98178

BGE, INC.
10777 WESTHEIMER RD., SUITE 400
HOUSTON, TEXAS 77042
(281) 558-8700

ALLEGIANCE BANK
Houston, TX 77241-1314

35-2572/1130

CHECK DATE June 22, 2021

PAY Two Thousand Fifty and 00/100 Dollars

TO TX COMMISSION ON ENVIRONMENTAL
QUALITY
P.O. Box 13087
Austin, TX 78711-3087

AMOUNT $2,050.00

VOID AFTER 90 DAYS

AUTHORIZED SIGNATURE

Security features. Details on back.

⑈098178⑈ ⑆113025723⑆ 100229935 2⑈

BGE, INC.

98178

Check Date: 6/22/2021

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
062221-8893-00	6/22/2021	000000137130	$2,050.00			$2,050.00
TX COMMISSION ON ENVIRONMENTAL		TOTAL	$2,050.00			$2,050.00
Operating Account	1	TXCOMM				

August 23, 2021

Executive Director
Applications Review and Processing Team (MC148)
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

Re: TPDES Major Amendment Application
Harris County Municipal Utility District No. 171
Wastewater Treatment Plant
TCEQ Permit No. WQ0015264001

To Whom It May Concern:

On behalf of Harris County Municipal Utility District No. 171, BGE, Inc. is submitting one (1) original and three (3) copies of a Major Amendment application for the referenced project. This application is enclosed for your review and approval.

Also, enclosed is a copy of the application fee payment in the amount of $2,050, which is being sent under separate cover to the Revenues Section.

Should you have any questions or require additional information, please contact me at KHunt@bgeinc.com.

Thank you,

Kenyon Hunt, P.E.
Senior Project Manager

Enclosures

TPDES Major Amendment Permit Application

Harris County Municipal Utility District No. 171

Wastewater Treatment Plant

TCEQ Permit No. WQ0015264001

August 2021

TPDES Major Amendment Permit Application

Harris County Municipal Utility District No.171

Wastewater Treatment Plant

TCEQ Permit No. WQ0015264001

_____

Kenyon Hunt, P.E.
TBPE Registration No. F-1046

BGE Project No. 8893-00

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. 171

PERMIT NUMBER: WQ0015264001

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: 98178

Check/Money Order Amount: $2,050.00

Name Printed on Check: BGE, 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

☐ Major Amendment *with* Renewal

☒ Major Amendment *without* Renewal

☐ Renewal without changes

☐ New TLAP

☐ Minor Amendment *with* Renewal

☐ Minor Amendment *without* Renewal

☐ Minor Modification of permit

For amendments or modifications, describe the proposed changes: Adding phasing to provide necessary treatment for development.

For existing permits:

Permit Number: WQ0015264001

EPA I.D. (TPDES only): TX0135461

Expiration Date: August 17, 2023

Expiration Date: August 17, 2023

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. 171

(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: 600740674

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

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

First and Last Name: Duane Heckmann

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

Title: Board 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: 1

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: Kenyon Hunt

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

Title: Senior Project Manager

Organization Name: BGE, Inc.

Mailing Address: 10777 Westheimer Rd., Ste. 400

City, State, Zip Code: Houston, TX, 77042

Phone No.: 281-558-8700 Ext.: Click here to enter text. Fax No.: 281-646-7651

E-mail Address: khunt@bgeinc.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

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

First and Last Name: Veeral Patel

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

Title: E.I.T.

Organization Name: BGE, Inc.

Mailing Address: 23501 Cinco Ranch Blvd., Suite A-250

City, State, Zip Code: Katy, TX, 77494

Phone No.: 832-592-2773 Ext.: Click here to enter text. Fax No.: 281-646-7651

E-mail Address: vpatel@bgeinc.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.

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

Title: Senior Project Manager

Organization Name: BGE, Inc.

Mailing Address: 10777 Westheimer Rd., Ste. 400

City, State, Zip Code: Houston, TX, 77042

Phone No.: 281-558-8700 Ext.: Click here to enter text. Fax No.: 281-646-7651

E-mail Address: khunt@bgeinc.com

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

First and Last Name: Veeral Patel

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

Title: E.I.T.

Organization Name: BGE, Inc.

Mailing Address: 23501 Cinco Ranch Blvd., Suite A-250

City, State, Zip Code: Katy, TX, 77494

Phone No.: 832-592-2773 Ext.: Click here to enter text. Fax No.: 281-646-7651

E-mail Address: vpatel@bgeinc.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): Ms.

First and Last Name: Fran Matuska

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

Title: District Bookkeeper

Organization Name: F. Matuska, Inc.

Mailing Address: 4151 Southwest Freeway, Suite 515

City, State, Zip Code: Houston, TX, 77027

Phone No.: 281-859-8779 Ext.: Click here to enter text. Fax No.: 281-859-8556

E-mail Address: fmi@fmatuska.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.

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

First and Last Name: Brian Bare

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

Title: Operator

Organization Name: Si Environmental, LLC

Mailing Address: 6420 Reading Rd.

City, State, Zip Code: Rosenberg, TX, 77471

Phone No.: 832-490-1574 Ext.: Click here to enter text. Fax No.: 832-490-1501

E-mail Address: bbare@sienv.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: Kenyon Hunt

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

Title: Senior Project Manager

Organization Name: BGE, Inc.

Mailing Address: 10777 Westheimer Rd. Ste. 400

City, State, Zip Code: Houston, TX, 77042

Phone No.: 281-558-8700 Ext.: Click here to enter text. Fax No.: 281-646-7651

E-mail Address: khunt@bgeinc.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: Kenyon Hunt

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

Title: Senior Project Manager

Organization Name: BGE, Inc.

Phone No.: 281-558-8700 Ext.: Click here to enter text.

E-mail: khunt@bgeinc.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: Information 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

☐ 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**107309437

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 MUD No. 171 Wastewater Treatment Plant

C. Owner of treatment facility: Harris County Municipal Utility District No. 171

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 MUD No. 171, c/o Allen Boone Humphries Robinson LLP

Mailing Address: 3200 Southwest Frwy, Ste. 2600

City, State, Zip Code: Houston, TX, 77027

Phone No.: 713-800-8479 E-mail Address: rwooten@abhr.com

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:

Discharge into man-made channel; then flows to HCFCD U101-00-00 (South Mayde Creek)

City nearest the outfall(s): Katy

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

Outfall Latitude: 29.859184 Longitude: -95.783685

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.

N/A

Section 11. TLAP Disposal Information (Instructions Page 36)

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

☐ Yes ☐ No

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

Click here to enter text.

B. City nearest the disposal site: 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.

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: **(See Attachment 2)**

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

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

☐ Attachment 1 for Individuals as co-applicants

☒ Other Attachments. Please specify: Core Data Form

Section 14. Signature Page (Instructions Page 39)

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

Permit Number: WQ0015264001

Applicant: Harris County Municipal Utility District No. 171

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): Duane Heckmann

Signatory title: Board President

Signature: _____ Date: 7/3/2021

(Use blue ink)

Subscribed and Sworn to before me by the said Duane Heckmann

on this 3rd day of July, 2021.

My commission expires on the 9th day of July, 2023.

Michelle Payne
Notary Public

MICHELLE PAYNE
My Notary ID # 124379225
Expires July 9, 2023

[SEAL]

Harris
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: (**See Attachment 3a)**

- ☒ 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. (**See Attachment 3b)**

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. **(See Attachment 4)**

☒ 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. **(See Attachment 5)**

- 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. 171

   Permit No. WQ00 15264001 EPA ID No. TX 0135461

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

   23535 1/2 Beckendorf Rd. Katy, Texas 77493; Approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorf Road.

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: Kenyon Hunt

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

Title: Senior Project Manager

Mailing Address: 10777 Westheimer Rd. Ste. 400

City, State, Zip Code: Houston, TX, 77042

Phone No.: 281-558-8700 Ext.: Click here to enter text. Fax No.: 281-646-7651

E-mail Address: khunt@bgeinc.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.

Discharge flows out of the plant into a man-made channel; thence into Harris County Flood Control District Ditch U101-00-00 (South Mayde Creek); thence to Buffalo Bayou Above Tidal (Segment No. 1014).

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):

Click here to enter text.

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

Land used for wastewater treatment plant site surrounded by undeveloped land.

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:

First: Notice to Proceed was June 2015. Completed in November 2016
Second: Notice to Proceed was August 2019. Completed in September 2020
"Existing": Notice to Proceed was March 2021

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

The property was initially undeveloped land. The land was developed by Newland Communities. The first 0.25 MGD package plant with site improvement was completely constructed in November 2016. The second 0.25 MGD package plant with site work was completed in September 2020. Under construction is the 0.50 MGD permanent expansion to the plant.

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:** WQ0015264001

1. Check or Money Order Number: 98178
2. Check or Money Order Amount: $2,050.00
3. Date of Check or Money Order: 06/22/2021
4. Name on Check or Money Order: BGE, Inc.
5. APPLICATION INFORMATION

   Name of Project or Site: Harris County Municipal Utility District No. 171

   Physical Address of Project or Site: 23535 1/2 Beckendorf Rd. Katy, Texas 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

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CHECKLIST OF COMMON DEFICIENCIES

Below is a list of common deficiencies found during the administrative review of domestic wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate by checking Yes that each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until the items below have been addressed.

Core Data Form (TCEQ Form No. 10400) ☒ Yes
(Required for all applications types. Must be completed in its entirety and signed. Note: Form may be signed by applicant representative.)

Correct and Current Industrial Wastewater Permit Application Forms ☒ Yes
(TCEQ Form Nos. 10053 and 10054. Version dated 6/25/2018 or later.)

Water Quality Permit Payment Submittal Form (Page 19) ☒ Yes
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)

7.5 Minute USGS Quadrangle Topographic Map Attached ☒ Yes
(Full-size map if seeking "New" permit. 8 ½ x 11 acceptable for Renewals and Amendments)

Current/Non-Expired, Executed Lease Agreement or Easement Attached ☒ N/A ☐ Yes

Landowners Map ☐ N/A ☒ Yes
(See instructions for landowner requirements)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

Landowners Cross Reference List ☐ N/A ☒ Yes
(See instructions for landowner requirements)

Landowners Labels or CD-RW attached ☐ N/A ☒ Yes
(See instructions for landowner requirements)

Original signature per 30 TAC § 305.44 – Blue Ink Preferred ☒ Yes
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached)

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 IA

Design Flow (MGD): 1.0

2-Hr Peak Flow (MGD): 4.0

Estimated construction start date: 2020

Estimated waste disposal start date: 2021*

B. Interim IB Phase

Design Flow (MGD): 2.0

2-Hr Peak Flow (MGD): 8.0

Estimated construction start date: June 2022

Estimated waste disposal start date: July 2023

C. Interim II Phase

Design Flow (MGD): 2.9

2-Hr Peak Flow (MGD): 11.6

Estimated construction start date: July 2023

Estimated waste disposal start date: August 2024

D. Final Phase

Design Flow (MGD): 3.0

2-Hr Peak Flow (MGD): 12.0

Estimated construction start date: August 2024

Estimated waste disposal start date: November 2025

E. Current operating phase: Existing Interim IA Phase

Provide the startup date of the facility: February 2022 *1.0 MGD phase is currently in construction and is expected to be discharging in February 2022.

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:

The existing phase is a 1.0 MGD plant consisting of two packaged plants with 8 aeration basins, 4 digesters, 2 clarifiers, and 4 chlorine contact basins in addition to a permanent facility that has 1 aeration basin, 1 digester, 1 clarifier, 1 chlorine contact basin, and 1 dechlorination basin running parallel to the package facility. The first phase of this amendment will take it up to 2.0 MGD and add 2 aeration basins and 1 digester to the permanent facility. The second phase will have a flow of 2.9 MGD and add 1 aeration basin, 2 digesters, 1 clarifier, and 1 chlorine contact basin to the permanent facility. The final phase of 3.0 MGD will have the two package plants demolished in addition to adding 1 aeration basin to the permanent facility. This in turn will make the permanent facility have a total of 5 aeration basins, 4 digesters, 2 clarifiers, 2 chlorine contact basins, and 1 dechlorination basin. From the headworks, the wastewater will travel to the aeration basins, to the clarifier where solids will be settled out and water will flow to the chlorine contact basins. Settled solids will be returned back to the headworks. In the ultimate phase, flows from the chlorine contact basin will travel to the dechlorination basin.

Port or pipe diameter at the discharge point, in inches: 24

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)
Existing Interim IA - 1.0 MGD		
Aeration Basins	4	60' x 12' x 10.67' SWD
Aeration Basin	1	82' x 30' x 16'SWD

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
Digesters	4	44’ x 12’ x 10.5’ SWD
Digester	1	68’ x 21.5’ x 15’ SWD
Clarifier	2	36’ DIA x 10’ SWD
Clarifier	1	80’ DIA x 15.5’ SWD
Chlorine Contact Basins	4	24.5’ x 10’ x 9.667’ SWD
Chlorine Contact Basin	1	40’ x 25.5’ x 10.5’ SWD
Dechlorination Basin	1	5.5’ x 42’ x 7’ SWD
Interim IB Phase - 2.0 MGD		
Aeration Basins	4	60’ x 12’ x 10.67’ SWD
Aeration Basins	3	82’ x 30’ x 16’ SWD
Digesters	4	44’ x 12’ x 10.5’ SWD
Digesters	2	68’ x 21.5’ x 15’ SWD
Clarifier	2	36’ DIA x 10’ SWD
Clarifier	1	80’ DIA x 15.5’ SWD
Chlorine Contact Basins	4	24.5’ x 10’ x 9.667’ SWD
Chlorine Contact Basin	1	40’ x 25.5’ x 10.5’ SWD
Dechlorination Basin	1	5.5’ x 42’ x 7’ SWD
Interim II Phase - 2.9 MGD		
Aeration Basins	4	60’ x 12’ x 10.67’ SWD
Aeration Basins	4	82’ x 30’ x 16’ SWD
Digesters	4	44’ x 12’ x 10.5’ SWD
Digesters	4	68’ x 21.5’ x 15’ SWD
Clarifier	2	36’ DIA x 10’ SWD
Clarifier	2	80’ DIA x 15.5’ SWD
Chlorine Contact Basins	4	24.5’ x 10’ x 9.667’SWD
Chlorine Contact Basins	2	40’ x 25.5’ x 10.5’ SWD
Dechlorination Basin	1	5.5’ x 42’ x 7’ SWD

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
Final Phase - 3.0 MGD		
Aeration Basins	5	82’ x 30’ x 16’ SWD
Digesters	4	68’ x 21.5’ x 15.5’ SWD
Clarifier	2	80’ DIA x 15.5’ SWD
Chlorine Contact Basins	2	40’ x 25.5’ x 10.5’ SWD
Dechlorination Basin	1	5.5’ x 42’ x 7’ SWD

C. Process flow diagrams

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

Attachment: 6

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: 7

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

Harris County MUD No. 171

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: 04/30/15, 06/13/19, 12/14/20

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 8

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

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.

N/A

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.

N/A

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.

N/A

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	2.0	2.0	1	Comp	5-27-21/0700
Total Suspended Solids, mg/l	<2.0	<2.0	1	Comp	5-27-21/0700
Ammonia Nitrogen, mg/l	<0.20	<0.20	1	Comp	5-27-21/0700
Nitrate Nitrogen, mg/l	37.4	37.4	1	Comp	5-27-21/0700
Total Kjeldahl Nitrogen, mg/l	0.62	0.62	1	Comp	5-27-21/0700
Sulfate, mg/l	42.3	42.3	1	Comp	5-27-21/0700
Chloride, mg/l	152	152	1	Comp	5-27-21/0700
Total Phosphorus, mg/l	6.00	6.00	1	Comp	5-27-21/0700
pH, standard units	7.35	7.35	1	Grab	5-27-21/0853
Dissolved Oxygen*, mg/l	6.81	6.81	1	Grab	5-27-21/0853

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Chlorine Residual, mg/l	1.57	1.57	1	Grab	5-27-21/0853
E.coli (CFU/100ml) freshwater	<1	<1	1	Grab	5-27-21/0853
Entercocci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids, mg/l	608	608	1	Comp	5-27-21/0700
Electrical Conductivity, µmohs/cm, †	N/A	N/A	N/A	N/A	N/A
Oil & Grease, mg/l	<5.0	<5.0	1	Grab	5-27-21/0853
Alkalinity ($CaCO_3$)*, mg/l	78	78	1	Comp	5-27-21/0700

*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					
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: Larry Keller

Facility Operator's License Classification and Level: A

Facility Operator's License Number: WW0003740

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: El Celoso Ranch

TCEQ permit or registration number: 04518

County where disposal site is located: Waller

C. Sludge transportation method

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

Name of the hauler: K-3BMI

Hauler registration number: 22430

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: Duane Heckmann

Title: Board President

Signature: _____

Date: _____

DOMESTIC TECHNICAL REPORT 1.1

The following is required for new and amendment applications

Section 1. Justification for Permit (Instructions Page 66)

A. Justification of permit need

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

The district has incurred growth not anticipated with the initial phases.

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: 9

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

Attachment: 10

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): 3.0 MGD

Average Influent Organic Strength or BOD_5 Concentration in mg/l: 264

Average Influent Loading (lbs/day = total average flow X average BOD_5 conc. X 8.34): 6,605

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

Municipal Wastewater

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	3.0	264
Subdivision		
Trailer park – transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria,		

Source	Total Average Flow (MGD)	Influent BOD_5 Concentration (mg/l)
no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources	3.0	
AVERAGE BOD_5 from all sources		264

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: Click here to enter text.

Total Suspended Solids, mg/l: Click here to enter text.

Ammonia Nitrogen, mg/l: Click here to enter text.

Total Phosphorus, mg/l: Click here to enter text.

Dissolved Oxygen, mg/l: Click here to enter text.

Other: Click here to enter text.

C. Final Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: Click here to enter text.

Total Suspended Solids, mg/l: Click here to enter text.

Ammonia Nitrogen, mg/l: Click here to enter text.

Total Phosphorus, mg/l: Click here to enter text.

Dissolved Oxygen, mg/l: Click here to enter text.

Other: Click here to enter text.

D. Disinfection Method

Identify the proposed method of disinfection.

☒ Chlorine: 8 mg/l after 20 minutes detention time at peak flow

Dechlorination process: Sulfur Dioxide enters the last channel of chlorine contact basin

☐ 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: 11

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.

FIRM Panel 585 of 1150 Map No. 48201C0585M. Revised November 15, 2019.

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**: 12

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: 13

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: Unnamed Tributary

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.

South Mayde Creek

D. Downstream characteristics

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

Yes ☒ No ☐

If yes, discuss how.

Treated water discharges into large man-made ditch then flows into South Mayde Creek. South Mayde Creek is a free-flowing creek in a natural setting with trees, fields, and vegetation.

E. Normal dry weather characteristics

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

Flowing at low level.

Date and time of observation: 06/02/2021; 2:42 pm

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 Flood Control

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: 06/02/2021 Time of study: 2:42 pm

Stream name: Unnamed Tributary

Location: 29.859184, -95.783685

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: 0

Number of stream bends that are moderately defined: 0

Number of stream bends that are poorly defined: 0

Number of riffles: 0

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.

Flow at outfall is a run that changes to a glide.

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.
run	Outfall	225	3,5,5
glide	25’	225	3,5,5
glide	50’	225	3,5,5
glide	100’	225	3,5,5
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: 2:1

Approximate drainage area above the most downstream transect (from USGS map or county highway map, in square miles): 1.0

Length of stream evaluated, in feet: 100

Number of lateral transects made: 4

Average stream width, in feet: 225

Average stream depth, in feet: 5

Average stream velocity, in feet/second: 0.25

Instantaneous stream flow, in cubic feet/second: 168.75

Indicate flow measurement method (type of meter, floating chip timed over a fixed distance, etc.): Floating Chip

Size of pools (large, small, moderate, none): None

Maximum pool depth, in feet: N/A

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: Comp:5-27-21 @ 0700 Grab:5-27-21 / @0853

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	<50	1	50
Aldrin	<0.01	<0.01	1	0.01
Aluminum	127	127	1	2.5
Anthracene	<10	<10	1	10
Antimony	<5	<5	1	5
Arsenic	<0.5	<0.5	1	0.5
Barium	79.8	79.3	1	3
Benzene	<10	<10	1	10
Benzidine	<50	<50	1	50
Benzo(a)anthracene	<5	<5	1	5

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Benzo(a)pyrene	<5	<5	1	5
Bis(2-chloroethyl)ether	<10	<10	1	10
Bis(2-ethylhexyl)phthalate	<10	<10	1	10
Bromodichloromethane	17.9	17.9	1	10
Bromoform	<10	<10	1	10
Cadmium	<1	<1	1	1
Carbon Tetrachloride	<2	<2	1	2
Carbaryl	<5	<5	1	5
Chlordane*	<0.2	<0.2	1	0.2
Chlorobenzene	<10	<10	1	10
Chlorodibromomethane	<10	<10	1	10
Chloroform	55.5	55.5	1	10
Chlorpyrifos	<0.05	<0.05	1	0.05
Chromium (Total)	<3	<3	1	3
Chromium (Tri) **(*1)**	<3	<3	1	N/A
Chromium (Hex)	<3	<3	1	3
Copper	8.9	8.9	1	2
Chrysene	<5	<5	1	5
p-Chloro-m-Cresol	<10	<10	1	10
4,6-Dinitro-o-Cresol	<50	<50	1	50
p-Cresol	<10	<10	1	10

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

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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Mercury	<0.005	<0.005	1	0.005
Methoxychlor	<2	<2	1	2
Methyl Ethyl Ketone	<50	<50	1	50
Mirex	<0.02	<0.02	1	0.02
Nickel	<2	<2	1	2
Nitrate-Nitrogen	37400	37400	1	100
Nitrobenzene	<10	<10	1	10
N-Nitrosodiethylamine	<20	<20	1	20
N-Nitroso-di-n-Butylamine	<20	<20	1	20
Nonylphenol	<333	<333	1	333
Parathion (ethyl)	<0.1	<0.1	1	0.1
Pentachlorobenzene	<20	<20	1	20
Pentachlorophenol	<5	<5	1	5
Phenanthrene	<10	<10	1	10
Polychlorinated Biphenyls (PCB's) **(*3)**	<0.2	<0.2	1	0.2
Pyridine	<20	<20	1	20
Selenium	<5	<5	1	5
Silver	<0.5	<0.5	1	0.5
1,2,4,5-Tetrachlorobenzene	<20	<20	1	20
1,1,2,2-Tetrachloroethane	<10	<10	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Tetrachloroethylene	<10	<10	1	10
Thallium	<0.5	<0.5	1	0.5
Toluene	<10	<10	1	10
Toxaphene	<0.3	<0.3	1	0.3
2,4,5-TP (Silvex)	<0.3	<0.3	1	0.3
Tributyltin (see instructions for explanation)	N/A	N/A	N/A	0.01
1,1,1-Trichloroethane	<10	<10	1	10
1,1,2-Trichloroethane	<10	<10	1	10
Trichloroethylene	<10	<10	1	10
2,4,5-Trichlorophenol	<50	<50	1	50
TTHM (Total Trihalomethanes)	73.4	73.4	1	10
Vinyl Chloride	<10	<10	1	10
Zinc	73.4	73.4	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: Comp:5-27-21 @ 0700 Grab:5-27-21 / @0853

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	<5	1	5
Arsenic	<0.5	<0.5	1	0.5
Beryllium	<0.5	<0.5	1	0.5
Cadmium	<1	<1	1	1
Chromium (Total)	<3	<3	1	3
Chromium (Hex)	<3	<3	1	3
Chromium (Tri) (*1)	<3	<3	1	N/A
Copper	8.9	8.9	1	2
Lead	<0.5	<0.5	1	0.5
Mercury	<0.005	<0.005	1	0.005
Nickel	<2	<2	1	2
Selenium	<5	<5	1	5
Silver	<0.5	<0.5	1	0.5
Thallium	<0.5	<0.5	1	0.5
Zinc	73.4	73.4	1	5
Cyanide (*2)	<10	<10	1	10
Phenols, Total	<10	<10	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	<50	<50	1	50
Acrylonitrile	<50	<50	1	50
Benzene	<10	<10	1	10
Bromoform	<10	<10	1	10
Carbon Tetrachloride	<2	<2	1	2
Chlorobenzene	<10	<10	1	10
Chlorodibromomethane	<10	<10	1	10
Chloroethane	<50	<50	1	50
2-Chloroethylvinyl Ether	<10	<10	1	10
Chloroform	55.5	55.5	1	10
Dichlorobromomethane [Bromodichloromethane]	17.9	17.9	1	10
1,1-Dichloroethane	<10	<10	1	10
1,2-Dichloroethane	<10	<10	1	10
1,1-Dichloroethylene	<10	<10	1	10
1,2-Dichloropropane	<10	<10	1	10
1,3-Dichloropropylene [1,3-Dichloropropene]	<10	<10	1	10
1,2-Trans-Dichloroethylene	<10	<10	1	10
Ethylbenzene	<10	<10	1	10
Methyl Bromide	<50	<50	1	50
Methyl Chloride	<50	<50	1	50
Methylene Chloride	<20	<20	1	20
1,1,2,2-Tetrachloroethane	<10	<10	1	10
Tetrachloroethylene	<10	<10	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Toluene	<10	<10	1	10
1,1,1-Trichloroethane	<10	<10	1	10
1,1,2-Trichloroethane	<10	<10	1	10
Trichloroethylene	<10	<10	1	10
Vinyl Chloride	<10	<10	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	<10	1	10
2,4-Dichlorophenol	<10	<10	1	10
2,4-Dimethylphenol	<10	<10	1	10
4,6-Dinitro-o-Cresol	<50	<50	1	50
2,4-Dinitrophenol	<50	<50	1	50
2-Nitrophenol	<20	<20	1	20
4-Nitrophenol	<50	<50	1	50
P-Chloro-m-Cresol	<10	<10	1	10
Pentalchlorophenol	<5	<5	1	5
Phenol	<10	<10	1	10
2,4,6-Trichlorophenol	<10	<10	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	<10	1	10
Acenaphthylene	<10	<10	1	10
Anthracene	<10	<10	1	10
Benzidine	<50	<50	1	50
Benzo(a)Anthracene	<5	<5	1	5
Benzo(a)Pyrene	<5	<5	1	5
3,4-Benzofluoranthene	<10	<10	1	10
Benzo(ghi)Perylene	<20	<20	1	20
Benzo(k)Fluoranthene	<5	<5	1	5
Bis(2-Chloroethoxy)Methane	<10	<10	1	10
Bis(2-Chloroethyl)Ether	<10	<10	1	10
Bis(2-Chloroisopropyl)Ether	<10	<10	1	10
Bis(2-Ethylhexyl)Phthalate	<10	<10	1	10
4-Bromophenyl Phenyl Ether	<10	<10	1	10
Butyl benzyl Phthalate	<10	<10	1	10
2-Chloronaphthalene	<10	<10	1	10
4-Chlorophenyl phenyl ether	<10	<10	1	10
Chrysene	<5	<5	1	5
Dibenzo(a,h)Anthracene	<5	<5	1	5
1,2-(o)Dichlorobenzene	<10	<10	1	10
1,3-(m)Dichlorobenzene	<10	<10	1	10
1,4-(p)Dichlorobenzene	<10	<10	1	10
3,3-Dichlorobenzidine	<5	<5	1	5
Diethyl Phthalate	<10	<10	1	10
Dimethyl Phthalate	<10	<10	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Di-n-Butyl Phthalate	<10	<10	1	10
2,4-Dinitrotoluene	<10	<10	1	10
2,6-Dinitrotoluene	<10	<10	1	10
Di-n-Octyl Phthalate	<10	<10	1	10
1,2-Diphenylhydrazine (as Azo-benzene)	<20	<20	1	20
Fluoranthene	<10	<10	1	10
Fluorene	<10	<10	1	10
Hexachlorobenzene	<5	<5	1	5
Hexachlorobutadiene	<10	<10	1	10
Hexachlorocyclo-pentadiene	<10	<10	1	10
Hexachloroethane	<20	<20	1	20
Indeno(1,2,3-cd)pyrene	<5	<5	1	5
Isophorone	<10	<10	1	10
Naphthalene	<10	<10	1	10
Nitrobenzene	<10	<10	1	10
N-Nitrosodimethylamine	<50	<50	1	50
N-Nitrosodi-n-Propylamine	<20	<20	1	20
N-Nitrosodiphenylamine	<20	<20	1	20
Phenanthrene	<10	<10	1	10
Pyrene	<10	<10	1	10
1,2,4-Trichlorobenzene	<10	<10	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	<0.01	<0.01	1	0.01
alpha-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
beta-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
gamma-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
delta-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
Chlordane	<0.2	<0.2	1	0.2
4,4-DDT	<0.02	<0.02	1	0.02
4,4-DDE	<0.1	<0.1	1	0.1
4,4,-DDD	<0.1	<0.1	1	0.1
Dieldrin	<0.02	<0.02	1	0.02
Endosulfan I (alpha)	<0.01	<0.01	1	0.01
Endosulfan II (beta)	<0.02	<0.02	1	0.02
Endosulfan Sulfate	<0.1	<0.1	1	0.1
Endrin	<0.02	<0.02	1	0.02
Endrin Aldehyde	<0.1	<0.1	1	0.1
Heptachlor	<0.01	<0.01	1	0.01
Heptachlor Epoxide	<0.01	<0.01	1	0.01
PCB-1242	<0.2	<0.2	1	0.2
PCB-1254	<0.2	<0.2	1	0.2
PCB-1221	<0.2	<0.2	1	0.2
PCB-1232	<0.2	<0.2	1	0.2

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

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

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: Click here to enter text

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

Harris County Municipal Utility District No. 171
TPDES Major Amendment Application
List of Attachments

Attachment 1 – Core Data Form

Corresponds to Domestic Administrative Report 1.0, Section 3.c, Page 4

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 600740674		**RN 107309437**

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	12/21/2017

☐ 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 171	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
N/A	N/A	471619697	

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 Allen Boone Humphries Robinson L.L.P.- Rachel Wooten							
	3200 Southwest Freeway, Suite 2600							
	City	Houston	**State**	TX	**ZIP**	77027	**ZIP + 4**	

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(713) 800-8479		( ) -

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 MUD 171 Wastewater Treatment Plant

23. Street Address of the Regulated Entity: *(No PO Boxes)*	23535 1/2 Beckendorf 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:	Approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorf Road.

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

27. Latitude (N) In Decimal:	29.860099	**28. Longitude (W) In Decimal:**	-95.783337

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29°	51'	36.4"	-95°	47'	0.0"

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	N/A	22132	N/A

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

Municipal Wastewater Treatment

34. Mailing Address:	**c/o Allen Boone Humphries Robinson L.L.P.- Patti Hopper**							
	3200 Southwest Freeway, Suite 2600							
	City	**Houston**	**State**	**TX**	**ZIP**	**77027**	**ZIP + 4**	**7537**
35. E-Mail Address:	**phopper@abhr.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(713) 860-6426		**( ) -**

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:
	WQ0015264001			

SECTION IV: Preparer Information

40. Name:	Kenyon Hunt, P.E.	**41. Title:**	Senior Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(281) 558-8700		(281) 646-7651	khunt@bgeinc.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 MUD No. 171	**Job Title:**	Board President	
Name *(In Print):*	Duane Heckmann		**Phone:**	(713) 647- 7800
Signature:			**Date:**	

Attachment 2 – USGS Quad Map

Corresponds to Domestic Administrative Report 1.0, Section 13, Page 11 and
Supplemental Permit Information Form, Page 16

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

The National Map US Topo

KATY QUADRANGLE
TEXAS
7.5-MINUTE SERIES

Applicant's Facility Boundary (WWTP Site)
Discharge Point
1 Mile Radius
Manmade Ditch
Applicant's Property Boundary
3 Miles Downstream

HARRIS CO
WALLER CO
FORT BEND CO

KATY
HOUSTON

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

SCALE 1:24 000
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

QUADRANGLE LOCATION

ADJOINING QUADRANGLES
1 Hockley Mound
2 Warren Lake
3 Cypress
4 Brookshire
5 Addicks
6 Fulshear
7 Richmond NE
8 Clodine

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

N
0 1,000 2,000 4,000
Feet

Harris County MUD 171

BGE Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: (281) 558-8700 Fax: (281) 558-9701
www.browngay.com

TPDES Permit Major Amendment Application

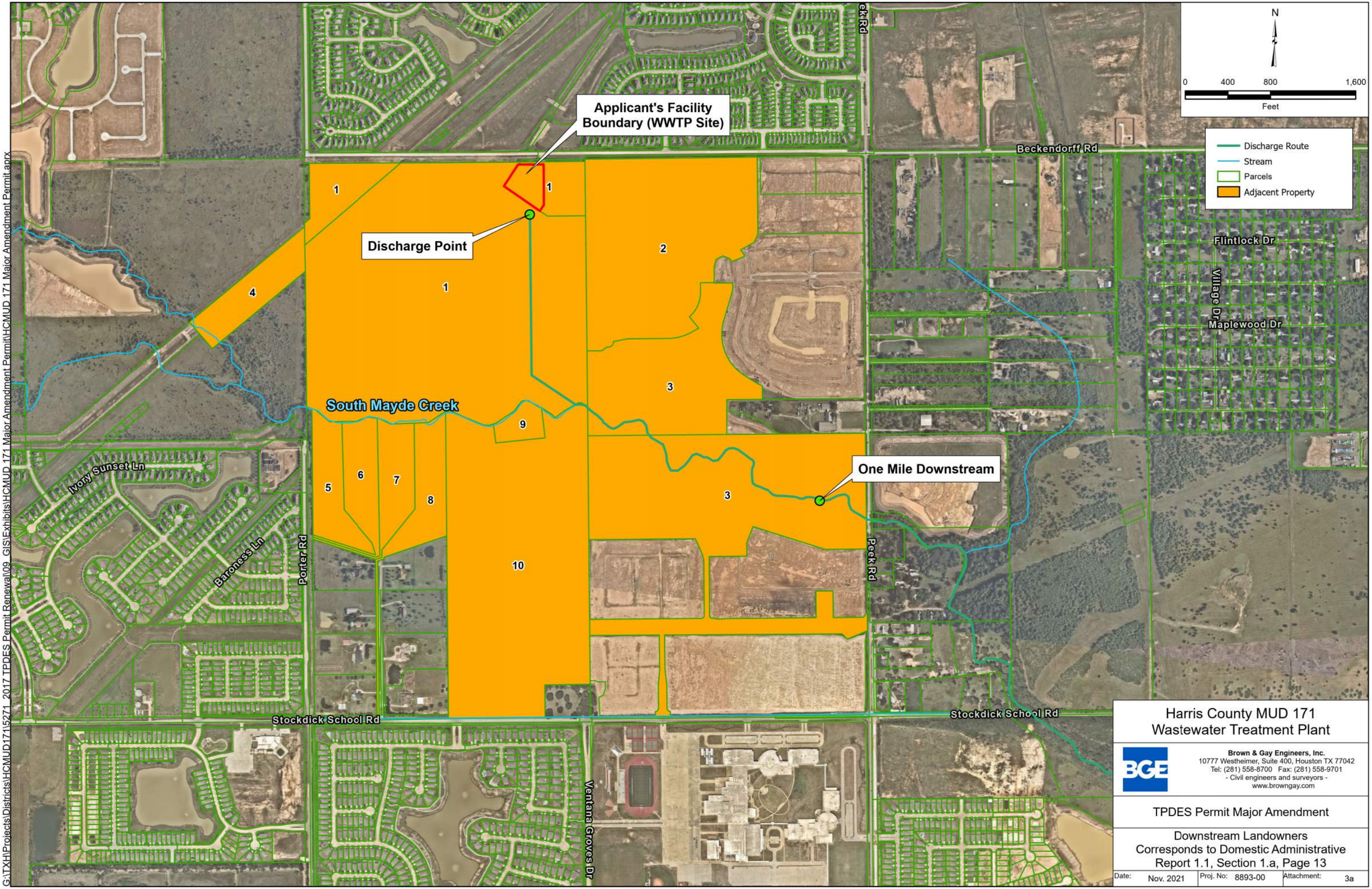
USGS Quad Map
Corresponds to Domestic Administrative Report 1.0, Section 13, Page 11

Date:	Proj. No:	Attachment:
November 2021	8893-00	2

G:\TXH\Projects\Districts\HCMUD171\5271 2017 TPDES Permit Renewal\09_GIS\Exhibits\QuadMap_20210517.mxd

Attachment 3a – Landowners Map

Corresponds to Domestic Administrative Report 1.1, Section 1.a, Page 14



G:\TXH\Projects\Districts\HCMUD171\5271_2017 TPDES Permit Renewal\09_GIS\Exhibits\HCMUD 171 Major Amendment Permit.aprx

Harris County MUD 171
Wastewater Treatment Plant

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: (281) 558-8700 Fax: (281) 558-9701
- Civil engineers and surveyors -
www.browngay.com

TPDES Permit Major Amendment

Downstream Landowners
Corresponds to Domestic Administrative Report 1.1, Section 1.a, Page 13

Date:	Proj. No:	Attachment:
Nov. 2021	8893-00	3a

Attachment 3b – Landowners List

Corresponds to Domestic Administrative Report 1.1, Section 1.b, Page 14

Attachment 3b – Landowners Cross Reference Mailing List

Corresponds to Domestic Administrative Report 1.1, Section 1.b, Page 14

Tract Number	Owner Name	Address
1	HARRIS COUNTY MUD NO 171	11500 NORTHWEST FWY STE 465 HOUSTON TX 77092-6538
2	CUNNINGHAM INTERESTS II LTD	1770 SAINT JAMES PL STE 205 HOUSTON TX 77056-3432
3	BLACK GOLD LAND HOLDINGS LLC	529 S BAYSIDE DR ANAHUAC TX 77514
4	HARRIS COUNTY MUD NO 172	11111 KATY FWY STE 725 HOUSTON TX 77079-2175
5	JAMES W DONNELLY	23918 STOCKDICK SCHOOL RD KATY TX 77493-6317
6	DONNISHA & CHRIS SPICER	23910 STOCKDICK SCHOOL RD KATY TX 77493-6317
7	GREGORY S JOHNSTON	23850 STOCKDICK SCHOOL RD KATY TX 77493-6318
8	ROBERT L SCHRIEFER	23842 STOCKDICK SCHOOL RD KATY TX 77493
9	NASH FM 529 LLC	10720 W SAM HOUSTON PKWY N STE 150 HOUSTON TX 77064-1547
10	WILBOW BERGAMO VISTA LLC	5307 E MOCKINGBIRD LN STE 900 DALLAS TX 75206-0955

HARRIS COUNTY MUD NO 171
11500 NORTHWEST FWY STE 465
HOUSTON TX 77092-6538

CUNNINGHAM INTERESTS II LTD
1770 SAINT JAMES PL STE 205
HOUSTON TX 77056-3432

BLACK GOLD LAND HOLDINGS LLC
529 S BAYSIDE DR
ANAHUAC TX 77514

HARRIS COUNTY MUD NO 172
11111 KATY FWY STE 725
HOUSTON TX 77079-2175

JAMES W DONNELLY
23918 STOCKDICK SCHOOL RD
KATY TX 77493-6317

DONNISHA & CHRIS SPICER
23910 STOCKDICK SCHOOL RD
KATY TX 77493-6317

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STE 150 HOUSTON TX 77064-1547

WILBOW BERGAMO VISTA LLC
5307 E MOCKINGBIRD LN STE 900
DALLAS TX 75206-0955

Attachment 4 – Original Photographs

Corresponds to Domestic Administrative Report 1.1, Section 2, Page 15

C:\Users\mthibodeaux\Documents\ArcGIS\Projects\HCMUD_171 Major Amendment Permit\HCMUD_171 Major Amendment Permit.aprx

Harris County MUD 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: 281-558-8700 Fax: 281-558-9701
www.bgeinc.com

TPDES Permit Major Amendment Application

Original Photographs
Corresponds to Domestic Administrative Report 1.1, Section 2, Page 15

Date:	Proj. No:	Attachment No:
June 2021	8893-00	4

Attachment 4 – Original Photographs

Corresponds to Domestic Administrative Report 1.1, Section 2, Page 15

PHOTO 1: WWTP Outside View Facing Northeast

PHOTO 2: WWTP Effluent and Drainage Outfall Facing Northwest

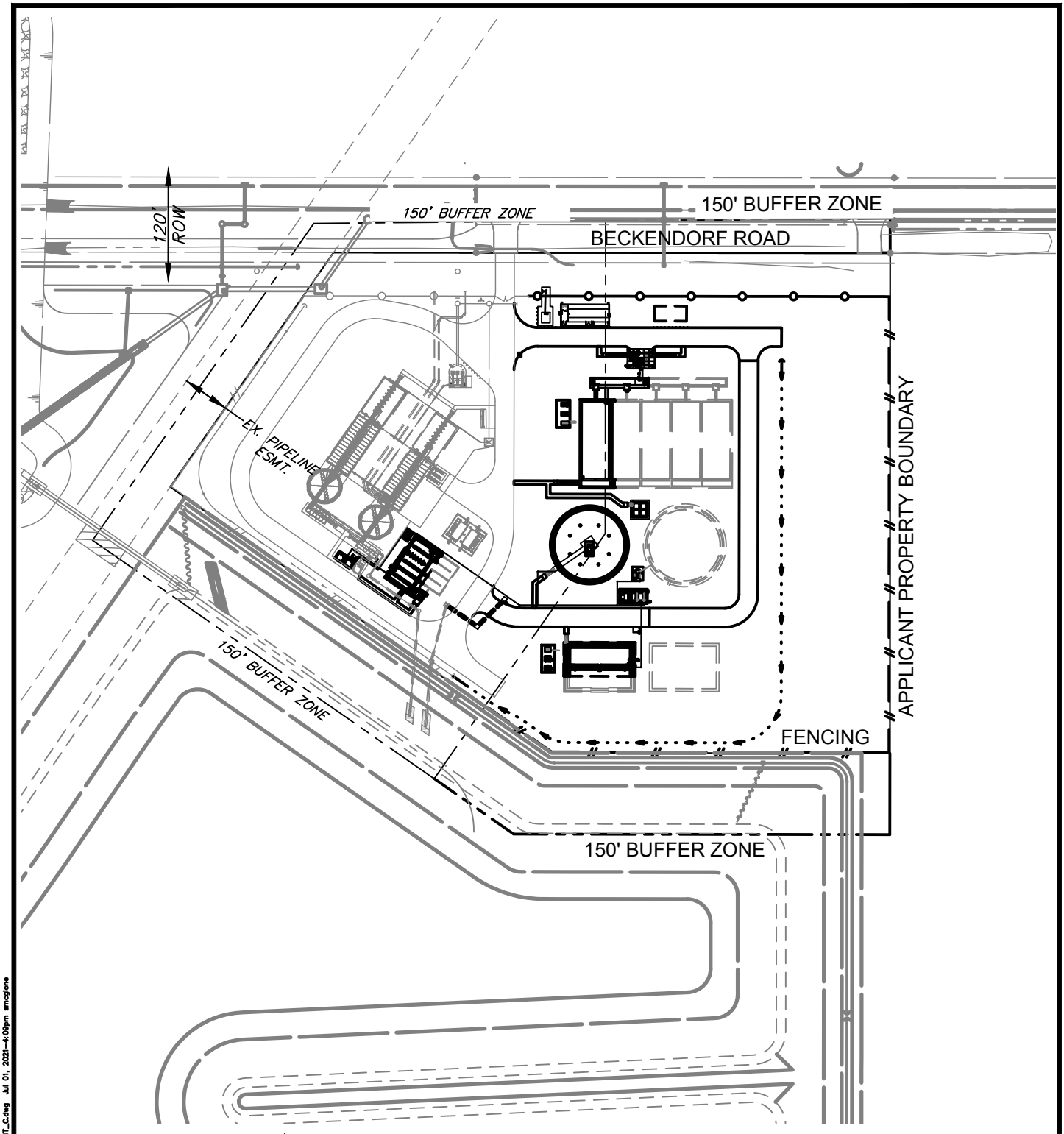
PHOTO 3: WWTP Package Plant Facing Northwest

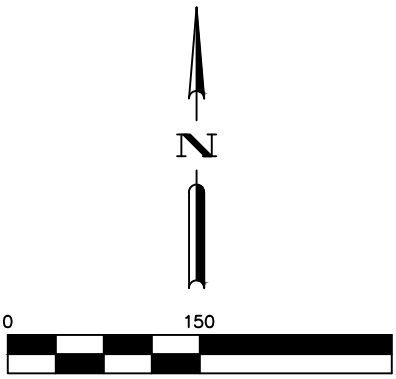
PHOTO 4: WWTP Package Plant Facing Northeast

PHOTO 5: WWTP Package Plant Facing Southeast

Attachment 5 – Buffer Zone Map

Corresponds to Domestic Administrative Report 1.1, Section 3, Page 15





HARRIS COUNTY M.U.D. 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 • www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENDMENT APPLICATION

SITE PLAN WITH BUFFER ZONE MAP
EXISTING INTERIM 1A PHASE - 1.00 MGD
CORRESPONDS TO DOMESTIC ADMINISTRATIVE REPORT 1.1, SECTION 3, PAGE 15

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	5a

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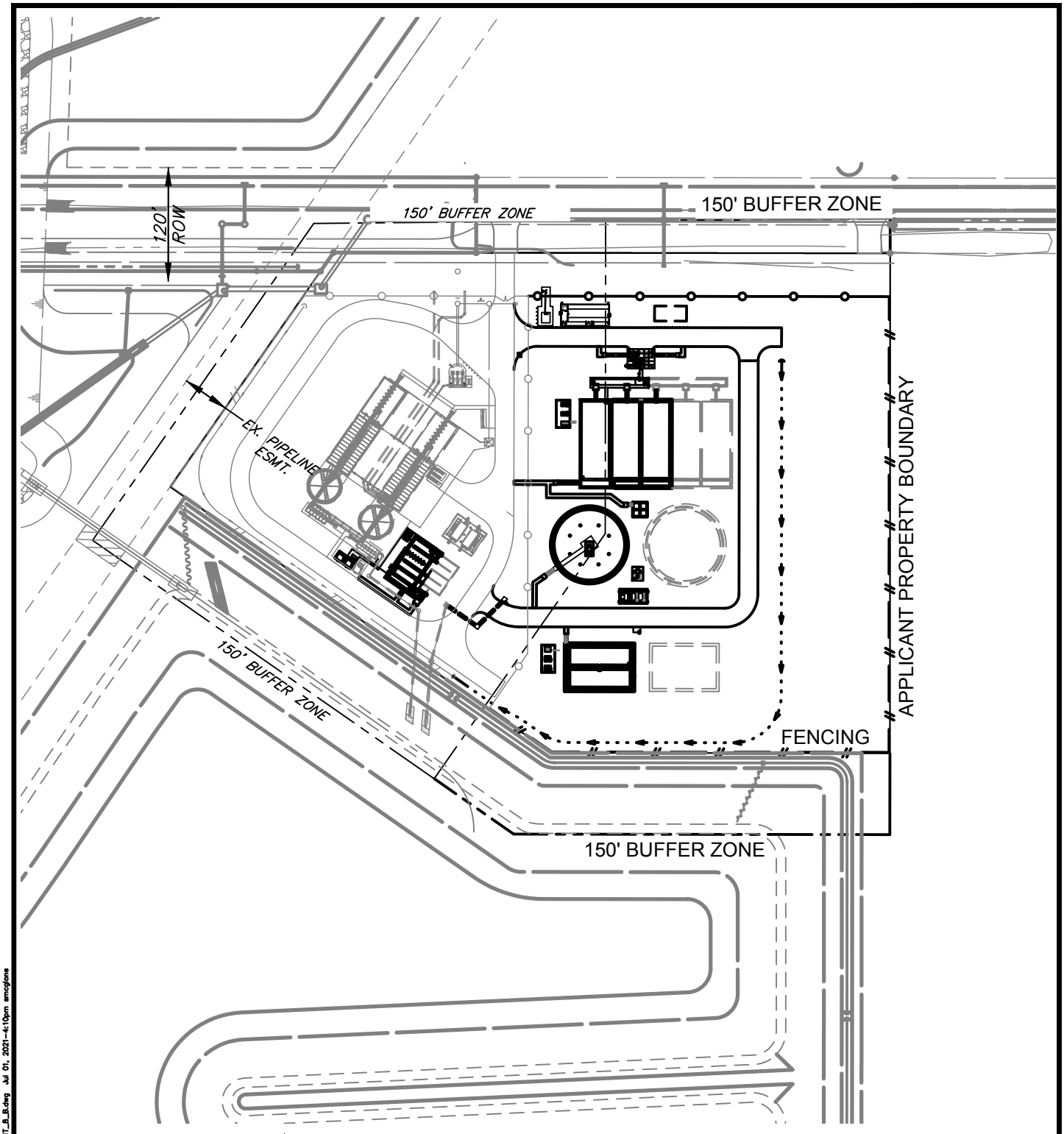

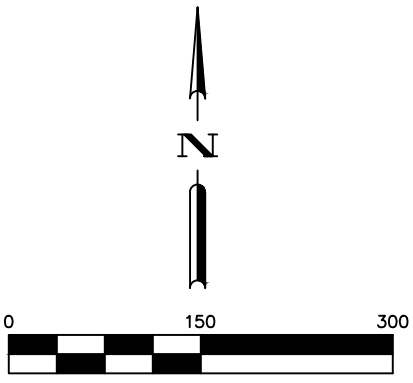

HARRIS COUNTY M.U.D. 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 • www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENDMENT APPLICATION

SITE PLAN WITH BUFFER ZONE MAP
INTERIM IB PHASE - 2.00 MGD
CORRESPONDS TO DOMESTIC ADMINISTRATIVE REPORT 1.1, SECTION 3, PAGE 15

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	5b

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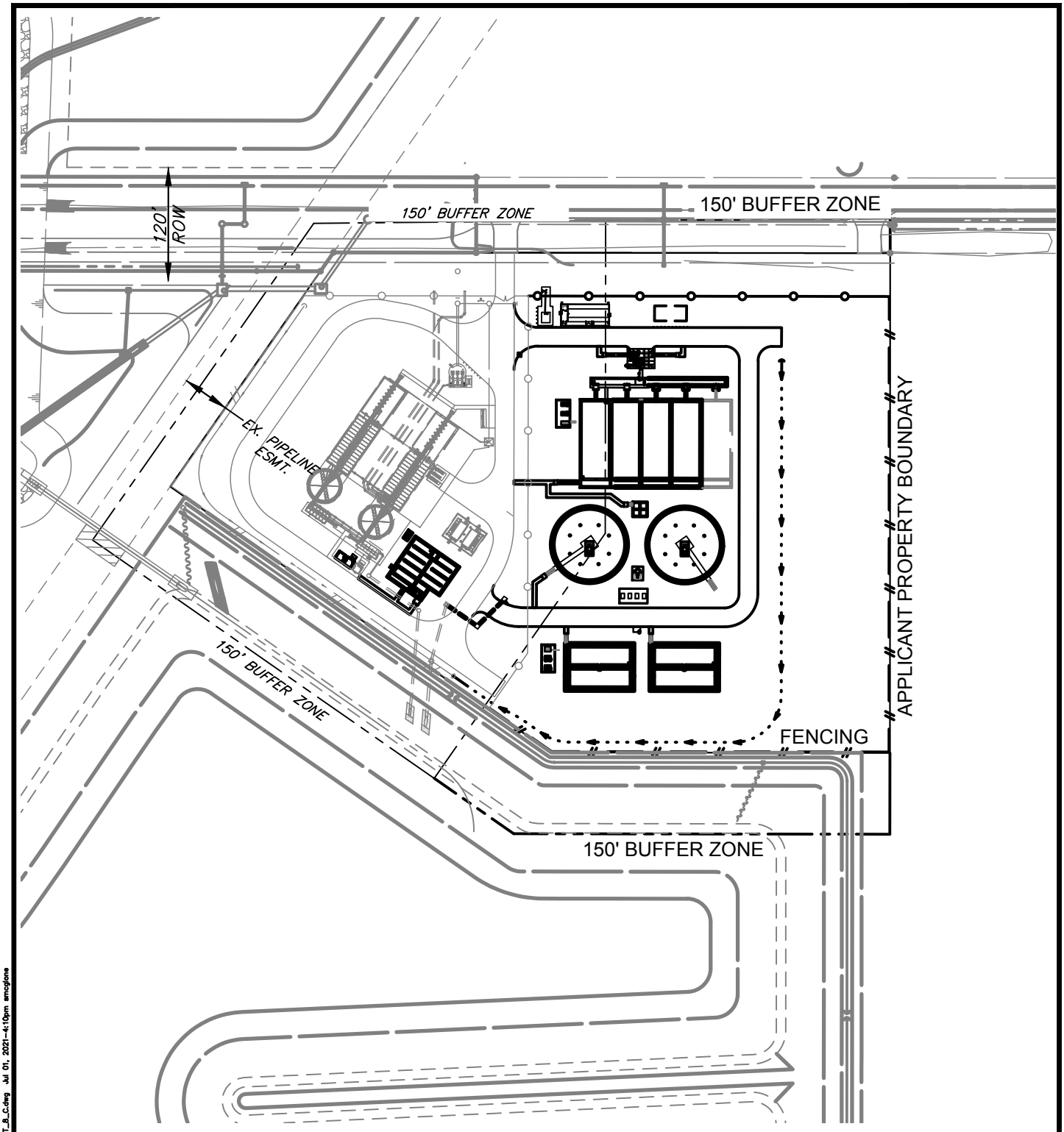

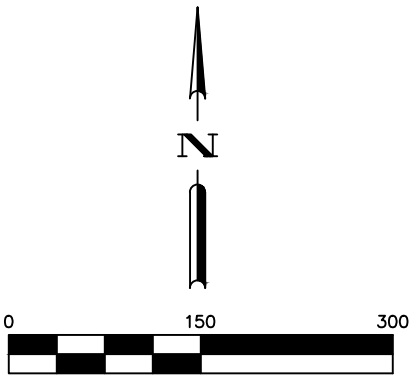

HARRIS COUNTY M.U.D. 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 • www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENDMENT APPLICATION

SITE PLAN WITH BUFFER ZONE MAP
INTERIM II PHASE - 2.90 MGD
CORRESPONDS TO DOMESTIC ADMINISTRATIVE REPORT 1.1, SECTION 3, PAGE 15

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	5c

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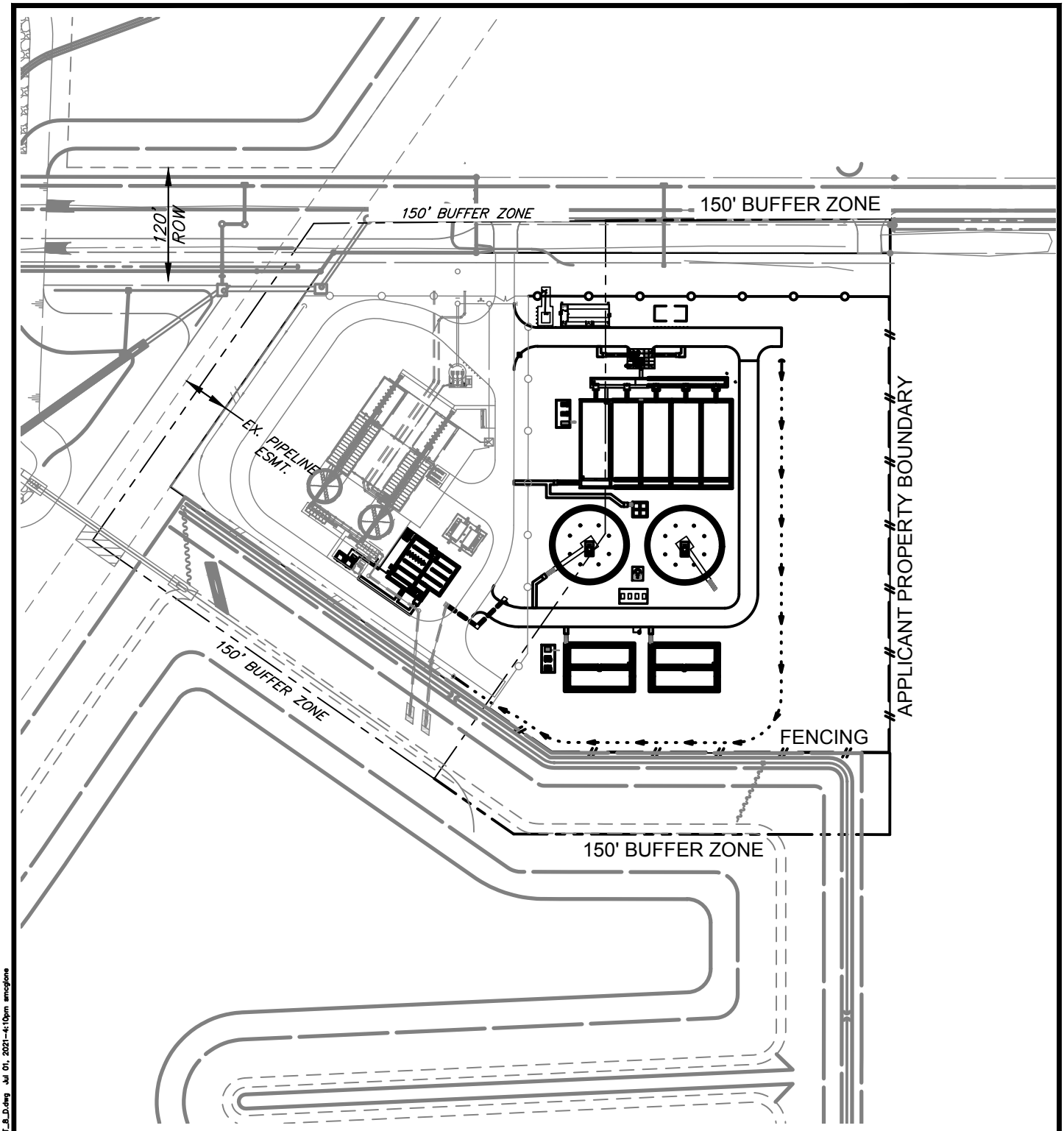

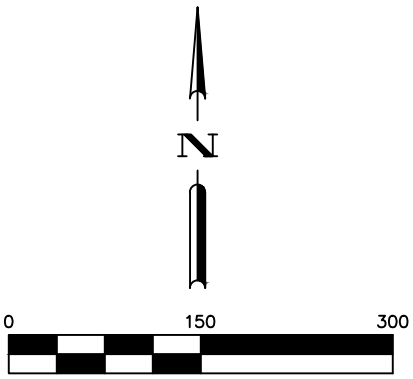

HARRIS COUNTY M.U.D. 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 • www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENDMENT APPLICATION

SITE PLAN WITH BUFFER ZONE MAP
FINAL PHASE - 3.00 MGD
CORRESPONDS TO DOMESTIC ADMINISTRATIVE REPORT 1.1, SECTION 3, PAGE 15

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	5d

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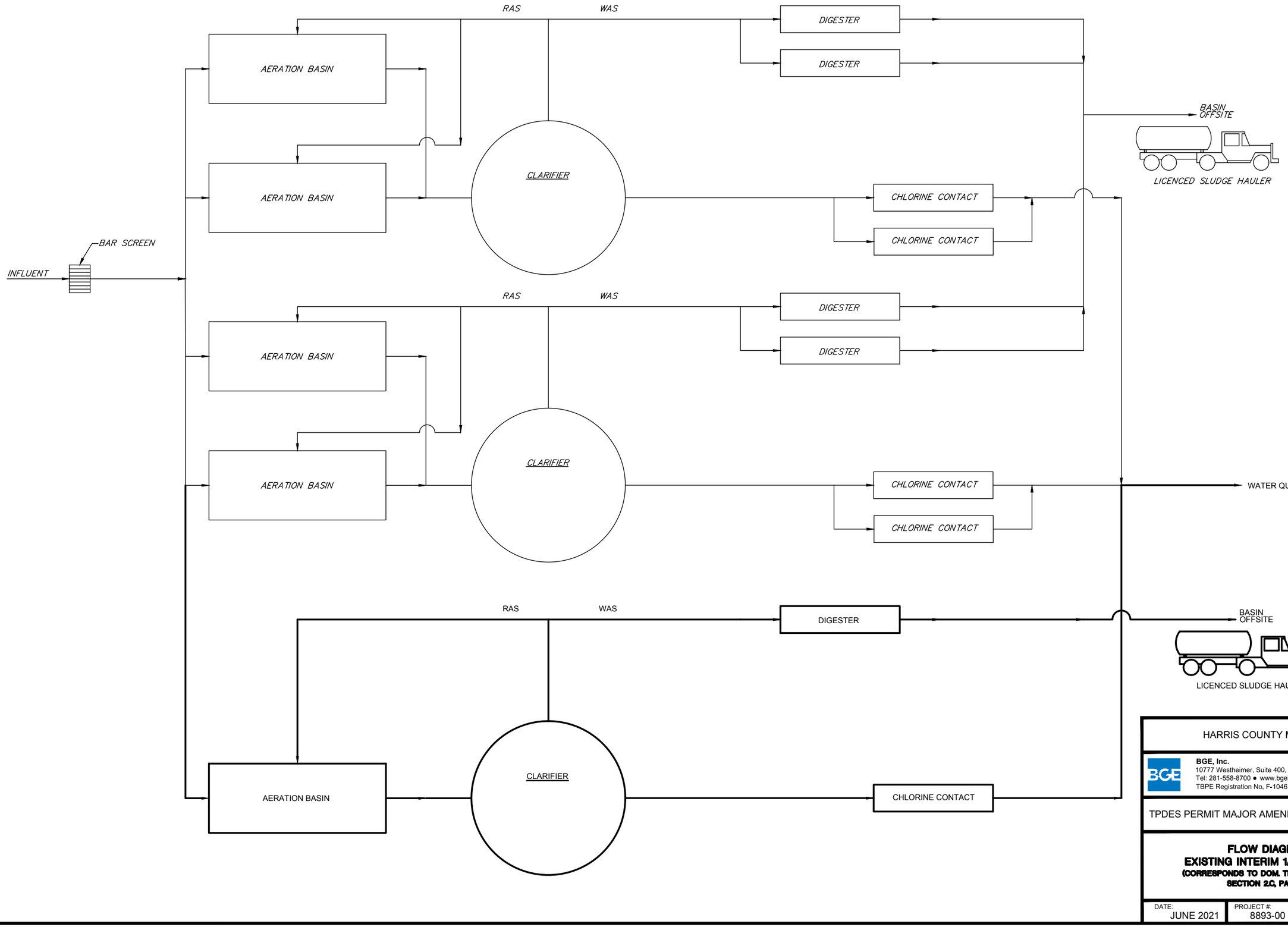
Attachment 6 – Flow Diagrams

Corresponds to Domestic Technical Report 1.0, Section 2.c, Page 4



HARRIS COUNTY M.U.D. 171

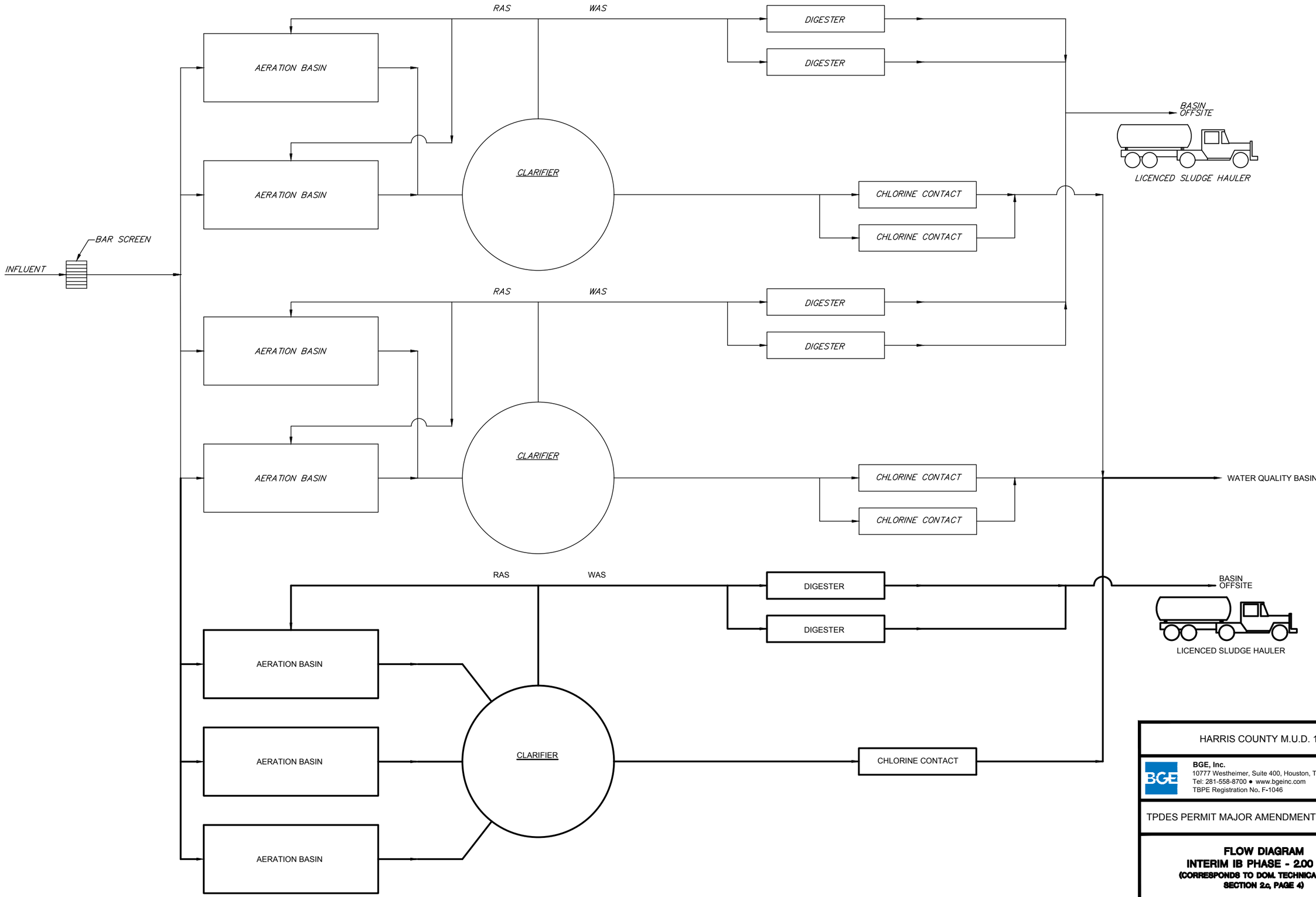
BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 • www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENDMENT APPLICATION

FLOW DIAGRAM
EXISTING INTERIM 1A - 1.00 MGD
(CORRESPONDS TO DOM. TECHNICAL Rpt 1.0, SECTION 2.C, PAGE 4)

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	**6a**

BGE, INC.
G:\Civil\Projects\Districts\HCMUD171\8893-00-WWTP_Permit\PW\01_CADD\05_Exhibits\EXHIBIT_1A.dwg Jun 22, 2021 - 4:18pm emcglone



HARRIS COUNTY M.U.D. 171

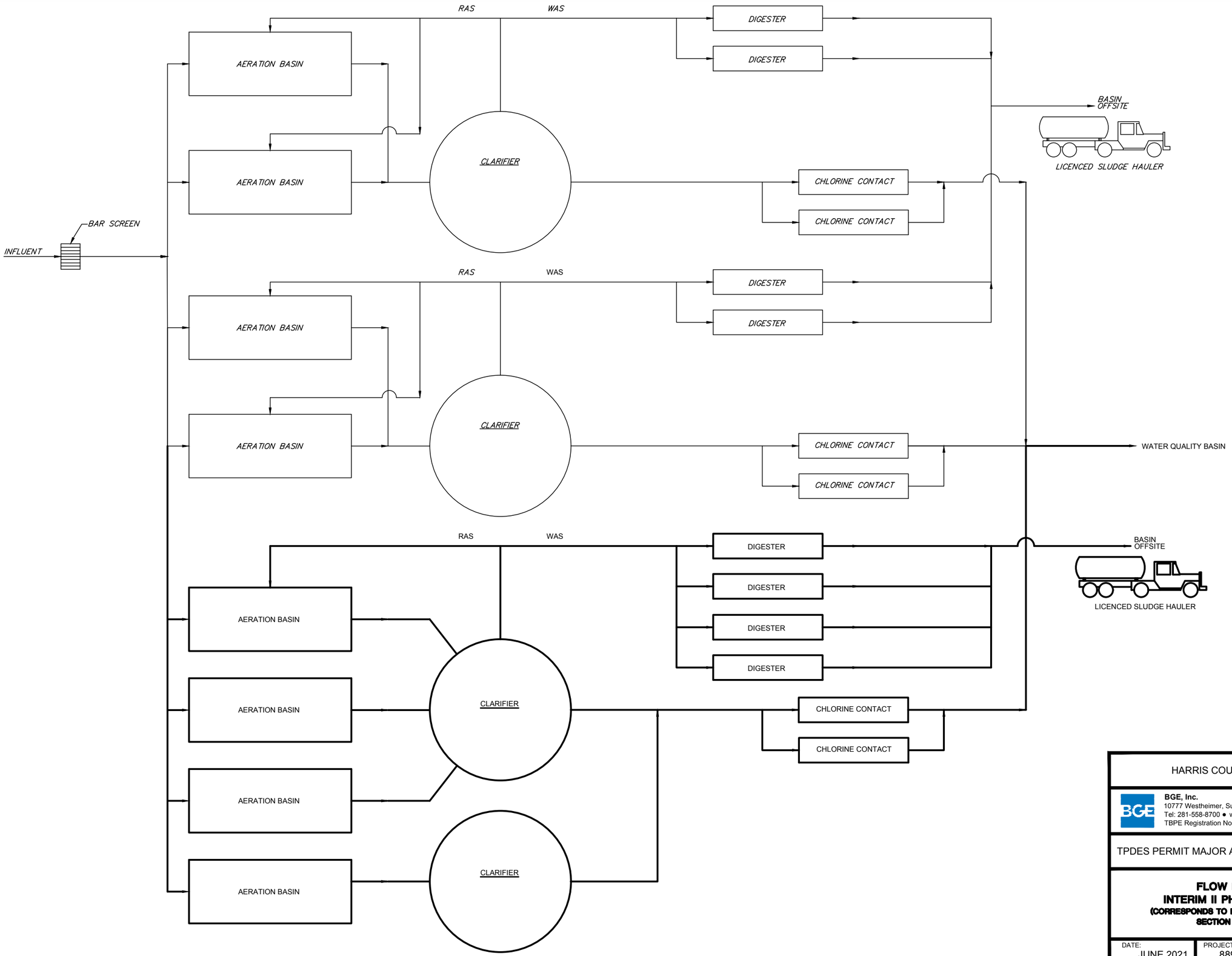
BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 • www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENDMENT APPLICATION

FLOW DIAGRAM
INTERIM IB PHASE - 2.00 MGD
(CORRESPONDS TO DOM. TECHNICAL Rpt 1.0, SECTION 2.c, PAGE 4)

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	**6b**

BGE INC.
G:\TDM Projects\District\HCMUD171\8893-00--WWTP_Permit\PW\01_CADD\05_Exhibits\EXHIBIT_1B.dwg Jun 22, 2021--4:18pm emcglone



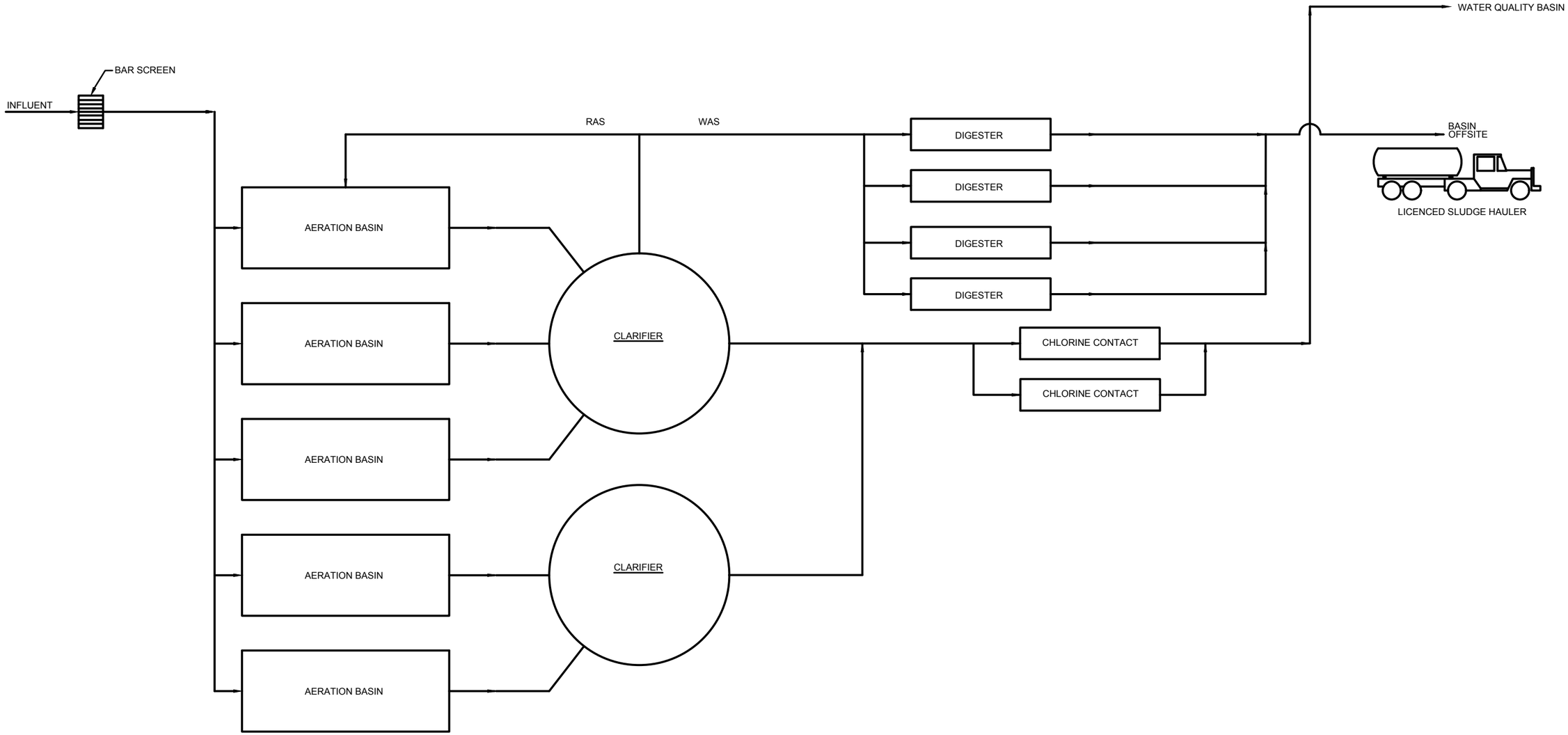
HARRIS COUNTY M.U.D. 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 ● www.bgeinc.com
TBPE Registration No. F-1046

TPDES PERMIT MAJOR AMENTMENT APPLICATION

FLOW DIAGRAM
INTERIM II PHASE - 2.9 MGD
(CORRESPONDS TO DOM. TECHNICAL Rpt 1.0, SECTION 2.c, PAGE 4)

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	6c



HARRIS COUNTY M.U.D. 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 ● www.bgeinc.com
TBPE Registration No. F-1046

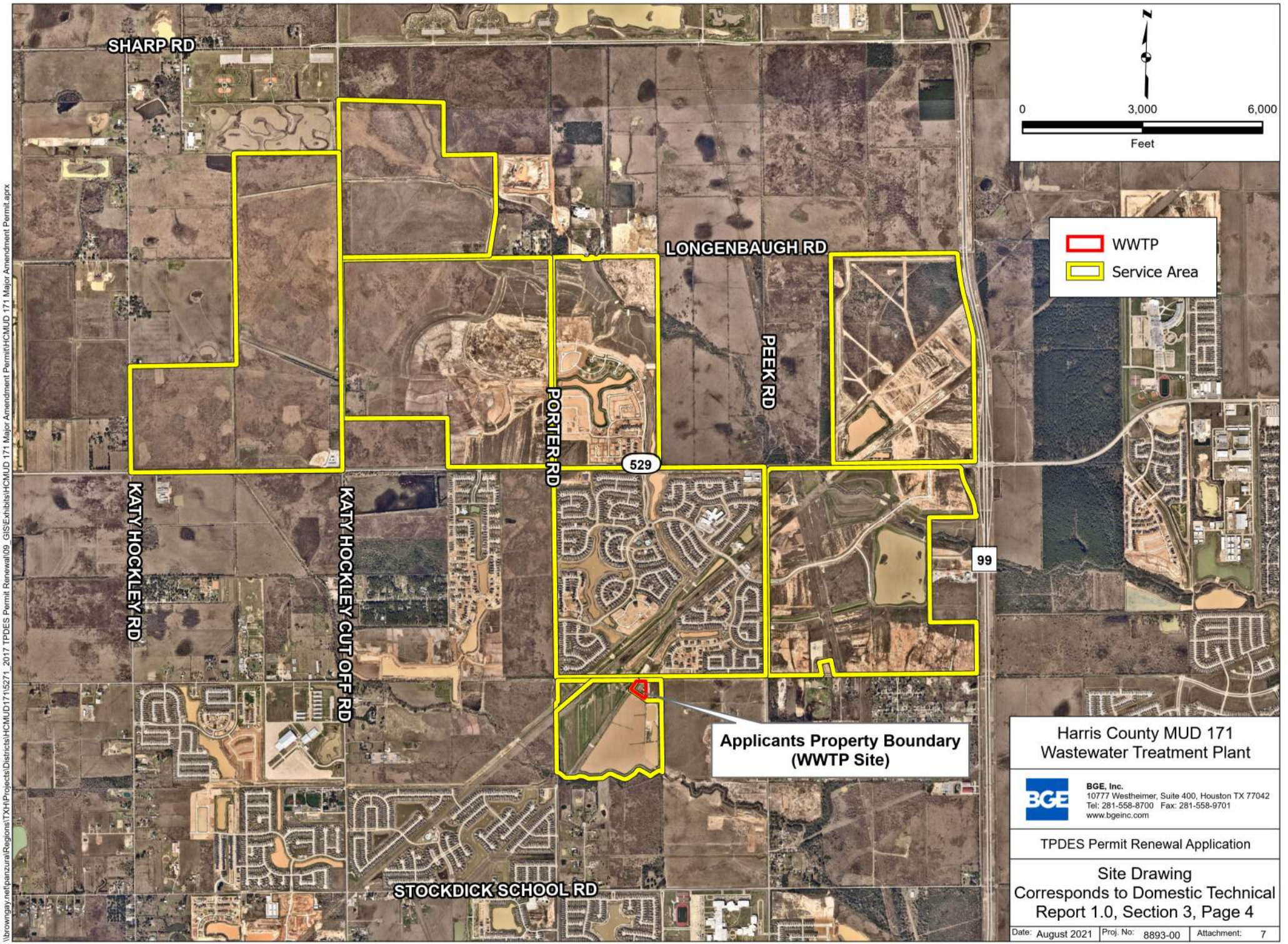
TPDES PERMIT MAJOR AMENTMENT APPLICATION

FLOW DIAGRAM
FINAL PHASE - 3.0 MGD
(CORRESPONDS TO DOM. TECHNICAL Rpt 1.0, SECTION 2.c, PAGE 4)

DATE:	PROJECT #:	ATTACHMENT:
JUNE 2021	8893-00	**6d**

Attachment 7 – Site Drawing with Service Area Boundaries

Corresponds to Domestic Technical Report 1.0, Section 3, Page 4


SHARP RD
LONGENBAUGH RD
PEEK RD
PORTER RD
529
99
KATY HOCKLEY RD
KATY HOCKLEY CUT OFF RD
STOCKDICK SCHOOL RD
N
0
3,000
6,000
Feet
WWTP
Service Area
Applicants Property Boundary
(WWTP Site)
Harris County MUD 171
Wastewater Treatment Plant
BGE, Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: 281-558-8700 Fax: 281-558-9701
www.bgeinc.com
TPDES Permit Renewal Application
Site Drawing
Corresponds to Domestic Technical Report 1.0, Section 3, Page 4
Date: August 2021
Proj. No: 8893-00
Attachment: 7
\\browngay.net\panzural\Regions\TX\H\Projects\Districts\HCMUD171\5271_2017 TPDES Permit Renewal\09_GIS\Exhibits\HCMUD 171 Major Amendment Permit\HCMUD 171 Major Amendment Permit.aprx

Attachment 8 – Summary Transmittal Letter

Corresponds to Domestic Technical Report 1.0, Section 6a, Page 6

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 30, 2015

Douglas L. Harris, P.E.
Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, Texas 77042

Re: Nash FM 529
Wastewater Treatment Plant Phase One
Permit No. WQ0015264-001
WWPR Log No. 0415/062
CN 604588350, RN 107309437
Harris County

Dear Mr. Harris:

We have received the project summary transmittal letter dated April 20, 2015.

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) 239-0486.

Sincerely,

Hilario Arriaga, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

HA/kwm

cc: TCEQ, Region 12 Office

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 13, 2019

Katherine D. Hallaway, P.E.
BROWN & GAY ENGINEERS, Inc.
10777 Westheimer Road, SuitE 400
Houston, TX 77042

Re: Harris County Municipal Utility District 171
Wastewater Treatment Plant Phase 3
Permit No. WQ0015264-001
WWPR Log No. 0619/007
CN600740674, RN107309437
Harris County

Dear Ms. Hallaway:

On June 3, 2019, TCEQ received the project summary transmittal letter dated June 3, 2019 for the Phase 3 expansion of the Harris County MUD District 171 wastewater Treatment facility. This project is to expand the processing capacity to the Phase III level of 0.50 MGD (average daily flow).

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 work undertaken within the scope of this project is:

- 2 additional aeration basins (60'x12'x10.67' SWD each)
- 1 additional clarifier (36' diameter, 10' SWD)
- 1 additional chlorine contact basin (20'x12'x8.0' SWD)
- 2 Additional aerobic sludge digesters (44'x12'x10.5' SWD each)
- 1 additional 2,200 scfm blower (3 total onsite)

The TCEQ review of the submitted information seems to indicate that the in-scope work meets at least the minimum requirements of 30 TAC Chapter 217: Design Criteria for Wastewater Systems. Given the result of the TCEQ review the project as detailed 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 of any Chapter 217 requirements were requested or granted as part of this project review. If in the future, should any variances from the Chapter 217 requirements be 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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 14, 2020

Kenyon S. Hunt, P.E.
BGE, Inc.
10777 Westheimer Road, Suite 400
Houston, TX 77042

Re: Harris County MUD 171
WWTP Phase 3
Permit No. WQ0015264-001
WWPR Log No. 1120/092
CN600740674, RN107309437
Harris County

Dear Mr. Hunt:

Texas Commission on Environmental Quality (TCCEQ) received the project summary transmittal letter dated November 16, 2020, along with the subsequent submittal of additional project information for the final phase expansion of the Harris County MUD 171 Wastewater Treatment Plant (WWTP). This project is to expand the treatment facility from phase III level of 0.50 MGD to the permitted final phase level of 1.0 MGD. The engineer indicates the proposed project facility will be capable of meeting the permitted ffluent limitations of 10 mg/L of CBOD5, 15 mg/L of TSS, and 2 mg/L of Ammonia Nitrogen.

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 existing WWTP components include:

- Four (4) Aeration basins: each 60' x 12' x 10.67' (total volume 30,730 cu ft)
- Two (2) Clarifiers: 36' diameter x 10' SWD
- Two (2) Chlorine contact basins: each 20' x 12' x 8.0' SWD (total volume 3,840 cu ft)
- Four (4) Aerobic digesters; each 44' x 12' x 10.5' SWD (total volume 22,176 cu ft)
- Three (3) blowers, capacity each 2,200 scfm (two duty, one spare)

The proposed WWTP components will include:

- One (1) Aeration basin: 82' x 30'x 16.5 SWD (volume 40,590 cu ft)
- One (1) Clarifier 80' dimeter x 16.5' SWD
- One (1) Chlorine contact basin: 44' x 27'x 10.5' (volume 12,474 cu ft)
- One (1) Aerobic digester: 68' x 19' x 16.5' SWD (volume 21,318 cu ft)
- Two (2) Aeration basin blowers, each 2,800 scfm (one duty, one spare)

- Two (2) Digester basin blowers, each 1,051 scfm (one duty, one spare)
- Two (2) Chlorine contact basin blowers, each 61 scfm (one duty, one spare)
- Gas chlorination system and dechlorination system
- Sludge pumping station
- Scum pumping station
- One (1) 1000 kW permanent generator

Our review indicated that the documents provided are in general compliance with the applicable minimum standards as set forth in Chapter 217, Design Criteria for Domestic Wastewater Systems. On that basis, this project is conditionally approved for construction. The condition is that all work be completed to the requirements of Chapter 217.

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)(1)-(9).

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) 239-4924.

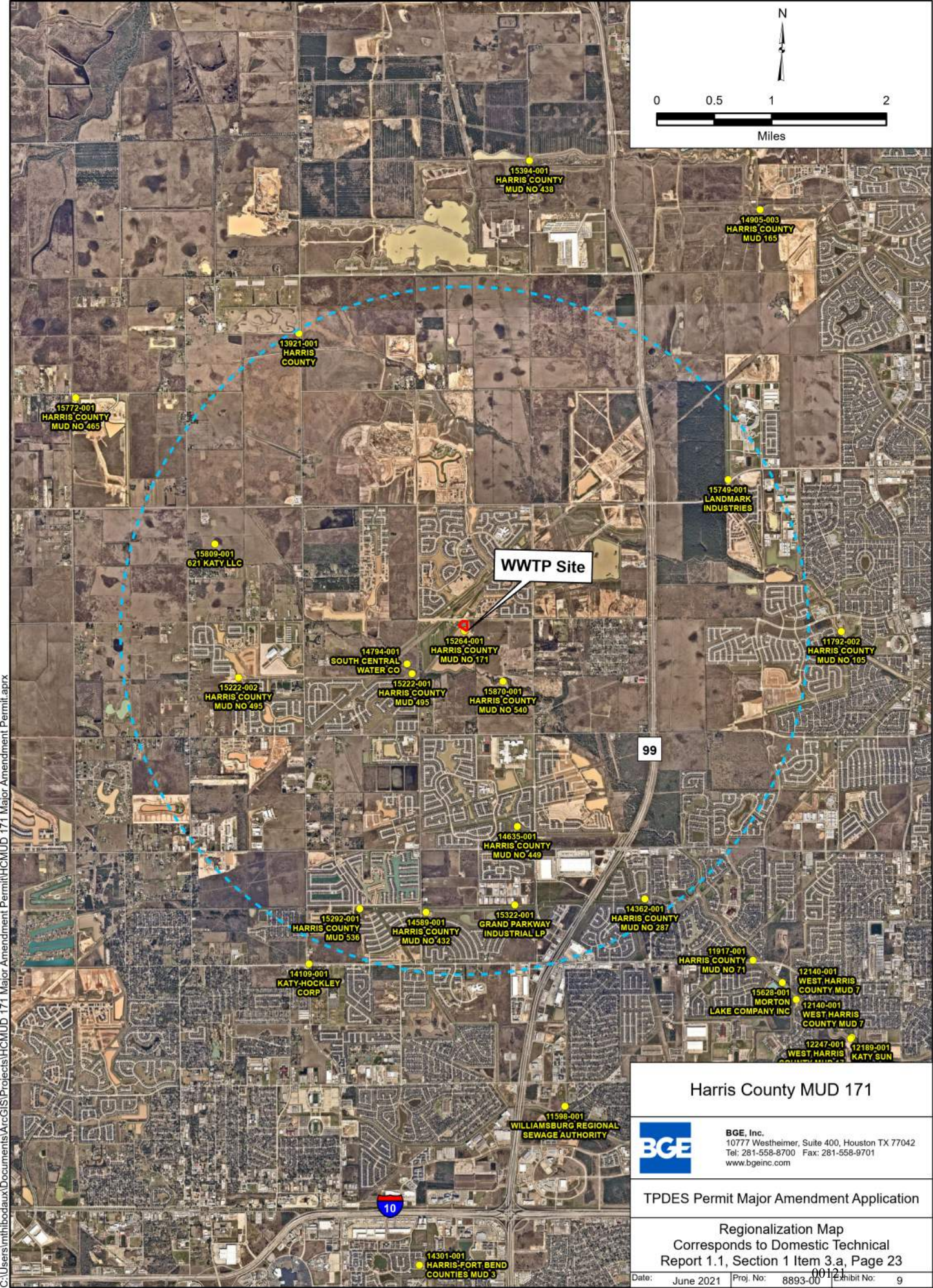
Sincerely,

Baltazar Lucero-Ramirez, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

cc: TCEQ, Region 12 Office

Attachment 9 – Regionalization Map

Corresponds to Domestic Technical Report 1.1, Section 1 Item 3.a, Page 23



C:\Users\mthibodaux\Documents\ArcGIS\Projects\HCMUD 171 Major Amendment Permit\HCMUD 171 Major Amendment Permit.aprx

Harris County MUD 171

BGE, Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: 281-558-8700 Fax: 281-558-9701
www.bgeinc.com

TPDES Permit Major Amendment Application

Regionalization Map
Corresponds to Domestic Technical Report 1.1, Section 1 Item 3.a, Page 23

Date:	Proj. No:	Exhibit No:
June 2021	8893-00	9

Attachment 10 – Correspondence Letters to Nearby By Wastewater Treatment Facilities

Corresponds to Domestic Technical Report 1.1, Section 1 Item 3.b, Page 23

June 8, 2021

LANDMARK INDUSTRIES
11111 WILCREST GREEN DR
HOUSTON, TX 77042

RE: Landmark Industries
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

To Whom It May Concern:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ YES, there is capacity available to serve the proposed plant.

_____ NO, there is not enough capacity available to serve the proposed plant.

_____ _____
Signature **Date**

June 8, 2021

KEITH ROBERT BILLE
COSTELLO INC
2107 CITYWEST BLVD, 3RD FLOOR
HOUSTON, TX 77042-2827

RE: Harris County M.U.D. No. 540
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

Dear Mr. Bille:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ **YES, there is capacity available to serve the proposed plant.**

_____ NO, there is not enough capacity available to serve the proposed plant.

_____ _____

Signature **Date**

June 18, 2021

621 KATY LLC
1020 West Loop S, Ste. 200
Houston, TX 77055-7256

RE: 621 Katy LLC
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

To Whom It May Concern:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 25, 2021, would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.
Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E. Project
Manager

_____ **YES, there is capacity available to serve the proposed plant.**

_____ **NO, there is not enough capacity available to serve the proposed plant.**

_____ _____

Signature **Date**

June 18, 2021

GARY MENSIK
LJA ENGINEERING INC
3600 W Sam Houston Pkwy S, STE 600
HOUSTON, TX 77042-5096

RE: Harris County M.U.D. No. 495
TPDES Wastewater Treatment Plant Application Requirement for
Harris County M.U.D. No. 171

Dear Mr. Mensik:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 25, 2021, would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.
Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E. Project
Manager

_____ **YES, there is capacity available to serve the proposed plant.**

_____ **NO, there is not enough capacity available to serve the proposed plant.**

_____ _____

Signature **Date**

June 8, 2021

HARRIS COUNTY ENGINEERING DIVISION
10555 NORTHWEST FWY STE 210
HOUSTON, TX 77092-8215

RE: Harris County Engineering Division
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

To Whom It May Concern:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ YES, there is capacity available to serve the proposed plant.

_____ NO, there is not enough capacity available to serve the proposed plant.

_____ _____
Signature **Date**

June 8, 2021

PHILIP MULLAN
BGE, INC.
10777 WESTHEIMER RD., SUITE 400
HOUSTON, TX 77042-3475

RE: Harris County M.U.D. No. 287
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

Dear Mr. Mullan:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ **YES, there is capacity available to serve the proposed plant.**

__✓__ **NO, there is not enough capacity available to serve the proposed plant.**

_____ June 7, 2021
Signature **Date**

June 8, 2021

JUSTIN WAGNER
R G MILLER ENGINEERS INC
16340 PARK TEN PL STE 350
HOUSTON, TX 77084-5147

RE: Harris County M.U.D. No. 432
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

Dear Mr. Wagner:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ **YES, there is capacity available to serve the proposed plant.**

_____ NO, there is not enough capacity available to serve the proposed plant.

_____ _____

Signature **Date**

June 8, 2021

BLAKE MCGREGOR
EDMINSTER HINSHAW RUSS AND ASSOCIATES INC
10011 MEADOWGLEN LANE
HOUSTON, TX 77042-5310

RE: Harris County M.U.D. No. 449
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

Dear Mr. McGregor:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ **YES, there is capacity available to serve the proposed plant.**

_____ NO, there is not enough capacity available to serve the proposed plant.

_____ _____

Signature **Date**

June 8, 2021

SOUTH CENTRAL WATER COMPANY
PO BOX 570177
HOUSTON, TX 77257-0177

RE: South Central Water Company
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

To Whom It May Concern:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ YES, there is capacity available to serve the proposed plant.

_____ NO, there is not enough capacity available to serve the proposed plant.

_____ _____
Signature **Date**

June 8, 2021

~~BLAKE MCGREGOR~~ Joshua Campbell
EDMINSTER HINSHAW RUSS AND ASSOCIATES INC
10555 WESTOFFICE DR
HOUSTON, TX 77002-5310

RE: Harris County M.U.D. No. 536
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

Dear Mr. McGregor:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ **YES, there is capacity available to serve the proposed plant.**

__X__ **NO, there is not enough capacity available to serve the proposed plant.**

Signature

6-21-2021
Date

BGE

RECEIVED
JUN 11 2021
BY: .....

June 8, 2021

GRAND PARKWAY INDUSTRIAL LP
7720 WESTVIEW
HOUSTON, TX, 77055

RE: Grand Parkway Industrial LP
TPDES Wastewater Treatment Plant Application Requirement for Harris County M.U.D. No. 171

To Whom It May Concern:

BGE, Inc. is submitting a TPDES application on behalf of Harris County M.U.D. No. 171 for the construction of a wastewater treatment plant (WWTP) to serve an ultimate average flow of 3.0 million gallons per day. The application requires all applicants to correspond with all WWTPs and sanitary sewer collection systems within a three-mile radius of the wastewater service area to determine if one or more have the necessary collection system and plant capacity to accept the proposed increase in flow.

As part of this application, I am requesting a response from the plant representative stating whether or not your facility has unused capacity to provide the proposed Harris County M.U.D. No. 171 with wastewater treatment service (in lieu of the proposed WWTP). The wastewater service area is located approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorff Road.

Your response to this request on or before June 11, 2021 would be greatly appreciated. Responses can be sent by email to KHunt@bgeinc.com or by regular mail, at my attention, to 10777 Westheimer Blvd., Suite 400. If you have any questions regarding this matter, contact me at (281) 558-8700. Thank you for your attention to this important matter.

Sincerely,

Kenyon S Hunt

Kenyon Hunt, P.E.
Project Manager

_____ **YES, there is capacity available to serve the proposed plant.**

__X__ **NO, there is not enough capacity available to serve the proposed plant.**

Hart E. Schlick - manager
Signature

6/14/21
Date

Attachment 11 – Design and Process Calculations

Corresponds to Domestic Technical Report 1.1, Section 4, Page 26

Attachment 11 - Design Calculations

Corresponds to Domestic Technical Report 1.1, Section 4, Page 26

Existing Interim 1A:

1. Influent Flow

Average Daily Flow	1.0 mgd
2-hour Peak Flow	4.0 mgd equivalent
Influent BOD	264 mg/l

Design Organic Load 2,202 lb BOD_5/day

$$264\frac{mg}{l} \times 1.0\ mgd \times 8.34 = 2{,}202\ lb\ BOD5/day$$

2. Aeration Basins

Design criteria allows a maximum BOD_5 loading of 35 lb BOD_5/day per 1,000 cu. ft of capacity.

$$\frac{1000 cu.ft}{35\frac{lb.BOD5}{day}} \times 2{,}202\ \frac{lb\ BOD_5}{day} = 62{,}914\ cu.ft\ required$$

There are four (4) aeration basins, each with an area of 720 sq. ft x 10.67 ft SWD.

$$720\ sq.ft \times 10.67\ ft = 7{,}682.4\ cu.ft$$
$$4\ units \times 7{,}682.4\ cu.ft = 30{,}729.6\ cu.ft$$

There is one (1) aeration basin, with an area of 2,460 sq. ft x 16 ft SWD.

$$2{,}460\ \ sq.ft \times 16ft = 39{,}360\ cu.ft$$

Total aeration basin volume provided = 90,089.6 cu ft

3. Clarifier

Design requirements are 1,200 gal per day per sq. ft at peak flow, 1.8 hours minimum detention time at peak flow.

$$\frac{4{,}000{,}000\ gal/day}{1{,}200\ \frac{gal/day}{sq.ft}} = 3{,}333\ sq.ft\ required$$

$$\frac{4{,}000{,}000\ \frac{gal}{day} * 1.8\ hours}{24\ \frac{hrs}{day} * 7.48\ \frac{gal}{cu\ ft}} = 40{,}107\ cu\ ft\ required$$

There are two (2) clarifiers, each with an area of 1,018 sq. ft x 10 ft SWD.

$$1{,}018\ sq.ft \times 10\ ft = 10{,}180\ cu.ft$$
$$2\ units \times 10{,}180\ cu.ft = 20{,}360\ cu.ft$$

There is one (1) clarifier, with an area of 5,026 sq. ft x 15.5 ft SWD.

$$5{,}026\ sq.ft \times 15.5\ ft = 77{,}903\ cu.ft$$

Total Clarifier area = 7,062 sq ft. Total Clarifier volume = 98,263 cu ft.

4. Chlorine Contact and Dechlorination Basin

Design requirement is 20 minutes contact time at peak flow.

(20 min X 4,000,000 gal/day)/(1440 min/day X 7.48 gal/cu ft) = 7,427 cu ft required

There are two (2) chlorine contact basins, each with an area of 240 sq. ft x 9.667 ft SWD, and each has a 4x4 ft dechlorination cell at the end.

$$240\ sq.ft \times 9.667\ ft = 2{,}320\ cu.ft$$
$$2\ units \times 2{,}320\ cu.ft = 4{,}640 cu.ft$$

There is one (1) chlorine contact basin with an area of 1,080 sq. ft x 10.5 ft SWD.

$$1{,}080\ sq.ft \times 10.5\ ft = 11{,}340\ cu.ft$$

There is one (1) additional dechlorination basin, with an area of 231 sq. ft x 7 ft SWD.

$$231\ sq.ft \times 7\ ft = 1{,}617\ cu.ft$$

Total chlorine contact basin volume = 15,980cu ft.

5. Aerobic Digesters

Design criteria requires digester basins to be sized based on 40-day solids retention time at 20 degrees C for land application beneficial use.

At a total SRT of 9 days in the aeration basins, the total Waste Activated Sludge (WAS) flow will be approximately 0.015 MGD at 7000 mg/l, or 876 lbs/day.

Thickened to 2% TS (20,000 mg/L), the volume required for 40 days digestion is:

$$0.015\ MGD \times \left(\frac{7000}{20000}\right) \times \frac{1{,}000{,}000 gal}{MG} X\ \frac{cuft}{7.48\ gal}\ X\ 40\ days = 28{,}075\ cuft$$

There are four (4) digesters, each with an area of 528 sq. ft x 10.5 ft SWD.

$$528\ sq.ft \times 10.5\ ft = 5{,}544\ cu.ft$$
$$4\ units \times 5{,}544\ cu.ft = 22{,}176\ cu.ft$$

There is one (1) digester, with an area of 1,483.5 sq. ft x 15 ft SWD.

$$1{,}483.5\ sq.ft \times 15ft = 22{,}253\ cu.ft$$

Total digestion volume provided is 44,429 cu ft.

Attachment 11 - Design Calculations

Corresponds to Domestic Technical Report 1.1, Section 4, Page 26

Interim IB:

1. Influent Flow

Average Daily Flow	2.0 mgd
2-hour Peak Flow	8.0 mgd equivalent
Influent BOD	264 mg/l

Design Organic Load 4,404 lb BOD_5/day

$$264\ mg/l \times 2.0\ mgd \times 8.34 = 4{,}404\ lbBOD5/day$$

2. Aeration Basins

Design criteria allow a maximum BOD_5 loading of 35 lb BOD_5/day per 1,000 cu. ft of capacity.

$$\frac{1000 cu.ft}{35\frac{lb.BOD5}{day}} \times 4{,}404\ \frac{lb.BOD_5}{day} = 125{,}829\ cu.ft\ required$$

There are four (4) aeration basins, each with an area of 720 sq. ft x 10.67 ft SWD.

$$720\ sq.ft \times 10.67\ ft = 7{,}682.4\ cu.ft$$
$$4\ units \times 7{,}682.4\ cu.ft = 30{,}729.6\ cu.ft$$

There will be three (3) aeration basins, each with an area of 2,460 sq. ft x 16 ft SWD.

$$2{,}460\ \ sq.ft \times 16\ ft = 39{,}360\ cu.ft$$
$$3\ units \times 39{,}360\ cu.ft = 118{,}080\ cu.ft$$

Total aeration basin volume provided = 148,810 cu ft.

3. Clarifier

Design requirements are 1,200 gal per day per sq. ft at peak flow, 1.8 hours minimum detention time at peak flow.

$$\frac{8{,}000{,}000\ gal/day}{1{,}200\ \frac{gal/day}{sq.ft}} = 6{,}667\ sq.ft\ required$$

$$\frac{8{,}000{,}000\ \frac{gal}{day} * 1.8\ hours}{24\ \frac{hrs}{day} * 7.48\ \frac{gal}{cu\ ft}} = 80{,}214\ cu\ ft\ required$$

There are two (2) clarifiers, each with an area of 1,018 sq. ft x 10 ft SWD.

$$1{,}018\ sq.ft \times 10\ ft = 10{,}180\ cu.ft$$
$$2\ units \times 10{,}180\ cu.ft = 20{,}360\ cu.ft$$

There is one (1) clarifier, with an area of 5,026 sq. ft x 15.5 ft SWD.

$$5{,}026\ sq.ft \times 15.5\ ft = 77{,}903\ cu.ft$$

Total Clarifier area = 7,062 sq ft. Total Clarifier volume = 98,263 cu ft.

4. Chlorine Contact and Dechlorination Basin

Design requirement is 20 minutes contact time at peak flow.

(20 min X 8,000,000 gal/day)/(1440 min/day X 7.48 gal/cu ft) = 14,854 cu ft required

There are two (2) chlorine contact basins, each with an area of 245 sq. ft x 10.33 ft SWD, and each has a 4x4 ft dechlorination cell at the end.

$$245\ sq.ft \times 9.667\ ft = 2{,}320\ cu.ft$$
$$2\ units \times 2{,}320\ cu.ft = 4{,}640\ cu.ft$$

There is one (1) chlorine contact basin with an area of 1,080 sq. ft x 10.5 ft SWD.

$$1{,}080\ sq.ft \times 10.5\ ft = 11{,}340\ cu.ft$$

There is one (1) additional dechlorination basin, with an area of 231 sq. ft x 7 ft SWD.

$$231\ sq.ft \times 7\ ft = 1{,}617\ cu.ft$$

Total chlorine contact basin volume provided = 15,980 cu ft.

5. Aerobic Digesters

Design criteria requires digester basins to be sized based on 40-day solids retention time at 20 degrees C for land application beneficial use.

At a total SRT of 9 days in the aeration basins, the total Waste Activated Sludge (WAS) flow will be approximately 0.03 MGD at 7000 mg/l, or 1751 lbs/day.

Thickened to 2% TS (20,000 mg/L), the volume required for 40 days digestion is:

$$0.030\ MGD \times \left(\frac{7000}{20000}\right) \times \frac{1{,}000{,}000 gal}{MG} X\ \frac{cuft}{7.48\ gal}\ X\ 40\ days = 56{,}150\ cuft\ required$$

There are four (4) digesters, each with an area of 528 sq. ft x 10.5 ft SWD.

$$528\ sq.ft \times 10.5\ ft = 5{,}544\ cu.ft$$
$$4\ units \times 5{,}544\ cu.ft = 22{,}176\ cu.ft$$

There will be two (2) digesters, each with an area of 1,483.5 sq. ft x 15 ft SWD.

$$2\ units\ x\ 1{,}483.5\ sq.ft \times 15.5\ ft = 44{,}505\ cu.ft$$

Total digestion volume provided is 66,681 cu ft.

Attachment 11 - Design Calculations

Corresponds to Domestic Technical Report 1.1, Section 4, Page 26

Interim II:

1. Influent Flow

Average Daily Flow	2.9 mgd
2-hour Peak Flow	11.6 mgd
Influent BOD	264 mg/l

Design Organic Load 6,385 lb BOD_5/day

$$264\ mg/l \times 2.9\ mgd \times 8.34 = 6{,}385\ lbBOD5/day$$

2. Aeration Basins

Design criteria allow a maximum BOD_5 loading of 35 lb BOD_5/day per 1,000 cu. ft of capacity.

$$\frac{1000 cu.ft}{35\frac{lb.BOD5}{day}} \times 6{,}385\ \frac{lb.BOD_5}{day} = 182{,}429\ cu.ft\ required$$

There are four (4) aeration basins, each with an area of 720 sq. ft x 10.67 ft SWD.

$$720\ sq.ft \times 10.67\ ft = 7{,}682.4\ cu.ft$$
$$4\ units \times 7{,}682.4\ cu.ft = 30{,}729.6\ cu.ft$$

There will be four (4) aeration basins, each with an area of 2,460 sq. ft x 16 ft SWD.

$$2{,}460\ \ sq.ft \times 16\ ft = 39{,}360\ cu.ft$$
$$4\ units \times 39{,}360\ cu.ft = 157{,}440\ cu.ft$$

Total aeration basin volume provided = 188,169 cu ft.

3. Clarifier

Design requirements are 1,200 gal per day per sq. ft at peak flow, 1.8 hours minimum detention time at peak flow.

$$\frac{11{,}600{,}000\ gal/day}{1{,}200\ \frac{gal/day}{sq.ft}} = 9{,}667\ sq.ft\ required$$

$$\frac{11{,}600{,}000\ \frac{gal}{day} * 1.8\ hours}{24\ \frac{hrs}{day} * 7.48\ \frac{gal}{cu}\ ft} = 116{,}310\ cu\ ft\ required$$

There are two (2) clarifiers, each with an area of 1,018 sq. ft x 10 ft SWD.

$$1{,}018\ sq.ft \times 10\ ft = 10{,}180\ cu.ft$$
$$2\ units \times 10{,}180\ cu.ft = 20{,}360\ cu.ft$$

There will be two (2) clarifiers, each with an area of 5,026 sq. ft x 15.5 ft SWD.

$$5{,}026\ sq.ft \times 15.5\ ft = 77{,}903\ cu.ft$$
$$2\ units \times 77{,}903\ cu.ft = 155{,}806\ cu.ft$$

Total Clarifier area = 12,088 sq ft. Total Clarifier volume = 176,166 cu ft.

4. Chlorine Contact and Dechlorination Basin

Design requirement is 20 minutes contact time at peak flow.

(20 min X 11,600,000 gal/day)/(1440 min/day X 7.48 gal/cu ft) = 21,539 cu ft required

There are two (2) chlorine contact basins, each with an area of 245 sq. ft x 10.33 ft SWD, and each has a 4x4 ft dechlorination cell at the end.

$$240\ sq.ft \times 9.667\ ft = 2{,}320\ cu.ft$$
$$2\ units \times 2{,}320\ cu.ft = 4{,}640 cu.ft$$

There will be two (2) chlorine contact basins, each with an area of 1,080 sq. ft x 10.5 ft SWD.

$$2\ units\ X\ 1{,}080\ sq.ft \times 10.5\ ft = 22{,}680\ cu.ft$$

There is one (1) additional dechlorination basin, with an area of 231 sq. ft x 7 ft SWD.

$$231\ sq.ft \times 7\ ft = 1{,}617\ cu.ft$$

Total chlorine contact basin volume provided = 27,320 cu ft.

5. Aerobic Digesters

Design criteria requires digester basins to be sized based on 40-day solids retention time at 20 degrees C for land application beneficial use.

At a total SRT of 9 days in the aeration basins, the total Waste Activated Sludge (WAS) flow will be approximately 0.0435 MGD at 7000 mg/l, or 2540 lbs/day.

Thickened to 2% TS (20,000 mg/L), the volume required for 40 days digestion is:

$$0.0435\ MGD \times \left(\frac{7000}{20000}\right) \times \frac{1{,}000{,}000 gal}{MG} X\ \frac{cuft}{7.48\ gal}\ X\ 40\ days = 81{,}417\ cuft\ required$$

There are four (4) digesters, each with an area of 528 sq. ft x 10.5 ft SWD.

$$528\ sq.ft \times 10.5\ ft = 5{,}544\ cu.ft$$
$$4\ units \times 5{,}544\ cu.ft = 22{,}176\ cu.ft$$

There will be three (3) digesters, each with an area of 1,483.5 sq. ft x 15 ft SWD.

$$3\ units\ x\ 1{,}483.5\ sq.ft \times 15.5\ ft = 68{,}983\ cu.ft$$

Total digestion volume provided is 91,159 cu ft.

Attachment 11 - Design Calculations

Corresponds to Domestic Technical Report 1.1, Section 4, Page 26

Final Phase:

1. Influent Flow

Average Daily Flow	3.0 mgd
2-hour Peak Flow	12.0 mgd
Influent BOD	264 mg/l

Design Organic Loading 6,605 lb BOD_5/day

$$264\ mg/l \times 3.0\ mgd \times 8.34 = 6{,}605\ lbBOD5/day$$

2. Aeration Basins

Design criteria allow a maximum BOD_5 loading of 35 lb BOD_5/day per 1,000 cu. ft of capacity.

$$\frac{1000 cu.ft}{35\frac{lb.BOD5}{day}} \times 6{,}605\ \frac{lb.BOD_5}{day} = 188{,}714\ cu.ft\ required$$

There will be five (5) aeration basins, each with an area of 2,460 sq. ft x 16 ft SWD.

$$2{,}460\ \ sq.ft \times 16\ ft = 39{,}360\ cu.ft$$
$$5\ units \times 39{,}360\ cu.ft = 196{,}800\ cu.ft\ provided$$

3. Clarifier

Design requirements are 1,200 gal per day per sq. ft at peak flow, 1.8 hours minimum detention time at peak flow.

$$\frac{12{,}000{,}000\ gal/day}{1{,}200\ \frac{gal/day}{sq.ft}} = 10{,}000\ sq.ft\ required$$

$$\frac{12{,}000{,}000\ \frac{gal}{day} * 1.8\ hours}{24\ \frac{hrs}{day} * 7.48\ \frac{gal}{cu}\ ft} = 120{,}321\ cu\ ft\ required$$

There are two (2) clarifiers, each with an area of 5,026 sq. ft x 15.5 ft SWD.

$$5{,}026\ sq.ft \times 15.5\ ft = 77{,}903\ cu.ft$$
$$2\ units \times 77{,}903\ cu.ft = 155{,}806\ cu.ft$$

Total Clarifier area = 10,052 sq ft. Total Clarifier volume = 155,806 cu ft.

4. Chlorine Contact and Dechlorination Basin

Design requirement is 20 minutes contact time at peak flow.

(20 min X 12,000,000 gal/day)/(1440 min/day X 7.48 gal/cu ft) = 22,282 cu ft required

There will be two (2) chlorine contact basins, each with an area of 1,080 sq. ft x 10.5 ft SWD.

$$2\ units\ X\ 1{,}080\ sq.ft \times 10.5\ ft = 22{,}680\ cu.ft$$

There is one (1) additional dechlorination basin, with an area of 231 sq. ft x 7 ft SWD.

$$231\ sq.ft \times 7\ ft = 1{,}617\ cu.ft$$

Total chlorine contact basin volume provided = 22,680 cu ft.

5. Aerobic Digesters

Design criteria requires digester basins to be sized based on 40-day solids retention time at 20 degrees C for land application beneficial use.

At a total SRT of 9 days in the aeration basins, the total Waste Activated Sludge (WAS) flow will be approximately 0.045 MGD at 7000 mg/l, or 2627 lbs/day.

Thickened to 2% TS (20,000 mg/L), the volume required for 40 days digestion is:

$$0.045\ MGD \times \left(\frac{7000}{20000}\right) \times \frac{1{,}000{,}000 gal}{MG} X\ \frac{cuft}{7.48\ gal}\ X\ 40\ days = 84{,}225\ cuft\ required$$

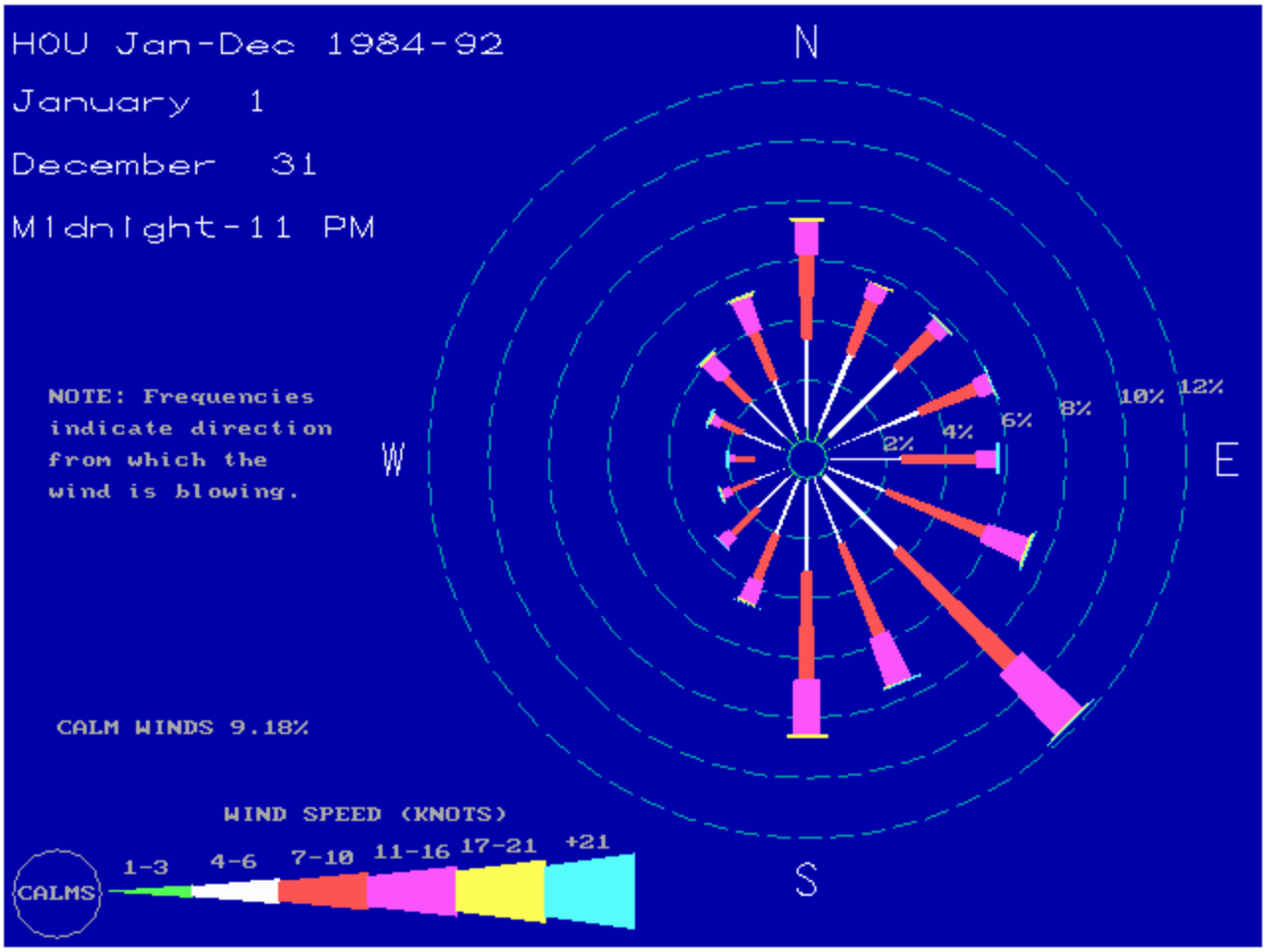
There will be four (4) digesters, each with an area of 1,483.5 sq. ft x 15 ft SWD.

$$4\ units\ x\ 1{,}483.5\ sq.ft \times 15.5\ ft = 91{,}977\ cu.ft$$

Total digestion volume provided is 91,977 cu ft.

Attachment 12 – Wind Rose

Corresponds to Domestic Technical Report 1.1, Section 5.b, Page 27


HOU Jan-Dec 1984-92
January 1
December 31
Midnight-11 PM
N
W
E
S
2%
4%
6%
8%
10%
12%
NOTE: Frequencies indicate direction from which the wind is blowing.
CALM WINDS 9.18%
WIND SPEED (KNOTS)
CALMS
1-3
4-6
7-10
11-16
17-21
+21

Attachment 13 – Solids Management Plan

Corresponds to Domestic Technical Report 1.1, Section 7, Page 28

Attachment 13 - Solids Management Plan

Corresponds to Domestic Technical Report 1.1, Section 7, Page 28

1. Dimensions of all sewage sludge treatment units

Existing Interim 1A:	1.0 mgd – digestion 4 – 44 ft. x 12 ft. x 10.5 ft. 1 – 69 ft. x 21.5 ft. x 15 ft. 44,429 cu. ft. total capacity
Interim IB:	2.0 mgd – digestion 4 – 44 ft. x 12 ft. x 10.5 ft. 2 – 69 ft. x 21.5 ft. x 15 ft. 66,681 cu. ft. total capacity
Interim II:	2.9 mgd – digestion 4 – 44 ft. x 12 ft. x 10.5 ft. 3 – 69 ft. x 21.5 ft. x 15 ft. 91,159 cu. ft. total capacity
Final Phase:	3.0 mgd – digestion 4 – 69 ft. x 21.5 ft. x 15 ft. 91,977 cu. ft. total capacity

Influent BOD Concentration = 264 mg/L

2. Calculation of solids generated at Q, 0.25Q, 0.5Q, 0.75Q

Existing Interim 1A: **1.0 mgd**

Solids Generated	100% flow	75% flow	50% flow	25% flow
Pounds Influent BOD_5	2,202	1,651	1,101	550
Pounds of digested dry sludge produced*	771	578	385	193
Pounds of wet sludge produced	38,531	28,898	19,265	9,633
Gallons of wet sludge produced	4,620	3,465	2,310	1,155

*Assuming 0.35 pounds of digested dry sludge produced per pound of influent BOD_5 at average temperatures and 2.0% solids concentration in the digester.

Interim IB: **2.0 mgd**

Solids Generated	100% flow	75% flow	50% flow	25% flow
Pounds Influent BOD_5	4,404	3,303	2,202	1,101
Pounds of digested dry sludge produced*	1,541	1,156	771	385
Pounds of wet sludge produced	77,062	57,796	38,531	19,265
Gallons of wet sludge produced	9,240	6,930	4,620	2,310

Interim II: **2.9 mgd**

Solids Generated	100% flow	75% flow	50% flow	25% flow
Pounds Influent BOD_5	6,385	4,789	3,193	1,596
Pounds of digested dry sludge produced*	2,235	1,676	1,117	559
Pounds of wet sludge produced	111,739	83,804	55,870	27,935
Gallons of wet sludge produced	13,398	10,049	6,699	3,350

Final Phase: **3.0 mgd**

Solids Generated	100% flow	75% flow	50% flow	25% flow
Pounds Influent BOD_5	6,605	4,954	3,303	1,651
Pounds of digested dry sludge produced*	2,312	1,734	1,156	578
Pounds of wet sludge produced	115,592	86,694	57,796	28,898
Gallons of wet sludge produced	13,860	10,395	6,930	3,465

3. Operating Range for mixed liquor suspended solids (MLSS) in the treatment process are:

   The plant will be operated in the single-stage nitrification mode. The expected operating range for the MLSS will be 1,500 to 3,500 mg/l.

4. Description of procedure and method of solids removal:

   After organic reduction and sludge stabilization occurs in the digester(s), sludge will be removed by a TCEQ registered hauler to a TCEQ registered/permitted land application site.

5. Identification and ownership of disposal site:

   Disposal site name: El Celoso Ranch
   TCEQ permit or registration number: 04518
   County where disposal site is located: Waller

Attachment 14 – Pollutant Analysis Lab Sheets

Corresponds to Domestic Technical Report 4.0, Page 54

Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

09 June 2021

Si Environmental, LLC
Chris Manthei
6420 Reading Road
Rosenberg, TX 77471

HCMUD #171 WWTP

Enclosed are the results of analyses for samples received by the laboratory on 27-May-21 15:30. The analytical data provided relates only to the samples as received in this laboratory report.

ELI certifies that all results are NELAP compliant and performed in accordance with the referenced method except as noted in the Case Narrative or as noted with a qualifier. Any reproductions of this laboratory report should be in full and only with the written authorization from the client.

The total number of pages in this report is 33

Thank you for selecting ELI for your analytical needs. If you have any questions regarding this report, please contact us.

Sincerely,

Laura Bonjonia For Sarah Chaplain
Client Services Representative

Certificate No: T104704265-20-18

Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client:	Si Environmental, LLC		
Project:	HCMUD #171 WWTP	**Reported:**	
Work Order:	21E3806	09-Jun-21 14:07	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Effluent	21E3806-01	Water	27-May-21 07:00	27-May-21 15:30
Effluent	21E3806-02	Water	27-May-21 08:53	27-May-21 15:30

Volatiles-
C=Vinyl Chloride, Styrene, MTBE, and 2-Chloroethyl Vinyl Ether are highly reactive compounds when samples are preserved with acids (pH <2). 2-Chloroethyl Vinyl Ether recoveries deteriorate with acid preservative. Acrolein or Acrylonitrile should be received with acidic preservation at pH> 4-5 and analyzed as soon as possible if it's a compound of interest.
L - Sample analyzed by TNI certified lab T104704187-19-13

Envirodyne Laboratories, Inc.

Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	**HCMUD #171 PERMIT RENEWAL** (Si Environmental)	LAB NUMBER:	21E3806A
DATE COLLECTED:	27-May-21	DATE RECEIVED:	27-May-21
DATE COMPLETED:	28-May-21	SAMPLED BY:	MB
LOCATION:	**EFFLUENT** - Grab		

PARAMETERS: VOLATILES	CONC.	DETECTION LIMITS (ug/l)
ACROLEIN (ug/l)	50.0 U	50.0
ACRYLONITRILE (ug/l)	50.0 U	50.0
CHLOROMETHANE (ug/l)	10.0 U	10.0
VINYL CHLORIDE (ug/l)	10.0 U	10.0
BROMOMETHANE (ug/l)	10.0 U	10.0
CHLOROETHANE (ug/l)	50.0 U	50.0
TRICHLOROFUOROMETHANE (ug/l)	10.0 U	10.0
1,1-DICHLOROETHYLENE (ug/l)	10.0 U	10.0
METHYLENE CHLORIDE (ug/l)	20.0 U	20.0
trans-1,2-DICHLOROETHYLENE (ug/l)	10.0 U	10.0
1,1-DICHLOROETHANE (ug/l)	10.0 U	10.0
1,1,1-TRICHLOROETHANE (ug/l)	10.0 U	10.0
METHYL BROMIDE (ug/l)	10.0 U	10.0
METHYL CHLORIDE (ug/l)	10.0 U	10.0
CHLOROFORM (ug/l)	**55.5**	10.0
CARBON TETRACHLORIDE (ug/l)	2.0 U	2.0
1,2-DICHLOROETHANE (ug/l)	10.0 U	10.0
TRICHLOROETHANE (ug/l)	10.0 U	10.0
BENZENE (ug/l)	10.0 U	10.0
TRICHLOROETHYLENE (ug/l)	10.0 U	10.0
1,2-DICHLOROPROPANE (ug/l)	10.0 U	10.0
DICHLOROBROMOMETHANE (ug/l)	**17.9**	10.0
1,3 DICHLOROPROPYLENE (ug/l)	10.0 U	10.0
TOLUENE (ug/l)	10.0 U	10.0
trans-1,3-DICHLOROPROPENE (ug/l)	10.0 U	10.0
1,1,2-TRICHLOROETHANE (ug/l)	10.0 U	10.0
TETRACHLOROETHYLENE (ug/l)	10.0 U	10.0
DIBROMOCHLOROMETHANE (ug/l)	10.0 U	10.0
CHLOROBENZENE (ug/l)	10.0 U	10.0
2-CHLOROETHYLVINYL ETHER (ug/l)	10.0 U	10.0
1,2-DIBROMOETHANE (ug/l)	2.0 U	2.0
ETHYLBENZENE (ug/l)	10.0 U	10.0
BROMOFORM (ug/l)	10.0 U	10.0
1,1,2,2-TETRACHLOROETHANE (ug/l)	10.0 U	10.0
TOTAL TRIHALOMETHANES (ug/l)	**73.4**	10.0
METHYL ETHYL KETONE (ug/l)	50.0 U	50.0
1,3 DICHLORBENZENE (ug/l)	10.0 U	10.0
1,4 DICHLORBENZENE (ug/l)	10.0 U	10.0
1,2 DICHLORBENZENE (ug/l)	10.0 U	10.0
XYLENE (ug/l)	10.0 U	10.0

LAB REPRESENTATIVE

Ref. EPA 624.1 (VOLATILES)
U - Analyte Not Detected at the Listed Detection Limit
J - Analyte Present but Below Detection Limit

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: **HCMUD #171 PERMIT RENEWAL** (Si Environmental)

LAB NUMBER: 21E3806B

DATE COLLECTED: 27-May-21

DATE RECEIVED: 27-May-21

DATE COMPLETED: 01-Jun-21

SAMPLED BY: MB

LOCATION: **EFFLUENT-Comp**

PARAMETERS:

BASE/ NEUTRALS

ACENAPHTHENE (ug/l)	10.0 U
ACENAPHTHYLENE (ug/l)	10.0 U
ANTHRACENE (ug/l)	10.0 U
BENZIDINE (ug/l)	50.0 U
BENZO (a) ANTHRACENE (ug/l)	5.0 U
BENZO (a) PYRENE (ug/l)	5.0 U
BENZO (B) FLUORANTHENE (ug/l)	10.0 U
BENZO (GHI) PERYLENE (ug/l)	20.0 U
BENZO (k) FLUORANTHENE (ug/l)	5.0 U
BIS (2-CHLOROETHYL) ETHER (ug/l)	10.0 U
BIS (2-CHLOROETHOXY) METHANE (ug/l)	10.0 U
BIS (2-CHLOROISOPROPYL) ETHER (ug/l)	10.0 U
BIS (2-ETHYLHEXYL) PHTHALATE (ug/l)	10.0 U
4-BROMOPHENYL PHENYL ETHER (ug/l)	10.0 U
BUTYL BENZYL PHTHALATE (ug/l)	10.0 U
2-CHLORONAPHTHALENE (ug/l)	10.0 U
4-CHLOROPHENYL PHENYL ETHER (ug/l)	10.0 U
CHRYSENE (ug/l)	5.0 U
DIBENZO (a,h) ANTHRACENE (ug/l)	5.0 U
1,2-DICHLOROBENZENE (ug/l)	10.0 U
1,3-DICHLOROBENZENE (ug/l)	10.0 U
(p)1,4-DICHLOROBENZENE (ug/l)	10.0 U
3,3-DICHLOROBENZIDINE (ug/l)	5.0 U
DIETHYL PHTHALATE (ug/l)	10.0 U
DIMETHYL PHTHALATE (ug/l)	10.0 U
DI-N-BUTYL PHTHALATE (ug/l)	10.0 U
DIBENZOFURAN (ug/l)	10.0 U
FLUORANTHENE (ug/l)	10.0 U
FLUORENE (ug/l)	10.0 U
HEXACHLOROBENZENE (ug/l)	5.0 U
HEXACHLOROBUTADIENE (ug/l)	10.0 U
HEXACHLOROETHANE (ug/l)	20.0 U
HEXACHLOROCYCLOPENTADIENE (ug/l)	10.0 U
HEXACHLOROPHENE (ug/l)	10.0 U
IDENO (1,2,3,cd) PYRENE (ug/l)	5.0 U
1,2-Diphenyl Hydrazine (ug/l)	20.0 U
N-NITROSO-di-n-BUTYLAMINE (ug/l)	20.0 U
N-NITROSO-DI-ETHYLAMINE (ug/l)	20.0 U
ISOPHORONE (ug/l)	10.0 U
NAPHTHALENE (ug/l)	10.0 U
NITROBENZENE (ug/l)	10.0 U
N-NITROSO-di-n-PROPYLAMINE (ug/l)	20.0 U
N-NITROSODIPHENYLAMINE (ug/l)	20.0 U
N-NITROSODIMETHYLAMINE (ug/l)	50.0 U
PHENANTHRENE (ug/l)	10.0 U
PYRENE (ug/l)	10.0 U
1,2,4-TRICHLOROBENZENE (ug/l)	10.0 U
1,2,4,5-TETRACHLOROBENZENE (ug/l	20.0 U
2, 4-DINITROTOLUENE (ug/l)	10.0 U
2, 6-DINTROTOLUENE (ug/l)	10.0 U
2-METHYLNAPHTHALENE (ug/l)	10.0 U
Di-n-octyl PHTHALATE (ug/l)	10.0 U
PYRIDINE (ug/l)	20.0 U
p-CRESOL (ug/l)	10.0 U

ACID COMPOUNDS
EFFLUENT (Cont.)

2-CHLOROPHENOL (ug/l)	10.0 U
2,4-DICHLOROPHENOL (ug/l)	10.0 U
2,4-DIMETHYLPHENOL (ug/l)	10.0 U
4, 6-DINITRO-o-CRESOL (ug/l)	50.0 U
4,6-DINITRO-2-METHYLPHENOL (ug/l)	20.0 U
2,4-DINITROPHENOL (ug/l)	50.0 U
2-NITROPHENOL (ug/l)	20.0 U
4-NITROPHENOL (ug/l)	50.0 U
p-CHLORO-m-CRESOL (ug/l)	10.0 U
2-METHYLPHENOL (ug/l)	10.0 U
PENTACHLOROPHENOL (ug/l)	5.0 U
PHENOL (ug/l)	10.0 U
2,4,6-TRICHLOROPHENOL (ug/l)	10.0 U
2,4,5-TRICHLOROPHENOL (ug/l)	50.0 U
PENTACHLOROBENZENE (ug/l)	20.0 U
4-CHLORO-3-METHYL PHENOL (ug/l)	10.0 U
NONYLPHENOL (ug/l)	5.0 U

LAB REPRESENTATIVE

Analyzed by NELAC certified lab T104704215
Ref. EPA-625.1 (Base/Neutrals & Acids)
U - Analyte Not Detected at the listed Detection Limit
J - Analyte Present but below Detection Limit

ENVIRODYNE LABORATORIES, INC.

CLIENT: **HCMUD #171 PERMIT RENEWAL** (Si Environmental)
LAB NUMBER: 21E3806C

DATE COLLECTED: 27-Jun-21
DATE RECEIVED: 27-Jun-21

DATE COMPLETED: 07-Jun-21
SAMPLED BY: MB

LOCATION: Composite **EFFLUENT**

PARAMETERS:

METALS	CONCENTRATION	METHOD	INITIALS	MAL
TOTAL ALUMINUM (ug/l)	127.0	EPA 200.8	JMM	2.5
TOTAL ANTIMONY (ug/l)	<5.0	EPA 200.8	JMM	5.0
TOTAL ARSENIC (ug/l)	<0.5	EPA 200.8	JMM	0.5
TOTAL BARIUM (ug/l)	79.8	EPA 200.8	JMM	3.0
TOTAL BERYLLIUM (ug/l)	<0.5	EPA 200.8	JMM	0.5
TOTAL CADMIUM (ug/l)	< 1.0	EPA 200.8	JMM	1.0
TOTAL CHROMIUM (ug/l)	<3.0	EPA 200.8	JMM	3.0
HEX CHROMIUM (ug/l)	<3.0	3500 - Cr D	AT	3.0
TRI CHROMIUM (ug/l)	<3.0	N/A	JMM	3.0
TOTAL COPPER (ug/l)	8.9	EPA 200.8	JMM	2.0
TOTAL LEAD (ug/l)	<0.5	EPA 200.8	JMM	<0.5
TOTAL MERCURY (ug/l)	*< 0.005	245.1	SUB	<0.005
TOTAL NICKEL (ug/l)	<2.0	EPA 200.8	JMM	2.0
TOTAL SELENIUM (ug/l)	<5.0	EPA 200.8	JMM	5.0
TOTAL SILVER (ug/l)	<0.5	EPA 200.8	JMM	0.5
TOTAL THALLIUM (ug/l)	<0.5	EPA 200.8	JMM	0.5
TOTAL ZINC (ug/l)	73.4	EPA 200.8	JMM	5.0
AMENABLE CYANIDE (ug/l)	*<10.0	EPA 335.4	SUB	10.0
TOTAL PHENOLS (ug/l)	*< 10.0	EPA 420.4	SUB	10.0
FLUORIDE (ug/l)	<500.0	SM 4500-F C	JLH	500.0
NITRATE-N (ug/l)	37,400.0	EPA 353.1	MNF	100.0

LAB REPRESENTATIVE

Ref. EPA METHODS FOR CHEMICAL ANALYSIS
*Analyzed by NELAC certified lab T104704215

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: **HCMUD #171 PERMIT RENEWAL** (Si Environmental)
LAB NUMBER: 21E3806D
DATE COLLECTED: 27-May-21
DATE RECEIVED: 27-May-21
DATE COMPLETED 01-Jun-21
SAMPLED BY: MB

SAMPLE TYPE:	EFFLUENT	EFFLUENT
LOCATION:	Comp	Comp
PARAMETERS:	PESTICIDES-PCB	PESTICIDES-PCB
EPA 1657*		**EPA 608***
Guthion (Azinphos Methyl) (ug/l)	< 0.10	Chlordane (ug/l) < 0.15
Chlorpyrifos (ug/l)	< 0.05	4-4' - DDD (ug/l) < 0.10
Demeton -O (ug/l)	< 0.20	4-4' - DDE (ug/l) < 0.10
Demeton -S (ug/l)	< 0.20	4-4' - DDT (ug/l) < 0.02
Diazinon (ug/l)	< 0.5	Dieldrin (ug/l) < 0.02
Disulfoton (ug/l)	< 0.5	Dicofol (ug/l) < 1.0
EPN (ug/l)	< 0.5	Endosulfan I (ug/l) < 0.01
Ethion (ug/l)	< 0.5	Endosulfan II (ug/l) < 0.02
Ethyl Parathion (ug/l)	< 0.1	Endosulfan Sulfate (ug/l) < 0.10
Malathion (ug/l)	< 0.10	Endrin (ug/l) < 0.02
Methyl Parathion (ug/l)	< 0.1	Gamma-BHC (Lindane) (ug/l) < 0.05
Parathion (ug/l)	< 0.10	Heptachlor (ug/l) < 0.01
EPA 608*		Heptaclor Epoxide (ug/l) < 0.01
Aldrin (ug/l)	< 0.01	Methoxychlor (ug/l) < 0.20
Alpha - BHC (ug/l) (Hexachlorocyclohexane)	< 0.05	Mirex (ug/l) < 0.02
Beta - BHC (ug/l)	< 0.05	Total PCBs (ug/l) < 0.2
		PCB-1016 (ug/l) < 0.2
		PCB-1221 (ug/l) < 0.2
		PCB-1232 (ug/l) < 0.2
		PCB-1242 (ug/l) < 0.2
		PCB-1248 (ug/l) < 0.2
		PCB-1254 (ug/l) < 0.2
		PCB-1260 (ug/l) < 0.2
		Toxaphene (ug/l) < 0.3
		Endrin Aldehyde (ug/l) < 0.10
		Delta - BHC (ug/l) < 0.05
		EPA 632*
		Diuron (ug/l) <0.09
		EPA 8151*
		2,4-D (ug/l) < 0.7
		2,4,5-TP (Silvex) (ug/l) < 0.3
		EPA 625*
		Carbaryl (ug/l) < 5.0

*Analyzed by NELAP certified lab T104704215

LAB REPRESENTATIVE

ENVIRODYNE LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT:	**HCMUD #171 PERMIT RENEWAL** (Si Environmental)	**LAB NUMBER:**	21E3806E
DATE COLLECTED:	27-May-21	**DATE RECEIVED:**	27-May-21
DATE COMPLETED:	07-Jun-21	**SAMPLED BY:**	MB

SAMPLE TYPE: **LOCATION:** **PARAMETERS:**	**Comp** **EFFLUENT** **@ 0700**	**METHOD #**	**ANALYST**
pH (Units)	*7.35	SM 4500 H+ B	MB
DO (mg/l)	*6.81	SM 4500-O C	MB
CHLORINE RESIDUAL (mg/l)	*1.57	SM 4500-Cl G	MB
CBOD-5 (mg/l)	2.0	SM 5210 B	MJC
T.S.S. (mg/l)	<2.0	SM 2540 D	MLB
NH3-N (mg/l)	<0.20	SM 4500-NH3 D	MNF
TKN-N (mg/l)	**0.62	EPA 354.1	SUB
NO3-N (mg/l)	37.40	EPA 353.1	MNF
SULFATE (mg/l)	42.3	ASTM D516-07	SNG
CHLORIDE (mg/l)	152.0	SM 4500-Cl B	SNG
T. DISSOLVED SOLIDS (mg/l)	608.0	SM 2540 C	WLH
T. PHOSPHORUS as P (mg/l)	6.00	SM 4500-P E	JCR
OIL and GREASE (mg/l)	*<5.0	EPA 1664A	JCR
ALKALINITY as CaCO3 (mg/l)	78.0	EPA 310.2	SNG
E. COLI (MPN/100 ml)	*<1	SM 9223B	HBB

**Analyzed by NELAC certified lab T104704215
*Grab sample at 0853

CERTIFIED BY

Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Blank (B1E3717-BLK1)				Prepared & Analyzed: 28-May-21						
Dichlorodifluoromethane	<2.50	2.50	ug/L							
Chloromethane	<2.50	2.50	"							
Vinyl Chloride	<2.50	2.50	"							
Bromomethane	<2.50	2.50	"							
Chloroethane	<2.50	2.50	"							
Trichlorofluoromethane	<2.50	2.50	"							
Acetone	<10.0	10.0	"							
Acrolein	<5.00	5.00	"							
1,1-Dichloroethene	<2.50	2.50	"							
Carbon Disulfide	<2.50	2.50	"							
Acetonitrile	<2.50	2.50	"							
Methylene Chloride	<2.50	2.50	"							
Acrylonitrile	<2.50	2.50	"							
MTBE (Methyl tert-butyl ether)	<2.50	2.50	"							
trans-1,2-Dichloroethene	<2.50	2.50	"							
1,1-Dichloroethane	<2.50	2.50	"							
Vinyl Acetate	<2.50	2.50	"							
2,2-Dichloropropane	<2.50	2.50	"							
cis-1,2-Dichloroethene	<2.50	2.50	"							
Bromochloromethane	<2.50	2.50	"							
Chloroform	<2.50	2.50	"							
2-Butanone	<5.00	5.00	"							
1,2-Dichloroethane	<2.50	2.50	"							
1,1,1-Trichloroethane	<2.50	2.50	"							
Tetrahydrofuran	<2.50	2.50	"							
Carbon Tetrachloride	<2.50	2.50	"							
1,1-Dichloropropene	<2.50	2.50	"							
Benzene	<2.50	2.50	"							
Trichloroethene	<2.50	2.50	"							
1,2-Dichloropropane	<2.50	2.50	"							
Dibromomethane	<2.50	2.50	"							
Bromodichloromethane	<2.50	2.50	"							

Envirodyne Laboratories, Inc.

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Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Blank (B1E3717-BLK1)				Prepared & Analyzed: 28-May-21						
2-Chloroethyl vinyl ether	<2.50	2.50	ug/L							
cis-1,3-Dichloropropene	<2.50	2.50	"							
trans-1,3-Dichloropropene	<2.50	2.50	"							
1,1,2-Trichloroethane	<2.50	2.50	"							
Dibromochloromethane	<2.50	2.50	"							
1,2-Dibromoethane	<2.50	2.50	"							
4-Methyl-2-Pentanone	<5.00	5.00	"							
Toluene	<2.50	2.50	"							
Tetrachloroethene	<3.00	3.00	"							
1,3-Dichloropropane	<2.50	2.50	"							
2-Hexanone	<5.00	5.00	"							
Chlorobenzene	<2.50	2.50	"							
1,1,1,2-Tetrachloroethane	<2.50	2.50	"							
Ethylbenzene	<2.50	2.50	"							
m,p-Xylene	<5.00	5.00	"							
o-Xylene	<2.50	2.50	"							
Styrene	<2.50	2.50	"							
Bromoform	<2.50	2.50	"							
Isopropylbenzene (Cumene)	<2.50	2.50	"							
1,1,2,2-Tetrachloroethane	<2.50	2.50	"							
1,2,3-Trichloropropane	<2.50	2.50	"							
Bromobenzene	<2.50	2.50	"							
Propylbenzene	<2.50	2.50	"							
2-Chlorotoluene	<2.50	2.50	"							
1,3,5-Trimethylbenzene	<2.50	2.50	"							
4-Chlorotoluene	<2.50	2.50	"							
tert-butyl Benzene	<2.50	2.50	"							
1,2,4-Trimethylbenzene	<2.50	2.50	"							
sec-butyl Benzene	<2.50	2.50	"							
p-Isopropyltoluene	<2.50	2.50	"							
1,3-Dichlorobenzene	<2.50	2.50	"							
1,4-Dichlorobenzene	<2.50	2.50	"							

Envirodyne Laboratories, Inc.

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Laura Bonjonia For Sarah Chaplain, Client Services Representative

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11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Blank (B1E3717-BLK1)				Prepared & Analyzed: 28-May-21						
n-butyl Benzene	<2.50	2.50	ug/L							
1,2-Dichlorobenzene	<2.50	2.50	"							
1,2-Dibromo-3-chloropropane	<2.50	2.50	"							
1,2,4-Trichlorobenzene	<2.50	2.50	"							
Hexachlorobutadiene	<2.50	2.50	"							
Naphthalene	<5.00	5.00	"							
1,2,3-Trichlorobenzene	<2.50	2.50	"							
Total Trihalomethanes	<2.50	2.50	"							
Total Xylenes	<2.50	2.50	"							
Surrogate: Dibromofluoromethane	*31*		"	*30.0*		*102*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*31*		"	*30.0*		*102*	*70-130*			
Surrogate: Toluene-d8	*30*		"	*30.0*		*98.9*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*29*		"	*30.0*		*98.2*	*70-130*			

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Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
LCS (B1E3717-BS1)				Prepared & Analyzed: 28-May-21						
Dichlorodifluoromethane	18.6	2.50	ug/L	20.0		93.0	1.16-250			
Chloromethane	18.0	2.50	"	20.0		89.9	1-205			
Vinyl Chloride	18.7	2.50	"	20.0		93.6	1-251			
Bromomethane	16.6	2.50	"	20.0		83.0	15-185			
Chloroethane	21.7	2.50	"	20.0		108	40-160			
Trichlorofluoromethane	19.9	2.50	"	20.0		99.6	17-181			
Acetone	23.5	10.0	"	20.0		117	54.2-173			
Acrolein	18.9	5.00	"	20.0		94.7	60-140			
1,1-Dichloroethene	19.1	2.50	"	20.0		95.4	50-150			
Carbon Disulfide	18.3	2.50	"	20.0		91.6	7-120			
Acetonitrile	19.4	2.50	"	20.0		97.2	70-120			
Methylene Chloride	19.0	2.50	"	20.0		95.2	60-140			
Acrylonitrile	19.1	2.50	"	20.0		95.6	60-140			
MTBE (Methyl tert-butyl ether)	18.6	2.50	"	20.0		93.2	70-120			
trans-1,2-Dichloroethene	17.9	2.50	"	20.0		89.6	70-130			
1,1-Dichloroethane	19.4	2.50	"	20.0		96.8	70-130			
Vinyl Acetate	17.5	2.50	"	20.0		87.3	60-140			
2,2-Dichloropropane	17.8	2.50	"	20.0		89.0	70-120			
cis-1,2-Dichloroethene	21.2	2.50	"	20.0		106	70-120			
Bromochloromethane	19.6	2.50	"	20.0		98.0	70-120			
Chloroform	19.0	2.50	"	20.0		95.2	70-135			
2-Butanone	18.4	5.00	"	20.0		91.8	70-120			
1,2-Dichloroethane	19.2	2.50	"	20.0		96.2	70-130			
1,1,1-Trichloroethane	18.9	2.50	"	20.0		94.4	56-162			
Tetrahydrofuran	19.8	2.50	"	20.0		99.2	70-130			
Carbon Tetrachloride	18.6	2.50	"	20.0		93.1	70-130			
1,1-Dichloropropene	18.5	2.50	"	20.0		92.4	70-120			
Benzene	18.9	2.50	"	20.0		94.6	65-135			
Trichloroethene	19.5	2.50	"	20.0		97.4	70-157			
1,2-Dichloropropane	18.8	2.50	"	20.0		94.1	35-165			
Dibromomethane	19.4	2.50	"	20.0		96.9	70-120			
Bromodichloromethane	19.7	2.50	"	20.0		98.6	65-135			

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Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
LCS (B1E3717-BS1)				Prepared & Analyzed: 28-May-21						
2-Chloroethyl vinyl ether	21.0	2.50	ug/L	20.0		105	1-225			
cis-1,3-Dichloropropene	19.6	2.50	"	20.0		98.1	25-175			
trans-1,3-Dichloropropene	20.2	2.50	"	20.0		101	50-150			
1,1,2-Trichloroethane	20.4	2.50	"	20.0		102	52-150			
Dibromochloromethane	19.8	2.50	"	20.0		98.9	70-135			
1,2-Dibromoethane	19.7	2.50	"	20.0		98.4	70-130			
4-Methyl-2-Pentanone	20.3	5.00	"	20.0		102	48-183			
Toluene	19.7	2.50	"	20.0		98.4	47-150			
Tetrachloroethene	22.5	3.00	"	20.0		112	64-148			
1,3-Dichloropropane	20.1	2.50	"	20.0		100	70-120			
2-Hexanone	20.1	5.00	"	20.0		100	70-120			
Chlorobenzene	19.6	2.50	"	20.0		98.0	65-135			
1,1,1,2-Tetrachloroethane	20.1	2.50	"	20.0		100	46-157			
Ethylbenzene	19.5	2.50	"	20.0		97.4	60-140			
m,p-Xylene	40.0	5.00	"	40.0		100	70-120			
o-Xylene	19.7	2.50	"	20.0		98.5	70-120			
Styrene	17.2	2.50	"	20.0		85.9	70-120			
Bromoform	19.0	2.50	"	20.0		95.1	70-130			
Isopropylbenzene (Cumene)	19.0	2.50	"	20.0		94.9	70-120			
1,1,2,2-Tetrachloroethane	19.2	2.50	"	20.0		96.2	46-157			
1,2,3-Trichloropropane	19.7	2.50	"	20.0		98.6	70-120			
Bromobenzene	18.8	2.50	"	20.0		93.8	70-120			
Propylbenzene	18.6	2.50	"	20.0		93.2	70-120			
2-Chlorotoluene	19.1	2.50	"	20.0		95.4	70-120			
1,3,5-Trimethylbenzene	19.0	2.50	"	20.0		94.8	70-120			
4-Chlorotoluene	19.4	2.50	"	20.0		97.1	70-120			
tert-butyl Benzene	18.1	2.50	"	20.0		90.3	70-120			
1,2,4-Trimethylbenzene	18.8	2.50	"	20.0		94.0	70-120			
sec-butyl Benzene	16.2	2.50	"	20.0		81.2	70-130			
p-Isopropyltoluene	17.9	2.50	"	20.0		89.4	70-120			
1,3-Dichlorobenzene	18.8	2.50	"	20.0		93.8	70-130			
1,4-Dichlorobenzene	18.9	2.50	"	20.0		94.5	65-135			

Envirodyne Laboratories, Inc.

Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

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Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
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281.568.7880 Phone
www.envirodyne.com

Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
LCS (B1E3717-BS1)				Prepared & Analyzed: 28-May-21						
n-butyl Benzene	17.8	2.50	ug/L	20.0		88.8	70-120			
1,2-Dichlorobenzene	18.8	2.50	"	20.0		93.9	65-135			
1,2-Dibromo-3-chloropropane	19.0	2.50	"	20.0		95.0	60-140			
1,2,4-Trichlorobenzene	16.8	2.50	"	20.0		83.8	70-120			
Hexachlorobutadiene	15.4	2.50	"	20.0		76.9	70-120			
Naphthalene	18.2	5.00	"	20.0		90.8	60-140			
1,2,3-Trichlorobenzene	16.9	2.50	"	20.0		84.6	60-140			
Total Trihalomethanes	77.6	2.50	"	80.0		96.9	35-155			
Total Xylenes	59.7	2.50	"	60.0		99.5	70-120			
Surrogate: Dibromofluoromethane	*31*		"	*30.0*		*102*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*30*		"	*30.0*		*101*	*70-130*			
Surrogate: Toluene-d8	*31*		"	*30.0*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*31*		"	*30.0*		*102*	*70-130*			

Envirodyne Laboratories, Inc.

Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

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Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
LCS Dup (B1E3717-BSD1)				Prepared & Analyzed: 28-May-21						
Dichlorodifluoromethane	16.0	2.50	ug/L	20.0		79.9	1.16-250	15.2	20	
Chloromethane	16.2	2.50	"	20.0		80.8	1-205	10.7	60	
Vinyl Chloride	17.3	2.50	"	20.0		86.4	1-251	7.89	66	
Bromomethane	17.7	2.50	"	20.0		88.4	15-185	6.42	61	
Chloroethane	19.6	2.50	"	20.0		98.0	40-160	10.2	78	
Trichlorofluoromethane	17.4	2.50	"	20.0		86.9	17-181	13.6	84	
Acetone	21.8	10.0	"	20.0		109	54.2-173	7.15	32	
Acrolein	17.4	5.00	"	20.0		87.0	60-140	8.53	60	
1,1-Dichloroethene	17.7	2.50	"	20.0		88.4	50-150	7.61	32	
Carbon Disulfide	17.3	2.50	"	20.0		86.7	7-120	5.50	20	
Acetonitrile	17.8	2.50	"	20.0		89.1	70-120	8.70	20	
Methylene Chloride	18.0	2.50	"	20.0		89.8	60-140	5.84	28	
Acrylonitrile	17.0	2.50	"	20.0		84.8	60-140	12.0	60	
MTBE (Methyl tert-butyl ether)	16.6	2.50	"	20.0		83.2	70-120	11.3	20	
trans-1,2-Dichloroethene	17.1	2.50	"	20.0		85.6	70-130	4.62	45	
1,1-Dichloroethane	18.2	2.50	"	20.0		91.2	70-130	5.96	40	
Vinyl Acetate	16.2	2.50	"	20.0		80.8	60-140	7.73	20	
2,2-Dichloropropane	16.3	2.50	"	20.0		81.7	70-120	8.55	20	
cis-1,2-Dichloroethene	19.2	2.50	"	20.0		95.8	70-120	10.2	20	
Bromochloromethane	17.3	2.50	"	20.0		86.3	70-120	12.7	20	
Chloroform	17.7	2.50	"	20.0		88.4	70-135	7.41	54	
2-Butanone	16.7	5.00	"	20.0		83.3	70-120	9.71	20	
1,2-Dichloroethane	18.2	2.50	"	20.0		91.0	70-130	5.50	49	
1,1,1-Trichloroethane	16.7	2.50	"	20.0		83.7	56-162	12.1	36	
Tetrahydrofuran	17.2	2.50	"	20.0		86.0	70-130	14.2	20	
Carbon Tetrachloride	17.8	2.50	"	20.0		89.1	70-130	4.39	41	
1,1-Dichloropropene	16.4	2.50	"	20.0		82.2	70-120	11.6	20	
Benzene	17.9	2.50	"	20.0		89.5	65-135	5.49	61	
Trichloroethene	18.0	2.50	"	20.0		90.0	70-157	7.79	48	
1,2-Dichloropropane	17.6	2.50	"	20.0		88.2	35-165	6.47	55	
Dibromomethane	18.0	2.50	"	20.0		90.2	70-120	7.16	20	
Bromodichloromethane	17.6	2.50	"	20.0		88.1	65-135	11.2	56	

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Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

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Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
LCS Dup (B1E3717-BSD1)				Prepared & Analyzed: 28-May-21						
2-Chloroethyl vinyl ether	18.8	2.50	ug/L	20.0		93.8	1-225	11.0	71	
cis-1,3-Dichloropropene	17.3	2.50	"	20.0		86.4	25-175	12.6	58	
trans-1,3-Dichloropropene	18.2	2.50	"	20.0		91.0	50-150	10.4	86	
1,1,2-Trichloroethane	18.3	2.50	"	20.0		91.4	52-150	10.7	45	
Dibromochloromethane	17.4	2.50	"	20.0		87.1	70-135	12.7	50	
1,2-Dibromoethane	18.1	2.50	"	20.0		90.7	70-130	8.19	20	
4-Methyl-2-Pentanone	18.1	5.00	"	20.0		90.6	48-183	11.5	20	
Toluene	18.0	2.50	"	20.0		90.0	47-150	8.81	41	
Tetrachloroethene	21.6	3.00	"	20.0		108	64-148	4.22	39	
1,3-Dichloropropane	17.7	2.50	"	20.0		88.3	70-120	12.9	20	
2-Hexanone	18.3	5.00	"	20.0		91.4	70-120	9.28	20	
Chlorobenzene	17.8	2.50	"	20.0		89.1	65-135	9.46	53	
1,1,1,2-Tetrachloroethane	18.5	2.50	"	20.0		92.6	46-157	7.93	20	
Ethylbenzene	18.1	2.50	"	20.0		90.4	60-140	7.51	63	
m,p-Xylene	36.9	5.00	"	40.0		92.3	70-120	7.96	20	
o-Xylene	17.5	2.50	"	20.0		87.4	70-120	12.0	20	
Styrene	15.7	2.50	"	20.0		78.7	70-120	8.75	20	
Bromoform	17.0	2.50	"	20.0		85.2	70-130	11.0	42	
Isopropylbenzene (Cumene)	17.6	2.50	"	20.0		88.1	70-120	7.43	20	
1,1,2,2-Tetrachloroethane	17.6	2.50	"	20.0		88.0	46-157	8.90	61	
1,2,3-Trichloropropane	18.2	2.50	"	20.0		91.2	70-120	7.80	20	
Bromobenzene	18.2	2.50	"	20.0		90.8	70-120	3.36	20	
Propylbenzene	17.7	2.50	"	20.0		88.4	70-120	5.18	20	
2-Chlorotoluene	18.1	2.50	"	20.0		90.5	70-120	5.22	20	
1,3,5-Trimethylbenzene	18.1	2.50	"	20.0		90.6	70-120	4.53	20	
4-Chlorotoluene	18.7	2.50	"	20.0		93.6	70-120	3.72	20	
tert-butyl Benzene	16.9	2.50	"	20.0		84.7	70-120	6.40	20	
1,2,4-Trimethylbenzene	17.6	2.50	"	20.0		88.0	70-120	6.59	20	
sec-butyl Benzene	15.5	2.50	"	20.0		77.4	70-130	4.79	20	
p-Isopropyltoluene	17.4	2.50	"	20.0		87.0	70-120	2.78	20	
1,3-Dichlorobenzene	17.7	2.50	"	20.0		88.4	70-130	5.87	43	
1,4-Dichlorobenzene	17.7	2.50	"	20.0		88.3	65-135	6.78	57	

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Laura Bonjonia For Sarah Chaplain, Client Services Representative

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Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
LCS Dup (B1E3717-BSD1)				Prepared & Analyzed: 28-May-21						
n-butyl Benzene	16.9	2.50	ug/L	20.0		84.7	70-120	4.78	20	
1,2-Dichlorobenzene	17.6	2.50	"	20.0		88.1	65-135	6.37	57	
1,2-Dibromo-3-chloropropane	18.3	2.50	"	20.0		91.6	60-140	3.75	20	
1,2,4-Trichlorobenzene	16.3	2.50	"	20.0		81.3	70-120	3.03	20	
Hexachlorobutadiene	15.8	2.50	"	20.0		78.8	70-120	2.44	20	
Naphthalene	17.2	5.00	"	20.0		86.0	60-140	5.32	20	
1,2,3-Trichlorobenzene	16.5	2.50	"	20.0		82.7	60-140	2.33	20	
Total Trihalomethanes	69.7	2.50	"	80.0		87.2	35-155	10.6	20	
Total Xylenes	54.4	2.50	"	60.0		90.6	70-120	9.28	20	
Surrogate: Dibromofluoromethane	*29*		"	*30.0*		*98.3*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*30*		"	*30.0*		*99.7*	*70-130*			
Surrogate: Toluene-d8	*30*		"	*30.0*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*30*		"	*30.0*		*100*	*70-130*			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Matrix Spike (B1E3717-MS1)	**Source: 21E3207-03**			Prepared & Analyzed: 28-May-21						
Dichlorodifluoromethane	90.6	12.5	ug/L	100	ND	90.6	1.16-250			
Chloromethane	110	12.5	"	100	ND	110	1-273			
Vinyl Chloride	92.0	12.5	"	100	ND	92.0	5-195			
Bromomethane	222	12.5	"	100	ND	222	1-242			
Chloroethane	121	12.5	"	100	ND	121	14-230			
Trichlorofluoromethane	96.9	12.5	"	100	ND	96.9	50-150			
Acetone	107	50.0	"	100	ND	107	60-194			
Acrolein	103	25.0	"	100	ND	103	40-160			C
1,1-Dichloroethene	95.1	12.5	"	100	ND	95.1	1-234			
Carbon Disulfide	95.2	12.5	"	100	ND	95.2	7-120			
Acetonitrile	102	12.5	"	100	ND	102	70-120			
Methylene Chloride	99.2	12.5	"	100	ND	99.2	1-221			
Acrylonitrile	100	12.5	"	100	ND	100	40-160			C
MTBE (Methyl tert-butyl ether)	94.0	12.5	"	100	ND	94.0	70-120			
trans-1,2-Dichloroethene	92.8	12.5	"	100	ND	92.8	54-156			
1,1-Dichloroethane	98.5	12.5	"	100	ND	98.5	59-155			
Vinyl Acetate	102	12.5	"	100	ND	102	60-140			
2,2-Dichloropropane	94.8	12.5	"	100	ND	94.8	70-120			
cis-1,2-Dichloroethene	107	12.5	"	100	ND	107	70-120			
Bromochloromethane	103	12.5	"	100	ND	103	70-120			
Chloroform	114	12.5	"	100	29.6	83.9	51-138			
2-Butanone	90.2	25.0	"	100	ND	90.2	70-120			
1,2-Dichloroethane	99.2	12.5	"	100	ND	99.2	49-155			
1,1,1-Trichloroethane	93.8	12.5	"	100	ND	93.8	70-130			
Tetrahydrofuran	101	12.5	"	100	ND	101	70-130			
Carbon Tetrachloride	93.6	12.5	"	100	ND	93.6	70-140			
1,1-Dichloropropene	89.6	12.5	"	100	ND	89.6	70-120			
Benzene	92.9	12.5	"	100	ND	92.9	37-151			
Trichloroethene	95.0	12.5	"	100	ND	95.0	65-135			
1,2-Dichloropropane	95.2	12.5	"	100	ND	95.2	1-210			
Dibromomethane	101	12.5	"	100	ND	101	70-120			
Bromodichloromethane	106	12.5	"	100	12.8	93.3	35-155			

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Volatile Organic Compounds by EPA 624.1 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Matrix Spike (B1E3717-MS1)		**Source: 21E3207-03**		Prepared & Analyzed: 28-May-21						
2-Chloroethyl vinyl ether	<12.5	12.5	ug/L	100	<12.5		1-305	0		Q
cis-1,3-Dichloropropene	96.0	12.5	"	100	ND	96.0	1-227			
trans-1,3-Dichloropropene	101	12.5	"	100	ND	101	17-183			
1,1,2-Trichloroethane	103	12.5	"	100	ND	103	70-130			
Dibromochloromethane	102	12.5	"	100	3.88	98.2	53-149			
1,2-Dibromoethane	101	12.5	"	100	ND	101	70-120			
4-Methyl-2-Pentanone	100	25.0	"	100	ND	100	47-197			
Toluene	96.2	12.5	"	100	ND	96.2	70-130			
Tetrachloroethene	77.2	15.0	"	100	ND	77.2	70-130			
1,3-Dichloropropane	98.9	12.5	"	100	ND	98.9	70-120			
2-Hexanone	97.2	25.0	"	100	ND	97.2	70-120			
Chlorobenzene	110	12.5	"	100	ND	110	37-160			
1,1,1,2-Tetrachloroethane	98.7	12.5	"	100	ND	98.7	46-157			
Ethylbenzene	95.6	12.5	"	100	ND	95.6	37-162			
m,p-Xylene	199	25.0	"	200	ND	99.4	70-120			
o-Xylene	96.2	12.5	"	100	ND	96.2	70-120			
Styrene	84.0	12.5	"	100	ND	84.0	70-120			
Bromoform	93.0	12.5	"	100	ND	93.0	45-169			
Isopropylbenzene (Cumene)	94.2	12.5	"	100	ND	94.2	70-120			
1,1,2,2-Tetrachloroethane	97.4	12.5	"	100	ND	97.4	60-140			
1,2,3-Trichloropropane	97.4	12.5	"	100	ND	97.4	70-120			
Bromobenzene	94.2	12.5	"	100	ND	94.2	70-120			
Propylbenzene	97.5	12.5	"	100	ND	97.5	70-120			
2-Chlorotoluene	96.8	12.5	"	100	ND	96.8	70-120			
1,3,5-Trimethylbenzene	101	12.5	"	100	ND	101	70-120			
4-Chlorotoluene	101	12.5	"	100	ND	101	70-120			
tert-butyl Benzene	99.0	12.5	"	100	ND	99.0	70-120			
1,2,4-Trimethylbenzene	99.6	12.5	"	100	ND	99.6	70-120			
sec-butyl Benzene	84.0	12.5	"	100	ND	84.0	70-120			
p-Isopropyltoluene	93.7	12.5	"	100	ND	93.7	70-120			
1,3-Dichlorobenzene	96.3	12.5	"	100	ND	96.3	59-156			
1,4-Dichlorobenzene	96.3	12.5	"	100	ND	96.3	18-190			

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Client:	Si Environmental, LLC
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Volatile Organic Compounds by EPA 624.1 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Matrix Spike (B1E3717-MS1)	**Source: 21E3207-03**			Prepared & Analyzed: 28-May-21						
n-butyl Benzene	94.4	12.5	ug/L	100	ND	94.4	70-120			
1,2-Dichlorobenzene	94.9	12.5	"	100	ND	94.9	18-190			
1,2-Dibromo-3-chloropropane	98.8	12.5	"	100	ND	98.8	60-140			
1,2,4-Trichlorobenzene	86.4	12.5	"	100	ND	86.4	70-120			
Hexachlorobutadiene	78.3	12.5	"	100	ND	78.3	70-120			
Naphthalene	91.0	25.0	"	100	ND	91.0	60-140			
1,2,3-Trichlorobenzene	84.0	12.5	"	100	ND	84.0	60-140			
Total Trihalomethanes	415	12.5	"	400	46.4	92.1	35-155			
Total Xylenes	295	12.5	"	300	ND	98.4	70-120			
Surrogate: Dibromofluoromethane	*31*		"	*30.0*		*105*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*30*		"	*30.0*		*101*	*70-130*			
Surrogate: Toluene-d8	*29*		"	*30.0*		*98.1*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*30*		"	*30.0*		*99.7*	*70-130*			

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Volatile Organic Compounds by EPA 624.1 - Quality Control

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Matrix Spike Dup (B1E3717-MSD1)	**Source: 21E3207-03**			Prepared & Analyzed: 28-May-21						
Dichlorodifluoromethane	81.8	12.5	ug/L	100	ND	81.8	1.16-250	10.2	20	
Chloromethane	105	12.5	"	100	ND	105	1-273	4.33	60	
Vinyl Chloride	90.4	12.5	"	100	ND	90.4	5-195	1.75	66	
Bromomethane	189	12.5	"	100	ND	189	1-242	16.5	61	
Chloroethane	107	12.5	"	100	ND	107	14-230	12.6	78	
Trichlorofluoromethane	91.6	12.5	"	100	ND	91.6	50-150	5.57	84	
Acetone	101	50.0	"	100	ND	101	60-194	5.66	25	
Acrolein	99.0	25.0	"	100	ND	99.0	40-160	3.62	60	C
1,1-Dichloroethene	91.4	12.5	"	100	ND	91.4	1-234	4.02	32	
Carbon Disulfide	91.6	12.5	"	100	ND	91.6	7-120	3.91	20	
Acetonitrile	97.4	12.5	"	100	ND	97.4	70-120	4.47	20	
Methylene Chloride	94.8	12.5	"	100	ND	94.8	1-221	4.54	28	
Acrylonitrile	96.9	12.5	"	100	ND	96.9	40-160	3.20	60	C
MTBE (Methyl tert-butyl ether)	93.8	12.5	"	100	ND	93.8	70-120	0.213	20	
trans-1,2-Dichloroethene	90.2	12.5	"	100	ND	90.2	54-156	2.90	45	
1,1-Dichloroethane	96.5	12.5	"	100	ND	96.5	59-155	2.05	40	
Vinyl Acetate	94.4	12.5	"	100	ND	94.4	60-140	7.69	20	
2,2-Dichloropropane	88.8	12.5	"	100	ND	88.8	70-120	6.53	20	
cis-1,2-Dichloroethene	105	12.5	"	100	ND	105	70-120	1.79	20	
Bromochloromethane	97.9	12.5	"	100	ND	97.9	70-120	5.46	20	
Chloroform	111	12.5	"	100	29.6	81.7	51-138	1.91	54	
2-Butanone	85.8	25.0	"	100	ND	85.8	70-120	5.00	20	
1,2-Dichloroethane	94.4	12.5	"	100	ND	94.4	49-155	5.01	49	
1,1,1-Trichloroethane	88.1	12.5	"	100	ND	88.1	70-130	6.21	36	
Tetrahydrofuran	98.8	12.5	"	100	ND	98.8	70-130	2.20	20	
Carbon Tetrachloride	89.2	12.5	"	100	ND	89.2	70-140	4.82	41	
1,1-Dichloropropene	86.8	12.5	"	100	ND	86.8	70-120	3.12	20	
Benzene	91.9	12.5	"	100	ND	91.9	37-151	1.08	61	
Trichloroethene	91.2	12.5	"	100	ND	91.2	65-135	4.19	48	
1,2-Dichloropropane	92.3	12.5	"	100	ND	92.3	1-210	3.09	55	
Dibromomethane	101	12.5	"	100	ND	101	70-120	0.496	20	
Bromodichloromethane	101	12.5	"	100	12.8	88.6	35-155	4.58	56	

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Matrix Spike Dup (B1E3717-MSD1)	**Source: 21E3207-03**			Prepared & Analyzed: 28-May-21						
2-Chloroethyl vinyl ether	<12.5	12.5	ug/L	100	<12.5		1-305	0	71	Q
cis-1,3-Dichloropropene	97.8	12.5	"	100	ND	97.8	1-227	1.86	58	
trans-1,3-Dichloropropene	101	12.5	"	100	ND	101	17-183	0.595	86	
1,1,2-Trichloroethane	102	12.5	"	100	ND	102	70-130	0.536	45	
Dibromochloromethane	98.6	12.5	"	100	3.88	94.7	53-149	3.44	50	
1,2-Dibromoethane	99.0	12.5	"	100	ND	99.0	70-120	1.80	20	
4-Methyl-2-Pentanone	98.0	25.0	"	100	ND	98.0	47-197	2.12	20	
Toluene	96.8	12.5	"	100	ND	96.8	70-130	0.570	41	
Tetrachloroethene	75.6	15.0	"	100	ND	75.6	70-130	2.10	39	
1,3-Dichloropropane	99.4	12.5	"	100	ND	99.4	70-120	0.504	20	
2-Hexanone	98.3	25.0	"	100	ND	98.3	70-120	1.13	20	
Chlorobenzene	109	12.5	"	100	ND	109	37-160	0.0914	53	
1,1,1,2-Tetrachloroethane	96.2	12.5	"	100	ND	96.2	46-157	2.62	20	
Ethylbenzene	94.8	12.5	"	100	ND	94.8	37-162	0.840	63	
m,p-Xylene	194	25.0	"	200	ND	96.9	70-120	2.52	20	
o-Xylene	97.4	12.5	"	100	ND	97.4	70-120	1.19	20	
Styrene	84.2	12.5	"	100	ND	84.2	70-120	0.238	20	
Bromoform	93.7	12.5	"	100	ND	93.7	45-169	0.750	42	
Isopropylbenzene (Cumene)	93.2	12.5	"	100	ND	93.2	70-120	1.01	20	
1,1,2,2-Tetrachloroethane	100	12.5	"	100	ND	100	60-140	2.79	61	
1,2,3-Trichloropropane	100	12.5	"	100	ND	100	70-120	2.78	20	
Bromobenzene	95.5	12.5	"	100	ND	95.5	70-120	1.42	20	
Propylbenzene	95.4	12.5	"	100	ND	95.4	70-120	2.23	20	
2-Chlorotoluene	96.2	12.5	"	100	ND	96.2	70-120	0.622	20	
1,3,5-Trimethylbenzene	99.2	12.5	"	100	ND	99.2	70-120	1.40	20	
4-Chlorotoluene	99.8	12.5	"	100	ND	99.8	70-120	1.19	20	
tert-butyl Benzene	98.6	12.5	"	100	ND	98.6	70-120	0.405	20	
1,2,4-Trimethylbenzene	98.4	12.5	"	100	ND	98.4	70-120	1.26	20	
sec-butyl Benzene	82.6	12.5	"	100	ND	82.6	70-120	1.68	20	
p-Isopropyltoluene	91.7	12.5	"	100	ND	91.7	70-120	2.16	20	
1,3-Dichlorobenzene	95.0	12.5	"	100	ND	95.0	59-156	1.31	43	
1,4-Dichlorobenzene	94.8	12.5	"	100	ND	94.8	18-190	1.62	57	

Envirodyne Laboratories, Inc.

Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

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Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
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Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3717 - Organics										
Matrix Spike Dup (B1E3717-MSD1)	**Source: 21E3207-03**			Prepared & Analyzed: 28-May-21						
n-butyl Benzene	92.4	12.5	ug/L	100	ND	92.4	70-120	2.03	20	
1,2-Dichlorobenzene	96.8	12.5	"	100	ND	96.8	18-190	2.03	57	
1,2-Dibromo-3-chloropropane	99.8	12.5	"	100	ND	99.8	60-140	1.01	20	
1,2,4-Trichlorobenzene	89.2	12.5	"	100	ND	89.2	70-120	3.25	20	
Hexachlorobutadiene	82.6	12.5	"	100	ND	82.6	70-120	5.41	20	
Naphthalene	95.8	25.0	"	100	ND	95.8	60-140	5.25	20	
1,2,3-Trichlorobenzene	88.0	12.5	"	100	ND	88.0	60-140	4.65	20	
Total Trihalomethanes	405	12.5	"	400	46.4	89.7	35-155	2.35	20	
Total Xylenes	286	12.5	"	300	ND	95.4	70-120	3.03	20	
Surrogate: Dibromofluoromethane	*31*		"	*30.0*		*103*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*30*		"	*30.0*		*98.9*	*70-130*			
Surrogate: Toluene-d8	*30*		"	*30.0*		*98.5*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*30*		"	*30.0*		*99.3*	*70-130*			

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Volatile Organic Compounds by EPA 624.1 - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Microbiology - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E3708 - Microbiology										
Blank (B1E3708-BLK1)				Prepared & Analyzed: 27-May-21						
E.coli	<1	1	MPN/100 mL							
Duplicate (B1E3708-DUP1)		**Source: 21E2549-02**		Prepared & Analyzed: 27-May-21						
E.coli	<2	2	MPN/100 mL		<2			0	0.402	

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Work Order: 21E3806

Reported:
09-Jun-21 14:07

Wet Chemistry - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1E0049 - Inorganics										
Blank (B1E0049-BLK1)				Prepared & Analyzed: 27-May-21						
Nitrate-N	<0.50	0.50	mg/L							
LCS (B1E0049-BS1)				Prepared & Analyzed: 27-May-21						
Nitrate-N	2.88		mg/L	3.00		96.0	90-110			
Matrix Spike (B1E0049-MS1)		Source: 21E3619-02		Prepared & Analyzed: 27-May-21						
Nitrate-N	3.11	0.50	mg/L	3.00	ND	104	80-120			
Matrix Spike Dup (B1E0049-MSD1)		Source: 21E3619-02		Prepared & Analyzed: 27-May-21						
Nitrate-N	2.93	0.50	mg/L	3.00	ND	97.7	80-120	5.96	20	
Batch B1F0166 - Inorganics										
Blank (B1F0166-BLK1)				Prepared & Analyzed: 02-Jun-21						
TSS	<2.0	2.0	mg/L							
Duplicate (B1F0166-DUP1)		Source: 21E2521-01		Prepared & Analyzed: 02-Jun-21						
TSS	<2.0	2.0	mg/L		<2.0			11.8	20	
Batch B1F0299 - Inorganics										
Blank (B1F0299-BLK1)				Prepared & Analyzed: 02-Jun-21						
TDS	<10.0	10.0	mg/L							
Duplicate (B1F0299-DUP1)		Source: 21E3616-06		Prepared & Analyzed: 02-Jun-21						
TDS	558	10.0	mg/L		564			1.07	20	

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Wet Chemistry - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F0382 - Inorganics										
Blank (B1F0382-BLK1)				Prepared & Analyzed: 03-Jun-21						
Total Phosphorus	<0.10	0.10	mg/L							
LCS (B1F0382-BS1)				Prepared & Analyzed: 03-Jun-21						
Total Phosphorus	1.00		mg/L	1.00		100	80-120			
Matrix Spike (B1F0382-MS1)		**Source: 21E2561-01**		Prepared & Analyzed: 03-Jun-21						
Total Phosphorus	1.05	0.10	mg/L	1.00	ND	105	80-120			
Matrix Spike Dup (B1F0382-MSD1)		**Source: 21E2561-01**		Prepared & Analyzed: 03-Jun-21						
Total Phosphorus	1.02	0.10	mg/L	1.00	ND	102	80-120	2.90	20	
Batch B1F0408 - Inorganics										
Blank (B1F0408-BLK1)				Prepared & Analyzed: 28-May-21						
CBOD-5	<2.0	2.0	mg/L							
Blank (B1F0408-BLK2)				Prepared & Analyzed: 28-May-21						
CBOD-5	<2.0	2.0	mg/L							
LCS (B1F0408-BS1)				Prepared & Analyzed: 28-May-21						
CBOD-5	200		mg/L	198		101	84.6-115.4			
Duplicate (B1F0408-DUP1)		**Source: 21E2557-01**		Prepared & Analyzed: 28-May-21						
CBOD-5	2.30	2.0	mg/L		2.40			4.26	20	
Batch B1F0549 - Inorganics										
Blank (B1F0549-BLK1)				Prepared & Analyzed: 02-Jun-21						
Ammonia-N (NH3-N)	<0.20	0.20	mg/L							

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Wet Chemistry - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F0549 - Inorganics										
LCS (B1F0549-BS1)				Prepared & Analyzed: 02-Jun-21						
Ammonia-N (NH3-N)	1.07		mg/L	1.00		107	90-110			
Matrix Spike (B1F0549-MS1)	Source: 21F0532-01			Prepared & Analyzed: 02-Jun-21						
Ammonia-N (NH3-N)	1.10	0.20	mg/L	1.00	ND	110	90-110			
Matrix Spike Dup (B1F0549-MSD1)	Source: 21F0532-01			Prepared & Analyzed: 02-Jun-21						
Ammonia-N (NH3-N)	1.10	0.20	mg/L	1.00	ND	110	90-110	0.00	20	
Batch B1F0623 - Inorganics										
Blank (B1F0623-BLK1)				Prepared & Analyzed: 04-Jun-21						
Sulfate	<2.00	2.00	mg/L							
LCS (B1F0623-BS1)				Prepared & Analyzed: 04-Jun-21						
Sulfate	21.9		mg/L	20.0		110	90-110			
Matrix Spike (B1F0623-MS1)	Source: 21E3806-01			Prepared & Analyzed: 04-Jun-21						
Sulfate	63.8	4.00	mg/L	20.0	42.3	108	80-120			
Matrix Spike Dup (B1F0623-MSD1)	Source: 21E3806-01			Prepared & Analyzed: 04-Jun-21						
Sulfate	62.6	4.00	mg/L	20.0	42.3	102	80-120	1.90	20	
Batch B1F0892 - Inorganics										
Blank (B1F0892-BLK1)				Prepared & Analyzed: 07-Jun-21						
Alkalinity (m) as CaCO3	<20.0	20.0	mg/L							
Alkalinity (p) as CaCO3	<20.0	20.0	"							

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Work Order:	21E3806

Reported:
09-Jun-21 14:07

Wet Chemistry - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F0892 - Inorganics										
LCS (B1F0892-BS1)				Prepared & Analyzed: 07-Jun-21						
Alkalinity (m) as CaCO3	53.0		mg/L	50.0		106	90-110			
Alkalinity (p) as CaCO3	53.0		"	50.0		106	90-110			
Duplicate (B1F0892-DUP1)	**Source: 21E3806-01**			Prepared & Analyzed: 07-Jun-21						
Alkalinity (m) as CaCO3	75.0	20.0	mg/L		78.0			3.92	20	
Alkalinity (p) as CaCO3	<20.0	20.0	"		<20.0			0	20	
Batch B1F0986 - Inorganics										
Blank (B1F0986-BLK1)				Prepared & Analyzed: 07-Jun-21						
Chloride	<3.0	3.0	mg/L							
LCS (B1F0986-BS1)				Prepared & Analyzed: 07-Jun-21						
Chloride	108		mg/L	100		108	90-110			
Matrix Spike (B1F0986-MS1)	**Source: 21F0256-01**			Prepared & Analyzed: 07-Jun-21						
Chloride	84.0	12.0	mg/L	20.0	62.0	110	80-120			
Matrix Spike Dup (B1F0986-MSD1)	**Source: 21F0256-01**			Prepared & Analyzed: 07-Jun-21						
Chloride	84.0	12.0	mg/L	20.0	62.0	110	80-120	0.00	20	
Batch B1F1000 - Inorganics										
Blank (B1F1000-BLK1)				Prepared & Analyzed: 08-Jun-21						
Oil & Grease	<5.0	5.0	mg/L							

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Work Order:	21E3806

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09-Jun-21 14:07

Wet Chemistry - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F1000 - Inorganics										
LCS (B1F1000-BS1)				Prepared & Analyzed: 08-Jun-21						
Oil & Grease	34.0		mg/L	40.0		85.0	78-114			
LCS Dup (B1F1000-BSD1)				Prepared & Analyzed: 08-Jun-21						
Oil & Grease	35.0		mg/L	40.0		87.5	78-114	2.90	18	

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Work Order:	21E3806

Reported:
09-Jun-21 14:07

Metals - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F0039 - Inorganics										
Blank (B1F0039-BLK1)				Prepared & Analyzed: 02-Jun-21						
Chromium, Hexavalent	<1.0	1.0	ug/L							
LCS (B1F0039-BS1)				Prepared & Analyzed: 02-Jun-21						
Chromium, Hexavalent	50.4		ug/L	50.0		101	95-105			
Matrix Spike (B1F0039-MS1)	**Source: 21F0587-02**			Prepared & Analyzed: 02-Jun-21						
Chromium, Hexavalent	51.8	1.0	ug/L	50.0	ND	104	80-120			
Matrix Spike Dup (B1F0039-MSD1)	**Source: 21F0587-02**			Prepared & Analyzed: 02-Jun-21						
Chromium, Hexavalent	52.4	1.0	ug/L	50.0	ND	105	80-120	1.15	20	

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Reported:
09-Jun-21 14:07

Total Metals by ICP-MS - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F0972 - Metals - EPA 200.2										
Blank (B1F0972-BLK1)				Prepared: 05-Jun-21 Analyzed: 07-Jun-21						
Copper	<0.5	0.5	ug/L							
Lead	<0.0005	0.0005	mg/L							
Nickel	<0.5	0.5	ug/L							
Silver	<0.5	0.5	"							
Chromium	<2.0	2.0	"							
Thallium	<0.5	0.5	"							
Barium	<2.0	2.0	"							
Aluminum	<0.0020	0.0020	mg/L							
Cadmium	<0.50	0.50	ug/L							
Beryllium	<0.5	0.5	"							
Arsenic	<0.5	0.5	"							
Selenium	<2.0	2.0	"							
Zinc	<0.0020	0.0020	mg/L							
Antimony	<0.5	0.5	ug/L							
LCS (B1F0972-BS1)				Prepared: 05-Jun-21 Analyzed: 07-Jun-21						
Cadmium	73		ug/L	75.0		96.7	85-115			
Thallium	70.5		"	75.0		94.0	85-115			
Barium	73.2		"	75.0		97.6	85-115			
Nickel	70.8		"	75.0		94.3	85-115			
Beryllium	69.8		"	75.0		93.1	85-115			
Aluminum	69.8		"	75.0		93.0	85-115			
Lead	74		"	75.0		98.1	85-115			
Silver	75		"	75.0		99.8	85-115			
Arsenic	72.0		"	75.0		95.9	85-115			
Copper	69.5		"	75.0		92.7	85-115			
Chromium	71.3		"	75.0		95.0	85-115			
Selenium	72.1		"	75.0		96.1	85-115			
Zinc	72.0		"	75.0		95.9	85-115			
Antimony	76.6		"	75.0		102	85-115			

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Reported:
09-Jun-21 14:07

Total Metals by ICP-MS - Quality Control

Envirodyne Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1F0972 - Metals - EPA 200.2										
Matrix Spike (B1F0972-MS1)	**Source: 21F0703-02**			Prepared: 05-Jun-21 Analyzed: 07-Jun-21						
Arsenic	101	0.5	ug/L	100	4.84	96.5	70-130			
Thallium	90.2	0.5	"	100	ND	90.2	70-130			
Aluminum	0.321	0.0020	mg/L	0.100	0.226	94.4	70-130			
Barium	326	2.0	ug/L	100	225	101	70-130			
Beryllium	78.4	0.5	"	100	0.0878	78.3	70-130			
Silver	92	0.5	"	100	ND	92.5	70-130			
Cadmium	92	0.50	"	100	ND	92.1	70-130			
Nickel	108	0.5	"	100	17.4	90.8	70-130			
Chromium	100	2.0	"	100	11.7	88.7	70-130			
Lead	0.091	0.0005	mg/L	0.100	0.00056	90.1	70-130			
Copper	119	0.5	ug/L	100	29.7	88.9	70-130			
Zinc	0.860	0.0100	mg/L	0.100	0.734	126	70-130			
Selenium	88.1	2.0	ug/L	100	ND	88.1	70-130			
Antimony	104	0.5	"	100	4.12	100	70-130			
Matrix Spike Dup (B1F0972-MSD1)	**Source: 21F0703-02**			Prepared: 05-Jun-21 Analyzed: 07-Jun-21						
Cadmium	94	0.50	ug/L	100	ND	93.7	70-130	1.73	20	
Aluminum	0.324	0.0020	mg/L	0.100	0.226	97.2	70-130	0.866	20	
Chromium	102	2.0	ug/L	100	11.7	90.5	70-130	1.70	20	
Beryllium	78.9	0.5	"	100	0.0878	78.8	70-130	0.686	20	
Barium	335	2.0	"	100	225	110	70-130	2.66	20	
Arsenic	103	0.5	"	100	4.84	98.4	70-130	1.81	20	
Silver	94	0.5	"	100	ND	94.3	70-130	1.92	20	
Lead	0.091	0.0005	mg/L	0.100	0.00056	90.7	70-130	0.665	20	
Nickel	110	0.5	ug/L	100	17.4	92.8	70-130	1.86	20	
Thallium	91.8	0.5	"	100	ND	91.8	70-130	1.78	20	
Copper	121	0.5	"	100	29.7	91.4	70-130	2.10	20	
Zinc	0.814	0.0040	mg/L	0.100	0.734	80.3	70-130	5.47	20	
Selenium	90.2	2.0	ug/L	100	ND	90.2	70-130	2.28	20	
Antimony	104	0.5	"	100	4.12	100	70-130	0.293	20	

Envirodyne Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

Envirodyne Laboratories, Inc
11011 Brooklet Dr., # 230
Houston, TX 77099
281.568.7880 Phone
www.envirodyne.com

Client:	Si Environmental, LLC
Project:	HCMUD #171 WWTP
Work Order:	21E3806

Reported:
09-Jun-21 14:07

Notes and Definitions

Q	QC did not meet ELI acceptance criteria
L	Analyzed by third party laboratory
H	Hold time exceeded
C	Refer to sample comments
ND	Analyte NOT DETECTED at or above the reporting limit
<	Result is less than the RL
a	Analyte not available for TNI/NELAP accreditation
n	Not accredited

Envirodyne Laboratories, Inc.

Laura Bonjonia

Laura Bonjonia For Sarah Chaplain, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

21E3804

Houston, Texas 77099-3543
Phone (281)568-7880 - Fax (281)568-8004

Page _____ Of _____

TCEQ Certification # T104704265

Name: Si Environmental
Address: 6420 Reading Rd
City: Rosenberg, TX 77471
Contact: Mike Thornhill Phone: Fax:

Analysis Request and Chain of Custody Record

Project No. | Client/Project: HCMUD 171 Long Permit

Lab ID No.	Field Sample No./ Indentification	Date & Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, etc)	Preservative	ANALYSIS REQUESTED	pH	D.O.	Temp.	Analysis Time
	Effluent	5-27-21 0853	✓		NA	Liquid	NA	pH,DO,Cl2 residual	7.35	6.81	25	0854
	Effluent	5-27-21 0700		✓	1 gal cubic	Liquid	Ice	CBOD,TSS,TDS,SO4,Cl,Cr+6,Alk,NO3N				
	Effluent	"		✓	500 mL P	Liquid	Ice, H2SO4	NH3-N, TKN-N, T. PO4,				
	Effluent	5-27-21 0853	✓		(2) 120 ml P	Liquid	Ice, Sod Thio	Ecoli				
	Effluent	5-27-21 0700		✓	500 ml P	Liquid	HNO3	Al, Ba Sb,As,Be,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Tl,Zn				
	Effluent	5-27-21 0853	✓		1 L G	Liquid	Ice, HCl	Oil & Grease				
	Effluent	"	✓		(3) 40ml VOA	Liquid	Ice,HCl	VOC				
	Effluent	"	✓		250 ml P	Liquid	Ice, NaOH	Cyanide, Amenable				
	Effluent	"	✓		1 L Amber	Liquid	Ice, H2SO4	Phenol				
	Effluent	"	✓		(3) 1 L Amber	Liquid	Ice	BNA, Pesticides, PCBs				

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time: / Seal Intact?
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time: / Seal Intact?
	Relinquished by: (Signature)	Date: 5-27-21 Time: 1530	Received by Lab: (Signature)	Date: 5-27-21 Time: 1530 / Seal Intact?
Remarks:	FLOW: Meter Reading: Cl2 Residual: 1.61 Mn Correction: .04 Corrected: 1.57	Arrival Temp. 1.6|29 JL#4	Data Results To: 1. Site Representative:	Date: Time: / Laboratory No.

00185

November 8, 2021

Texas Commission on Environmental Quality (TCEQ)
12100 Park 35 Circle
Austin, Texas 78735

Attn: Abesha H. Michael
Water Quality Division (MC 148)
Texas Commission on Environmental Quality

Re: Application to Renew Permit No. WQ0015264001 (EPA I.D. No. TX0135461)
Issued to Harris County Municipal Utility District No. 171 (CN600740674);
Site Name: Harris County Municipal District No. 171 Wastewater Treatment Plant (RN107309437)

Dear Ms. Michael:

We received your memo, dated October 29, 2021 with comments for the referenced Harris County Municipal Utility District No. 171 Wastewater Treatment Plant Permit Renewal Application (Permit No. WQ0015264001). The following are our proposed resolutions to each comment:

1. **Section III. Item 23 and 24 on page 2 of the Core Data Form:** Thank you for addressing these items. However, we need to get your confirmation which address we use in the permit. Please confirm.

   RESPONSE: Please use the description of physical location in the permit. Description of physical location shall read "Approximately 3,000 feet southwest of the intersection of Peek Road and Beckendorf Road."

2. **Section 13 of Municipal, item B on page 11 of the Administrative Report 1.0:** Thank you for providing the USGS Topographic Map. However, the map is insufficient because it doesn't show the discharge route. Please submit a USGS map showing the applicants property, facility boundaries, the point of discharge, highlighted discharge route (using a see-through highlighter) for 3 miles downstream or until it reaches a classified segment from the point of discharge, and 1 mile radius in all directions of the site. The required information should be shown and clearly labeled, the stream characteristics, must be visible and the map must have a date and a scale.

   RESPONSE: The USGS map has been updated to include the items listed above. Please see attached.

3. **Section 14, The signature page on Page 13 of the Administrative Report:** Thank you for providing the signature page. However, it is not completed, please submit a completed signature page bearing the notarized signature of a principal executive officer. The notary is required to witness the signature and complete all notary information. The signature dates should correspond and has to be original.

   RESPONSE: Apologies for the error on the signature page, an incorrect copy was provided in the original submittal. Please see attached for the correct signature page with notary information.

4. **Section 1, item A, affected landowner information on page 14 of the Administrative Report 1.1:** Thank you for providing the affected landowner's map. However, the map provided is insufficient.

- The facility boundary within the applicant property boundary is not identified
- The affected landowner at the east side of the applicant property is not delineated

- As per the instruction, it is only requested to highlight and show the landowners located on both sides of the discharge route for **one full stream mile** downstream of the point of discharge not for 3 miles. And please update the mailing list and the mailing labels accordingly.

RESPONSE: The affected landowners map, mailing list and mailing labels have been updated. Please see attached.

5. **Section 1, item B, affected landowner information on page 14 of the Administrative Report 1.1:** The application indicates the cross-referenced mailing list is attached. However, we are an able to location the cross-referenced mailing list. Please submit the mailing list.

   RESPONSE: The affected landowners mailing list has been updated. Please see attached

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

   Harris County Municipal Utility District No. 171, c/o Allen Boone Humphries Robinson L.L.P.- Rachel Wooten, 3200 Southwest Freeway, Suite 2600, Houston, Texas 77027, has applied to the Texas Commission on Environmental Quality (TCEQ) to amend Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0015264001 (EPA I.D. No. TX0135461) to authorize an increase in the discharge of treated wastewater to a volume not to exceed an annual average flow of 3,000,000 gallons per day. The domestic wastewater treatment facility is located at (Physical Address or Location Description –pending response), in Harris County, Texas 77493. The discharge route is from the plant site to a man-made ditch; thence to South Mayde Creek; thence to Buffalo Bayou Above Tidal. TCEQ received this application on August 25, 2021. The permit application is available for viewing and copying at Katy Branch Library, 5414 Franz Road, Katy, Texas. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application.
   https://tceq.maps.arcgis.com/apps/webappviewer/index.html?id=db5bac44afbc468bbddd360f8168250f&marker=-95.783333%2C29.86&level=12
   Further information may also be obtained from Harris County Municipal Utility District No. 171 at the address stated above or by calling Mr. Kenyon Hunt, P.E., Senior project Manager, BGE, Inc., 281-558-8700.

   RESPONSE: There are no errors in the notice of receipt.

If you have any questions or require additional information, please do not hesitate to call me at (832) 913-4121.

Sincerely,

Kenyon Hunt, P.E.
Senior Project Manager

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

The National Map US Topo

KATY QUADRANGLE
TEXAS
7.5-MINUTE SERIES

Applicant's Facility Boundary (WWTP Site)
Discharge Point
1 Mile Radius
Manmade Ditch
Applicant's Property Boundary
3 Miles Downstream
HARRIS CO
WALLER CO
FORT BEND CO
KATY
HOUSTON
Bear Cr
Mason Cr
S Mayde Cr
Willow Fork
Willow Fork
Snake Cr
Buffalo Bayou
Tucker Lake
Magnolia Cem
Cane Island Br
Cane Island Br

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

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

QUADRANGLE LOCATION

ADJOINING QUADRANGLES
1 Hockley Mound
2 Warren Lake
3 Cypress
4 Brookshire
5 Addicks
6 Fulshear
7 Richmond NE
8 Clodine

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

N
0 1,000 2,000 4,000
Feet

G:\TXH\Projects\Districts\HCMUD171\5271_2017 TPDES Permit Renewal\09_GIS\Exhibits\QuadMap_20210517.mxd

Harris County MUD 171

BGE Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: (281) 558-8700 Fax: (281) 558-9701
www.browngay.com

TPDES Permit Major Amendment Application

USGS Quad Map
Corresponds to Domestic Administrative Report 1.0, Section 13, Page 11

Date:	Proj. No:	Attachment:
November 2021	8893-00	2

Section 14. Signature Page (Instructions Page 39)

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

Permit Number: WQ0015264001

Applicant: Harris County Municipal Utility District No. 171

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): Duane Heckmann

Signatory title: Board President

Signature: _____ Date: 7/3/2021

(Use blue ink)

Subscribed and Sworn to before me by the said Duane Heckmann

on this 3rd day of July, 2021.

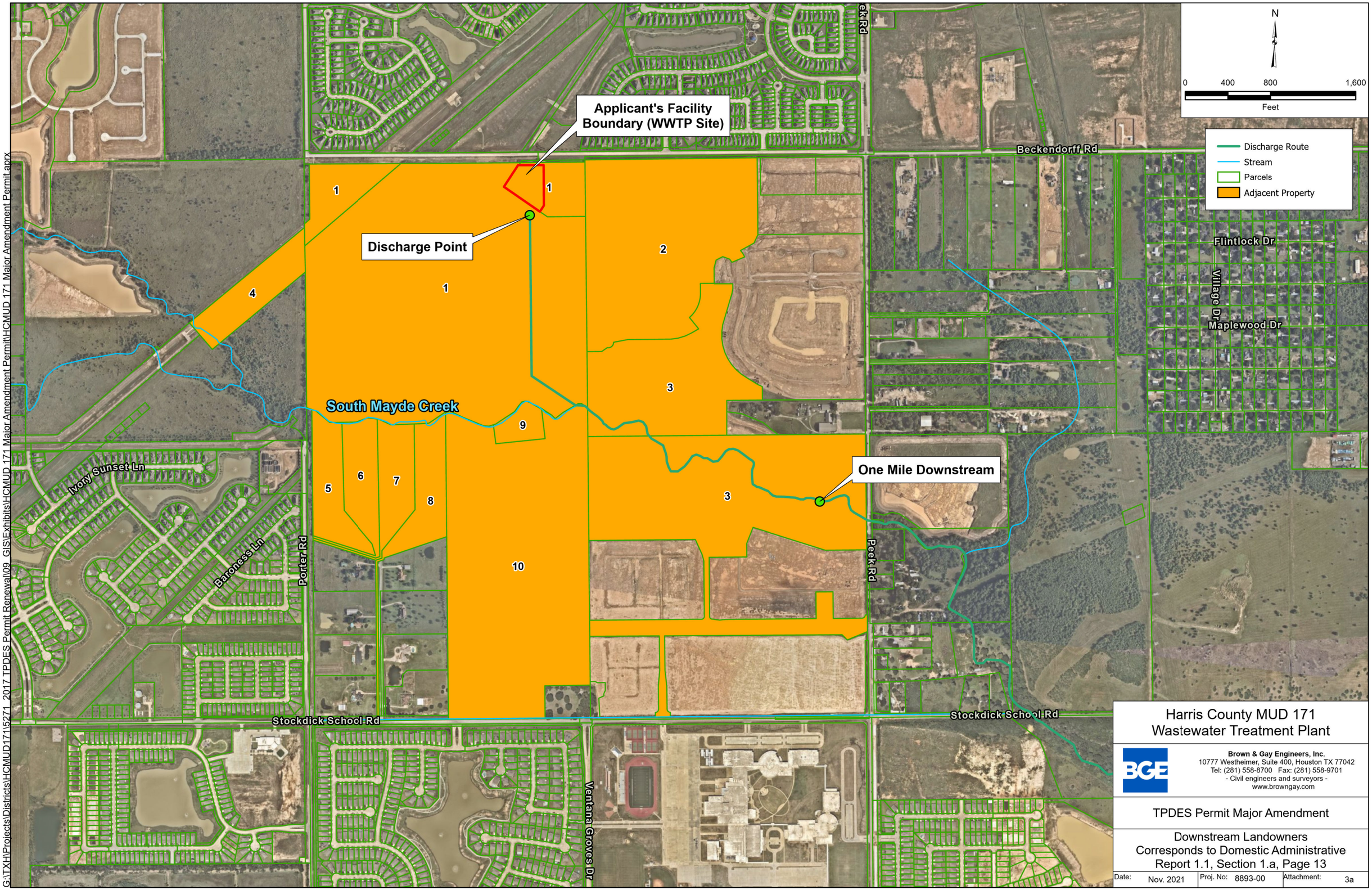
My commission expires on the 9th day of July, 2023.

Michelle Payne
Notary Public

MICHELLE PAYNE
My Notary ID # 124379225
Expires July 9, 2023

[SEAL]

Harris
County, Texas



G:\TXH\Projects\Districts\HCMUD171\5271_2017 TPDES Permit Renewal\09_GIS\Exhibits\HCMUD 171 Major Amendment Permit\HCMUD 171 Major Amendment Permit.aprx

Harris County MUD 171
Wastewater Treatment Plant

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400, Houston TX 77042
Tel: (281) 558-8700 Fax: (281) 558-9701
- Civil engineers and surveyors -
www.browngay.com

TPDES Permit Major Amendment

Downstream Landowners
Corresponds to Domestic Administrative Report 1.1, Section 1.a, Page 13

Date:	Proj. No:	Attachment:
Nov. 2021	8893-00	3a

Attachment 3b – Landowners Cross Reference Mailing List

Corresponds to Domestic Administrative Report 1.1, Section 1.b, Page 14

Tract Number	Owner Name	Address
1	HARRIS COUNTY MUD NO 171	11500 NORTHWEST FWY STE 465 HOUSTON TX 77092-6538
2	CUNNINGHAM INTERESTS II LTD	1770 SAINT JAMES PL STE 205 HOUSTON TX 77056-3432
3	BLACK GOLD LAND HOLDINGS LLC	529 S BAYSIDE DR ANAHUAC TX 77514
4	HARRIS COUNTY MUD NO 172	11111 KATY FWY STE 725 HOUSTON TX 77079-2175
5	JAMES W DONNELLY	23918 STOCKDICK SCHOOL RD KATY TX 77493-6317
6	DONNISHA & CHRIS SPICER	23910 STOCKDICK SCHOOL RD KATY TX 77493-6317
7	GREGORY S JOHNSTON	23850 STOCKDICK SCHOOL RD KATY TX 77493-6318
8	ROBERT L SCHRIEFER	23842 STOCKDICK SCHOOL RD KATY TX 77493
9	NASH FM 529 LLC	10720 W SAM HOUSTON PKWY N STE 150 HOUSTON TX 77064-1547
10	WILBOW BERGAMO VISTA LLC	5307 E MOCKINGBIRD LN STE 900 DALLAS TX 75206-0955

HARRIS COUNTY MUD NO 171
11500 NORTHWEST FWY STE 465
HOUSTON TX 77092-6538

CUNNINGHAM INTERESTS II LTD
1770 SAINT JAMES PL STE 205
HOUSTON TX 77056-3432

BLACK GOLD LAND HOLDINGS LLC
529 S BAYSIDE DR
ANAHUAC TX 77514

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JAMES W DONNELLY
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DONNISHA & CHRIS SPICER
23910 STOCKDICK SCHOOL RD
KATY TX 77493-6317

GREGORY S JOHNSTON
23850 STOCKDICK SCHOOL RD
KATY TX 77493-6318

ROBERT L SCHRIEFER
23842 STOCKDICK SCHOOL RD
KATY TX 77493

NASH FM 529 LLC
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WILBOW BERGAMO VISTA LLC
5307 E MOCKINGBIRD LN STE 900
DALLAS TX 75206-0955

Archived: Tuesday, May 2, 2023 12:27:58 PM
From: Kenyon Hunt
Sent: Tue, 16 Nov 2021 22:41:29
To: Abesha Michael
Cc: Shiann Hernandez Shiann Hernandez
Subject: RE: Application to Amend Permit No. WQ0015264001, Harris County Municipal Utility District No. 171 - Notice of Deficiency Letter
Importance: Normal
Sensitivity: None
Attachments:
Attachment 3b_Downstream Landowner List.pdf

See attached – hopefully this is what you need

Kenyon S Hunt, PE | Senior Project Manager

BGE, Inc.

10777 Westheimer, Suite 400

Houston, TX 77042

Main: 281-558-8700

Direct: 713-488-8148

Cell: 503-936-2092

KHunt@bgeinc.com

Serving. Leading. Solving.™

From: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Sent: Tuesday, November 16, 2021 3:42 PM
To: Kenyon Hunt <KHunt@bgeinc.com>
Subject: RE: Application to Amend Permit No. WQ0015264001, Harris County Municipal Utility District No. 171 - Notice of Deficiency Letter

Good Afternoon Mr. Hunt,

Thank you for your prompt response.

Yes, the mailing list the attached. Please take out the name of the applicant. We are not mailing the notice of amendment to the

applicant.

Thank you,

Abesha Michael

From: Kenyon Hunt <KHunt@bgeinc.com>
Sent: Tuesday, November 16, 2021 3:29 PM
To: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Cc: Shiann Hernandez <SHernandez@bgeinc.com>
Subject: RE: Application to Amend Permit No. WQ0015264001, Harris County Municipal Utility District No. 171 - Notice of Deficiency Letter

Greetings - Thank you for the notice. Is the attached file what you are looking for?

Kenyon S Hunt, PE | Senior Project Manager

BGE, Inc.

10777 Westheimer, Suite 400

Houston, TX 77042

Main: 281-558-8700

Direct: 713-488-8148

Cell: 503-936-2092

KHunt@bgeinc.com

Serving. Leading. Solving.™

From: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Sent: Tuesday, November 16, 2021 3:06 PM
To: Kenyon Hunt <KHunt@bgeinc.com>
Subject: FW: Application to Amend Permit No. WQ0015264001, Harris County Municipal Utility District No. 171 - Notice of Deficiency Letter

Good Afternoon Mr. Hunt,

Thank you for your response dated on November 8, 2021. However, Item No. 5 was not addressed. We received the mailing label and we still need to get the cross-referenced list. Please email the mailing list asap.

5. Section 1, item B, affected landowner information on page 14 of the Administrative Report 1.1: The application indicates the cross-referenced mailing list is attached. However, we are an able to location the cross-referenced mailing list. Please submit the mailing list.

Thank you,

Abesha Michael

From: Abesha Michael
Sent: Friday, October 29, 2021 4:35 PM
To: khunt@bgeinc.com
Cc: Veeral Patel <VPatel@bgeinc.com>
Subject: Application to Amend Permit No. WQ0015264001, Harris County Municipal Utility District No. 171 - Notice of Deficiency Letter

Dear Mr. Hunt:

The attached Notice of Deficiency letter was emailed on October 29, 2021, requesting additional information needed to declare the application administratively complete. Please mail an original and two copies (with a cover letter) of the complete response to my attention by November 12, 2021.

Note: Our deficiency response process has recently changed, please note the updated NOD deadline.

Thank you,

Abesha H. Michael

Applications Review & Processing Team

Water Quality Division Support Section

Water Quality Division, MC 148

PO Box 13087

Austin, Texas 78711
Phone: o: 512-239-4912; c: 346-802-8446
Email: abesha.michael@tceq.texas.gov

Attachment 3b – Landowners Cross Reference Mailing List

Corresponds to Domestic Administrative Report 1.1, Section 1.b, Page 14

Tract Number	Owner Name	Address
2	CUNNINGHAM INTERESTS II LTD	1770 SAINT JAMES PL STE 205 HOUSTON TX 77056-3432
3	BLACK GOLD LAND HOLDINGS LLC	529 S BAYSIDE DR ANAHUAC TX 77514
4	HARRIS COUNTY MUD NO 172	11111 KATY FWY STE 725 HOUSTON TX 77079-2175
5	JAMES W DONNELLY	23918 STOCKDICK SCHOOL RD KATY TX 77493-6317
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9	NASH FM 529 LLC	10720 W SAM HOUSTON PKWY N STE 150 HOUSTON TX 77064-1547
10	WILBOW BERGAMO VISTA LLC	5307 E MOCKINGBIRD LN STE 900 DALLAS TX 75206-0955

Archived: Tuesday, May 2, 2023 12:28:12 PM
From: Kenyon Hunt
Sent: Thu, 2 Dec 2021 20:52:55
To: Xing Lu
Cc: Josi Robertson Shiann Hernandez Shiann Hernandez
Subject: RE: Harris County MUD 171, 15264-001
Importance: Normal
Sensitivity: None
Attachments:
Elyson South Basin 3_HC Approved.pdf

The permanent wet pool of the basin is approximately 16 feet deep. Attached are the engineering drawings, if that is helpful.

Kenyon S Hunt, PE | Senior Project Manager

BGE, Inc.

10777 Westheimer, Suite 400

Houston, TX 77042

Main: 281-558-8700

Direct: 713-488-8148

Cell: 503-936-2092

KHunt@bgeinc.com

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From: Xing Lu <Xing.Lu@tceq.texas.gov>
Sent: Thursday, December 2, 2021 11:21 AM
To: Kenyon Hunt <KHunt@bgeinc.com>
Cc: Josi Robertson <Josi.Robertson@tceq.texas.gov>
Subject: RE: Harris County MUD 171, 15264-001

Mr. Hunt,

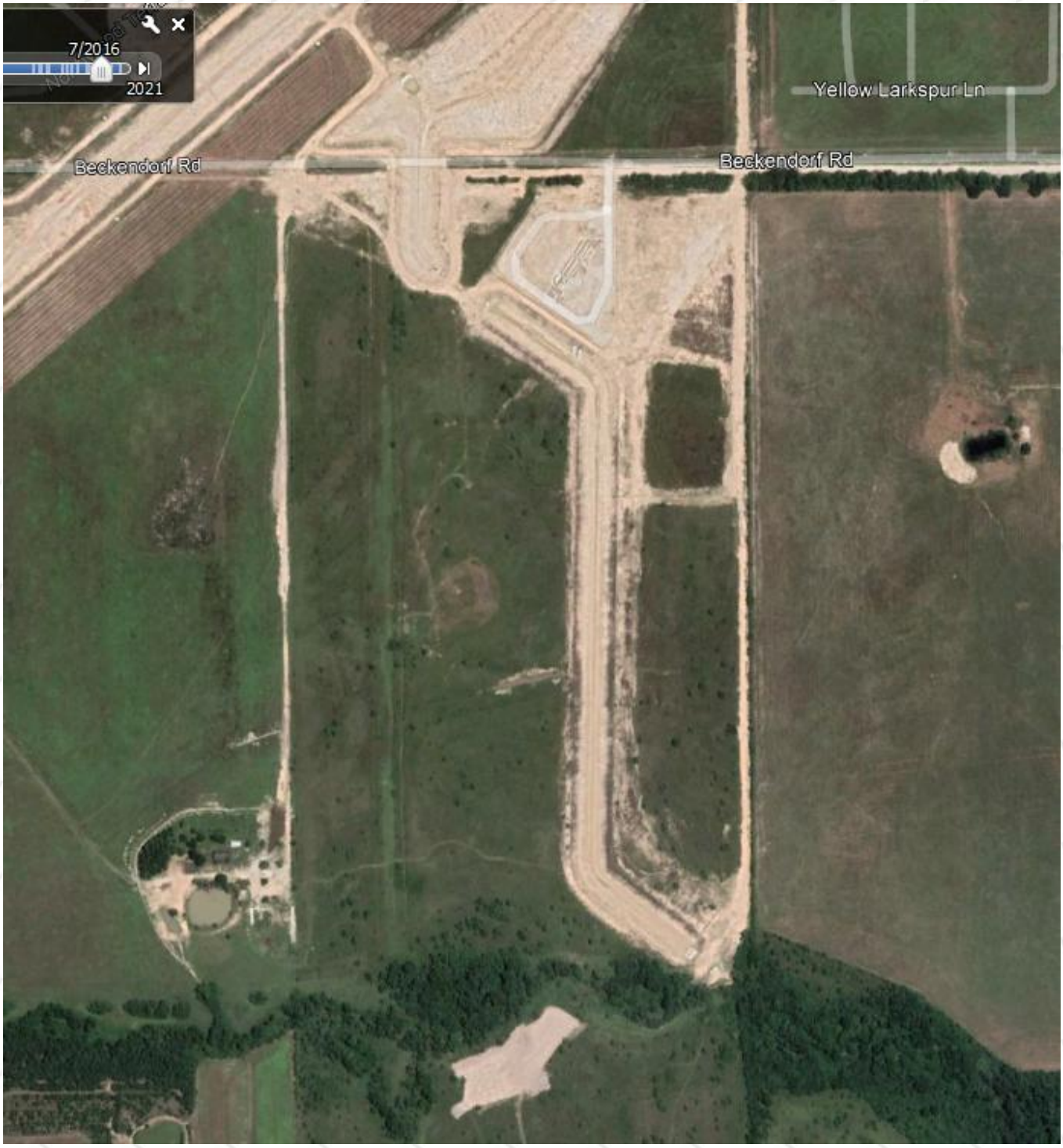
I am from the water quality assessment team and working on the subject permit. Do you have any size information about the detention pond (like average water depth).

Thanks,

Xing

From: Kenyon Hunt <KHunt@bgeinc.com>
Sent: Wednesday, December 1, 2021 11:17 AM
To: Jenna Lueg <Jenna.Lueg@tceq.texas.gov>
Cc: Shiann Hernandez <SHernandez@bgeinc.com>
Subject: RE: Harris County MUD 171, 15264-001

Greetings – your interpretation is essentially correct: the "man-made ditch" was expanded into the detention basin. The detention basin still overflows to the same point as before expansion and the outfall has never been moved. See time-series satellite pictures below. Let me know if you need to discuss.




2/2017
Yellow Larkspur Ln
Beckendorf Rd
Beckendorf Rd


1/2021
Beckendorf Rd
Beckendorf Rd
Yellow Larkspur L


7/2016
2021

Kenyon S Hunt, PE | Senior Project Manager

BGE, Inc.

10777 Westheimer, Suite 400

Houston, TX 77042

Main: 281-558-8700

Direct: 713-488-8148

Cell: 503-936-2092

KHunt@bgeinc.com

Serving. Leading. Solving.™

From: Jenna Lueg <Jenna.Lueg@tceq.texas.gov>
Sent: Wednesday, December 1, 2021 10:56 AM
To: Kenyon Hunt <KHunt@bgeinc.com>
Cc: vpatel@bgeinc.com
Subject: Harris County MUD 171, 15264-001

Hi Mr. Hunt,

I just left a voicemail with your office. In the current permit, the first receiving water is a man-made ditch. From Google Earth images is now shown as a 53-acre detention basin. Will you please verify this or let me know if the discharge has been rerouted in any way.

Thank you,

Jenna R. Lueg

Aquatic Scientist

Standards Implementation Team

Texas Commission on Environmental Quality

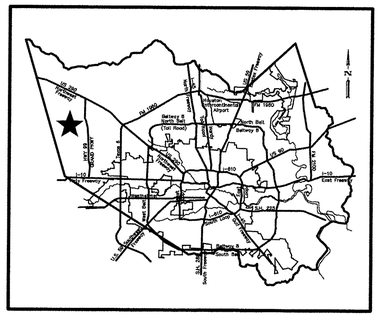
P.O. Box 13087

Austin, TX 78711-3087

(512) 239-4590

Jenna.lueg@tceq.texas.gov

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



HARRIS COUNTY M.U.D. NO. 171

ELYSON SOUTH BASIN 3

CONSTRUCTION PLANS OF PROPOSED MITIGATION BASIN

CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY:

AN HCFCD RIGHT-OF-WAY NOTIFICATION (PERMIT) AND HCFCD 48-HR PRE-CONSTRUCTION NOTICE ARE REQUIRED PRIOR TO ENTERING OR WORKING WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. BOTH THE HCFCD RIGHT-OF-WAY NOTIFICATION AND 48-HR NOTICE MUST BE PROVIDED TO HCFCD AT dcis@hcfcd.org. SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT-OF-WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT-OF-WAY NOTIFICATION IS SEPERATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

TO APPLY FOR THE HCFCD RIGHT-OF-WAY NOTIFICATION PLEASE GO TO http://apps.harriscountytx.gov/EPermits AND APPLY FOR THE HCFCD ROW UNDER ROW NOTIFICATION.

LOCATION MAP

SEPTEMBER 2016

MITIGATION BASIN TO BE OWNED AND MAINTAINED BY HARRIS COUNTY M.U.D. 171

VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

SHEET INDEX

NO.	DESCRIPTION
1.	COVER SHEET
2.	HARRIS COUNTY REVIEW SHEET
3.	GENERAL CONSTRUCTION NOTES
4.	OVERALL SITE LAYOUT
5.	BASIN 3 LAYOUT AND STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 2)
6.	BASIN 3 LAYOUT AND STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 2)
7.	SOUTH BASIN 3 SECTIONS
8.	SPOIL DISPOSAL PLAN SITE 1 (SHEET 1 OF 2)
9.	SPOIL DISPOSAL PLAN SITE 1 (SHEET 2 OF 2)
10.	SPOIL DISPOSAL PLAN SITE 5
11.	SPOIL DISPOSAL PLAN SITE 7 (SHEET 1 OF 3)
12.	SPOIL DISPOSAL PLAN SITE 7 (SHEET 2 OF 3)
13.	SPOIL DISPOSAL PLAN SITE 7 (SHEET 3 OF 3)
14.	STORM WATER POLLUTION PREVENTION PLAN DETAILS
15.	INTERCEPTOR STRUCTURE DETAILS
16.	STORM SEWER AND RIPRAP DETAILS
17.	CONCRETE CHANNEL LINING DETAILS
18.	HCFCD-STORM WATER POLLUTION PREVENTION PLAN DETAILS

48 HOUR NOTICE:

CONTRACTOR SHALL NOTIFY HARRIS COUNTY PRIOR TO COMMENCING CONSTRUCTION AND/OR BACK-FILLING ANY UTILITIES. CONTRACTOR (S) TO CONTACT MARC BARBE WITH PUBLIC REVIEW DEPARTMENT @ (713-274-3823) or (MARC.BARBE@HCPID.ORG).

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

BRENT R. DAHL
119106
9-30-16
Brown & Gay Engineers, Inc.
F-1046

H.C.F.C. UNIT NO.

SHEET NO: 1 OF 18

X:\Districts\HCMUD171\Elyson_South_Basin_2_and_South_Basin_3_3807\03_CADD\01_Construction_Plans\01_Sheets\01_ESB2-3_CVR.dwg

1. PAVING

(FOR H.C. PUBLIC R.O.W. ONLY)

DESIGN THICKNESS OF PAVING		STABILIZED SUBGRADE DEPTH		DESIGN STRENGTH OF CONCRETE		STEEL SPACING LONG.	STEEL SPACING TRANS.
5"	(IN.)	6"	(IN.)	3,000	(PSI)	20" (IN.)	36" (IN.)

DRIVEWAYS (in H.C. ROW only)

I. NUMBER OF DRIVEWAY APPROACHES PROPOSED INCLUDE WIDENING OR REPAVING EXISTING DRIVEWAYS AS WELL AS NEW DRIVEWAYS

DRWY	WIDTH	MATERIAL	CULVERT?	CULVERT LENGTH	NEAREST X-STREET	DIST. TO X-STREET
1						
2						
3						
4						
5						

II. HARRIS COUNTY STANDARD DRIVEWAY DETAIL APPEARS ON SHEET ____

FIRE APPARATUS ACCESS ROAD

☐ REQUIRED AND SHOWN ON SHEET(S) _____
☐ NOT REQUIRED DUE TO _____

CURBING

I. ISLANDS AND MEDIANS REQUIRE STANDARD 6" CURBING

II. ☐ STANDARD 6" CURBING PROPOSED
☐ 4" x 12" CURBING PROPOSED EXCEPT AT MEDIANS AND ISLANDS

TRAFFIC CONSIDERATIONS

I. MEDIAN CUTS
☐ NO MEDIAN CUT OR RELOCATION IS PROPOSED
☐ MEDIAN MODIFICATIONS ARE SHOWN ON SHEET _____

II. LEFT / RIGHT TURN LANE
☐ NO LEFT / RIGHT TURN LANE IS PROPOSED
☐ LEFT / RIGHT TURN LANE IS SHOWN ON SHEET _____

III. TRAFFIC CONTROL PLAN
☐ NO WORK IN THE RIGHT OF WAY IS PROPOSED THAT WOULD INTERFERE WITH TRAFFIC FLOW
☐ TRAFFIC CONTROL SHOWN ON SHEET _____

IV. TRAFFIC SIGNAL
☐ NO TRAFFIC SIGNAL IS EXISTING / PROPOSED
☐ EXISTING TRAFFIC SIGNAL DEVICES (T.C. BOXES AND LOOPS) SHOWN ON SHEET _____
☐ PROPOSED TRAFFIC SIGNAL (BY OTHERS)

V. TRAFFIC IMPACT ANALYSIS
☐ NO TRAFFIC IMPACT ANALYSIS IS REQUIRED
☐ TRAFFIC IMPACT ANALYSIS HAS BEEN APPROVED ON DATE: _____
PLAN TITLE: _____
HCPID PROJECT NO.: _____

2. RESIDENTIAL / SUBDIVISION DRAINAGE

I. PROPOSED DRAINAGE SYSTEM TYPE
☐ STORM SEWER
☐ ROADSIDE DITCH
☐ LOW IMPACT DEVELOPMENT (LID)

II. DESIGN METHOD USED
☐ CITY OF HOUSTON _____ YEAR FREQUENCY
☐ OTHER: _____

III. DRAINAGE SYSTEM OUTFALLS DIRECTLY TO EXISTING
☐ DETENTION POND (APPROVED H.C. PRJ NO.): _____
DETENTION POND MAINTAINED BY: _____
☐ HCFCD DRAINAGE DITCH UNIT NO.: _____
☐ H.C. ROADSIDE DITCH (ROAD NAME): _____
☐ H.C. STORM SEWER (APPROVED H.C. PRJ NO.): _____

IV. H.C. OUTFALL CALCULATIONS
☐ ROADSIDE DITCH OUTFALL:
ALLOWABLE OUTFALL RATE: 0.0077 x _____ LF Frontage = _____ (CFS)
PROPOSED OUTFALL RATE: _____ (CFS), CALCULATIONS PROVIDED ON SHEET ____
☐ STORM SEWER OUTFALL
CAPACITY ALLOCATED TO TRACT FROM D. A. MAP: _____ (CFS)
FROM DRAINAGE AREA MAP DATED: _____
PREPARED BY: _____
APPROVED H.C. PROJECT NO.: _____
ACTUAL OUTFALL RATE: _____ (CFS), CALCULATIONS PROVIDED ON SHEET ____

V. DETENTION PROVIDED BY
☐ DETENTION BASIN IS PART THIS PLAN SET. SERVICE AREA MAP IS ON SHEET ____
☐ REGIONAL DETENTION BASIN SYSTEM (APPROVED H.C. PRJ NO.): _____

PROPOSED STORM SEWER IS SUBMERGED (AGREEMENT MUST BE PROVIDED).
STATE W.S.E. @ OUTFALL IS _____

OFFSITE SHEET FLOW: (100 YEAR)

OFFSITE SHEET FLOW MAPPING, TOTAL DISCHARGE CALCULATIONS, AND DESIGN ACCOMODATIONS ARE SHOWN ON SHEET ____ OR, AS PRESENTED IN THE APPROVED DRAINAGE STUDY ENTITLED (SEE SEC 7 BELOW) .

TOTAL ACREAGE = ____ SEE APPROVED REPORTS REFERENCED
TOTAL DISCHARGE = ____ IN SEC 7 BELOW

NOTE: ALL OFFSITE SHEET FLOW FROM ADJACENT PROPERTIES MUST BE IDENTIFIED AND PROPERLY ACCOUNTED FOR IN THE PROJECT. THE SIGNING ENGINEER HEREBY CERTIFIES THAT THESE AREAS HAVE BEEN ADDRESSED.

3. COMMERCIAL / OTHER SITE DRAINAGE

I. PROPOSED DRAINAGE AREA
☐ NEW DEVELOPMENT AREA: _____
☐ RE-DEVELOPMENT AREA (AMOUNT INCREASED IMPERVIOUS AREA): _____
☐ LOW IMPACT DEVELOPMENT (LID)

II. DETENTION VOLUME
NEW AREA _____ X * _____ = _____ ACRE FEET
DETENTION REQUIRED
* ☐ .55 (CHANNEL)
* ☐ .65 (STM SWR)
* ☐ 1.00 (RD. DITCH)
* ☐ OTHER: _____
PROPOSED DETENTION VOLUME = _____ ACRE FEET
PROPOSED DETENTION VOLUME CALCULATIONS ARE SHOWN ON SHEET _____
DETENTION VOLUME PROVIDED BY EXISTING DETENTION POND
APPROVED H.C. PROJECT NO.: _____
DETENTION POND SERVICE AREA MAP IS PROVIDED ON SHEET _____

III. OUTFALL
OUTFALL TO ☐ H.C. ROADSIDE DITCH
☐ EXISTING H.C. STORM SEWER
☐ OTHER _____
☐ ROADSIDE DITCH OUTFALL:
ALLOWABLE OUTFALL RATE: 0.0077 x _____ LF Frontage = _____ (CFS)
PROPOSED OUTFALL RATE: _____ (CFS), CALCULATIONS PROVIDED ON SHEET ____
☐ STORM SEWER OUTFALL
CAPACITY ALLOCATED TO TRACT FROM D. A. MAP: _____ (CFS)
FROM DRAINAGE AREA MAP DATED: _____
PREPARED BY: _____
APPROVED H.C. PROJECT NO.: _____
ACTUAL OUTFALL RATE: _____ (CFS), CALCULATIONS PROVIDED ON SHEET ____

IV. PUMPED DETENTION FACILITIES
VOLUME THAT GRAVITY FLOWS: _____ ACRE FEET
VOLUME THAT IS PUMPED: _____ ACRE FEET
ENTRANCE VELOCITY INTO ROADSIDE DITCH OR STORM SEWER: _____
PUMP SPECIFICATIONS AND AUTOMATIC SHUTOFF PLAN FOR ROADSIDE DITCH & STORM SEWER OUTFALLS APPEAR ON SHEET _____

V. FLOW RESTRICTOR SIZE
OUTFALL PIPE SIZE: _____
RESTRICTOR PIPE SIZE: _____

NOTE: ALL ROADSIDE DITCH OUTFALLS REQUIRE EROSION CONTROL MEASURES. RIPRAP IS NOT ALLOWED AS AN EROSION CONTROL MEASURE IN HARRIS COUNTY FLOW. ALL PUMPED DETENTION OUTFALLS TO ROADSIDE DITCHES REQUIRE MANHOLE W/ LEADS.

4. WATER AND WASTEWATER

I. COMMERCIAL PROJECTS

DOES PROPERTY HAVE EXISTING AND/OR PROPOSED UTILITIES?
☐ YES ☐ NO

IF YES, CHECK THE BOX THAT APPLIES TO THIS PROJECT
☐ PUBLIC WATER & SANITARY
☐ PRIVATE WATER WELL & SEPTIC SYSTEM
☐ PUBLIC WATER & PRIVATE SEPTIC SYSTEM
☐ PRIVATE WATER WELL & PUBLIC SANITARY

NOTE: PUBLIC UTILITIES REQUIRE A LETTER FROM THE DISTRICT/ MUNICIPALITY AUTHORIZING SERVICE & CONNECTION. THIS IS REQUIRED FOR PLAN APPROVAL.

UTILITY DISTRICT/MUNICIPALITY NAME: _____

NOTE: SEPTIC SYSTEMS REQUIRE H.C. WASTE WATER REVIEW
H.C. SEPTIC PERMIT/REQUEST NO. _____

H.C. WASTE WATER REVIEWER APPROVAL
NAME & DATE: _____
REVIEWER COMMENTS: _____

NOTE: ALL EXISTING AND PROPOSED UTILITIES MUST BE ACCURATELY SHOWN & LABELED ON THE SITE PLANS.

II. SUBDIVISION PROJECTS
☐ UTILITY DISTRICT/MUNICIPALITY NAME: _____
☐ PRIVATE WATER & WASTE WATER SYSTEMS
☐ PRIVATE WATER & INDIVIDUAL OSSF
☐ INDIVIDUAL WATER WELL & OSSF

NOTE: A COPY OF TCEQ APPROVAL FOR PRIVATE WATER & WASTE WATER SYSTEMS IS REQUIRED FOR PLAN APPROVAL

5. DESCRIPTION OF PROPERTY

I. LEGAL DESCRIPTION
A. ACREAGE: 157.8
B. ☐ SUBDIVISION: _____
☑ SURVEY & ABSTRACT: A.R. CONNELL SURVEY, ABSTRACT NO. 1387, AND THE H. & T.C. R.R. CO. SURVEY, SECTION 47, ABSTRACT NO. 440
C. ADJACENT ROADS: FUTURE PORTER ROAD & FUTURE BECKENDORF ROAD

II. PLATTING
A. SUBDIVISION PLAT
☐ PROPOSED PLAT / REPLAT
☐ RECORDED PLAT / REPLAT
PLAT NAME: N/A
H.C. PLAT NUMBER: _____
B. STREETS PROPOSED
☐ PUBLIC
☐ PRIVATE
☐ PUBLIC & PRIVATE
☑ NONE

III. JURISDICTIONS
☐ CITY OF _____
☑ ETJ, CITY OF HOUSTON
☐ ETJ, CITY OF _____
☐ NO ETJ

IV. HCAD ACCOUNT NOS. (ALL) KEY MAP PG. 405T,U
043-106-000-0023, 043-106-000-0025
047-159-000-0001, 048-070-000-0001

V. UNOBSTRUCTED VISIBILITY EASEMENT (U.V.E.)
☐ REQUIRED AND SHOWN ON SHEET(S) _____
☑ NOT REQUIRED

NOTE: ALL APPROVED, FINAL PLATS AND ASSOCIATED CPC101 FORMS MUST BE INCLUDED WITH PLAN SUBMITTAL.

6. STORM WATER QUALITY

I. CONSTRUCTION PROTECTIVE MEASURES. (must be completed on all projects)
☑ SWPPP SITE PLAN AND DETAILS ON SHEET(S) 4,14,&18 ☐ N/A (disturbs <1ac.)

II. APPLICABILITY FOR PERMANENT FEATURES. (must be completed on all projects)
EXEMPT NEW DEVELOPMENT:
☐ PROJECT IS ON A PARCEL LESS THAN 5 ACRES. (must be verified with plat)
EXEMPT REDEVELOPMENT:
☑ PROJECT IS ON A PARCEL LARGER THAN 5 ACRES AND THE NET INCREASE OF IMPERVIOUS SURFACE SINCE OCT. 2001 (INCLUDING THIS PRJ.) IS LESS THAN 1 ACRE.
EXEMPT GRANDFATHERED:
☐ EXEMPT "GRAND FATHERED" BY AN EXISTING DRAINAGE SYSTEM PRIOR TO OCT. 2001. ** (REQUIRED: PROVIDE ORIGINAL DRAINAGE AREA MAP INCLUDING CALCULATIONS)
GENERAL:
☐ PROJECT'S SWQ REQUIREMENTS ARE WITHIN THE JURISDICTION OF THE FOLLOWING CITY/MUNICIPALITY: _____
☐ STORM WATER QUALITY PERMIT REQUIREMENT FOR THIS PROJECT IS COVERED
BY PROJECT TITLE: _____
HARRIS COUNTY PROJECT NO. _____ & SWQ PERMIT NO. _____
☐ "STORM WATER QUALITY MANAGEMENT PLAN" INCLUDED. SWQMP SITE PLAN ON SHEET(S) _____

III. PERMANENT STORM WATER QUALITY FEATURES.
(MUST BE COMPLETED ON ALL PROJECTS THAT ARE NOT EXEMPT OR GRANDFATHERED.)
☐ VEGETATIVE CONTROLS USED: (FILTER STRIP, GRASSY SWALE, URBAN FORESTRY) DETAILS AND CALCULATIONS APPEAR ON SHEET(S) _____
☐ POND STRUCTURE USED (WET, DRY, WETLANDS) DETAILS AND CALCULATIONS APPEAR ON SHEET(S) _____
☐ HYDRODYNAMIC TYPE SEPARATOR MODEL: _____
☐ OTHER(S): _____

7. FLOOD CONTROL DISTRICT CRITERIA

I. DETENTION SUMMARY

STORMWATER DETENTION BASIN ROUTING TABLE

DETENTION BASIN DRAINAGE AREA = _____ ACRES MAX BASIN DRAIN TIME (100-YR EVENT) = _____ HOURS

RAINFALL EVENT PROBABILITY	PRE-DEVELOPED PEAK RUNOFF (CFS)	POST-DEVELOPED PEAK RUNOFF (CFS)	DETENTION BASIN PEAK OUTFLOW (CFS)	MAXIMUM WATER SURFACE ELEVATION	PEAK STORAGE VOLUME (AC-FT)	STORAGE RATE (AC-FT PER AC)
10% EXCEEDANCE (10-YEAR)						
1% EXCEEDANCE (100-YEAR)						

ADDITIONAL CRITERIA FOR PUMPED DETENTION BASINS:
VOLUME OF PUMPED 1% EXCEEDANCE STORAGE VOLUME = _____AC-FT _____% OF TOTAL VOLUME
MAXIMUM DESIGN OUTFLOW VELOCITY INTO HCFCD CHANNEL = _____FT./SEC.
DRAIN TIME FOR BASIN = _____ HOURS BASED ON _____ HEAD CONDITIONS.

STORMWATER DRAINAGE DESIGN REPORT
REPORT TITLE DRAINAGE ANALYSIS FOR NASH FM 529, 3,608 ACRE FM 529 DEVELOPMENT PHASE 1 (692 ACRES)
DRAINAGE ANALYSIS FOR NASH FM 529, 3,608 ACRE FM 529 DEVELOPMENT PHASE 2 (670 ACRES)
REPORT DATE 9/12/2014 6/11/2015 ENGINEERING FIRM BROWN & GAY ENGINEERS, INC
DATE OF ACCEPTANCE BY HCFCD OR FLOODPLAIN ADMINISTRATOR 12/2/2014 8/19/2015 HCFCD PROJECT # 2034338 2044650

STORMWATER DETENTION FOR THE PROPOSED WORK CONTAINED IN THESE PLANS IS PROVIDED BY OTHER PLANS:
PLAN TITLE _____
ENGINEERING FIRM _____ DATE SIGNED BY HCFCD _____ HCFCD PROJECT # _____

II. HCFCD STANDARD NOTES: SEE SHEET 3 OF THESE PLANS.

III. HCFCD STANDARD DETAILS: SEE SHEETS 15-18 OF THESE PLANS.

IV. REFER TO PLAN SHEETS 4 FOR EXISTING AND PROPOSED RIGHT OF WAY DELINEATION AND COMPLETE RECORDING INFORMATION TO INCLUDE CLERK'S FILE NUMBERS, TYPE OF ESTATE (e.g., DRAINAGE EASEMENT, FEE STRIP, ETC.) AND GRANTEE (e.g. COH, HCFCD, PUBLIC, TXDOT, ETC.)

NOTES:
I. COMPLETE ONLY IF HCFCD OR HARRIS COUNTY IS REQUIRING DETENTION.
II. COMPLETE ONLY IF PROJECT HAS WITHIN IT OR IS IMMEDIATELY ADJACENT TO AN EXISTING OR PROPOSED HCFCD MAINTAINED CHANNEL OR DETENTION BASIN.
III. COMPLETE ONLY IF PROJECT INCLUDES NEW OUTFALL, BACKSLOPE INTERCEPTOR OR OTHER RELATED WORK WITHIN AN EXISTING OR PROPOSED HCFCD MAINTAINED CHANNEL OR DETENTION BASIN.
IV. COMPLETE ONLY OF PROJECT HAS WITHIN OR IMMEDIATELY ADJACENT TO IT AN EXISTING OR PROPOSED PUBLIC DRAINAGE CHANNEL OR DETENTION BASIN.

8. FLOOD PLAIN STATUS

I. GENERAL INFORMATION
FIRM PANEL(S) FOR PROPERTY: 48201C0585L
FIRM PANEL(S) DATE: JUNE 18,2007
STATUS OF PROPERTY ON MAP
☐ ENTIRELY LOCATED IN UNSHADED ZONE "X"
☑ LOCATED PARTIALLY OR ENTIRELY IN ANY "A" ZONE OR SHADED ZONE "X", DELINEATE FLOODPLAIN BOUNDARY ON CONSTRUCTION DRAWINGS (DRAINAGE LAYOUT PG. NO. 4) (BASE FLOOD LEVEL NG +2)
☐ LOCATED IN THE 10-YEAR FLOODPLAIN
☐ SITE REMOVED FROM FLOODPLAIN BY LOMR, LOMR-F, LOMA CASE NO._____ REVISED FLOODPLAIN IS SHOWN ON SHEET____

ELEVATION INFORMATION
BENCHMARK USED
☑ HARRIS COUNTY FLOODPLAIN REFERENCE MARK
☐ HARRIS-GALVESTON COASTAL SUBSIDENCE DISTRICT BENCHMARK (FOR COASTAL AREAS)
DESCRIPTION OF BENCHMARK INCLUDING ELEVATION, DATUM AND YEAR OF ADJUSTMENT *(2001 ADJ.)* FLOODPLAIN REFERENCE MARK NUMBER 200120- BENCHMARK IS A STAINLESS STEEL ROD INSIDE OF ALUMINUM SLEEVE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF KATY-HOCKLEY ROAD AND FM 529

II. FLOOD PLAIN DETERMINATION BASED ON GROUND ELEVATION
☐ PROPERTY LIES ENTIRELY ABOVE THE BASE FLOOD LEVEL AND IN SHADED ZONE "X"
☑ PROPERTY LIES PARTIALLY OR ENTIRELY BELOW THE BASE FLOOD LEVEL

III. FLOODPLAIN STORAGE SUMMARY (APPLIES ONLY TO PORTION OF LAND LOCATED WITHIN FLOODPLAIN AS DELINEATED BY FIRM PANEL).
A. TOTAL VOLUME OF MATERIAL PROPOSED TO BE MOVED OR PLACED WITHIN THE FIRM DELINEATED FLOODPLAIN (FILL, BASE, CONCRETE, ASPHALT, ETC.): i.e., BELOW ELEVATION NG +2' (2001 ADJ.) 296,359 CUBIC YARDS
B. TOTAL VOLUME OF MATERIAL PROPOSED TO BE REMOVED FROM THE FIRM DELINEATED FLOODPLAIN: i.e., BELOW ELEVATION NG +2' (2001 ADJ.) 870,054 CUBIC YARDS
C. FILL AREA & VOLUME CALCULATIONS ARE SHOWN ON SHEET 4

NOTES:
I. COMPLETE FOR ALL PROJECTS
II. COMPLETE ONLY IF PROJECT IS ADJACENT TO 100-YEAR FLOOD PLAIN

IV. ☐LOMR REQUIRED ☐CLOMR REQUIRED VERIFIED BY: ME

FOR PROJECTS LOCATED IN ANY FLOODPLAIN
Development constructed or placed in accordance with these plans will comply with all provisions of the Regulations of Harris County, Texas for Floodplain Management.
No net fill is allowed in the flood plain and no fill is allowed in the floodway.
FOUNDATION NOTES: *(applies to only buildings or building additions requiring a class II permit)*
All water heaters, furnaces, air conditioning units, electrical distribution panels, and any other mechanical or electrical equipment must be elevated in accordance with Section 4.05 of Harris County Floodplain regulations.
Any electrical circuit serving a light switch or outlet located below the base (100-year) flood elevation shall be dropped from above and be on a separate breaker.
All materials used below the (100-year) base flood elevation are an approved FEMA Technical Bulletin 2-08 as Class 5 water-resistant, and approved in accordance with FEMA Technical Bulletin 1-08 for foundation openings.
If the property is located within the designated 100% floodplain or ten-year floodplain all construction up to twenty-four (24) inches above the base flood elevation must use masonry, concrete or steel. These materials must be used for piers, columns and foundation walls.
Construction of critical care facilities on land located below the basic (100-year) flood elevation in the 500 year flood plain or within the basic (100-year) flood plain shall have the lowest floor elevated to three feet or more above the base flood elevation.
Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.
Access routes elevated to or above the level of the base flood shall be provided to all critical facilities to the extent possible.
*Completed "Elevation Certificates to be submitted; one at permitting, a second after the slab is poured or tub-floor is installed and before the framing starts, and a third is required once construction is finished. *(PER CURRENT FIRM PANEL) to the Harris County Engineering department, 10555 Northwest Freeway, Suite 120, Houston, TX 77092.*
A completed as-built certificate must be submitted after the structure is complete and before it is occupied.
The County Engineer's Office will post a final inspection notice on the structure once all requirements have been met.

9. WORK IN HCFCD RIGHT-OF-WAY

I. TYPE OF WORK TO BE PERFORMED IN CHANNEL
☐ OUTFALL
☐ UTILITY CROSSING
☐ ROADWAY BRIDGE / CULVERT CROSSING
☐ FILL ACTIVITY
☐ REHABILITATION OF CHANNEL
☐ MAINTENANCE
☐ TEMPORARY CROSSING
☑ OTHER

CONSTRUCT ULTIMATE MAINTENANCE BERM, INTERCEPTORS ON NORTH SIDE OF MAYDE CREEK ALONG ULTIMATE 160' R.O.W.

II. USACE ENVIRONMENTAL PERMIT
☑ US ARMY CORPS ENGINEERS NATIONWIDE PERMIT NUMBER(S) PERMIT NO. SWG-2014-01024
☐ US ARMY CORPS OF ENGINEERS INDIVIDUAL PERMITS
☐ OTHER
☐ NO PERMITS REQUIRED
EXPLAIN: _____

III. REFERENCE / BASIS OF DETERMINATION
☑ ENVIRONMENTAL CONSULTANT REPORT BY BERG OLIVER
REPORT TITLE FM529 AND PEEK ROAD- INDIVIDUAL PERMIT
REPORT DATE 11/05/2015
☐ OTHER _____

NOTES:
I. – III. REQUIRED ON PROJECTS WITH WORK IN A HCFCD CHANNEL. PLEASE REFERENCE SECTION 17 OF THE FLOOD CONTROL DISTRICT POLICY, CRITERIA, AND PROCEDURE MANUAL FOR MORE INFORMATION.

10. PERMITS REQUIRED

DOES THE PROPERTY HAVE ANY VIOLATIONS? IF SO PLEASE PROVIDE ALL VIOLATION NUMBERS. _____

TO BE FILLED OUT BY HARRIS COUNTY
☐ STORM WATER QUALITY
☐ SEPTIC (EXISTING) ☐ SEPTIC (PROPOSED)
☐ CIVIL SITE WORK (PHASE II PERMIT CLASS I (non-floodplain))
☑ CIVIL SITE WORK (PHASE II PERMIT CLASS II (floodplain))
☐ DRIVEWAY WITH CULVERT _____ CURB AND GUTTER _____
☐ BUILDING PERMITS (NO. OF BUILDINGS = _____) ☐ CRITICAL FACILITY
☐ SUBDIVISION INFRASTRUCTURE PHASE II (NO. OF LOTS = _____)
☐ NOTICE OF DETENTION AFFIDAVIT REQUIRED
☑ MUD MAINTENANCE AGREEMENT REQUIRED
☑ HCFCD ROW NOTIFICATION PERMIT REQUIRED
NOTES: _____

WORK IN HARRIS COUNTY R.O.W.

☐ UTILITY WORK _____
☐ LEFT TURN LANE _____
☐ OTHER CONSTRUCTION _____

NOTES:
A PERMIT IS REQUIRED FOR EACH SCOPE OF WORK ON SITE.
A NOTIFICATION IS REQUIRED FOR EACH SCOPE OF WORK IN HC OR HCFCD ROW.
REFER TO www.hcpid.org/permits FOR EACH SCOPE OF WORK IN HC OR IN HCFCD ROW.

11. CURB RAMPS

A. ARE CURB RAMPS THAT CONNECT TO PUBLIC STREETS PROPOSED IN THIS SET OF PLANS? [ ]YES [ ]NO

12. LANDSCAPING

☐ REQUIRED AND SHOWN ON SHEET(S) _____
☐ NOT REQUIRED

HCED SIGNATURE BLOCK

PROJECT NAME: ELYSON SOUTH BASIN 3
ADDRESS: 23500 BECKENDORF ROAD, KATY TX. 77493
WAS ACCEPTED BY THE FOLLOWING GROUPS FOR THE PURPOSES LISTED BELOW:

ENGINEERING DIVISION

BY _____ INTERPOSE NO OBJECTION DATE _____
BY _____ AS TO LOCATION OF ITEMS IN COUNTY RIGHT OF WAY DATE _____
BY _____ AS TO PAVING AND/OR DRAINAGE ONLY DATE _____
BY No PSWQF Required AS TO STORM WATER QUALITY M.G. DATE 11/9/2016
ADDITIONAL COMMENTS: _____

HARRIS COUNTY FLOOD CONTROL DISTRICT

INTERPOSE NO OBJECTION
BY _____ DATE _____
FOR ITEMS LOCATED OUTSIDE OF HCFCD RIGHT-OF-WAY
APPROVED:
BY _____ DATE _____
FOR ITEMS LOCATED WITHIN EXISTING HCFCD RIGHT-OF-WAY JRH
APPROVED:
BY _____ DATE _____
FOR ITEMS LOCATED WITHIN PROPOSED HCFCD RIGHT-OF-WAY
ADDITIONAL COMMENTS: _____

THE PROJECT WAS REVIEWED, HOWEVER, THIS DOES NOT MEAN THE ENTIRE PROJECT, INCLUDING ALL SUPPORTING DATA AND CALCULATIONS HAVE BEEN COMPLETELY CHECKED AND VERIFIED. THESE DRAWINGS ARE SIGNED, DATED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS, WHICH THEREFORE CONVEYS THE ENGINEER'S RESPONSIBILITY AND ACCOUNTABILITY. THIS DOES NOT RELIEVE ANY PARTY FROM COMPLYING WITH APPROPRIATE FEDERAL, STATE AND LOCAL ENVIRONMENTAL RULES, LAWS, AND REGULATIONS AND ANY OTHER LEGALLY ADOPTED REGULATION OR ORDINANCE RELATED TO LAND DEVELOPMENT. IF THE CITY SIGNATURES ARE REQUIRED BY ORDINANCE, COUNTY PERMITS WILL NOT BE ISSUED UNTIL SUCH SIGNATURES ARE OBTAINED. THESE SIGNATURES ARE VALID FOR A MAXIMUM OF TWO YEARS.

ENGINEER'S CERTIFICATION

I, BRENT R. DAHL , A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THE INFORMATION PRESENTED ON THIS SHEET IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT I AM NOT VIOLATING ANY PROVISION OF THE CURRENT TEXAS ENGINEERING PRACTICE ACT AND RULES CONCERNING THE PRACTICE OF ENGINEERING AND PROFESSIONAL ENGINEERING LICENSURE.

ANY VIOLATIONS WILL BE FORWARDED TO THE HARRIS COUNTY DISTRICT ATTORNEY'S OFFICE FOR PROSECUTION.

THE COMPLETED PROJECT CONSISTS OF DRAWING SHEETS 1 THRU 18 .

SIGNATURE _____ DATE _____

SEAL
STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
9-30-16

Brown & Gay Engineers, Inc.
F-1046

REVISIONS

NOTE: REVISION BLOCK IS TO BE USED ONLY FOR CHANGES MADE AFTER PLANS HAVE BEEN APPROVED BY HARRIS COUNTY.

DATE	SHEET NO.	DESCRIPTION	P.E. INITIAL	H.C. APPROVED DATE

HARRIS COUNTY PROJECT NO. 1607010021 SHEET NUMBER 2 OF 18

HARRIS COUNTY
ENGINEERING DEPARTMENT
REVIEW SHEET

VERSION 13.0 OCTOBER 1, 2015

00206

GENERAL CONSTRUCTION NOTES

GENERAL

1. THERE WILL BE NO SEPARATE PAYMENT FOR WORK SHOWN ON THESE PLANS, UNLESS SPECIFICALLY ESTABLISHED IN THE BID SECTION OF THE CONTRACT DOCUMENTS. INCLUDE COST OF THIS WORK IN THE CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL.
2. THESE PLANS WERE PREPARED TO MEET OR EXCEED TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, HARRIS COUNTY AND CITY OF HOUSTON RULES AND REGULATIONS AS CURRENTLY AMENDED. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT SHALL BE APPLIED. CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS, @ A MINIMUM, MEET TCEQ'S "RULES & REGULATIONS FOR PUBLIC WATER SYSTEMS".
3. WATER LINES, WASTEWATER COLLECTION SYSTEMS, AND DRAINAGE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, AND STREET PAVING", DATED JANUARY, 2011, LATEST REVISION, AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING", DATED OCTOBER, 2002, LATEST REVISION, UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN IS CONSISTENT WITH THE MINIMUM STANDARDS ESTABLISHED IN THE "INFRASTRUCTURE DESIGN MANUAL", DATED JULY, 2013, LATEST REVISION. CONTRACTOR SHALL USE CURRENT COPIES OF DESIGN MANUAL, STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD CONSTRUCTION DETAILS ISSUED BY THE CITY OF HOUSTON. COPIES CAN BE OBTAINED AT THE CITY OF HOUSTON, 1002 WASHINGTON.
4. CONTRACTOR SHALL COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS AND ANY OTHER FEDERAL, STATE AND LOCAL REGULATIONS REGARDING TRENCH SAFETY SYSTEMS FOR TRENCH EXCAVATION.
5. CONTRACTOR SHALL NOTIFY THE OFFICE OF THE CITY ENGINEER, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING AT (832)394-9098 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING THE CONSTRUCTION.
6. THIS PROJECT IS NOT TIED INTO THE OFFICIAL CITY OF HOUSTON SURVEY SYSTEM IN COMPLIANCE WITH ORDINANCE NO. 69-1978 BECAUSE A CITY SURVEY MARKER HAS NOT BEEN ESTABLISHED WITHIN 2,000 FEET OF THIS PROPERTY.
7. CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION AT (713)755-5370 AND GIVE WRITTEN NOTICE 48 HOURS IN ADVANCE.
8. AUTHORIZATION NOTICE ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT PERMIT OFFICE REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY RIGHT-OF-WAY. CONTACT HARRIS COUNTY PERMIT OFFICE 713-956-3000.
9. CONTRACTOR TO OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES AND OTHER FACILITIES. CONTRACTOR SHALL VERIFY IN THE FIELD THE EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 811 OR 1-(800)545-6005 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.
11. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF STORMWATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY HARRIS COUNTY/HCFCD, AND THE CITY OF HOUSTON ALL IN COMPLIANCE WITH THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) REQUIREMENTS.
12. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD OR BETTER THAN CONDITION PRIOR TO STARTING WORK.
13. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM SEWERS, DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "STANDARD CONSTRUCTION SPECIFICATIONS" WITH LATEST ADDENDA AND AMENDMENTS THERETO, WITH NO COST TO THE PUBLIC. (NO ADDITIONAL PAY TO CONTRACTOR).
14. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS PLANTS AND TREES ALONG THE AREA OF EXCAVATION.
15. UNLESS SPECIFICALLY INDICATED OTHERWISE ON THE PLANS, UTILITIES WITHIN EASEMENTS SHALL BE LOCATED IN ACCORDANCE WITH STANDARDS OUTLINED BY THE MOST CURRENT UTILITY COORDINATING COMMITTEE DRAWINGS.
16. IF THE CONSTRUCTION DOES NOT BEGIN WITHIN A YEAR AFTER THE PLANS HAVE BEEN SIGNED, NEW SIGNATURES MUST BE OBTAINED AND LETTERS OF AVAILABILITY (IF NECESSARY) MUST BE UPDATED.
17. CONTRACTOR SHALL PREPARE A SET OF "AS-BUILT" DRAWINGS SHOWING ANY FIELD CHANGES MADE TO THE APPROVED ENGINEERING PLANS AND SUBMIT TO THE DESIGN CONSULTANT FOR SUBMISSION TO THE CITY ENGINEER.

COMPACTION OF SITE FILL

1. ALL AREAS TO BE FILLED ARE TO BE FREE OF VEGETATION, DEBRIS, PONDED WATER, LOOSE SOILS, MUD & MUCK. (STRIP 3" MIN.).
2. THE PLACEMENT OF ANY FILL OR THE DISPOSAL OF ANY EXCESS MATERIAL ON ANY PORTION OF THIS PROJECT SHALL BE MADE IN EIGHT (8) INCH LOOSE LIFTS, UNIFORMLY SPREAD AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

STORM SEWERS

GENERAL:

1. CONTRACTOR SHALL PROVIDE 12" MINIMUM CLEARANCE AT STORM SEWER AND WATER LINE CROSSINGS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING AND RESTORING ANY BACKSLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF THIS WORK.
3. ALL DITCHES SHALL BE GRADED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED. ALL DISTURBED AREA SHALL BE REGRADED, SEEDED AND FERTILIZED.
4. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.
5. "STM. S. E." INDICATES "STORM SEWER EASEMENT".

MANHOLES/INLETS:

6. ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF SECTION 02086-ADJUSTING MANHOLES, INLETS AND VALVE BOXES TO GRADE.
7. 24" TO 72" STORM SEWERS SHALL HAVE TYPE "C" M.H.'S.
8. ALL INLETS TO BE TYPE "B-B" UNLESS OTHERWISE NOTED.

PIPES:

9. ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24" AND LARGER RCP (C-76, CLASS III).
10. CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINTS ONLY CONFORMING TO ASTM C 443.
11. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES AND INLET LEADS ARE TO BE PLUGGED WITH EIGHT (8) INCH BRICK WALLS UNLESS OTHERWISE NOTED.
12. STORM SEWERS SHALL BE REINFORCED CONCRETE PIPE (C-76, CLASS III), AND SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 02317-02, 02317-03, 02317-05, 02317-06 AND 02317-07 (OCT. 2002) AS APPLICABLE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
13. CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINT CONFORMING TO ASTM C443 AND ASTM C877 RESPECTIVELY.

BEDDING:

14. ALL SEWERS CONSTRUCTED IN SIDE LOT EASEMENTS SHALL BE R.C.P. (C-76, CLASS III) AND SHALL BE EMBEDDED IN ACCORDANCE WITH THE CITY OF HOUSTON DETAILS DRAWING NOS. 02317-02, 02317-03, 02317-05 AND 02317-07 AS APPLICABLE.
15. ALL SEWER UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1½ SACK CEMENT/TON STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL.
16. ALL TRENCH BACKFILL SHALL BE IN 8 INCH LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS IN EACH LIFT, AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).
17. MOISTURE CONTENT OF BACKFILL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CEMENT-STABILIZED SAND SPECIFICATION, LATEST EDITION. ALTERNATE TO CEMENT STABILIZED SAND BACKFILL FOR PIPES 54-INCH AND LARGER, FROM ONE (1) FOOT ABOVE THE TOP OF PIPE TO THE BOTTOM OF THE SUBGRADE. CONTRACTOR MAY BACKFILL WITH SUITABLE MATERIAL, PROVIDED THE BACKFILL MATERIAL IS PLACED IN EIGHT (8) INCH LIFTS AND MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR DENSITY. TESTS SHALL BE TAKEN AT 100-FOOT INTERVALS ON EACH LIFT. BEDDING AND BACKFILL TO ONE (1) FOOT ABOVE THE TOP OF THE PIPE SHALL BE CEMENT STABILIZED SAND.

UTILITY BACKFILL

1. BACKFILL FOR UTILITIES SHALL BE IN ACCORDANCE WITH CITY OF HOUSTON SPECIFICATION 02317 AND PER CITY OF HOUSTON DETAILS INCLUDED IN THESE PLANS OR ANY OTHER APPLICABLE CITY OF HOUSTON DETAILS.
2. BACKFILL COMPACTION TO BE AT A MINIMUM OF 90 PERCENT (OUTSIDE OF PAVEMENT) AND 95 PERCENT (UNDER OR WITHIN ONE (1) FOOT OF PAVEMENT) OF THE MAXIMUM DRY DENSITY AND AT A MOISTURE CONTENT RECOMMENDED FROM GEOTECHNICAL INVESTIGATION.
3. THE TESTING OF MATERIALS USED FOR BEDDING AND BACKFILL OF STORM SEWERS AS WELL AS OTHER UTILITY LOCATED UNDERNEATH OR WITHIN ONE FOOT (1') OF SUBGRADE SHALL BE CONDUCTED TO ENSURE COMPLIANCE WITH "HARRIS COUNTY SPECIFICATION NO. 430" AND THE PROJECT SPECIFICATIONS.
4. IN CONSTRUCTION APPLICATIONS WHERE UTILITIES UNDER THE PAVEMENT ON KNUCKLES AND/OR CUL-DE-SACS EXIST, A SPECIAL GEOTECHNICAL NOTE SHALL BE PLACED ON THE GEOTECHNICAL CERTIFICATION PAGE DETAILING THE METHOD OF STABILIZATION AND BACKFILL USED TO MEET HARRIS COUNTY SPECIFICATIONS FOR THESE APPLICATIONS.

PAVING

1. GUIDELINES SET FORTH IN THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.
2. CLEAN EXPOSED STEEL AND TIE TO EXISTING PAVEMENT; IF NOT EXPOSED, SAW CUT AND BREAK OFF 24" TO EXPOSE STEEL.
3. ALL CURB RETURN RADII ARE 25', UNLESS OTHERWISE NOTED, AND HAVE A 1% MIN. GRADE.
4. PAVING SHALL BE IN ACCORDANCE WITH HARRIS COUNTY "REGULATIONS OF HARRIS COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE", PAVEMENT DETAIL SHEET S/D-1 AND THE LATEST REVISIONS AND/OR AMENDMENTS OF SAME.
5. ALL STOP SIGNS SHALL BE T.M.U.T.C.D. STANDARD NO. MR-1-1 (24"X24"). STOP SIGN SHALL BE PLACED AS SHOWN AT RADIUS POINT CURB APPROXIMATELY TWO FEET BEHIND CURB.
6. ALL PROPOSED INLETS TO BE CONSTRUCTED TO AVOID CONFLICTS WITH ANY FUTURE DRIVEWAYS.

STORM WATER QUALITY PRE-CONSTRUCTION INSPECTION REQUIREMENTS

1. THE PROPERTY OWNER OR THE CONTRACTOR SHALL CONTACT THE HARRIS COUNTY STORM WATER QUALITY PERMITTING SECTION AT (713)956-3000 FOR A PRE-CONSTRUCTION INSPECTION PRIOR TO COMMENCING ANY CLEARING OR CONSTRUCTION ACTIVITIES ON THE SITE.

HARRIS COUNTY ENGINEERING DEPARTMENT DEVELOPMENT PROJECT SECTION CONSTRUCTION NOTES:

1. STORM SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF HOUSTON DESIGN MANUAL AND STANDARD CONSTRUCTION DETAILS (JULY 2012) AS CURRENTLY AMENDED.
2. REINFORCED CONCRETE PIPE (C76 CLASS III) STORM SEWERS SHALL BE INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 02317-02, 02317-03, 02317-05, 02317-06 AND 02317-07 AS APPLICABLE.
3. ALL STORM SEWERS CONSTRUCTED INSIDE LOT EASEMENTS SHALL BE R.C.P. TWENTY (20) FOOT WIDE EASEMENTS SHALL BE PROVIDED.
4. AN ALTERNATIVE TO CEMENT STABILIZED SAND MAY BE USED AS BACKFILL FOR PIPES FIFTY FOUR (54) INCH AND LARGER, FROM 1-FOOT ABOVE THE TOP OF THE PIPE TO THE BOTTOM OF THE SUBGRADE. CONTRACTOR MAY BACKFILL WITH SUITABLE MATERIAL, PROVIDED THE BACKFILL MATERIAL IS PLACED IN EIGHT (8) INCH LIFTS AND MECHANICALLY COMPACTED TO NINTEY FIVE PERCENT (95%) STANDARD PROCTOR DENSITY. TESTS SHALL BE TAKEN AT ONE HUNDRED (100) FOOT INTERVALS ON EACH LIFT. BEDDING AND BACKFILL TO ONE (1) FOOT ABOVE THE TOP OF THE PIPE SHALL BE CEMENT-STABILIZED SAND.
5. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT ARCHITECTURE AND ENGINEERING DIVISION - PERMIT OFFICE TWENTY-FOUR (24) HOURS IN ADVANCE OF COMMENCING UTILITY AND/OR PAVING CONSTRUCTION (713)-274-3823 AND WRITTEN NOTIFICATION FORTY-EIGHT (48) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION AT 10555 NORTHWEST FREEWAY, SUITE 120, HOUSTON, TX 77092.
7.
8. PAVING SHALL BE IN ACCORDANCE WITH THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" AND/OR AMENDMENTS OF THE SAME.
9. GUIDELINES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE OBSERVED.
10. OWNER OR OWNER'S AGENT TO OBTAIN ALL PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.
11. OWNER OR OWNER'S AGENT TO OBTAIN ALL NOTIFICATIONS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY AND HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.

CONSTRUCTION NOTES INVOLVING UTILITIES AND PAVING WORK LOCATED WITHIN A PUBLIC RIGHT-OF-WAY

NOTE: "NOTIFICATION ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT - ARCHITECTURE AND ENGINEERING DIVISION - PERMIT OFFICE - REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY AND HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY." CONTACT HARRIS COUNTY PERMIT OFFICE (713)316-3562.

STANDARD HCFCD NOTES FOR CONSTRUCTION DRAWINGS

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL PERMITS AND APPROVALS. WITH ASSISTANCE FROM ENGINEER, IF NECESSARY. OBTAIN PERMIT (CERTIFICATION) FROM HARRIS COUNTY ENGINEER TO ENTER HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.
2. NOTIFY THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. SUBMIT THE HCFCD 48 HOUR PRE-CONSTRUCTION NOTIFICATION FORM, A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, AND A COPY OF THE CORPS ENGINEERS INDIVIDUAL SECTION 404 PERMIT, IF APPLICABLE, TO HCFCD, 9900 NORTHWEST FREEWAY, HOUSTON, TX 77092, ATTN: PROPERTY MANAGEMENT DEPT. BY HAND DELIVERY, OR FAX TO 713-684-4129 (FAX NUMBER).
3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE HARRIS COUNTY FLOOD COUNTY DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN HARRIS COUNTY FLOOD CONTROL RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE STAKED AND FLAGGED.
4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.
5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4".
7. BACKFILL IN ACCORDANCE WITH THE HARRIS COUNTY FLOOD DISTRICT STANDARD SPECIFICATION, SECTION 02315- EXCAVATION AND BACKFILLING, OR EQUIVALENT.
8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM, AS NECESSARY, TO ENSURE NO WATER IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASIN) DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL, SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS, ENSURE NO WATER IS ABOVE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL.
9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITIONS.
10. REMOVE ALL EXCAVATED MATERIAL FROM THE HARRIS COUNTY FLOOD CONTROL DISTRICT OR DRAINAGE RIGHT-OFWAY. NO FILL IS TO BE PLACED WITHIN A DESIGNED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTIONAL AUTHORITY.

PRIVATE UTILITY NOTES

CAUTION: AT&T TEXAS/SWBT CABLES

THE LOCATION OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

THE CONTRACTOR SHALL CALL 1-800-344-8377 MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED. WHEN EXCAVATING WITH EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES. ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.

WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUITS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES IN THE AREA. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER MR. ROOSEVELT LEE JR. AT (713)567-4552 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATIONS OF CENTERPOINT ENERGY MAIN LINES **(TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE LLC WHERE APPLICABLE)** ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. **OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE.** THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (713)223-4567, 1-800-669-8344OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 945-8036 OR (713)945-8037(7:00 AM TO 4:30 PM). FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES

OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY: ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN (10) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713)207-2222.

ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6248 OR (713) 207-6789.

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.

NOTICE:

For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that under ground line can be marked. This verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date:

CenterPoint Energy/Natural Gas Facilities Verification ONLY.
(This Signature verifies that you have shown CNP Natural Gas lines correctly – not to be used for conflict verification.) (Gas service lines are not shown.)
Signature Valid for six months.

Date:

CenterPoint Energy/UNDERGROUND Electric Facilities Verification ONLY.
(This signature verifies existing underground facilities – not to be used for conflict verification.)
Signature Valid for six months.

Date:

Approval for AT&T TEXAS/SWBT underground conduit facilities only.
Signature Valid for One Year

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

BGE

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
LICENSED
PROFESSIONAL ENGINEER
No. 119106
5-10-16

Brown & Gay Engineers, Inc.
F-1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

GENERAL CONSTRUCTION NOTES

JOB NUMBER: 3807-00

SUBMITTED: BROWN & GAY ENGINEERS, INC.	DESIGNED BY: JMSR
SCALE: N.T.S.	DRAWN BY: R.V.
DATE: SEPTEMBER 2016	SHEET NO 3 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.	CITY DWG NO:
F.B. NO:	

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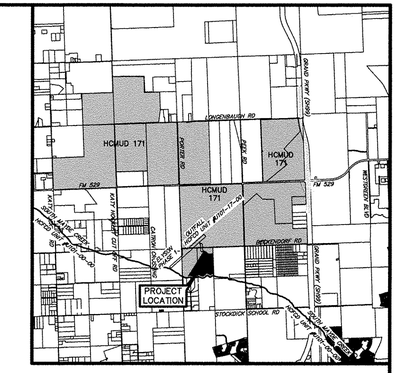

VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

N

CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING TEMPORARY ON-SITE HAUL ROADS SUITABLE FOR HIS OPERATIONS. CONTRACTOR SHALL TAKE MEASURES TO NOT DISTURB EXISTING DRAINAGE PATTERNS OR PROVIDE TEMPORARY CULVERTS AS NEEDED. NO SEPARATE PAY.

CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY SITE DRAINAGE AND CONTROLLING RUNOFF FOR THE DURATION OF THE CONSTRUCTION CONTRACT. THIS SHALL INCLUDE CONSTRUCTION OF TEMPORARY SWALES OR PROVIDING PORTABLE PUMPS, IF REQUIRED, SO THAT CONSTRUCTION PROGRESS MAY CONTINUE. THIS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND WILL RECEIVE NO SEPARTATE OR EXTRA PAY.

LEGEND

STABILIZED CONSTRUCTION ACCESS (SEE SPEC. ITEM 4711) ---------- SC

CONCRETE TRUCK WASHOUT AREA ---------- CTW

SPOIL SITE ----------

EXCAVATION AREA ----------

OFF SITE SHEET FLOW ----------

CUT/FILL SUMMARY

CUT

SOUTH BASIN 3 MITIGATION	876,976 CY
SOUTH BASIN 3 OVEREXCAVATION	1,045,206 CY
TOTAL	1,922,182 CY

FILL

BASIN 3 BERMS	26,883 CY
SPOIL SITE 1	697,057 CY
SPOIL SITE 5	54,013 CY
SPOIL SITE 7	1,144,229 CY
TOTAL	1,922,182 CY

Mitigation Basin according to approved "Drainage Impact Study for NASH FM 529, 3,608 Acre FM 529 Development Phase I (692 Acres)", HCFCD Project # 2034338, and approved "Drainage Impact Study for NASH FM 529, 3,608 Acre FM 529 Development Phase 2 (670 Acres)", HCFCD Project # 2044650.

Elyson Floodplain Mitigation and Floodplain Fill Summary

Floodplain Mitigation and Floodplain Fill performed in accordance with Approved "Drainage Impact Study for NASH FM 529, 3,602 Acre FM 529 Development Phase 1 (692 Acres)"; HC Project No. 2034338, and Approved "Drainage Impact Study for NASH FM 529, 3,602 Acre FM 529 Development Phase 2 (670 Acres)"; HC Project No. 2044650.

HC Proj No	Project	Detention Excavation	Floodplain Mitigation Excavation	Floodplain Fill	Cumulative Floodplain Fill Credit Remaining	Notes
2039718	Phase 1A Outfall	0	239,374	(48,434)	190,940	Filled Sec 1, 2, Rec Center, WWTP, WP
2041918	Phase 1B Overflow	0	253,185	(38,948)	405,177	Filled Sec 3 and 8 (partial)
2040987	Phase 1 Lakes	348,803	0	(137,695)	267,482	Filled Sec 4, 5, 6, 7 and 8 (partial)
1604281367	Phase II-A Mass Grading	0	0	(17,575)	249,907	Proposed Fill Porter Rd. Commercial (Site 6)
		0	0	(73,599)	176,308	Proposed Fill Commercial west of Peek Rd. (Sites 2, 4, 5) & KISD School (Site 3)
		0	0	(140,919)	35,389	Proposed Fill SF-10, SF-11, SF-12, SF-14A, SF-14B, Elyson Falls Drive (Site 1)
1606100109	Elyson Basin N1 and Basin N2 (detention), and East Outfall Channel (mitigation)	86,245	105,657	(63,822)	77,224	Floodplain Fill quantity represents Fill for Berms for East Outfall Channel Segment 1, 2 & 3, and Basin N1 & N2. Also includes Fill for Proposed Spoil Site 2. Fill for Proposed Spoil Site 1 (25,380 CY floodplain fill) was accounted for in the Phase II-A Mass Grading project indicated above (HC Project No. 1604281367). Spoil Site 1 was identified as SF-10 in that project.
1607010021	Elyson South Basin 3	0	876,976	(293,038)	661,162	The Floodplain Fill quantity represents floodplain fill for South Basin 3 berms and Spoil Site 7. Floodplain Fill for Proposed Spoil Sites 1 and 5 was accounted for in the Phase II-A Mass Grading project indicated above (HC Project No. 1604281367).

(all volumes expressed in Cubic Yards)

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
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BGE
Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS — BRENT R. DAHL — 119106 — LICENSED PROFESSIONAL ENGINEER — 4-30-16

Brown & Gay Engineers, Inc. F-1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

OVERALL SITE LAYOUT

JOB NUMBER: 3807-00

SUBMITTED: BROWN & GAY ENGINEERS, INC.
SCALE: 1"= 500'
DATE: SEPTEMBER 2016
SURVEY BY: BROWN & GAY ENGINEERS, INC.
F B NO:

DESIGNED BY: JMSR
DRAWN BY: SN
SHEET NO 4 OF 18 SHEETS
CITY DWG NO:

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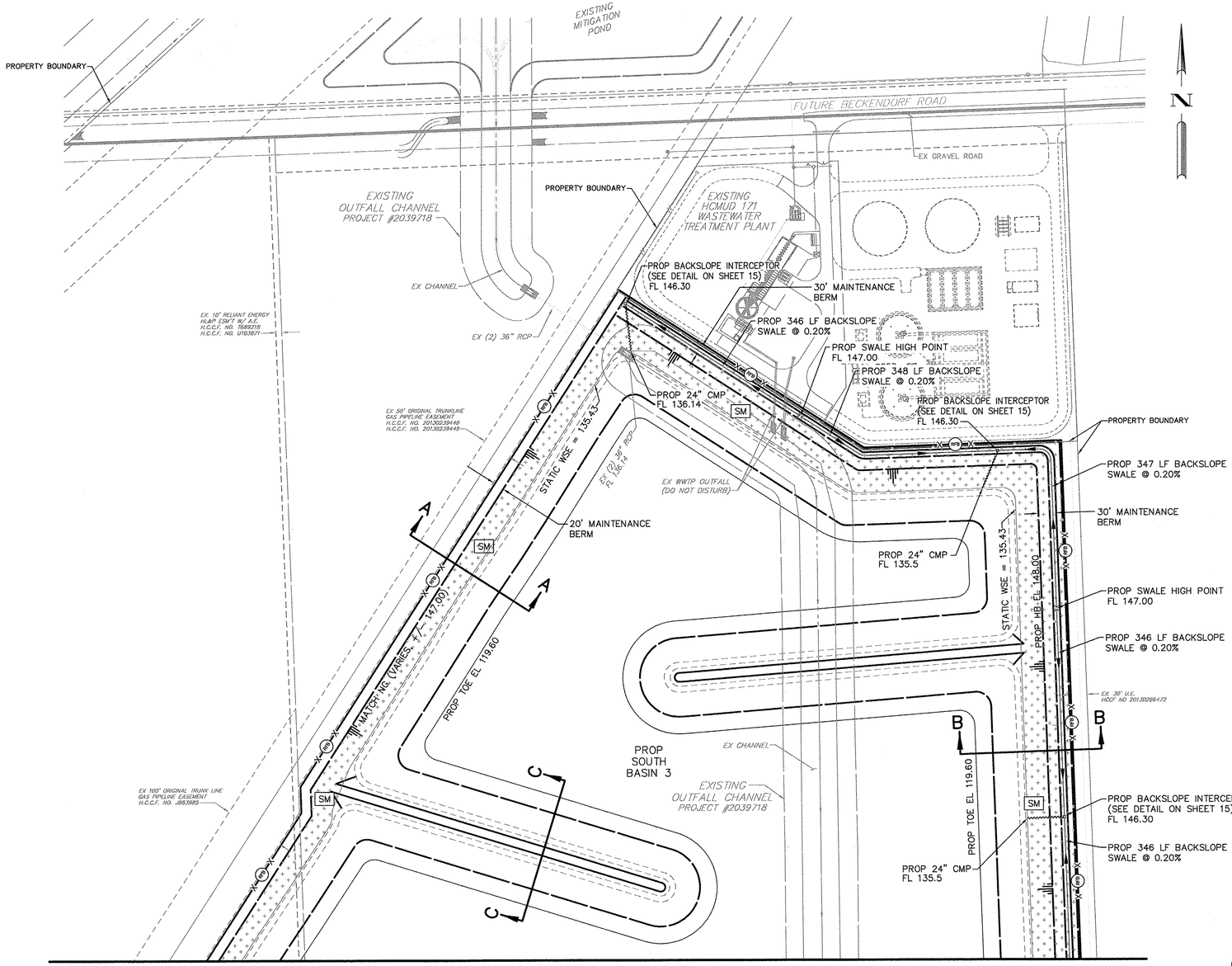
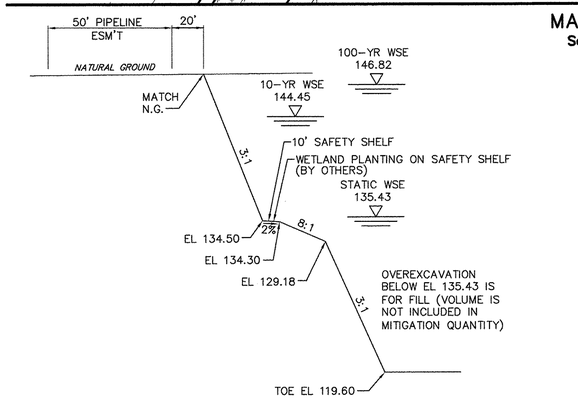
X:\Districts\HCMUD171\Elyson_South_Basin_2_and_South_Basin_3_3807\03_CADD\01_Construction_Plans\01_Sheets\04_ESB3_OVERALL.dwg 1:1

00208



MATCH LINE
See Sheet 6



SECTION A–A
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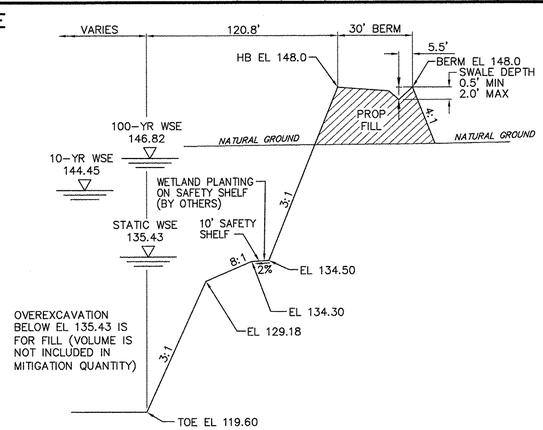

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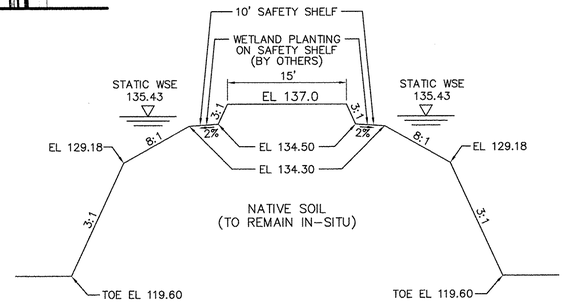
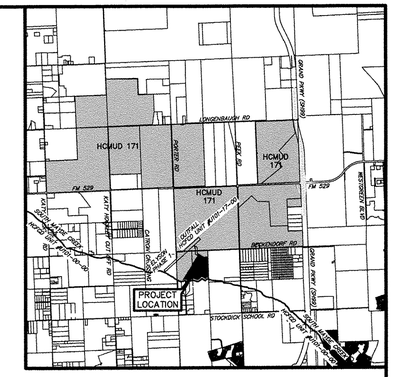


SECTION C–C
N.T.S.

FACILITIES DESIGNED ON THESE PLANS ARE NOT INTENDED FOR RECREATIONAL WADING OR SWIMMING. OWNER/OPERATOR OF THESE FACILITIES SHALL PROVIDE SIGNAGE PROHIBITING THESE ACTIVITIES.

BASIN TO BE OWNED AND MAINTAINED BY HARRIS COUNTY M.U.D. 171



VICINITY MAP
N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

LEGEND

HYDRO-MULCH SEEDING (SEE SPEC. ITEM 4241) ---------- SM

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311) ---------- SFB

POLLUTION PREVENTION NOTES:

1. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM (TPDES) REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ENFORCEMENT OF TPDES REQUIREMENTS PER "GENERAL REQUIREMENTS FOR PERMIT TXR150000".
3. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING GENERAL SOURCE CONTROLS PER SPECIAL SPEC. ITEM 4811.
4. THE LOCATION OF THE STABILIZED CONSTRUCTION ACCESS IS TO BE DETERMINED BY THE CONTRACTOR.
5. STORM WATER QUALITY PRE-CONSTRUCTION INSPECTION REQUIREMENTS: THE PROPERTY OWNER OR CONTRACTOR SHALL CONTACT THE HARRIS COUNTY STORM WATER QUALITY PERMITTING SECTION AT 713-956-3000 FOR A PRE-CONSTRUCTION INSPECTION PRIOR TO COMMENCING ANY CLEARING OR CONSTRUCTION ACTIVITIES ON THE SITE.
6. ALL RESERVES AND AREAS BETWEEN BACK-OF-CURB AND RIGHT-OF-WAY SHALL BE HYDRO-MULCHED SEEDED, PER SPEC. ITEM 4241. ALL LOTS AND OTHER AREAS DISTURBED DURING CONSTRUCTION SHALL BE BROADCAST SEEDED, PER SPEC ITEM 4240.
7. ANY AREAS DISTURBED WITHIN H. C. F. C. D. R. O. W. SHALL BE SEEDED PER H. C. F. C. D. SPECS.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

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STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED
PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F-1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

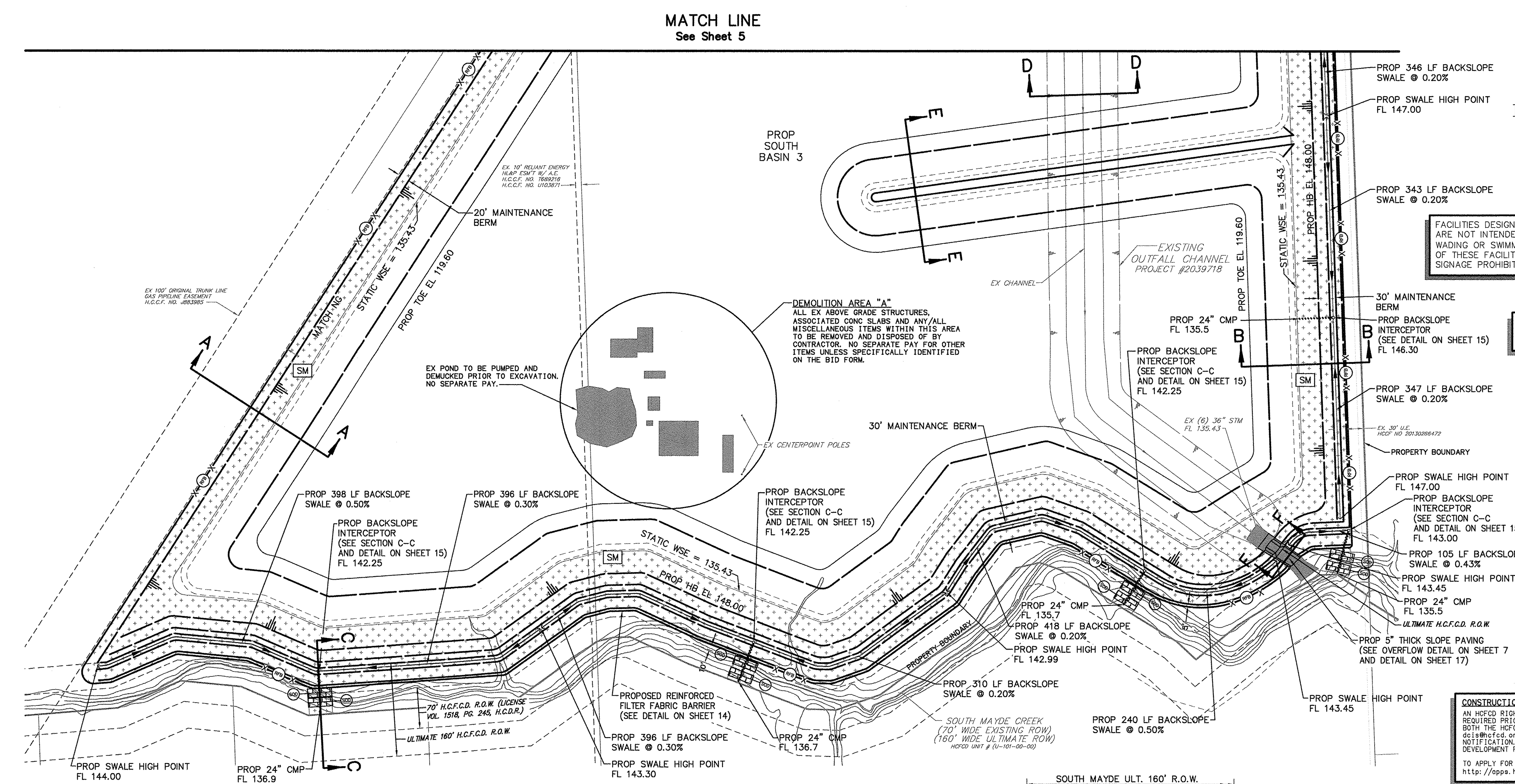
BASIN 3 LAYOUT AND STORM WATER POLLUTION PREVENTION PLAN (SHEET 1 OF 2)

JOB NUMBER: **3807-00**

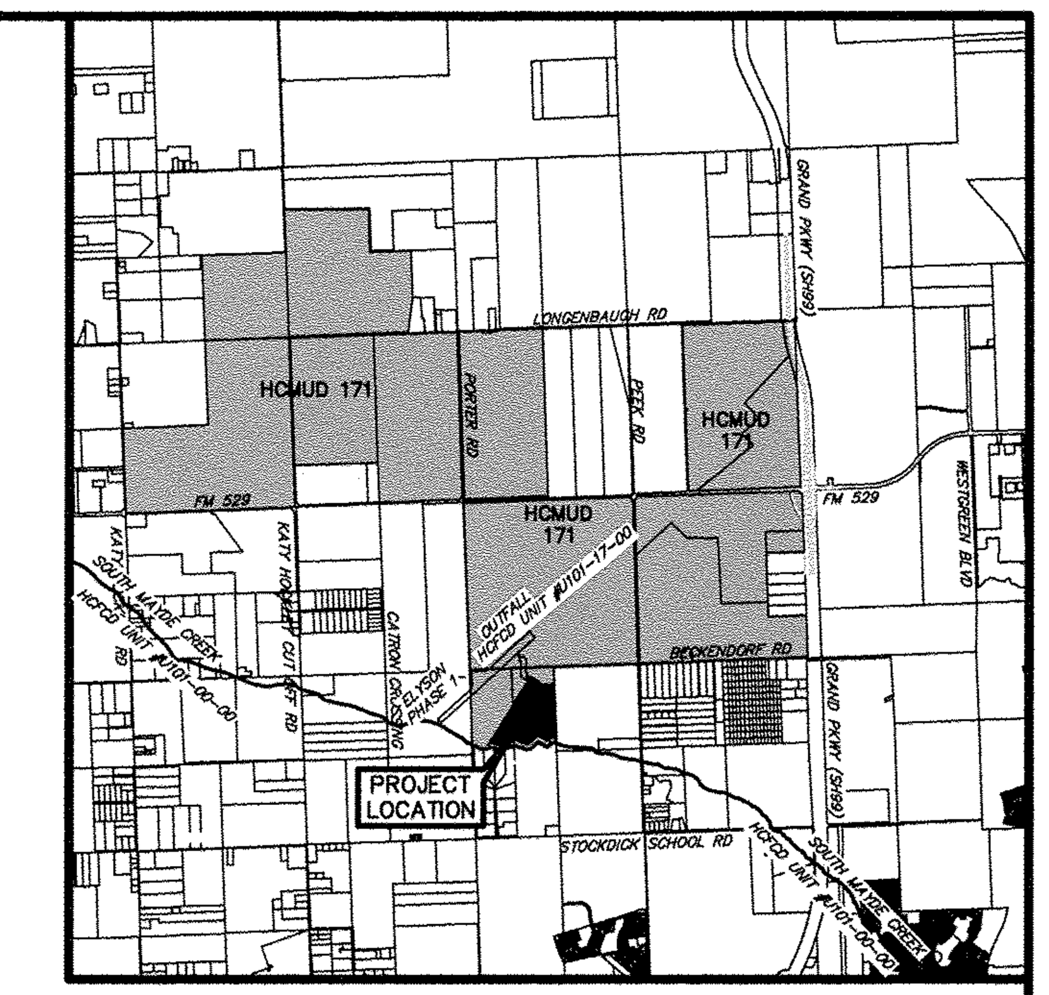
SUBMITTED: BROWN & GAY ENGINEERS, INC.
SCALE: 1"= 100'
DATE: SEPTEMBER 2016
SURVEY BY: BROWN & GAY ENGINEERS, INC.
F. B. NO:

DESIGNED BY: JMSR
DRAWN BY: SN
SHEET NO 5 OF 18 SHEETS
CITY DWG NO:

MATCH LINE
See Sheet 5



FACILITIES DESIGNED ON THESE PLANS ARE NOT INTENDED FOR RECREATIONAL WADING OR SWIMMING. OWNER/OPERATOR OF THESE FACILITIES SHALL PROVIDE SIGNAGE PROHIBITING THESE ACTIVITIES.



VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

BASIN TO BE OWNED AND MAINTAINED BY HARRIS COUNTY M.U.D. 171

POLLUTION PREVENTION NOTES:

1. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM (TPDES) REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ENFORCEMENT OF TPDES REQUIREMENTS PER "GENERAL REQUIREMENTS FOR PERMIT TXR150000".
3. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING GENERAL SOURCE CONTROLS PER SPECIAL SPEC. ITEM 4811.
4. THE LOCATION OF THE STABILIZED CONSTRUCTION ACCESS IS TO BE DETERMINED BY THE CONTRACTOR.
5. STORM WATER QUALITY PRE-CONSTRUCTION INSPECTION REQUIREMENTS: THE PROPERTY OWNER OR CONTRACTOR SHALL CONTACT THE HARRIS COUNTY STORM WATER QUALITY PERMITTING SECTION AT 713-956-3000 FOR A PRE-CONSTRUCTION INSPECTION PRIOR TO COMMENCING ANY CLEARING OR CONSTRUCTION ACTIVITIES ON THE SITE.
6. ALL RESERVES AND AREAS BETWEEN BACK-OF-CURB AND RIGHT-OF-WAY SHALL BE HYDRO-MULCHED SEEDED, PER SPEC. ITEM 4241. ALL LOTS AND OTHER AREAS DISTURBED DURING CONSTRUCTION SHALL BE BROADCAST SEEDED, PER SPEC ITEM 4240.
7. ANY AREAS DISTURBED WITHIN H. C. F. C. D. R. O. W. SHALL BE SEEDED PER H. C. F. C. D. SPECS.

LEGEND

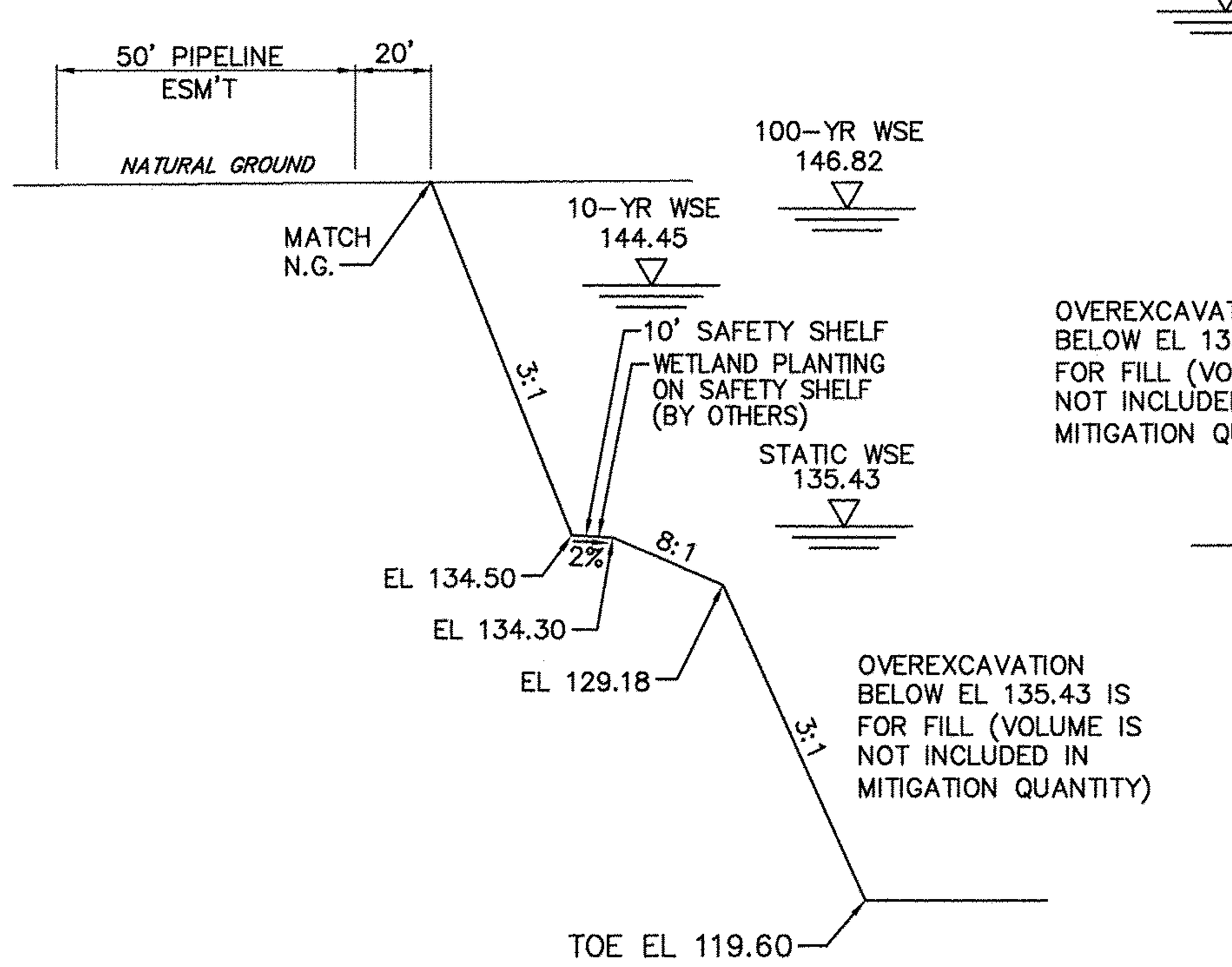
HYDRO-MULCH SEEDING (SEE HCFCD SPEC. ITEM 02921)	SM
REINFORCED FILTER FABRIC BARRIER (SEE HCFCD SPEC. ITEM 02361)	RFB
SOD (SEE HCFCD SPEC. ITEM 02922)	SOD

CONSTRUCTION IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY:

AN HCFCD RIGHT-OF-WAY NOTIFICATION (PERMIT) AND HCFCD 48-HR PRE-CONSTRUCTION NOTICE ARE REQUIRED PRIOR TO ENTERING OR WORKING WITHIN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. BOTH THE HCFCD RIGHT-OF-WAY NOTIFICATION AND 48-HR NOTICE MUST BE PROVIDED TO HCFCD AT dcis@hcfcd.org. SITE PLANS MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED HCFCD RIGHT-OF-WAY NOTIFICATION. BE ADVISED THAT THE HCFCD RIGHT-OF-WAY NOTIFICATION IS SEPARATE FROM THE SITE DEVELOPMENT PERMIT PACKAGE.

TO APPLY FOR THE HCFCD RIGHT-OF-WAY NOTIFICATION PLEASE GO TO http://apps.harriscountytx.gov/EPermits AND APPLY FOR THE HCFCD ROW UNDER ROW NOTIFICATION.

NOTES:
ALL DISTURBED AREAS WITHIN HCFCD ROW SHALL BE RESTORED AND HYDRO-MULCH SEEDED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.



SECTION A–A
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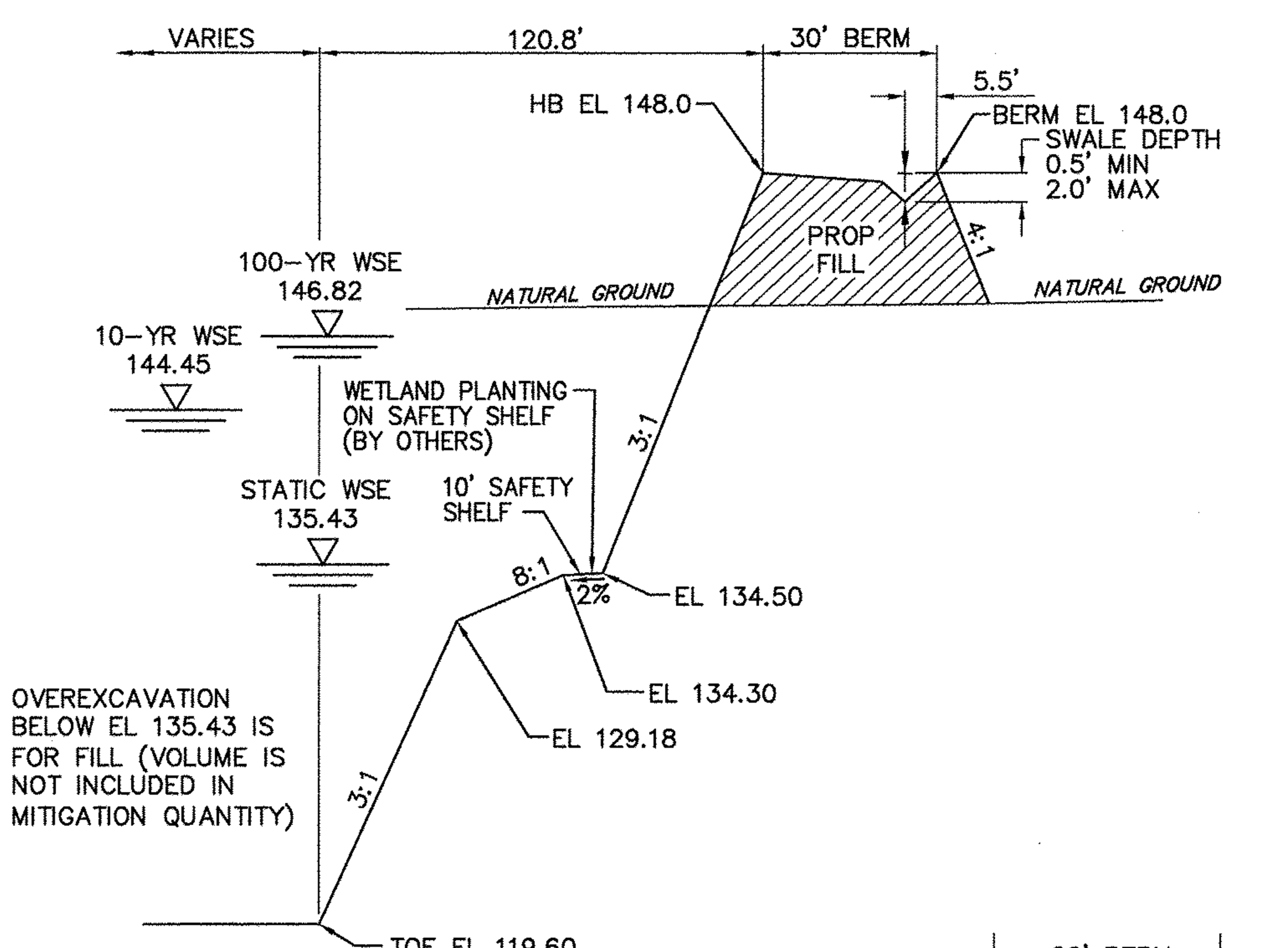

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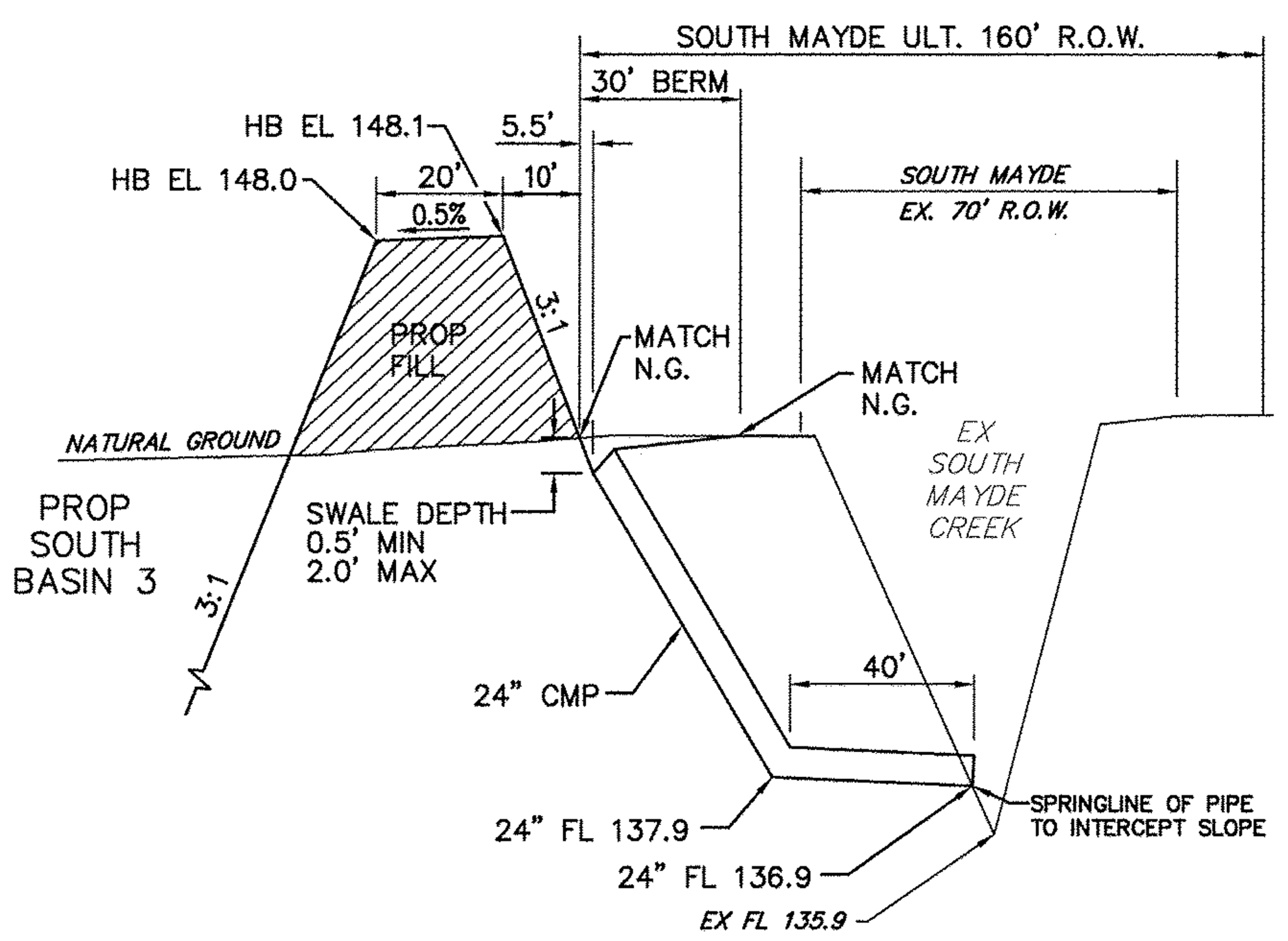

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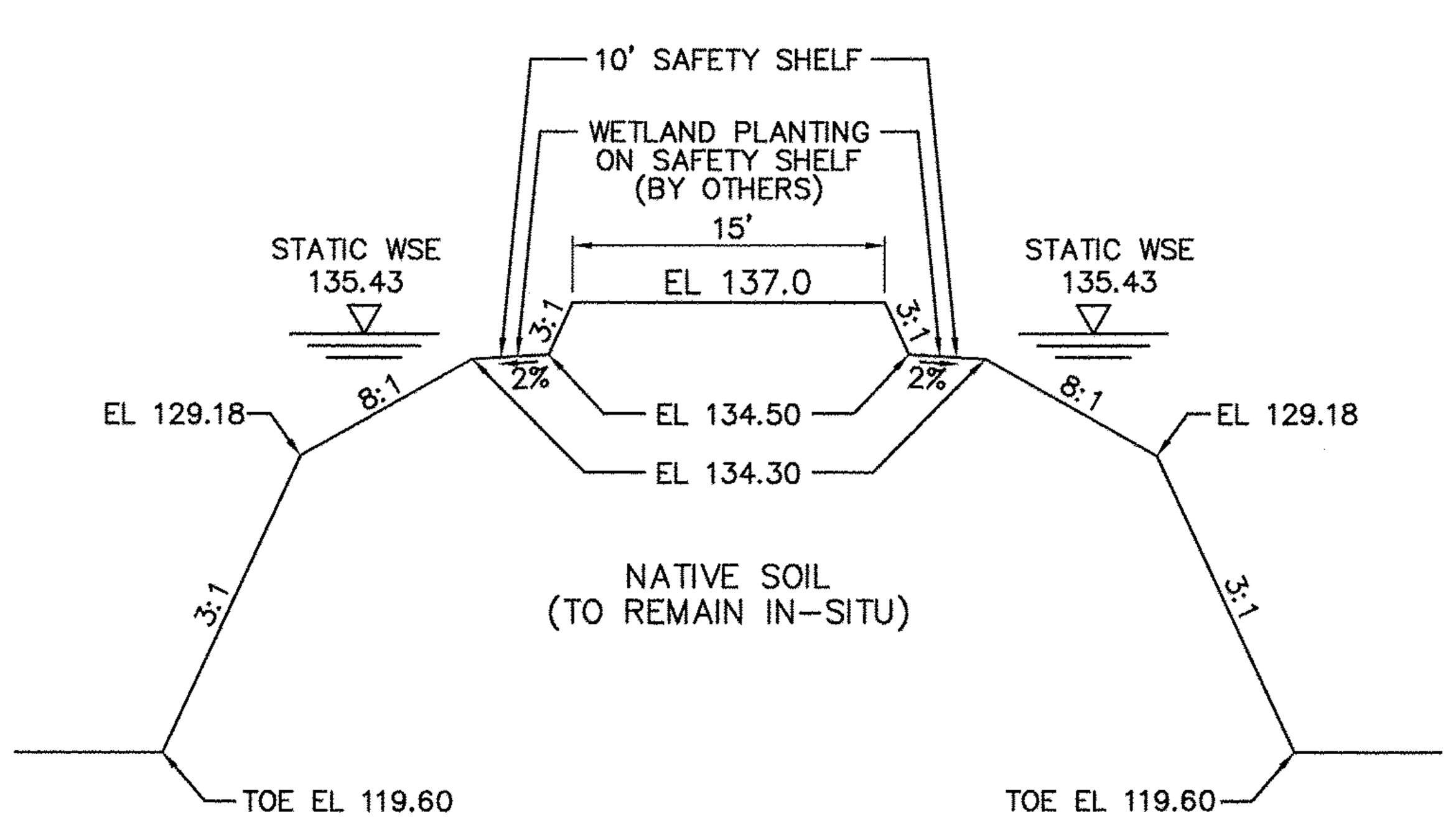

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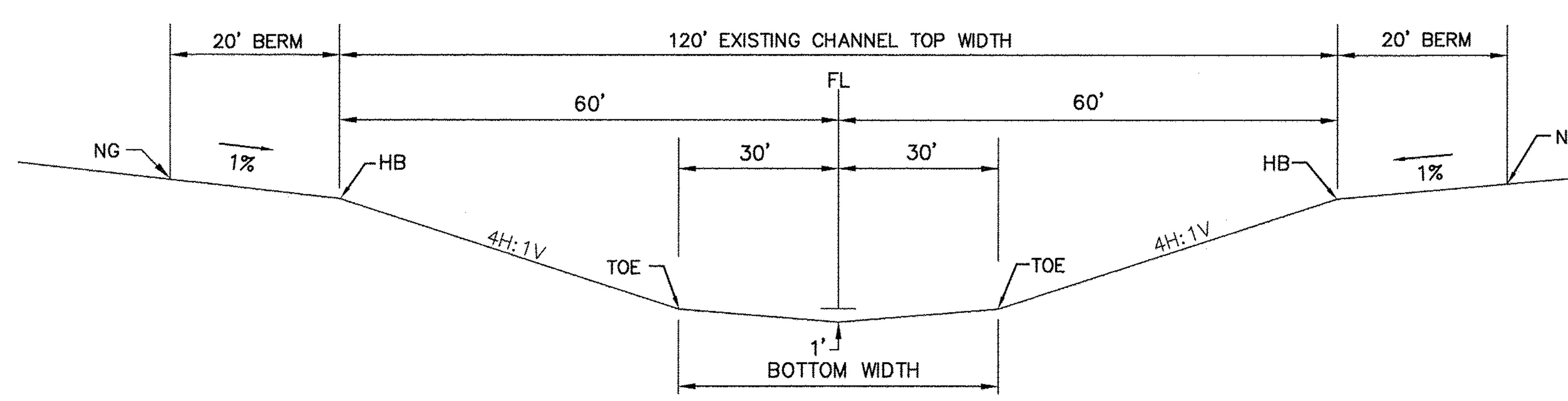

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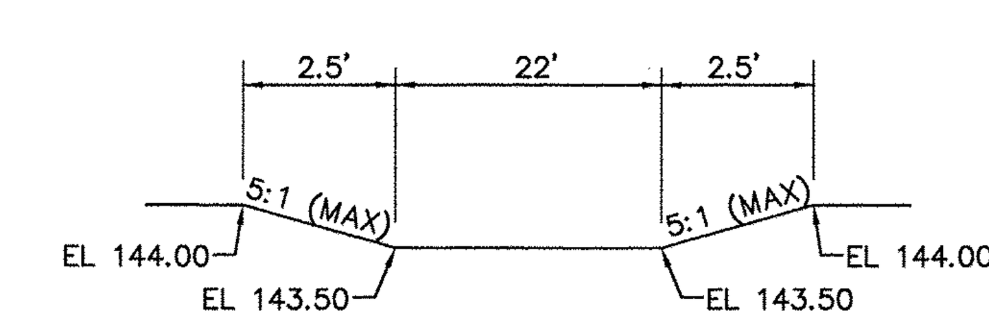

SECTION F–F
N.T.S.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
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1			

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F-1046

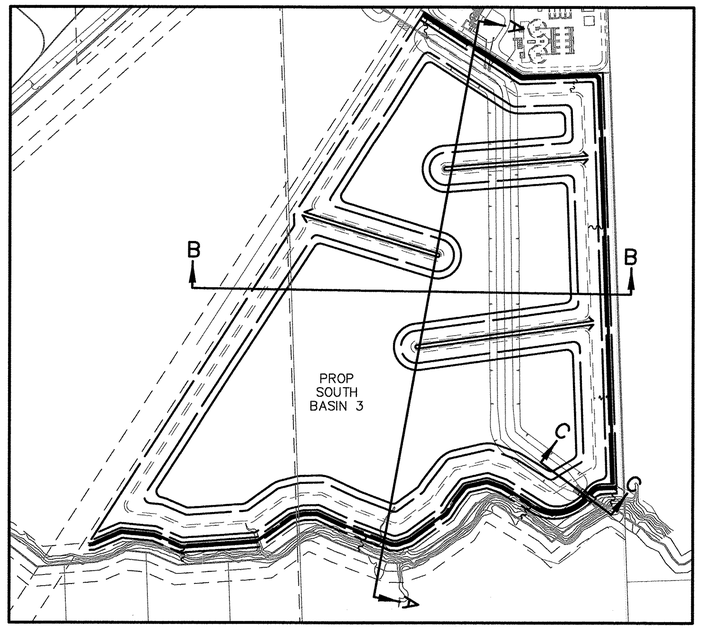
HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

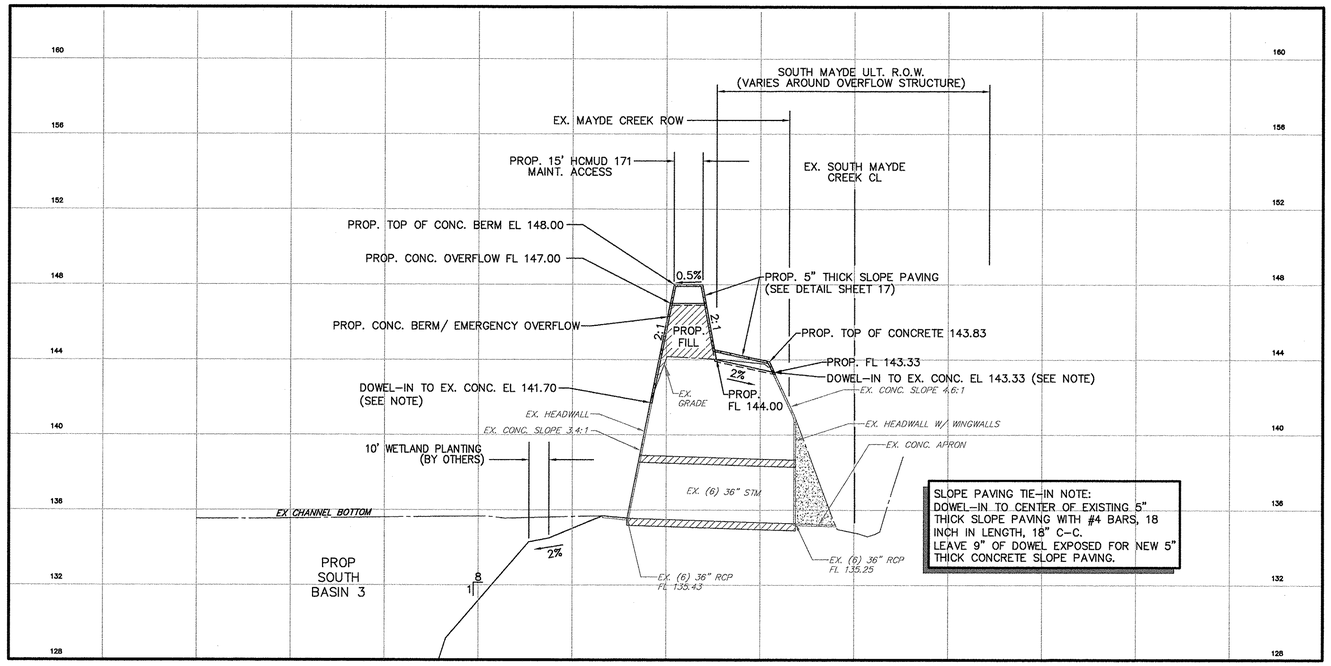
BASIN 3 LAYOUT AND STORM WATER POLLUTION PREVENTION PLAN (SHEET 2 OF 2)

JOB NUMBER: 3807-00

SUBMITTED: BROWN & GAY ENGINEERS, INC.	DESIGNED BY: JMSR
SCALE: 1"= 100'	DRAWN BY: SN
DATE: SEPTEMBER 2016	SHEET NO 6 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.	CITY DWG NO:
F B NO:	



LOCATION MAP
N.T.S.



SECTION C-C
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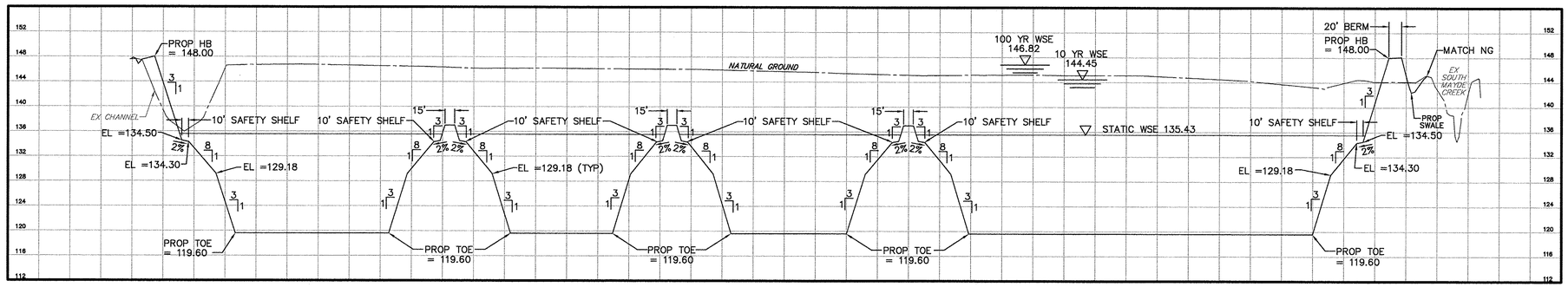

SECTION A-A
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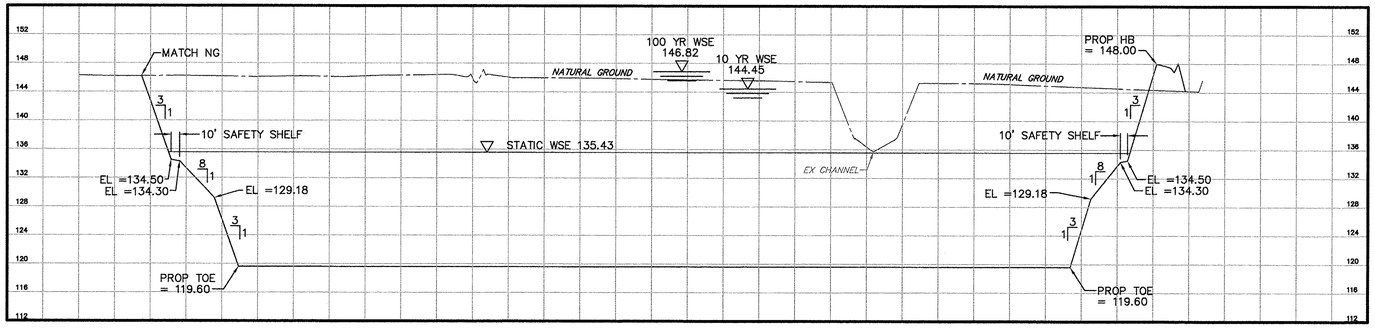

SECTION B-B
N.T.S.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
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Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED
PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F-1046

HARRIS COUNTY M.U.D. 171

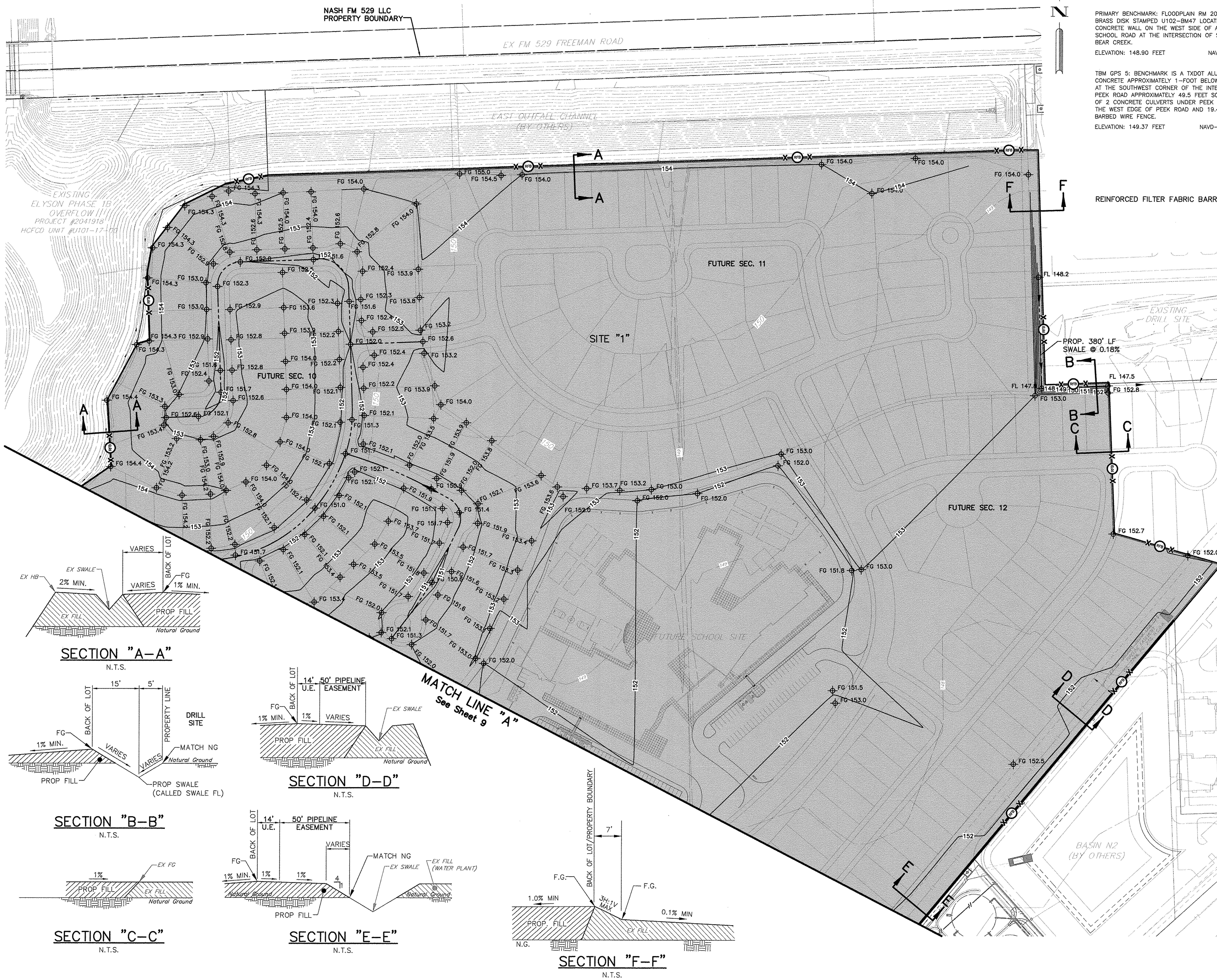
ELYSON
SOUTH BASIN 3

SOUTH BASIN 3
SECTIONS

JOB NUMBER: 3807-00

SUBMITTED: BROWN & GAY ENGINEERS, INC.		DESIGNED BY:	JMSR
SCALE:	NTS	DRAWN BY:	PB
DATE:	SEPTEMBER 2016	SHEET NO	7 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.		CITY DWG NO:	
F.B NO:			

FLOODPLAIN NOTE:
ACCORDING TO EFFECTIVE FEMA MAP 48201C0585L DATED JUNE 18, 2007 THIS SITE LIES WITHIN SHADED ZONE "AO (DEPTH 2)".



BENCHMARKS:

PRIMARY BENCHMARK: FLOODPLAIN RM 200120 – BENCHMARK IS A STAINLESS STEEL ROD INSIDE OF ALUMINUM SLEEVE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF KATY–HOCKLEY ROAD AND FM 529. BENCHMARK IS 43–FEET SOUTH OF THE CENTERLINE OF FM 529 AND 114.2 FEET WEST OF THE CENTERLINE OF KATY–HOCKLEY ROAD.

ELEVATION: 158.60 FEET NAVD–88, 2001 ADJUSTMENT

PRIMARY BENCHMARK: FLOODPLAIN RM 200185 – BENCHMARK IS A BRASS DISK STAMPED U102–BM47 LOCATED IN THE TOP OF A CONCRETE WALL ON THE WEST SIDE OF A BRIDGE ON STOCKDICK SCHOOL ROAD AT THE INTERSECTION OF STOCKDICK SCHOOL ROAD AND BEAR CREEK.

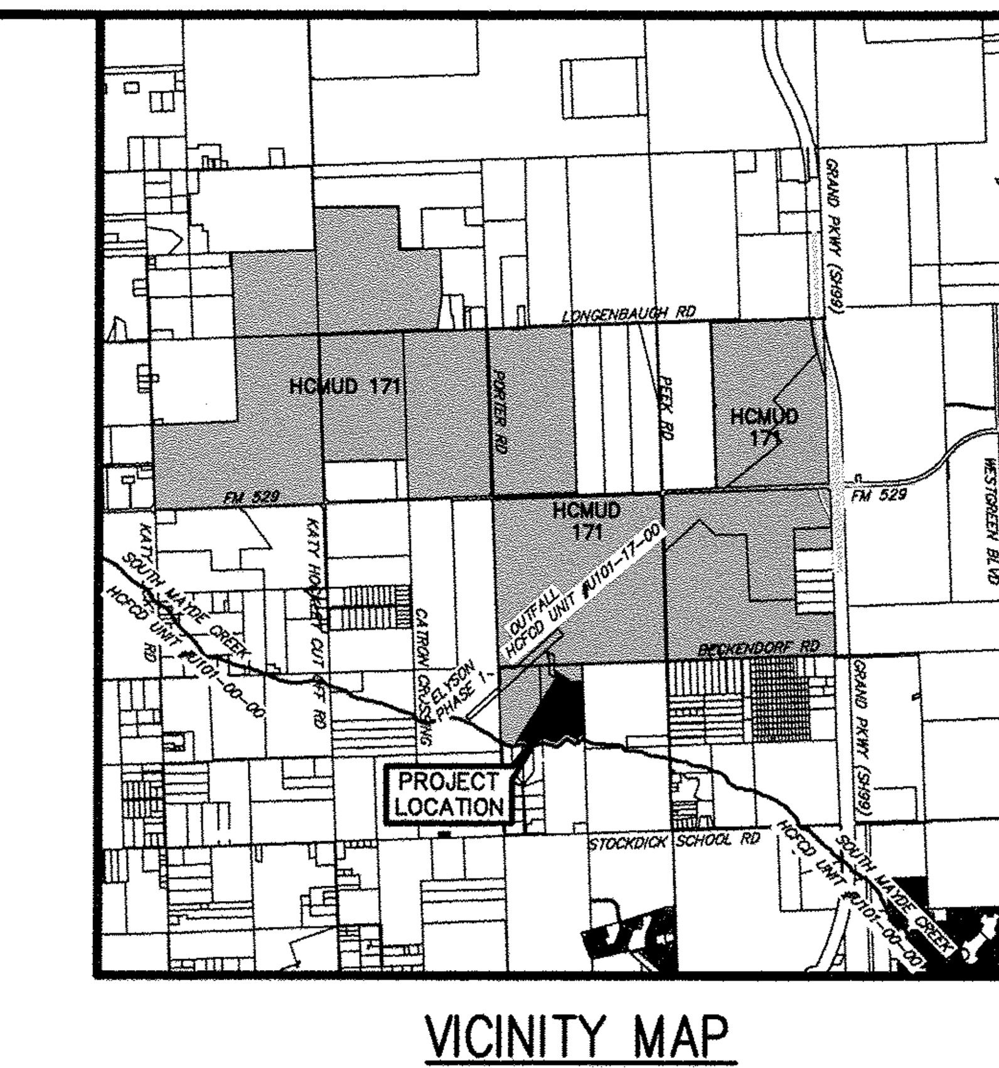
ELEVATION: 148.90 FEET NAVD–88, 2001 ADJUSTMENT

TBM GPS 5: BENCHMARK IS A TXDOT ALUMINUM DISK SET IN CONCRETE APPROXIMATELY 1–FOOT BELOW NATURAL GROUND LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF FM 539 AND PEEK ROAD APPROXIMATELY 49.5 FEET SOUTHWEST OF THE WEST END OF 2 CONCRETE CULVERTS UNDER PEEK ROAD, 50.5 FEET WEST OF THE WEST EDGE OF PEEK ROAD AND 19.4 FEET NORTHEAST OF A BARBED WIRE FENCE.

ELEVATION: 149.37 FEET NAVD–88, 2001 ADJUSTMENT

LEGEND

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311) – – – –X–(RFB)–X–



VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

CONTRACTOR TO PREPARE SPOIL DISPOSAL SITES BY MOWING, RAKING, AND DISKING OF EXISTING VEGETATION: INCLUDES SCARIFYING, COMPACTING, AND PROOF–ROLLING OF SPOIL AREA TO 90% STANDARD PROCTOR DENSITY.

FILL MATERIAL TO BE PLACE IN 8" LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

SEE SHEET 4 FOR FLOODPLAIN FILL MITIGATION SUMMARY AND CUT/FILL SUMMARY

CONTRACTOR MUST PHASE SPOIL DISPOSAL PER SPECIAL SPECIFICATION 01000.

PERMIT NOTES:
1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD RIGHT–OF–WAY. THE PERMIT IS TO BE ISSUED IN THE OWNERS NAME.
2. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY REGULATION OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT PRIOR TO STARTING CONSTRUCTION.

NOTICE
FOR LOCATION OF UNDERGROUND UTILITY LINES, CALL (713) 223–4567 OR TOLL FREE 1–800–245–4545, 48 HOURS BEFORE EXCAVATING.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

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Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
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STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F–1046

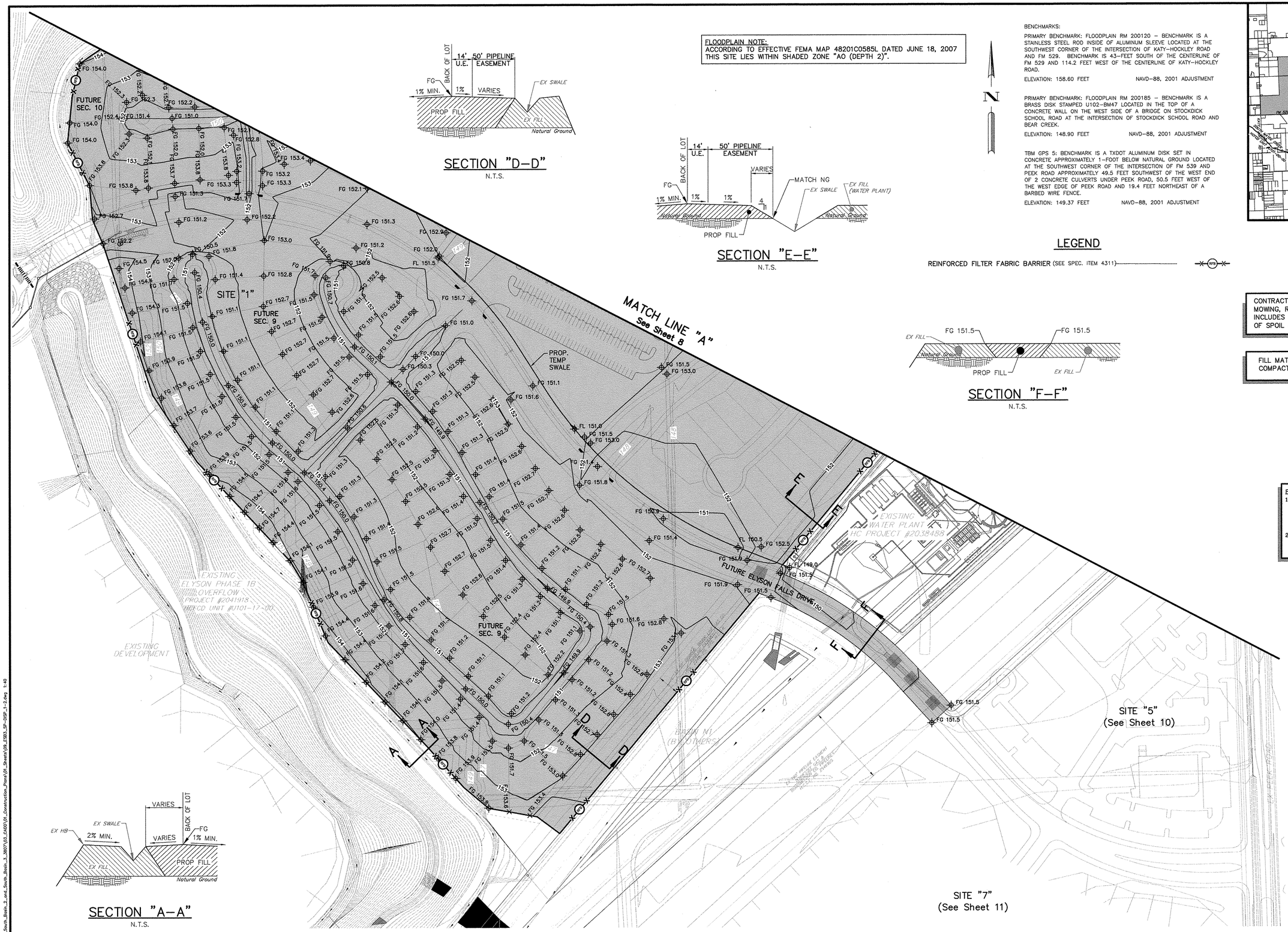
HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

SPOIL DISPOSAL PLAN SITE "1" (SHEET 1 OF 2)

JOB NUMBER: **3807–00**

SUBMITTED: BROWN & GAY ENGINEERS, INC.	DESIGNED BY: JMSR
SCALE: 1"=100'	DRAWN BY: M.B.
DATE: SEPTEMBER 2016	SHEET NO 8 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.	CITY DWG NO:
F B NO:	



SECTION "D–D"
N.T.S.

SECTION "E–E"
N.T.S.

SECTION "F–F"
N.T.S.

SECTION "A–A"
N.T.S.

FLOODPLAIN NOTE:
ACCORDING TO EFFECTIVE FEMA MAP 48201C0585L DATED JUNE 18, 2007 THIS SITE LIES WITHIN SHADED ZONE "AO (DEPTH 2)".

BENCHMARKS:

PRIMARY BENCHMARK: FLOODPLAIN RM 200120 – BENCHMARK IS A STAINLESS STEEL ROD INSIDE OF ALUMINUM SLEEVE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF KATY–HOCKLEY ROAD AND FM 529. BENCHMARK IS 43–FEET SOUTH OF THE CENTERLINE OF FM 529 AND 114.2 FEET WEST OF THE CENTERLINE OF KATY–HOCKLEY ROAD.

ELEVATION: 158.60 FEET NAVD–88, 2001 ADJUSTMENT

PRIMARY BENCHMARK: FLOODPLAIN RM 200185 – BENCHMARK IS A BRASS DISK STAMPED U102–BM47 LOCATED IN THE TOP OF A CONCRETE WALL ON THE WEST SIDE OF A BRIDGE ON STOCKDICK SCHOOL ROAD AT THE INTERSECTION OF STOCKDICK SCHOOL ROAD AND BEAR CREEK.

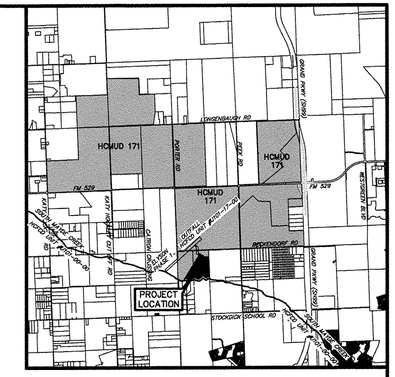
ELEVATION: 148.90 FEET NAVD–88, 2001 ADJUSTMENT

TBM GPS 5: BENCHMARK IS A TXDOT ALUMINUM DISK SET IN CONCRETE APPROXIMATELY 1–FOOT BELOW NATURAL GROUND LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF FM 539 AND PEEK ROAD APPROXIMATELY 49.5 FEET SOUTHWEST OF THE WEST END OF 2 CONCRETE CULVERTS UNDER PEEK ROAD, 50.5 FEET WEST OF THE WEST EDGE OF PEEK ROAD AND 19.4 FEET NORTHEAST OF A BARBED WIRE FENCE.

ELEVATION: 149.37 FEET NAVD–88, 2001 ADJUSTMENT

LEGEND

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311)



VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

CONTRACTOR TO PREPARE SPOIL DISPOSAL SITES BY MOWING, RAKING, AND DISKING OF EXISTING VEGETATION: INCLUDES SCARIFYING, COMPACTING, AND PROOF–ROLLING OF SPOIL AREA TO 90% STANDARD PROCTOR DENSITY.

FILL MATERIAL TO BE PLACE IN 8" LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

SEE SHEET 4 FOR FLOODPLAIN FILL MITIGATION SUMMARY AND CUT/FILL SUMMARY

CONTRACTOR MUST PHASE SPOIL DISPOSAL PER SPECIAL SPECIFICATION 01000.

PERMIT NOTES:
1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD RIGHT–OF–WAY. THE PERMIT IS TO BE ISSUED IN THE OWNERS NAME.
2. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY REGULATION OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT PRIOR TO STARTING CONSTRUCTION.

NOTICE
FOR LOCATION OF UNDERGROUND UTILITY LINES, CALL (713)223–4567 OR TOLL FREE 1–800–245–4545, 48 HOURS BEFORE EXCAVATING.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

BGE
Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F–1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

SPOIL DISPOSAL PLAN SITE "1" (SHEET 2 OF 2)

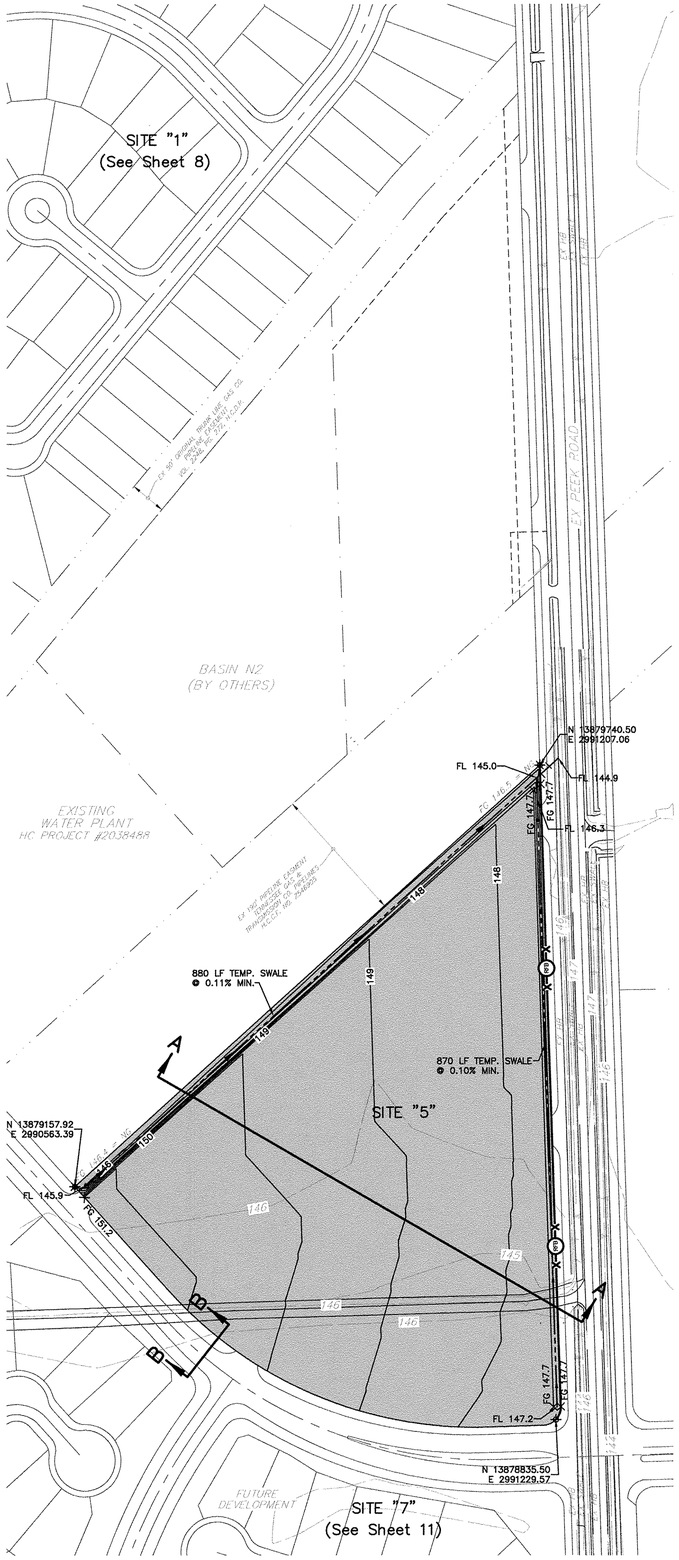
JOB NUMBER: 3807–00

SUBMITTED: BROWN & GAY ENGINEERS, INC.
SCALE: 1"=100'
DATE: SEPTEMBER 2016
SURVEY BY: BROWN & GAY ENGINEERS, INC.
F B NO:

DESIGNED BY: JMSR
DRAWN BY: M.B.
SHEET NO 9 OF 18 SHEETS
CITY DWG NO:

X:\Districts\HCMUD171\Elyson_South_Basin_2_and_South_Basin_3_3807\03_CAD\01_Construction_Plans\01_Sheets\V08_ES83_SP–DISP_1–1.dwg 1:40

00213



FLOODPLAIN NOTE:
ACCORDING TO EFFECTIVE FEMA MAP 48201C0585L DATED JUNE 18, 2007 THIS SITE LIES WITHIN SHADED ZONE "AO (DEPTH 2)".

N

BENCHMARKS:

PRIMARY BENCHMARK: FLOODPLAIN RM 200120 – BENCHMARK IS A STAINLESS STEEL ROD INSIDE OF ALUMINUM SLEEVE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF KATY–HOCKLEY ROAD AND FM 529. BENCHMARK IS 43–FEET SOUTH OF THE CENTERLINE OF FM 529 AND 114.2 FEET WEST OF THE CENTERLINE OF KATY–HOCKLEY ROAD.

ELEVATION: 158.60 FEET NAVD–88, 2001 ADJUSTMENT

PRIMARY BENCHMARK: FLOODPLAIN RM 200185 – BENCHMARK IS A BRASS DISK STAMPED U102–BM47 LOCATED IN THE TOP OF A CONCRETE WALL ON THE WEST SIDE OF A BRIDGE ON STOCKDICK SCHOOL ROAD AT THE INTERSECTION OF STOCKDICK SCHOOL ROAD AND BEAR CREEK.

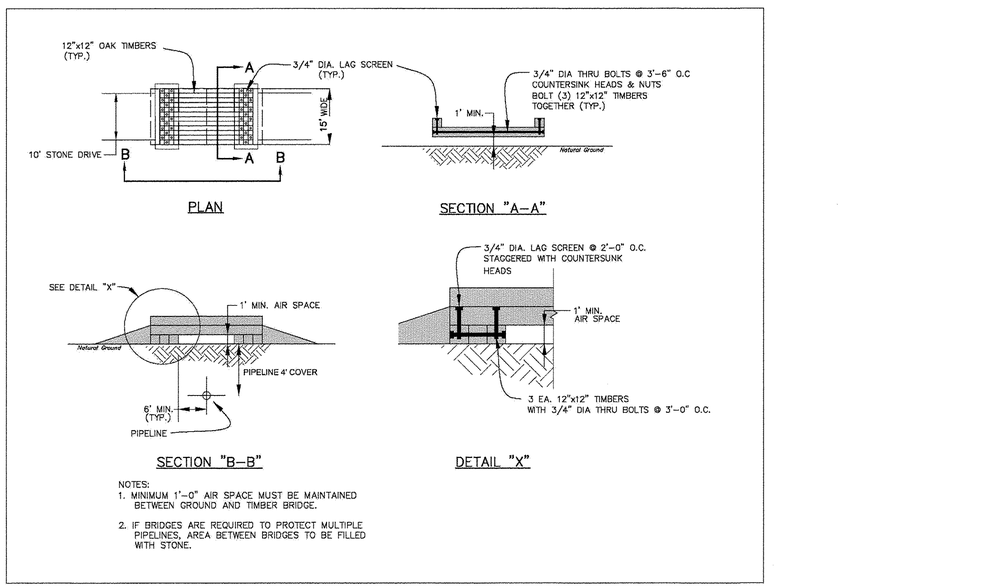
ELEVATION: 148.90 FEET NAVD–88, 2001 ADJUSTMENT

TBM GPS 5: BENCHMARK IS A TXDOT ALUMINUM DISK SET IN CONCRETE APPROXIMATELY 1–FOOT BELOW NATURAL GROUND LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF FM 539 AND PEEK ROAD APPROXIMATELY 49.5 FEET SOUTHWEST OF THE WEST END OF 2 CONCRETE CULVERTS UNDER PEEK ROAD, 50.5 FEET WEST OF THE WEST EDGE OF PEEK ROAD AND 19.4 FEET NORTHEAST OF A BARBED WIRE FENCE.

ELEVATION: 149.37 FEET NAVD–88, 2001 ADJUSTMENT

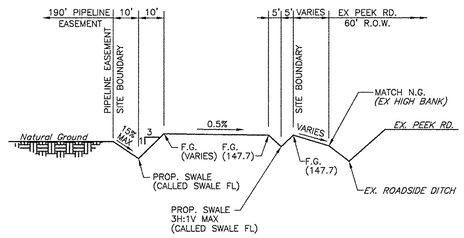
LEGEND

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311) – – – – – – – – – –

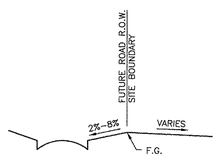


NOTES:
1. MINIMUM 1'–0" AIR SPACE MUST BE MAINTAINED BETWEEN GROUND AND TIMBER BRIDGE.
2. IF BRIDGES ARE REQUIRED TO PROTECT MULTIPLE PIPELINES, AREA BETWEEN BRIDGES TO BE FILLED WITH STONE.

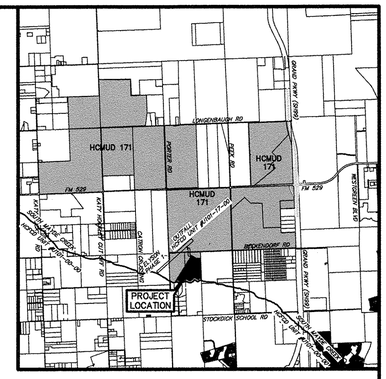
TIMBER BRIDGE DETAILS
N.T.S.



SECTION "A–A"
N.T.S.



SECTION "B–B"
N.T.S.



VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

CONTRACTOR TO PREPARE SPOIL DISPOSAL SITES BY MOWING, RAKING, AND DISKING OF EXISTING VEGETATION: INCLUDES SCARIFYING, COMPACTING, AND PROOF–ROLLING OF SPOIL AREA TO 90% STANDARD PROCTOR DENSITY.

FILL MATERIAL TO BE PLACE IN 8" LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

SEE SHEET 4 FOR FLOODPLAIN FILL MITIGATION SUMMARY AND CUT/FILL SUMMARY

CONTRACTOR MUST PHASE SPOIL DISPOSAL PER SPECIAL SPECIFICATION 01000.

PERMIT NOTES:
1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD RIGHT–OF–WAY. THE PERMIT IS TO BE ISSUED IN THE OWNERS NAME.
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NOTICE
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REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

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TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED
PROFESSIONAL ENGINEER
4-20-16
Brent R Dahl
Brown & Gay Engineers, Inc.
F-1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

SPOIL DISPOSAL PLAN SITE "5"

JOB NUMBER: 3807–00

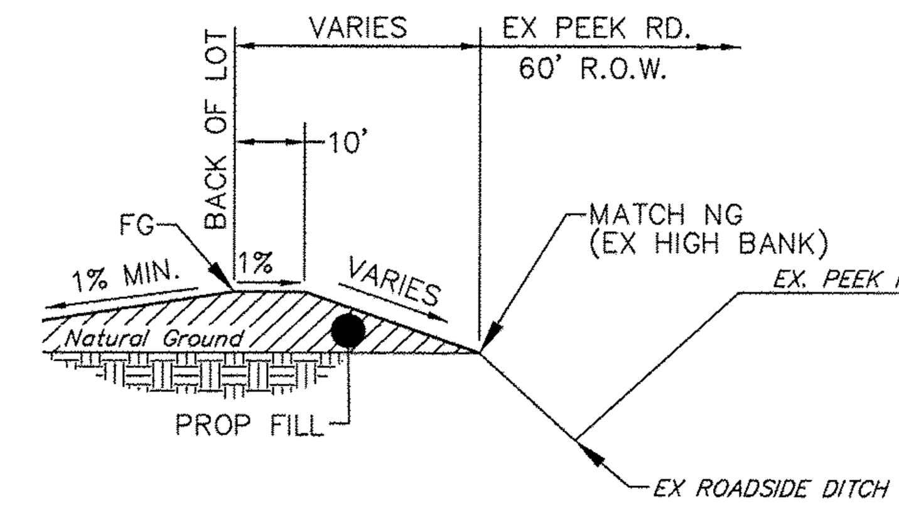
SUBMITTED: BROWN & GAY ENGINEERS, INC.
SCALE: 1"=100'
DATE: SEPTEMBER 2016
SURVEY BY: BROWN & GAY ENGINEERS, INC.
F.B. NO:

DESIGNED BY: JMSR
DRAWN BY: M.B.
SHEET NO 10 OF 18 SHEETS
CITY DWG NO:

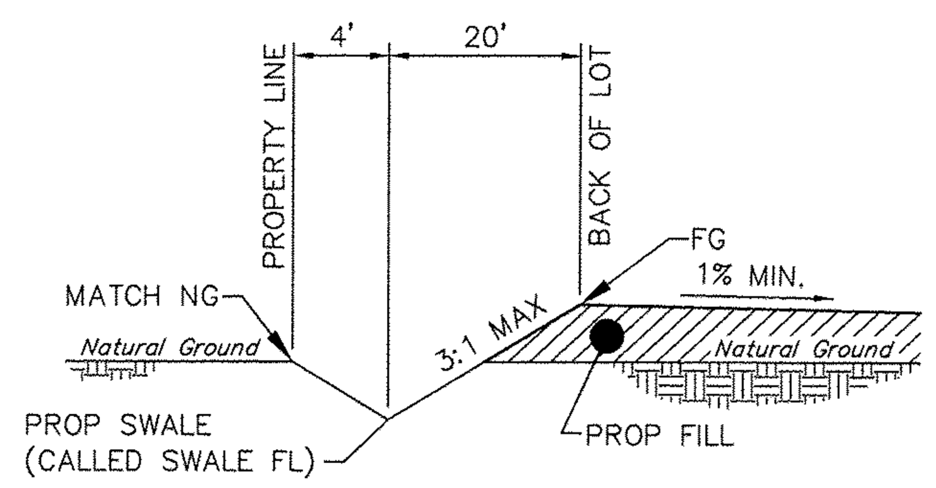
X:\Districts\HCMUD171\Elyson_South_Basin_2_and_South_Basin_3_3807\03_CADD\01_Construction_Plans\01_Sheets\10_ES83_SP–DISP_4–5.dwg 1:40

00214

FLOODPLAIN NOTE:
ACCORDING TO EFFECTIVE FEMA MAP 48201C0585L DATED JUNE 18, 2007 THIS SITE LIES WITHIN SHADED ZONE "AO (DEPTH 2)".



SECTION "A–A"
N.T.S.



SECTION "B–B"
N.T.S.

BENCHMARKS:

PRIMARY BENCHMARK: FLOODPLAIN RM 200120 – BENCHMARK IS A STAINLESS STEEL ROD INSIDE OF ALUMINUM SLEEVE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF KATY–HOCKLEY ROAD AND FM 529. BENCHMARK IS 43–FEET SOUTH OF THE CENTERLINE OF FM 529 AND 114.2 FEET WEST OF THE CENTERLINE OF KATY–HOCKLEY ROAD.

ELEVATION: 158.60 FEET NAVD–88, 2001 ADJUSTMENT

PRIMARY BENCHMARK: FLOODPLAIN RM 200185 – BENCHMARK IS A BRASS DISK STAMPED U102–BM47 LOCATED IN THE TOP OF A CONCRETE WALL ON THE WEST SIDE OF A BRIDGE ON STOCKDICK SCHOOL ROAD AT THE INTERSECTION OF STOCKDICK SCHOOL ROAD AND BEAR CREEK.

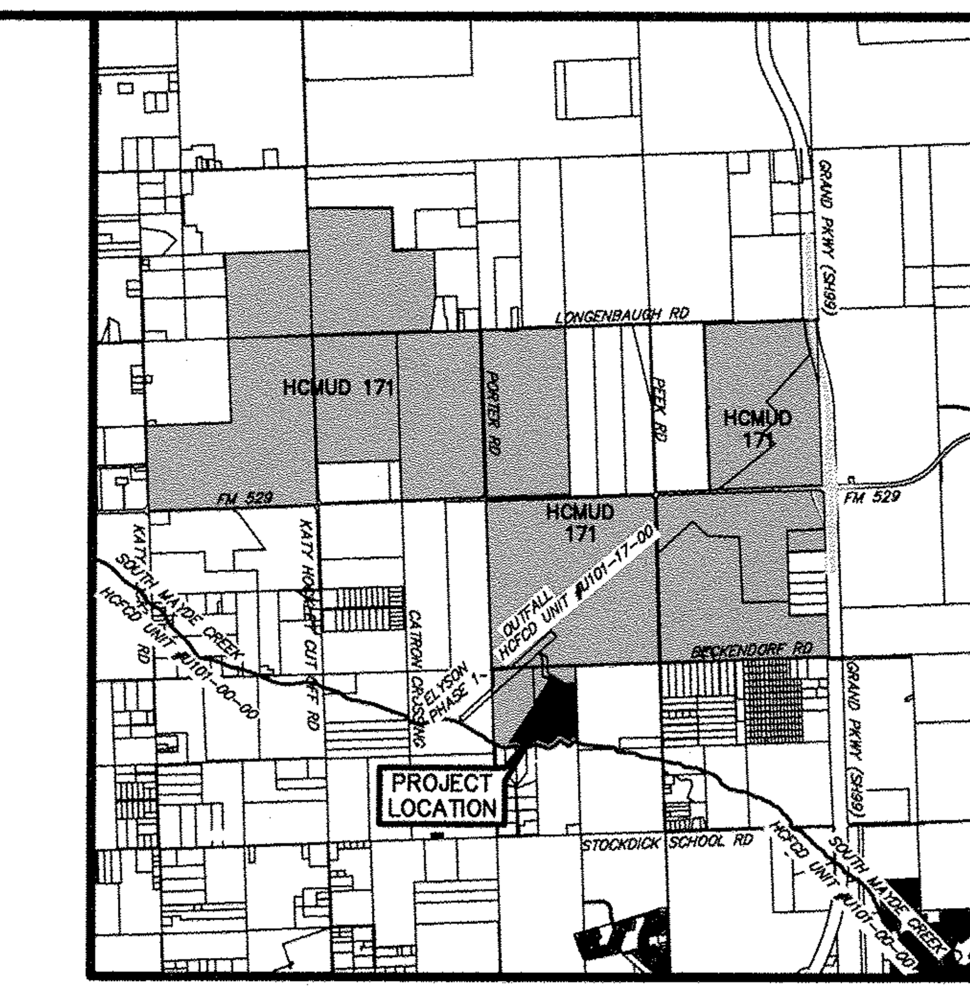
ELEVATION: 148.90 FEET NAVD–88, 2001 ADJUSTMENT

TBM GPS 5: BENCHMARK IS A TXDOT ALUMINUM DISK SET IN CONCRETE APPROXIMATELY 1–FOOT BELOW NATURAL GROUND LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF FM 539 AND PEEK ROAD APPROXIMATELY 49.5 FEET SOUTHWEST OF THE WEST END OF 2 CONCRETE CULVERTS UNDER PEEK ROAD, 50.5 FEET WEST OF THE WEST EDGE OF PEEK ROAD AND 19.4 FEET NORTHEAST OF A BARBED WIRE FENCE.

ELEVATION: 149.37 FEET NAVD–88, 2001 ADJUSTMENT

LEGEND

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311) – – – – – – – – – –X–(RFB)–X–



VICINITY MAP

N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

CONTRACTOR TO PREPARE SPOIL DISPOSAL SITES BY MOWING, RAKING, AND DISKING OF EXISTING VEGETATION: INCLUDES SCARIFYING, COMPACTING, AND PROOF–ROLLING OF SPOIL AREA TO 90% STANDARD PROCTOR DENSITY.

FILL MATERIAL TO BE PLACE IN 8" LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

SEE SHEET 4 FOR FLOODPLAIN FILL MITIGATION SUMMARY AND CUT/FILL SUMMARY

CONTRACTOR MUST PHASE SPOIL DISPOSAL PER SPECIAL SPECIFICATION 01000.

PERMIT NOTES:
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NOTICE
FOR LOCATION OF UNDERGROUND UTILITY LINES, CALL (713)223–4567 OR TOLL FREE 1–800–245–4545, 48 HOURS BEFORE EXCAVATING.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
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STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED
PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F–1046

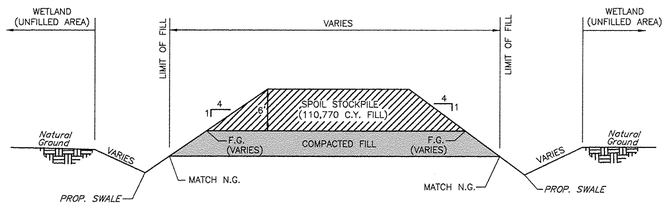
HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

SPOIL DISPOSAL PLAN SITE "7" (SHEET 1 OF 3)

JOB NUMBER: 3807–00

SUBMITTED: BROWN & GAY ENGINEERS, INC.	DESIGNED BY: JMSR
SCALE: 1"=100'	DRAWN BY: M.B.
DATE: SEPTEMBER 2016	SHEET NO 11 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.	CITY DWG NO:
F B NO:	



SECTION "A–A"
N.T.S.

FLOODPLAIN NOTE:
ACCORDING TO EFFECTIVE FEMA MAP 48201C0585L DATED JUNE 18, 2007 THIS SITE LIES WITHIN SHADED ZONE "AO (DEPTH 2)".

BENCHMARKS:

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ELEVATION: 158.60 FEET NAVD–88, 2001 ADJUSTMENT

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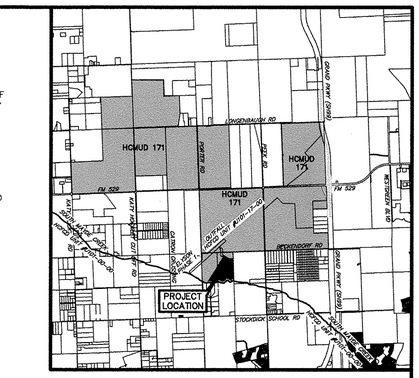
ELEVATION: 149.37 FEET NAVD–88, 2001 ADJUSTMENT

LEGEND

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311)



VICINITY MAP
N.T.S.
23500 BECKENDORF RD.
HOUSTON, TEXAS 77493
KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

CONTRACTOR TO PREPARE SPOIL DISPOSAL SITES BY MOWING, RAKING, AND DISKING OF EXISTING VEGETATION: INCLUDES SCARIFYING, COMPACTING, AND PROOF–ROLLING OF SPOIL AREA TO 90% STANDARD PROCTOR DENSITY.

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SEE SHEET 4 FOR FLOODPLAIN FILL MITIGATION SUMMARY AND CUT/FILL SUMMARY

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PERMIT NOTES:
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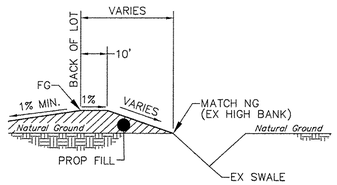
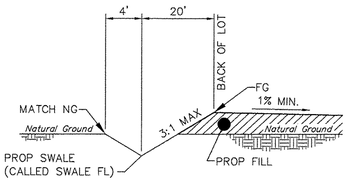


SECTION "B–B"
N.T.S.



SECTION "C–C"
N.T.S.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

Brown & Gay Engineers, Inc.
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F–1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

SPOIL DISPOSAL PLAN SITE "7" (SHEET 2 OF 3)

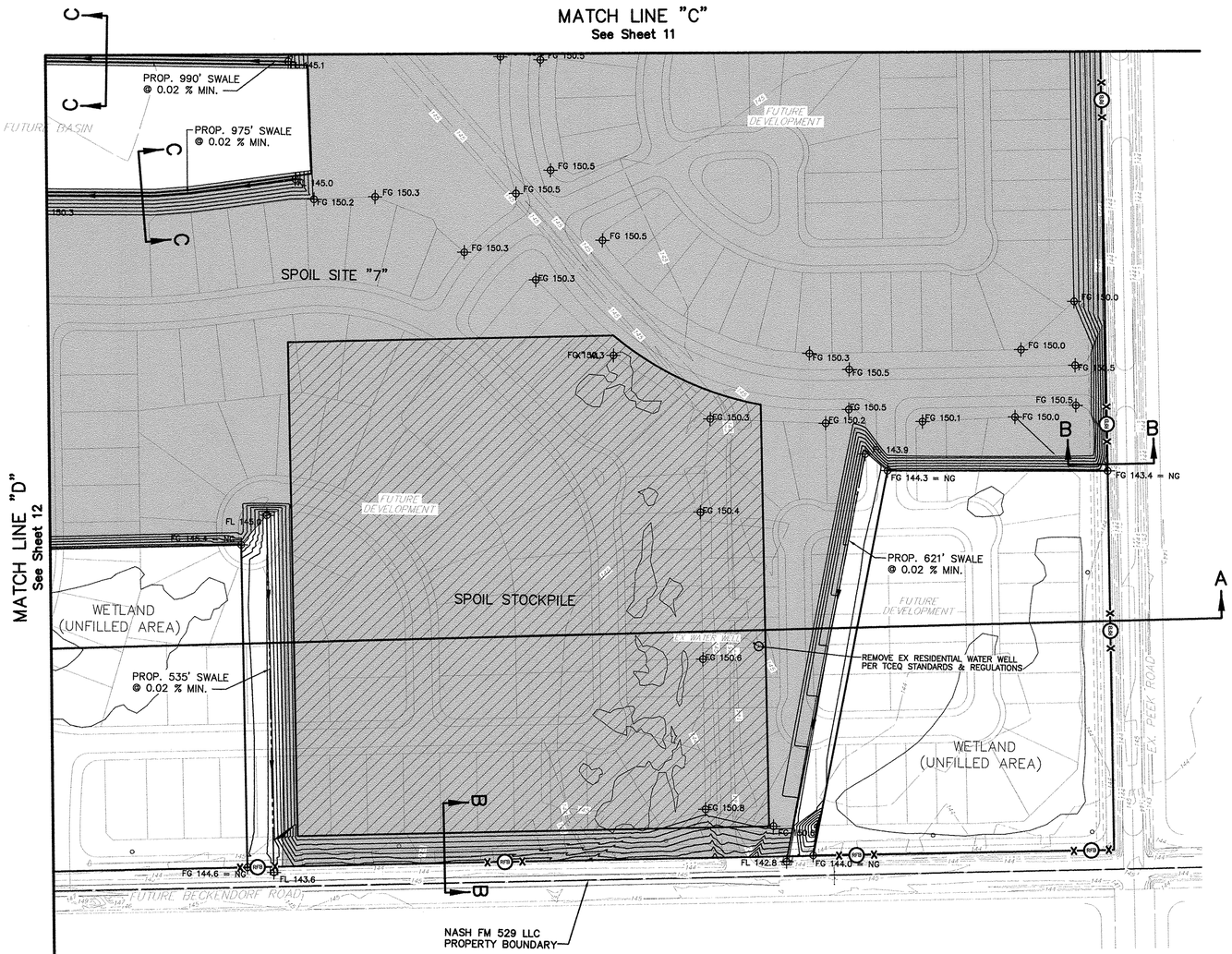
JOB NUMBER: 3807–00

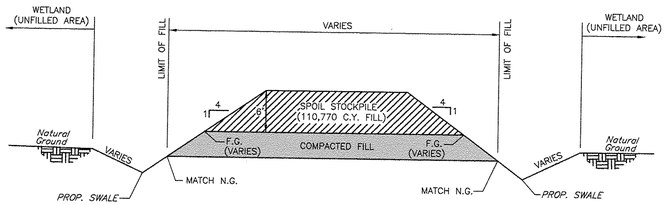
SUBMITTED: BROWN & GAY ENGINEERS, INC.	DESIGNED BY: JMSR
SCALE: 1"=100'	DRAWN BY: M.B.
DATE: SEPTEMBER 2016	SHEET NO 12 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.	CITY DWG NO:
F B NO:	

X:\Districts\HCMUD171\Elyson_South_Basin_2_and_South_Basin_3_3807\03_CADD\01_Construction_Plans\01_Sheets\12_ESB3_SP-DISP_2-2.dwg 1:1

00216

FLOODPLAIN NOTE:
ACCORDING TO EFFECTIVE FEMA MAP 48201C0585L DATED JUNE 18, 2007 THIS SITE LIES WITHIN SHADED ZONE "AO (DEPTH 2)".





SECTION "A–A"
N.T.S.

SPOIL SITE SHALL BE FILLED IN 8" LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY UP TO THE FINISHED GRADE ELEVATIONS. SPOIL MATERIAL PLACED ABOVE THE FINISHED GRADE ELEVATION (FOR FUTURE FILLING OF ADJACENT AREAS) DOES NOT NEED TO BE COMPACTED, BUT SHALL BE EVENLY GRADED TO ENSURE DRAINAGE OFF OF & AWAY FROM THE SPOIL SITE.

BENCHMARKS:

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ELEVATION: 158.60 FEET NAVD–88, 2001 ADJUSTMENT

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ELEVATION: 148.90 FEET NAVD–88, 2001 ADJUSTMENT

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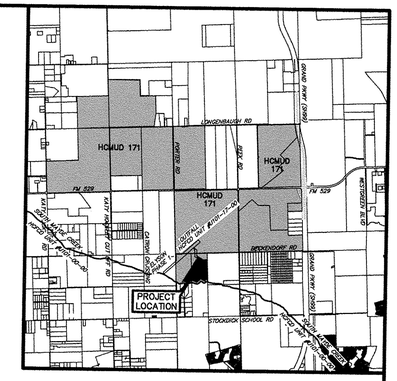
ELEVATION: 149.37 FEET NAVD–88, 2001 ADJUSTMENT

LEGEND

REINFORCED FILTER FABRIC BARRIER (SEE SPEC. ITEM 4311)

SPOIL STOCKPILE LCOATION



VICINITY MAP
N.T.S.
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KEYMAP 405 T, U, W, X, Y
LAMBERT GRID 4361

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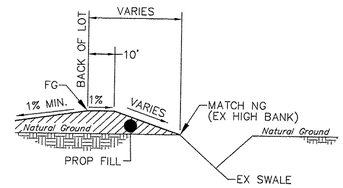
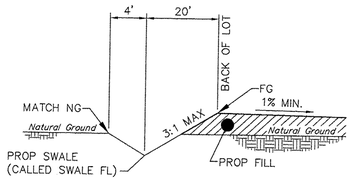
PERMIT NOTES:
1. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD RIGHT–OF–WAY. THE PERMIT IS TO BE ISSUED IN THE OWNERS NAME.
2. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY REGULATION OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT PRIOR TO STARTING CONSTRUCTION.

NOTICE
FOR LOCATION OF UNDERGROUND UTILITY LINES, CALL (713)223–4567 OR TOLL FREE 1–800–245–4545, 48 HOURS BEFORE EXCAVATING.



SECTION "B–B"
N.T.S.



SECTION "C–C"
N.T.S.

REV. NO.	DATE	DESCRIPTION	P.E. APPR.
3			
2			
1			

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
9-30-16
Brown & Gay Engineers, Inc.
F–1046

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

SPOIL DISPOSAL PLAN SITE "7" (SHEET 3 OF 3)

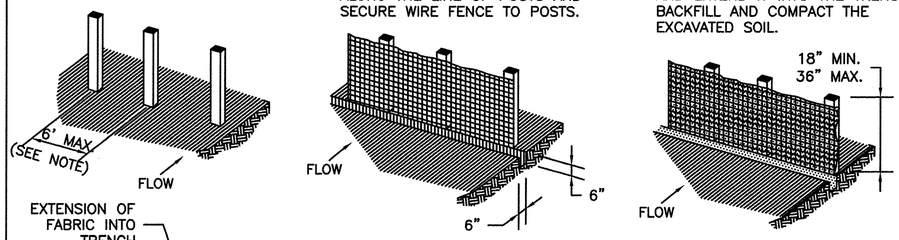
JOB NUMBER: 3807–00

SUBMITTED: BROWN & GAY ENGINEERS, INC.	DESIGNED BY: JMSR
SCALE: 1"=100'	DRAWN BY: M.B.
DATE: SEPTEMBER 2016	SHEET NO. 13 OF 18 SHEETS
SURVEY BY: BROWN & GAY ENGINEERS, INC.	CITY DWG NO:
F.B. NO:	

K:\Districts\HCMUD171\Elyson_South_Basin_2_and_South_Basin_3_3807-03_CA00\01_Construction_Plans\01_Sheets\13_3807-03_SP-DSP_3-3.dwg 1:1

00217

1. SET POSTS AT REQUIRED SPACING
2. EXCAVATE A 6"x6" TRENCH UPSLOPE ALONG THE LINE OF POSTS AND SECURE WIRE FENCE TO POSTS.
3. ATTACH FILTER FABRIC TO POSTS AND EXTEND IT INTO THE TRENCH. BACKFILL AND COMPACT THE EXCAVATED SOIL.

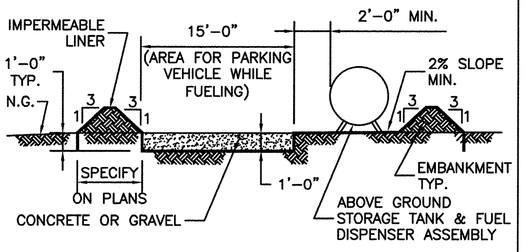


REINFORCED FILTER FABRIC BARRIER

RFB — SYMBOL

GENERAL NOTES:

1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.

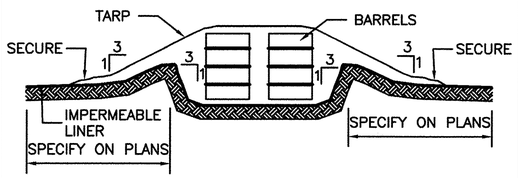


ABOVE GROUND TEMP. VEHICLE & EQUIPMENT FUELING AREA WITH TANK

TFA — SYMBOL

GENERAL NOTES:

1. THE SIZE OF TANK FOUNDATION AREA DEPENDS ON THE SIZE OF ABOVE GROUND STORAGE TANK AND DISPENSER ASSEMBLY.
2. PROVIDE A MINIMUM SLOPE OF 2 % TOWARD THE SUMP PIT.
3. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS.

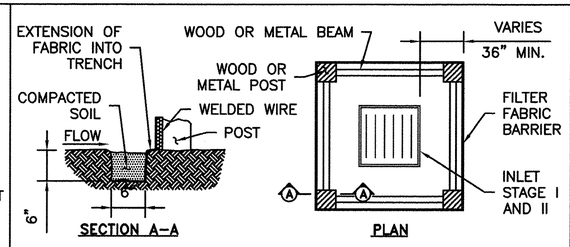


BARREL STORAGE AREA

BSA — SYMBOL

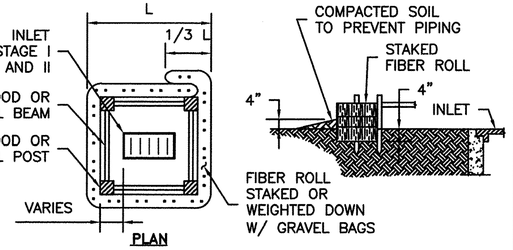
GENERAL NOTES:

1. ALTERNATIVELY, STORE BARRELS IN AN ENCLOSED BUILDING OR SHED.
2. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS. 60 mil MINIMUM.
3. CONSTRUCT BERMED AREA WITH VOLUME GREATER THAN OR EQUAL TO 110% VOLUME OF BARRELS.



SECTION A-A — PLAN

INLET PROTECTION BARRIER WITH REINFORCED FILTER FABRIC



PLAN

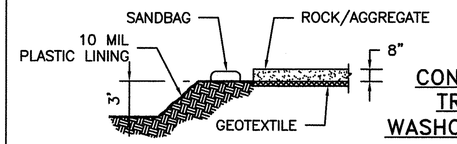
INLET PROTECTION BARRIER WITH FILTER ROLLS

GENERAL NOTES:

1. FIBER ROLLS WILL BE UTILIZED ONLY WHEN SITE CONDITIONS DO NOT PERMIT THE USE OF FILTER FABRIC BARRIER, AND AS APPROVED BY THE ENGINEER.

INLET PROTECTION BARRIERS FOR STAGE I INLETS

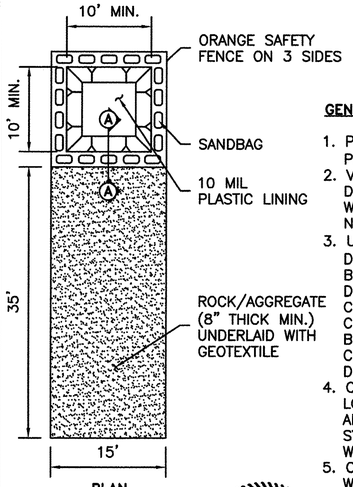
IPB — SYMBOL



SECTION A-A

CONCRETE TRUCK WASHOUT AREA

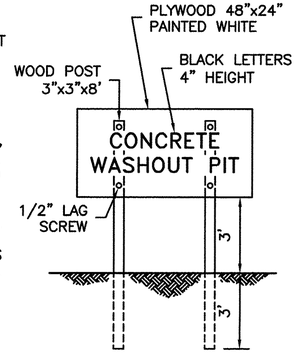
CTW — SYMBOL



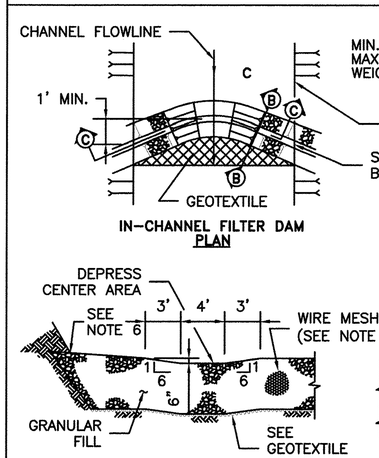
PLAN

GENERAL NOTES:

1. POST A SIGN READING "CONCRETE WASHOUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASHOUT THEIR TRUCKS IN THE PIT AND NOWHERE ELSE.
3. UPON THE CONCRETE SETTING UP (CURING, DRYING OUT), THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASHOUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
4. CONCRETE WASHOUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER SWALE, DITCH, OR WATERWAY.
5. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.



SIGN DETAIL (OR EQUIVALENT)



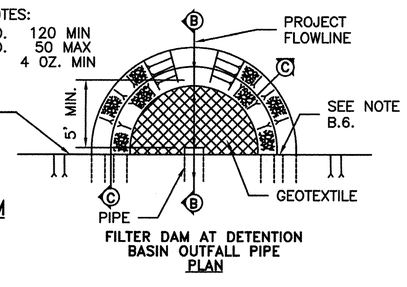
IN-CHANNEL FILTER DAM PLAN

GEOTEXTILE NOTES:

MIN. AOS	SIEVE NO.	120 MIN
MAX. AOS	SIEVE NO.	50 MAX
WEIGHT	OZ/SY	4 OZ. MIN

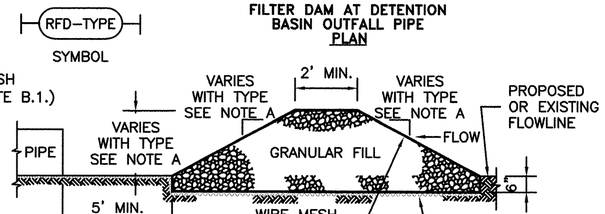
FILTER DAM

RFD-TYPE — SYMBOL



FILTER DAM AT DETENTION BASIN OUTFALL PIPE PLAN

SECTION C-C



SECTION B-B

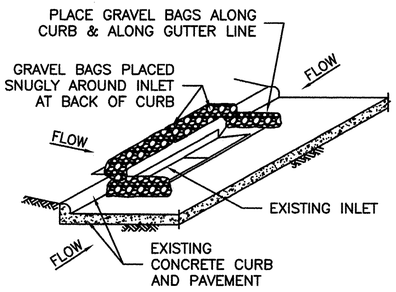
NOTE: ONLY APPLIES FOR DETENTION BASIN OUTFALL PIPE PROTECTION.

A. TYPES OF FILTER DAMS

1. TYPE 1 (NON-REINFORCED)
   a. HEIGHT – 18-24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH – 2 FEET (MINIMUM)
   c. SLOPES – 2:1 (MAXIMUM).
2. TYPE 2 (REINFORCED).
   a. HEIGHT – 18-36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH – 2 FEET (MINIMUM).
   c. SLOPES – 2:1 (MAXIMUM).
3. TYPE 3 (REINFORCED)
   a. HEIGHT – 36-48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH – 2 FEET (MINIMUM).
   c. SLOPES – 3:1 (MAXIMUM).
4. TYPE 4 (GABION)
   a. HEIGHT – 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH – 2 FEET (MINIMUM).
5. TYPE 5. AS SHOWN ON THE PLANS.

B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.

1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
2. PLACE GRANULAR FILL ON THE WIRE MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
   a. 3-5 INCHES FOR ROCK FILTER DAM TYPES 1, 2 AND 4.
   b. 4-8 INCHES FOR ROCK FILTER DAM TYPE REFER TO GRANULAR FILL IN SPECIFICATION SECTION No. 02378 RIPRAP AND GRANULAR FILL.
3. FOLD WIRE MESH AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
4. IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
5. SEE HCFCD SPECIFICATION SECTION NO. 02364-FILTER DAMS.
6. EMBED ONE FOOT MINIMUM INTO SLOPE AND RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.

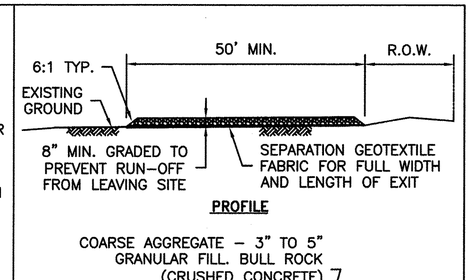


INLET PROTECTION BARRIERS FOR STAGE II INLETS

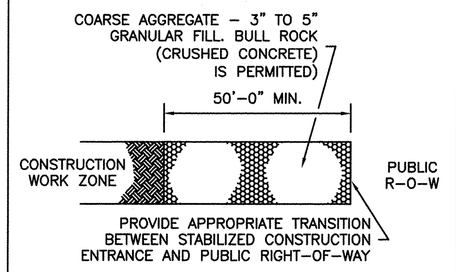
IPB-II — SYMBOL

GENERAL NOTES:

1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.
2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.



PROFILE



PLAN

STABILIZED CONSTRUCTION ACCESS

SC-1 — SYMBOL

GENERAL NOTES:

1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
7. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20' WIDTH FOR TWO WAY TRAFFIC.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

HARRIS COUNTY
PUBLIC INFRASTRUCTURE DEPARTMENT
ARCHITECTURE & ENGINEERING DIVISION

HARRIS COUNTY 1836 TEXAS

BGE

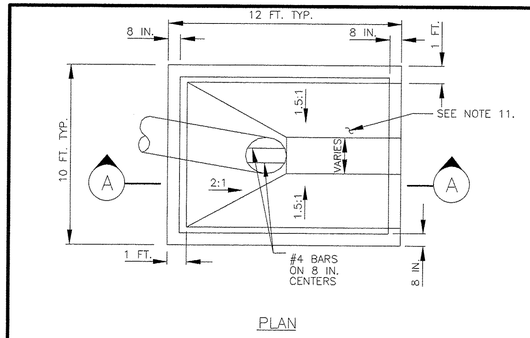
Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
2-30-16

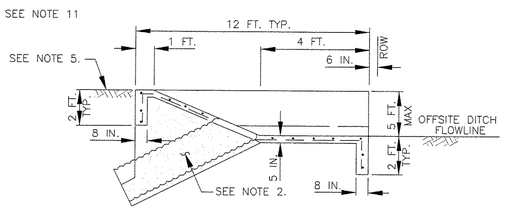
Brent R Dahl
Brown & Gay Engineers, Inc.
F-1046

PROJECT TITLE: ELYSON SOUTH BASIN 3		
DRAWN BY: JDZ		HCPID, A&E STANDARD
CK'D BY: NR	SHEET DESCRIPTION: STORM WATER POLLUTION	29
SCALE: NONE	PREVENTION PLAN DETAILS	SHEET NO:
DATE: 04/25/14	APPROVED BY:	14/18

00218



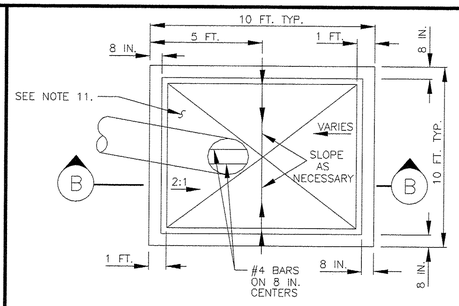
PLAN



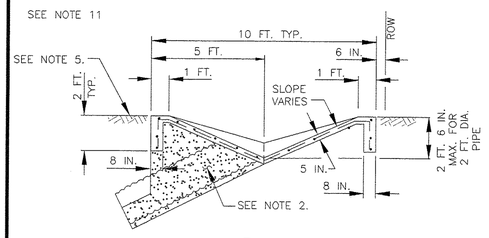
A SECTION

TYPICAL OFFSITE DITCH INTERCEPTOR STRUCTURE

(42 INCH MAX.)



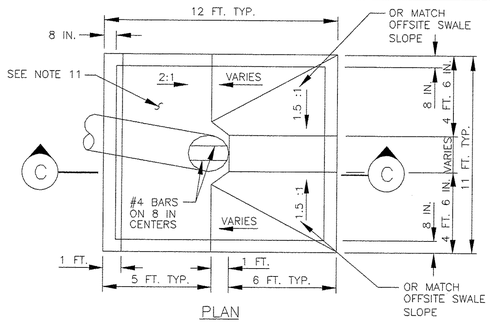
PLAN



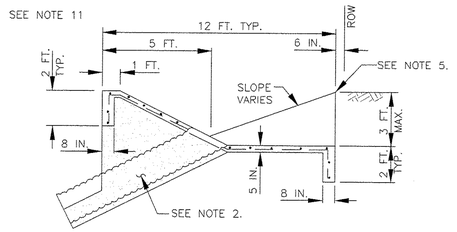
B SECTION

TYPICAL BACKSLOPE INTERCEPTOR STRUCTURE

(24 INCH & 30 INCH ONLY)



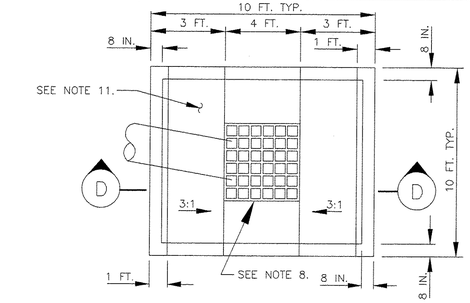
PLAN



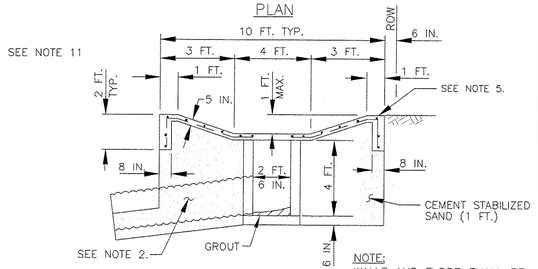
C SECTION

COMBINATION BACKSLOPE & OFFSITE DITCH INTERCEPTOR STRUCTURE

(42 INCH MAX.)



PLAN

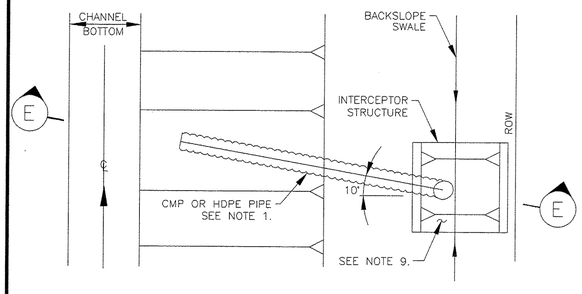


D SECTION

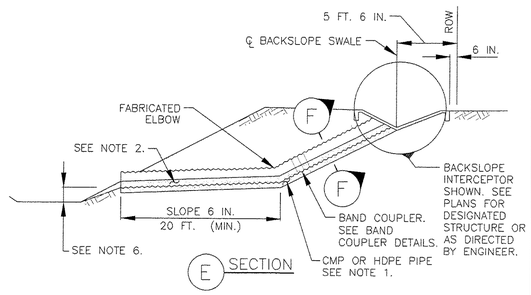
NOTE:
WALLS AND FLOOR SHALL BE 6 IN. REINFORCED STRUCTURAL CONCRETE OR WALLS MAY BE 8 IN. CONCRETE BRICK CONSTRUCTION

URBAN BACKSLOPE INTERCEPTOR STRUCTURE

(24 INCH ONLY)



PLAN

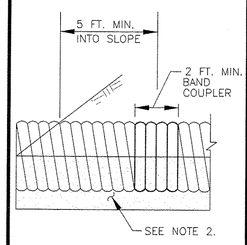


E SECTION

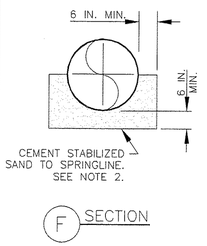
TYPICAL INTERCEPTOR OUTFALL STRUCTURE LAYOUT

PIPE OUT FALL IN CHANNELS

BOTTOM WIDTH	PIPE OUTLET INVERT
6 FEET ≤ BW ≤ 20 FT	1 FOOT ABOVE FLOWLINE
20 FEET < BW ≤ 60 FT	AT TOE OF SLOPE
BW > 60 FT	AT TOE OF SLOPE

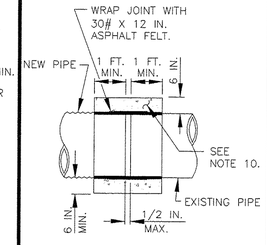


CMP BAND COUPLER DETAIL

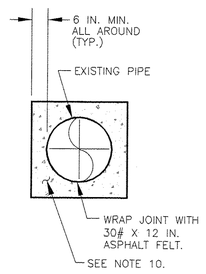


F SECTION

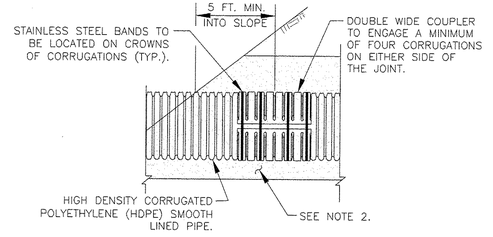
BEDDING CMP DETAIL



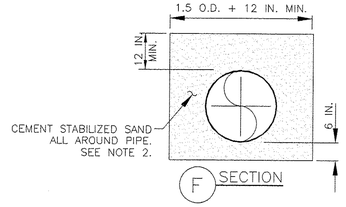
CONCRETE COLLAR DETAIL



BEDDING CONCRETE PIPE DETAIL



HDPE PIPE BAND COUPLER DETAIL



F SECTION

BEDDING HDPE PIPE DETAIL

CORRUGATED GALVANIZED STEEL PIPE (TYPE I)

PIPE DIA. (in.)	MIN. FILL* (in.)	2-2/3" X 1/2" CORRUGATION SHEET THICKNESS gage	(in.)	(mm)	3" X 1" & 5" X 1" CORRUGATION MIN. FILL* (in.)	SHEET THICKNESS gage	(in.)	(mm)
24	12	16	.064	1.63	–	–	–	–
30	12	16	.064	1.63	–	–	–	–
36	12	16	.064	1.63	–	–	–	–
42	12	16	.064	1.63	12	16	.064	1.63
48	12	16	.064	1.63	12	16	.064	1.63

* MINIMUM DEPTH OF COVER ABOVE TOP OF PIPE, MAXIMUM DEPTH OF COVER ABOVE TOP OF PIPE IS 20 FEET.

FOR LARGER PIPE SIZES SEE: STORM SEWER AND RIPRAP DETAILS SHEET

INTERCEPTOR STRUCTURE DETAIL NOTES:

1. INTERCEPTOR OUTFALL PIPES WITHIN THE HCFCD RIGHT-OF-WAY SHALL BE CMP OR HDPE PIPE IN ACCORDANCE WITH SPECIFICATION SECTION 02642- CORRUGATED METAL PIPE, HIGH DENSITY POLYETHYLENE (HDPE) PIPE IN ACCORDANCE WITH SPECIFICATION SECTION 2505-HIGH DENSITY POLYETHYLENE, OR APPROVED EQUAL. USE TABLE BELOW FOR CORRUGATED GALVANIZED STEEL PIPE.
2. PROVIDE AND PLACE CEMENT STABILIZED SAND IN ACCORDANCE WITH SPECIFICATION SECTION 02321-CEMENT STABILIZED SAND AND SECTION 02316 – STRUCTURAL EXCAVATING.
3. EXCAVATION, FILL AND BACKFILL FOR STORM SEWER OUTFALLS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02316-STRUCTURAL EXCAVATING AND BACKFILLING.
4. CONCRETE SHALL BE STRUCTURAL CONCRETE IN ACCORDANCE WITH SPECIFICATION SECTION 03310-CONCRETE.
5. INTERCEPTOR STRUCTURES:
   a. ADJUST LENGTH AND WIDTH IN FIELD AS NECESSARY.
   b. 2-FEET DEEP X 8-INCH WIDE TOE ALL AROUND THE STRUCTURE.
   c. STEEL REINFORCING-#4 BARS (GRADE 40) AT 12 INCHES ON CENTER EACH WAY.
   d. ANY INTERCEPTOR OUTFALL PIPE LARGER THAN MAXIMUM SIZE INDICATED REQUIRES A SEPARATE DETAIL.
   e. MATCH TOP OF CONCRETE WITH NATURAL GROUND.
6. IN DETENTION BASINS, SET FLOWLINE OF OUTFALL AT TOE OF THE SLOPE. IN CHANNEL, USE ELEVATION INDICATED IN THE TABLE OR 1 FOOT ABOVE NORMAL WATER LEVEL WHICH EVER IS HIGHER.
7. SEE CONCRETE CHANNEL LINING DETAIL SHEET FOR CMP OUTFALL DETAILS THROUGH CONCRETE CHANNEL LINING.
8. CONCRETE PAD AROUND TYPE "B" INLET: PAID FOR AS CONCRETE INTERCEPTOR STRUCTURE PER UNIT PRICE SCHEDULE. TYPE "B" INLET BOX, COH DWG. NO. 02632-02 WITH GRATE TOP, VULCAN FOUNDRY COMPANY, V-4880-1 OR APPROVED EQUAL, APPROX. 489 SQ.IN. OPENING.
9. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
10. STRUCTURAL CONCRETE WITH #4 BARS (GRADE 40) 12 INCH O.C. EACH WAY – FOR COLLARS ONLY.
11. EPOXY CLEAN WATER CLEAR CHOICE LOGO BUTTON ON INTERCEPTORS. LOCATION TO BE DETERMINED BY THE ENGINEER.

THIS DETAIL SHEET HAS BEEN PREPARED FOR USE ON HCFCD PROJECTS OR PROJECTS TO BE MAINTAINED BY THE HCFCD WHEN COMPLETED BY OTHERS. AN ENGINEER WHO INCORPORATES THE DETAILS ON THIS SHEET BECOMES RESPONSIBLE FOR ITS USE IN THE END PRODUCT IN ACCORDANCE WITH RULE §137.33 (b) AND (c) OF THE TEXAS STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS.

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
7-30-10

Brown & Gay Engineers, Inc.
F-1046

P.E. SEAL AND SIGNATURE

REV	DESCRIPTION	DATE	APPR

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

INTERCEPTOR STRUCTURE DETAILS

PREPARED:

CHECKED:

APPROVED:

BGE

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.browngay.com
TBPE Registration No. F-1046

Harris County Flood Control District
9900 Northwest Freeway
Houston, Texas 77092

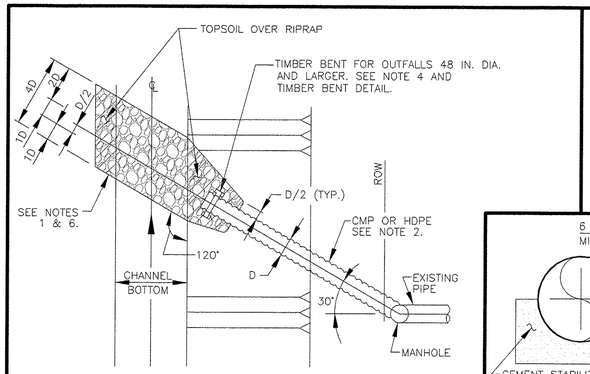
DATE: 12-21-2010
SCALE: NTS

SHEET NUMBER
15 OF 18

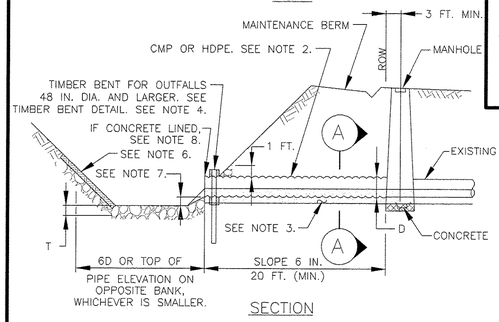
HCFCD Standard Detail Sheets_2010

STD\INTERCEPTOR STRUCTURE DETAILS

00219

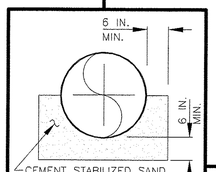


PLAN

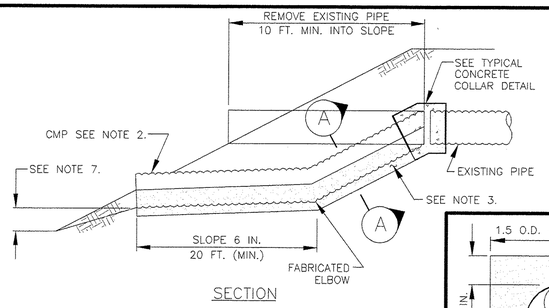


SECTION

TYPICAL STORM SEWER OUTFALL STRUCTURE LAYOUT

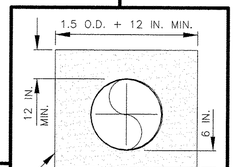


BEDDING CMP DETAIL

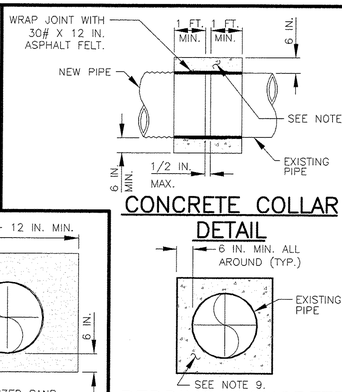


SECTION

PIPE ADJUSTMENT DETAIL 24–INCH TO 42–INCH DIAMETER

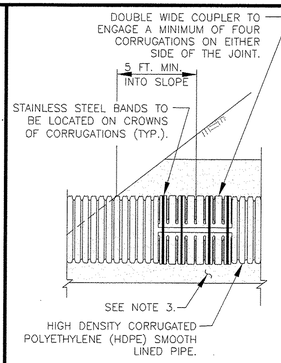


BEDDING HDPE PIPE DETAIL

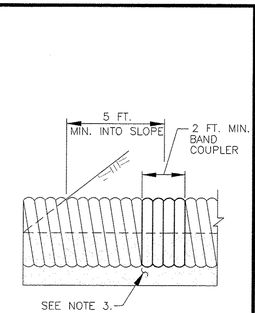


CONCRETE COLLAR DETAIL

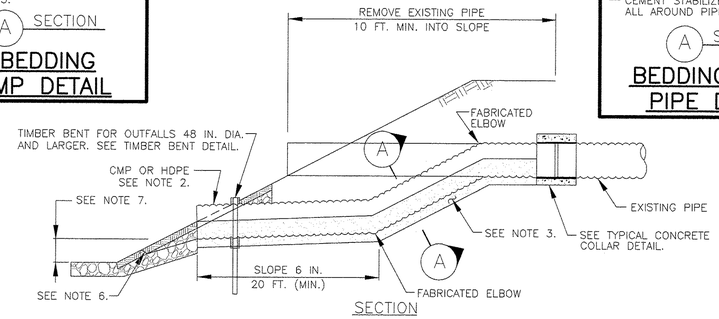
BEDDING CONCRETE PIPE DETAIL



HDPE PIPE BAND COUPLER DETAIL

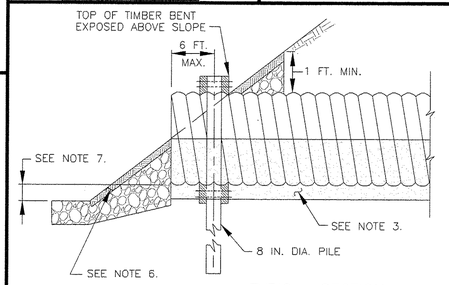


CMP BAND COUPLER DETAIL

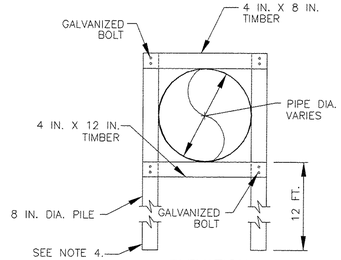


SECTION

PIPE ADJUSTMENT DETAIL 48–INCH AND LARGER DIAMETER

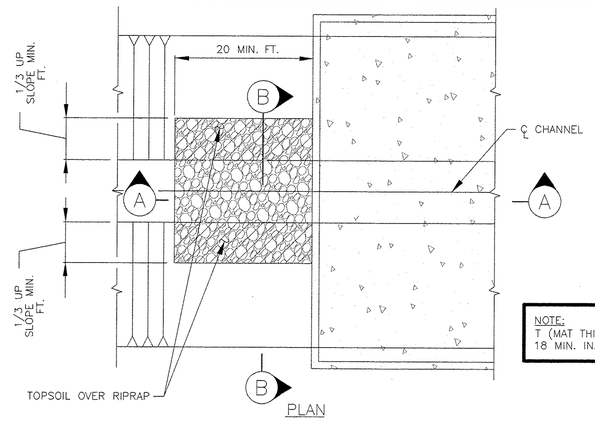


TYPICAL SECTION



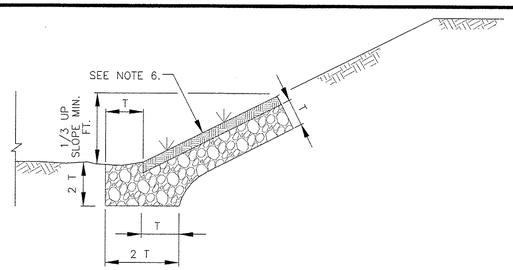
ELEVATION

TIMBER BENT DETAIL FOR 48–INCH AND LARGER OUTFALLS

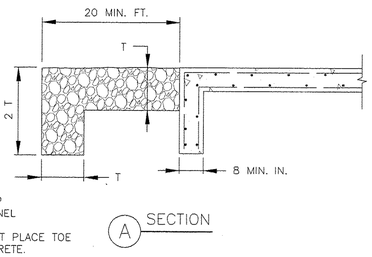


PLAN

NOTE:
T (MAT THICKNESS)
18 MIN. IN. GRADE 1

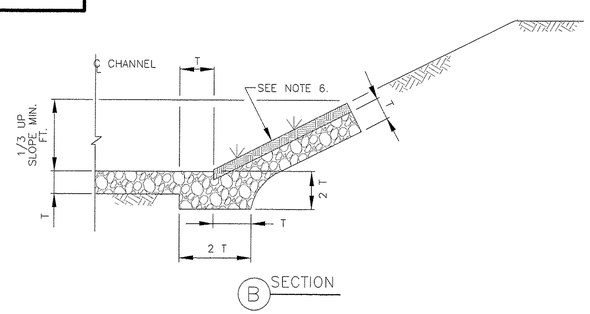


TYPICAL RIPRAP LINING DETAIL–SIDE SLOPE ONLY



NOTE:
TOE–IN RIPRAP ACROSS CHANNEL BOTTOM & UP SLOPE. DO NOT PLACE TOE AGAINST CONCRETE.

A SECTION



B SECTION

TYPICAL RIPRAP AT CONCRETE CHANNEL LINING

PIPE OUTFALL IN CHANNELS

BOTTOM WIDTH	PIPE OUTLET INVERT
6 FEET ≤ BW ≤ 20 FT	1 FOOT ABOVE FLOWLINE
20 FEET < BW ≤ 60 FT	AT TOE OF SLOPE
BW > 60 FT	AT TOE OF SLOPE

CORRUGATED GALVANIZED STEEL PIPE (TYPE I)

	2–2/3" X 1/2" CORRUGATION				3" X 1" & 5" X 1" CORRUGATION			
PIPE DIA. (in.)	MIN. FILL* (in.)	SHEET THICKNESS gage	(in.)	(mm)	MIN. FILL* (in.)	SHEET THICKNESS gage	(in.)	(mm)
24	12	16	.064	1.63	–	–	–	–
30	12	16	.064	1.63	–	–	–	–
36	12	16	.064	1.63	–	–	–	–
42	12	16	.064	1.63	12	16	.064	1.63
48	12	16	.064	1.63	12	16	.064	1.63
54	12	14	.079	2.01	12	16	.064	1.63
60	15	12	.109	2.77	12	16	.064	1.63
66	15	12	.109	2.77	15	16	.064	1.63
72	18	10	.138	3.51	15	16	.064	1.63
78	18	8	.168	4.27	18	16	.064	1.63
84	18	8	.168	4.27	18	14	.079	2.01
90	–	–	–	–	18	14	.079	2.01
96	–	–	–	–	18	14	.079	2.01

* MINIMUM DEPTH OF COVER ABOVE TOP OF PIPE, MAXIMUM DEPTH OF COVER ABOVE TOP OF PIPE IS 20 FEET.

STORM SEWER OUTFALL NOTES:

1. INSTALL OUTFALLS 48 INCHES OR LARGER AND TREATMENT PLANT OUTFALLS OF ANY DIAMETER, WITH RIPRAP EROSION DIMENSIONED AS SHOWN IN "TYPICAL STORM SEWER OUTFALL STRUCTURE LAYOUT."
2. STORM SEWER OUTFALL PIPES WITHIN THE HCFCD RIGHT–OF–WAY SHALL BE CMP OR HDPE IN ACCORDANCE WITH SPECIFICATION SECTION 02642–CORRUGATED METAL PIPE, HIGH DENSITY POLYETHYLENE PIPE (HDPE) IN ACCORDANCE WITH SPECIFICATION SECTION 02505–HIGH DENSITY POLYETHYLENE PIPE, OR APPROVED EQUAL. USE TABLE BELOW FOR CORRUGATED GALVANIZED STEEL PIPE.
3. PROVIDE AND PLACE CEMENT STABILIZED SAND IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02321–CEMENT STABILIZED SAND.
4. TIMBER BENTS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02464–TIMBER BENTS.
5. STORM SEWER OUTFALLS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02316–STRUCTURAL EXCAVATING AND BACKFILLING.
6. RIPRAP SHALL BE PLACED IN ACCORDANCE WITH SPECIFICATION SECTION 02378–RIPRAP AND GRANULAR FILL. FILL RIPRAP VOIDS AND BURY RIPRAP A MINIMUM OF 6 INCHES WITH TOPSOIL ON SIDE SLOPE AS DIRECTED BY THE ENGINEER.
7. IN DETENTION BASIN, SET FLOWLINE OF OUTFALL AT TOE OF THE SLOPE. IN CHANNEL, USE ELEVATION INDICATED IN THE TABLE OR 1 FOOT ABOVE NORMAL WATER LEVEL, WHICH EVER IS HIGHER.
8. SEE CONCRETE CHANNEL LINING DETAIL SHEET FOR CMP OR OUTFALL DETAILS THROUGH CONCRETE CHANNEL LINING.
9. STRUCTURAL CONCRETE #4 BARS (GRADE 40) 12 INCH O.C. EACH WAY – FOR COLLARS ONLY.

THIS DETAIL SHEET HAS BEEN PREPARED FOR USE ON HCFCD PROJECTS OR PROJECTS TO BE MAINTAINED BY THE HCFCD WHEN COMPLETED BY OTHERS. AN ENGINEER WHO INCORPORATES THE DETAILS ON THIS SHEET BECOMES RESPONSIBLE FOR ITS USE IN THE END PRODUCT IN ACCORDANCE WITH RULE §137.33 (b) AND (c) OF THE TEXAS STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS.

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED PROFESSIONAL ENGINEER
9-30-10

Brown & Gay Engineers, Inc.
F-1046

REV	DESCRIPTION	DATE	APPR
1	DELETED "OR HDPE" FROM NOTE #8	2/8/11	SF

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

STORM SEWER AND RIPRAP DETAILS

PREPARED:

CHECKED:

APPROVED:

BGE
Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
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Tel: 281-558-8700 ● www.browngay.com
TBPE Registration No. F-1046

Harris County Flood Control District
9900 Northwest Freeway
Houston, Texas 77092

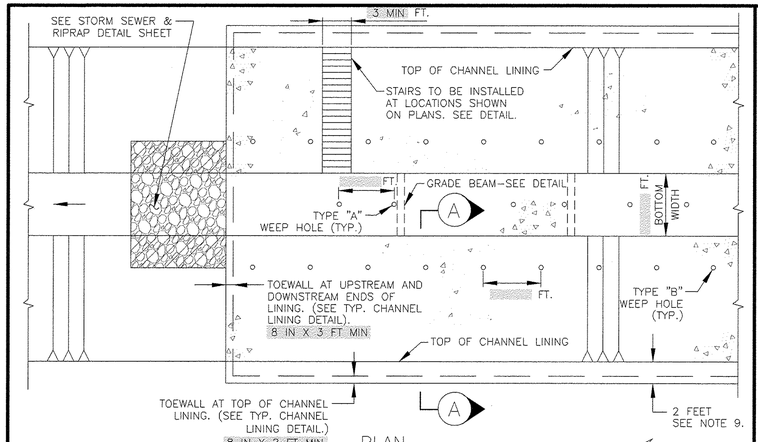
DATE: 12–21–2010
SCALE: NTS

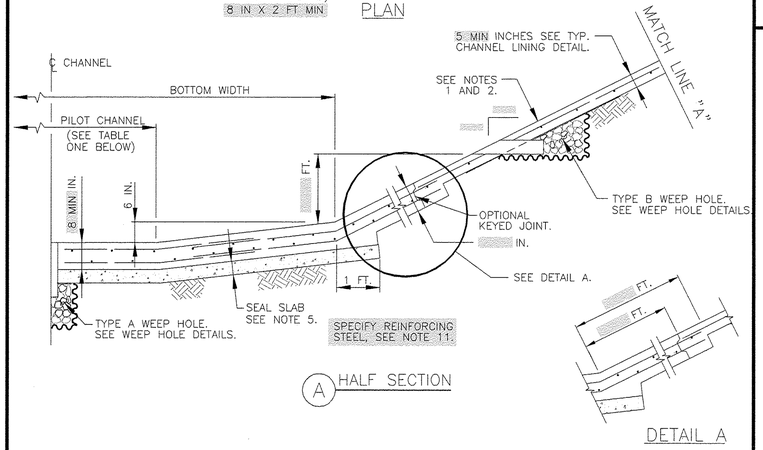
SHEET NUMBER
16 OF 18

HCFCD Standard Data Sheets, 2010

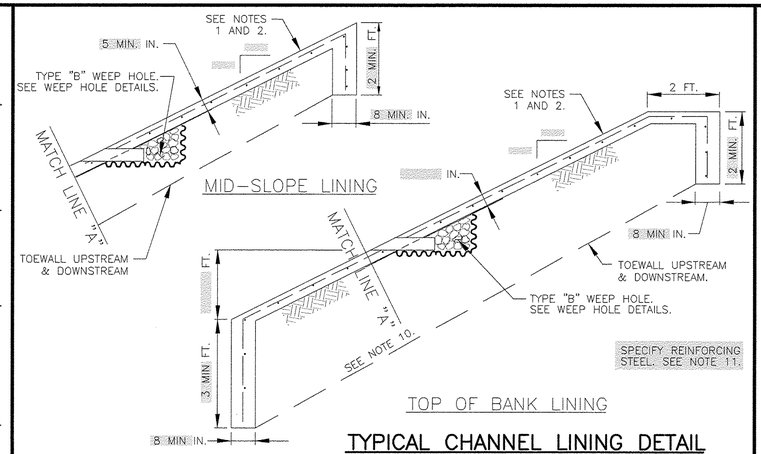
STD\STORM SEWER AND RIPRAP DETAILS

00220

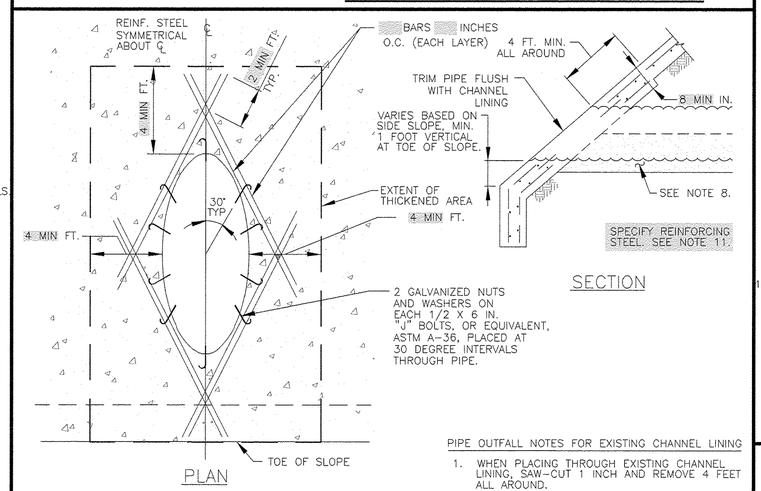




TYPICAL TRAPEZOIDAL CHANNEL LINING



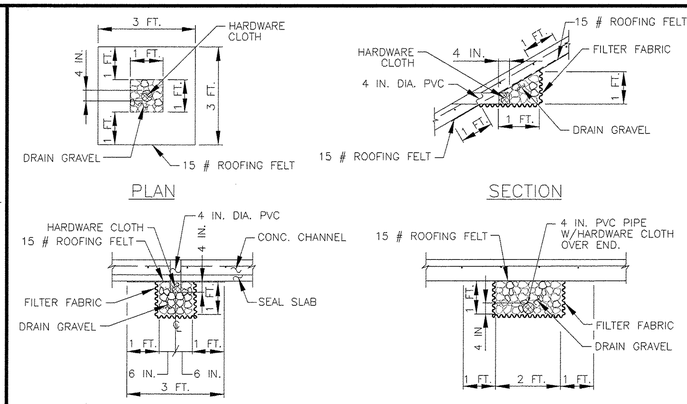
TYPICAL CHANNEL LINING DETAIL

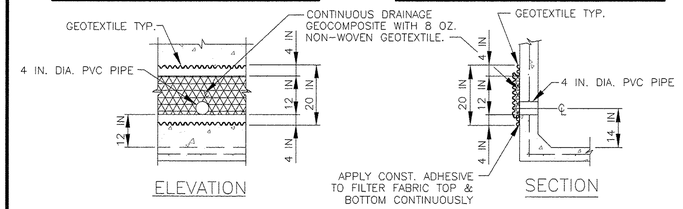


PIPE OUTFALL DETAILS
(FOR OUTFALLS 24-42 INCH DIA.)

PIPE OUTFALL NOTES FOR EXISTING CHANNEL LINING

1. WHEN PLACING THROUGH EXISTING CHANNEL LINING, SAW-CUT 1 INCH AND REMOVE 4 FEET ALL AROUND.
2. EXPOSE A MIN. OF 18 INCHES OF STEEL.





WEEP HOLE NOTES:

1. MATERIALS:
   a. PIPE: 4 INCH DIA. SCH. 40 PVC
   b. DRAIN GRAVEL:

SIEVE SIZE	% FINER
1 IN	100
3/4 IN	70 - 100
3/8 IN	20 - 90
NO. 4	0 - 60
NO. 8	0

   c. HARDWARE CLOTH: MIN. OPEN 1/8 IN, MAX. OPEN 1/4 IN
   d. FILTER FABRIC: NON-WOVEN GEOTEXTILE
      MIN. AOS SIEVE NO. 100 MIN
      MAX. AOS SIEVE NO. 70 MAX
      WEIGHT OZ/SY 6 OZ. MIN
2. CUT WEEP HOLE PIPE FLUSH WITH CONCRETE SURFACE.
3. TYPE "A" AND "C" WEEP HOLES FOR TYPICAL RECTANGULAR CONCRETE CHANNEL LINING. TO BE STAGGERED.

WEEP HOLE DETAILS

GENERAL NOTES:

1. STRUCTURAL CONCRETE FOR CONCRETE CHANNEL LINING AND NONSTRUCTURAL CONCRETE FOR SEAL SLAB SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 03310-CONCRETE.
2. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 03310-CONCRETE.
3. EXCAVATION AND BACKFILL FOR CONCRETE CHANNEL LINING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02316-STRUCTURAL EXCAVATING AND BACKFILLLING.
4. RIPRAP SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02378-RIPRAP AND GRANULAR FILL.
5. A NON-REINFORCED 4 INCH MINIMUM NONSTRUCTURAL CONCRETE SEAL SLAB WILL BE REQUIRED BENEATH THE BOTTOM OF CONCRETE CHANNELS.
6. STRUCTURAL CONCRETE GRADE BEAMS SHALL BE INSTALLED TRANSVERSLEY AT 20 FOOT MAX. CENTERS ON CONCRETE LINED CHANNELS WITH BOTTOM WIDTHS EQUAL TO OR GREATER THAN 20 FEET.
7. JOINTS:
   A. PLACE CONSTRUCTION AND/OR EXPANSION JOINT IN CONCRETE LOW-FLOW AND TRAPEZOIDAL BOTTOM SECTIONS AT 20 FOOT MIN., 60 FOOT MAX. SPACING CONTINUOUSLY THROUGH CHANNEL LINING.
   B. PLACE CONTROL JOINT ON SLOPES AT 20 FOOT SPACING.
8. CEMENT STABILIZED SAND SHALL BE PROVIDED AND PLACED IN ACCORDANCE WITH SPECIFICATION SECTION NO. 02321-CEMENT STABILIZED SAND.
9. DELETE 2 FT FLAT EDGE WHEN LINING IS BELOW TOP OF BANK. SEE MID-SLOPE LINING DETAIL.
10. UPSTREAM AND DOWNSTREAM TOE WALL 3 FOOT MIN. DEPTH AT BOTTOM OF SLOPE AND 8 INCHES THIICK.
11.

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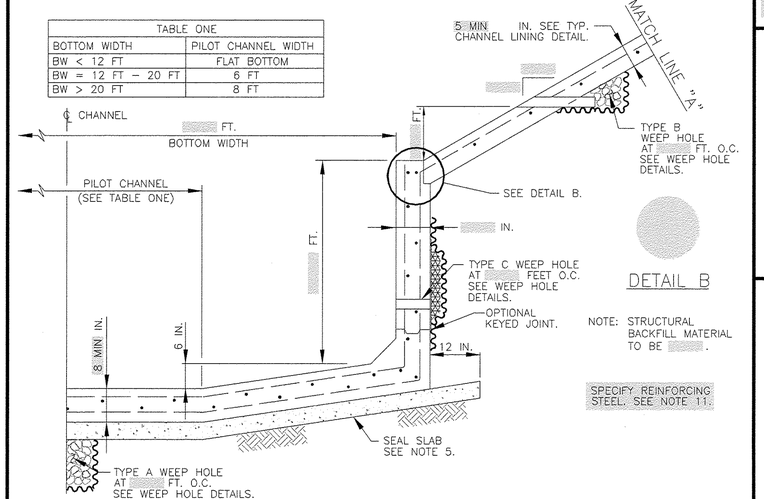
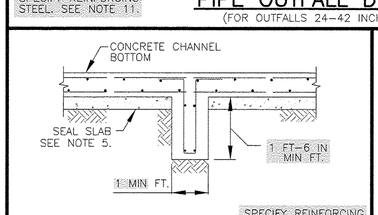
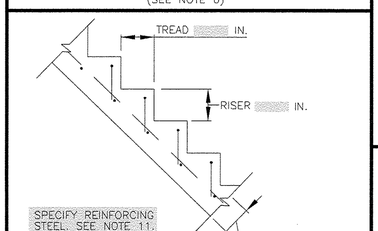
Brent R. Dahl
Brown & Gay Engineers, Inc.
F-1046

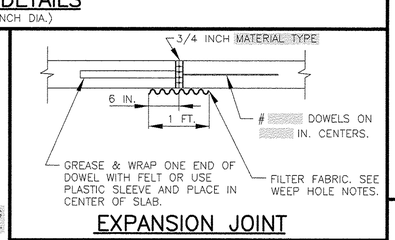
P.E. SEAL AND SIGNATUARE



TYPICAL RECTANGULAR CONCRETE CHANNEL LINING HALF SECTION







REV	DESCRIPTION	DATE	APPR

HARRIS COUNTY M.U.D. 171

ELYSON SOUTH BASIN 3

CONCRETE CHANNEL LINING DETAILS

PREPARED:

CHECKED:

APPROVED:

BGE

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Houston, TX 77042
Tel: 281-558-8700 ♦ www.browngay.com
TBPE Registration No. F-1046

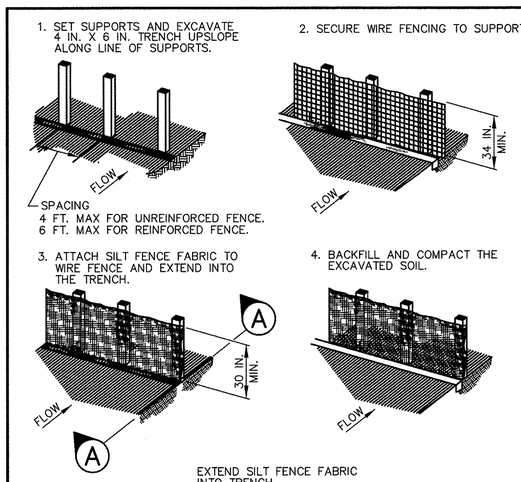
Harris County Flood Control District
9900 Northwest Freeway
Houston, Texas 77092

DATE: 11-21-05
SCALE: NTS

SHEET NUMBER
17 OF 18

FILENAME

00221



A SECTION

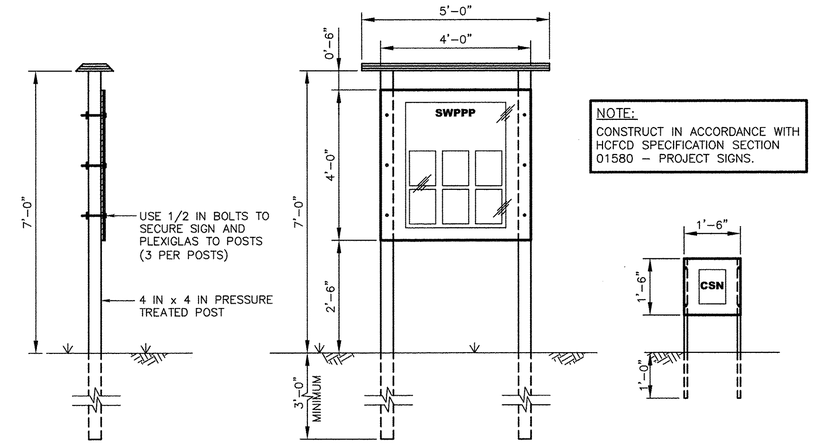
CONSTRUCTION NOTES:

1. SEE SPECIFICATION SECTION NO. 02361–SILT FENCES.

RSF SYMBOL — REINFORCED SILT FENCE

SF SYMBOL — SILT FENCE

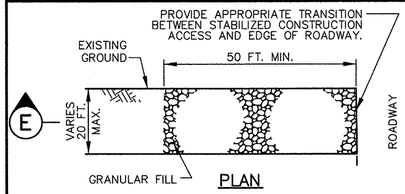
SILT FENCE



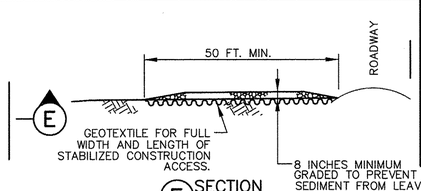
NOTE:
CONSTRUCT IN ACCORDANCE WITH HCFCD SPECIFICATION SECTION 01580 – PROJECT SIGNS.

LEFT SIDE | FRONT | CSN HOLDER

SWPPP / BMP SIGN AND CONSTRUCTION SITE NOTICE HOLDER DETAILS



PLAN



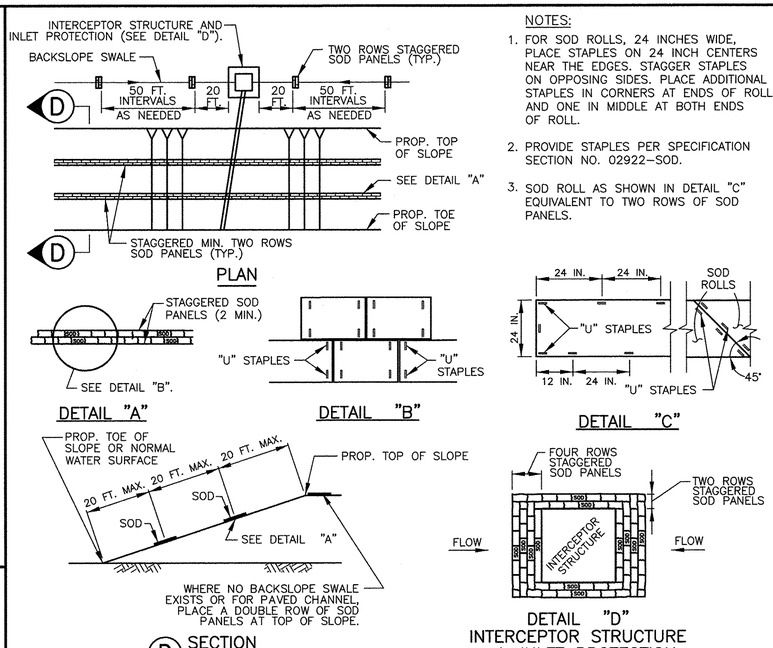
E SECTION

CONSTRUCTION NOTES:

1. SEE SPECIFICATION SECTION NO. 02365–STABILIZED CONSTRUCTION ACCESS.

SCA SYMBOL

STABILIZED CONSTRUCTION ACCESS

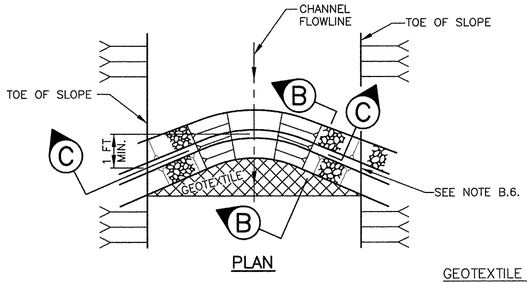


SOD SYMBOL — IP SYMBOL

SODDING

NOTES:

1. FOR SOD ROLLS, 24 INCHES WIDE, PLACE STAPLES ON 24 INCH CENTERS NEAR THE EDGES. STAGGER STAPLES ON OPPOSING SIDES. PLACE ADDITIONAL STAPLES IN CORNERS AT ENDS OF ROLL AND ONE IN MIDDLE AT BOTH ENDS OF ROLL.
2. PROVIDE STAPLES PER SPECIFICATION SECTION NO. 02922–SOD.
3. SOD ROLL AS SHOWN IN DETAIL "C" EQUIVALENT TO TWO ROWS OF SOD PANELS.

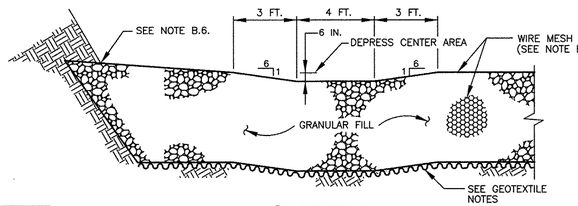


PLAN

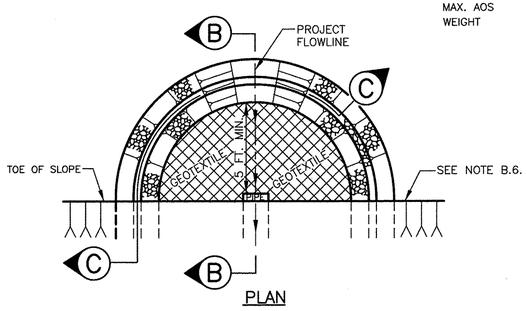
IN–CHANNEL FILTER DAM

GEOTEXTILE NOTES:

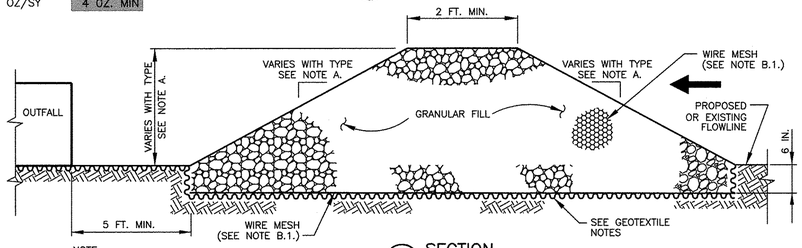
MIN. AOS	SIEVE NO.	120 MIN
MAX. AOS	SIEVE NO.	50 MAX
WEIGHT	OZ/SY	4 OZ. MIN



C SECTION



PLAN



NOTE:
ONLY APPLIES FOR DETENTION BASIN OUTFALL PIPE PROTECTION.

B SECTION

FILTER DAM

FD–TYPE SYMBOL

FILTER DAM AT DETENTION BASIN OUTFALL PIPE

FILTER DAM NOTES:

A. TYPES OF FILTER DAMS
   1. TYPE 1 (NON–REINFORCED)
      a. HEIGHT – 18–24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM)
      c. SLOPES – 2:1 (MAXIMUM).
   2. TYPE 2 (REINFORCED).
      a. HEIGHT – 18–36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
      c. SLOPES – 2:1 (MAXIMUM).
   3. TYPE 3 (REINFORCED)
      a. HEIGHT – 36–48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
      c. SLOPES – 3:1 (MAXIMUM).
   4. TYPE 4 (GABION)
      a. HEIGHT – 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
      b. TOP WIDTH – 2 FEET (MINIMUM).
   5. TYPE 5. AS SHOWN ON THE PLANS.

B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.
   1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
   2. GRANULAR FILL:
      a. PLACE ON MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
      b. 3–5 INCHES FOR ROCK FILTER DAM TYPES 1,2, AND 4 AND 4–8 INCHES FOR ROCK FILTER DAM TYPE 3. REFER TO GRANULAR FILL IN SPECIFICATION SECTION NO. 02378–RIPRAP AND GRANULAR FILL.
   3. WIRE MESH: FOLD AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURE TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
   4. IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
   5. SEE SPECIFICATION SECTION NO. 02364–FILTER DAMS.
   6. EMBED ONE FOOT MINIMUM INTO SLOPE AND AT SLOPE RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA.

THIS DETAIL SHEET HAS BEEN PREPARED FOR USE ON HCFCD PROJECTS OR PROJECTS TO BE MAINTAINED BY THE HCFCD WHEN COMPLETED BY OTHERS. AN ENGINEER WHO INCORPORATES THE DETAILS ON THIS SHEET BECOMES RESPONSIBLE FOR ITS USE IN THE END PRODUCT IN ACCORDANCE WITH RULE §137.33 (b) AND (c) OF THE TEXAS STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS.

STATE OF TEXAS
BRENT R. DAHL
119106
LICENSED
PROFESSIONAL ENGINEER
9-30-16

Brown & Gay Engineers, Inc.
F–1046

P.E. SEAL AND SIGNATURE

REV	DESCRIPTION	DATE	APPR

HC PROJECT NO.

ELYSON SOUTH BASIN 3

STORMWATER POLLUTION PREVENTION DETAILS

PREPARED: | CHECKED: | APPROVED:

BGE

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400
Houston, TX 77042
Tel: 281-558-8700 • www.brownpay.com
TBPE Registration No. F-1046

HARRIS COUNTY FLOOD CONTROL DISTRICT
9900 Northwest Freeway
Houston, Texas 77092

DATE: SEPT 2016
SCALE: NTS

SHEET NUMBER
18 OF 18

STD\SWPPP02.DWG

00222

Archived: Tuesday, May 2, 2023 12:28:34 PM
From: Kenyon Hunt
Sent: Fri, 17 Dec 2021 18:01:45
To: Paul Brochi
Cc: Shiann Hernandez Shiann Hernandez
Subject: RE: Harris County MUD 171 wastewater expansion
Importance: Normal
Sensitivity: None

Greetings – thank you for the opportunity to clarify.

The items listed will all be existing (the permanent units are currently under construction). No units are being demolished for this phase. The following facilities are being proposed to meet the 2.0 MGD ADF and 8.0 MGD PDF total flows:

The existing WWTP components include:

- Four (4) Aeration basins (packaged plant): each 60' x 12' x 10.67' (total volume 30,730 cu ft)
- One (1) Aeration basin (permanent): 82' x 30'x 16.5 SWD (volume 40,590 cu ft)
- Two (2) Clarifiers (packaged): 36' diameter x 10' SWD
- One (1) Clarifier (permanent): 80' diameter x 16.5' SWD
- Two (2) Chlorine contact basins (packaged): each 20' x 12' x 8.o' SWD (total volume 3,840 cu ft)
- One (1) Chlorine contact basin (permanent): 44' x 27'x 10.5' (volume 12,474 cu ft)
- Four (4) Aerobic digesters (packaged): each 44' x 12' x 10.5' SWD (total volume 22,176 cu ft)
- One (1) Aerobic digester (permanent): 68' x 19' x 16.5' SWD (volume 21,318 cu ft)
- Three (3) blowers, capacity each 2,200 scfm (two duty, one spare)
- Two (2) Aeration basin blowers, each 2,800 scfm (one duty, one spare)
- Two (2) Digester basin blowers, each 1,051 scfm (one duty, one spare)
- Two (2) Chlorine contact basin blowers, each 61 scfm (one duty, one spare)
- Gas chlorination system and dechlorination system
- Sludge pumping station
- Scum pumping station
- One (1) 1000 kW permanent generator

The proposed WWTP components will include:

- Two (2) Aeration basins (permanent): 82' x 30'x 16.5 SWD (volume 81,180 cu ft)
- One (1) Aerobic digester (permanent): 68' x 19' x 16.5' SWD (volume 21,318 cu ft)
- One (1) Aeration basin blower, 2,800 scfm
- One (1) Sludge pump
- Expansion of gas chlorination and dechlorination system

Kenyon S Hunt, PE | Senior Project Manager

BGE, Inc.

10777 Westheimer, Suite 400

Houston, TX 77042

Main: 281-558-8700

Direct: 713-488-8148

Cell: 503-936-2092

KHunt@bgeinc.com

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From: Paul Brochi <Paul.Brochi@Tceq.Texas.Gov>
Sent: Thursday, December 16, 2021 2:35 PM
To: Kenyon Hunt <KHunt@bgeinc.com>
Subject: Harris County MUD 171 wastewater expansion

Mr. Hunt,

TCEQ has received the summary transmittal letter for the Phase WWTP for the HC MUD 171. This project is being reviewed. Upon reading the letter I am having some question about what is actually taking place in the scope of work for this project.

In reading the bullets listed the following questions arise

From what I approved last year

The existing WWTP components include:

- Four (4) Aeration basins: each 60' x 12' x 10.67' (total volume 30,730 cu ft)
- Two (2) Clarifiers: 36' diameter x 10' SWD
- Two (2) Chlorine contact basins: each 20' x 12' x 8.o' SWD (total volume 3,840 cu ft)

• Four (4) Aerobic digesters; each 44' x 12' x 10.5' SWD (total volume 22,176 cu ft)

\fi369• Three (3) blowers, capacity each 2,200 scfm (two duty, one spare)The proposed WWTP components will include:

• One (1) Aeration basin: 82' x 3o'x 16.5 SWD (volume 40,590 cu ft)

• One (1) Clarifier 80' dimeter x 16.5' SWD

• One (1) Chlorine contact basin: 44' x 27'x 10.5' (volume 12,474 cu ft)

• One (1) Aerobic digester: 68' x 19' x 16.5' SWD (volume 21,318 cu ft)

• Two (2) Aeration basin blowers, each 2,800 scfm (one duty, one spare)

• Two (2) Digester basin blowers, each 1,051 scfm (one duty, one spare)

• Two (2) Chlorine contact basin blowers, each 61 scfm (one duty, one spare)

• Gas chlorination system and dechlorination system

• Sludge pumping station

• Scum pumping station

• One (1) 1000 kW permanent generator

For the 2 MGD plant what of the above is staying and what, if anything, is being demolished and removed from site?

What are sizes of the different treatment units, blowers, pumps etc being added to expand the treatable flow to 2 MGD ADF, 8 MGD PDF

Please let me know. Thank you.

Paul A. Brochi

Paul A. Brochi, P.E.

Plans and Specifications Review Team (MC 148)

Water Quality Division, TCEQ

email: paul.brochi@tceq.texas.gov

phone: 512-239-1372 cell: 512-590-9025

Archived: Tuesday, May 2, 2023 12:29:27 PM
From: Shiann Hernandez
To: Abdur Rahim
Cc: Kenyon Hunt
Subject: RE: HCMUD 171 (WQ0015264001)
Importance: Normal
Sensitivity: None
Attachments:
Attachment 12_Wind Rose.pdf; IAH_yearly.png;

Abdur,
Attached "Attachment 12" is what we submitted in the permit. On the National Climatic Data Center website that is provided in the permit instructions, the latest plotted wind rose is from 1961 for Station No. 12960 – Houston/Intercontinental Airport. I dug into it some more and found the attached "IAH_yearly" image for Jan 1970-Sept 2022. The website has monthly breakdowns as well but I have attached the yearly climatology wind rose plot.

Please let me know if you need any additional information.

Thank you,

Shiann Hernandez, P.E., Project Manager
BGE, Inc.
10777 Westheimer Road, Suite 400
Houston, Texas 77042
Main: 281-558-8700
Direct: 713-488-8391

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From: Abdur Rahim <Abdur.Rahim@Tceq.Texas.Gov>
Sent: Wednesday, September 28, 2022 11:10 AM
To: Shiann Hernandez <SHernandez@bgeinc.com>
Subject: FW: HCMUD 171 (WQ0015264001)

Shiann,
If the copy you have in the application is latest available in the website,
Then pls give me the station No. (see following).
I do not see that in the wind rose map.

Regards
Abdur

Comment: 6:

Christopher and Donnisha Spicer expressed concern about wind studies are outdated, more updated and closer proximity wind studies need to be performed.

Response 6:

TCEQ's instructions for the Municipal Wastewater Permit application, form number TCEQ-10053-inst, provides a link to the National Weather and Climate Center where applicants can download datasets of wind rose plot images. The period of records is 1984-1992. This application included the wind rose available from the National Weather and Climate Center for the Houston area from station number <<Station No. pls>>. The information provided complied with TCEQ's rules and TPDES application requirements.

From: Abdur Rahim
Sent: Wednesday, September 28, 2022 10:38 AM
To: Shiann Hernandez <SHernandez@bgeinc.com>
Cc: Kenyon Hunt <KHunt@bgeinc.com>
Subject: RE: HCMUD 171 (WQ0015264001)

Shiann,
Thank you so much for your kind cooperation and help!!

Best regards,
Abdur

From: Shiann Hernandez <SHernandez@bgeinc.com>
Sent: Wednesday, September 28, 2022 10:32 AM
To: Abdur Rahim <Abdur.Rahim@Tceq.Texas.Gov>
Cc: Kenyon Hunt <KHunt@bgeinc.com>
Subject: RE: HCMUD 171 (WQ0015264001)

Abdur,
Please see attached for the requested permit application.

Thank you,

Shiann Hernandez, P.E., Project Manager
BGE, Inc.
10777 Westheimer Road, Suite 400
Houston, Texas 77042
Main: 281-558-8700
Direct: 713-488-8391

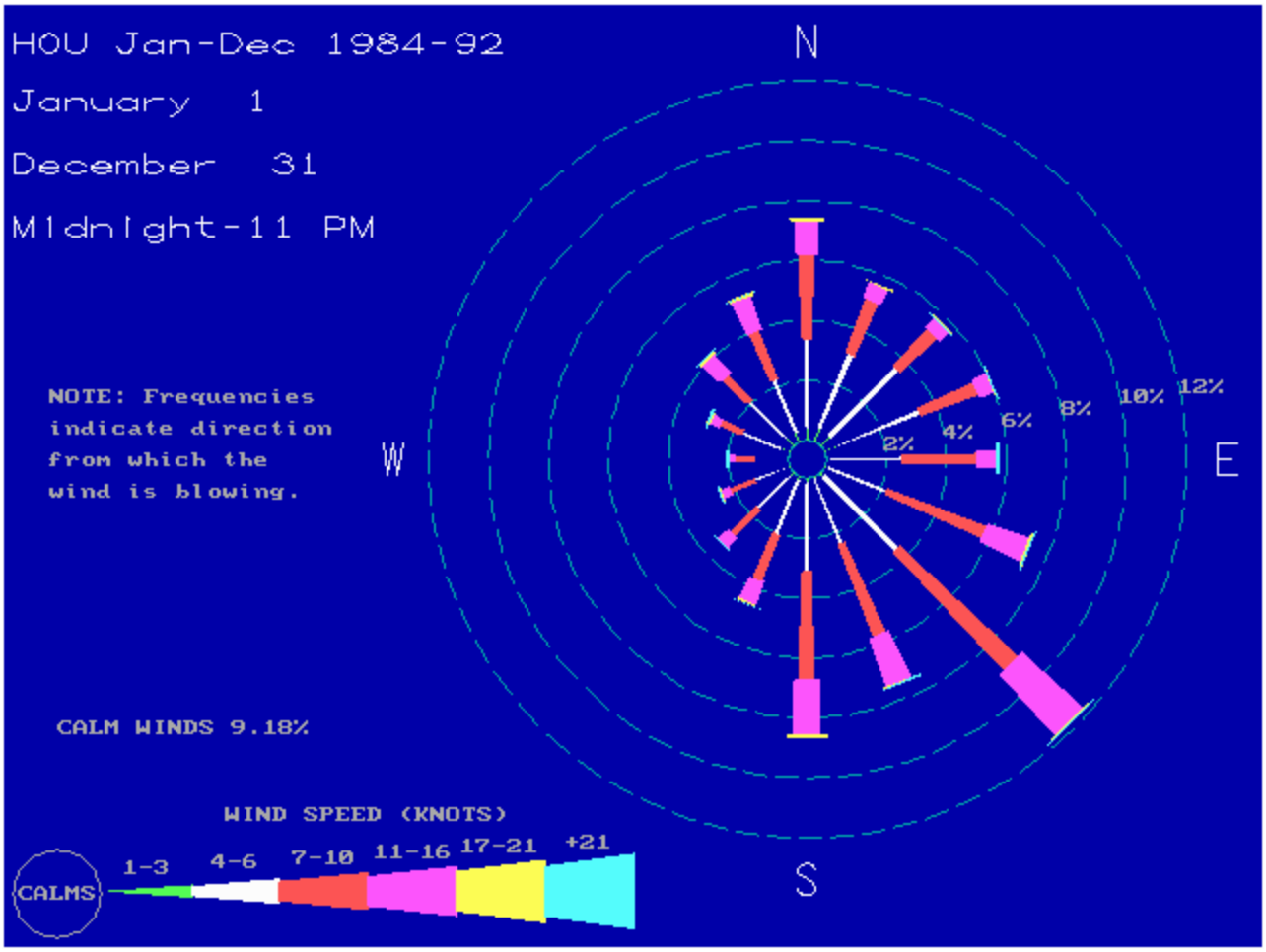
Serving. Leading. Solving.™

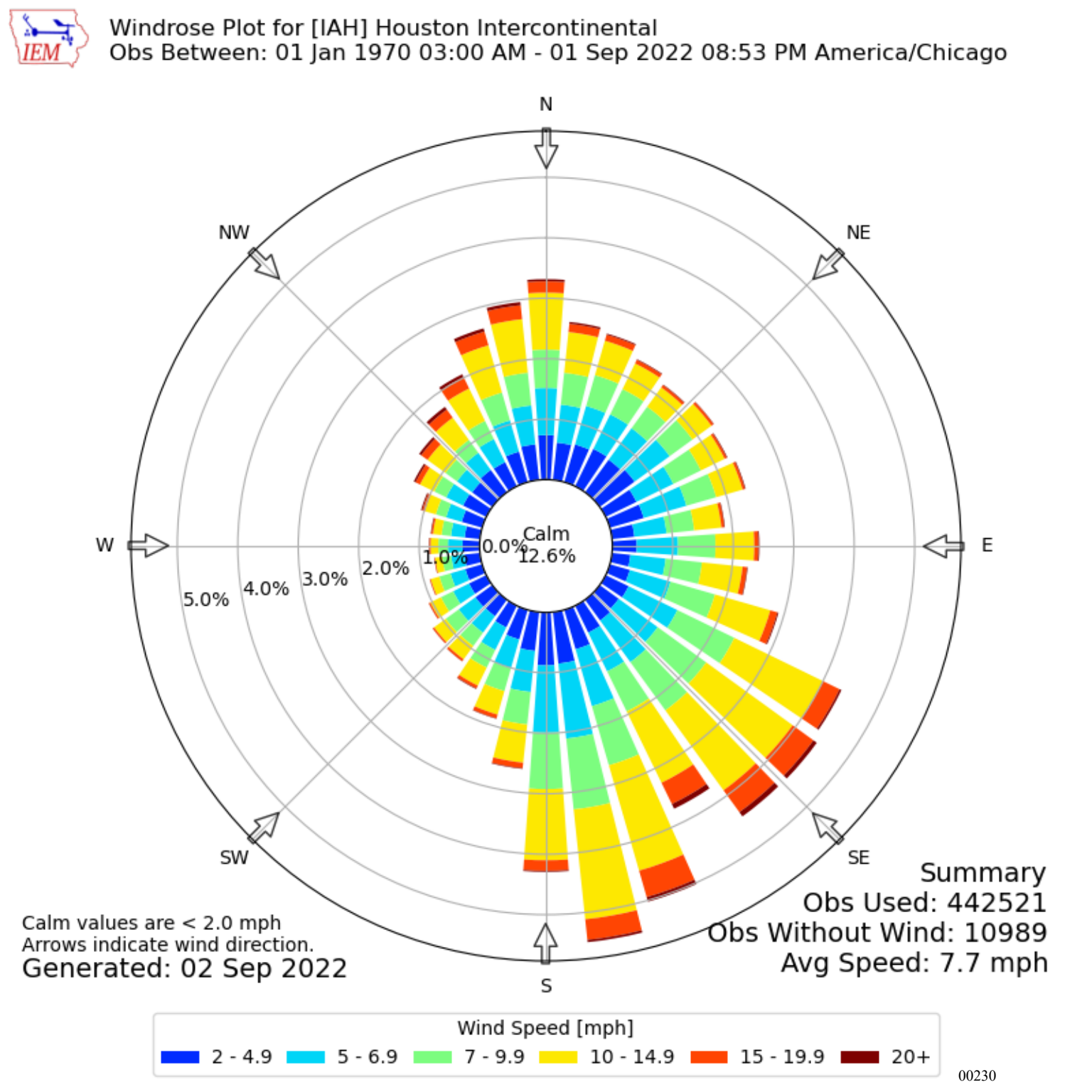
From: Abdur Rahim <Abdur.Rahim@Tceq.Texas.Gov>
Sent: Wednesday, September 28, 2022 10:28 AM
To: Shiann Hernandez <SHernandez@bgeinc.com>
Subject: HCMUD 171 (WQ0015264001)

Good morning Shiann,
Pls send me the Electronic copy of the application.
Permit is Harris county MUD 171, WQ0015264001.

Best regards,

Abdur Rahim
Permit Coordinator
Municipal Permits Team
Water Quality Division
Texas Commission on Environmental Quality
(512) 239-0504


HOU Jan-Dec 1984-92
January 1
December 31
Midnight-11 PM
N
W
E
S
2%
4%
6%
8%
10%
12%
NOTE: Frequencies indicate direction from which the wind is blowing.
CALM WINDS 9.18%
WIND SPEED (KNOTS)
CALMS
1-3
4-6
7-10
11-16
17-21
+21


Windrose Plot for [IAH] Houston Intercontinental
Obs Between: 01 Jan 1970 03:00 AM - 01 Sep 2022 08:53 PM America/Chicago
N
NE
E
SE
S
SW
W
NW
Calm
0.0%
12.6%
1.0%
2.0%
3.0%
4.0%
5.0%
Calm values are < 2.0 mph
Arrows indicate wind direction.
Generated: 02 Sep 2022
Summary
Obs Used: 442521
Obs Without Wind: 10989
Avg Speed: 7.7 mph
Wind Speed [mph]
2 - 4.9
5 - 6.9
7 - 9.9
10 - 14.9
15 - 19.9
20+

00230