WASTEWATER TREATMENT PLANT

MAJOR AMENDMENT

FOR

HARRIS COUNTY MUD NO. 495 – WWTP NO. 1

WQ0015222001

HARRIS COUNTY, TEXAS

LJA Job No. 2231-3075
February 2020

Prepared By:
LJA Engineering, Inc.
2929 Briarpark, Suite 600
Houston, TX 77042
(713) 953-5200
FRN F-1386

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT: Harris County Municipal Utility District No. 495

PERMIT NUMBER: WQ0015222001

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

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

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region _____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

APPLICATION FOR A DOMESTIC WASTEWATER PERMIT ADMINISTRATIVE REPORT 1.0

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

Section 1. Application Fees (Instructions Page 29)

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

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

Minor Amendment (for any flow) $150.00 ☐

Payment Information:

Mailed — Check/Money Order Number: 51734

Check/Money Order Amount: $2,050.00

Name Printed on Check: LJA Engineering, Inc.

EPAY — Voucher Number: Click here to enter text.

Copy of Payment Voucher enclosed? Yes ☐

Section 2. Type of Application (Instructions Page 29)

☐ New TPDES

☐ New TLAP

☐ Major Amendment *with* Renewal

☐ Minor Amendment *with* Renewal

☒ Major Amendment *without* Renewal

☐ Minor Amendment *without* Renewal

☐ Renewal without changes

☐ Minor Modification of permit

For amendments or modifications, describe the proposed changes: See Attachment 1

For existing permits:

Permit Number: WQ0015222001

EPA I.D. (TPDES only): TX0135143

Expiration Date: January 3, 2024

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?

Harris County Municipal Utility District No. 495

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

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

CN: 604514943

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

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

First and Last Name: Steve Sams

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

Title: President

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

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

Click here to enter text.

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

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

CN: Click here to enter text.

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

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

First and Last Name: Click here to enter text.

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

Title: Click here to enter text.

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

C. Core Data Form

Complete the Core Data Form for each customer and include as an attachment. If the customer type selected on the Core Data Form is **Individual**, complete **Attachment 1** of Administrative Report 1.0.

Attachment: Attachment 2

Section 4. Application Contact Information (Instructions Page 30)

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

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

First and Last Name: Esteban Gonzalez

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

Title: Graduate Engineer

Organization Name: LJA Engineering, Inc.

Mailing Address: 2929 Briarpark Dr., Suite 600

City, State, Zip Code: Houston, TX 77042

Phone No.: 713-380-4461 Ext.: Click here to enter text. Fax No.: 713-953-5026

E-mail Address: egonzalez@lja.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

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

First and Last Name: Gregg Haan

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

Title: Division Manager

Organization Name: LJA Engineering, Inc.

Mailing Address: 2929 Briarpark Dr., Suite 600

City, State, Zip Code: Houston, TX 77042

Phone No.: 713-953-5061 Ext.: Click here to enter text. Fax No.: 713-953-5026

E-mail Address: ghaan@lja.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

Section 5. Permit Contact Information (Instructions Page 30)

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

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

First and Last Name: Esteban Gonzalez

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

Title: Graduate Engineer

Organization Name: LJA Engineering, Inc.

Mailing Address: 2929 Briarpark Dr., Suite 600

City, State, Zip Code: Houston, TX 77042

Phone No.: 713-380-4461 Ext.: Click here to enter text. Fax No.: 713-953-5026

E-mail Address: egonzalez@lja.com

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

First and Last Name: Gregg Haan

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

Title: Division Manager

Organization Name: LJA Engineering, Inc.

Mailing Address: 2929 Briarpark Dr., Suite 600

City, State, Zip Code: Houston, TX 77042

Phone No.: 713-953-5061 Ext.: Click here to enter text. Fax No.: 713-953-5026

E-mail Address: ghaan@lja.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): Click here to enter text.

First and Last Name: Mary Jarmon

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

Title: Bookkeeper

Organization Name: Myrtle Cruz, Inc.

Mailing Address: 3401 Louisiana St., Suite 400

City, State, Zip Code: Houston, TX 77002

Phone No.: 713-759-1368 Ext.: Click here to enter text. Fax No.: 713-759-1264

E-mail Address: mmary_jarmon@mcruz.com

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

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

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

First and Last Name: Charlie Chapline

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

Title: Vice President – Field Services

Organization Name: Municipal District Services, LLC

Mailing Address: 406 W Grand Parkway South, Suite 260

City, State, Zip Code: Katy, TX 77494

Phone No.: 281-290-3141 Ext.: Click here to enter text. Fax No.: Click here to enter text.

E-mail Address: cchapline@mdswater.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: Esteban Gonzalez

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

Title: Graduate Engineer

Organization Name: LJA Engineering, Inc,

Mailing Address: 2929 Briarpark Dr., Suite 600

City, State, Zip Code: Houston, TX 77042

Phone No.: 713-380-4461 Ext.: Click here to enter text. Fax No.: 713-953-5026

E-mail Address: egonzalez@lja.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): Mr.

First and Last Name: Gregg Haan

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

Title: Division Manager

Organization Name: LJA Engineering, Inc.

Phone No.: 713-953-5061 Ext.: Click here to enter text.

E-mail: ghaan@lja.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: Katy Branch Library

Location within the building: Reference Desk

Physical Address of Building: 5414 Franz Road

City: Katy County: Harris

Contact Name: Angel Hill

Phone No.: 281-391-3509 Ext.: Click here to enter text.

E. Bilingual Notice Requirements:

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

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

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

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

   ☒ Yes ☐ No

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

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

   ☒ Yes ☐ No

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

   ☐ Yes ☒ No

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

   ☐ Yes ☒ No

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

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**107117327

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

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

Harris County Municipal Utility District No. 495 WWTP No. 1

C. Owner of treatment facility: Harris County Municipal Utility District No. 495

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

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

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

First and Last Name: Harris County Municipal Utility District No. 495

Mailing Address: 3200 Southwest Fwy., Suite 2600

City, State, Zip Code: Houston, TX 77027

Phone No.: 713-860-6400 E-mail Address: Click here to enter text.

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

Attachment: Click here to enter text.

E. Owner of effluent disposal site:

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

First and Last Name: Click here to enter text.

Mailing Address: Click here to enter text.

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

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

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

Attachment: Click here to enter text.

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

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

First and Last Name: Click here to enter text.

Mailing Address: Click here to enter text.

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

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

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

Attachment: Click here to enter text.

Section 10. TPDES Discharge Information (Instructions Page 34)

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

☒ Yes ☐ No

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

Click here to enter text.

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

☒ Yes ☐ No

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

Click here to enter text.

City nearest the outfall(s): Katy

County in which the outfalls(s) is/are located: Harris

Outfall Latitude: 29°51'11.43" N Longitude: 95°47'29.65" W

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

☐ Yes ☒ No

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

☐ Authorization granted ☐ Authorization pending

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

Attachment: Click here to enter text.

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

Click here to enter text.

Section 11. TLAP Disposal Information (Instructions Page 36)

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

☐ Yes ☒ No

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

N/A

B. City nearest the disposal site: Click here to enter text.

C. County in which the disposal site is located: Click here to enter text.

D. Disposal Site Latitude: Click here to enter text. Longitude: Click here to enter text.

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

Click here to enter text.

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

Click here to enter text.

Section 12. Miscellaneous Information (Instructions Page 37)

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

☐ Yes ☒ No

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

☐ Yes ☐ No ☒ Not Applicable

If No, or if a new onsite sludge disposal authorization is being requested in this permit

application, provide an accurate location description of the sewage sludge disposal site.

Click here to enter text.

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

☐ Yes ☒ No

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

Click here to enter text.

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

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

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

E. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

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

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

Section 13. Attachments (Instructions Page 38)

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

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

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

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

Attachment 3

- 3 miles downstream information (TPDES only)
- All ponds.

☐ Attachment 1 for Individuals as co-applicants

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

Section 14. Signature Page (Instructions Page 39)

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

Permit Number: WQ0015222001

Applicant: Harris County Municipal Utility District No. 495

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): Steve Sams

Signatory title: President

Signature: _____ Date: March 4, 2020

(Use blue ink)

Subscribed and Sworn to before me by the said Steve Sams

on this 4th day of March, 2020.

My commission expires on the _____ day of _____, 20____.

LINDA SOTIRAKE
Notary ID # 312753
My Commission Expires
August 31, 2020

Notary Public

[SEAL]

_____
County, Texas

DOMESTIC ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 41)

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

Attachment 4

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

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

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

☒ Readable/Writeable CD ☐ Four sets of labels

D. Provide the source of the landowners' names and mailing addresses: Harris County Appraisal District

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

☐ Yes ☒ No

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

Click here to enter text.

Section 2. Original Photographs (Instructions Page 44)

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

Attachment 5

- ☒ 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.

Attachment 6

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

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

- ☒ Ownership
- ☒ Restrictive easement
- ☐ Nuisance odor control
- ☐ Variance

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

☒ Yes ☐ No

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: _____Renewal _____Major Amendment ____Minor Amendment _____New

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: Harris County Municipal Utility District No. 495

   Permit No. WQ00 15222001 EPA ID No. TX 0135143

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

   5455 ½ Porter Rd, Harris County, TX 77493

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): Mr.

First and Last Name: Gregg Haan

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

Title: Division Manager

Mailing Address: 2929 Briarpark Dr., Suite 600

City, State, Zip Code: Houston, TX 77042

Phone No.: 713-953-5061 Ext.: Click here to enter text. Fax No.: 713-953-5026

E-mail Address: ghaan@lja.com

2. List the county in which the facility is located: Harris
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A

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.

To South Mayde Creek; thence to Buffalo Bayou; thence to Buffalo Bayou Above Tidal in Segment No. 1014 of the San Jacinto River Basin.

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):

The WWTP site is approximately 4.59 acres and will require excavation for plant piping and electrical conduit.

7. Describe existing disturbances, vegetation, and land use:

Existing site is current wastewater treatment plant with grass and crushed gravel road.

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:

Wastewater treatment plant equipment/structures constructed in 2016-2017.

9. Provide a brief history of the property, and name of the architect/builder, if known.

Permitted wastewater treatment plant site.

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

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

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

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

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

BY OVERNIGHT/EXPRESS MAIL

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

Fee Code: WQP **Waste Permit No:** WQ0015222001

1. Check or Money Order Number: 51734
2. Check or Money Order Amount: $2,050.00
3. Date of Check or Money Order: 1/10/2020
4. Name on Check or Money Order: LJA Engineering, Inc.
5. APPLICATION INFORMATION

   Name of Project or Site: Harris County Municipal Utility District No. 495 WWTP No. 1

   Physical Address of Project or Site: 5455 ½ Porter Rd., Harris County, TX 77493

   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

THIS PAGE INTENTIONALLY LEFT BLANK

Section 1. Individual Information (Instructions Page 50)

Complete this attachment if the facility applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

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

Full legal name (first, middle, last): Click here to enter text.

Driver's License or State Identification Number: Click here to enter text.

Date of Birth: Click here to enter text.

Mailing Address: Click here to enter text.

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

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

CN: Click here to enter text.

For Commission Use Only:
Customer Number:
Regulated Entity Number:
Permit Number:

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): 0.30

2-Hr Peak Flow (MGD): 1.20

Estimated construction start date: Existing

Estimated waste disposal start date: Existing

B. Interim II Phase

Design Flow (MGD): 0.60

2-Hr Peak Flow (MGD): 2.40

Estimated construction start date: Existing

Estimated waste disposal start date: Existing

C. Final Phase

Design Flow (MGD): 0.90

2-Hr Peak Flow (MGD): 3.60

Estimated construction start date: 06/2020

Estimated waste disposal start date: 02/2021

D. Current operating phase: Interim Phase II

Provide the startup date of the facility: November 2019

Section 2. Treatment Process (Instructions Page 51)

A. Treatment process description

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

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): Click here to enter text.

2-Hr Peak Flow (MGD): Click here to enter text.

Estimated construction start date: Click here to enter text.

Estimated waste disposal start date: Click here to enter text.

B. Interim II Phase

Design Flow (MGD):

2-Hr Peak Flow (MGD): Click here to enter text.

Estimated construction start date: Click here to enter text.

Estimated waste disposal start date: Click here to enter text.

C. Final Phase

Design Flow (MGD): 1.50

2-Hr Peak Flow (MGD): 6.00

Estimated construction start date: 07/2023

Estimated waste disposal start date: 03/2024

D. Current operating phase: Click here to enter text.

Provide the startup date of the facility: Click here to enter text.

Section 2. Treatment Process (Instructions Page 51)

A. Treatment process description

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

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:

See Attachment 8

Port or pipe diameter at the discharge point, in inches: 30"

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**.

Table 1.0(1) – Treatment Units

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
See Attachment 9		

C. Process flow diagrams

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

Attachment: See Attachment 10

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: See Attachment 11

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

Harris County Municipal Utility District No. 495

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.

Click here to enter text.

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 ☐ No ☒

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

Yes ☐ No ☒

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

Click here to enter text.

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:

Phase 1 & 2 – October 9, 2014. Phase 3 – June 6, 2016.

Phase 4 – January 6, 2020.

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.

See Attachment 12

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.

Click here to enter text.

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*.

Click here to enter text.

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.

Click here to enter text.

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.

Click here to enter text.

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.

Click here to enter text.

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?

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 Click here to enter text. or TXRNE Click here to enter text.

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:

Click here to enter text.

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.

Click here to enter text.

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.

Click here to enter text.

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.

Click here to enter text.

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?
Yes ☐ No ☒

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_5 concentration of the sludge, and the design BOD_5 concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Click here to enter text.

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_5 concentration of the septic waste, and the design BOD_5 concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Click here to enter text.

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.

Click here to enter text.

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.

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

Pollutant	**Average Conc.**	**Max Conc.**	**No. of Samples**	**Sample Type**	**Sample Date/Time**
$CBOD_5$, mg/l	2.2	2.2	1	Grab	12/19/2019 07:30
Total Suspended Solids, mg/l	8.9	8.9	1	Grab	12/19/2019 14:55
Ammonia Nitrogen, mg/l	<0.1	<0.1	1	Grab	12/19/2019 11:42
Nitrate Nitrogen, mg/l	28.6	28.6	1	Grab	12/19/2019 08:45
Total Kjeldahl Nitrogen, mg/l	2.6	2.6	1	Grab	12/20/2019 14:00
Sulfate, mg/l	46.0	46.0	1	Grab	12/19/2019 08:45
Chloride, mg/l	207.0	207.0	1	Grab	12/19/2019 08:45
Total Phosphorus, mg/l	5.71	5.71	1	Grab	01/03/2020 08:29
pH, standard units	7.2	7.2	1	Grab	12/18/2019 08:40
Dissolved Oxygen*, mg/l	9.7	9.7	1	Grab	12/18/2019 08:40
Chlorine Residual, mg/l	3.8	3.8	1	Grab	12/18/2019 08:40
E.coli (CFU/100ml) freshwater	<2.0	<2.0	1	Grab	12/18/2019 15:15
Entercocci (CFU/100ml)	N/A	N/A	N/A	N/A	N/A

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
saltwater					
Total Dissolved Solids, mg/l	372.0	372.0	1	Grab	12/19/2019 16:33
Electrical Conductivity, µmohs/cm, †	1265.0	1265.0	1	Grab	12/23/2019 16:17
Oil & Grease, mg/l	<5.2	<5.2	1	Grab	12/25/2019 08:00
Alkalinity ($CaCO_3$)*, mg/l	102.0	102.0	1	Grab	12/26/2019 13:44

*TPDES permits only

†TLAP permits only

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

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Total Suspended Solids, mg/l	N/A				
Total Dissolved Solids, mg/l					
pH, standard units					
Fluoride, mg/l					
Aluminum, mg/l					
Alkalinity ($CaCO_3$), mg/l					

Section 8. Facility Operator (Instructions Page 60)

Facility Operator Name: Lee Crenshaw

Facility Operator's License Classification and Level: Wastewater Treatment - B

Facility Operator's License Number: WW0064182

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.
- ☐ Other: Click here to enter text.

B. Sludge disposal site

Disposal site name: Click here to enter text.

TCEQ permit or registration number: Click here to enter text.

County where disposal site is located: Click here to enter text.

C. Sludge transportation method

Method of transportation (truck, train, pipe, other): Truck

Name of the hauler: Trinity Wastewater Solutions

Hauler registration number: 24738

Sludge is transported as a:

Liquid ☒ semi-liquid ☐ semi-solid ☐ solid ☐

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: Click here to enter text.

- USDA Natural Resources Conservation Service Soil Map:

  Attachment: Click here to enter text.

- Federal Emergency Management Map:

  Attachment: Click here to enter text.

- Site map:

  Attachment: Click here to enter text.

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

Check all that apply.

☐ Overlap a designated 100-year frequency flood plain

☐ Soils with flooding classification

☐ Overlap an unstable area

☐ Wetlands

☐ Located less than 60 meters from a fault

☐ None of the above

Attachment: Click here to enter text.

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:

Click here to enter text.

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: Click here to enter text.

Total Kjeldahl Nitrogen, mg/kg: Click here to enter text.

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg: Click here to enter text.

Phosphorus, mg/kg: Click here to enter text.

Potassium, mg/kg: Click here to enter text.

pH, standard units: Click here to enter text.

Ammonia Nitrogen mg/kg: Click here to enter text.

Arsenic: Click 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): Click here to enter text.

Total dry tons stored in the lagoons(s) per 365-day period: Click here to enter text.

Total dry tons stored in the lagoons(s) over the life of the unit: Click here to enter text.

C. Liner information

Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of $1x10^{-7}$ cm/sec?

Yes ☐ No ☐

If yes, describe the liner below. Please note that a liner is required.

Click here to enter text.

D. Site development plan

Provide a detailed description of the methods used to deposit sludge in the lagoon(s):

Click here to enter text.

Attach the following documents to the application.

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

  Attachment: Click here to enter text.
- Copy of the closure plan

  Attachment: Click here to enter text.
- Copy of deed recordation for the site

  Attachment: Click here to enter text.
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

  Attachment: Click here to enter text.
- Description of the method of controlling infiltration of groundwater and surface water from entering the site

  Attachment: Click here to enter text.
- Procedures to prevent the occurrence of nuisance conditions

  Attachment: Click here to enter text.

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: Click here to enter text.

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:

Click here to enter text.

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:

Click here to enter text.

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 ☒

C. Details about wastes received

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

Attachment: Click here to enter text.

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: Susan K. Young

Title: Manager, Regulatory Affairs

Signature: Susan K. Young

Date: 2/6/2020

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 13

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 ☐ No ☒ Not Applicable ☐

If yes, within the city limits of: Click here to enter text.

If yes, attach correspondence from the city.

Attachment: Click here to enter text.

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: Click here to enter text.

2. Utility CCN areas

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: Click here to enter text.

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: 14

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

Attachment: 15

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: Click here to enter text.

Section 2. Organic Loading (Instructions Page 67)

Is this facility in operation?

Yes ☒ No ☐

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

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

A. Current organic loading

Facility Design Flow (flow being requested in application): 1.50 MGD

Average Influent Organic Strength or BOD_5 Concentration in mg/l: 300

Average Influent Loading (lbs/day = total average flow X average BOD_5 conc. X 8.34): 3,753

Provide the source of the average organic strength or BOD_5 concentration.

Residential, commercial, and recreational types of development

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.

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/l)
Municipality		
Subdivision		
Trailer park – transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park,		

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/l)
overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources	1.50	
AVERAGE BOD_5 from all sources		300

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: 10

Total Suspended Solids, mg/l: 15

Ammonia Nitrogen, mg/l: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 6

Other: Click here to enter text.

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: 2

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: 6

Other: Click here to enter text.

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: N/A

Dissolved Oxygen, mg/l: 6

Other: Click here to enter text.

D. Disinfection Method

Identify the proposed method of disinfection.

☒ Chlorine: 1-4 mg/l after 20 minutes detention time at peak flow

Dechlorination process: Click here to enter text.

☐ Ultraviolet Light: Click here to enter text. seconds contact time at peak flow

☐ Other: Click here to enter text.

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: 16

Section 5. Facility Site (Instructions Page 68)

A. 100-year floodplain

Will the proposed facilities be located above 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.

Click here to enter text.

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

Federal Emergency Management Agency's Flood Insurance Rate Map No. 48201C0585M, latest revised November 15, 2019 (See Attachment 17)

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

Yes ☐ No ☒

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: Click here to enter text.

If no, provide the approximate date you anticipate submitting your application to the Corps: Click here to enter text.

B. Wind rose

Attach a wind rose. **Attachment**: 18

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 ☐ No ☒

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

Attachment: Click here to enter text.

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: Click here to enter text.

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

Attach a solids management plan to the application.

Attachment: 19

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: Click here to enter text.

Distance and direction to the intake: Click here to enter text.

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

Attachment: Click here to enter text.

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: Click here to enter text.

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).

Click here to enter text.

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).

Click here to enter text.

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: South Mayde 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: Click here to enter text.

Average depth of the entire water body, in feet: Click here to enter text.

Average depth of water body within a 500-foot radius of discharge point, in feet: Click here to enter text.

☐ Man-made Channel or Ditch

☐ Open Bay

☐ Tidal Stream, Bayou, or Marsh

☐ Other, specify: Click here to enter text.

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

☐ Other, specify: Click here to enter text.

C. Downstream perennial confluences

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

None

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.

Click here to enter text.

E. Normal dry weather characteristics

Provide general observations of the water body during normal dry weather conditions.

Click here to enter text.

Date and time of observation: 10/3/2019

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
- ☐ Upstream discharges
- ☐ Septic tanks
- ☐ Urban runoff
- ☒ Agricultural runoff
- ☐ Other(s), specify Click here to enter text.

B. Waterbody uses

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

- ☐ Livestock watering
- ☐ Irrigation withdrawal
- ☐ Fishing
- ☐ Contact recreation
- ☐ Non-contact recreation
- ☐ Navigation

☐ Domestic water supply ☐ Industrial water supply

☐ Park activities ☒ Other(s), specify Watershed Runoff

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 2.1

STREAM PHYSICAL CHARACTERISTICS

Required for new applications, major facilities, and applications adding an outfall

Worksheet 2.1 is not required for discharges to intermittent streams or discharges directly to (or within 300 feet of) a classified segment.

Section 1. General Information (Instructions Page 75)

Date of study: Click here to enter text. Time of study: Click here to enter text.

Stream name: Click here to enter text.

Location: Click here to enter text.

Type of stream upstream of existing discharge or downstream of proposed discharge (check one).

☐ Perennial ☐ Intermittent with perennial pools

Section 2. Data Collection (Instructions Page 75)

Number of stream bends that are well defined: Click here to enter text.

Number of stream bends that are moderately defined: Click here to enter text.

Number of stream bends that are poorly defined: Click here to enter text.

Number of riffles: Click here to enter text.

Evidence of flow fluctuations (check one):

☐ Minor ☐ moderate ☐ severe

Indicate the observed stream uses and if there is evidence of flow fluctuations or channel obstruction/modification.

Click here to enter text.

Stream transects

In the table below, provide the following information for each transect downstream of the existing or proposed discharges. Use a separate row for each transect.

Table 2.1(1) - Stream Transect Records

Stream type at transect Select riffle, run, glide, or pool. See Instructions, Definitions section.	Transect location	Water surface width (ft)	Stream depths (ft) at 4 to 10 points along each transect from the channel bed to the water surface. Separate the measurements with commas.
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			

Section 3. Summarize Measurements (Instructions Page 76)

Streambed slope of entire reach, from USGS map in feet/feet: Click here to

enter text.

Approximate drainage area above the most downstream transect (from USGS map or county highway map, in square miles): Click here to enter text.

Length of stream evaluated, in feet: Click here to enter text.

Number of lateral transects made: Click here to enter text.

Average stream width, in feet: Click here to enter text.

Average stream depth, in feet: Click here to enter text.

Average stream velocity, in feet/second: Click here to enter text.

Instantaneous stream flow, in cubic feet/second: Click here to enter text.

Indicate flow measurement method (type of meter, floating chip timed over a fixed distance, etc.): Click here to enter text.

Size of pools (large, small, moderate, none): Click here to enter text.

Maximum pool depth, in feet: Click here to enter text.

DOMESTIC WORKSHEET 3.0

LAND DISPOSAL OF EFFLUENT

The following is required for all permit applications

Renewal, New, and Amendments

Section 1. Type of Disposal System (Instructions Page 77)

Identify the method of land disposal:

- ☐ Surface application
- ☐ Irrigation
- ☐ Drip irrigation system
- ☐ Evaporation
- ☐ Evapotranspiration beds
- ☐ Other (describe in detail): Click here to enter text.
- ☐ Subsurface application
- ☐ Subsurface soils absorption
- ☐ Subsurface area drip dispersal system

NOTE: All applicants without authorization or proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0.

For existing authorizations, provide Registration Number: Click here to enter text.

Section 2. Land Application Site(s) (Instructions Page 77)

In table 3.0(1), provide the requested information for the land application sites. Include the agricultural or cover crop type (wheat, cotton, alfalfa, bermuda grass, native grasses, etc.), land use (golf course, hayland, pastureland, park, row crop, etc.), irrigation area, amount of effluent applied, and whether or not the public has access to the area. Specify the amount of land area and the amount of effluent that will be allotted to each agricultural or cover crop, if more than one crop will be used.

Table 3.0(1) – Land Application Site Crops

Crop Type & Land Use	Irrigation Area (acres)	Effluent Application (GPD)	Public Access? Y/N

Crop Type & Land Use	Irrigation Area (acres)	Effluent Application (GPD)	Public Access? Y/N

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 77)

Table 3.0(2) – Storage and Evaporation Ponds

Pond Number	Surface Area (acres)	Storage Volume (acre-feet)	Dimensions	Liner Type

Attach a copy of a liner certification that was prepared, signed, and sealed by a Texas licensed professional engineer for each pond.

Attachment: Click here to enter text.

Section 4. Flood and Runoff Protection (Instructions Page 77)

Is the land application site within the 100-year frequency flood level?

Yes ☐ No ☐

If yes, describe how the site will be protected from inundation.

Click here to enter text.

Provide the source used to determine the 100-year frequency flood level:

Click here to enter text.

Provide a description of tailwater controls and rainfall run-on controls used for the land application site.

Click here to enter text.

Section 5. Annual Cropping Plan (Instructions Page 77)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why.

Attachment: Click here to enter text.

- Soils map with crops
- Cool and warm season plant species
- Crop yield goals
- Crop growing season
- Crop nutrient requirements
- Additional fertilizer requirements
- Minimum/maximum harvest height (for grass crops)
- Supplemental watering requirements
- Crop salt tolerances
- Harvesting method/number of harvests
- Justification for not removing existing vegetation to be irrigated

Section 6. Well and Map Information (Instructions Page 78)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation (on a separate page) indicating why.

Attachment: Click here to enter text.

- The boundaries of the land application site(s)

- Waste disposal or treatment facility site(s)
- On-site buildings
- Buffer zones
- Effluent storage and tailwater control facilities
- All water wells within 1 mile of the disposal site or property boundaries
- All springs and seeps onsite and within 500 feet of the property boundaries
- All surface waters in the state onsite and within 500 feet of the property boundaries
- All faults and sinkholes onsite and within 500 feet of the property

List and cross reference all water wells shown on the USGS map in the following table. Attach additional pages as necessary to include all of the wells.

Table 3.0(3) – Water Well Data

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
			Choose an item.	
			Choose an item.	
			Choose an item.	
			Choose an item.	
			Choose an item.	

If water quality data or well log information is available please include the information in an attachment listed by Well ID.

Attachment: Click here to enter text.

Section 7. Groundwater Quality (Instructions Page 79)

Attach a Groundwater Quality Technical Report which assesses the impact of the wastewater disposal system on groundwater. This report shall include an evaluation of the water wells (including the information in the well table

provided in Item 6. above), the wastewater application rate, and pond liners. Indicate by a check mark that this report is provided.

Attachment: Click here to enter text.

Are groundwater monitoring wells available onsite? Yes ☐ No ☐

Do you plan to install ground water monitoring wells or lysimeters around the land application site? Yes ☐ No ☐

If yes, then provide the proposed location of the monitoring wells or lysimeters on a site map.

Attachment: Click here to enter text.

Section 8. Soil Map and Soil Analyses (Instructions Page 79)

A. Soil map

Attach a USDA Soil Survey map that shows the area to be used for effluent disposal.

Attachment: Click here to enter text.

B. Soil analyses

Attach the laboratory results sheets from the soil analyses. **Note**: for renewal applications, the current annual soil analyses required by the permit are acceptable as long as the test date is less than one year prior to the submission of the application.

Attachment: Click here to enter text.

List all USDA designated soil series on the proposed land application site. Attach additional pages as necessary.

Table 3.0(4) – Soil Data

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number

Section 9. Effluent Monitoring Data (Instructions Page 80)

Is the facility in operation?

Yes ☐ No ☐

If no, this section is not applicable and the worksheet is complete.

If yes, provide the effluent monitoring data for the parameters regulated in the existing permit. If a parameter is not regulated in the existing permit, enter N/A.

Table 3.0(5) – Effluent Monitoring Data

Date	30 Day Avg Flow MGD	BOD 5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

Date	30 Day Avg Flow MGD	BOD 5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

Provide a discussion of all persistent excursions above the permitted limits and any corrective actions taken.

Click here to enter text.

DOMESTIC WORKSHEET 3.1

SURFACE LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment applications. Renewal and minor amendments applicants may be asked for the worksheet on a case by case basis.

Section 1. Surface Disposal (Instructions Page 81)

Complete the item that applies for the method of disposal being used.

A. Irrigation

Area under irrigation, in acres: Click here to enter text.

Design application frequency:

hours/day Click here to enter text. **And** days/week Click here to enter text.

Land grade (slope):

average percent (%):Click here to enter text.

maximum percent (%):Click here to enter text.

Design application rate in acre-feet/acre/year: Click here to enter text.

Design total nitrogen loading rate, in lbs N/acre/year: Click here to enter text.

Soil conductivity (mmhos/cm): Click here to enter text.

Method of application: Click here to enter text.

Attach a separate engineering report with the water balance and storage volume calculations, method of application, irrigation efficiency, and nitrogen balance.

Attachment: Click here to enter text.

B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: Click here to enter text.

Attach a separate engineering report with the water balance and storage volume calculations.

Attachment: Click here to enter text.

C. Evapotranspiration beds

Number of beds: Click here to enter text.

Area of bed(s), in acres: Click here to enter text.

Depth of bed(s), in feet: Click here to enter text.

Void ratio of soil in the beds: Click here to enter text.

Storage volume within the beds, in acre-feet: Click here to enter text.

Attach a separate engineering report with the water balance and storage volume calculations, and a description of the lining.

Attachment: Click here to enter text.

D. Overland flow

Area used for application, in acres: Click here to enter text.

Slopes for application area, percent (%): Click here to enter text.

Design application rate, in gpm/foot of slope width: Click here to enter text.

Slope length, in feet: Click here to enter text.

Design BOD_5 loading rate, in lbs BOD_5/acre/day: Click here to enter text.

Design application frequency:

hours/day: Click here to enter text. **And** days/week: Click here to enter text.

Attach a separate engineering report with the method of application and design requirements according to *30 TAC Chapter 217*.

Attachment: Click here to enter text.

Section 2. Edwards Aquifer (Instructions Page 82)

Is the facility subject to *30 TAC Chapter 213*, Edwards Aquifer Rules?

Yes ☐ No ☐

If yes, attach a report concerning the recharge zone.

Attachment: Click here to enter text.

DOMESTIC WORKSHEET 3.2

SUBSURFACE LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment applications. Renewal and minor amendments may require the worksheet on a case by case basis.

NOTE: All applicants proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0. This worksheet applies to any subsurface disposal system that does not meet the definition of a subsurface area drip dispersal system as defined in *30 TAC Chapter 222, Subsurface Area Drip Dispersal System.*

Section 1. Subsurface Application (Instructions Page 83)

Identify the type of system:

- ☐ Conventional Gravity Drainfield, Beds, or Trenches (new systems must be less than 5,000 GPD)
- ☐ Low Pressure Dosing
- ☐ Other, specify: Click here to enter text.

Application area, in acres: Click here to enter text.

Area of drainfield, in square feet: Click here to enter text.

Application rate, in gal/square foot/day: Click here to enter text.

Depth to groundwater, in feet: Click here to enter text.

Area of trench, in square feet: Click here to enter text.

Dosing duration per area, in hours: Click here to enter text.

Number of beds: Click here to enter text.

Dosing amount per area, in inches/day: Click here to enter text.

Infiltration rate, in inches/hour: Click here to enter text.

Storage volume, in gallons: Click here to enter text.

Area of bed(s), in square feet: Click here to enter text.

Soil Classification: Click here to enter text.

Attach a separate engineering report with the information required in *30 TAC § 309.20,* excluding the requirements of *§* 309.20 b(3)(A) and (B) design analysis which may be asked for on a case by case basis. Include a description of the schedule of dosing basin rotation.

Attachment: Click here to enter text.

Section 2. Edwards Aquifer (Instructions Page 83)

Is the subsurface system located on the Edwards Aquifer Recharge Zone as mapped by the TCEQ?

Yes ☐ No ☐

Is the subsurface system located on the Edwards Aquifer Transition Zone as mapped by the TCEQ?

Yes ☐ No ☐

If yes to either question, the subsurface system may be prohibited by *30 TAC §213.8*. Please call the Municipal Permits Team, at 512-239-4671, to schedule a pre-application meeting.

DOMESTIC WORKSHEET 3.3

SUBSURFACE AREA DRIP DISPERSAL SYSTEM (SADDS) LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment subsurface area drip dispersal system applications. Renewal and minor amendments may require the worksheet on a case by case basis.

NOTE: All applicants proposing new or amended subsurface disposal MUST complete and submit Worksheet 7.0. This worksheet applies to any subsurface disposal system that meets the definition of a subsurface area drip dispersal system as defined in *30 TAC Chapter 222, Subsurface Area Drip Dispersal System.*

Section 1. Administrative Information (Instructions Page 84)

A. Provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the treatment facility.

Click here to enter text.

B. Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

Yes ☐ No ☐

If **no**, provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the land where the treatment facility is located.

Click here to enter text.

C. Owner of the subsurface area drip dispersal system:

Click here to enter text.

D. Is the owner of the subsurface area drip dispersal system the same as the owner of the wastewater treatment facility or the site where the wastewater treatment facility is located?

Yes ☐ No ☐

If **no**, identify the names of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in Item 1.C.

Click here to enter text.

E. Owner of the land where the subsurface area drip dispersal system is located:

Click here to enter text.

F. Is the owner of the land where the subsurface area drip dispersal system is located the same as owner of the wastewater treatment facility, the site where the wastewater treatment facility is located, or the owner of the subsurface area drip dispersal system?

Yes ☐ No ☐

If **no**, identify the name of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in item 1.E.

Click here to enter text.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 84)

A. Type of system

☐ Subsurface Drip Irrigation

☐ Surface Drip Irrigation

☐ Other, specify: Click here to enter text.

B. Irrigation operations

Application area, in acres: Click here to enter text.

Infiltration Rate, in inches/hour: Click here to enter text.

Average slope of the application area, percent (%): Click here to enter text.

Maximum slope of the application area, percent (%): Click here to enter text.

Storage volume, in gallons: Click here to enter text.

Major soil series: Click here to enter text.

Depth to groundwater, in feet: Click here to enter text.

C. Application rate

Is the facility located **west** of the boundary shown in *30 TAC § 222.83* **and** also using a vegetative cover of non-native grasses over seeded with cool

season grasses during the winter months (October-March)?

Yes ☐ No ☐

If yes, then the facility may propose a hydraulic application rate not to exceed 0.1 gal/square foot/day.

Is the facility located **east** of the boundary shown in *30 TAC § 222.83* **or** in any part of the state when the vegetative cover is any crop other than non-native grasses?

Yes ☐ No ☐

If **yes**, the facility must use the formula in *30 TAC §222.83* to calculate the maximum hydraulic application rate.

Do you plan to submit an alternative method to calculate the hydraulic application rate for approval by the executive director?

Yes ☐ No ☐

Hydraulic application rate, in gal/square foot/day: Click here to enter text.

Nitrogen application rate, in lbs/gal/day: Click here to enter text.

D. Dosing information

Number of doses per day: Click here to enter text.

Dosing duration per area, in hours: Click here to enter text.

Rest period between doses, in hours: Click here to enter text.

Dosing amount per area, in inches/day: Click here to enter text.

Number of zones: Click here to enter text.

Does the proposed subsurface drip irrigation system use tree vegetative cover as a crop?

Yes ☐ No ☐

If **yes**, provide a vegetation survey by a certified arborist. Please call the Water Quality Assessment Team at (512) 239-4671 to schedule a pre-application meeting.

Attachment: Click here to enter text.

Section 3. Required Plans (Instructions Page 84)

A. Recharge feature plan

Attach a Recharge Feature Plan with all information required in *30 TAC §222.79*.

Attachment: Click here to enter text.

B. Soil evaluation

Attach a Soil Evaluation with all information required in *30 TAC §222.73*.

Attachment: Click here to enter text.

C. Site preparation plan

Attach a Site Preparation Plan with all information required in *30 TAC §222.75*.

Attachment: Click here to enter text.

D. Soil sampling/testing

Attach soil sampling and testing that includes all information required in *30 TAC §222.157*.

Attachment: Click here to enter text.

Section 4. Floodway Designation (Instructions Page 85)

A. Site location

Is the existing/proposed land application site within a designated floodway?

Yes ☐ No ☐

B. Flood map

Attach either the FEMA flood map or alternate information used to determine the floodway.

Attachment: Click here to enter text.

Section 5. Surface Waters in the State (Instructions Page 85)

A. Buffer Map

Attach a map showing appropriate buffers on surface waters in the state, water wells, and springs/seeps.

Attachment: Click here to enter text.

B. Buffer variance request

Do you plan to request a buffer variance from water wells or waters in the state?

Yes ☐ No ☐

If yes, then attach the additional information required in *30 TAC § 222.81(c).*

Attachment: Click here to enter text.

Section 6. Edwards Aquifer (Instructions Page 85)

A. Is the SADDS located on the Edwards Aquifer Recharge Zone as mapped by the TCEQ?

Yes ☐ No ☐

B. Is the SADDS located on the Edwards Aquifer Transition Zone as mapped by the TCEQ?

Yes ☐ No ☐

If yes to either question, then the SADDS may be prohibited by *30 TAC §213.8*. Please call the Municipal Permits Team at 512-239-4671 to schedule a pre-application meeting.

DOMESTIC WORKSHEET 4.0

POLLUTANT ANALYSES REQUIREMENTS*

The following is required for facilities with a permitted or proposed flow of 1.0 MGD or greater, facilities with an approved pretreatment program, or facilities classified as a major facility. See instructions for further details.

This worksheet is not required for minor amendments without renewal

Section 1. Toxic Pollutants (Instructions Page 87)

For pollutants identified in Table 4.0(1), indicate the type of sample.

Grab ☒ Composite ☐

Date and time sample(s) collected: 12/18/19 @ 15:10

Table 4.0(1) – Toxics Analysis

Pollutant	AVG Effluent Conc. (mg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
TDS	372			
Sulfate	46			
Chloride	207			
CaCO3	102			

DOMESTIC WORKSHEET 4.0

POLLUTANT ANALYSES REQUIREMENTS*

The following is required for facilities with a permitted or proposed flow of 1.0 MGD or greater, facilities with an approved pretreatment program, or facilities classified as a major facility. See instructions for further details.

This worksheet is not required for minor amendments without renewal

Section 1. Toxic Pollutants (Instructions Page 87)

For pollutants identified in Table 4.0(1), indicate the type of sample.

Grab ☒ Composite ☐

Date and time sample(s) collected: 12/18/19 @ 15:10

Table 4.0(1) – Toxics Analysis

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrylonitrile	<50.000	<50.000	1	50
Aldrin	<0.005	<0.005	1	0.01
Aluminum	35.500	35.500	1	2.5
Anthracene	<10.000	<10.000	1	10
Antimony	<5.000	<5.000	1	5
Arsenic	5.530	5.530	1	0.5
Barium	80.300	80.300	1	3
Benzene	<10.000	<10.000	1	10
Benzidine	<50.000	<50.000	1	50
Benzo(a)anthracene	<5.000	<5.000	1	5

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Benzo(a)pyrene	<5.000	<5.000	1	5
Bis(2-chloroethyl)ether	<10.000	<10.000	1	10
Bis(2-ethylhexyl)phthalate	<10.000	<10.000	1	10
Bromodichloromethane	13.500	13.500	1	10
Bromoform	<10.000	<10.000	1	10
Cadmium	<1.000	<1.000	1	1
Carbon Tetrachloride	<2.000	<2.000	1	2
Carbaryl				5
Chlordane*	<0.005	<0.005	1	0.2
Chlorobenzene	<10.000	<10.000	1	10
Chlorodibromomethane	<10.000	<10.000	1	10
Chloroform	31.500	31.500	1	10
Chlorpyrifos				0.05
Chromium (Total)	<3.000	<3.000	1	3
Chromium (Tri) **(*1)**	<3.000	<3.000	1	N/A
Chromium (Hex)	<3.000	<3.000	1	3
Copper	3.610	3.610	1	2
Chrysene	<5.000	<5.000	1	5
p-Chloro-m-Cresol	<10.000	<10.000	1	10
4,6-Dinitro-o-Cresol	<50.000	<50.000	1	50
p-Cresol	<10.000	<10.000	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Cyanide **(*2)**	8.900	8.900	1	10
4,4'- DDD	<0.010	<0.010	1	0.1
4,4'- DDE	<0.010	<0.010	1	0.1
4,4'- DDT	<0.010	<0.010	1	0.02
2,4-D	<0.700	<0.700	1	0.7
Demeton (O and S)	<0.0508	<0.0508	1	0.20
Diazinon	<0.05	<0.05	1	0.5/0.1
1,2-Dibromoethane	<10.000	<10.000	1	10
m-Dichlorobenzene	<10.000	<10.000	1	10
o-Dichlorobenzene	<10.000	<10.000	1	10
p-Dichlorobenzene	<10.000	<10.000	1	10
3,3'-Dichlorobenzidine	<5.000	<5.000	1	5
1,2-Dichloroethane	<10.000	<10.000	1	10
1,1-Dichloroethylene	<10.000	<10.000	1	10
Dichloromethane	<10.000	<10.00	1	20
1,2-Dichloropropane	<10.000	<10.000	1	10
1,3-Dichloropropene	<10.000	<10.000	1	10
Dicofol	<1.000	<1.000	1	1
Dieldrin	<0.010	<0.010	1	0.02
2,4-Dimethylphenol	<10.000	<10.000	1	10
Di-n-Butyl Phthalate	<10.000	<10.000	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Diuron				0.09
Endosulfan I (alpha)	<0.005	<0.005	1	0.01
Endosulfan II (beta)	<0.010	<0.010	1	0.02
Endosulfan Sulfate	<0.010	<0.010	1	0.1
Endrin	<0.010	<0.010	1	0.02
Ethylbenzene	<10.000	<10.000	1	10
Fluoride	363.000	363.000	1	500
Guthion				0.1
Heptachlor	<0.005	<0.005	1	0.01
Heptachlor Epoxide	<0.005	<0.005	1	0.01
Hexachlorobenzene	<5.000	<5.000	1	5
Hexachlorobutadiene	<10.000	<10.000	1	10
Hexachlorocyclohexane (alpha)	<0.005	<0.005	1	0.05
Hexachlorocyclohexane (beta)	<0.005	<0.005	1	0.05
gamma-Hexachlorocyclohexane (Lindane)	<0.005	<0.005	1	0.05
Hexachlorocyclopentadiene	<10.000	<10.000	1	10
Hexachloroethane	<20.000	<20.000	1	20
Hexachlorophene	<10.000	<10.000	1	10
Lead	<0.50	<0.50	1	0.5
Malathion	<0.0508	<0.0508	1	0.1

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Mercury	<0.00426	<0.00426	1	0.005
Methoxychlor	<0.050	<0.050	1	2
Methyl Ethyl Ketone	<50.000	<50.000	1	50
Mirex	<0.020	<0.020	1	0.02
Nickel	<2.000	<2.000	1	2
Nitrate-Nitrogen	28500.00	28500.00	1	100
Nitrobenzene	<10.000	<10.000	1	10
N-Nitrosodiethylamine	<20.000	<20.000	1	20
N-Nitroso-di-n-Butylamine	<20.000	<20.000	1	20
Nonylphenol	<333.000	<333.000	1	333
Parathion (ethyl)	<0.0508	<0.0508	1	0.1
Pentachlorobenzene	<20.000	<20.000	1	20
Pentachlorophenol	<5.000	<5.000	1	5
Phenanthrene	<10.000	<10.000	1	10
Polychlorinated Biphenyls (PCB's) **(*3)**	<0.200	<0.200	1	0.2
Pyridine	<20.000	<20.000	1	20
Selenium	<5.000	<5.000	1	5
Silver	<0.500	<0.500	1	0.5
1,2,4,5-Tetrachlorobenzene	<10.000	<10.000	1	20
1,1,2,2-Tetrachloroethane	<10.000	<10.000	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Tetrachloroethylene	<10.000	<10.000	1	10
Thallium	<0.500	<0.500	1	0.5
Toluene	<10.000	<10.000	1	10
Toxaphene	<0.300	<0.300	1	0.3
2,4,5-TP (Silvex)	<0.300	<0.300	1	0.3
Tributyltin (see instructions for explanation)				0.01
1,1,1-Trichloroethane	<10.000	<10.000	1	10
1,1,2-Trichloroethane	<10.000	<10.000	1	10
Trichloroethylene	<10.000	<10.000	1	10
2,4,5-Trichlorophenol	<50.000	<50.000	1	50
TTHM (Total Trihalomethanes)	48.200	48.200	1	10
Vinyl Chloride	<10.000	<10.000	1	10
Zinc	110.00	110.000	1	5

(*1) Determined by subtracting hexavalent Cr from total Cr.

(*2) Cyanide, amenable to chlorination or weak-acid dissociable.

(*3) The sum of seven PCB congeners 1242, 1254, 1221, 1232, 1248, 1260, and 1016.

Section 2. Priority Pollutants

For pollutants identified in Tables 4.0(2)A-E, indicate type of sample.

Grab ☒ Composite ☐

Date and time sample(s) collected: 12/18/19 @ 15:10

Table 4.0(2)A – Metals, Cyanide, Phenols

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Antimony	<5.000	<5.000	1	5
Arsenic	5.530	5.530	1	0.5
Beryllium	<0.500	<0.500	1	0.5
Cadmium	<1.000	<1.000	1	1
Chromium (Total)	<3.000	<3.000	1	3
Chromium (Hex)	<3.000	<3.000	1	3
Chromium (Tri) (*1)	<3.000	<3.000	1	N/A
Copper	3.610	3.610	1	2
Lead	<0.500	<0.500	1	0.5
Mercury				0.005
Nickel	<2.000	<2.000	1	2
Selenium	<5.000	<5.000	1	5
Silver	<0.500	<0.500	1	0.5
Thallium	<0.500	<0.500	1	0.5
Zinc	110.000	110.000	1	5
Cyanide (*2)	8.900	8.900	1	10
Phenols, Total	12.400	12.400	1	10

(*1) Determined by subtracting hexavalent Cr from total Cr.

(*2) Cyanide, amenable to chlorination or weak-acid dissociable

Table 4.0(2)B – Volatile Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrolein	<10.000	<10.00	1	50
Acrylonitrile	<50.000	<50.00	1	50
Benzene	<10.000	<10.00	1	10
Bromoform	<10.000	<10.00	1	10
Carbon Tetrachloride	<2.000	<2.000	1	2
Chlorobenzene	<2.000	<2.000	1	10
Chlorodibromomethane	<10.000	<10.00	1	10
Chloroethane	<50.000	<50.000	1	50
2-Chloroethylvinyl Ether	<10.000	<10.00	1	10
Chloroform	31.500	31.500	1	10
Dichlorobromomethane [Bromodichloromethane]	13.500	13.500	1	10
1,1-Dichloroethane	<10.000	<10.000	1	10
1,2-Dichloroethane	<10.000	<10.000	1	10
1,1-Dichloroethylene	<10.000	<10.000	1	10
1,2-Dichloropropane	<10.000	<10.000	1	10
1,3-Dichloropropylene [1,3-Dichloropropene]	<10.000	<10.000	1	10
1,2-Trans-Dichloroethylene	<10.000	<10.000	1	10
Ethylbenzene	<10.000	<10.000	1	10
Methyl Bromide	<50.000	<50.000	1	50
Methyl Chloride	<50.000	<50.000	1	50
Methylene Chloride	<10.000	<10.00	1	20
1,1,2,2-Tetrachloroethane	<10.000	<10.000	1	10
Tetrachloroethylene	<10.000	<10.00	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Toluene	<10.000	<10.00	1	10
1,1,1-Trichloroethane	<10.000	<10.00	1	10
1,1,2-Trichloroethane	<10.000	<10.00	1	10
Trichloroethylene	<10.000	<10.00	1	10
Vinyl Chloride	<10.000	<10.00	1	10

Table 4.0(2)C – Acid Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
2-Chlorophenol	<10.000	<10.000	1	10
2,4-Dichlorophenol	<10.000	<10.000	1	10
2,4-Dimethylphenol	<10.000	<10.000	1	10
4,6-Dinitro-o-Cresol	<50.000	<50.000	1	50
2,4-Dinitrophenol	<50.000	<50.000	1	50
2-Nitrophenol	<20.000	<20.000	1	20
4-Nitrophenol	<50.000	<50.000	1	50
P-Chloro-m-Cresol	<10.000	<10.000	1	10
Pentalchlorophenol				5
Phenol	<10.000	<10.000	1	10
2,4,6-Trichlorophenol	<10.000	<10.000	1	10

Table 4.0(2)D – Base/Neutral Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acenaphthene	<10.000	<10.000	1	10
Acenaphthylene	<10.000	<10.000	1	10
Anthracene	<10.000	<10.000	1	10
Benzidine	<50.000	<50.000	1	50
Benzo(a)Anthracene	<5.000	<5.000	1	5
Benzo(a)Pyrene	<5.000	<5.000	1	5
3,4-Benzofluoranthene	<10.000	<10.000	1	10
Benzo(ghi)Perylene	<20.000	<20.000	1	20
Benzo(k)Fluoranthene	<10.000	<10.000	1	5
Bis(2-Chloroethoxy)Methane	<10.000	<10.000	1	10
Bis(2-Chloroethyl)Ether	<10.000	<10.000	1	10
Bis(2-Chloroisopropyl)Ether				10
Bis(2-Ethylhexyl)Phthalate	<10.000	<10.000	1	10
4-Bromophenyl Phenyl Ether	<10.000	<10.000	1	10
Butyl benzyl Phthalate	<10.000	<10.000	1	10
2-Chloronaphthalene	<10.000	<10.000	1	10
4-Chlorophenyl phenyl ether	<10.000	<10.000	1	10
Chrysene	<5.000	<5.000	1	5
Dibenzo(a,h)Anthracene	<5.000	<5.000	1	5
1,2-(o)Dichlorobenzene	<10.000	<10.000	1	10
1,3-(m)Dichlorobenzene	<10.000	<10.000	1	10
1,4-(p)Dichlorobenzene	<10.000	<10.000	1	10
3,3-Dichlorobenzidine	<5.000	<5.000	1	5
Diethyl Phthalate	<10.000	<10.000	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Dimethyl Phthalate	<10.000	<10.000	1	10
Di-n-Butyl Phthalate	<10.000	<10.000	1	10
2,4-Dinitrotoluene	<10.000	<10.000	1	10
2,6-Dinitrotoluene	<10.000	<10.000	1	10
Di-n-Octyl Phthalate	<10.000	<10.000	1	10
1,2-Diphenylhydrazine (as Azo-benzene)	<20.000	<20.000	1	20
Fluoranthene	<10.000	<10.000	1	10
Fluorene	<10.000	<10.000	1	10
Hexachlorobenzene	<5.000	<5.000	1	5
Hexachlorobutadiene	<10.000	<10.000	1	10
Hexachlorocyclo-pentadiene	<10.000	<10.000	1	10
Hexachloroethane	<10.000	<10.000	1	20
Indeno(1,2,3-cd)pyrene	<5.000	<5.000	1	5
Isophorone	<10.000	<10.000	1	10
Naphthalene	<10.000	<10.000	1	10
Nitrobenzene	<10.000	<10.000	1	10
N-Nitrosodimethylamine	<50.000	<50.000	1	50
N-Nitrosodi-n-Propylamine	<20.000	<20.000	1	20
N-Nitrosodiphenylamine	<20.000	<20.000	1	20
Phenanthrene	<10.000	<10.000	1	10
Pyrene	<10.000	<10.000	1	10
1,2,4-Trichlorobenzene	<10.000	<10.000	1	10

Table 4.0(2)E - Pesticides

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Aldrin	<0.005	<0.005	1	0.01
alpha-BHC (Hexachlorocyclohexane)	<0.005	<0.005	1	0.05
beta-BHC (Hexachlorocyclohexane)	<0.005	<0.005	1	0.05
gamma-BHC (Hexachlorocyclohexane)	<0.005	<0.005	1	0.05
delta-BHC (Hexachlorocyclohexane)	<0.005	<0.005	1	0.05
Chlordane	<0.005	<0.005	1	0.2
4,4-DDT	<0.005	<0.005	1	0.02
4,4-DDE	<0.010	<0.010	1	0.1
4,4,-DDD	<0.010	<0.010	1	0.1
Dieldrin	<0.010	<0.010	1	0.02
Endosulfan I (alpha)	<0.005	<0.005	1	0.01
Endosulfan II (beta)	<0.010	<0.010	1	0.02
Endosulfan Sulfate	<0.010	<0.010	1	0.1
Endrin	<0.010	<0.010	1	0.02
Endrin Aldehyde	<0.010	<0.010	1	0.1
Heptachlor	<0.005	<0.005	1	0.01
Heptachlor Epoxide	<0.005	<0.005	1	0.01
PCB-1242	<0.200	<0.200	1	0.2
PCB-1254	<0.200	<0.200	1	0.2

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
PCB-1221	<0.200	<0.200	1	0.2
PCB-1232	<0.200	<0.200	1	0.2
PCB-1248	<0.200	<0.200	1	0.2
PCB-1260	<0.200	<0.200	1	0.2
PCB-1016	<0.200	<0.200	1	0.2
Toxaphene	<0.300	<0.300	1	0.3

* For PCBS, if all are non-detects, enter the highest non-detect preceded by a "<".

Section 3. Dioxin/Furan Compounds

A. Indicate which of the following compounds from may be present in the influent from a contributing industrial user or significant industrial user. Check all that apply.

☐ 2,4,5-trichlorophenoxy acetic acid
Common Name 2,4,5-T, CASRN 93-76-5

☐ 2-(2,4,5-trichlorophenoxy) propanoic acid
Common Name Silvex or 2,4,5-TP, CASRN 93-72-1

☐ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate
Common Name Erbon, CASRN 136-25-4

☐ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate
Common Name Ronnel, CASRN 299-84-3

☐ 2,4,5-trichlorophenol
Common Name TCP, CASRN 95-95-4

☐ hexachlorophene
Common Name HCP, CASRN 70-30-4

For each compound identified, provide a brief description of the conditions of its/their presence at the facility.

Click here to enter text.

B. Do you know or have any reason to believe that 2,3,7,8 Tetrachlorodibenzo-P-Dioxin (TCDD) or any congeners of TCDD may be present in your effluent?

Yes ☐ No ☐

If **yes**, provide a brief description of the conditions for its presence.

Click here to enter text.

If any of the compounds in Subsection A **or** B are present, complete Table 4.0(2)F.

For pollutants identified in Table 4.0(2)F, indicate the type of sample.

Grab ☐ Composite ☐

Date and time sample(s) collected: Click here to enter text.

TABLE 4.0(2)F - DIOXIN/FURAN COMPOUNDS

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
2,3,7,8 TCDD	1					10
1,2,3,7,8	0.5					50
2,3,7,8 HxCDDs	0.1					50
1,2,3,4,6,7,8 HpCDD	0.01					50
2,3,7,8 TCDF	0.1					10
1,2,3,7,8 PeCDF	0.05					50
2,3,4,7,8 PeCDF	0.5					50
2,3,7,8 HxCDFs	0.1					50

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
2,3,4,7,8	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					0.5
PCB 81	0.0003					0.5
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

DOMESTIC WORKSHEET 5.0

TOXICITY TESTING REQUIREMENTS

The following is required for facilities with a currently-operating design flow greater than or equal to 1.0 MGD, with an EPA-approved pretreatment program (or those that are required to have one under 40 CFR Part 403), or are required by the TCEQ to perform Whole Effluent Toxicity testing. This worksheet is not required for minor amendments without renewal.

Section 1. Required Tests (Instructions Page 97)

Indicate the number of 7-day chronic or 48-hour acute Whole Effluent Toxicity (WET) tests performed in the four and one-half years prior to submission of the application.

7-day Chronic: Click here to enter text.

48-hour Acute: Click here to enter text.

Section 2. Toxicity Reduction Evaluations (TREs)

Has this facility completed a TRE in the past four and a half years? Or is the facility currently performing a TRE?

Yes ☐ No ☐

If yes, describe the progress to date, if applicable, in identifying and confirming the toxicant.

Click here to enter text.

Section 3. Summary of WET Tests

If the required biomonitoring test information has not been previously submitted via both the Discharge Monitoring Reports (DMRs) and the Table 1 (as found in the permit), provide a summary of the testing results for all valid and invalid tests performed over the past four and one-half years. Make additional copies of this table as needed.

Table 5.0(1) – Summary of WET Tests

Test Date	Test Species	NOEC Survival	NOEC Sub-lethal

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: 0

Average Daily Flows, in MGD: 0

Other IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

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.

Click here to enter text.

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.

Click here to enter text.

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.

Click here to enter text.

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.

Table 6.0(1) – Parameters Above the MAL

Pollutant	Concentration	MAL	Units	Date

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.

Click here to enter text.

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

A. General information

Company Name: N/A

SIC Code: Click here to enter text.

Telephone number: Click here to enter text. Fax number: Click here to enter text.

Contact name: Click here to enter text.

Address: Click here to enter text.

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

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).

Click here to enter text

C. Product and service information

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

Click here to enter text.

D. Flow rate information

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

Process Wastewater:

Discharge, in gallons/day: Click here to enter text.

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: Click here to enter text.

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: Click here to enter text.
Subcategories: Click here to enter text.

Category: Click here to enter text.
Subcategories: Click here to enter text.

Category: Click here to enter text.
Subcategories: Click here to enter text.

Category: Click here to enter text.
Subcategories: Click here to enter text.

Category: Click here to enter text.
Subcategories: Click here to enter text.

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.

Click here to enter text.

WORKSHEET 7.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit to:
TCEQ
IUC Permits Team
Radioactive Materials Division
MC-233
PO Box 13087
Austin, Texas 78711-3087
512-239-6466

For TCEQ Use Only
Reg. No._____
Date Received_____
Date Authorized_____

Section 1. General Information (Instructions Page 102)

1. TCEQ Program Area

Program Area (PST, VCP, IHW, etc.): Click here to enter text.
Program ID: Click here to enter text.
Contact Name: Click here to enter text.
Phone Number: Click here to enter text.

2. Agent/Consultant Contact Information

Contact Name: Click here to enter text.
Address: Click here to enter text.
City, State, and Zip Code: Click here to enter text.
Phone Number: Click here to enter text.

3. Owner/Operator Contact Information

Owner ☐ Operator ☐
Owner/Operator Name: Click here to enter text.
Contact Name: Click here to enter text.
Address: Click here to enter text.
City, State, and Zip Code: Click here to enter text.
Phone Number: Click here to enter text.

4. Facility Contact Information

Facility Name: Click here to enter text.

Address: Click here to enter text.

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

Location description (if no address is available): Click here to enter text.

Facility Contact Person: Click here to enter text.

Phone Number: Click here to enter text.

5. Latitude and Longitude, in degrees-minutes-seconds

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

Method of determination (GPS, TOPO, etc.): Click here to enter text.

Attach topographic quadrangle map as attachment A.

6. Well Information

Type of Well Construction, select one:

- ☐ Vertical Injection
- ☐ Subsurface Fluid Distribution System
- ☐ Infiltration Gallery
- ☐ Temporary Injection Points
- ☐ Other, Specify: Click here to enter text.

Number of Injection Wells: Click here to enter text.

7. Purpose

Detailed Description regarding purpose of Injection System:

Click here to enter text.

Attach a Site Map as Attachment B (Attach the Approved Remediation Plan, if appropriate.)

8. Water Well Driller/Installer

Water Well Driller/Installer Name: Click here to enter text.

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

Phone Number: Click here to enter text.

License Number: Click here to enter text.

Section 2. Proposed Down Hole Design

Attach a diagram signed and sealed by a licensed engineer as Attachment C.

Table 7.0(1) –Down Hole Design Table

Name of String	Size	Setting Depth	Sacks Cement/Grout – Slurry Volume – Top of Cement	Hole Size	Weight (lbs/ft) PVC/Steel
Casing					
Tubing					
Screen					

Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

Attach a diagram signed and sealed by a licensed engineer as Attachment D.

System(s) Dimensions: Click here to enter text.

System(s) Construction: Click here to enter text.

Section 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: Click here to enter text.
2. Receiving Formation Name of Injection Zone: Click here to enter text.
3. Well/Trench Total Depth: Click here to enter text.
4. Surface Elevation: Click here to enter text.
5. Depth to Ground Water: Click here to enter text.
6. Injection Zone Depth: Click here to enter text.
7. Injection Zone vertically isolated geologically? Yes ☐ No ☐

Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:

Name: Click here to enter text.

Thickness: Click here to enter text.

8. Provide a list of contaminants and the levels (ppm) in contaminated aquifer

   Attach as Attachment E.

9. Horizontal and Vertical extent of contamination and injection plume

   Attach as Attachment F.

10. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc.

    Attach as Attachment G.

11. Injection Fluid Chemistry in PPM at point of injection

    Attach as Attachment H.

12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: Click here to enter text.
13. Maximum injection Rate/Volume/Pressure: Click here to enter text.
14. Water wells within 1/4 mile radius (attach map as Attachment I): Click here to enter text.
15. Injection wells within 1/4 mile radius (attach map as Attachment J): Click here to enter text.
16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): Click here to enter text.
17. Sampling frequency: Click here to enter text.
18. Known hazardous components in injection fluid: Click here to enter text.

Section 5. Site History

1. Type of Facility: Click here to enter text.
2. Contamination Dates: Click here to enter text.
3. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations (attach as Attachment L): Click here to enter text.
4. Previous Remediation: Click here to enter text.

   Attach results of any previous remediation as attachment M

NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can

begin. Attach additional pages as necessary.

Class V Injection Well Designations

5A07	Heat Pump/AC return (IW used for groundwater to heat and/or cool buildings)
5A19	Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)
5B22	Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)
5D02	Storm Water Drainage (IW designed for the disposal of rain water)
5D04	Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)
5F01	Agricultural Drainage (IW that receive agricultural runoff)
5R21	Aquifer Recharge (IW used to inject fluids to recharge an aquifer)
5S23	Subsidence Control Wells (IW used to control land subsidence caused by ground water withdrawal)
5W09	Untreated Sewage
5W10	Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)
5W11	Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)
5W12	WTTP disposal
5W20	Industrial Process Waste Disposal Wells
5W31	Septic System (Well Disposal method)
5W32	Septic System Drainfield Disposal
5X13	Mine Backfill (IW used to control subsidence, dispose of mining byproducts, and/or fill sections of a mine)
5X25	Experimental Wells (Pilot Test) (IW used to test new technologies or tracer dye studies)
5X26	Aquifer Remediation (IW used to clean up, treat, or prevent contamination of a USDW)
5X27	Other Wells
5X28	Motor Vehicle Waste Disposal Wells (IW used to dispose of waste from a motor vehicle site - These are currently banned)
5X29	Abandoned Drinking Water Wells (waste disposal)

TCEQ

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(If Issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(If Issued)*
CN 604514943		RN 107117327

SECTION II: Customer Information

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

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

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

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

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

Harris County Municipal Utility District No. 495

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

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

Government: ☐ City ☐ County ☐ Federal ☐ State ☒ Other ☐ Sole Proprietorship ☒ Other: Municipal Utility District

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

13. Independently Owned and Operated? ☒ Yes ☐ No

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

☐ Owner ☐ Operator ☒ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

c/o ABHR

3200 Southwest Freeway, Suite 2600

City	State	ZIP	ZIP + 4
Houston	TX	77027	7537

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(713) 860-6496		(713) 860-6696

SECTION III: Regulated Entity Information

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

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

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

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

Harris County Municipal Utility District No. 495 WWTP No. 1

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	5455 1/2 Porter Rd.							
	City	Katy	**State**	TX	**ZIP**	77493	**ZIP + 4**	
24. County	Harris							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	

26. Nearest City	**State**	**Nearest ZIP Code**
Katy	TX	77493

27. Latitude (N) In Decimal:	29.85274167		**28. Longitude (W) In Decimal:**	95.79114444	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	51	9.8706	95	47	28.1184

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

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

Wastewater Treatment Plant

34. Mailing Address:	**c/o ABHR**							
	3200 Southwest Freeway, Suite 2600							
	City	**Houston**	**State**	**TX**	**ZIP**	**77027**	**ZIP + 4**	**7537**

35. E-Mail Address:	**sstaine@abhr.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** ***(if applicable)***
(713) 860-6496		**(713) 860-6696**

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0015222001			

SECTION IV: Preparer Information

40. Name:	Esteban Gonzalez	**41. Title:**	Graduate Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(713) 380-4461		(713) 953-5026	egonzalez@lja.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:	Harris County Municipal Utility District No. 495	**Job Title:**	President
Name ***(In Print)*** **:**	Steve Sams	**Phone:**	( ) -
Signature:		**Date:**	

ATTACHMENT – 1

Proposed Changes

This major amendment proposes to expand the ultimate capacity of the wastewater treatment plant due to new connections from property annexation into HC MUD No. 495. The ultimate permitted capacity of the permit will increase from 0.9 MGD to 1.5 MGD. The wastewater treatment plant will construct permanent treatment units to treat the proposed 1.5 MGD.

USGS science for a changing world

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

The National Map US Topo

KATY QUADRANGLE
TEXAS
7.5-MINUTE SERIES

SERVICE AREA BOUNDARY

POINT OF DISCHARGE

1 MILE

1 MILE OF DOWNSTREAM FLOW

WWTP SITE & APPLICANT'S PROPERTY BOUNDARY

3 MILES OF DOWNSTREAM FLOW

KATY

HOUSTON

HARRIS CO
WALLER CO

WALLER CO
FORT BEND CO

HARRIS CO
FORT BEND CO

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid:Universal Transverse Mercator, Zone 15R
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, September 2016 - November 2016	
Roads	U.S. Census Bureau,	2015
Names	GNIS, 1979 -	2018
Hydrography	National Hydrography Dataset, 2002 -	2018
Contours	National Elevation Dataset,	2010
Boundaries	Multiple sources; see metadata file 2016 -	2017
Wetlands	FWS National Wetlands Inventory 1992 -	1993

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
TP
00
TN
Grid Zone Designation
15R

SCALE 1:24 000

1 0,5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0,5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

TEXAS
QUADRANGLE LOCATION

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

ATTACHMENT 3

HARRIS COUNTY MUD NO. 495
WWTP NO. 1 MAJOR AMENDMENT EXHIBITS
USGS TOPOGRAPHIC MAP

KATY, TX
2019

LJA ENGINEERING
2929 Briarpark Drive, Suite 600, Houston, Texas 77042
Phone 713.953.5200 TBPE F-1386
Fax 713.953.5026 TBPLS 10110501
LJA.com

JANUARY 2020 | JOB NO: 2231-3075

HARRIS COUNTY MUD NO. 495
WWTP NO. 1 MAJOR
AMENDMENT EXHIBITS

APRIL 2020

ATTACHMENT 5:
AFFECTED LANDOWNER EXHIBIT
ADJACENT

LEGEND

- POINT OF DISCHARGE
- 1 MILE DISCHARGE ROUTE
- TANK 150' BUFFER ZONE
- WWTP FACILITY SITE
- APPLICANT'S BOUNDARY
- SERVICE AREA BOUNDARY
- AFFECTED LANDOWNERS

N

500 250 0 500

FEET

DATA SOURCE: PARCELS - HARRIS COUNTY APPRAISAL DISTRICT (HCAD), NOVEMBER 2019. THIS PRODUCT IS FOR INFORMATIONAL PURPOSES AND MAY NOT HAVE BEEN PREPARED FOR OR BE SUITABLE FOR LEGAL, ENGINEERING, OR SURVEYING PURPOSES. IT DOES NOT REPRESENT AN ON-THE-GROUND SURVEY AND REPRESENTS ONLY THE APPROXIMATE RELATIVE LOCATION OF PROPERTY BOUNDARIES.

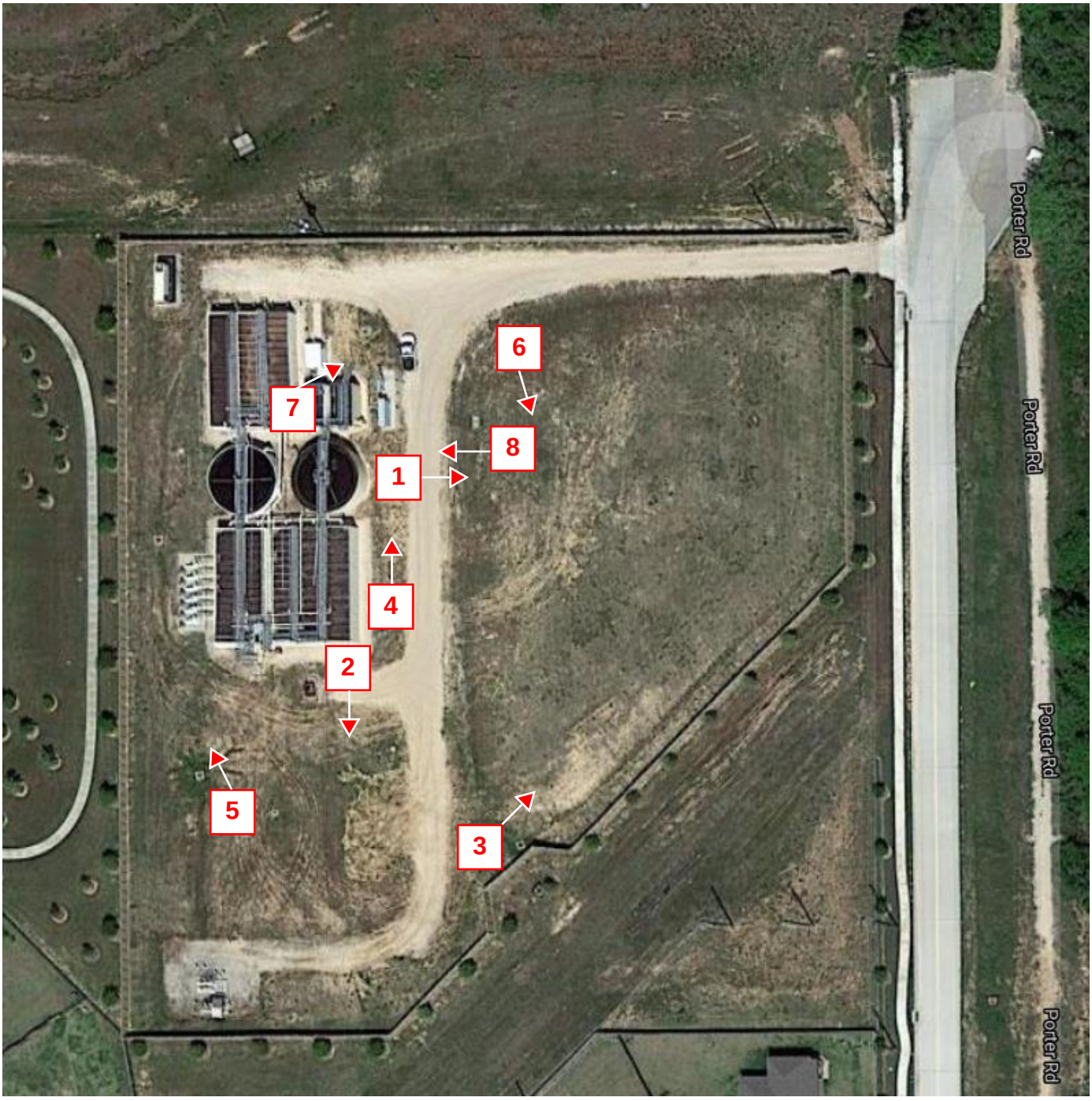
AERIAL PHOTOGRAPHY DATE: NEARMAP (2019)

LJA ENGINEERING
2929 Briarpark Drive, Suite 600, Houston, Texas 77042
Phone 713.953.5200 TBPE F-1386
Fax 713.953.5026 TBPLS 10110501
LJA.com

Map ID	Owner Name	Account Number	Percent Ownership	Owner Address	Owner Address2	Owner Address3	Site Address	City	Zip	Acreage	GIS Acreage
1	COUNTY OF HARRIS	1377360020074	1.000	PO BOX 1525		HOUSTON, TX 77251-1525	0 EXEMPT	KATY	77493	2.1536	2.2799
2	COUNTY OF HARRIS	1376040040023	1.000	PO BOX 1525		HOUSTON, TX 77251-1525	0 PORTER RD	KATY	77493	2.4617	2.4681
3	COMMUNITY ASSOCIATION OF KING	1376040020028	1.000	PO BOX 38113		HOUSTON, TX 77238-8113	0 PORTER RD	KATY	77493	.2086	0.2085
4	WILLIAMS VALARIE	1376040020017	1.000	5355 BARONESS LN		KATY, TX 77493-7955	5355 BARONESS LN	KATY	77493	.2827	0.2827
5	WILLIAMS LATORRI	1376040020016	.500	5351 BARONESS LN		KATY, TX 77493-7955	5351 BARONESS LN	KATY	77493	.2090	0.2090
6	JOSEPH YAESHA	1376040020016	.500	5351 BARONESS LN		KATY, TX 77493-7955	5351 BARONESS LN	KATY	77493	.2090	0.2090
7	COMMUNITY ASSOCIATION OF KING	1376040020029	1.000	PO BOX 38113		HOUSTON, TX 77238-8113	0 DYNASTY DR	KATY	77493	1.2238	1.2238
8	HARRIS COUNTY MUD NO 495	1377360020072	1.000	PO BOX 1368		FRIENDSWOOD, TX 77549-1368	0 REGAL GEM LN	KATY	77493	.5525	0.5525
9	WOODS XOCHILT V	1377360020008	1.000	5330 REGAL GEM LN		KATY, TX 77493-3252	5330 REGAL GEM LN	KATY	77493	.2011	0.2011
10	BURNS MARTIN THOMAS	1377360020009	1.000	5338 REGAL GEM LN		KATY, TX 77493-3252	5338 REGAL GEM LN	KATY	77493	.2579	0.2579
11	WICKMAN RACHEL	1377360020010	.500	26202 STOCKDICK SCHOOL RD		KATY, TX 77493-6400	5339 REGAL GEM LN	KATY	77493	.2653	0.2653
12	DOUGLAS JAY	1377360020010	.500	26202 STOCKDICK SCHOOL RD		KATY, TX 77493-6400	5339 REGAL GEM LN	KATY	77493	.2653	0.2653
13	COMMUNITY ASSOCIATION OF KING	1377360020064	1.000	PO BOX 38113		HOUSTON, TX 77238-8113	0 REGAL GEM LN	KATY	77493	.0553	0.0553
14	BARTOSH CHARLES A & SAMANTHA A	1377360020011	1.000	5335 REGAL GEM LN		KATY, TX 77493-3251	5335 REGAL GEM LN	KATY	77493	.2502	0.2502
15	SIMMS BLAKE ASHCROFT & LLANARY ANAI	1377360020012	1.000	5331 REGAL GEM LN		KATY, TX 77493-3251	5331 REGAL GEM LN	KATY	77493	.1973	0.1973
16	RODRIGUEZ CINZIA E	1377360020013	1.000	5327 REGAL GEM LN		KATY, TX 77493-3251	5327 REGAL GEM LN	KATY	77493	.1968	0.1968
17	BROWN GARY M & CYNTHIA A	1377360020014	1.000	5323 REGAL GEM LN		KATY, TX 77493-3251	5323 REGAL GEM LN	KATY	77493	.1722	0.1722
18	MARTINEZ JUSTIN	1377360020015	1.000	5319 REGAL GEM LN		KATY, TX 77493-3251	5319 REGAL GEM LN	KATY	77493	.1722	0.1722
19	BRITTAIN TERESA C	1377360020016	1.000	5315 REGAL GEM LN		KATY, TX 77493-3251	5315 REGAL GEM LN	KATY	77493	.1722	0.1722
20	VASQUEZ RICHARD & DORA	1377360020017	1.000	5311 REGAL GEM LN		KATY, TX 77493-3251	5311 REGAL GEM LN	KATY	77493	.1722	0.1722
21	OLLARI SHELLIE & ROBERT	1377360020018	1.000	5307 REGAL GEM LN		KATY, TX 77493-3251	5307 REGAL GEM LN	KATY	77493	.1722	0.1722
22	BARBARA FITCH REVOCABLE TRUST	1377360020019	1.000	5303 REGAL GEM LN		KATY, TX 77493-3251	5303 REGAL GEM LN	KATY	77493	.1722	0.1722
23	TURCIOS WALTER S	1377360020027	1.000	5314 GERENT LN		KATY, TX 77493-3246	5314 GERENT LN	KATY	77493	.2582	0.2582
24	LUJAN MARIA MANUELA & GREGORIO PRIETO	1377360020028	1.000	5318 GERENT LN		KATY, TX 77493-3246	5318 GERENT LN	KATY	77493	.2695	0.2695
25	COMMUNITY ASSOCIATION OF KING	1377360020063	1.000	PO BOX 38113		HOUSTON, TX 77238-8113	0 GERENT LN	KATY	77493	.0528	0.0528
26	WALTON DERRICK	1377360020029	.500	5319 GERENT LN		KATY, TX 77493-3245	5319 GERENT LN	KATY	77493	.2449	0.2449
27	WALTON DONALD	1377360020029	.500	5319 GERENT LN		KATY, TX 77493-3245	5319 GERENT LN	KATY	77493	.2449	0.2449
28	CIRLOS JOSE RICARDO	1377360020030	.500	5315 GERENT LN		KATY, TX 77493-3245	5315 GERENT LN	KATY	77493	.2196	0.2196
29	SHELTON KORIE ALANA	1377360020030	.500	5315 GERENT LN		KATY, TX 77493-3245	5315 GERENT LN	KATY	77493	.2196	0.2196
30	HQ HOLDINGS LLC SERIES H	1377360020031	1.000	22720 MORTON RANCH #188 RD STE 160		KATY, TX 77449-2155	5311 GERENT LN	KATY	77493	.2011	0.2011
31	MCGEE YARNELL H	1377360020032	1.000	5307 GERENT LN		KATY, TX 77493-3245	5307 GERENT LN	KATY	77493	.1966	0.1966
32	GOLDBERG YUVAL	1377360020033	1.000	5303 GERENT LN		KATY, TX 77493-3245	5303 GERENT LN	KATY	77493	.2010	0.2010
33	HARRIS COUNTY MUD NO 495	1377360020066	1.000	PO BOX 1368		FRIENDSWOOD, TX 77549-1368	0 IVORY PRESS DR	KATY	77493	8.9546	8.9546
34	BREWER NATHAN KYLE & MELISSA KAYE	1377360020034	1.000	24227 IVORY SUNSET LN		KATY, TX 77493-3136	24227 IVORY SUNSET LN	KATY	77493	.1984	0.1986
35	KENT MONTREL MALIK	1377360020035	1.000	24223 IVORY SUNSET LN		KATY, TX 77493-3136	24223 IVORY SUNSET LN	KATY	77493	.1722	0.1722
36	KAMPOURELIS EFSTRATIOS	1377360020036	1.000	24219 IVORY SUNSET LN		KATY, TX 77493-3136	24219 IVORY SUNSET LN	KATY	77493	.1722	0.1722
37	BAGOS JESUS	1377360020037	1.000	24215 IVORY SUNSET LN		KATY, TX 77493-3136	24215 IVORY SUNSET LN	KATY	77493	.1722	0.1722
38	TABIEN JENNA ALESSA M & DAN JERAHNIL O	1377360020038	.500	24211 IVORY SUNSET LN		KATY, TX 77493-3136	24211 IVORY SUNSET LN	KATY	77493	.1722	0.1722
39	TABIEN RON KEVIN O	1377360020038	.500	24211 IVORY SUNSET LN		KATY, TX 77493-3136	24211 IVORY SUNSET LN	KATY	77493	.1722	0.1722
40	PENA LESLIE	1377360020039	1.000	24207 IVORY SUNSET LN		KATY, TX 77493-3136	24207 IVORY SUNSET LN	KATY	77493	.1722	0.1722
41	HOFFMAN ROBERT K & KARLA E	1377360020040	1.000	24203 IVORY SUNSET LN		KATY, TX 77493-3136	24203 IVORY SUNSET LN	KATY	77493	.1722	0.1722
42	CORDELL JESSIE J	1377360020041	1.000	24127 IVORY SUNSET LN		KATY, TX 77493-3247	24127 IVORY SUNSET LN	KATY	77493	.1722	0.1722
43	CAGE THERON KEITH & RENA CARLETTE	1377360020042	1.000	24123 IVORY SUNSET LN		KATY, TX 77493-3247	24123 IVORY SUNSET LN	KATY	77493	.1722	0.1722
44	JONES JAY M	1377360020043	.500	24119 IVORY SUNSET LN		KATY, TX 77493-3247	24119 IVORY SUNSET LN	KATY	77493	.1722	0.1722
45	JONES VALERIE J	1377360020043	.500	24119 IVORY SUNSET LN		KATY, TX 77493-3247	24119 IVORY SUNSET LN	KATY	77493	.1722	0.1722
46	BENOIT RICHARD CLAY & LARISSA ANNE	1377360020044	1.000	24115 IVORY SUNSET LN		KATY, TX 77493-3247	24115 IVORY SUNSET LN	KATY	77493	.1849	0.1849
47	WILKINS DONALD I B JR & KELLYANN C	1377360020045	1.000	24111 IVORY SUNSET LN		KATY, TX 77493-3247	24111 IVORY SUNSET LN	KATY	77493	.2096	0.2096
48	PEREZ GABRIEL BAENA	1377360020046	1.000	24107 IVORY SUNSET LN		KATY, TX 77493-3247	24107 IVORY SUNSET LN	KATY	77493	.1870	0.1870
49	DUARTE LEONARD A	1377360020047	1.000	24103 IVORY SUNSET LN		KATY, TX 77493-3247	24103 IVORY SUNSET LN	KATY	77493	.2484	0.2484
50	COMMUNITY ASSOCIATION OF KING	1377360020065	1.000	PO BOX 38113		HOUSTON, TX 77238-8113	0 IVORY SUNSET LN	KATY	77493	.0523	0.0523
51	JHAGROO NEEMA & ANAND	1377360020048	1.000	24102 IVORY SUNSET LN		KATY, TX 77493-3247	24102 IVORY SUNSET LN	KATY	77493	.2652	0.2652
52	LI MINXIAOXUE	1377360020049	1.000	24106 IVORY SUNSET LN		KATY, TX 77493-3247	24106 IVORY SUNSET LN	KATY	77493	.3756	0.3756
53	CARRASCO SANDRA	1377360020050	1.000	24110 IVORY SUNSET LN		KATY, TX 77493-3247	24110 IVORY SUNSET LN	KATY	77493	.1904	0.1904
54	NIEMEIER SCOTT & CASSEY	1377360020051	1.000	24114 IVORY SUNSET LN		KATY, TX 77493-3247	24114 IVORY SUNSET LN	KATY	77493	.1722	0.1722
55	LARGE FERDINAND A & CRYSTAL M	1377360020052	1.000	24118 IVORY SUNSET LN		KATY, TX 77493-3247	24118 IVORY SUNSET LN	KATY	77493	.1722	0.1722
56	JACKSON JARRICK JOVAN & ADRIANA RENEE	1377360020053	1.000	24122 IVORY SUNSET LN		KATY, TX 77493-3247	24122 IVORY SUNSET LN	KATY	77493	.1722	0.1722
57	THOMSON SIDNEY J	1377360020054	.500	24126 IVORY SUNSET LN		KATY, TX 77493-3247	24126 IVORY SUNSET LN	KATY	77493	.1722	0.1722
58	SKAE PRISCILLA A	1377360020054	.500	24126 IVORY SUNSET LN		KATY, TX 77493-3247	24126 IVORY SUNSET LN	KATY	77493	.1722	0.1722
59	WRIGHT WALTER L III & AMIE L	1377360020055	1.000	24130 IVORY SUNSET LN		KATY, TX 77493-3247	24130 IVORY SUNSET LN	KATY	77493	.1722	0.1722
60	GREENE WILLIAM & LEVI	1377360020056	.500	24202 IVORY SUNSET LN		KATY, TX 77493-3136	24202 IVORY SUNSET LN	KATY	77493	.1722	0.1722
61	GREENE BRITTNEY	1377360020056	.500	24202 IVORY SUNSET LN		KATY, TX 77493-3136	24202 IVORY SUNSET LN	KATY	77493	.1722	0.1722
62	TOURE CHEICKH M	1377360020057	1.000	24206 IVORY SUNSET LN		KATY, TX 77493-3136	24206 IVORY SUNSET LN	KATY	77493	.1722	0.1722
63	HUA FENG	1377360020058	1.000	5-1-602 ZI DONG YUAN	WU CHENG JIN HUA ZHEJIANG		24210 IVORY SUNSET LN	KATY	77493	.1722	0.1722

64	CHAVEZ HECTOR H & MAUREEN J	1377360020059	1.000	24214 IVORY SUNSET LN		KATY, TX 77493-3136	24214 IVORY SUNSET LN	KATY	77493	.1722	0.1722
65	SEVERN GUY N & LILYANI HANDRA	1377360020060	1.000	24218 IVORY SUNSET LN		KATY, TX 77493-3136	24218 IVORY SUNSET LN	KATY	77493	.1722	0.1722
66	GUIVAS JOSE L	1377360020061	1.000	24222 IVORY SUNSET LN		KATY, TX 77493-3136	24222 IVORY SUNSET LN	KATY	77493	.1722	0.1722
67	SEILER KEVIN A & HEATHER D	1377360020062	1.000	24226 IVORY SUNSET LN		KATY, TX 77493-3136	24226 IVORY SUNSET LN	KATY	77493	.1722	0.1722
68	PALOMAREZ MIGUEL A & STACEY J	1368490010012	1.000	24230 IVORY SUNSET LN		KATY, TX 77493	24230 IVORY SUNSET LN	KATY	77493	.1767	0.1767
69	BROWN CHARLES D & ROSA M	1368490010011	1.000	24302 IVORY SUNSET LN		KATY, TX 77493-3137	24302 IVORY SUNSET LN	KATY	77493	.2008	0.2008
70	VILLANUEVA OSCAR & DIANA	1368490010010	1.000	2219 GREENHOUSE RD # APT1235		HOUSTON, TX 77084-7294	24306 IVORY SUNSET LN	KATY	77493	.2312	0.2312
71	COMMUNITY ASSOCIATION OF KING	1368490010013	1.000	6842 N SAM HOUSTON PKWY W		HOUSTON, TX 77064-3528	0 IVORY SUNSET LN	KATY	77493	.0479	0.0479
72	COMMUNITY ASSOCIATION OF KING	1377360020067	1.000	PO BOX 38113		HOUSTON, TX 77238-8113	0 PORTER RD	KATY	77493	.2857	0.2643
73	HARRIS COUNTY MUD NO 495	1377360020068	1.000	PO BOX 1368		FRIENDSWOOD, TX 77549-1368	0 PORTER RD	KATY	77493	2.6960	2.6955
74	BEAZER HOMES TEXAS LP	1377360020077	.500	1311 BROADFIELD BLVD STE 100		HOUSTON, TX 77084-5186	0 PORTER RD	KATY	77493	.0211	0.0216
75	PULTE HOMES OF TEXAS LP	1377360020077	.500	1311 BROADFIELD BLVD STE 100		HOUSTON, TX 77084-5186	0 PORTER RD	KATY	77493	.0211	0.0216
76	MINI-B INC	0480700000022	1.000	550 WAUGH DR		HOUSTON, TX 77019-2002	0 PORTER RD	KATY	77493	38.9702	38.9703
77	HARRIS COUNTY MUD NO 495	0480700000012	1.000	PO BOX 1368		FRIENDSWOOD, TX 77549-1368	0 PORTER RD	KATY	77493	1.6993	1.6994
78	COUNTY OF HARRIS	0431060000010	1.000	PO BOX 1525		HOUSTON, TX 77251-1525	0 PORTER RD	KATY	77493	4.8813	4.9028
79	DONNELLY JAMES W &	0431060000036	1.000	23918 STOCKDICK SCHOOL RD		KATY, TX 77493-6317	23918 STOCKDICK SCHOOL RD	KATY	77493	9.0601	8.9809
80	SPICER DONNISHA & CHRIS	0431060000035	1.000	23910 STOCKDICK SCHOOL RD		KATY, TX 77493-6317	23910 STOCKDICK SCHOOL RD	KATY	77493	8.3522	8.3441
81	JOHNSTON GREGORY S	0431060000034	1.000	23850 STOCKDICK SCHOOL RD		KATY, TX 77493-6318	23850 STOCKDICK SCHOOL RD	KATY	77493	8.1100	8.2808
82	SCHRIEFER ROBERT L	0431060000026	1.000	23842 STOCKCLICK SCHOOL RD		KATY, TX 77493-	23842 STOCKDICK SCHOOL RD	KATY	77493	9.2473	9.9754
83	HARRIS COUNTY MUD NO 171	0431060000041	1.000	11500 NORTHWEST FWY STE 465		HOUSTON, TX 77092-6538	0 STOCKDICK SCHOOL RD	KATY	77493	157.5000	156.7780
84	NASH FM 529 LLC	0431060000006	1.000	10940 W SAM HOUSTON PWKY N STE 300		HOUSTON, TX 77064-	0 STOCKDICK SCHOOL RD	KATY	77493	85.8613	84.0696
85	CUNNINGHAM INTERESTS II LTD	0431060000045	1.000	1770 SAINT JAMES PL STE 205		HOUSTON, TX 77056-3432	0 PEEK RD	KATY	77449	.2500	131.5033
86	CUNNINGHAM INTERESTS II LTD	0431060000002	1.000	1770 SAINT JAMES PL STE 205		HOUSTON, TX 77056-3432	0 PEEK RD	KATY	77449	129.8462	131.5033
87	CUNNINGHAM INTERESTS II LTD	0431060000015	1.000	2221 BRUN ST		HOUSTON, TX 77019-6507	23006 STOCKDICK SCHOOL RD	KATY	77493	1.0000	158.9240
88	CUNNINGHAM INTERESTS II LTD	0431060000021	1.000	2221 BRUN ST		HOUSTON, TX 77019-6507	0 STOCKDICK SCHOOL RD	KATY	77493	159.0000	158.9240
89	RICK SHRADER ET AL TRUSTEE	0431060000004	1.000	TRI COUNTY BAPTIST CHURCH	PO BOX 296	KATY, TX 77492-0296	5715 PEEK RD	KATY	77449	9.7800	9.7973

Attachment 5 – WWTP Photograph Plan



1

2

3

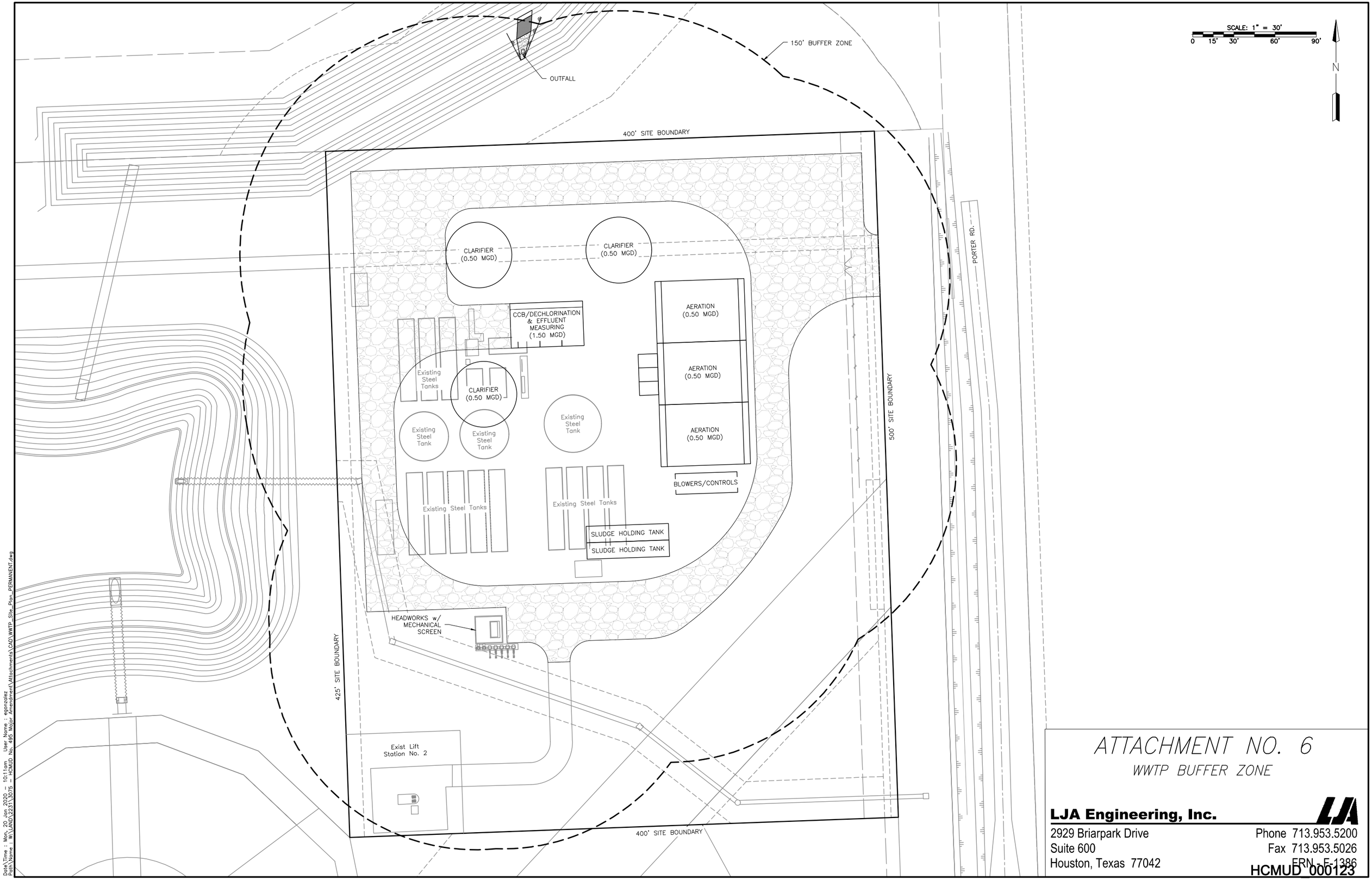
4

5

6

7

8



Date\Time : Mon, 20 Jan 2020 - 10:11am User Name : egonzalez
Path\Name : W:\LAND\2231\3075 - HCMUD No. 495 Major Amendment\Attachments\CAD\WWTP_Site_Plan_PERMANENT.dwg

ATTACHMENT NO. 6

WWTP BUFFER ZONE

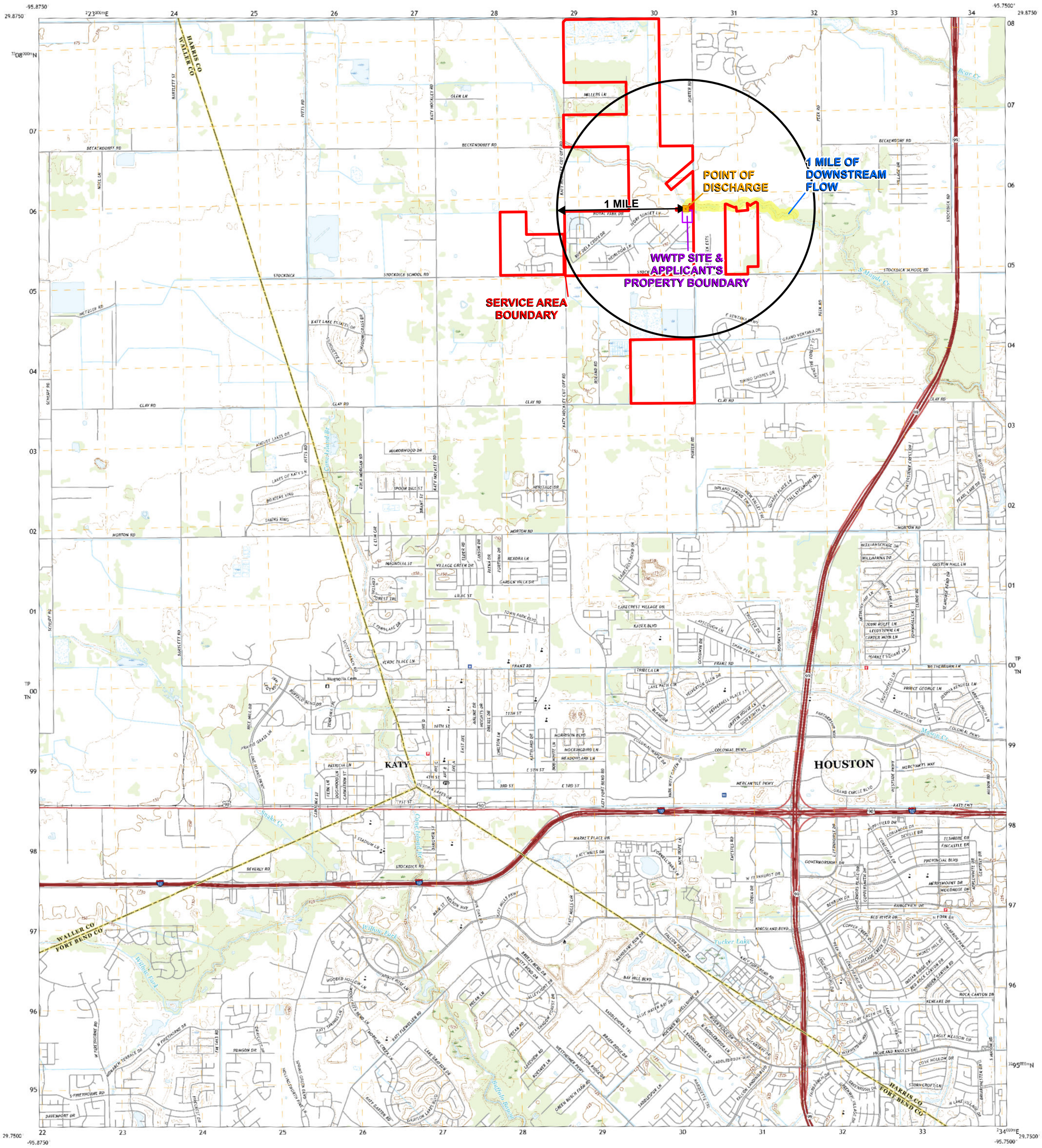
LJA Engineering, Inc.
2929 Briarpark Drive
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

USGS science for a changing world

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

The National Map US Topo

KATY QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid:Universal Transverse Mercator, Zone 15R
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, September 2016 - November 2016	
Roads	U.S. Census Bureau,	2015
Names	GNIS, 1979 -	2018
Hydrography	National Hydrography Dataset, 2002 -	2018
Contours	National Elevation Dataset,	2010
Boundaries	Multiple sources; see metadata file 2016 -	2017
Wetlands	FWS National Wetlands Inventory 1992 -	1993

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
TP
TN
Grid Zone Designation 15R

SCALE 1:24 000

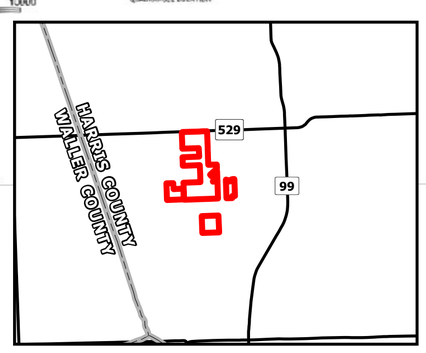
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011. A metadata file associated with this product is draft version 0.6.18

TEXAS
QUADRANGLE LOCATION

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



KATY, TX
2019

ATTACHMENT 7

HARRIS COUNTY MUD NO. 495
WWTP NO. 1 MAJOR AMENDMENT EXHIBITS
USGS TOPOGRAPHIC MAP

LJA ENGINEERING
2929 Briarpark Drive, Suite 600, Houston, Texas 77042
Phone 713.953.5200 TBPE F-1386
Fax 713.953.5026 TBPLS 10110501
LJA.com

JANUARY 2020 | JOB NO: 2231-3075

ATTACHMENT 8
DESCRIPTION OF THE TREATMENT PROCESS
(In reference to Domestic Technical Report 1.0, Section 2, Item A)

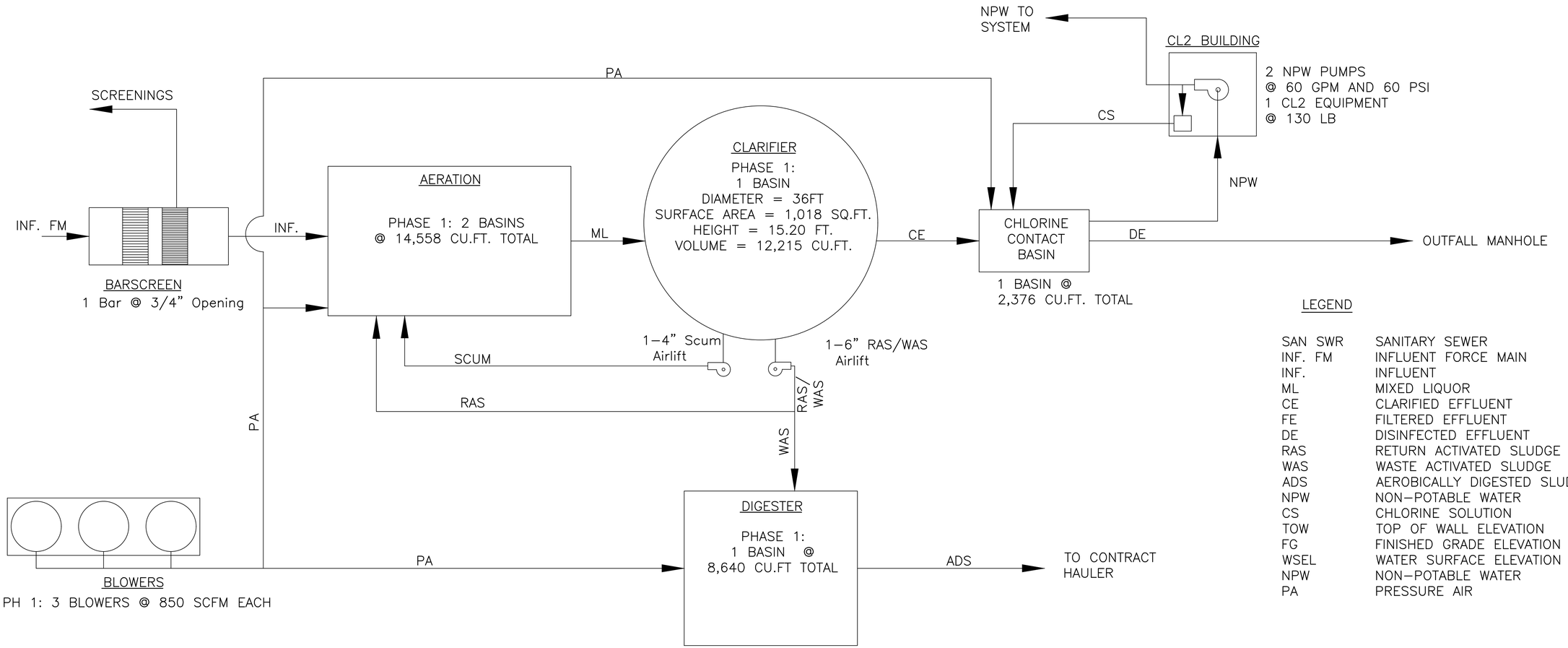
The treatment system includes a package plant employing the activated sludge process operating in the complete mix mode. The plant will be developed in five phases. Phase 1 has a capacity of 0.15 MGD. Phase 2 has a capacity of 0.30 MGD. Phase 3 has a capacity of 0.60 MGD. Phase 4 will have a capacity of 0.90 MGD, and the ultimate plant will have a capacity of 1.50 MGD.

Phases 1 through 4 consist of steel "box car" basins. Phase 1 consists of 2 aeration basins, one 36' ø clarifier, 1 sludge holding tank, and a chlorine contact basin. Phase 2 consists of an additional aeration basin and sludge holding tank. Phase 3 consists of an additional train including 2 aeration basins, one 36' ø clarifier, 1 sludge holding tank, and a chlorine contact basin to run in series with the existing chlorine contact basin. Phase 4 will be the final package plant expansion and will include an elevated headworks and a separate train of 4 aeration basins, one 42' ø clarifier and a chlorine contact basin to run in series with the existing 2 chlorine contact basins. The ultimate phase of the plant will consist of 3 concrete aeration basins, 3 concrete clarifiers, 2 concrete digesters, and 3 concrete chlorine contact basins and a dechlorination channel, each unit sized for 0.50 MGD. The dechlorination channel will run in series with the chlorine contact basins in order to dechlorinate the chlorinated effluent to less than 0.1 mg/L chlorine residual. The ultimate plant will also include separate concrete sludge holding tanks.

Influent to this facility will be pumped from several lift stations throughout the district, to an on-site elevated headworks with a mechanical fine screen and manual bar screen bypass that will split flow to the entire plant and into the aeration basins. The mixed liquor from the aeration basins will flow to the clarifiers. The clarified effluent from the clarifiers will flow to the chlorine contact basins, and the disinfected plant effluent will outfall via a pipe to South Mayde Creek; thence to Buffalo Bayou; thence to Buffalo Bayou Above Tidal in Segment No. 1014 of the San Jacinto River Basin. Sludge will be returned to the aeration basins and wasted to the sludge holding tanks and truck hauled via a licenses sludge contract hauler to a registered disposal site or wastewater treatment facility for further processing.

Attachment No. 9			
Treatment Units	**# of Units**	**Dimensions (L*W*D) (ft.)**	
Aeration Basin	2	60*12*12	INTERIM 1 0.15 MGD
Clarifier	1	36*Dia*15.2	
Cl2 Contact Basin	1	22*12*12	
Aerobic Digester	1	60*12*12	
Aeration Basin	2	60*12*12	INTERIM 2 0.30 MGD
Aeration Basin	1	60*12*12	
Clarifier	1	36*Dia*15.2	
Cl2 Contact Basin	1	22*12*12	
Aerobic Digester	1	60*12*12	
Aerobic Digester	1	60*12*12	
Aeration Basin	3	60*12*12	INTERIM 3 0.60 MGD
Aeration Basin	2	60*12*12	
Clarifier	1	22*11*12.17	
Clarifier	1	36*Dia*15.2	
Cl2 Contact Basin	1	22*12*12	
Cl2 Contact Basin	1	22*12*12	
Aerobic Digester	2	60*12*12	
Aerobic Digester	1	60*12*12	
Aeration Basin	5	60*12*12	INTERIM 4 0.90 MGD
Aeration Basin	4	60*12*12	
Clarifier	2	36*Dia*15.2	
Clarifier	1	42*Dia*15.2	
Cl2 Contact Basin	2	22*12*12	
Cl2 Contact Basin	1	28*12*12	
Aerobic Digester	3	60*12*12	
(0.5 MGD)			ULTIMATE 1.50 MGD
Concrete Plant	3	See Attached Calcs	
Dechlorination	3	12*2*9.3	

Bolded		New processes
Shaded		Existing processes



LEGEND

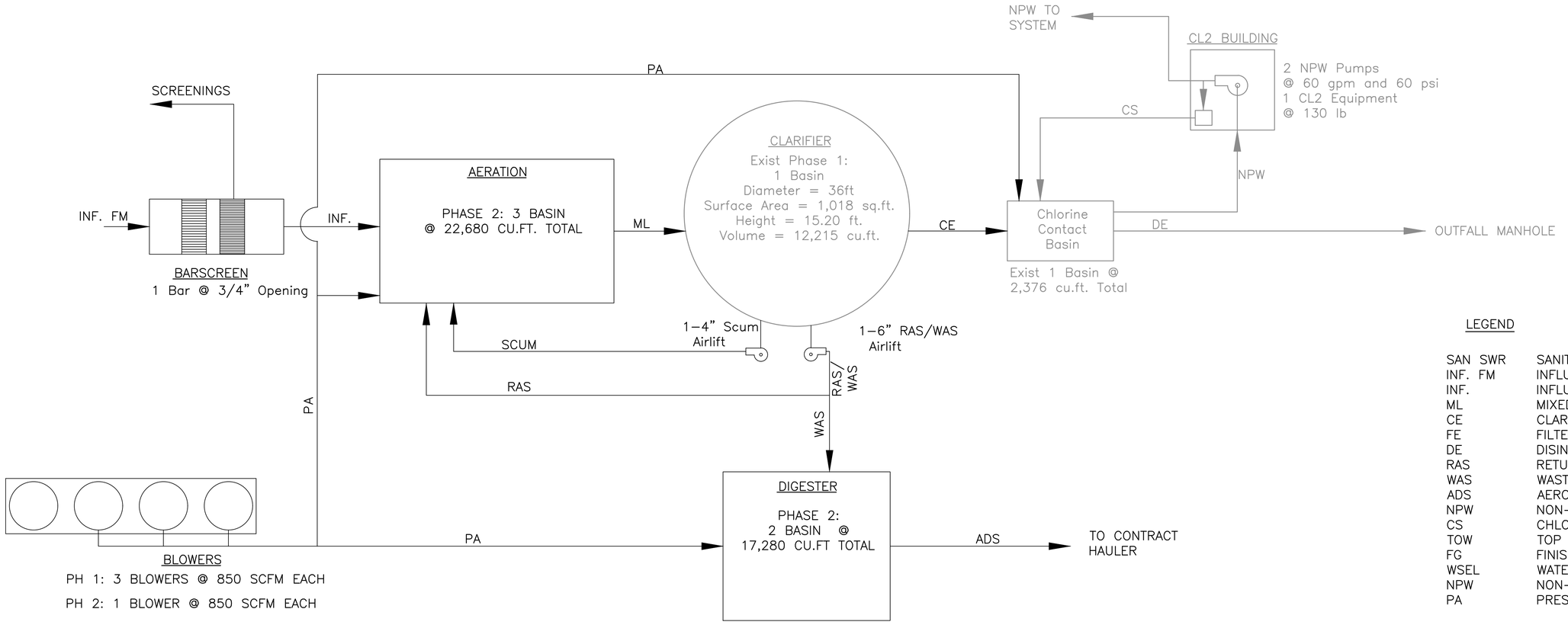
SAN SWR	SANITARY SEWER
INF. FM	INFLUENT FORCE MAIN
INF.	INFLUENT
ML	MIXED LIQUOR
CE	CLARIFIED EFFLUENT
FE	FILTERED EFFLUENT
DE	DISINFECTED EFFLUENT
RAS	RETURN ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
ADS	AEROBICALLY DIGESTED SLUDGE
NPW	NON-POTABLE WATER
CS	CHLORINE SOLUTION
TOW	TOP OF WALL ELEVATION
FG	FINISHED GRADE ELEVATION
WSEL	WATER SURFACE ELEVATION
NPW	NON-POTABLE WATER
PA	PRESSURE AIR

PHASE	AVG. DAILY FLOW (MGD)	PEAK FLOW (MGD)
PHASE 1	0.15	0.60

ATTACHMENT 10.1

PHASE 1 – PROCESS FLOW DIAGRAM

LJA Engineering, Inc.
3600 W Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



LEGEND

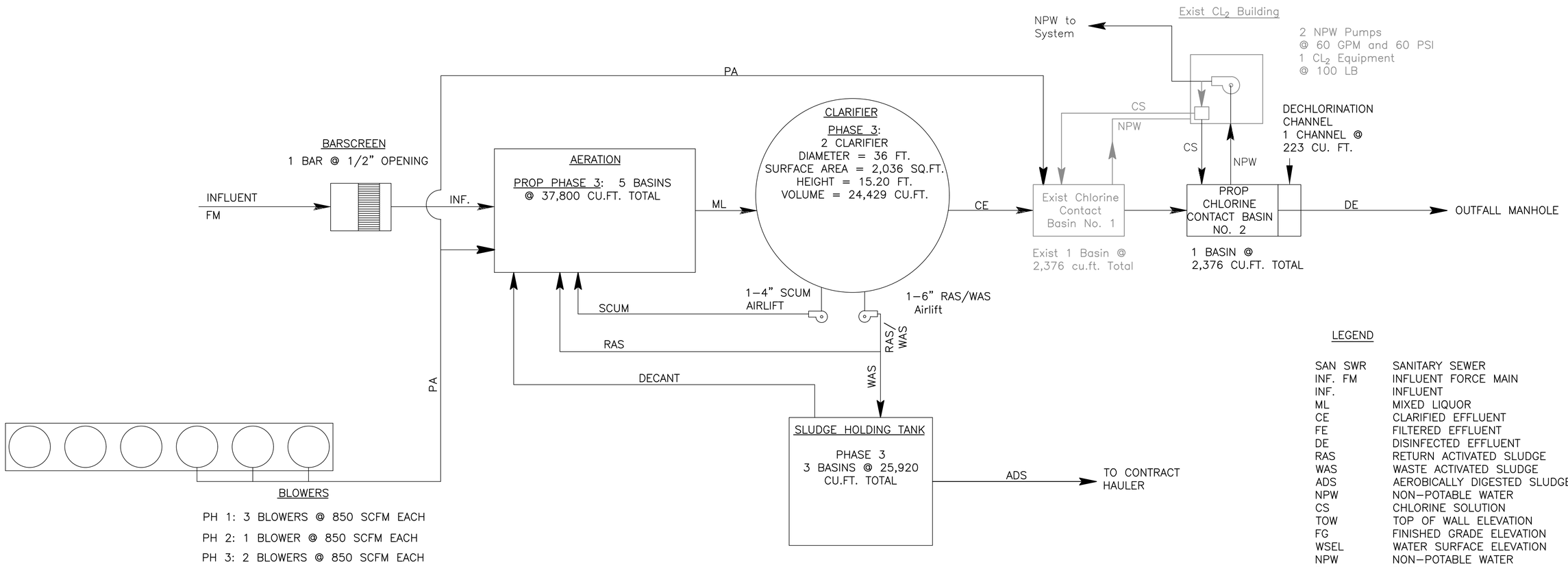
SAN SWR	SANITARY SEWER
INF. FM	INFLUENT FORCE MAIN
INF.	INFLUENT
ML	MIXED LIQUOR
CE	CLARIFIED EFFLUENT
FE	FILTERED EFFLUENT
DE	DISINFECTED EFFLUENT
RAS	RETURN ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
ADS	AEROBICALLY DIGESTED SLUDGE
NPW	NON-POTABLE WATER
CS	CHLORINE SOLUTION
TOW	TOP OF WALL ELEVATION
FG	FINISHED GRADE ELEVATION
WSEL	WATER SURFACE ELEVATION
NPW	NON-POTABLE WATER
PA	PRESSURE AIR

PHASE	AVG. DAILY FLOW (MGD)	PEAK FLOW (MGD)
PHASE 1	0.15	0.60
PHASE 2	0.30	1.20

ATTACHMENT 10.2

PHASE 2 – PROCESS FLOW DIAGRAM

LJA Engineering, Inc.
3600 W Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



PH 1: 3 BLOWERS @ 850 SCFM EACH

PH 2: 1 BLOWER @ 850 SCFM EACH

PH 3: 2 BLOWERS @ 850 SCFM EACH

LEGEND

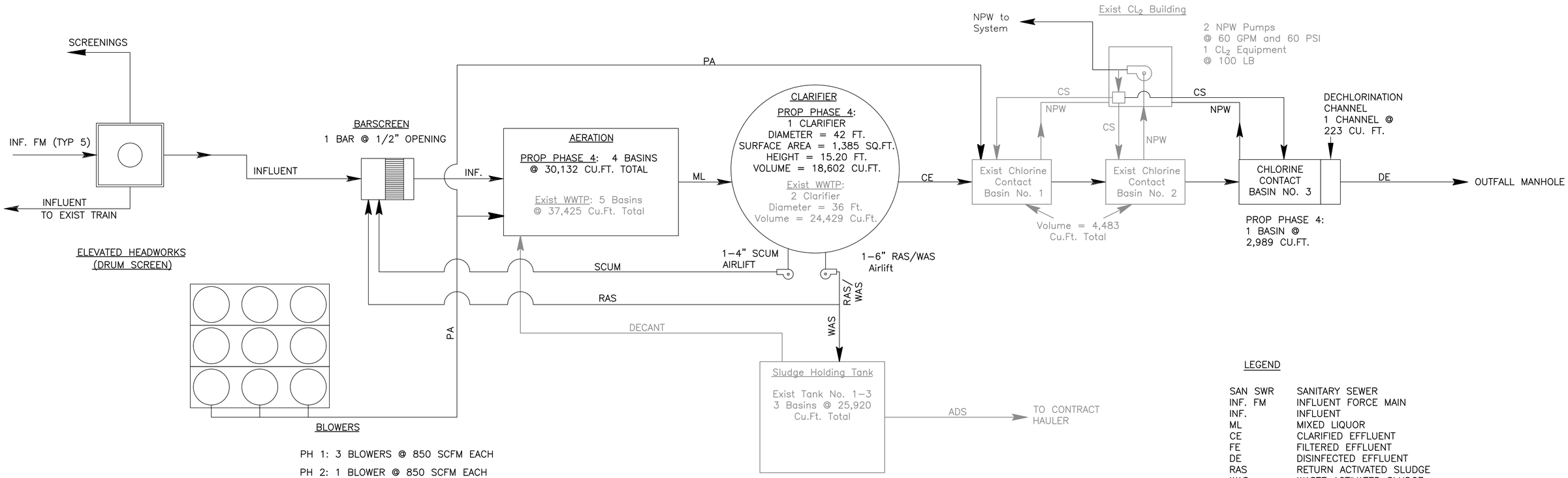
SAN SWR	SANITARY SEWER
INF. FM	INFLUENT FORCE MAIN
INF.	INFLUENT
ML	MIXED LIQUOR
CE	CLARIFIED EFFLUENT
FE	FILTERED EFFLUENT
DE	DISINFECTED EFFLUENT
RAS	RETURN ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
ADS	AEROBICALLY DIGESTED SLUDGE
NPW	NON-POTABLE WATER
CS	CHLORINE SOLUTION
TOW	TOP OF WALL ELEVATION
FG	FINISHED GRADE ELEVATION
WSEL	WATER SURFACE ELEVATION
NPW	NON-POTABLE WATER
PA	PRESSURE AIR

PHASE	AVG. DAILY FLOW (MGD)	PEAK FLOW (MGD)
PHASE 1	0.15	0.60
PHASE 2	0.30	1.20
PHASE 3	0.60	2.40

ATTACHMENT 10.3

PHASE 3 – PROCESS FLOW DIAGRAM

LJA Engineering, Inc.
3600 W Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



PH 1: 3 BLOWERS @ 850 SCFM EACH
PH 2: 1 BLOWER @ 850 SCFM EACH
PH 3: 2 BLOWERS @ 850 SCFM EACH
PH 4: 3 BLOWERS @ 850 SCFM EACH

PHASE	AVG. DAILY FLOW (MGD)	PEAK FLOW (MGD)
PHASE 1	0.15	0.60
PHASE 2	0.30	1.20
PHASE 3	0.60	2.40
PHASE 4	0.90	3.60

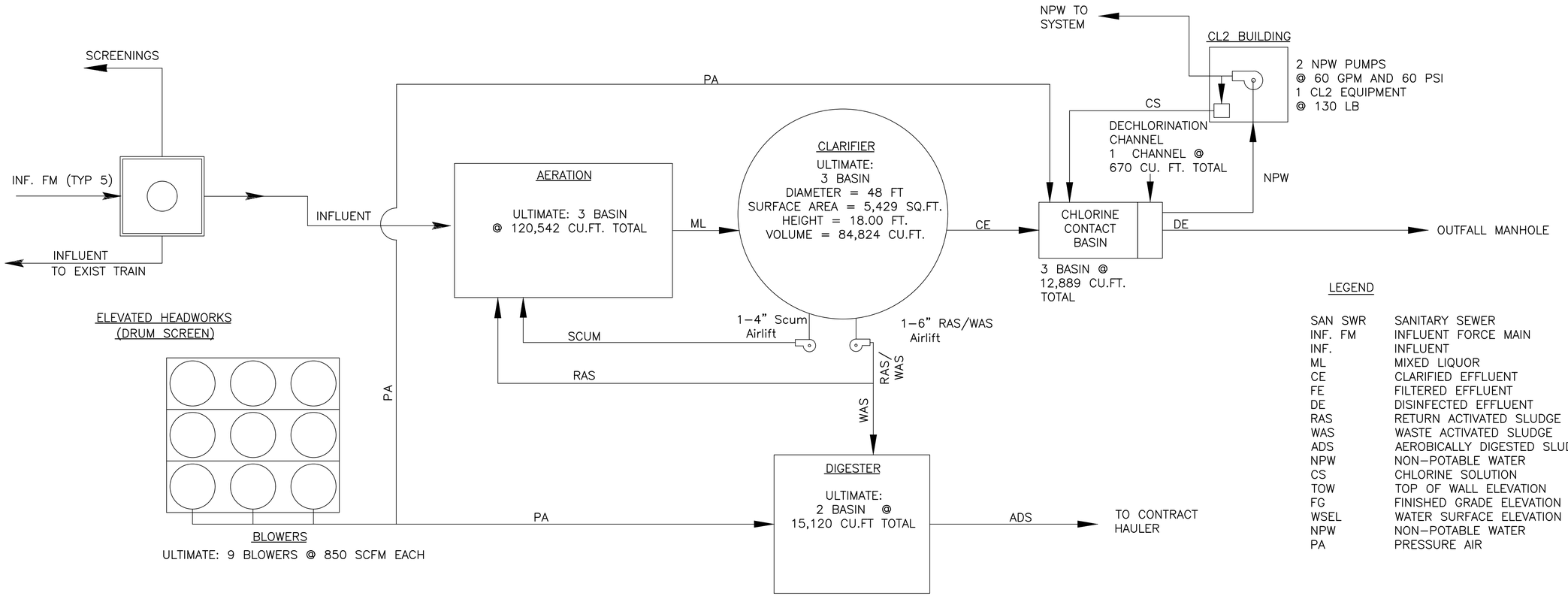
LEGEND

SAN SWR	SANITARY SEWER
INF. FM	INFLUENT FORCE MAIN
INF.	INFLUENT
ML	MIXED LIQUOR
CE	CLARIFIED EFFLUENT
FE	FILTERED EFFLUENT
DE	DISINFECTED EFFLUENT
RAS	RETURN ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
ADS	AEROBICALLY DIGESTED SLUDGE
NPW	NON-POTABLE WATER
CS	CHLORINE SOLUTION
TOW	TOP OF WALL ELEVATION
FG	FINISHED GRADE ELEVATION
WSEL	WATER SURFACE ELEVATION
NPW	NON-POTABLE WATER
PA	PRESSURE AIR

ATTACHMENT 10.4

PHASE 4 – PROCESS FLOW DIAGRAM

LJA Engineering, Inc.
3600 W Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



LEGEND

SAN SWR	SANITARY SEWER
INF. FM	INFLUENT FORCE MAIN
INF.	INFLUENT
ML	MIXED LIQUOR
CE	CLARIFIED EFFLUENT
FE	FILTERED EFFLUENT
DE	DISINFECTED EFFLUENT
RAS	RETURN ACTIVATED SLUDGE
WAS	WASTE ACTIVATED SLUDGE
ADS	AEROBICALLY DIGESTED SLUDGE
NPW	NON-POTABLE WATER
CS	CHLORINE SOLUTION
TOW	TOP OF WALL ELEVATION
FG	FINISHED GRADE ELEVATION
WSEL	WATER SURFACE ELEVATION
NPW	NON-POTABLE WATER
PA	PRESSURE AIR

PHASE	AVG. DAILY FLOW (MGD)	PEAK FLOW (MGD)
PHASE 1	0.15	0.60
PHASE 2	0.30	1.20
PHASE 3	0.60	2.40
PHASE 4	0.90	3.60
ULTIMATE	1.50	6.00

ATTACHMENT 10.5

ULTIMATE – PROCESS FLOW DIAGRAM

LJA Engineering, Inc.
3600 W Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

LJA ENGINEERING

FUTURE ANNEXATION TRACTS

KATY MANOR
550 ESFCS

KATY LAKES
1,050 ESFCS

KING CROSSING
900 ESFCS

KATY POINTE
750 ESFCS

PROPOSED ANNEXATION TRACT
BERGAMO VISTA
250 ESFCS

529
KATY HOCKLEY CUT OFF RD
PORTER RD
BECKENDORF RD
STOCKDICK SCHOOL RD
CLAY RD
HCFCD U-101-11-00
FUTURE HCFCD ROW
DRAINAGE
Phase 1
Phase 2
SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7
SECTION 8
SECTION 9
SECTION 10
SECTION 11
LAKE
LAKE 1
LAKE 2
LAKE 3
LAKE 4
LAKE A
LAKE B
LAKE C
LAKE D
LAKE E
LAKE F
LAKE G
FUTURE KATY LAKES
MITIGATION POND
REC CENTER
LS
WWTP
WW
WP
DS
PIPELINE
MULTI-FAMILY
COMMERCIAL

HARRIS COUNTY MUD NO. 495

SERVICE AREA MAP

DECEMBER 2019

LEGEND

- PROPOSED ANNEXATION TRACT
- KATY MANOR BOUNDARY
- KING CROSSING BOUNDARY
- KATY LAKES BOUNDARY
- KATY POINTE
- EASEMENT
- SECTIONS
- LAKES

500 250 0 500 Feet

N

THIS PRODUCT IS FOR INFORMATIONAL PURPOSES AND MAY NOT HAVE BEEN PREPARED FOR OR BE SUITABLE FOR LEGAL, ENGINEERING, OR SURVEYING PURPOSES. IT DOES NOT REPRESENT AN ON-THE-GROUND SURVEY AND REPRESENTS ONLY THE APPROXIMATE RELATIVE LOCATION OF PROPERTY BOUNDARIES. AERIAL: NEARMAP, 2019

Path: T:\0218\3023\HC495_Service Area Map_24x36.mxd

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 9, 2014

Meleida Sierra, P.E.
LJA Engineering, Inc.
2929 Briarpark Drive, Suite 600
Houston, Texas 77042-3703

Re: Harris County MUD No. 495
Wastewater Treatment Plant Phase 1 and Phase 2
Permit No. WQ0015222-001
WWPR Log No. 1014/017
CN 602406035, RN 107117327
Harris County

Dear Ms. Sierra:

We have received the project summary transmittal letter dated October 2, 2014.

The rules which regulate the design, installation and testing of domestic wastewater projects are found in 30 TAC, Chapter 217, of the Texas Commission on Environmental Quality (TCEQ) rules titled, Design Criteria for Wastewater Systems.

Section 217.6(d), relating to case-by-case reviews, states in part that upon submittal of a summary transmittal letter, the executive director may approve of the project without reviewing a complete set of plans and specifications.

Under the authority of §217.6(e) a technical review of complete plans and specifications is not required. **However, the project proposed in the summary transmittal letter is approved for construction. Please note, that this conditional approval does not relieve the applicant of any responsibilities to obtain all other necessary permits or authorizations, such as wastewater treatment permit or other authorization as required by Chapter 26 of the Texas Water Code.** Below are provisions of the Chapter 217 regulations, which must be met as a condition of approval. These items are provided as a reminder. If you have already met these requirements, please disregard this additional notice.

1. You must keep certain materials on file for the life of the project and provide them to TCEQ upon request. These materials include an engineering report, test results, a summary transmittal letter, and the final version of the project plans and specifications. These materials shall be prepared and sealed by a Professional Engineer licensed in the State of Texas and must show substantial compliance with Chapter 217. All plans and specifications must conform to any waste discharge requirements authorized in a permit by the TCEQ. Certain specific items which shall be addressed in the engineering report are discussed in §217.6(c). Additionally, the engineering report must include all constants, graphs,

equations, and calculations needed to show substantial compliance with Chapter 217. The items which shall be included in the summary transmittal letter are addressed in §217.6(c)(1)-(10).

2. Any deviations from Chapter 217 shall be disclosed in the summary transmittal letter and the technical justifications for those deviations shall be provided in the engineering report. Any deviations from Chapter 217 shall be based on the best professional judgement of the licensed professional engineer sealing the materials and the engineer's judgement that the design would not result in a threat to public health or the environment.

3. Any variance from a Chapter 217 requirement disclosed in your summary transmittal letter is approved. If in the future, additional variances from the Chapter 217 requirements are desired for the project, each variance must be requested in writing by the design engineer. Then, the TCEQ will consider granting a written approval to the variance from the rules for the specific project and the specific circumstances.

4. Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

This approval does not mean that future projects will be approved without a complete plans and specifications review. The TCEQ will provide a notification of intent to review whenever a project is to undergo a complete plans and specifications review. Please be reminded of 30 TAC §217.7(a) of the rules which states, "Approval given by the executive director or other authorized review authority does not relieve an owner of any liability or responsibility with respect to designing, constructing, or operating a collection system or treatment facility in accordance with applicable commission rules and the associated wastewater permit".

If you have any questions or if we can be of any further assistance, please call me at (512) 239-4552.

Sincerely,

Louis C. Herrin, III, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

LCH/kwm

cc: TCEQ, Region 12 Office

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 6, 2016

GREGG HAAN, P.E.
LJA ENGINEERING, INC.
2929 BRIARPARK DRIVE, SUITE 600
HOUSTON, TX 77042-3703

Re: HARRIS COUNTY MUD NO. 495
WWTP PHASE III TO SERVE HARRIS COUNTY MUD NO. 495
Permit No. WQ0015222-001
WWPR Log No. 0316/111
CN602406035, RN107117327
HARRIS County

Dear MR. HAAN:

We have received the project summary transmittal letter dated March 22, 2016 and subsequent submittals of the Engineering Report and plans and specifications received on April 25, 2016. We have completed our review of these submittals.

The rules which regulate the design, installation and testing of domestic wastewater projects are found in 30 TAC, Chapter 217, of the Texas Commission on Environmental Quality (TCEQ) rules titled, Design Criteria for Wastewater Systems.

The WWTP PHASE III TO SERVE HARRIS COUNTY MUD NO. 495 project includes the following improvements to the existing facility:

- Expansion of the existing plant to 0.60 mgd. Interim III effluent limitations and monitoring requirements are 10 mg/l CBOD, 15 mg/l TSS, and 2 mg/l Ammonia Nitrogen.
- The project will inlcude the construction of two (2) additional aeration basins, one (1) additional clarifier, (1) additional digester, and one (1) additional chlorine contact basin.

Our review indicated that the documents provided are in general compliance with applicable minimum standards as set forth in Chapter 217, Design Criteria for Domestic Wastewater Systems. On the basis of general compliance with the applicable standards set forth in Chapter 217 and understanding that the permittee will comply with all permit requirements, the project is conditionally approved.

You must keep certain materials on file for the life of the project and provide them to TCEQ upon request. These materials include an engineering report, test results, a summary transmittal letter, and the final version of the project plans and specifications. These materials shall be prepared and sealed by a Professional Engineer licensed in the State of Texas and must show substantial compliance with Chapter 217. All plans and specifications must conform to any waste discharge requirements authorized in a permit by the TCEQ. Certain specific items which shall be addressed in the engineering report are discussed in §217.6(d). Additionally, the engineering report must include all constants, graphs, equations, and calculations needed to show substantial compliance with Chapter 217. The items which shall be included in the summary transmittal letter are addressed in §217.6(d).

Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

Please note that this conditional approval does not relieve the applicant of any responsibilities to obtain all other necessary permits or authorizations, such as wastewater treatment permit or other authorization as required by Chapter 26 of the Texas Water Code.

Please be reminded of 30 TAC §217.7(a) of the rules which states, "Approval given by the executive director or other authorized review authority does not relieve an owner of any liability or responsibility with respect to designing, constructing, or operating a collection system or treatment facility in accordance with applicable commission rules and the associated wastewater permit".

If you have any questions or if we can be of any further assistance, please call me at (512) 239-4924.

Sincerely,

Mark Hall

Mark D. Hall, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

MDH/rb

cc: TCEQ, Region 12 Office

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 6, 2020

Ashley Broughton, P.E.
LJA ENGINEERING, Inc.
2929 Briarpark Drive, Suite 600
Houston, TX 77042-3703

Re: Harris County Municipal Utility District 495
WWTP NO. 1 - PHASE 4 (0.90 MGD)
Permit No. WQ0015222-001
WWPR Log No. 0120/004
CN604514943, RN107117327
Harris County

Dear Ms. Broughton:

On December 23,2 019, TCEQ received the project summary transmittal letter dated December 19, 2019 for a wastewater treatment plant expansion for Harris County MUD 495. The project is to design and construct treatment plant units to expand the treatment plant flow to the current final permitted limits of an Average daily flow of 0.90 MGD with a corresponding peak flow of 3.60 MGD while meeting the effluent concentration limits of 10 mg/l of $CBOD_5$, 15 mg/l for TSS, 2 ,g/l for NH_3-N 63 cfu/100 ml for E.Coli with a minimum dissolved oxygen concentration of 6.0 mg/l. The units being constructed within the scope of this project are listed below.

The rules which regulate the design, installation and testing of domestic wastewater projects are found in 30 TAC, Chapter 217, of the Texas Commission on Environmental Quality (TCEQ) rules titled, Design Criteria for Wastewater Systems.

The scope of this project with construct the following units to produce a fourth treatment train.

- 4 aeration basins (60'x12'x10.46' SWD; 30,125 ft³) (9 total aeration basins on site)
- 1 secondary clarifiers (42' diam., 13.40' SWD) (3 total secondary clarifiers on site)
- 1 chlorine contact basin (28'x12'x8.90' SWD) (3 total chlorine contact basins on site)
- No additional aerobic digesters, 3 exist from previous plant work

The TCEQ review of the submitted plant expansion documentation seems to indicate that the project meets at least the minimum requirements of 30 TAC Chapter 217: Design Criteria for Wastewater Systems. Given the result of the TCEQ review this project is conditionally approved for completion.

You must keep certain materials on file for the life of the project and provide them to TCEQ upon request. These materials include an engineering report, test results, a summary transmittal letter, and the final version of the project plans and specifications. These materials shall be prepared and sealed by a Professional Engineer licensed in the State of Texas and must show substantial compliance with Chapter 217. All plans and specifications must conform to any

waste discharge requirements authorized in a permit by the TCEQ. Certain specific items which shall be addressed in the engineering report are discussed in §217.10. Additionally, the engineering report must include all constants, graphs, equations, and calculations needed to show substantial compliance with Chapter 217.

No variances for any Chapter 217 requirements were requested or granted as part of this project review. If in the future, any variances from the Chapter 217 requirements are desired for the project, each variance must be requested in writing by the design engineer. Then, the TCEQ will consider granting a written approval to the variance from the rules for the specific project and the specific circumstances.

Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

Please be reminded of 30 TAC §217.7(a) of the rules which states, "Approval given by the executive director or other authorized review authority does not relieve an owner of any liability or responsibility with respect to designing, constructing, or operating a collection system or treatment facility in accordance with applicable commission rules and the associated wastewater permit".

If you have any questions, or if we can be of any further assistance, please call me at (512) 239-1372.

Sincerely,

Paul A. Brochi

Paul A. Brochi, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

PAB/tc

ATTACHMENT – 13

Justification for Permit

This major amendment proposes to expand the ultimate capacity of the wastewater treatment plant due to new connections from property annexation into HC MUD No. 495. The ultimate permitted capacity of the permit will increase from 0.9 MGD to 1.5 MGD. Construction for the proposed 0.9 MGD capacity is expected to start June 2020 and will serve approximately 669,600 connections. Construction for the proposed 1.5 MGD capacity is expected to start July 2023 and will have capacity to serve 1,125,000 ultimate connections. The anticipated growth rate of the development is 24 connections per month.

HARRIS COUNTY MUD NO. 495 WWTP NO. 1 MAJOR AMENDMENT EXHIBITS

JANUARY 2020

ATTACHMENT 14:
NEARBY DOMESTIC PERMITTED WWTFS
(WITHIN 3-MILE RADIUS)

LEGEND

- POINT OF DISCHARGE
- WASTEWATER OUTFALLS (TCEQ)
- APPLICANT'S BOUNDARY
- 3-MILE RADIUS
- COUNTY

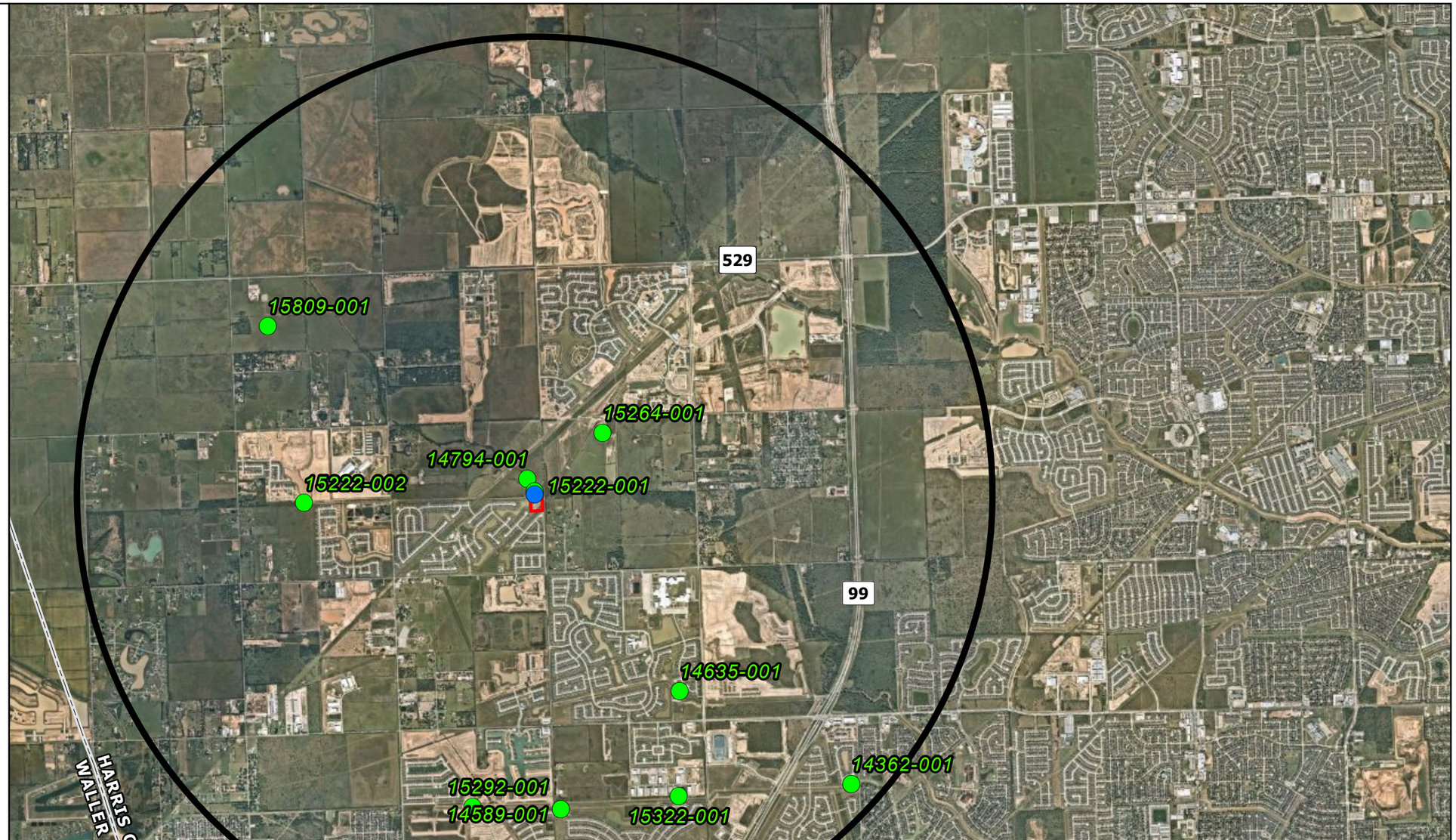
N

0.75 0.38 0 0.75
MILES

DATA SOURCE: TCEQ OUTFALLS - UPDATED DECEMBER 2019. THIS PRODUCT IS FOR INFORMATIONAL PURPOSES AND MAY NOT HAVE BEEN PREPARED FOR OR BE SUITABLE FOR LEGAL, ENGINEERING, OR SURVEYING PURPOSES. IT DOES NOT REPRESENT AN ON-THE-GROUND SURVEY AND REPRESENTS ONLY THE APPROXIMATE RELATIVE LOCATION OF PROPERTY BOUNDARIES.

AERIAL PHOTOGRAPHY DATE: NEARMAP (2019)

LJA ENGINEERING
2929 Briarpark Drive, Suite 600, Houston, Texas 77042
Phone 713.953.5200 TBPE F-1386
Fax 713.953.5026 TBPLS 10110501
LJA.com



PERMIT NUMBER	PERMITTEE	LATITUDE	LONGITUDE
14589-001	HARRIS COUNTY MUD NO 432	29.823483	-95.789386
15809-001	621 KATY LLC	29.870191	-95.819932
14794-001	SOUTH CENTRAL WATER CO	29.854982	-95.792066
15222-002	HARRIS COUNTY MUD NO 495	29.853281	-95.816506
14362-001	HARRIS COUNTY MUD NO 287	29.825128	-95.757627
15322-001	GRAND PARKWAY INDUSTRIAL LP	29.824399	-95.776498
14635-001	HARRIS COUNTY MUD NO 449	29.834396	-95.776083
15222-001	HARRIS COUNTY MUD 495	29.853746	-95.791307
15264-001	HARRIS COUNTY MUD NO 171	29.859149	-95.783697
15292-001	HARRIS COUNTY MUD 536	29.82394	-95.799002
14109-001	KATY-HOCKLEY CORP	29.816992	-95.80638

sent to Justin Wagner

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Harris County Municipal Utility District No. 432
10000 Memorial Dr., Suite 260
Houston, Texas 77024

FEB 10 2020

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Harris County MUD No. 432 Wastewater Treatment Facility with TPDES Permit No. WQ0014589001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____

☒ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: Justin S. Wagner Title: Engineer for District

Signature: Justin S. Wagner Date: 2/11/20

O:\LAND\2231\3075\Capacity Request Letter.doc

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

South Central Water Company
P.O. Box 570177
Houston, Texas 77257

Re: Wastewater Service Request for Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Katy-Hockley Cut-off Wastewater Treatment Facility with TPDES Permit No. WQ0014794001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

- ☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____
- ☐ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: _____ Title: _____

Signature: _____ Date: _____

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Harris County Municipal Utility District No. 287
C/O Allen Boone Humphries Robinson, LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Harris County MUD No. 287 Wastewater Treatment Facility with TPDES Permit No. WQ0014362001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____

☑ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: Philip Mullan Title: District Engineer

Signature: _____ Date: 2/10/20

O:\LAND\2231\3075\Capacity Request Letter.doc

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Grand Parkway Industrial, Lp
7720 Westview Drive
Houston, Texas 77055

Re: Wastewater Service Request for Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Grand Parkway Industrial Wastewater Treatment Facility with TPDES Permit No. WQ0015322001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

- ☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____
- ☐ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: _____ Title: _____

Signature: _____ Date: _____

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Harris County Municipal Utility District No. 449
C/O Allen Boone Humphries Robinson, LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Harris County MUD No. 449 Wastewater Treatment Facility with TPDES Permit No. WQ0014635001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____

☒ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: Cameron Jackson Title: Assistant Project Manager

Signature: _____ Date: 2/10/2020

O:\LAND\2231\3075\Capacity Request Letter.doc

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Harris County Municipal Utility District No. 171
C/O Allen Boone Humphries Robinson, LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Harris County MUD No. 171 Wastewater Treatment Facility with TPDES Permit No. WQ0015264001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____

☑ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: Melinda G. Salazar Title: District Engineer

Signature: _____ Date: 2/20/2020

O:\LAND\2231\3075\Capacity Request Letter.doc

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Harris County Municipal Utility District No. 536
C/O Schwartz, Page & Harding, LLP
1300 Post Oak Boulevard, Suite 1400
Houston, Tx 77056

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Harris County MUD No. 536 Wastewater Treatment Facility with TPDES Permit No. WQ0015292001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

- ☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____
- ☐ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: _____ Title: _____

Signature: _____ Date: _____

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Katy-Hockley Corp.
1222 Antoine Drive
Houston, Texas 77055

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Morton Road Manufactured Home Subdivision Wastewater Treatment Facility with TPDES Permit No. WQ0014109001 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

- ☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____
- ☐ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: _____ Title: _____

Signature: _____ Date: _____

LJA ENGINEERING

2929 Briarpark Drive, Suite 600, Houston, Texas 77042
t 713.953.5200 f 713.953.5026 LJA.com TBPE F-1386 TBPLS 10110501

February 6, 2020

VIA CERTIFIED MAIL

Harris County Municipal Utility District No. 495
C/O Allen Boone Humphries Robinson, LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

Re: Wastewater Service Request for
Harris County MUD No. 495 WWTP No. 1
LJA Job No. 2231-3075 (2.0)

To Whom It May Concern:

We are currently preparing a major amendment for the discharge permit for the Harris County MUD No. 495 Wastewater Treatment Plant No. 1 (WQ0015222001), in Harris County. The proposed development will require 1.50 MGD of wastewater service capacity. TCEQ regulations require us to contact all entities with a permitted wastewater treatment plant within three (3) miles of our plant, and to identify any available capacity at those facilities. Your referred wastewater treatment plant is within a three (3) mile radius from our facility. Please let us know if you have the extra capacity in your facility to accommodate the required flow or are willing to expand your facility to accommodate this flow.

Please respond in writing or indicating below on this letter if the Harris County MUD No. 495 Wastewater Treatment Facility No. 2 with TPDES Permit No. WQ0015222002 has available capacity. After you have made the required indication, please email (egonzalez@lja.com) or mail the response back. We would appreciate a response within ten (10) days. Thank you in advance for your prompt attention regarding this matter.

Sincerely,

Esteban Gonzalez, E.I.T.
Graduate Engineer

EG/em

- ☐ Yes, our wastewater treatment facility has sufficient capacity to serve the proposed development. Contact Phone Number: _____
- ☐ No, our wastewater treatment facility does not have sufficient capacity to serve the proposed development.

Name: _____ Title: _____

Signature: _____ Date: _____

Project Name: HARRIS COUNTY MUD NO. 495 - WWTP NO. 1

Permanent Wastewater Treatment Plant
Attachment 16 - Process Design Calculations

Project #: 2231-3075

WWTP Influent Flow

			Phase 3	Prop. Phase 4
Average Daily Flow		gpd	500,000	1,500,000
Peaking Factor			4	4
Peak Flow		gpd	2,000,000	6,000,000
Equivalent Single Family Connections		ESFC	2000	6000
Water Usage per Connection		gal/ESFC	250	250

WWTP Organic Parameters

BOD_5	300	mg/L		
NH_3	64	mg/L		
BOD Loading		lbs/d	1,251	3,753

Aeration Basin Design

Process Description	Conventional Activated Sludge Process With Nitrification When Reactor Temperatures Exce			
TCEQ Organic Loading Rate	35	lbs BOD5/day/1,000ft3		
Minimum Free Board	1.5	ft		
Minimum Aeration Volume		ft^3	35,743	107,229
Number of Tanks			1	3
Length		ft	65	65
Width		ft	45	45
Height of Basin		ft	16	16
Calculated Side Water Depth at Average Flow		ft	12.26	12.42
Calculated Side Water Depth at Peak Flow		ft	12.35	13.74
Proposed Free Board at Peak Flow		ft	3.65	2.26
Proposed Volume		ft^3	36,120	120,542

Secondary Clarifier Design

Process Desription	Activated Sludge - Secondary, Enhanced Secondary, or Secondary With Nitrificatior			
Maximum Surface Loading @ 2-hr Peak Flow	1,200	gpd/ft^2		
Minimum Detention Time	1.8	hrs		
Minimum SWD	10	ft		
Minimum Free Board	1	ft		
Maximum Weir Loading		gpd/lf	20,000	30,000
Maximum Vertical Velocity in Stilling Well	0.15	ft/s		
Minimum Surface Area Required		ft^2	1,667	5,000
Number of Clarifiers			1	3
Diameter		ft	48	48
Proposed Weir Loading		gpd/lf	13,840	13,840
Height of Clarifier		ft	18.0	18.0
Calculated Side Water Depth		ft	15.6	15.6
Proposed Free Board at Peak Flow		ft	2.39	2.37
Proposed Surface Area		ft^2	1,810	5,429
Proposed Volume		ft^3	28,252	84,824
Proposed Detention Time		hrs	2.54	2.54
Stilling Well Diameter		ft	8	8
Proposed Stilling Well Velocity		ft/s	0.06	0.06

Chlorine Contact Basin

Minimum Contact Time	20	min		
Minimum Free Board	1	ft		
Number of Basins			1	3

Width	20	ft	16	16
Height of Tank	12	ft	12	12
Calculated Side Water Depth at Peak Flow		ft	8.49	9.59
Calculated Free Board at Peak Flow		ft	3.51	2.41
Proposed Length	28	ft	28	28
Proposed Volume		ft^3	3,803	12,889
Proposed Detention Time		min	20.48	69.41

Aerobic Digester Design

Volatile Solids Wasted (From Solids Balance)		lbs/d	825	2475
TCEQ Loading Rate	200	lbs/d/1,000ft^3		

$$V = \frac{P_{x,tss}}{Loading\ Rate}$$

Minimum Required Volume		ft^3	4,125	12,376
Number of Digesters			1	0
Width		ft	12	12
Depth		ft	12.0	10.5
Length		ft	60	60
Proposed Volume		ft^3	8,640	0

Chlorine Dosage Requirements

Type of Effluent	Activated Sludge			
Chlorine Concrentration	8	mg/L		
Storage of Chlorine Tanks	Temperature-Controlled Enclosure			
Low Ambient Temperature	65	°F		
Required Chlorine Dosage		lbs/d	133	400
Withdrawal Rate per 150-lb Chlorine Cylinder	65	lbs/d		
Withdrawal Rate per 1-ton Chlorine Cylinder	520	lbs/d		
Number of 150-lb Chlorine Cylinders per Bank			3	2
Number of 1-ton Chlorine Cylinders per Bank			0	0
Proposed Maximum Chlorine Withdrawal Rate			195	130

Air Requirements

Aeration Basins

Type of Diffuser	Coarse Bubble Diffuser			
Transfer Efficency Factor	0.65			
Depth of Diffuser			11.26	11.42
Submergence Correction Factor			1.21	1.16
Clean Water Transfer Efficiency	8.40%			
Wastewater Transfer Efficiency	5.46%			
Aeration Oxygen Requirement	2.12	lb O_2/lb BOD_5		
Aeration Airflowrate		scfm	1,953	5,859
Mixing Oxygen Requirement	20	scfm/1,000ft3		
Mixing Airflowrate		scfm	722	2,411
Required Airflowrate		scfm	1,953	5,859

Aerobic Digester

Type of Diffuser	Coarse Bubble Diffuser			
Required Mixing Air Rate	20	scfm/ft2		
Required Airflowrate		scfm	172.80	0

Chlorine Contact Basin

Effluent DO Concentration	6	mg/L		
Initial DO Concentration*	0	mg/L		
Diffuser Capacity	150%			
Required Oxygen at Peak Flow		lb O_2/d	100.13	300.40
Required Airflowrate		scfm	73.83	221.49
Airflowrate Required by Diffusers			110.75	332.24
Minimum Airdrops (10 scfm)			12	34

* Minimum DO Concentration in the Aeration Basin is 2 mg/L however, to be conservative an estimated DO of 0 mg/L has been assumed entering the chlorine contact basin

Airlifts

Amount Required	120	scfm		

Total Air Requirement

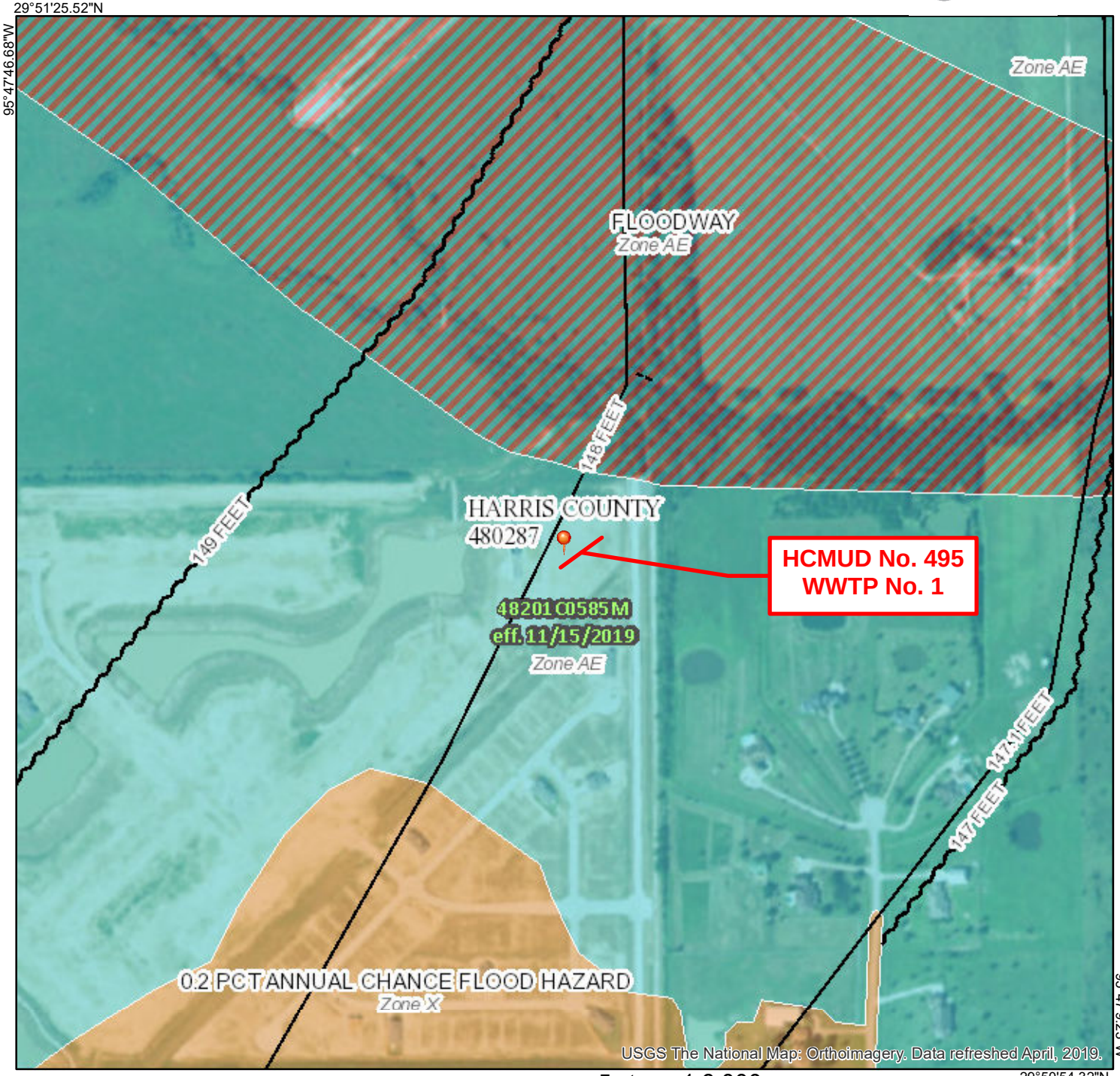
Total Plant Required Air		scfm	2,689	5,979

Blower Sizing

Blower Capacity	850	scfm		
Blower Required			4	8
Proposed Blowers Required			5	9
Total Existing Blowers	6			
Total Proposed Blowers	9			

National Flood Hazard Layer FIRMette

FEMA



ATTACHMENT 17 - FEMA FIRM

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

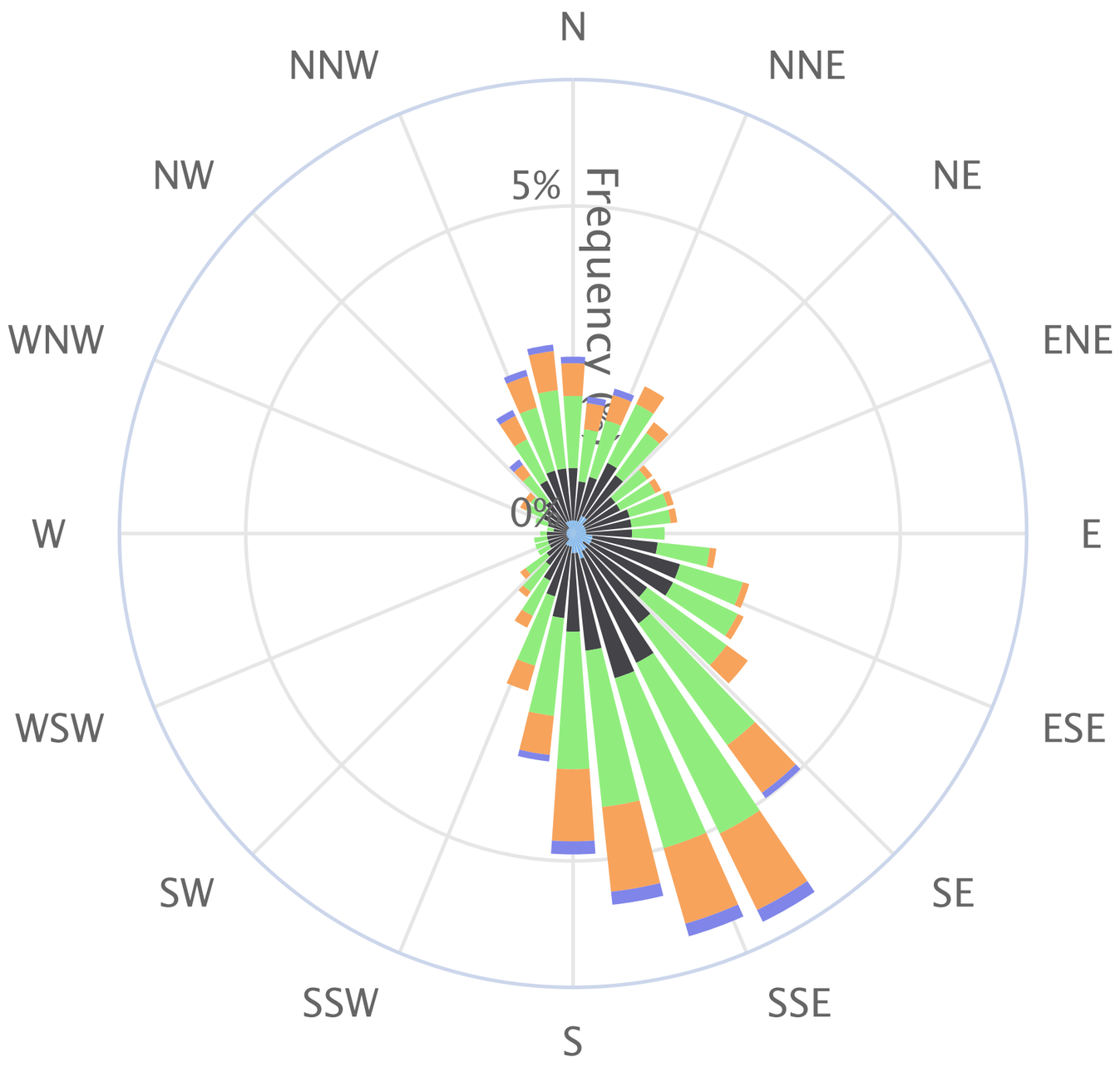
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/18/2019 at 12:39:36 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

HCMUD_000153

HOUSTON SUGARLAND MEM (TX) Wind Rose

Jan. 1, 1997 – Jan. 16, 2020
Sub-Interval: Jan. 1 – Dec. 31, 0 – 23



Wind Speed (mph)

- 1.3 – 4
- 4 – 8
- 8 – 13
- 13 – 19
- 19 – 25
- 25 – 32
- 32 – 39
- 39 – 47
- 47 –

ATTACHMENT 18 - WIND ROSE

ATTACHMENT - 19

Sludge Management Plan
Phase 1 - 0.15 MGD

Influent Design Flow	0.15	MGD
Influent BOD_5 Concentration	300	mg/L
Aerobic Digester Volume	64,622	Gal
Aeration Basin MLSS	2000	mg/L

SOLIDS GENERATED	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Pounds (lbs) Influent BOD5	375	281	188	94
Pounds (lbs) of digested dry sludge produced*	131	99	66	33
Pounds (lbs) of wet sludge produced	6568	4926	3284	1642
Gallons (Gal) of wet sludge produced	788	591	394	197

*Assuming 0.35 pounds of digested dry sludge produced per pound of influent BOD5 at average temperature and 2.0% solids concentration in the digester

Sludge will be wasted from the RAS flow stream to the aerobic digester.
Sludge solids will be stabilized in the digester
Supernatant will be decanted from the digester and returned to the plant headworks for treatment.

REMOVAL SCHEDULE (DAYS)	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Days between sludge removal	10	13	20	39

Liquid digested sludge will be removed from the digester for disposal on a regular basis as required. The calculated mean cell residence time (MCRT) for the digester storage volume of 64622 gal will be approximately 82 days at 100% capacity and annual average digested sludge produced of 131 ppd.

ATTACHMENT - 19

Sludge Management Plan

Phase 2 - 0.30 MGD

Influent Design Flow	0.3	MGD
Influent BOD_5 Concentration	300	mg/L
Aerobic Digester Volume	129,244	Gal
Aeration Basin MLSS	2000	mg/L

SOLIDS GENERATED	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Pounds (lbs) Influent BOD5	751	563	375	188
Pounds (lbs) of digested dry sludge produced*	263	197	131	66
Pounds (lbs) of wet sludge produced	13136	9852	6568	3284
Gallons (Gal) of wet sludge produced	1575	1181	788	394

*Assuming 0.35 pounds of digested dry sludge produced per pound of influent BOD5 at average temperature and 2.0% solids concentration in the digester

Sludge will be wasted from the RAS flow stream to the aerobic digester.
Sludge solids will be stabilized in the digester
Supernatant will be decanted from the digester and returned to the plant headworks for treatment.

REMOVAL SCHEDULE (DAYS)	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Days between sludge removal	10	13	20	39

Liquid digested sludge will be removed from the digester for disposal on a regular basis as required.
The calculated mean cell residence time (MCRT) for the digester storage volume of 129244 gal will be approximately 82 days at 100% capacity and annual average digested sludge produced of 263 ppd.

ATTACHMENT - 19

Sludge Management Plan

Phase 3 - 0.60 MGD

Influent Design Flow	0.6	MGD
Influent BOD_5 Concentration	300	mg/L
Aerobic Digester Volume	193,866	Gal
Aeration Basin MLSS	2000	mg/L

SOLIDS GENERATED	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Pounds (lbs) Influent BOD5	1501	1126	751	375
Pounds (lbs) of digested dry sludge produced*	525	394	263	131
Pounds (lbs) of wet sludge produced	26271	19703	13136	6568
Gallons (Gal) of wet sludge produced	3150	2363	1575	788

*Assuming 0.35 pounds of digested dry sludge produced per pound of influent BOD5 at average temperature and 2.0% solids concentration in the digester

Sludge will be wasted from the RAS flow stream to the aerobic digester.
Sludge solids will be stabilized in the digester
Supernatant will be decanted from the digester and returned to the plant headworks for treatment.

REMOVAL SCHEDULE (DAYS)	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Days between sludge removal	7	10	15	30

Liquid digested sludge will be removed from the digester for disposal on a regular basis as required.
The calculated mean cell residence time (MCRT) for the digester storage volume of 193866 gal will be approximately 61 days at 100% capacity and annual average digested sludge produced of 525 ppd.

ATTACHMENT - 19

Sludge Management Plan

Phase 4 - 0.90 MGD

Influent Design Flow	0.328	MGD
Influent BOD_5 Concentration	280	mg/L
Aerobic Digester Volume	29,947	Gal
Aeration Basin MLSS	2000	mg/L

SOLIDS GENERATED	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Pounds (lbs) Influent BOD5	766	574	383	191
Pounds (lbs) of digested dry sludge produced*	268	201	134	67
Pounds (lbs) of wet sludge produced	13404	10053	6702	3351
Gallons (Gal) of wet sludge produced	1607	1205	804	402

*Assuming 0.35 pounds of digested dry sludge produced per pound of influent BOD5 at average temperature and 2.0% solids concentration in the digester

Sludge will be wasted from the RAS flow stream to the aerobic digester.
Sludge solids will be stabilized in the digester
Supernatant will be decanted from the digester and returned to the plant headworks for treatment.

REMOVAL SCHEDULE (DAYS)	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Days between sludge removal	2	3	4	9

Liquid digested sludge will be removed from the digester for disposal on a regular basis as required.
The calculated mean cell residence time (MCRT) for the digester storage volume of 29947 gal will be approximately 18 days at 100% capacity and annual average digested sludge produced of 268 ppd.

ATTACHMENT - 19

Sludge Management Plan
Ultimate Phase - 1.50 MGD

Influent Design Flow	1.5	MGD
Influent BOD_5 Concentration	300	mg/L
Aerobic Digester Volume	113,089	Gal
Aeration Basin MLSS	2000	mg/L

SOLIDS GENERATED	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Pounds (lbs) Influent BOD5	3753	2815	1877	938
Pounds (lbs) of digested dry sludge produced*	1314	985	657	328
Pounds (lbs) of wet sludge produced	65678	49258	32839	16419
Gallons (Gal) of wet sludge produced	7875	5906	3938	1969

*Assuming 0.35 pounds of digested dry sludge produced per pound of influent BOD5 at average temperature and 2.0% solids concentration in the digester

Sludge will be wasted from the RAS flow stream to the aerobic digester.
Sludge solids will be stabilized in the digester
Supernatant will be decanted from the digester and returned to the plant headworks for treatment.

REMOVAL SCHEDULE (DAYS)	**100% Flow**	**75% Flow**	**50% Flow**	**25% Flow**
Days between sludge removal	2	2	3	7

Liquid digested sludge will be removed from the digester for disposal on a regular basis as required.
The calculated mean cell residence time (MCRT) for the digester storage volume of 113089 gal will be approximately 14 days at 100% capacity and annual average digested sludge produced of 1314 ppd.