaurant						
Hospital						
Nursing home						
Other						
TOTAL FLOW from all	1.60					
sources						
AVERAGE BOD <sub>5</sub> from all sources		250-325				

# Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 68)

# A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: <u>10</u>

Total Suspended Solids, mg/l: <u>15</u>

Ammonia Nitrogen, mg/l: <u>3</u>

Total Phosphorus, mg/l:

Dissolved Oxygen, mg/l: <u>4.0</u>

Other:

B. Interim II Phase Design Effluent Quality Biochemical Oxygen Demand (5-day), mg/l: 10 Total Suspended Solids, mg/l: 15 Ammonia Nitrogen, mg/l: 3 Total Phosphorus, mg/l: 10 Dissolved Oxygen, mg/l: 4.0

# C. Final Phase Design Effluent Quality Biochemical Oxygen Demand (5-day), mg/l: 10 Total Suspended Solids, mg/l: 15 Ammonia Nitrogen, mg/l: 3 Total Phosphorus, mg/l: Dissolved Oxygen, mg/l: 4.0

# D. Disinfection Method

Identify the proposed method of disinfection.

- Chlorine: <u>1.0</u> mg/l after <u>20</u> minutes detention time at peak flow Dechlorination process: <u>sodium bisulfite</u>, <u>utilized in Interim II and</u> <u>Final Phase</u>
- Ultraviolet Light: discussion of the seconds contact time at peak flow
- □ Other:

# Section 4. Design Calculations (Instructions Page 68)

Attach design calculations and plant features for each proposed phase. Example 4 of the instructions includes sample design calculations and plant features.

#### Attachment: <u>Attachment I</u>

# Section 5. Facility Site (Instructions Page 68)

#### A. 100-year floodplain

Will the proposed facilities be located <u>above</u> the 100-year frequency flood level?

Yes 🛛 🛛 No 🗆

**If no**, describe measures used to protect the facility during a flood event. Include a site map showing the location of the treatment plant within the 100-year frequency flood level. If applicable, provide the size and types of protective structures.

N/A

Provide the source(s) used to determine 100-year frequency flood plain.

<u>FEMA Firm Panels 48257C0075D and 48257C0070D. See Attachment N – FEMA Flood Map</u>

For a new or expansion of a facility, will a wetland or part of a wetland be filled?

Yes  $\Box$  No  $\boxtimes$ 

**If yes**, has the applicant applied for a US Corps of Engineers 404 Dredge and Fill Permit?

Yes 🗆 No 🗆

If yes, provide the permit number: N/A

If no, provide the approximate date you anticipate submitting your application to the Corps:  $\underline{N/A}$ 

#### B. Wind rose

Attach a wind rose. Attachment: <u>Attachment O</u>

# Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 69)

#### A. Beneficial use authorization

Are you requesting to include authorization to land apply sewage sludge for beneficial use on property located adjacent to the wastewater treatment facility under the wastewater permit? Yes  $\Box$  No  $\boxtimes$ 

**If yes**, attach the completed Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)

# Attachment: <u>N/A</u>

# B. Sludge processing authorization

Identify the sludge processing, storage or disposal options that will be conducted at the wastewater treatment facility:

- □ Sludge Composting
- □ Marketing and Distribution of sludge
- □ Sludge Surface Disposal or Sludge Monofill

**If any of the above** sludge options are selected, attach a completed DOMESTIC WASTEWATER PERMIT APPLICATION: SEWAGE SLUDGE TECHNICAL REPORT (TCEQ Form No. 10056).

#### Attachment: <u>N/A</u>

# Section 7. Sewage Sludge Solids Management Plan (Instructions Page 69)

Attach a solids management plan to the application. Attachment: Attachment M

The sewage sludge solids management plan must contain the following information:

- Treatment units and processes dimensions and capacities
- Solids generated at 100, 75, 50, and 25 percent of design flow
- Mixed liquor suspended solids operating range at design and projected actual flow
- Quantity of solids to be removed and a schedule for solids removal
- Identification and ownership of the ultimate sludge disposal site
- For facultative lagoons, design life calculations, monitoring well locations and depths, and the ultimate disposal method for the sludge from the facultative lagoon

An example of a sewage sludge solids management plan has been included as Example 5 of the instructions.

# **DOMESTIC TECHNICAL REPORT WORKSHEET 2.0**

# **RECEIVING WATERS**

#### The following is required for all TPDES permit applications

# Section 1. Domestic Drinking Water Supply (Instructions Page 73)

Is there a surface water intake for domestic drinking water supply located within 5 miles downstream from the point or proposed point of discharge? Yes □ No ⊠

If yes, provide the following:

Owner of the drinking water supply:

Distance and direction to the intake:

Attach a USGS map that identifies the location of the intake.

#### Attachment:

# Section 2. Discharge into Tidally Affected Waters (Instructions Page 73)

Does the facility discharge into tidally affected waters?

# Yes 🗆 🛛 No 🖾

If yes, complete the remainder of this section. If no, proceed to Section 3.

#### A. Receiving water outfall

Width of the receiving water at the outfall, in feet:

#### **B.** Oyster waters

Are there oyster waters in the vicinity of the discharge?

Yes 🗆 No 🗆

If yes, provide the distance and direction from outfall(s).

#### C. Sea grasses

Are there any sea grasses within the vicinity of the point of discharge?

Yes 🗆 🛛 No 🗆

If yes, provide the distance and direction from the outfall(s).

# Section 3. Classified Segments (Instructions Page 73)

Is the discharge directly into (or within 300 feet of) a classified segment?

Yes □ No ⊠

If yes, this Worksheet is complete.

If no, complete Sections 4 and 5 of this Worksheet.

# Section 4. Description of Immediate Receiving Waters (Instructions Page 75)

Name of the immediate receiving waters: Little High Point Creek

#### A. Receiving water type

Identify the appropriate description of the receiving waters.

- ⊠ Stream
- □ Freshwater Swamp or Marsh
- □ Lake or Pond

Surface area, in acres:

Average depth of the entire water body, in feet:

Average depth of water body within a 500-foot radius of discharge point, in feet:

□ Man-made Channel or Ditch

Open Bay
- 1

□ Tidal Stream, Bayou, or Marsh

 $\Box$  Other, specify:

# **B.** Flow characteristics

If a stream, man-made channel or ditch was checked above, provide the following. For existing discharges, check one of the following that best characterizes the area *upstream* of the discharge. For new discharges, characterize the area *downstream* of the discharge (check one).

Intermittent - dry for at least one week during most years

Intermittent with Perennial Pools - enduring pools with sufficient habitat to maintain significant aquatic life uses



Perennial - normally flowing

Check the method used to characterize the area upstream (or downstream for new dischargers).

□ USGS flow records

□ Historical observation by adjacent landowners

- ☑ Personal observation
- $\Box$  Other, specify:

# C. Downstream perennial confluences

List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point.

High Point Creek

# D. Downstream characteristics

Do the receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.)?

Yes □ No ⊠

If yes, discuss how.

N/A

# E. Normal dry weather characteristics

Provide general observations of the water body during normal dry weather <u>conditions</u>.

Discharge into dry stream

Date and time of observation: <u>9/12/2022 @ 13:00</u>

Was the water body influenced by stormwater runoff during observations?

Yes 🗆 🛛 No 🖂

# Section 5. General Characteristics of the Waterbody (Instructions Page 74)

# A. Upstream influences

Is the immediate receiving water upstream of the discharge or proposed discharge site influenced by any of the following? Check all that apply.

- □ Oil field activities □ Urban runoff
- $\Box \quad Upstream \ discharges \qquad \boxtimes \quad Agricultural \ runoff$
- □ Septic tanks

 $\Box$  Other(s), specify

# B. Waterbody uses

Observed or evidences of the following uses. Check all that apply.



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Domestic water supply	Industrial water supply				
Park activities	Other(s), specify				

#### C. Waterbody aesthetics

Check one of the following that best describes the aesthetics of the receiving water and the surrounding area.

- Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
- □ Natural Area: trees and/or native vegetation; some development evident (from fields, pastures, dwellings); water clarity discolored
- Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
- Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

# **DOMESTIC WORKSHEET 6.0**

# INDUSTRIAL WASTE CONTRIBUTION

# The following is required for all publicly owned treatment works (POTWs)

# Section 1. All POTWs (Instructions Page 99)

# A. Industrial users

Provide the number of each of the following types of industrial users (IUs) that discharge to your POTW and the daily flows from each user. See the Instructions for definitions of Categorical IUs, Significant IUs – non-categorical, and Other IUs.

# If there are no users, enter 0 (zero).

Categorical IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Significant IUs – non-categorical:

Number of IUs: <u>0</u>

Average Daily Flows, in MGD: 0

Other IUs:

Number of IUs: <u>0</u>

Average Daily Flows, in MGD: <u>0</u>

# **B.** Treatment plant interference

In the past three years, has your POTW experienced treatment plant interference (see instructions)?

Yes 🗆 No 🖂

**If yes**, identify the dates, duration, description of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IUs that may have caused the interference.

N/A

## C. Treatment plant pass through

In the past three years, has your POTW experienced pass through (see instructions)?

Yes □ No ⊠

**If yes**, identify the dates, duration, a description of the pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass through event. Include the names of the IUs that may have caused pass through.

<u>N/A</u>

# D. Pretreatment program

Does your POTW have an approved pretreatment program?

Yes 🗆 🛛 No 🖂

If yes, complete Section 2 only of this Worksheet.

Is your POTW required to develop an approved pretreatment program? Yes □ No ⊠

If yes, complete Section 2.c. and 2.d. only, and skip Section 3.

**If no to either question above**, skip Section 2 and complete Section 3 for each significant industrial user and categorical industrial user.

# Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 100)

# A. Substantial modifications

Have there been any **substantial modifications** to the approved pretreatment program that have not been submitted to the TCEQ for approval according to *40 CFR §403.18*?

Yes 🗆 No 🗆

**If yes**, identify the modifications that have not been submitted to TCEQ, including the purpose of the modification.

Click here to enter text.		

#### **B.** Non-substantial modifications

Have there been any **non-substantial modifications** to the approved pretreatment program that have not been submitted to TCEQ for review and acceptance?

Yes □ No □

If yes, identify all non-substantial modifications that have not been submitted to TCEQ, including the purpose of the modification.

# C. Effluent parameters above the MAL

In Table 6.0(1), list all parameters measured above the MAL in the POTW's effluent monitoring during the last three years. Submit an attachment if necessary.

Pollutant	Concentration	MAL	Units	Date

Table 6.0(1) - Parameters Above the MAL

#### D. Industrial user interruptions

Has any SIU, CIU, or other IU caused or contributed to any problems (excluding interferences or pass throughs) at your POTW in the past three years?

Yes 🗆 🛛 No 🗆

**If yes**, identify the industry, describe each episode, including dates, duration, description of the problems, and probable pollutants.

# Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 100)

# A. General information

Company Name: <u>No SIUs or CIUs present</u>

SIC Code: <u>N/A</u>

Telephone number: <u>N/A</u> Fax number: <u>N/A</u>

Contact name: <u>N/A</u>

Address: <u>N/A</u>

City, State, and Zip Code: <u>N/A</u>

# **B.** Process information

Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (i.e., process and non-process wastewater).

<u>N/A</u>

# C. Product and service information

Provide a description of the principal product(s) or services performed.

<u>N/A</u>

# D. Flow rate information

See the Instructions for definitions of "process" and "non-process wastewater." Process Wastewater:

Discharge, in gallons/day: <u>N/A</u>		
Discharge Type:  Continuous	Batch	Intermittent
Non-Process Wastewater:		
Discharge, in gallons/day: <u>N/A</u>		
Discharge Type: 🗖 🛛 Continuous 🗖	Batch	Intermittent

# E. Pretreatment standards

Is the SIU or CIU subject to technically based local limits as defined in the instructions?

Yes □ No ⊠

Is the SIU or CIU subject to categorical pretreatment standards found in *40 CFR Parts 405-471*?

Yes □ No ⊠

**If subject to categorical pretreatment standards**, indicate the applicable category and subcategory for each categorical process.

Category: <u>N/A</u> Subcategories: <u>N/A</u>

#### F. Industrial user interruptions

Has the SIU or CIU caused or contributed to any problems (e.g., interferences, pass through, odors, corrosion, blockages) at your POTW in the past three years?

Yes □ No ⊠

**If yes**, identify the SIU, describe each episode, including dates, duration, description of problems, and probable pollutants.

<u>N/A</u>

#### LIST OF ATTACHMENTS MOORE FARM WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 WASTEWATER TREATMENT PLANT

Attachment A – Core Data Form (Admin Report 1.0, Section 3.C)

Attachment B – Plain Language Summary (Admin Report 1.0, Section 15)

Attachment C – USGS Map (Admin. Report 1.0, Section 13)

Attachment D – Affected Landowners (Admin. Report 1.1, Section 1.A and C)

Attachment E – Original Photographs (Admin Report 1.1, Section 2)

Attachment F – Buffer Zone Map (Admin Report 1.1, Section 3.A)

Attachment G – Area Water Wells (Admin Report 1.1, Section 3.C)

Attachment H – Wetlands Map (Admin Report 1.1, Section 3.C and Tech. Report 1.1, Section 5.A)

Attachment I – Supplemental Technical Report (Tech Report 1.0, Section 2.A and B and Tech Report 1.1, Section 4)

Attachment J – Flow Schematics (Tech Report 1.0, Section 2.C)

Attachment K – Service Area Map (Tech Report 1.0, Section 3)

Attachment L – Justification for Plant Construction (Tech Report 1.0, Section 4 and Tech Report 1.1, Section 1.A)

Attachment M – Sewage Sludge Management Plan (Tech Report 1.0 Section 6.F and Tech. Report 1.1, Item 7)

Attachment N – FEMA Flood Map (Tech Rep 1.1, Section 5.A)

Attachment O – Wind Rose (Tech Report 1.1, Section 5.B)

#### ATTACHMENT A

CORE DATA FORM

#### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022





# **TCEQ Core Data Form**

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	Referenc	e Number <i>(if iss</i>	sued)	Follow	v this lin	ik to sea	arch	3. Re	gulate	d Entity Referen	ce Number (	(if issued)
CN 603248667					l or RN entral Re	number egistry*	<u>rs in</u> *	RN				
SECTION II: Customer Information												
4. General Cu	ustomer li	nformation	5. Effective	e Date f	or Cus	stomer	· Infor	matio	n Upda	ates (mm/dd/yyyy)	) 9/1/2	007
New Custo	omer Legal Nar	ne (Verifiable wit	h the Texas S	Update Secretar	to Cus y of Sta	stomer ate or	Inforn Texas	nation Comp	troller	Change i	n Regulated	Entity Ownership
The Custor	mer Nan	ne submitted	here may	be upo	dated	auto	mati	cally	based	d on what is c	urrent and	active with the
Texas Seci	retary of	State (SOS)	or Texas C	compt	roller	of Pu	ıblic	Acco	ounts	(CPA).		
6. Customer	Legal Nar	ne (If an individua	l, print last nam	e first: e	g: Doe,	John)		<u>  </u>	new C	Sustomer, enter pre	vious Custom	er below:
Moore Far	m WCI	D No. 1										
7. TX SOS/CF	PA Filing	Number	8. TX State	Tax ID	(11 digit	ts)		9. Federal Tax ID (9 digits) 10. DUNS Number (if a			S Number (if applicable)	
11. Type of C	ustomer:	Corporati	ion			Individ	ual		P	artnership: 🗌 Ger	eral 🗌 Limited	
Government:	City 🗌 🕻	County 🗌 Federal [	🛾 State 🖂 Othe	r		Sole P	roprie	torship		Other:		
12. Number o	of Employ	ees	_					1	3. Inde	ependently Owne	ed and Opera	ated?
⊠ 0-20 ∟	] 21-100	101-250	251-500		501 an	nd high	er		∐ Yes		)	
14. Customer	r <b>Role</b> (Pro	posed or Actual) -	- as it relates to	the Reg	gulated	Entity li	sted o	n this fo	rm. Ple	ase check one of th	e following	
Owner		Operat	tor		0	wner &	Oper	ator		_		
	nal License	ee 🗌 Respo	onsible Party			oluntar	y Clea	anup Aj	oplican	t _Other:		
	14755	Preston Rd										
15. Mailing Address:	Suite 6	500										
	City	Dallas		S	tate	TX		ZIP	752	254	ZIP + 4	
16. Country M	Mailing In	ormation (if outsi	ide USA)			•	17. I	E-Mail	Addre	SS (if applicable)		·
							mk	oehn	e@co	oatsrose.com		
18. Telephon	e Numbei	•		19. Ex	xtensio	on or (	Code			20. Fax Numb	<b>ber</b> (if applica	ble)
( 972 ) 78	8-1600	(972)788-1600 () -								-		

#### **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
 Update to Regulated Entity Name

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.)

Moore Farms WCID No. 1 Wastewater Treatment Facility

23. Street Address of the Regulated Entity:	-									
(No PO Boxes)	City		State		ZIP		ZIP + 4			
24. County	Kaufm	an								
		Enter Physical Lo	cation Descripti	on if no st	reet addres	s is provided.				
25. Description to Physical Location:	0.35 m	iles southwest	of the interse	ection of	CR 245	and CR 243				
26. Nearest City				_		State	Ne	arest ZIP Code		
Terrell						TX	75	160		
27. Latitude (N) In Deci	Latitude (N) In Decimal: 32.804411				ongitude (	W) In Decimal:	-96.3090	61		
Degrees	Minutes	s	econds	Degre	es	Minutes		Seconds		
32		48	15.9		-96		18	32.6		
29. Primary SIC Code (4	digits) 30	. Secondary SIC	Code (4 digits)	31. Prima (5 or 6 digit	ny NAICS C	ode 32. S	econdary NA digits)	ICS Code		
4952				221320						
33. What is the Primary	Business	of this entity?	Do not repeat the SIC	or NAICS des	cription.)					
reatment of munic	ipal wast	lewater								
				1477	Preston Ro	đ				
34. Mailing			Suite 600							
Address.	City	Dallas	State	ТХ	ZIP	75254	ZIP+4			
35. E-Mail Address	:			mkoeh	ne@coatsr	ose.com				
36. Teleph	one Numbe	er	37. Extensio	on or Code		38. Fax Nu	mber (if app	licable)		
(972)	788-1600					(	) -			
TCEQ Programs and I	D Numbers	Check all Programs	and write in the per	rmits/registra	ation numbers	that will be affected	by the update	s submitted on this		
n. See the Core Data Form	instructions f	or additional guidan	Xe.	Max		ana lauratan Ala	I D Industria	I Hanasdaus Maak		
_ Dam Safety		25	Edwards Aqu	ner	L Emiss	ons inveniory Air	industria	a nazaruous wase		
Municipal Solid Waste	New S	Source Review Air	OSSF		Petroleum Storage Tank		PWS			
	Storm	) Water	Title V Air		Tires		Used O	1		
] Sludge					1		Other:			

40. Name:	me: Jonathan Nguyen		41. Title:	Permit Specialist		
42. Tele	phone Number 43. Ext./Code	44. Fax Number	45. E-Mail	Address		
(512)	685-5156	() -	jnguyen	@quiddity.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:	Moore Farm WCID No. 1	President					
Name (In Print):	Rob Soper	Phone:	one: ( 972 ) 788- 1600				
Signature:	iture:					5	200063

#### ATTACHMENT B

PLAIN LANGUAGE SUMMARY

#### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022



Moore Farm WCID No. 1 – New TPDES Plain Language Summary

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

Moore Farm Water Control & Improvement District No. 1 proposes to operate the Moore Farm WCID No. 1 wastewater treatment plant, an activated sludge process plant operated in the single-stage nitrification mode. The facility will be located approximately 0.35 miles southwest of the intersection of County Road 245 and County Road 243, in Kaufman County, Texas 75160.

This application is for a new application to discharge at an annual average flow of 1,600,000 gallons per day of treated domestic wastewater.

Discharges from the facility are expected to contain five-day carbonaceous biochemical oxygen demand (CBOD<sub>3</sub>), total suspended solids (TSS), ammonia nitrogen (NH<sub>3</sub>-N), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7 and Pollutant Analysis of Treated Effluent and Domestic Worksheet 4.0 in the permit application package. Domestic wastewater is treated by an activated sludge process plant and the treatment units include a bar screen, aeration basins, final clarifiers, sludge digesters, and chlorine contact chambers.

Moore Farm WCID No. 1 – New TPDES Plain Language Summary

*El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no son representaciones federales exigibles de la solicitud de permiso.* 

Moore Farm Water Control & Improvement District No. 1 propone operar la planta de tratamiento de aguas residuales WCID No. 1 de Moore Farm, una planta de proceso de lodos activados operada en el modo de nitrificación de una sola etapa. La instalación estará ubicada aproximadamente a 0.35 millas al suroeste de la intersección de County Road 245 y County Road 243, en el condado de Kaufman, Texas 75160.

Esta solicitud es para una nueva solicitud para descargar a un flujo promedio anual de 1,600,000 galones por día de aguas residuales domésticas tratadas.

Se espera que las descargas de la instalación contengan demanda bioquímica de oxígeno carbónico (CBOD<sub>5</sub>) de cinco días, sólidos suspendidos totales (TSS), nitrógeno amoniacal (NH<sub>3</sub>-N) y Escherichia coli. Los contaminantes potenciales adicionales se incluyen en el Informe Técnico Doméstico 1.0 y Sección 7. Análisis de Contaminantes de Efluentes Tratados y la Hoja de Trabajo Doméstica 4.0 en el paquete de solicitud de permiso. Las aguas residuales domésticas son tratadas por una planta de proceso de lodos activados y las unidades de tratamiento incluyen una pantalla de barras, balsas de aireación, clarificadores finales, digestores de lodos y cámaras de contacto de cloro.

#### ATTACHMENT C

**USGS MAP** 

#### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022



US. DEPARTMENT OF THE INTERIOR

TERRELL NORTH QUINDRANGLE TERM 7.5-MINUTE SERIES





#### ATTACHMENT D

#### AFFECTED LANDOWNERS

#### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022





# List of Affected Landowners

Object ID	Owner	Mailing Address
		3890 W NORTHWEST HWY SUITE 100
1	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
2	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
3	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
4	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
5	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
6	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
7	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
8	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY SUITE 100
9	HWY 205 FARM LTD	DALLAS, TX 75220
		3890 W NORTHWEST HWY STE 680
10	ROB SOPER ETAL	DALLAS, TX 75220
11	OWNED BY PERMITTEE	N/A
12	OWNED BY PERMITTEE	N/A

#### ATTACHMENT E

**ORIGINAL PHOTOGRAPHS** 

#### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022


# MOORE FARM DISCHARGE POINT EXHIBIT





Civileonovidivileoniapivileone Parmeivileone Parm Blacharge Parmit Edilbit.dug





PICTURE 1 Discharge Point (Upstream)

JOB #: 0D166-0013-00 KLT PAGG 742 OF 4





PICTURE 2 Discharge Point (Downstream)

JOB #: 0D166-0013-00 KLT PAGG0753 OF 4





## PICTURE 3 WWTP Site Location

JOB #: 0D166-0013-00 KLT PAGE 4 OF 4

## ATTACHMENT F

**BUFFER ZONE MAPS** 

MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022



9





## BUFFER ZONE EXHIBIT MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. I MOORE FARM WCID NO. I WASTEWATER FACILITY PHASE I - 0.20 MGD

KAUFMAN COUNTY, TEXAS JANUARY 2023









## BUFFER ZONE EXHIBIT MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. I MOORE FARM WCID NO. I WASTEWATER FACILITY PHASE II - 0.50 MGD

KAUFMAN COUNTY, TEXAS JANUARY 2023







## BUFFER ZONE EXHIBIT MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. I MOORE FARM WCID NO. I WASTEWATER FACILITY FINAL PHASE - 1.60 MGD

KAUFMAN COUNTY, TEXAS JANUARY 2023

![](_page_79_Picture_5.jpeg)

## ATTACHMENT G

AREA WATER WELLS

### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022

![](_page_80_Picture_4.jpeg)

![](_page_81_Picture_0.jpeg)

## ATTACHMENT H

WETLANDS MAP

MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022

![](_page_82_Picture_4.jpeg)

000083

![](_page_83_Picture_0.jpeg)

## ATTACHMENT I

### SUPPLEMENTAL TECHNICAL REPORT

### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022

![](_page_84_Picture_4.jpeg)

000085

SUPPLEMENTAL TECHNICAL REPORT

#### FOR THE

MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. 1

#### DOMESTIC WASTEWATER PERMIT

FOR

#### MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. 1

#### WASTEWATER TREATMENT PLANT

IN

**KAUFMAN COUNTY, TEXAS** 

![](_page_85_Picture_9.jpeg)

November 2022 Quiddity Job No. 0D166-0013-00

![](_page_85_Picture_11.jpeg)

#### I. INTRODUCTION

The purpose of this report is to provide additional information pertaining to items in the Domestic Administrative Report and The Domestic Technical Report for the permit application to the Moore Farm Water Control and Improvements District (WCID) No. 1 Wastewater Treatment Facility in Kaufman County, Texas. The proposed facility will be constructed to treat 0.2 million gallons per day (MGD) with an interim phase of 0.5 MGD and a final phase of 1.6 MGD.

#### **II. LOCATION INFORMATION**

See Section 10 of the Domestic Admin. Report 1.0 for specific location information. The proposed facility is approximately 0.35 miles southwest of the intersection of County Road 255 and County Road 243, in Kaufman County, Texas 75160. A USGS Map with the required site information is provided as Attachment B. The discharge of Moore Farm WCID No. 1 Wastewater Treatment Facility is to Little High Point Creek, thence to High Point Creek, thence to Big Brushy Creek, thence to Kings Creek, thence to Cedar Creek Reservoir in Segment No. 0818 of the Trinity River Basin.

#### **III. TREATMENT UNITS**

(For Section 2 of Technical Report 1.0)

The proposed facility will be constructed with a design flow of 0.2 MGD. A detailed description of the treatment process is presented below:

The proposed Phase I plant will consist of package plant facilities that are designed and constructed to treat 0.20 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. An influent force main flows from the on-site lift station to the headworks passing through a manual bar screen. The influent then mixes with return activated sludge to create mixed liquor and flows through the aeration basin operated in the single-stage nitrification mode to consume organics and breakdown ammonia. From the aeration basin, the mixed liquor flows to the secondary clarifier for clarification. After clarification, the treated effluent flows to the chlorine contact basin for disinfection. The effluent then flows over a weir for flow measurement and into the receiving stream. Additional facilities include blowers, a non-potable water system, chemical disinfection system, using sodium hypochlorite and a stand-by generator. The WAS is pumped to the aerobic digester then is transported to another facility by wet haul.

The proposed Phase II plant will consist of facilities that are designed and constructed to treat 0.50 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. This phase includes, two existing aeration basins, one existing clarifier, two existing multi-stage aerobic digesters, one existing chlorine contact basin, three existing centrifugal blowers, an existing non-potable water system, and an existing chlorine disinfection system. Phase II construction will include one proposed elevated screening structure with manual bar screen and flow splitting weirs, three aeration basins, one clarifier, three multi-stage aerobic digesters, three centrifugal blowers, a non-potable water system, a bleach disinfection system, and a sodium bisulfite dechlorination system.

The proposed Final phase plant will consist of facilities that are designed and constructed to treat 1.60 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. Final phase construction includes one elevated headworks with mechanical bar screen and flow splitting weirs, three aeration basins, three secondary clarifiers, three multi-stage aerobic digesters, one chlorine contact basin, three centrifugal blowers, a non-potable water system, a bleach disinfection system, and a sodium bisulfite dechlorination system.

#### **IV. DESIGN CALCULATIONS AND FEATURES**

(For Section 2 of Technical Report 1.0 & Section 4 of Technical Report 1.1)

Design calculations are provided as part of this report on the following pages for all phases of construction.

The existing and proposed facilities will be equipped with design features to prevent overflows or bypassing of untreated wastewater. A backup diesel generator will be installed onsite with an automatic transfer switch to provide power to essential equipment in the event of a main power failure. The entire facility will also have an automatic telephone dialer that notifies the operator of pump failures, main power failures and high basin levels. The onsite lift station will maintain a redundant pump to protect against overflows in the event of a pump failure.

2

#### I. SCOPE

The proposed Phase I plant will consist of facilities that are designed and constructed to treat 0.20 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. Construction includes one (1) manual bar screen, two (2) aeration basins, one (1) clarifier, two (2) multi-stage aerobic digesters, one (1) chlorine contact basin, three (3) centrifugal blowers, a non-potable water system, and a chlorine disinfection system using sodium hypochlorite.

#### **II. PROPOSED WASTEWATER TREATMENT PLANT DESIGN**

#### A. DESIGN CRITERIA

#### 1. Proposed Effluent Limits.

- a. BOD<sub>5</sub> = 10 mg/l (daily average)
- b. TSS = 15 mg/l (daily average)
- c.  $NH_3-N$  = 3 mg/l (daily average)
- d. DO = 4 mg/l (weekly grab)
- e. E.coli = 126 CFU
- 2. <u>Process Criteria</u>. The process criteria are taken from 30 TAC §217, Design Criteria for Domestic Wastewater Systems.

a.	Maximum Aeration Basin Organic Loading (Ib BOD₅/day/1,000 ft³)	=	35
b.	Maximum Clarifier Surface Loading at Peak Flow (gal/day/ft <sup>2</sup> )	=	1,200
C.	Minimum Clarifier Detention Time (hours)	=	1.8
d.	Maximum Clarifier Weir Loading at Peak Flow (gal/day/ft)	=	20,000
e.	Minimum Chlorine Contact Detention Time at Peak Flow (minutes)	=	20
f.	Mean Cell Residence Time in Aerobic Digester* (days)	=	28*
g.	Minimum Air Required for Digester (scfm/1,000 ft <sup>3</sup> )	=	20

\*28-day SRT utilized instead of a 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

#### B. PROPOSED TREATMENT FACILITIES

1. <u>Flow.</u>

a.	Average (Design)	=	1.0Q	=	200,000 gpd	=	139 gpm
b.	Peak (2 hour)	=	4.0Q	=	800,000 gpd	=	556 gpm

#### 2. Influent Composition

The following influent wastewater compositions are based on wastewater influent analysis.

BOD <sub>5</sub>	=	250 mg/L
TSS	=	250 mg/L
NH <sub>3</sub> -N	=	40 mg/L
Organic Loadings.		

3. Organic Loadings.

BOD₅	=	(0.20 MGD)(8.34)(250 mg/L)	=	417 lbs BOD <sub>5</sub> /day
TSS	=	(0.20 MGD)(8.34)(250 mg/L)	=	417 lbs TSS/day
NH <sub>3</sub> -N	=	(0.20 MGD)(8.34)(40 mg/L)	=	67 lbs NH₃-N/day

#### 4. <u>Process Equipment.</u>

- a. <u>Headworks Screening.</u> The proposed Phase I plant will consist of the construction of a headworks with a manual bar screen capable of screening a peak flow of 0.8 MGD.
- b. <u>Aeration Basin</u>. The proposed Phase I WWTP will consist of (2) aeration basins, sized at 12' wide by 52' long. The average water depth is assumed at 10.5'.
  - i. Total Required Volume

Required Volume Using Traditional Design Method (30 TAC §217 Guidelines)  $(0.20 \text{ MGD})(8.34)(250 \text{ mg/L})/(35 \text{ lb BOD}_5/1,000 \text{ ft}^3)$ 

		=	11,914 ft <sup>3</sup>
ii.	Proposed Volume – Phase I (2)(12 ft)(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>
iii.	Actual Organic Loading (417 lb BOD <sub>5</sub> /day)/(13,104 ft³/1,000 ft³)	=	31.8 lb BOD₅/ day/1,000 ft <sup>3</sup>

c. <u>Secondary Clarifier</u>. The proposed Phase I plant will consist of one (1) 34' diameter clarifier with a side water depth of 10'.

i.	Required ؟ (800,000 و	Surface Area at Peak Flow gpd)/(1,200 gpd/ ft²)	=	667 ft <sup>2</sup>
ii.	Proposed (π/4)(34 fi	Surface Area t) <sup>2</sup>	=	908 ft <sup>2</sup>
iii.	Surface Lo	bading		
	1.	At Design Flow (200,000 gpd)/(908 ft <sup>2</sup> )	=	220 gpd/ft <sup>2</sup>
	2.	At Peak Flow (800,000 gpd)/(908 ft <sup>2</sup> )	=	881 gpd/ft <sup>2</sup>
iv.	Proposed (Includes (π)(34 ft –	Clarifier Weir Length Launder Allowance) · 2 ft)	=	101 ft
ν.	Proposed (800,000 و	Weir Loading at Peak Flow gpd)/(101 ft)	=	7,921 gpd/ft
vi.	Proposed	Clarifier Side Water Depth (to top of grout)		
	1.	Proposed Clarifier Side Water Depth	=	10 ft
vii.	Hydraulic	Detention Times at Peak Flow		
	1.	Proposed Hydraulic Detention Time at Peak (908 ft <sup>2</sup> )(10 ft)(7 48 gal/ ft <sup>3</sup> )/(556 gal/min)	Flov	v
			= =	122 minutes 2.03 hours

d. <u>Aerobic Digesters</u>. The proposed Phase I WWTP will consist of two (2) multi-stage digesters sized at 12' wide by 52' long. The average water depth is assumed at 10.5'.

Assume one (1) pound of solids produced per pound of BOD<sub>5</sub> applied; solids are 70% volatile organics; 30% of the volatiles are destroyed during digestion; 15,000 mg/l MLSS concentration in the digester on average.

i. Digester Sizing

1.	Solids Production (417 lb BOD <sub>5</sub> /day)(1 lb solids/1 lb BOD <sub>5</sub> )	=	417 lb solids/day
2.	Digested Solids Production (417 lb solid/day)(1-(0.3)(0.7))	=	329 lb solids/day

	3.	Average Solids in Digester (329 lb solids/day + 417 lb solids/day)/2	=	373 lb solids/day
	4.	Total Solids in Digester for 28-day SRT* (373 lb solids/day)(28 days)	=	10,444 lb solids
ii.	Require (10,444	d Volume lb solids)(10º)/((8.34)(15,000 mg/l MLSS in dig	gester =	)(7.48)) 11,168 ft <sup>3</sup>
iii.	Propose (2)(12 ft	d Volume – Phase I )(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>

\*28-day SRT utilized instead of 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

e. <u>Chlorine Contact Basin.</u> The proposed Phase I plant will consist of one (1) proposed chlorine contact basin sized at 12' wide by 36' long. The maximum water depth is assumed to be 9 ft.

i.	Required Volume at Peak Flow (556 gpm)(20 min)/(7.48)	=	1,485 ft <sup>3</sup>
ii.	Proposed Volume – Phase I (12 ft)(36 ft)(9 ft)	=	3,888 ft <sup>3</sup>
iii.	Actual Detention Time at Peak Flow (3,888 ft³)(7.48)/(556 gpm)	=	52.3 minutes

#### f. <u>Air Requirements.</u>

i. The proposed Phase I plant will utilize coarse bubble aeration.

1.	Air Required for Treatment		
	<u>(1.2)(250 mg/l BOD₅) + (4.3)(40 mg/l NH₃-N)</u>		
	(250 mg/l BOD₅)	=	1.9 lb O <sub>2</sub> /lb BOD <sub>5</sub>

\* 2.2 lb O<sub>2</sub>/lb BOD<sub>5</sub> used instead per TCEQ minimum oxygen requirement for systems intended to nitrify.

2. Coarse Bubble Requirements

= 1,231 scfm

\* TCEQ Wastewater Oxygen Transfer Efficiency for Coarse Bubble aeration (0.65%/ft x (12) ft of submergence)

\*\* TCEQ Chapter 217 Table F.5 Submergence Correction Factor

ii.	Aerobic Digester (13,104 ft³)(20 scfm/1000 ft³)	=	262 scfm
iii.	Chlorine Contact Basin (3,888 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	78 scfm
iv.	Miscellaneous Air Lifts (4)(40 scfm)	=	160 scfm
v.	Total Air Requirements (Coarse Bubble) 1,231 scfm + 266 scfm + 78 scfm + 160 scfm	=	1,731 scfm

g. <u>Blower Capacities.</u> The proposed Phase I plant will include three (3) proposed centrifugal blowers. The capacity is calculated at 5.5 psig discharge pressure at 100°F, 80% RH, and 14.64 psia inlet conditions.

i.	Proposed Blower Capacity – Phase I (3)(1,000 scfm)	=	3,000 scfm
ii.	Firm Blower Capacity with Largest Unit out of Service (2)(1,000 scfm)	=	2,000 scfm

h. <u>Chlorination Equipment.</u> Calculations are for 10% trade strength bleach (NaOCl) with a specific gravity of 1.159, has 10% availability chlorine by weight, 9.7 pounds per gallon.

i.	Chlorine Solution Dosage Rate	=	8 mg/l
ii.	Required NaOCl Solution Feed Rate at Average Daily Flo (0.20 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	w =	15.9 gal/day
iii.	Required NaOCl Solution Feed Rate at Peak Flow (0.80 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	=	63.8 gal/day
iv.	Maximum Bleach Storage (Covered Storage) (15 days)(15.9 gal/day)	=	239 gal
v.	Proposed Bleach Storage (1)(220 gal)	=	220 gal

One (1) 220-gallon bulk storage tank will be provided.

#### I. SCOPE

The proposed Phase II plant will consist of facilities that are designed and constructed to treat 0.50 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. This includes two (2) existing aeration basins, one (1) existing clarifier, two (2) existing multi-stage aerobic digesters, one (1) existing chlorine contact basin, three (3) existing centrifugal blowers, an existing non-potable water system, and an existing chlorine disinfection system. Phase II construction includes one (1) proposed elevated screening structure with manual bar screen and flow splitting weirs, three (3) aeration basins, one (1) clarifier, three (3) multi-stage aerobic digesters, three (3) centrifugal blowers, a non-potable water system, a chlorine disinfection system using sodium hypochlorite, and a sodium bisulfite dechlorination system.

#### **II. PROPOSED WASTEWATER TREATMENT PLANT DESIGN**

#### A. DESIGN CRITERIA

#### 1. Proposed Effluent Limits.

a.	BOD₅	=	10 mg/l (daily average)
b.	TSS	=	15 mg/l (daily average)
c.	NH <sub>3</sub> -N	=	3 mg/l (daily average)
d.	DO	=	4 mg/l (weekly grab)
e.	E.coli	=	126 CFU

2. <u>Process Criteria</u>. The process criteria are taken from 30 TAC §217, Design Criteria for Domestic Wastewater Systems.

a.	Maximum Aeration Basin Organic Loading (Ib BOD <sub>5</sub> /day/1,000 ft <sup>3</sup> )	=	35
b.	Maximum Clarifier Surface Loading at Peak Flow (gal/day/ft <sup>2</sup> )	=	1,200
C.	Minimum Clarifier Detention Time (hours)	=	1.8
d.	Maximum Clarifier Weir Loading at Peak Flow (gal/day/ft)	=	20,000
e.	Minimum Chlorine Contact Detention Time at Peak Flow (minutes)	=	20
f.	Mean Cell Residence Time in Aerobic Digester* (days)	=	28*

g.	Minimum Air Required for Digester		
	(scfm/1,000 ft <sup>3</sup> )	=	20

\*28-day SRT utilized instead of a 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

#### B. PROPOSED TREATMENT FACILITIES

1. <u>Flow.</u>

3.

a.	Average (Design)	=	1.0Q	=	500,000 gpd	=	347 gpm
b.	Peak (2 hour)	=	4.0Q	=	2,000,000 gpd	=	1,389 gpm

#### 2. Influent Composition

The following influent wastewater compositions are based on wastewater influent analysis.

BOD <sub>5</sub>	=	250 mg/L		
TSS	=	250 mg/L		
NH <sub>3</sub> -N	=	40 mg/L		
Organic Loadings.				
BOD₅	=	(0.50 MGD)(8.34)(250 mg/L)	=	1,043 lbs BOD <sub>5</sub> /day
TSS	=	(0.50 MGD)(8.34)(250 mg/L)	=	1,043 lbs TSS/day
NH₃-N	=	(0.50 MGD)(8.34)(40 mg/L)	=	167 lbs NH <sub>3</sub> -N/day

#### 4. <u>Process Equipment.</u>

- a. <u>Elevated Headworks Screening</u>. The proposed Phase II plant will consist of the construction of an elevated headworks with a manual bar screen and flow splitting weir structure capable of screening a peak flow of 2.0 MGD.
- b. <u>Aeration Basin</u>. The proposed Phase II plant will consist of two (2) existing aeration basins and three (3) proposed aeration basins, sized at 12' wide by 52' long. The average water depth is assumed at 10.5 feet.
  - i. Total Required Volume

Required Volume Using Traditional Design Method (30 TAC §217 Guidelines) (0.50 MGD)(8.34)(250 mg/L)/(35 lb BOD<sub>5</sub>/1,000 ft<sup>3</sup>) = 29,786 ft<sup>3</sup> ii. Proposed Volume

iii.

1.	Existing Volume – Phase I (2)(12 ft)(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>
2.	Proposed Volume – Phase II (3)(12 ft)(52 ft)(10.5 ft)	=	19,656 ft <sup>3</sup>
3.	Total Volume	=	32,760 ft <sup>3</sup>
Actual Org (1,043 lb l	ganic Loading 3OD₅/day)/(30,240 ft³/1,000 ft³)	=	31.8 lb BOD₅/ day/1,000 ft <sup>3</sup>

c. <u>Secondary Clarifier</u>. The proposed Phase II plant will consist of one (1) existing clarifier sized at 34' diameter and one (1) proposed clarifier sized at 38' diameter. The side water depth in both clarifiers is 10'.

i.	Required (2,000,00	=	1,667 ft <sup>2</sup>	
ii.	Proposed	d Surface Area		
	1.	Existing Surface Area – Phase I $(\pi/4)(34 \text{ ft})^2$	=	908 ft <sup>2</sup>
	2.	Proposed Surface Area – Phase II $(\pi/4)(38 \text{ ft})^2$	=	1,134 ft <sup>2</sup>
	3.	Total Surface Area	=	2,042 ft <sup>3</sup>
iii.	Surface L	oading		
	1.	At Design Flow (500,000 gpd)/(2,042 ft²)	=	245 gpd/ft <sup>2</sup>
	2.	At Peak Flow (2,000,000 gpd)/(2,042 ft²)	=	979 gpd/ft <sup>2</sup>
iv.	Proposed	d Clarifier Weir Length		
	1.	Existing – Phase I $(\pi)(34 \text{ ft} - 2 \text{ ft})^2$	=	3,217 ft
	2.	Proposed – Phase II ( $\pi$ )(38 ft – 2 ft) <sup>2</sup>	=	4,072 ft
	3.	Total	=	7,288 ft
v.	Proposec (2,000,00	d Weir Loading at Peak Flow 00 gpd)/(7,288 ft) 10	=	274 gpd/ft

- vi. Proposed Clarifier Side Water Depth (to top of grout)
  - Existing Clarifier Side Water Depth 10 ft 1. =
  - 2. Proposed Clarifier Side Water Depth = 10 ft
- vii. Hydraulic Detention Times at Peak Flow

1.	Proposed Hydraulic Detention Time at Peak Flow – Phase II	
	(2,042 ft²)(10 ft)(7.48 gal/ ft³)/( 1,389 gal/min)	
	= 110 minute	es
	= 1.8 hours	

d. Aerobic Digesters. The proposed Phase II plant will consist of two (2) existing multi-stage digesters and three (3) proposed multi-stage digesters sized at 12' wide by 52' long. The average water depth in all digesters is assumed at 10.5'.

Assume one (1) pound of solids produced per pound of BOD<sub>5</sub> applied; solids are 70% volatile organics; 30% of the volatiles are destroyed during digestion; 15,000 mg/l MLSS concentration in the digester on average.

i.	Digester Sizing

	1.	Solids Production (1,043 lb BOD <sub>5</sub> /day)(1 lb solids/1 lb BOD <sub>5</sub> )	=	1,043 lb solids/day
	2.	Digested Solids Production (1,043 lb solid/day)(1-(0.3)(0.7))	=	824 lb solids/day
	3.	Average Solids in Digester (1,043 lb solids/day + 824 lb solids/day)/2	=	933 lb solids/day
	4.	Total Solids in Digester for 28-day SRT* (933 lb solids/day)(28 days)	=	26,124 lb solids
ii.	Required (26,124 lt	Volume o solids)(10 <sup>6</sup> )/((8.34)(15,000 mg/l MLSS in dige	ester =	)(7.48)) 27,917 ft <sup>3</sup>
iii.	Proposed	Volume		
	1.	Existing Volume – Phase I (2)(12 ft)(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>
	2.	Proposed Volume – Phase II (3)(12 ft)(52 ft)(10.5 ft)	=	19,656 ft <sup>3</sup>
	3.	Total Volume	=	32,760 ft <sup>3</sup>

\*28-day SRT utilized instead of 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

e. <u>Chlorine Contact Basin</u>. The proposed plant will consist of one (1) existing chlorine contact basin sized at 12' wide by 36' long. The maximum water depth in both chlorine contact basins is assumed to be 9 ft.

i.	Required Volume at Peak Flow (1,389 gpm)(20 min)/(7.48)	=	3,714 ft <sup>3</sup>
ii.	Existing Volume – Phase I (12 ft)(36 ft)(9 ft)	=	3,888 ft <sup>3</sup>
iii.	Actual Detention Time at Peak Flow (3,888 ft <sup>3</sup> )(7.48)/(1,389 gpm)	=	20.9 minutes

#### f. Air Requirements.

- i. The proposed Phase II plant will utilize coarse bubble aeration.
  - 1. Air Required for Treatment  $\frac{(1.2)(250 \text{ mg/l BOD}_5) + (4.3)(40 \text{ mg/l NH}_3 - \text{N})}{(250 \text{ mg/l BOD}_5)} = 1.9 \text{ lb } O_2/\text{lb BOD}_5$

\* 2.2 lb  $O_2$ /lb BOD<sub>5</sub> used instead per TCEQ minimum oxygen requirement for systems intended to nitrify.

2. Coarse Bubble Requirements

 $\frac{(250 \text{ mg/l BOD}_5)(8.34)(0.50 \text{ MGD})(2.2 \text{ lb } O_2/\text{ lb BOD}_5)(1.69)^{**}}{(0.0507^*)(0.23)(0.075)(1440)}$ 

= 3,078 scfm

\* TCEQ Wastewater Oxygen Transfer Efficiency for Coarse Bubble aeration (0.65%/ft x (12) ft of submergence)

\*\* TCEQ Chapter 217 Table F.5 Submergence Correction Factor

ii.	Aerobic Digester (32,760 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	655 scfm
iii.	Chlorine Contact Basin (3,888 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	78 scfm
iv.	Miscellaneous Air Lifts (8)(40 scfm)	=	320 scfm
v.	Total Air Requirements (Coarse Bubble) 3,078 scfm + 655 scfm + 78 scfm + 320 scfm 12	=	4,131 scfm

g. <u>Blower Capacities.</u> The proposed Phase II plant will include three (3) existing centrifugal blowers and three (3) proposed centrifugal blowers. The capacity is calculated at 5.5 psig discharge pressure at 100°F, 80% RH, and 14.64 psia inlet conditions.

i.	Existing Blower Capacity – Phase I (3)(1,000 scfm)	=	3,000 scfm
ii.	Proposed Blower Capacity – Phase II (3)(1,000 scfm)	=	3,000 scfm
iii.	Total Blower Capacity	=	6,000 scfm
iv.	Firm Blower Capacity with Largest Unit out of Service (5)(1,000 scfm)	=	5,000 scfm
Chlorination gravity of 1.1	Equipment. Calculations are for 10% trade strength 159, has 10% availability chlorine by weight, 9.7 pounds p	oleac ber g	h (NaOCl) with a specific allon.
i.	Chlorine Solution Dosage Rate	=	8 mg/l
ii.	Required NaOCI Solution Feed Rate at Average Daily Flo (0.50 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	ww =	39.9 lbs/day
iii.	Required NaOCI Solution Feed Rate at Peak Flow (2.0 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	=	159 lbs/day
iv.	Maximum Bleach Storage (Covered Storage) (15 days)(39.9 gal/day)	=	598 gal
٧.	Proposed Bleach Storage (1)(220 gal) + (1)(330 gal)	=	550 gal

h.

One (1) 220-gallon bulk storage tank and one (1) 330-gallon bulk storage tank will be provided.

i. <u>Dechlorination Equipment.</u> Calculations are for 38% trade strength Sodium Bisulfite (NaHSO<sub>3</sub>) with a specific gravity of 1.320, has 28% availability sulfur dioxide by weight, 11 pounds per gallon, and no noticeable degradation of strength after 30 days.

i.	Anticipated Chlorine Residual	=	2 mg/l
ii.	Sodium Bisulfate Dosage Rate (2 mg/L Cl <sub>2</sub> )(1.5 part NaHSO <sub>3</sub> /part Cl <sub>2</sub> )	=	3 mg/l

iii.	Required NaHSO <sub>3</sub> Feed Rate at Average Daily Flow (0.50 MGD)(8.34)(3 mg/L) (2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	5.8 gal/day
iv.	Required NaHSO <sub>3</sub> Feed Rate at Peak Flow (2.0 MGD)(8.34)(3 mg/L) (2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	2.3 gal/day
v.	Sodium Bisulfate Storage (Covered Storage) (15 days)(5.8 gal/day)	=	87 gal
vi.	Proposed Sodium Bisulfate Storage (1)(75 gal)	=	75 gal

One (1) 75-gallon bulk storage tank will be provided.

#### I. SCOPE

The proposed Final phase plant will consist of facilities that are designed and constructed to treat 1.6 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. Final phase construction includes one (1) elevated headworks with mechanical bar screen and flow splitting weirs, three (3) aeration basins, three (3) secondary clarifiers, three (3) multi-stage aerobic digesters, one (1) chlorine contact basin, three (3) centrifugal blowers, a non-potable water system, a bleach disinfection system, and a sodium bisulfite dechlorination system.

#### II. PROPOSED WASTEWATER TREATMENT PLANT DESIGN

#### A. DESIGN CRITERIA

#### 1. Proposed Effluent Limits.

a.	BOD <sub>5</sub>	=	10 mg/l (daily average)
b.	TSS	=	15 mg/l (daily average)
C.	NH <sub>3</sub> -N	=	3 mg/l (daily average)
d.	E. coli	=	126 CFU
e.	DO	=	4 mg/l (weekly grab)

2. <u>Process Criteria.</u> The process criteria are taken from 30 TAC §217, Design Criteria for Domestic Wastewater Systems.

a.	Maximum Aeration Basin Organic Loading (Ib BOD <sub>5</sub> /day/1,000 ft <sup>3</sup> )	=	35
b.	Maximum Clarifier Surface Loading at Peak Flow (gal/day/ft <sup>2</sup> )	=	1,200
C.	Minimum Clarifier Detention Time (hours)	=	1.8
d.	Maximum Clarifier Weir Loading at Peak Flow (gal/day/ft)	=	20,000
e.	Minimum Chlorine Contact Detention Time at Peak Flow (minutes)	=	20
f.	Mean Cell Residence Time in Aerobic Digester* (days)	=	28*
g.	Minimum Air Required for Digester (scfm/1,000 ft <sup>3</sup> )	=	20

\*28-day SRT utilized instead of a 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

#### B. PROPOSED TREATMENT FACILITIES

1. <u>Flow.</u>

3.

a.	Average (Design)	=	1.0Q	=	1,600,000 gpd	=	1,111 gpm
b.	Peak (2 hour)	=	4.0Q	=	6,400,000 gpd	=	4,444 gpm

#### 2. Influent Composition

The following influent wastewater compositions are based on wastewater influent analysis.

BOD <sub>5</sub>	=	325 mg/L		
TSS	=	300 mg/L		
NH <sub>3</sub> -N	=	60 mg/L		
Organic Loadings.				
BOD <sub>5</sub>	=	(1.60 MGD)(8.34)(325 mg/L)	=	4,337 lbs BOD₅/day
TSS	=	(1.60 MGD)(8.34)(300 mg/L)	=	4,003 lbs TSS/day

## $NH_3-N$ = (1.60 MGD)(8.34)(60 mg/L) = 801 lbs $NH_3-N/day$

#### 4. Process Equipment.

- a. <u>Elevated Headworks Screening</u>. The proposed Final phase WWTP will consist of the construction of an elevated headworks with a mechanical bar screen and flow splitting structure capable of screening a peak flow of 6.4 MGD.
- b. <u>Aeration Basin</u>. The proposed Final phase WWTP will consist of three (3) proposed aeration basins, sized at 45' wide by 60' long. The average water depth is assumed at 16'.
  - i. Total Required Volume

Required Volume Using Traditional	Design Method (30	TAC	§217 Guid	elines)
(1.60 MGD)(8.34)(325 mg/L)/(35 lb	BOD <sub>5</sub> /1,000 ft <sup>3</sup> )	=	123,909	ft³

ii.	Proposed Volume (3)(45 ft)(60 ft)(16 ft)	=	129,600 ft <sup>3</sup>
iii.	Actual Organic Loading (4,337 lb BOD₅/day)/(129,600 ft³/1,000 ft³)	=	33.5 lb BOD <sub>5</sub> /

c. <u>Secondary Clarifier</u>. The proposed Final phase WWTP will consist of three (3) proposed 50' diameter clarifiers with a side water depth of 14.5'.

i.	Required 9 (6,400,000	Surface Area at Peak Flow Dgpd)/(1,200 gpd/ ft²)	=	5,333 ft <sup>2</sup>
ii.	Proposed (3)(π/4)(5	Surface Area 0 ft)²	=	5,890 ft <sup>2</sup>
iii.	Surface Lo	pading		
	1.	At Design Flow (1,600,000 gpd)/(5,890 ft²)	=	272 gpd/ft <sup>2</sup>
	2.	At Peak Flow (6,400,000 gpd)/(5,890 ft <sup>2</sup> )	=	1,087 gpd/ft <sup>2</sup>
iv.	Proposed (Includes I (3)(π)(50 f	Clarifier Weir Length Launder Allowance) ft – 2 ft)	=	452 ft
v.	Proposed (6,400,000	Weir Loading at Peak Flow ) gpd)/(452 ft)	=	14,159 gpd/ft
vi.	Proposed	Clarifier Side Water Depth (to top of grout)		
	1.	Proposed Clarifier Side Water Depth	=	14.5 ft
vii.	Hydraulic	Detention Times at Peak Flow		
	1.	Proposed Hydraulic Detention Time at Peak (5,890 ft²)(14.5 ft)(7.48 gal/ ft³)/(4,444 gal/	Flov min)	V
			=	144 minutes
			=	2.4 hours

d. <u>Aerobic Digesters</u>. The proposed Final phase WWTP will consist of three (3) multi-stage digesters sized at 48' wide by 52' long. The average water depth is assumed at 16'.

Assume one (1) pound of solids produced per pound of BOD<sub>5</sub> applied; solids are 70% volatile organics; 30% of the volatiles are destroyed during digestion; 15,000 mg/l MLSS concentration in the digester on average.

i. Digester Sizing

1.	Solids Production (4,337 lb BOD₅/day)(1 lb solids/1 lb BOD₅)	=	4,337 lb solids/day
2.	Digested Solids Production (4,337 lb solid/day)(1-(0.3)(0.7))	=	3,426 lb solids/day

	3.	Average Solids in Digester (3,426 lb solids/day + 4,337 lb solids/day)/2	2 =	3,881 lb solids/day
	4.	Total Solids in Digester for 28-day SRT* (3,881 lb solids/day)(28 days)	=	108,668 lb solids
ii.	Required (108,668	Volume Ib solids)(10 <sup>6</sup> )/((8.34)(15,000 mg/L MLSS in d	geste =	r)(7.48)) 116,129 ft <sup>3</sup>
iii.	Proposed (3)(48 ft)	l Volume (52 ft)(16 ft)	=	119,808 ft <sup>3</sup>

\*28-day SRT utilized instead of 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

e. <u>Chlorine Contact Basin</u>. The proposed Final phase WWTP will consist of one (1) proposed chlorine contact basin sized at 32' wide by 40' long. The maximum water depth is assumed to be 12 ft.

i.	Required Volume at Peak Flow (4,444 gpm)(20 min)/(7.48)	=	11,882 ft <sup>3</sup>
ii.	Proposed Volume (32 ft)(40 ft)(12 ft)	=	15,360 ft <sup>3</sup>
iii.	Actual Detention Time at Peak Flow (15,360 ft <sup>3</sup> )(7.48)/(4,444 gpm)	=	25.9 minutes

#### f. <u>Air Requirements.</u>

i. The proposed plant will utilize coarse bubble aeration.

1. Air Required for Treatment  $\frac{(1.2)(325 \text{ mg/l BOD}_5) + (4.3)(60 \text{ mg/l NH}_3-N)}{(325 \text{ mg/l BOD}_5)} = 2.16 \text{ lb } O_2/\text{lb BOD}_5$ 

\*2.2 lb  $O_2$ /lb BOD<sub>5</sub> used instead per TCEQ minimum oxygen requirement for systems intended to nitrify

2. Coarse Bubble Requirements

$$\frac{(325 \text{ mg/l BOD}_5)(8.34)(1.60 \text{ MGD})(2.2 \text{ lb } \text{O}_2/\text{ lb BOD}_5)(0.955)^{**}}{(0.0507^*)(0.23)(0.075)(1440)}$$

= 7,235 scfm

- \* TCEQ Wastewater Oxygen Transfer Efficiency for Coarse Bubble aeration (0.65%/ft x (12) ft of submergence)
- \*\* TCEQ Chapter 217 Table F.5 Submergence Correction Factor
- ii. Aerobic Digester

	(119,808 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	2,396 scfm
iii.	Chlorine Contact Basin (15,360 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	307 scfm
iv.	Miscellaneous Air Lifts (4)(40 scfm)	=	160 scfm
v.	Total Air Requirements (Coarse Bubble) 6,678 scfm + 2,396 scfm + 307 scfm + 160 scfm	=	9,541 scfm

g. <u>Blower Capacities.</u> The proposed plant will include three proposed centrifugal blowers. The capacity is calculated at 5.5 psig discharge pressure at 100°F, 80% RH, and 14.64 psia inlet conditions.

i.	Proposed Blower Capacity (3)(5,000 scfm)	=	15,000 scfm
ii.	Firm Blower Capacity with Largest Unit out of Service (2)(5,000 scfm)	=	10,000 scfm

h. <u>Chlorination Equipment.</u> Calculations are for 10% trade strength bleach (NaOCl) with a specific gravity of 1.159, has 10% availability chlorine by weight, 9.7 pounds per gallon.

i.	Chlorine Solution Dosage Rate	=	8 mg/l
ii.	Required NaOCl Solution Feed Rate at Average Daily Flo (1.60 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	w =	128 gal/day
iii.	Required NaOCl Solution Feed Rate at Peak Flow ( <u>6.4 MGD)(8.34)(8 mg/L)</u> ((10%)/1.159)(9.7 lbs/gal)	=	510 gal/day
iv.	Maximum Bleach Storage (Covered Storage) (15 days)(128 gal/day)	=	1,920 gal
v.	Proposed Bleach Storage (2)(900 gal)	=	1,800 gal

Two (2) 900-gallon bulk storage tank will be provided.

i. <u>Dechlorination Equipment.</u> Calculations are for 38% trade strength Sodium Bisulfite (NaHSO<sub>3</sub>) with a specific gravity of 1.320, has 28% availability sulfur dioxide by weight, 11 pounds per gallon, and no noticeable degradation of strength after 30 days.

i.	Anticipated Chlorine Residual	=	2 mg/l
ii.	Sodium Bisulfate Dosage Rate		- "
	(2 mg/L Cl <sub>2</sub> )(1.5 part NaHSO <sub>3</sub> /part Cl <sub>2</sub> )	=	3 mg/l
	10		

iii.	Required NaHSO <sub>3</sub> Feed Rate at Average Daily Flow ( <u>1.60 MGD)(8.34)(3 mg/L)</u>		
	(2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	18.5 gal/day
iv.	Required NaHSO <sub>3</sub> Feed Rate at Peak Flow		
	(6.4 MGD)(8.34)(3 mg/L)		
	(2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	73.8 gal/day
٧.	Sodium Bisulfite Storage		
	(Covered Storage)		
	(15 days)(18.5 gal/day)	=	278 gal
vi.	Proposed Sodium Bisulfite Storage		
	(1)(250 gal)	=	250 gal
One (1) 250-gallon bulk storage tank will be provided.			

## ATTACHMENT J

FLOW SCHEMATICS

### MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022

![](_page_106_Picture_4.jpeg)

![](_page_107_Figure_0.jpeg)


PROP SECOND PROP FIRST STAGE STAGE ∙\_@\_ AEROBIC AEROBIC DIGESTER 00 00 DIGESTER σ WET HAUL SLUDGE <u>+</u>+ + PROP PROP AERATION SECONDARY BASIN CLARIFIER RAS <u>@</u> WAS ହ AIR • ╉ NaOCI × × NaHSO<sub>2</sub> PROP PROP Ο PROP PROP HEADWORKS RAW INFLUENT CHLORINE AERATION SECONDARY OUTFALL (MECHANICAL CONTACT EXISTING BASIN CLARIFIER BAR SCREEN) BASIN ON-SITE LIFT STATION RAS <u>@</u> WAS ହ PROP PROP AERATION SECONDARY BASIN CLARIFIER RAS -@ WAS ନ୍ଦ୍ର LEGEND PROP SECOND PROP FIRST STAGE AIR LIFT STAGE Q **-**@-AEROBIC PUMP AEROBIC DIGESTER DIGESTER 0 00 00 WET HAUL MECHANICAL PUMP T SLUDGE RETURN ACTIVATED SLUDGE RAS \* \* ¥ FLOW SCHEMATIC PROP SECOND WASTE PROP FIRST STAGE STAGE WAS ACTIVATED MOORE FARM WATER CONTROL IMPROVEMENT **-**\_\_\_\_ AEROBIC SLUDGE AEROBIC DIGESTER **DISTRICT NO. 1** Ъ 00 00 DIGESTER NaOCI SODIUM WET HAUL HYPOCHLORITE MOORE FARM WCID NO. 1 WASTEWATER SLUDGE TREATMENT PLANT NaHSO<sub>2</sub> SODIUM BISULFITE FINAL PHASE - 1.60 MGD JANUARY 2023 QUIDDITY

Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 Bellaire, TX 77401 713.777.5337

000110

# ATTACHMENT K

SERVICE AREA MAP

MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022



# MOORE FARM DISCHARGE POINT EXHIBIT





# ATTACHMENT L

JUSTIFICATION

MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022



000113

# JUSTIFICATION FOR PLANT CONSTRUCTION MOORE FARM WATER CONTROL & IMPROVEMENT DISTRICT NO. 1

The Moore Farm WCID No. 1 Wastewater Treatment Plant will serve a residential subdivision located approximately 1.5 miles north of the City of Terrell.

At build out, there will be 5,250 residential connections. For design purposes, the wastewater flow for residential and commercial connections is 300 gallons per day per connection.

Following is the connection and flow projection for Moore Farm WCID No. 1 to complete build out:

Month / yr	Single family residential			
	connections	flow (gpd)		
Jan-24	34	10,200		
Jan-25	442	132,600		
Jan-26	850	255,000		
Jan-27	1,258	377,400		
Jan-28	1,666	499,800		
Jan-29	2,040	612,000		
Jan-36	5,250	1,600,000		

Following is the construction schedule for the current and final plant phases:

Proposed flow	Phase I	Phase II	Final
Design Flow (MGD)	0.20	0.50	1.60
2-Hr Peak Flow (MGD)	0.80	2.00	6.40
Date construction to commence	10-2023	6-2024	7-2026
Date construction completed and discharge begins	1-2024	7-2025	9-2027

# ATTACHMENT M

SLUDGE MANAGEMENT PLAN

MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022



# SLUDGE MANAGEMENT AND DISPOSAL PLAN MOORE FARM WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 WASTEWATER TREATMENT PLANT

## **INTRODUCTION**

This sludge management and disposal plan is being submitted as an attachment to the TPDES permit application for Moore Farm Water Control & Improvement District (WCID) No. 1. The Moore Farm WCID No. 1 Wastewater Treatment Plant will be a 0.20 MGD single stage nitrification activated sludge plant with effluent limits of 10 mg/l CBOD<sub>5</sub>, 15 mg/l TSS, and 3.0 mg/l NH<sub>3</sub>-N.

# **DIMENSIONS AND CAPACITIES**

Excess solids generated from the activated plant will be wasted to an aerobic digester for further treatment. The liquid stabilized sludge will then be hauled away to a TCEQ permitted land application site for disposal by a licensed sludge hauler. The digester will have a volume of at least 13,104 ft<sup>3</sup>.

## SOLIDS GENERATION

Solids to be wasted from the activated sludge process is based on 1.0 pounds of TSS produced per pound of BOD applied. Following is the amount of solids generated by the wastewater treatment plant at design flow and at 75 percent, 50 percent and 25 percent of design flow:

Percent of Design Flow	Flow (MGD)	Solids Generated (lb/day)
25	0.05	105
50	0.10	209
75	0.15	313
100	0.20	417

# **OPERATING PARAMETERS**

The single stage nitrification activated sludge process works best between mixed liquor suspended solids (MLSS) concentrations of 2,000 – 6,000 mg/l. The operator will determine the mixed liquor concentration that produces the highest quality effluent taking into consideration factors such as hydraulic and organic loading, available air capacity, and solids handling. Field testing and laboratory analysis will be done to monitor the MLSS and maintain the appropriate solids concentration.

# SOLIDS REMOVAL PROCEDURE

Laboratory analysis and field testing will be conducted to determine the solids concentration in the aeration basin. To maintain an appropriate solids inventory, the amount of solids to be wasted per day is equal to the amount of solids generated per day. This amount is stated in the SOLIDS GENERATION section of this plan. Excess solids will then be wasted from the bottom of the clarifier directly to the aerobic digester to maintain the appropriate solids concentration in the aeration basin.

# SOLIDS REMOVAL SCHEDULE

It is assumed that 70% of the solids wasted to the digester are volatile solids and the volatile solids reduction is 30%. For every pound of solids wasted to the digester, 0.79 pounds of solids will need to be disposed of by land application. In addition, it is assumed that the solids can be thickened to 15,000 mg/l in the digester. At this concentration, a 13,104 ft<sup>3</sup> digester will hold 12,262 pounds of solids. The capacity of the digester divided by the pounds per day of solids to be disposed of will give the sludge hauling schedule.

	Solids Disposed	
Percent of Design Flow	(lb/day)	Hauling Schedule (days)
25	82	149
50	165	74
75	247	50
100	329	37

# ULTIMATE SLUDGE DISPOSAL

Sludge will be liquid hauled from the plant by a TCEQ registered sludge transporter to a TCEQ permitted land application site or another wastewater treatment plant.

A manifest will be issued with each load of sludge that is hauled from the plant. The following information will be on the manifest to document ultimate disposal of the sludge:

- 1. Date of sludge hauling
- 2. Generator Name
- 3. Generator's address
- 4. Volume of sludge hauled

- 5. Name of transporter
- 6. TCEQ transporter registration number
- 7. Driver's name
- 8. Name of disposal site
- 9. TCEQ Site permit number
- 10. Date of disposal
- 11. Volume of sludge disposed

This information, along with laboratory and field data will be used to determine the amount of solids disposed of in dry weight form.

# SLUDGE MANAGEMENT AND DISPOSAL PLAN MOORE FARM WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 WASTEWATER TREATMENT PLANT

## **INTRODUCTION**

This sludge management and disposal plan is being submitted as an attachment to the TPDES permit application for Moore Farm Water Control & Improvement District (WCID) No. 1. The Moore Farm WCID No. 1 Wastewater Treatment Plant will be a 0.50 MGD single stage nitrification activated sludge plant with effluent limits of 10 mg/l CBOD<sub>5</sub>, 15 mg/l TSS, and 3.0 mg/l NH<sub>3</sub>-N.

# **DIMENSIONS AND CAPACITIES**

Excess solids generated from the activated plant will be wasted to an aerobic digester for further treatment. The liquid stabilized sludge will then be hauled away to a TCEQ permitted land application site for disposal by a licensed sludge hauler. The digester will have a volume of at least 32,760 ft<sup>3</sup>.

## SOLIDS GENERATION

Solids to be wasted from the activated sludge process is based on 1.0 pounds of TSS produced per pound of BOD applied. Following is the amount of solids generated by the wastewater treatment plant at design flow and at 75 percent, 50 percent and 25 percent of design flow:

Percent of Design Flow	Flow (MGD)	Solids Generated (lb/day)
25	0.13	261
50	0.25	521
75	0.38	782
100	0.50	1,043

# **OPERATING PARAMETERS**

The single stage nitrification activated sludge process works best between mixed liquor suspended solids (MLSS) concentrations of 2,000 – 6,000 mg/l. The operator will determine the mixed liquor concentration that produces the highest quality effluent taking into consideration factors such as hydraulic and organic loading, available air capacity, and solids handling. Field testing and laboratory analysis will be done to monitor the MLSS and maintain the appropriate solids concentration.

# SOLIDS REMOVAL PROCEDURE

Laboratory analysis and field testing will be conducted to determine the solids concentration in the aeration basin. To maintain an appropriate solids inventory, the amount of solids to be wasted per day is equal to the amount of solids generated per day. This amount is stated in the SOLIDS GENERATION section of this plan. Excess solids will then be wasted from the bottom of the clarifier directly to the aerobic digester to maintain the appropriate solids concentration in the aeration basin.

# SOLIDS REMOVAL SCHEDULE

It is assumed that 70% of the solids wasted to the digester are volatile solids and the volatile solids reduction is 30%. For every pound of solids wasted to the digester, 0.79 pounds of solids will need to be disposed of by land application. In addition, it is assumed that the solids can be thickened to 15,000 mg/l in the digester. At this concentration, a 32,760 ft<sup>3</sup> digester will hold 30,655 pounds of solids. The capacity of the digester divided by the pounds per day of solids to be disposed of will give the sludge hauling schedule.

	Solids Disposed	
Percent of Design Flow	(lb/day)	Hauling Schedule (days)
25	206	149
50	412	74
75	618	50
100	824	37

# ULTIMATE SLUDGE DISPOSAL

Sludge will be liquid hauled from the plant by a TCEQ registered sludge transporter to a TCEQ permitted land application site or another wastewater treatment plant.

A manifest will be issued with each load of sludge that is hauled from the plant. The following information will be on the manifest to document ultimate disposal of the sludge:

- 1. Date of sludge hauling
- 2. Generator Name
- 3. Generator's address
- 4. Volume of sludge hauled

- 5. Name of transporter
- 6. TCEQ transporter registration number
- 7. Driver's name
- 8. Name of disposal site
- 9. TCEQ Site permit number
- 10. Date of disposal
- 11. Volume of sludge disposed

This information, along with laboratory and field data will be used to determine the amount of solids disposed of in dry weight form.

# SLUDGE MANAGEMENT AND DISPOSAL PLAN MOORE FARM WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 WASTEWATER TREATMENT PLANT

## **INTRODUCTION**

This sludge management and disposal plan is being submitted as an attachment to the TPDES permit application for Moore Farm Water Control & Improvement District (WCID) No. 1. The Moore Farm WCID No. 1 Wastewater Treatment Plant will be a 1.60 MGD single stage nitrification activated sludge plant with effluent limits of 10 mg/l CBOD<sub>5</sub>, 15 mg/l TSS, and 3.0 mg/l NH<sub>3</sub>-N.

# **DIMENSIONS AND CAPACITIES**

Excess solids generated from the activated plant will be wasted to an aerobic digester for further treatment. The liquid stabilized sludge will then be hauled away to a TCEQ permitted land application site for disposal by a licensed sludge hauler. The digester will have a volume of at least 120,000 ft<sup>3</sup>.

## SOLIDS GENERATION

Solids to be wasted from the activated sludge process is based on 1.0 pounds of TSS produced per pound of BOD applied. Following is the amount of solids generated by the wastewater treatment plant at design flow and at 75 percent, 50 percent and 25 percent of design flow:

Percent of Design Flow	Flow (MGD)	Solids Generated (lb/day)
25	0.40	1,084
50	0.80	2,168
75	1.20	3,253
100	1.60	4,337

# **OPERATING PARAMETERS**

The single stage nitrification activated sludge process works best between mixed liquor suspended solids (MLSS) concentrations of 2,000 – 6,000 mg/l. The operator will determine the mixed liquor concentration that produces the highest quality effluent taking into consideration factors such as hydraulic and organic loading, available air capacity, and solids handling. Field testing and laboratory analysis will be done to monitor the MLSS and maintain the appropriate solids concentration.

# SOLIDS REMOVAL PROCEDURE

Laboratory analysis and field testing will be conducted to determine the solids concentration in the aeration basin. To maintain an appropriate solids inventory, the amount of solids to be wasted per day is equal to the amount of solids generated per day. This amount is stated in the SOLIDS GENERATION section of this plan. Excess solids will then be wasted from the bottom of the clarifier directly to the aerobic digester to maintain the appropriate solids concentration in the aeration basin.

# SOLIDS REMOVAL SCHEDULE

It is assumed that 70% of the solids wasted to the digester are volatile solids and the volatile solids reduction is 30%. For every pound of solids wasted to the digester, 0.79 pounds of solids will need to be disposed of by land application. In addition, it is assumed that the solids can be thickened to 15,000 mg/l in the digester. At this concentration, a 120,000 ft<sup>3</sup> digester will hold 112,290 pounds of solids. The capacity of the digester divided by the pounds per day of solids to be disposed of will give the sludge hauling schedule.

	Solids Disposed	
Percent of Design Flow	(lb/day)	Hauling Schedule (days)
25	857	131
50	1,713	66
75	2,570	44
100	3,426	33

# ULTIMATE SLUDGE DISPOSAL

Sludge will be liquid hauled from the plant by a TCEQ registered sludge transporter to a TCEQ permitted land application site or another wastewater treatment plant.

A manifest will be issued with each load of sludge that is hauled from the plant. The following information will be on the manifest to document ultimate disposal of the sludge:

- 1. Date of sludge hauling
- 2. Generator Name
- 3. Generator's address
- 4. Volume of sludge hauled

- 5. Name of transporter
- 6. TCEQ transporter registration number
- 7. Driver's name
- 8. Name of disposal site
- 9. TCEQ Site permit number
- 10. Date of disposal
- 11. Volume of sludge disposed

This information, along with laboratory and field data will be used to determine the amount of solids disposed of in dry weight form.

# ATTACHMENT N

FEMA FLOOD MAP

MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022





# ATTACHMENT O

WINDROSE

# MOORE FARMS WATER CONTROL & IMPROVEMENT DISTRICT NO. 1 MOORE FARMS WCID NO. 1 WASTEWATER TREATMENT PLANT TPDES APPLICATION

DECEMBER 2022





Windrose Plot for [TRL] TERRELL Obs Between: 31 May 1997 12:53 AM - 01 Sep 2022 09:53 PM America/Chicago



Jon Niermann, *Chairman* Emily Lindley, *Commissioner* Bobby Janecka, *Commissioner* Toby Baker, *Executive Director* 



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 23, 2022

Mr. Jonathan Nguyen Quiddity Engineering 3100 Alvin Devane Boulevard, Suite 150 Austin, Texas 78741

#### VIA EMAIL

Re: Application to Obtain Permit No. WQ0016274001 (EPA I.D. TX0143952) To Be Issued to Moore Farm Water Control and Improvement District No. 1 CN603248667, RN111620209

Dear Mr. Nguyen

We have received the application for the above referenced permit, and it is currently under review. Your attention to the following items is requested before we can declare the application administratively complete. Please submit one original and two copies (including a cover letter) of the complete response.

1. The following is a portion of the Notice of Receipt of Application and Intent to Obtain a Water Quality Permit (NORI) which contains information relevant to your application. Please read it carefully and indicate if it contains any errors or omissions. The complete notice will be sent to you once the application is declared administratively complete.

APPLICATION. Moore Farm Water Control and Improvement District No. 1, 14755 Preston Road, Suite 600, Dallas, Texas 75254, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0016274001 (EPA I.D. No. TX0143952) to authorize the discharge of treated wastewater at a volume not to exceed an annual average flow of 1,600,000 gallons per day. The domestic wastewater treatment facility will be located approximately 0.35 miles southwest of the intersection of County Road 243 and County Road 245, in Kaufman County, Texas 75160. The discharge route will be from the plant site to Little High Point Creek; thence to High Point Creek; thence to Big Brushy Creek; thence to Kings Creek; thence to Cedar Creek Reservoir. TCEQ received this application on December 14, 2022. The permit application is available for viewing and copying at Riter C. Hulsey Public Library, 301 North Rockwall Avenue, Terrell, Texas. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-96.309166,32.804444&level=18

Further information may also be obtained from Moore Farm Water Control and Improvement District No. 1 at the address stated above or by calling Mr. Jonathan Nguyen, Quiddity Engineering, at 512-685-5156.

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

New rule requirements under Title 30 Texas Administrative Code (TAC) Chapter 39 relating to public notices have been implemented. The deficiencies listed below are new items that need to be provided to meet the alternative language requirements.

- 2. Administrative Report 1.0, Section 8, Item E, No. 5 indicates that public notices in Spanish are required. After confirming the portion of the NORI contained in this letter does not contain any errors or omissions, please use the attached template to translate the NORI into Spanish. Only the first and last paragraphs are unique to this application and require translation. Please provide the translated Spanish NORI in a Microsoft Word Document.
- 3. All new and major amendment wastewater and stormwater individual permit applications received on or after November 1, 2022, must now include a completed Public Involvement Plan (PIP) form (TCEQ-20960). Please provide the completed PIP form. The form and instructions are available for download on our website at the following address: <a href="https://www.tceq.texas.gov/permitting/wastewater/water-guality/#PIP">https://www.tceq.texas.gov/permitting/wastewater/water-guality/#PIP</a>

Please submit the complete response, addressed to my attention by January 6, 2023. If you should have any questions, please do not hesitate to call me at (512) 239-0084.

Sincerely,

Jean Whallon

Leah Whallon Application Review and Processing Team (MC 148) Water Quality Division Texas Commission on Environmental Quality

Attachment 1 - Municipal Discharge New Spanish NORI



# RE: Application for Proposed Permit No. WQ0016274001; Moore Farm WCID 1

From Jonathan Nguyen <jnguyen@quiddity.com>

Date Tue 1/3/2023 8:38 AM

- To Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
- Cc Michelle A. Troy PE <mtroy@quiddity.com>; mkoehne@coatsrose.com <mkoehne@coatsrose.com>; Alex S. Pfefferkorn PE <apfefferkorn@quiddity.com>

2 attachments (217 KB)

Moore Farms Spanish NORI.docx; Moore Farms PIP.pdf;

Good morning Leah,

Hope you had a great holiday break! Attached is the Spanish NORI and the Public Involvement Plan for the Moore Farms WCID No. 1 permit application.

Please let me know if you have any questions.

Thanks!



Jonathan Nguyen

Permitting Specialist

Email: jnguyen@quiddity.com T: (512) 685-5156

From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
Sent: Friday, December 23, 2022 11:33 AM
To: Jonathan Nguyen <jnguyen@quiddity.com>
Cc: Michelle A. Troy PE <mtroy@quiddity.com>; mkoehne@coatsrose.com
Subject: Application for Proposed Permit No. WQ0016274001; Moore Farm WCID 1

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Mr. Nguyen,

The attached Notice of Deficiency (NOD) letter dated December 23, 2022, requests additional information needed to declare the application administratively complete. Please email the complete response to my attention by January 6, 2023.

Please let me know if you have any questions.

Thank you,



Leah Whallon Texas Commission on Environmental Quality Water Quality Division Application Review & Processing Team ■: 512-239-0084 ⊠: leah.whallon@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at <u>www.tceq.texas.gov/customersurvey</u>



Texas Commission on Environmental Quality

# Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

# Section 1. Preliminary Screening

New Permit or Registration Application
 New Activity – modification, registration, amendment, facility, etc. (see instructions)

#### If neither of the above boxes are checked, a Public Involvement Plan is not necessary. Completion of the remaining sections not required.

Section 2. Secondar	y Screening
Requires public not	ice,
□ Considered to have	significant public interest, <u>and</u>
Located within any	of the following geographical locations:
• Austin	• San Antonio
• Dallas	West Texas
• Fort Worth	• Texas Panhandle
• Houston	Along the Texas/Mexico Border
<ul> <li>Other geograph</li> </ul>	hical locations should be decided on a case-by-case basis
If all of the above bo	exes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2.
□ Public Involvement	Plan not applicable to this application. Provide <b>brief</b> explanation.
Section 3. Applicati	on Information

Section 3. Application Information						
Type of Application (check all that apply):						
Air	$\Box$ Initial	□ Federal	□ Amendment	$\Box$ Standard Permit $\Box$ Title V		
Waste	🗆 Munici	ipal Solid Wa	aste	$\Box$ Industrial and Hazardous Waste		
	🗆 Radioa	ctive Materi	als Licensing	Underground Injection Controls		

Water Quality

□ Texas Pollutant Discharge Elimination System (TPDES)

- □ Texas Land Application Permit (TLAP)
- □ State Only Concentrated Animal Feeding Operation (CAFO)
- □ Water Treatment Plant Residuals Disposal Permit
  - □ Class B Biosolids Land Application Permit
  - □ Domestic Septage Land Application Registration

Water Rights New Permit

 $\Box$  New Appropriation of Water

 $\Box$  New or existing reservoir

Amendment to an Existing Water Right

 $\Box$  Add a New Appropriation of Water

 $\Box$  Add a New or Existing Reservoir

□ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

# Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.  $\Box$  City

 $\Box$  County

□ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

(b) Per capita income for population near the specified location

(c) Percent of minority population and percent of population by race within the specified location

(d) Percent of Linguistically Isolated Households by language within the specified location

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

# Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

 $\Box$  Yes  $\Box$  No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

 $\Box$  Yes  $\Box$  No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

 $\Box$  Yes  $\Box$  No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

 $\Box$  Publish in alternative language newspaper

□ Posted on Commissioner's Integrated Database Website

 $\Box$  Mailed by TCEQ's Office of the Chief Clerk

 $\Box$  Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

 $\Box$  Yes  $\Box$  No

(e) If a public meeting is held, will a translator be provided if requested?

 $\Box$  Yes  $\Box$  No

(f) Hard copies of the application will be available at the following (check all that apply):

 $\hfill\square$  TCEQ Regional Office

□ TCEQ Central Office

 $\Box$  Public Place (specify)

# Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

 $\Box$  Yes  $\Box$  No

What types of notice will be provided?

 $\Box$  Publish in alternative language newspaper

 $\square$  Posted on Commissioner's Integrated Database Website

□ Mailed by TCEQ's Office of the Chief Clerk

 $\Box$  Other (specify)



## RE: Technical Data Completeness Review\_Moore Farm WCID No. 1 WQ0016274001

From Jonathan Nguyen <jnguyen@quiddity.com>Date Tue 1/17/2023 9:19 AMTo Deba Dutta <Deba.Dutta@tceq.texas.gov>

Full application shared. Let me know if you do not get it.

Thanks,



Jonathan Nguyen Permitting Specialist

Email: jnguyen@quiddity.com

T: (512) 685-5156

From: Jonathan Nguyen
Sent: Tuesday, January 17, 2023 9:16 AM
To: 'Deba Dutta' <Deba.Dutta@tceq.texas.gov>
Subject: RE: Technical Data Completeness Review\_Moore Farm WCID No. 1 WQ0016274001

Good morning Deba,

Attached are the updated exhibits for this permit application. The Supplemental Technical Report and flow schematics show the number of treatment units for the Interim I phase and are also listed below.

- 1 manual bar screen
- 2 aeration basins
- 1 final clarifier
- 2 multi-stage aerobic digesters
- 1 chlorine contact basin

I will send you the updated full application next. Let us know if you have any questions.

Thanks,



#### Jonathan Nguyen

Permitting Specialist

Email: jnguyen@quiddity.com

T: (512) 685-5156

From: Deba Dutta <<u>Deba.Dutta@tceq.texas.gov</u>>
Sent: Tuesday, January 17, 2023 7:02 AM
To: Jonathan Nguyen <<u>jnguyen@quiddity.com</u>>
Cc: Deba Dutta <<u>Deba.Dutta@tceq.texas.gov</u>>
Subject: RE: Technical Data Completeness Review\_Moore Farm WCID No. 1 WQ0016274001

https://outlook.office.com/mail/id/AAMkAGIyMTM5OTFhLTMyNmUtNGRIYy05NzVkLWQwZWI2YWE3ZDA2NgBGAAAAAABLj%2Fm3oumIQLwrfObCI...

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

This is a friendly reminder that we have not received any response yet.

#### Thanks.

#### Deba

From: Deba Dutta <<u>Deba.Dutta@tceq.texas.gov</u>>
Sent: Thursday, December 29, 2022 11:20 AM
To: Jonathan Nguyen <<u>jnguyen@quiddity.com</u>>
Cc: Deba Dutta <<u>Deba.Dutta@tceq.texas.gov</u>>
Subject: Technical Data Completeness Review\_Moore Farm WCID No. 1 WQ0016274001

Dear Mr. Nguyen:

Thank you for the new Domestic Wastewater Permit Application for the subject facility received on December 14, 2022. Based on a pre-technical data completeness review of the application, it was noted that the following items were either missing or not properly addressed. Please address the below information (preferably via email) as soon as possible, but **no later than COB Thursday; January 5, 2023**.

**Domestic Technical Report 1.0,** Section 2B: Treatment Units. Please provide quantity of each treatment units for Interim I phase. Rename Interim III phase as Final phase throughout the application.

In addition to the above items, if available, please email me an electronic copy (PDF/Word) of the revised permit application with all attachments for our records. You can also share the application via TCEQ FTPS at: <a href="https://ftps.tceq.texas.gov/">https://ftps.tceq.texas.gov/</a>.

Please note that the TCEQ may request additional information as necessary to aid in drafting an accurate and representative permit. Feel free to contact me if you have any question.

# Thanks. Deba

Deba P. Dutta, P.E. Municipal Permits Team, MC-148 Wastewater Permitting Section Water Quality Division, TCEQ 12100 Park 35 Circle, Austin, Texas 78753 Phone: 512-239-4608 Email: <u>Deba.Dutta@tceq.texas.gov</u>



**Customer Satisfaction Survey** 

SUPPLEMENTAL TECHNICAL REPORT

#### FOR THE

MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. 1

#### DOMESTIC WASTEWATER PERMIT

FOR

## MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. 1

## WASTEWATER TREATMENT PLANT

IN

**KAUFMAN COUNTY, TEXAS** 



November 2022 Quiddity Job No. 0D166-0013-00



#### I. INTRODUCTION

The purpose of this report is to provide additional information pertaining to items in the Domestic Administrative Report and The Domestic Technical Report for the permit application to the Moore Farm Water Control and Improvements District (WCID) No. 1 Wastewater Treatment Facility in Kaufman County, Texas. The proposed facility will be constructed to treat 0.2 million gallons per day (MGD) with an interim phase of 0.5 MGD and a final phase of 1.6 MGD.

#### **II. LOCATION INFORMATION**

See Section 10 of the Domestic Admin. Report 1.0 for specific location information. The proposed facility is approximately 0.35 miles southwest of the intersection of County Road 255 and County Road 243, in Kaufman County, Texas 75160. A USGS Map with the required site information is provided as Attachment B. The discharge of Moore Farm WCID No. 1 Wastewater Treatment Facility is to Little High Point Creek, thence to High Point Creek, thence to Big Brushy Creek, thence to Kings Creek, thence to Cedar Creek Reservoir in Segment No. 0818 of the Trinity River Basin.

#### **III. TREATMENT UNITS**

(For Section 2 of Technical Report 1.0)

The proposed facility will be constructed with a design flow of 0.2 MGD. A detailed description of the treatment process is presented below:

The proposed Phase I plant will consist of package plant facilities that are designed and constructed to treat 0.20 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. An influent force main flows from the on-site lift station to the headworks passing through a manual bar screen. The influent then mixes with return activated sludge to create mixed liquor and flows through the aeration basin operated in the single-stage nitrification mode to consume organics and breakdown ammonia. From the aeration basin, the mixed liquor flows to the secondary clarifier for clarification. After clarification, the treated effluent flows to the chlorine contact basin for disinfection. The effluent then flows over a weir for flow measurement and into the receiving stream. Additional facilities include blowers, a non-potable water system, chemical disinfection system, using sodium hypochlorite and a stand-by generator. The WAS is pumped to the aerobic digester then is transported to another facility by wet haul.

The proposed Phase II plant will consist of facilities that are designed and constructed to treat 0.50 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. This phase includes, two existing aeration basins, one existing clarifier, two existing multi-stage aerobic digesters, one existing chlorine contact basin, three existing centrifugal blowers, an existing non-potable water system, and an existing chlorine disinfection system. Phase II construction will include one proposed elevated screening structure with manual bar screen and flow splitting weirs, three aeration basins, one clarifier, three multi-stage aerobic digesters, three centrifugal blowers, a non-potable water system, a bleach disinfection system, and a sodium bisulfite dechlorination system.

The proposed Final phase plant will consist of facilities that are designed and constructed to treat 1.60 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. Final phase construction includes one elevated headworks with mechanical bar screen and flow splitting weirs, three aeration basins, three secondary clarifiers, three multi-stage aerobic digesters, one chlorine contact basin, three centrifugal blowers, a non-potable water system, a bleach disinfection system, and a sodium bisulfite dechlorination system.

#### **IV. DESIGN CALCULATIONS AND FEATURES**

(For Section 2 of Technical Report 1.0 & Section 4 of Technical Report 1.1)

Design calculations are provided as part of this report on the following pages for all phases of construction.

The existing and proposed facilities will be equipped with design features to prevent overflows or bypassing of untreated wastewater. A backup diesel generator will be installed onsite with an automatic transfer switch to provide power to essential equipment in the event of a main power failure. The entire facility will also have an automatic telephone dialer that notifies the operator of pump failures, main power failures and high basin levels. The onsite lift station will maintain a redundant pump to protect against overflows in the event of a pump failure.

#### I. SCOPE

The proposed Phase I plant will consist of facilities that are designed and constructed to treat 0.20 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. Construction includes one (1) manual bar screen, two (2) aeration basins, one (1) clarifier, two (2) multi-stage aerobic digesters, one (1) chlorine contact basin, three (3) centrifugal blowers, a non-potable water system, and a chlorine disinfection system using sodium hypochlorite.

#### **II. PROPOSED WASTEWATER TREATMENT PLANT DESIGN**

#### A. DESIGN CRITERIA

#### 1. Proposed Effluent Limits.

- a. BOD<sub>5</sub> = 10 mg/l (daily average)
- b. TSS = 15 mg/l (daily average)
- c.  $NH_3-N$  = 3 mg/l (daily average)
- d. DO = 4 mg/l (weekly grab)
- e. E.coli = 126 CFU
- 2. <u>Process Criteria</u>. The process criteria are taken from 30 TAC §217, Design Criteria for Domestic Wastewater Systems.

a.	Maximum Aeration Basin Organic Loading (Ib BOD₅/day/1,000 ft³)	=	35
b.	Maximum Clarifier Surface Loading at Peak Flow (gal/day/ft <sup>2</sup> )	=	1,200
C.	Minimum Clarifier Detention Time (hours)	=	1.8
d.	Maximum Clarifier Weir Loading at Peak Flow (gal/day/ft)	=	20,000
e.	Minimum Chlorine Contact Detention Time at Peak Flow (minutes)	=	20
f.	Mean Cell Residence Time in Aerobic Digester* (days)	=	28*
g.	Minimum Air Required for Digester (scfm/1,000 ft <sup>3</sup> )	=	20

\*28-day SRT utilized instead of a 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

#### B. PROPOSED TREATMENT FACILITIES

1. <u>Flow.</u>

a.	Average (Design)	=	1.0Q	=	200,000 gpd	=	139 gpm
b.	Peak (2 hour)	=	4.0Q	=	800,000 gpd	=	556 gpm

## 2. Influent Composition

The following influent wastewater compositions are based on wastewater influent analysis.

BOD <sub>5</sub>	=	250 mg/L
TSS	=	250 mg/L
NH <sub>3</sub> -N	=	40 mg/L
Organic Loadings.		

3. Organic Loadings.

BOD <sub>5</sub>	=	(0.20 MGD)(8.34)(250 mg/L)	=	417 lbs BOD <sub>5</sub> /day
TSS	=	(0.20 MGD)(8.34)(250 mg/L)	=	417 lbs TSS/day
NH <sub>3</sub> -N	=	(0.20 MGD)(8.34)(40 mg/L)	=	67 lbs NH₃-N/day

#### 4. <u>Process Equipment.</u>

- a. <u>Headworks Screening.</u> The proposed Phase I plant will consist of the construction of a headworks with a manual bar screen capable of screening a peak flow of 0.8 MGD.
- b. <u>Aeration Basin</u>. The proposed Phase I WWTP will consist of (2) aeration basins, sized at 12' wide by 52' long. The average water depth is assumed at 10.5'.
  - i. Total Required Volume

Required Volume Using Traditional Design Method (30 TAC §217 Guidelines) (0.20 MGD)(8.34)(250 mg/L)/(35 lb BOD $_5/1,000$  ft<sup>3</sup>)

		=	11,914 ft <sup>3</sup>
ii.	Proposed Volume – Phase I (2)(12 ft)(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>
iii.	Actual Organic Loading (417 lb BOD₅/day)/(13,104 ft³/1,000 ft³)	=	31.8 lb BOD₅/ day/1,000 ft <sup>3</sup>

c. <u>Secondary Clarifier</u>. The proposed Phase I plant will consist of one (1) 34' diameter clarifier with a side water depth of 10'.

i.	Required 9 (800,000 g	Surface Area at Peak Flow gpd)/(1,200 gpd/ ft <sup>2</sup> )	=	667 ft <sup>2</sup>
ii.	Proposed (π/4)(34 ft	Surface Area t) <sup>2</sup>	=	908 ft <sup>2</sup>
iii.	Surface Loading			
	1.	At Design Flow (200,000 gpd)/(908 ft²)	=	220 gpd/ft <sup>2</sup>
	2.	At Peak Flow (800,000 gpd)/(908 ft <sup>2</sup> )	=	881 gpd/ft <sup>2</sup>
iv.	Proposed (Includes I (π)(34 ft –	Clarifier Weir Length Launder Allowance) 2 ft)	=	101 ft
v.	Proposed (800,000 g	Weir Loading at Peak Flow gpd)/(101 ft)	=	7,921 gpd/ft
vi.	Proposed	Clarifier Side Water Depth (to top of grout)		
	1.	Proposed Clarifier Side Water Depth	=	10 ft
vii.	Hydraulic	Detention Times at Peak Flow		
	1. Proposed Hydraulic Detention Time at Peak Flow $(0.08 \text{ ft}^2)(10 \text{ ft})/(7.48 \text{ col}/(\text{ft}^3))/(156 \text{ col}/(\text{min}))$			V
			= =	122 minutes 2.03 hours

d. <u>Aerobic Digesters</u>. The proposed Phase I WWTP will consist of two (2) multi-stage digesters sized at 12' wide by 52' long. The average water depth is assumed at 10.5'.

Assume one (1) pound of solids produced per pound of BOD<sub>5</sub> applied; solids are 70% volatile organics; 30% of the volatiles are destroyed during digestion; 15,000 mg/l MLSS concentration in the digester on average.

i. Digester Sizing

1.	Solids Production (417 lb BOD <sub>5</sub> /day)(1 lb solids/1 lb BOD <sub>5</sub> )	=	417 lb solids/day	
2.	Digested Solids Production (417 lb solid/day)(1-(0.3)(0.7))	=	329 lb solids/day	
	3.	Average Solids in Digester (329 lb solids/day + 417 lb solids/day)/2	=	373 lb solids/day
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	4.	Total Solids in Digester for 28-day SRT* (373 lb solids/day)(28 days)	=	10,444 lb solids
ii.	Require (10,444	d Volume lb solids)(10º)/((8.34)(15,000 mg/l MLSS in dig	gester =	)(7.48)) 11,168 ft <sup>3</sup>
iii.	Propose (2)(12 ft	d Volume – Phase I )(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>

\*28-day SRT utilized instead of 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

e. <u>Chlorine Contact Basin.</u> The proposed Phase I plant will consist of one (1) proposed chlorine contact basin sized at 12' wide by 36' long. The maximum water depth is assumed to be 9 ft.

i.	Required Volume at Peak Flow (556 gpm)(20 min)/(7.48)	=	1,485 ft <sup>3</sup>
ii.	Proposed Volume – Phase I (12 ft)(36 ft)(9 ft)	=	3,888 ft <sup>3</sup>
iii.	Actual Detention Time at Peak Flow (3,888 ft <sup>3</sup> )(7.48)/(556 gpm)	=	52.3 minutes

# f. <u>Air Requirements.</u>

i. The proposed Phase I plant will utilize coarse bubble aeration.

1.	Air Required for Treatment		
	<u>(1.2)(250 mg/l BOD₅) + (4.3)(40 mg/l NH₃-N)</u>		
	(250 mg/l BOD₅)	=	1.9 lb O <sub>2</sub> /lb BOD <sub>5</sub>

\* 2.2 lb O<sub>2</sub>/lb BOD<sub>5</sub> used instead per TCEQ minimum oxygen requirement for systems intended to nitrify.

2. Coarse Bubble Requirements

= 1,231 scfm

\* TCEQ Wastewater Oxygen Transfer Efficiency for Coarse Bubble aeration (0.65%/ft x (12) ft of submergence)

\*\* TCEQ Chapter 217 Table F.5 Submergence Correction Factor

ii.	Aerobic Digester (13,104 ft³)(20 scfm/1000 ft³)	=	262 scfm
iii.	Chlorine Contact Basin (3,888 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	78 scfm
iv.	Miscellaneous Air Lifts (4)(40 scfm)	=	160 scfm
v.	Total Air Requirements (Coarse Bubble) 1,231 scfm + 266 scfm + 78 scfm + 160 scfm	=	1,731 scfm

g. <u>Blower Capacities.</u> The proposed Phase I plant will include three (3) proposed centrifugal blowers. The capacity is calculated at 5.5 psig discharge pressure at 100°F, 80% RH, and 14.64 psia inlet conditions.

i.	Proposed Blower Capacity – Phase I (3)(1,000 scfm)	=	3,000 scfm
ii.	Firm Blower Capacity with Largest Unit out of Service (2)(1,000 scfm)	=	2,000 scfm

h. <u>Chlorination Equipment.</u> Calculations are for 10% trade strength bleach (NaOCl) with a specific gravity of 1.159, has 10% availability chlorine by weight, 9.7 pounds per gallon.

i.	Chlorine Solution Dosage Rate	=	8 mg/l
ii.	Required NaOCl Solution Feed Rate at Average Daily Flo (0.20 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	w =	15.9 gal/day
iii.	Required NaOCl Solution Feed Rate at Peak Flow (0.80 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	=	63.8 gal/day
iv.	Maximum Bleach Storage (Covered Storage) (15 days)(15.9 gal/day)	=	239 gal
v.	Proposed Bleach Storage (1)(220 gal)	=	220 gal

One (1) 220-gallon bulk storage tank will be provided.

# I. SCOPE

The proposed Phase II plant will consist of facilities that are designed and constructed to treat 0.50 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. This includes two (2) existing aeration basins, one (1) existing clarifier, two (2) existing multi-stage aerobic digesters, one (1) existing chlorine contact basin, three (3) existing centrifugal blowers, an existing non-potable water system, and an existing chlorine disinfection system. Phase II construction includes one (1) proposed elevated screening structure with manual bar screen and flow splitting weirs, three (3) aeration basins, one (1) clarifier, three (3) multi-stage aerobic digesters, three (3) centrifugal blowers, a non-potable water system, a chlorine disinfection system using sodium hypochlorite, and a sodium bisulfite dechlorination system.

# **II. PROPOSED WASTEWATER TREATMENT PLANT DESIGN**

#### A. DESIGN CRITERIA

#### 1. Proposed Effluent Limits.

a.	BOD₅	=	10 mg/l (daily average)
b.	TSS	=	15 mg/l (daily average)
c.	NH <sub>3</sub> -N	=	3 mg/l (daily average)
d.	DO	=	4 mg/l (weekly grab)
e.	E.coli	=	126 CFU

2. <u>Process Criteria</u>. The process criteria are taken from 30 TAC §217, Design Criteria for Domestic Wastewater Systems.

a.	Maximum Aeration Basin Organic Loading (Ib BOD <sub>5</sub> /day/1,000 ft <sup>3</sup> )	=	35
b.	Maximum Clarifier Surface Loading at Peak Flow (gal/day/ft <sup>2</sup> )	=	1,200
C.	Minimum Clarifier Detention Time (hours)	=	1.8
d.	Maximum Clarifier Weir Loading at Peak Flow (gal/day/ft)	=	20,000
e.	Minimum Chlorine Contact Detention Time at Peak Flow (minutes)	=	20
f.	Mean Cell Residence Time in Aerobic Digester* (days)	=	28*

g.	Minimum Air Required for Digester		
	(scfm/1,000 ft <sup>3</sup> )	=	20

\*28-day SRT utilized instead of a 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

# B. PROPOSED TREATMENT FACILITIES

1. <u>Flow.</u>

3.

a.	Average (Design)	=	1.0Q	=	500,000 gpd	=	347 gpm
b.	Peak (2 hour)	=	4.0Q	=	2,000,000 gpd	=	1,389 gpm

#### 2. Influent Composition

The following influent wastewater compositions are based on wastewater influent analysis.

BOD <sub>5</sub>	=	250 mg/L		
TSS	=	250 mg/L		
NH <sub>3</sub> -N	=	40 mg/L		
Organic Loadings.				
BOD₅	=	(0.50 MGD)(8.34)(250 mg/L)	=	1,043 lbs BOD <sub>5</sub> /day
TSS	=	(0.50 MGD)(8.34)(250 mg/L)	=	1,043 lbs TSS/day
NH <sub>3</sub> -N	=	(0.50 MGD)(8.34)(40 mg/L)	=	167 lbs NH₃-N/day

# 4. <u>Process Equipment.</u>

- a. <u>Elevated Headworks Screening</u>. The proposed Phase II plant will consist of the construction of an elevated headworks with a manual bar screen and flow splitting weir structure capable of screening a peak flow of 2.0 MGD.
- b. <u>Aeration Basin</u>. The proposed Phase II plant will consist of two (2) existing aeration basins and three (3) proposed aeration basins, sized at 12' wide by 52' long. The average water depth is assumed at 10.5 feet.
  - i. Total Required Volume

Required Volume Using Traditional Design Method (30 TAC §217 Guidelines) (0.50 MGD)(8.34)(250 mg/L)/(35 lb BOD<sub>5</sub>/1,000 ft<sup>3</sup>) = 29,786 ft<sup>3</sup> ii. Proposed Volume

iii.

1.	Existing Volume – Phase I (2)(12 ft)(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>
2.	Proposed Volume – Phase II (3)(12 ft)(52 ft)(10.5 ft)	=	19,656 ft <sup>3</sup>
3.	Total Volume	=	32,760 ft <sup>3</sup>
Actual Org (1,043 lb l	ganic Loading 3OD₅/day)/(30,240 ft³/1,000 ft³)	=	31.8 lb BOD₅/ day/1,000 ft <sup>3</sup>

c. <u>Secondary Clarifier</u>. The proposed Phase II plant will consist of one (1) existing clarifier sized at 34' diameter and one (1) proposed clarifier sized at 38' diameter. The side water depth in both clarifiers is 10'.

i.	Required (2,000,00	=	1,667 ft <sup>2</sup>	
ii.	Proposed	d Surface Area		
	1.	Existing Surface Area – Phase I $(\pi/4)(34 \text{ ft})^2$	=	908 ft <sup>2</sup>
	2.	Proposed Surface Area – Phase II $(\pi/4)(38 \text{ ft})^2$	=	1,134 ft <sup>2</sup>
	3.	Total Surface Area	=	2,042 ft <sup>3</sup>
iii.	Surface L	oading		
	1.	At Design Flow (500,000 gpd)/(2,042 ft²)	=	245 gpd/ft <sup>2</sup>
	2.	At Peak Flow (2,000,000 gpd)/(2,042 ft²)	=	979 gpd/ft <sup>2</sup>
iv.	Proposed	d Clarifier Weir Length		
	1.	Existing – Phase I $(\pi)(34 \text{ ft} - 2 \text{ ft})^2$	=	3,217 ft
	2.	Proposed – Phase II ( $\pi$ )(38 ft – 2 ft) <sup>2</sup>	=	4,072 ft
	3.	Total	=	7,288 ft
v.	Proposec (2,000,00	d Weir Loading at Peak Flow 00 gpd)/(7,288 ft) 10	=	274 gpd/ft

- vi. Proposed Clarifier Side Water Depth (to top of grout)
  - 1. Existing Clarifier Side Water Depth = 10 ft
  - 2. Proposed Clarifier Side Water Depth = 10 ft
- vii. Hydraulic Detention Times at Peak Flow

1.	Proposed Hydraulic Detention Time at Peak Flow – Phase II
	(2,042 ft <sup>2</sup> )(10 ft)(7.48 gal/ ft <sup>3</sup> )/( 1,389 gal/min)
	= 110 minutes
	= 1.8 hours

d. <u>Aerobic Digesters</u>. The proposed Phase II plant will consist of two (2) existing multi-stage digesters and three (3) proposed multi-stage digesters sized at 12' wide by 52' long. The average water depth in all digesters is assumed at 10.5'.

Assume one (1) pound of solids produced per pound of BOD<sub>5</sub> applied; solids are 70% volatile organics; 30% of the volatiles are destroyed during digestion; 15,000 mg/l MLSS concentration in the digester on average.

i.	Digester	Sizing

	1.	Solids Production (1,043 lb BOD <sub>5</sub> /day)(1 lb solids/1 lb BOD <sub>5</sub> )	=	1,043 lb solids/day
	2.	Digested Solids Production (1,043 lb solid/day)(1-(0.3)(0.7))	=	824 lb solids/day
	3.	Average Solids in Digester (1,043 lb solids/day + 824 lb solids/day)/2	=	933 lb solids/day
	4.	Total Solids in Digester for 28-day SRT* (933 lb solids/day)(28 days)	=	26,124 lb solids
ii.	Required (26,124 lk	Volume o solids)(10 <sup>6</sup> )/((8.34)(15,000 mg/l MLSS in dige	ester =	)(7.48)) 27,917 ft <sup>3</sup>
iii.	Proposed	Volume		
	1.	Existing Volume – Phase I (2)(12 ft)(52 ft)(10.5 ft)	=	13,104 ft <sup>3</sup>
	2.	Proposed Volume – Phase II (3)(12 ft)(52 ft)(10.5 ft)	=	19,656 ft <sup>3</sup>
	3.	Total Volume	=	32,760 ft <sup>3</sup>

\*28-day SRT utilized instead of 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

e. <u>Chlorine Contact Basin</u>. The proposed plant will consist of one (1) existing chlorine contact basin sized at 12' wide by 36' long. The maximum water depth in both chlorine contact basins is assumed to be 9 ft.

i.	Required Volume at Peak Flow (1,389 gpm)(20 min)/(7.48)	=	3,714 ft <sup>3</sup>
ii.	Existing Volume – Phase I (12 ft)(36 ft)(9 ft)	=	3,888 ft <sup>3</sup>
iii.	Actual Detention Time at Peak Flow (3,888 ft <sup>3</sup> )(7.48)/(1,389 gpm)	=	20.9 minutes

#### f. Air Requirements.

- i. The proposed Phase II plant will utilize coarse bubble aeration.
  - 1. Air Required for Treatment  $\frac{(1.2)(250 \text{ mg/l BOD}_5) + (4.3)(40 \text{ mg/l NH}_3 - \text{N})}{(250 \text{ mg/l BOD}_5)} = 1.9 \text{ lb } O_2/\text{lb BOD}_5$

\* 2.2 lb  $O_2$ /lb BOD<sub>5</sub> used instead per TCEQ minimum oxygen requirement for systems intended to nitrify.

2. Coarse Bubble Requirements

 $\frac{(250 \text{ mg/l BOD}_5)(8.34)(0.50 \text{ MGD})(2.2 \text{ lb } O_2/\text{ lb BOD}_5)(1.69)^{**}}{(0.0507^*)(0.23)(0.075)(1440)}$ 

= 3,078 scfm

\* TCEQ Wastewater Oxygen Transfer Efficiency for Coarse Bubble aeration (0.65%/ft x (12) ft of submergence)

\*\* TCEQ Chapter 217 Table F.5 Submergence Correction Factor

ii.	Aerobic Digester (32,760 ft³)(20 scfm/1000 ft³)	=	655 scfm
iii.	Chlorine Contact Basin (3,888 ft³)(20 scfm/1000 ft³)	=	78 scfm
iv.	Miscellaneous Air Lifts (8)(40 scfm)	=	320 scfm
v.	Total Air Requirements (Coarse Bubble) 3,078 scfm + 655 scfm + 78 scfm + 320 scfm 12	=	4,131 scfm

g. <u>Blower Capacities.</u> The proposed Phase II plant will include three (3) existing centrifugal blowers and three (3) proposed centrifugal blowers. The capacity is calculated at 5.5 psig discharge pressure at 100°F, 80% RH, and 14.64 psia inlet conditions.

i.	Existing Blower Capacity – Phase I (3)(1,000 scfm)	=	3,000 scfm
ii.	Proposed Blower Capacity – Phase II (3)(1,000 scfm)	=	3,000 scfm
iii.	Total Blower Capacity	=	6,000 scfm
iv.	Firm Blower Capacity with Largest Unit out of Service (5)(1,000 scfm)	=	5,000 scfm
Chlorination gravity of 1.1	Equipment. Calculations are for 10% trade strength 159, has 10% availability chlorine by weight, 9.7 pounds p	oleac ber g	h (NaOCl) with a specific allon.
i.	Chlorine Solution Dosage Rate	=	8 mg/l
ii.	Required NaOCI Solution Feed Rate at Average Daily Flo (0.50 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	ww =	39.9 lbs/day
iii.	Required NaOCI Solution Feed Rate at Peak Flow (2.0 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	=	159 lbs/day
iv.	Maximum Bleach Storage (Covered Storage) (15 days)(39.9 gal/day)	=	598 gal
٧.	Proposed Bleach Storage (1)(220 gal) + (1)(330 gal)	=	550 gal

h.

One (1) 220-gallon bulk storage tank and one (1) 330-gallon bulk storage tank will be provided.

i. <u>Dechlorination Equipment</u>. Calculations are for 38% trade strength Sodium Bisulfite (NaHSO<sub>3</sub>) with a specific gravity of 1.320, has 28% availability sulfur dioxide by weight, 11 pounds per gallon, and no noticeable degradation of strength after 30 days.

i.	Anticipated Chlorine Residual	=	2 mg/l
ii.	Sodium Bisulfate Dosage Rate		
	(2 mg/L Cl <sub>2</sub> )(1.5 part NaHSO <sub>3</sub> /part Cl <sub>2</sub> )	=	3 mg/l

iii.	Required NaHSO <sub>3</sub> Feed Rate at Average Daily Flow (0.50 MGD)(8.34)(3 mg/L) (2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	5.8 gal/day
iv.	Required NaHSO <sub>3</sub> Feed Rate at Peak Flow (2.0 MGD)(8.34)(3 mg/L) (2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	2.3 gal/day
v.	Sodium Bisulfate Storage (Covered Storage) (15 days)(5.8 gal/day)	=	87 gal
vi.	Proposed Sodium Bisulfate Storage (1)(75 gal)	=	75 gal

One (1) 75-gallon bulk storage tank will be provided.

#### I. SCOPE

The proposed Final phase plant will consist of facilities that are designed and constructed to treat 1.6 MGD and operate as suspended growth activated sludge process in a single-stage nitrification mode. Final phase construction includes one (1) elevated headworks with mechanical bar screen and flow splitting weirs, three (3) aeration basins, three (3) secondary clarifiers, three (3) multi-stage aerobic digesters, one (1) chlorine contact basin, three (3) centrifugal blowers, a non-potable water system, a bleach disinfection system, and a sodium bisulfite dechlorination system.

#### **II. PROPOSED WASTEWATER TREATMENT PLANT DESIGN**

#### A. DESIGN CRITERIA

#### 1. Proposed Effluent Limits.

a.	BOD <sub>5</sub>	=	10 mg/l (daily average)
b.	TSS	=	15 mg/l (daily average)
C.	NH <sub>3</sub> -N	=	3 mg/l (daily average)
d.	E. coli	=	126 CFU
e.	DO	=	4 mg/l (weekly grab)

2. <u>Process Criteria</u>. The process criteria are taken from 30 TAC §217, Design Criteria for Domestic Wastewater Systems.

a.	Maximum Aeration Basin Organic Loading (Ib BOD <sub>5</sub> /day/1,000 ft <sup>3</sup> )	=	35
b.	Maximum Clarifier Surface Loading at Peak Flow (gal/day/ft <sup>2</sup> )	=	1,200
C.	Minimum Clarifier Detention Time (hours)	=	1.8
d.	Maximum Clarifier Weir Loading at Peak Flow (gal/day/ft)	=	20,000
e.	Minimum Chlorine Contact Detention Time at Peak Flow (minutes)	=	20
f.	Mean Cell Residence Time in Aerobic Digester* (days)	=	28*
g.	Minimum Air Required for Digester (scfm/1,000 ft <sup>3</sup> )	=	20

\*28-day SRT utilized instead of a 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

# B. PROPOSED TREATMENT FACILITIES

1. <u>Flow.</u>

3.

a.	Average (Design)	=	1.0Q	=	1,600,000 gpd	=	1,111 gpm
b.	Peak (2 hour)	=	4.0Q	=	6,400,000 gpd	=	4,444 gpm

# 2. Influent Composition

The following influent wastewater compositions are based on wastewater influent analysis.

BOD <sub>5</sub>	=	325 mg/L		
TSS	=	300 mg/L		
NH <sub>3</sub> -N	=	60 mg/L		
Organic Loadings.				
BOD <sub>5</sub>	=	(1.60 MGD)(8.34)(325 mg/L)	=	4,337 lbs BOD₅/day
TSS	=	(1.60 MGD)(8.34)(300 mg/L)	=	4,003 lbs TSS/day

# $NH_3-N$ = (1.60 MGD)(8.34)(60 mg/L) = 801 lbs $NH_3-N/day$

# 4. Process Equipment.

- a. <u>Elevated Headworks Screening</u>. The proposed Final phase WWTP will consist of the construction of an elevated headworks with a mechanical bar screen and flow splitting structure capable of screening a peak flow of 6.4 MGD.
- b. <u>Aeration Basin</u>. The proposed Final phase WWTP will consist of three (3) proposed aeration basins, sized at 45' wide by 60' long. The average water depth is assumed at 16'.
  - i. Total Required Volume

Required Volume Using Traditional Design	Method (30 TAC	§217 Guidelines)
(1.60 MGD)(8.34)(325 mg/L)/(35 lb BOD <sub>5</sub> /1	.,000 ft <sup>3</sup> ) =	123,909 ft <sup>3</sup>

ii.	Proposed Volume (3)(45 ft)(60 ft)(16 ft)	=	129,600 ft <sup>3</sup>
iii.	Actual Organic Loading (4,337 lb BOD₅/day)/(129,600 ft³/1,000 ft³)	=	33.5 lb BOD <sub>5</sub> /

c. <u>Secondary Clarifier</u>. The proposed Final phase WWTP will consist of three (3) proposed 50' diameter clarifiers with a side water depth of 14.5'.

i.	Required 9 (6,400,000	Surface Area at Peak Flow Dgpd)/(1,200 gpd/ ft²)	=	5,333 ft <sup>2</sup>
ii.	Proposed (3)(π/4)(50	Surface Area 0 ft)²	=	5,890 ft <sup>2</sup>
iii.	Surface Lo	pading		
	1.	At Design Flow (1,600,000 gpd)/(5,890 ft²)	=	272 gpd/ft <sup>2</sup>
	2.	At Peak Flow (6,400,000 gpd)/(5,890 ft²)	=	1,087 gpd/ft <sup>2</sup>
iv.	Proposed (Includes I (3)(π)(50 f	Clarifier Weir Length Launder Allowance) t – 2 ft)	=	452 ft
v.	Proposed (6,400,000	Weir Loading at Peak Flow ) gpd)/(452 ft)	=	14,159 gpd/ft
vi.	Proposed	Clarifier Side Water Depth (to top of grout)		
	1.	Proposed Clarifier Side Water Depth	=	14.5 ft
vii.	Hydraulic	Detention Times at Peak Flow		
	1.	Proposed Hydraulic Detention Time at Peak (5,890 ft²)(14.5 ft)(7.48 gal/ ft³)/(4,444 gal/	Flov min)	V
			=	144 minutes
			=	2.4 hours

d. <u>Aerobic Digesters</u>. The proposed Final phase WWTP will consist of three (3) multi-stage digesters sized at 48' wide by 52' long. The average water depth is assumed at 16'.

Assume one (1) pound of solids produced per pound of BOD<sub>5</sub> applied; solids are 70% volatile organics; 30% of the volatiles are destroyed during digestion; 15,000 mg/l MLSS concentration in the digester on average.

i. Digester Sizing

1.	Solids Production (4,337 lb BOD₅/day)(1 lb solids/1 lb BOD₅)	=	4,337 lb solids/day
2.	Digested Solids Production (4,337 lb solid/day)(1-(0.3)(0.7))	=	3,426 lb solids/day

	3.	Average Solids in Digester (3,426 lb solids/day + 4,337 lb solids/day)/2	2 =	3,881 lb solids/day
	4.	Total Solids in Digester for 28-day SRT* (3,881 lb solids/day)(28 days)	=	108,668 lb solids
ii.	Required (108,668	Volume Ib solids)(10 <sup>6</sup> )/((8.34)(15,000 mg/L MLSS in d	igeste =	er)(7.48)) 116,129 ft <sup>3</sup>
iii.	Proposec (3)(48 ft)	l Volume (52 ft)(16 ft)	=	119,808 ft <sup>3</sup>

\*28-day SRT utilized instead of 40-day SRT for use of a multi-stage digester per EPA publication "Control of Pathogens and Vector Attraction in Sewage Sludge."

e. <u>Chlorine Contact Basin</u>. The proposed Final phase WWTP will consist of one (1) proposed chlorine contact basin sized at 32' wide by 40' long. The maximum water depth is assumed to be 12 ft.

i.	Required Volume at Peak Flow (4,444 gpm)(20 min)/(7.48)	=	11,882 ft <sup>3</sup>
ii.	Proposed Volume (32 ft)(40 ft)(12 ft)	=	15,360 ft <sup>3</sup>
iii.	Actual Detention Time at Peak Flow (15,360 ft <sup>3</sup> )(7.48)/(4,444 gpm)	=	25.9 minutes

# f. <u>Air Requirements.</u>

i. The proposed plant will utilize coarse bubble aeration.

1. Air Required for Treatment  $\frac{(1.2)(325 \text{ mg/l BOD}_5) + (4.3)(60 \text{ mg/l NH}_3-N)}{(325 \text{ mg/l BOD}_5)} = 2.16 \text{ lb } O_2/\text{lb BOD}_5$ 

\*2.2 lb  $O_2$ /lb BOD<sub>5</sub> used instead per TCEQ minimum oxygen requirement for systems intended to nitrify

2. Coarse Bubble Requirements

$$\frac{(325 \text{ mg/l BOD}_5)(8.34)(1.60 \text{ MGD})(2.2 \text{ lb } \text{O}_2/\text{ lb BOD}_5)(0.955)^{**}}{(0.0507^*)(0.23)(0.075)(1440)}$$

= 7,235 scfm

- \* TCEQ Wastewater Oxygen Transfer Efficiency for Coarse Bubble aeration (0.65%/ft x (12) ft of submergence)
- \*\* TCEQ Chapter 217 Table F.5 Submergence Correction Factor
- ii. Aerobic Digester

	(119,808 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	2,396 scfm
iii.	Chlorine Contact Basin (15,360 ft <sup>3</sup> )(20 scfm/1000 ft <sup>3</sup> )	=	307 scfm
iv.	Miscellaneous Air Lifts (4)(40 scfm)	=	160 scfm
v.	Total Air Requirements (Coarse Bubble) 6,678 scfm + 2,396 scfm + 307 scfm + 160 scfm	=	9,541 scfm

g. <u>Blower Capacities.</u> The proposed plant will include three proposed centrifugal blowers. The capacity is calculated at 5.5 psig discharge pressure at 100°F, 80% RH, and 14.64 psia inlet conditions.

i.	Proposed Blower Capacity (3)(5,000 scfm)	=	15,000 scfm
ii.	Firm Blower Capacity with Largest Unit out of Service (2)(5,000 scfm)	=	10,000 scfm

h. <u>Chlorination Equipment.</u> Calculations are for 10% trade strength bleach (NaOCl) with a specific gravity of 1.159, has 10% availability chlorine by weight, 9.7 pounds per gallon.

i.	Chlorine Solution Dosage Rate	=	8 mg/l
ii.	Required NaOCl Solution Feed Rate at Average Daily Flo (1.60 MGD)(8.34)(8 mg/L) ((10%)/1.159)(9.7 lbs/gal)	w =	128 gal/day
iii.	Required NaOCl Solution Feed Rate at Peak Flow ( <u>6.4 MGD)(8.34)(8 mg/L)</u> ((10%)/1.159)(9.7 lbs/gal)	=	510 gal/day
iv.	Maximum Bleach Storage (Covered Storage) (15 days)(128 gal/day)	=	1,920 gal
v.	Proposed Bleach Storage (2)(900 gal)	=	1,800 gal

Two (2) 900-gallon bulk storage tank will be provided.

i. <u>Dechlorination Equipment.</u> Calculations are for 38% trade strength Sodium Bisulfite (NaHSO<sub>3</sub>) with a specific gravity of 1.320, has 28% availability sulfur dioxide by weight, 11 pounds per gallon, and no noticeable degradation of strength after 30 days.

i.	Anticipated Chlorine Residual	=	2 mg/l
ii.	Sodium Bisulfate Dosage Rate (2 mg/L Cb)(1 5 part NaHSOs/part Cb)	-	3 mg/l
		-	J IIIg/I

iii.	Required NaHSO <sub>3</sub> Feed Rate at Average Daily Flow $(1.60 \text{ MGD})(8.34)(3 \text{ mg/L})$		
	(2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	18.5 gal/day
iv.	Required NaHSO₃ Feed Rate at Peak Flow (6.4 MGD)(8.34)(3 mg/L)		
	(2.1692 lb SO <sub>3</sub> /gal NaHSO <sub>3</sub> )	=	73.8 gal/day
v.	Sodium Bisulfite Storage		
	(Covered Storage)		
	(15 days)(18.5 gal/day)	=	278 gal
vi.	Proposed Sodium Bisulfite Storage		
	(1)(250 gal)	=	250 gal
One (1)	250-gallon bulk storage tank will be provided.		





PROP SECOND PROP FIRST STAGE STAGE ∙\_@\_ AEROBIC AEROBIC DIGESTER 00 00 DIGESTER σ WET HAUL SLUDGE <u>+</u>+ + PROP PROP AERATION SECONDARY BASIN CLARIFIER RAS <u>@</u> WAS ହ AIR • ╉ NaOCI × × NaHSO<sub>2</sub> PROP PROP Ο PROP PROP HEADWORKS RAW INFLUENT CHLORINE AERATION SECONDARY OUTFALL (MECHANICAL CONTACT EXISTING BASIN CLARIFIER BAR SCREEN) BASIN ON-SITE LIFT STATION RAS <u>@</u> WAS ହ PROP PROP AERATION SECONDARY BASIN CLARIFIER RAS -@ WAS ନ୍ଦ୍ର LEGEND PROP SECOND PROP FIRST STAGE AIR LIFT STAGE Q **-**@-AEROBIC PUMP AEROBIC DIGESTER DIGESTER 0 00 00 WET HAUL MECHANICAL PUMP T SLUDGE RETURN ACTIVATED SLUDGE RAS \* \* ¥ FLOW SCHEMATIC PROP SECOND WASTE PROP FIRST STAGE STAGE WAS ACTIVATED MOORE FARM WATER CONTROL IMPROVEMENT **-**@-AEROBIC SLUDGE AEROBIC DIGESTER **DISTRICT NO. 1** Ъ 00 00 DIGESTER NaOCI SODIUM WET HAUL HYPOCHLORITE MOORE FARM WCID NO. 1 WASTEWATER SLUDGE TREATMENT PLANT NaHSO<sub>2</sub> SODIUM BISULFITE FINAL PHASE - 1.60 MGD JANUARY 2023 QUIDDITY

Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 Bellaire, TX 77401 713.777.5337

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# BUFFER ZONE EXHIBIT MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. I MOORE FARM WCID NO. I WASTEWATER FACILITY PHASE I - 0.20 MGD

KAUFMAN COUNTY, TEXAS JANUARY 2023









# BUFFER ZONE EXHIBIT MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. I MOORE FARM WCID NO. I WASTEWATER FACILITY PHASE II - 0.50 MGD

KAUFMAN COUNTY, TEXAS JANUARY 2023







# BUFFER ZONE EXHIBIT MOORE FARM WATER CONTROL IMPROVEMENT DISTRICT NO. I MOORE FARM WCID NO. I WASTEWATER FACILITY FINAL PHASE - 1.60 MGD

KAUFMAN COUNTY, TEXAS JANUARY 2023



# JUSTIFICATION FOR PLANT CONSTRUCTION MOORE FARM WATER CONTROL & IMPROVEMENT DISTRICT NO. 1

The Moore Farm WCID No. 1 Wastewater Treatment Plant will serve a residential subdivision located approximately 1.5 miles north of the City of Terrell.

At build out, there will be 5,250 residential connections. For design purposes, the wastewater flow for residential and commercial connections is 300 gallons per day per connection.

Following is the connection and flow projection for Moore Farm WCID No. 1 to complete build out:

Month / yr	Single family residential		
	connections	flow (gpd)	
Jan-24	34	10,200	
Jan-25	442	132,600	
Jan-26	850	255,000	
Jan-27	1,258	377,400	
Jan-28	1,666	499,800	
Jan-29	2,040	612,000	
Jan-36	5,250	1,600,000	

Following is the construction schedule for the current and final plant phases:

Proposed flow	Phase I	Phase II	Final
Design Flow (MGD)	0.20	0.50	1.60
2-Hr Peak Flow (MGD)	0.80	2.00	6.40
Date construction to commence	10-2023	6-2024	7-2026
Date construction completed and discharge begins	1-2024	7-2025	9-2027