Administrative Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
   - English
   - Alternative Language (Spanish)
2. First Notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
   - English
   - Alternative Language (Spanish)
3. Application materials

Portada de Paquete Administrativo

Este archivo contiene los siguientes documentos:

1. Resumen en lenguaje sencillo (PLS, por sus siglas en inglés) de la actividad propuesta
   - Inglés
   - Idioma alternativo (español)
2. Primer aviso (NORI, por sus siglas en inglés)
   - Inglés
   - Idioma alternativo (español)
3. Solicitud original

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

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

McMullen County (CN#600900955) proposes to operate Calliham WWTP (RN104027859), a Wastewater Treatment Plant. The facility will be located at Highway 72 & County Road 302, in Calliham, McMullen County, Texas 78007. The proposed Calliham Wastewater Treatment Plant is in McMullen County, Texas. The location of the Calliham service area is south of Choke Canyon Reservoir State Park and north of State Highway 72 within McMullen County. Nueces River Authority will be responsible for operating the new system registered with the Texas Commission on Environmental Quality (TCEQ). The existing wet well is located at the intersection of SH 72 and County Rd 302, on a County owned 10-acre parcel. The County confirmed that this area can be used for future WWTP planning. Currently, for the Calliham service area, McMullen County stores wastewater in a wet well prior to transporting the wastewater to Tilden, Texas for treatment and disposal. McMullen County is interested in evaluating the option for an onsite wastewater treatment plant (WWTP) and discharging the treated wastewater into a creek leading into Choke Canyon Lake while mitigating the annual cost of transporting wastewater for treatment..

Discharges from the facility are expected to contain treated domestic wastewater effluent. Domestic wastewater will be treated by a steel package plant for the activated sludge type treatment process which would be suitable for the anticipated flows and organic loadings. The influent wastewater will be pumped to a manual fine bar screen intended to capture and remove trash and debris to protect downstream processes. The manual bar screen will then gravity flow to the first rectangular bioreactor/ aeration basin. The aeration basin and digester will be split with a common wall. Aeration basin(s) will primarily remove BOD and ammonia nitrogen. The wastewater will then gravity flow to a circular clarifier for solids settling before continuing via gravity to a rectangular chlorine contact chamber with a minimum 20-minute contact time during peak flow. The solids will settle to the bottom of the clarifier creating sludge which will either be wasted to the digester or returned to the head of the plant as part of the treatment process.

CURRENT AND FUTURE FLOWS

Calliham currently consists of approximately 80 connections in the service area. Of these 80 connections, approximately 70 are single family homes and 10 are RVs. Current average flow is 9,083 gpd derived from the average septage hauling rate provided by NRA for the period of February 2022 through May 2022 attached as Appendix B. This value was rounded up to 10,000 gpd for design purposes.

In the future, the service boundary is anticipated to be expanded to include the Choke Canyon State Park which will contribute an additional 5,000 gpd wastewater. Due to future unknown wastewater contributions, a

5,000 gpd buffer was added to the design flow for a total design flow of 20,000 gpd. The design flow of 20,000 gpd will also allow NRA to go up to 15,000 gpd without triggering TCEQ's 75/90 rule. TCEQ's 75/90 rule outlines that once you exceed 75% of the design capacity, the next wastewater phase should begin design and once 90% of the design capacity is reached, the next wastewater phase should begin construction.

WET WEATHER FLOWS

In the absence of site-specific data, a peaking factor of 4.0 is assumed per TCEQ Chapter 217, Subchapter B, and Rule 217.32(B) to determine the corresponding instantaneous 2-hour peak flow of 80,000 gpd.

WATER QUALITY

NRA collected influent wastewater samples on 10/18/2022, which showed BOD5, TSS, and NH3-N values lower than expected. The lab report is provided in Appendix C and summarized in the below table. TCEQ 30 TAC §217.32(a)(3) lists the minimum design requirements for a new WWTP as 250 mg/l and for BOD5 and NH3-N respectively unless historical organic loading information is available. Although the grab sample indicated low BOD5, the TCEQ minimum of 250 mg/l was assumed since no historical organic loading data is available. Additionally, the unknown organic loadings of future annexations to the existing wastewater service area are accounted for with the higher design organic loadings. Therefore, Plummer recommends using the Design Organic Loading parameters presented in Table 1 to determine feasibility. An extended regiment of continuous influent wastewater sampling would be required to justify design organic loadings lower than the TCEQ minimum requirements.

Table 1: Summary of Influent Wastewater Flow and Design Parameters

Parameter	Design Organic Loading	Grab Sample Organic Loading	Min TCEQ Design Organic Loading
Flow, gpd	20,000	-	-
BOD_5, mg/L (lbs/d)	250 (42)	48	250
TSS, mg/L (lbs/d)	250 (42)	204	-
NH_3-N, mg/L (lbs/d)	40 (10)	23	15

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

AGUAS RESIDUALES DOMESTICAS /AGUAS PLUVIALES

El siguiente resumen se presenta para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas, según lo exige el Título 30 del Código Administrativo de Texas (TAC), Capítulo 39. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no constituye una declaración federalmente vinculante de la misma. El Condado de McMullen (CN#600900955) propone operar la Planta de Tratamiento de Aguas Residuales Calliham (RN104027859). La instalación estará ubicada en la Carretera 72 y la Carretera del Condado 302, en Calliham, Condado de McMullen, Texas 78007. La Planta de Tratamiento de Aguas Residuales de Calliham propuesta se encuentra en el Condado de McMullen, Texas. El área de servicio de Calliham se encuentra al sur del Parque Estatal Choke Canyon Reservoir y al norte de la Carretera Estatal 72, dentro del Condado de McMullen. La Autoridad del Río Nueces será responsable de la operación del nuevo sistema registrado ante la Comisión de Calidad Ambiental de Texas (TCEQ). El pozo húmedo existente se encuentra en la intersección de la SH 72 y County Rd 302, en una parcela de 10 acres propiedad del Condado. El Condado confirmó que esta área puede utilizarse para la planificación futura de la PTAR. Actualmente, para el área de servicio de Calliham, el Condado de McMullen almacena las aguas residuales en un pozo húmedo antes de transportarlas a Tilden, Texas, para su tratamiento y eliminación. El Condado de McMullen está interesado en evaluar la opción de una planta de tratamiento de aguas residuales (PTAR) in situ y descargar las aguas residuales tratadas en un arroyo que desemboca en el lago Choke Canyon, mitigando así el costo anual de transporte de aguas residuales para su tratamiento. Se espera que las descargas de la instalación contengan efluentes de aguas residuales domésticas tratadas. Las aguas residuales domésticas se tratarán en una planta de tratamiento de paquetes de acero mediante el proceso de lodos activados, adecuado para los caudales y las cargas orgánicas previstos. Las aguas residuales del afluente se bombearán a una rejilla manual de barras finas, diseñada para capturar y eliminar residuos y proteger los procesos posteriores. La rejilla manual fluirá por gravedad hacia el primer biorreactor/depósito de aireación rectangular. El depósito de aireación y el digestor estarán separados por una pared común. El/los depósito(s) de aireación eliminarán principalmente la DBO y el nitrógeno amoniacal. Las aguas residuales fluirán por gravedad a un clarificador circular para la sedimentación de sólidos, antes de continuar por gravedad a una cámara rectangular de contacto con cloro, con un tiempo de contacto mínimo de 20 minutos durante el flujo máximo. Los sólidos sedimentarán en el fondo del clarificador, creando lodos que se descargarán en el digestor o se devolverán a la cabecera de la planta como parte del proceso de tratamiento.

CAUDALES ACTUALES Y FUTUROS Calliham cuenta actualmente con aproximadamente 80 conexiones en su área de servicio. De estas, aproximadamente 70 corresponden a viviendas unifamiliares y 10 a vehículos recreativos. El caudal promedio actual es de 9083 gpd, derivado de la tasa promedio de transporte de aguas sépticas proporcionada por la NRA para el período de febrero a mayo de 2022, que se adjunta como Apéndice B. Este valor se redondeó a 10 000 gpd para fines de diseño. En el futuro, se prevé ampliar el límite de servicio para incluir el Parque Estatal Choke Canyon, que aportará 5000 gpd adicionales de aguas residuales. Debido a futuras contribuciones desconocidas de aguas residuales, se añadió un margen de 5000 gpd al caudal de diseño, para un caudal total de diseño de 20 000 gpd. El caudal de diseño de 20,000 gpd también permitirá a la NRA alcanzar 15,000 gpd sin activar la regla 75/90 de la TCEQ. Esta regla establece que, una vez superado el 75% de la capacidad de diseño, se debe iniciar el diseño de la siguiente fase de aguas residuales, y una vez alcanzado el 90% de la capacidad de diseño, se debe iniciar la construcción de la siguiente fase de aguas residuales. CAUDALES EN TIEMPO HÚMEDO A falta de datos específicos del sitio, se asume un factor de pico de 4.0, según el Capítulo 217, Subcapítulo B, y la Regla 217.32(B) de la TCEQ, para determinar el caudal pico instantáneo correspondiente a 2 horas de 80,000 gpd. CALIDAD DEL AGUA La NRA recolectó muestras de aguas residuales del afluente el 18/10/2022, que mostraron valores de DBO5, SST y NH3-N inferiores a los esperados. El informe de laboratorio se incluye en el Apéndice C y se resume en la tabla a continuación. TCEQ para DBO5 y NH3-N respectivamente, a menos que se disponga de información histórica sobre la carga orgánica. Si bien la muestra al azar indicó una DBO5 baja, se asumió el mínimo de 250 mg/l de la TCEQ, ya que no se dispone de datos históricos sobre la carga

orgánica. Además, las cargas orgánicas desconocidas de futuras anexiones al área de servicio de aguas residuales existente se contabilizan con las cargas orgánicas de diseño más altas. Por lo tanto, Plummer recomienda utilizar los parámetros de Carga Orgánica de Diseño que se presentan en la Tabla 1 para determinar la viabilidad. Se requeriría un programa extendido de muestreo continuo de aguas residuales de afluentes para justificar cargas orgánicas de diseño inferiores a los requisitos mínimos de la TCEQ.

Tabla 1: Resumen del Caudal de Aguas Residuales de Afluentes y Parámetros de Diseño

Parameter	Design Organic Loading	Grab Sample Organic Loading	Min TCEQ Design Organic Loading
Flow, gpd	20,000	-	-
BOD_5, mg/L (lbs/d)	250 (42)	48	250
TSS, mg/L (lbs/d)	250 (42)	204	-
NH_3-N, mg/L (lbs/d)	40 (10)	23	15

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

NOTICE OF RECEIPT OF APPLICATION AND INTENT TO OBTAIN WATER QUALITY PERMIT

PROPOSED PERMIT NO. WQ0016840001

APPLICATION. McMullen County, P.O. Box 237, Tilden, Texas 78072, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0016840001 (EPA I.D. No. TX0148091) to authorize the discharge of treated wastewater at a volume not to exceed a daily average flow of 20,000 gallons per day. The domestic wastewater treatment facility will be located approximately 0.17 miles north of the intersection of State Highway 72 and County Road 302, near the city of McMullen, in McMullen County, Texas 78007. The discharge route will be from the plant site to an unnamed tributary, thence to Choke Canyon Reservoir. TCEQ received this application on June 30, 2025. The permit application will be available for viewing and copying at McMullen County Courthouse, Commissioner's Courtroom, 501 River Street, Tilden, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application.
https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.368333,28.4525&level=18

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications.
El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications.

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a permit draft and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public

interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments, and the Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing.** A contested case hearing is a legal proceeding similar to a civil trial in state district court.

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name, address, phone number; applicant's name and proposed permit number; the location and distance of your property/activities relative to the proposed facility; a specific description of how you would be adversely affected by the facility in a way not common to the general public; a list of all disputed issues of fact that you submit during the comment period and, the statement "[I/we] request a contested case hearing." If the request for contested case hearing is filed on behalf of a group or association, the request must designate the group's representative for receiving future correspondence; identify by name and physical address an individual member of the group who would be adversely affected by the proposed facility or activity; provide the information discussed above regarding the affected member's location and distance from the facility or activity; explain how and why the member would be affected; and explain how the interests the group seeks to protect are relevant to the group's purpose.

Following the close of all applicable comment and request periods, the Executive Director will forward the application and any requests for reconsideration or for a contested case hearing to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. **If a hearing is granted, the subject of a hearing will be limited to disputed issues of fact or mixed questions of fact and law relating to relevant and material water quality concerns submitted during the comment period.**

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

INFORMATION AVAILABLE ONLINE. For details about the status of the application, visit the Commissioners' Integrated Database at www.tceq.texas.gov/goto/cid. Search the database using the permit number for this application, which is provided at the top of this notice.

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from McMullen County at the address stated above or by calling Mr. Travis Pruski, Chief Operations Officer/Nueces River Authority, at 210-710-0617.

Issuance Date: September 23, 2025

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA

PERMISO PROPUESTO NO. WQ0016840001

SOLICITUD. El Condado de McMullen, Apartado de correos 237, Tilden, Texas 78072, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) el Permiso Propuesto del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) No. WQ0016840001 (N° de I.D. de la EPA No. TX0148091) para autorizar la descarga de aguas residuales tratadas a un volumen que no exceda un flujo promedio diario de 20,000 galones por día. La instalación de tratamiento de aguas residuales domésticas se localizará a aproximadamente 0.17 millas al norte de la intersección de la Autopista Estatal 72 y el Camino del Condado 302, cerca de la ciudad de McMullen, en el Condado de McMullen, Texas 78007. La ruta de descarga será desde el sitio de la planta hacia un afluente sin nombre, y de allí al Embalse Choke Canyon. La TCEQ recibió esta solicitud el 30 de junio de 2025. La solicitud de permiso estará disponible para su visualización y copia en el Palacio de Justicia del Condado de McMullen, Sala del Comisionado, 501 River Street, Tilden, Texas antes de la fecha en que se publique este aviso en el periódico.: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud.
https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.368203,28.452394&level=18

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después

del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión.

La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. **Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.**

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Además, puede pedir que la TCEQ ponga su nombre en una o más de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos del solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para detalles sobre el estado de la solicitud, favor de visitar la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Para buscar en la base de datos, utilizar el número de permiso para esta solicitud que aparece en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/ o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener más información de McMullen County en la dirección mencionada arriba o llamando al Sr. Travis Pruski, Director de Operaciones / Autoridad del Río Nueces, al 210-710-0617.

Fecha de emisión: 23 de septiembre de 2025

From: Loera, John
To: Abesha Michael
Cc: Ramirez, Gabriel; Synovitz, Steve; DeGaish, Austin
Subject: Re: Application for Proposed Permit No. WQ0016840001 - Notice of Deficiency Letter
Date: Tuesday, September 23, 2025 2:15:16 PM

You can use the McMullen County mailing address - PO Box 237, Tilden, Texas 78072.

Thank you,

John A. Loera | *Assistant Project Manager*
Civil & Environmental Consultants, Inc.
400 Mann Street, Suite 505, Corpus Christi, TX 78401
direct 361.260.5613 **office** 346.378.7835 **mobile** 361.232.0292
www.cecinc.com

On Sep 23, 2025, at 1:47 PM, Loera, John <jloera@cecinc.com> wrote:

501 River St. is the address to the McMullen County Courthouse. We sent the submittal package via hard copy, PDF, and drop-box link. The PDF/link of the package and NORI items were sent multiple times to ensure delivery. Let me know which documents you need me to resend.

Thank you,

John A. Loera | *Assistant Project Manager*
Civil & Environmental Consultants, Inc.
400 Mann Street, Suite 505, Corpus Christi, TX 78401
direct 361.260.5613 **office** 346.378.7835 **mobile** 361.232.0292
www.cecinc.com

From: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Sent: Tuesday, September 23, 2025 1:42:25 PM
To: Loera, John <jloera@cecinc.com>
Subject: FW: Application for Proposed Permit No. WQ0016840001 - Notice of Deficiency Letter

From:	Synovitz, Steve
To:	Abesha Michael
Cc:	Loera, John; DeGaish, Austin; Ramirez, Gabriel
Subject:	2025 09 15 Calliham WWTP - Application for Proposed Permit No. WQ0016840001 - Affected Property Owners Map - REVISED
Date:	Monday, September 15, 2025 2:33:10 PM
Attachments:	image001.png 2025 09 15 Calliham WWTP - Affected Property Owners Map.pdf 2025 09 15 Calliham WWTP - Affected Property Owners List.docx

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Dear Ms. Michael,

Per your conversation with John Loera last week, we have revised the Affected Property Owners Map for the Proposed Calliham WWTP project (Application for Proposed Permit No. WQ0016840001). See attached.

Also attached is a separate list of those property owners, identified by number on the map

Let us know if you require anything else or have any questions.

Steve Synovitz, P.E., CFM | *Senior Project Manager*
Civil & Environmental Consultants, Inc.
400 Mann Street, Suite 505, Corpus Christi, TX 78401
office 346.378.7800 **mobile** 361.548.7886
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Brooke T. Paup, *Chairwoman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 8, 2025

Mr. Austin DeGaish, P.E.
Project Manager
Civil & Environmental Consultants. Inc.
400 Mann Street Suite 505
Corpus Christi, Texas 78401

RE: Application for Proposed Permit No.: WQ0016840001 (EPA I.D. No. TX0148091)
Applicant Name: McMullen County (CN600900955)
Site Name: Calliham WWTP (RN104027859)
Type of Application: New

VIA EMAIL

Dear Mr. DeGaish:

We have received the application for the above-mentioned permit, and it is currently under review. Your attention to the following items are requested before we can declare the application administratively complete. Please submit responses to the following items via email.

1. Thank you for the electronic application for proposed permit No. WQ0016840001. We need one original (with original signature page) and 2 copies of the paper application. Please submit the hard copy of the whole application. Understood

2. Section 1, application fee on page 2 of the administrative report 1.0: The application indicates the amount of the application fee is $350.00. However, we are unable to locate the payment. Please submit a copy of a check or any form of proof of payment for this application. CEC Check DONE

3. Section I item 3, Regulated Entity (RN) number, on page 1 of the Core Data Form (CDF) and Section 9A, on page 7 of the application: Thank you for addressing RN101139808. However, the RN number which was provided on the CDF is in correction. The RN number for this new/proposed application is created as RN104027859. Please update page 1 of the CDF and page 7 of the application and the Plain Language Summaries (PLSs) English and Spanish. DONE

4. Section II, item 12 and 18 on page 1of the Core Data Form (CDF): These items were left blank. However, it is required. Please update and submit the revised page. DONE

5. Section III, item 24, 29, 30, 34, 36 on page 2of the Core Data Form (CDF): These items were left blank. Please update and submit revied page 2 of the CDF. DONE

6. Section V, item 46 on page 3 of the Core Data Form (CDFs): The CDF was not signed. Please provide CDF signed by Mr. Austin DeGaish. (The name indicated on CDFs). DONE

7. Section 10, TPDES Discharge, item B on page 8 of the application: Item B. Are the point(s) of discharge and the discharge route(s) in the existing permit, correct? 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: Please update page 8 and submit an accurate description of the discharge route. DONE

8. Section 13, on page 10 of the administrative report: Thank you for the full-size USGS map. However, the USGS map does not show all the required information. The applicant property boundary, the facility boundaries within the applicant property boundary, the point of discharge, highlighted discharge route (using a see-through highlighter) for 3 miles downstream or until it reaches into a lake, bay estuary, or affected by tides, a classified segment from the point of discharge, and 1 mile radius in all directions of the site. Please use the **USGS Full-size** map for the proposed application. The DONE

9. Section 14, Page 11 of the administrative report: Thank you for providing a notarized signature page. However, the application page is fully completed, the signatory name and signatory title were left blank. Please complete and submit an original, notarized and singed pages.

DONE

10. Section 1 Affected Landowner Information, item A, B, C, D and E on page 12 of the administrative report: Page 12 the application is not completed, and we are unable to locate the affected landowners map, the cross-referenced mailing list (on a separate page) and labels (e-copy). Please submit a landowner map which shows/label **only**: DONE

DONE
- The applicant property boundary and all affected landowners surrounding the applicant property boundaries includes the contiguous property owned by the applicant. Please use 1, 2, 3, etc., don't include the landowners' names on ownership numbers on the map.

WWTP will be located on the west tract of the two tracts owned by McMullen County

DONE
- The facility boundary within the applicant boundary or confirm the facility boundary is the same as the applicant property boundary. And the point of discharge.

DONE
- The affected landowners on both sides of the discharge route up to one-mile downstream or discharge is into a lake, bay estuary, or affected by tides, until it reaches a classified segment using a see-through highlighter. Please use 1, 2, 3, etc., to indicate the landowners, don't include the owner's name or parcel's number. Please don't use a google photo to label the map. The map must have a scale.

See corrections below

DONE 11. The following is a portion of the NORI which contains information relevant to your application. Please read it carefully and indicate if it contains any errors or omissions. The complete notice will be sent to you once the application is declared administratively complete.

APPLICATION. McMullen County, 501 River Street, Tilden, Texas 78072, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0016840001 (EPA I.D. No. TX0148091) to authorize the discharge of treated wastewater at a volume not to exceed a daily average flow of 20,000 gallons per day. The domestic wastewater treatment facility will be located ~~at 501 River Street, in the city of Tilden, in McMullen County, Texas 78072.~~ * The discharge route will be from the plant site ~~to (Discharge Route - Pending Rsponse)~~ **. TCEQ received this application on June 30, 2025. The permit application will be available for viewing and copying at McMullen County Courthouse, Commissioner's Courtroom, 501 River Street, Tilden, in McMullen County, Texas

* 0.17 miles north of Highway 72 and along the east side of County Road 302 near Calliham in McMullen County, Texas

** and will follow County Road 302 southward approximately 0.15 miles then west along the north side of Highway 72 for approximately 0.5 miiles to an existing culvert outfall, then into and across property owned by the U.S. Government which establishes the boundary for Choke Canyon Lake.

The location for the link that had been shown was the McMullen County Courthouse in Tilden, TX. We have updated the decimal LAT & LONG in the link so that it will go to the correct site location near Calliham, TX.

prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.368203,28.452394&level=18

Further information may also be obtained from McMullen County at the address stated above or by calling Mr. Travis Pruski, Chief Operations Officer/Nueces River Authority, at 210-110-0617.

See corrections above

DONE 1. The application indicates that public notices in Spanish are required. After confirming the portion of the NORI above does not contain any errors or omissions, please use the attached template to translate the NORI into Spanish. Only the first and last paragraphs are unique to this application and require translation. Please provide the translated Spanish NORI in a Microsoft Word document.

Please submit the complete response, addressed to my attention by July 22, 2025. If you should have any questions, please do not hesitate to contact me by phone at (512) 239-4912 or by email at abesha.michael@tceq.texas.gov.

Sincerely,

Abesha Michael

Abesha Michael
Applications Review and Processing Team (MC148)
Water Quality Division
Texas Commission of Environmental Quality

Enclosure(s)

cc: Mr. Travis Pruski, Chief Operations Officer, Nueces River Authority, 539 South Highway 83, Uvalde, Texas 78801

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA

PERMISO PROPUESTO NO. WQ00

SOLICITUD. *McMullen County, Texas, 501 River Street, Tilden Texas 78072* , ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0016840001(EPA I.D. No. TX 0148091) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de *20,000* galones por día. La planta estará ubicada *El sitio propuesto para la PTAR (Planta de Tratamiento de Aguas Residuales) está a 0.17 millas al norte de la Carretera 72 y a lo largo del lado este de la Carretera del Condado 302, cerca de Calliham en el Condado de McMullen, Texas* en el Condado de *McMullen County*, Texas *78072*. La ruta de descarga estará del sitio de la planta a ***Desde el sitio propuesto de la Planta de Tratamiento de Aguas Residuales (WWTP por sus siglas en inglés), que está a 0.17 millas al norte de la Carretera 72 y a lo largo del lado este de la Carretera del Condado 302 cerca de Calliham en el Condado de McMullen, Texas, la ruta de descarga seguirá la Carretera del Condado 302 hacia el sur aproximadamente 0.15 millas, luego hacia el oeste a lo largo del lado norte de la Carretera 72 por aproximadamente 0.5 millas hasta una salida de alcantarilla existente, y luego hacia y a través de la propiedad del Gobierno de los Estados Unidos que establece el límite del Lago Choke Canyon.***

La TCEQ recibió esta solicitud el *June 30, 2025* . La solicitud para el permiso estará disponible para leerla y copiarla en *McMullen County Courthouse, 501River St., Tilden Texas, 78072* antes de la fecha de publicación de este aviso en el periódico. La solicitud (cualquier actualización y aviso inclusive) está disponible electrónicamente en la siguiente página web: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud.

https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.368203,28.452394&level=18

[Include the following non-italicized sentence if the facility is located in the Coastal Management Program boundary. The Coastal Management Program boundary is the area along the Texas Coast of the Gulf of México as depicted on the map in 31 TAC §503.1 and includes part or all of the following counties: Cameron, Willacy, Kenedy, Kleberg, Nueces, San Patricio, Aransas, Refugio, Calhoun, Victoria, Jackson, Matagorda, Brazoria, Galveston, Harris, Chambers,

Jefferson y Orange.] El Director Ejecutivo de la TCEQ ha revisado esta medida para ver si está de acuerdo con los objetivos y las regulaciones del Programa de Administración Costero de Texas (CMP) de acuerdo con las regulaciones del Consejo Coordinador de la Costa (CCC) y ha determinado que la acción es conforme con las metas y regulaciones pertinentes del CMP.

AVISO DE IDIOMA ALTERNATIVO. El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications.

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la

ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión.

La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. **Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.**

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Además, puede pedir que la TCEQ ponga su nombre en una o más de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos del solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para detalles sobre el estado de la solicitud, favor de visitar la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Para buscar en la base de datos, utilizar el número de permiso para esta solicitud que aparece en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/ o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

Fecha de emisión: *[Date notice issued]*

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 600900955		**RN 104027859**

SECTION II: Customer Information

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

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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

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

MCMULLEN COUNTY

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

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☒ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☐ **Yes** ☒ **No**

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

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

501 River St.

City	Tilden	**State**	TX	**ZIP**	78072	**ZIP + 4**	

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	judge.teal@mcmullencounty.org

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(361) 274-3902		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ 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 Core 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.)*

Calliham Wastewater Treatment Plant

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

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	The proposed WWTP site is 0.17 miles north of Highway 72 and along the east side of County Road 302 near Calliham in McMullen County, Texas,

26. Nearest City	State	Nearest ZIP Code
Calliham	TX	78007

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	28.452394		28. Longitude (W) In Decimal:	98.368203	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
28	27	8.62	98	22	5.53

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)
8211	1311		

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

34. Mailing Address:	**501 River St.**						
	City	**Tilden**	**State**	**TX**	**ZIP**	**78072**	**ZIP + 4**
35. E-Mail Address:							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(361) 274-3902		( ) -

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	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Austin DeGaish, PE	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(346 **)** 293-1310		**( )** -	adegaish@cecinc.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:	Civil & Environmental Consultants	**Job Title:**	Project Manager
Name *(In Print):*	Austin DeGaish, PE	**Phone:**	**(** 361 **)** 658- **3267**
Signature:		**Date:**	7/18/2025

Calliham WWTP - Affected Property Owner Map September 15, 2025

SCALE: 1 INCH = 1400 FEET

September 15, 2025

Calliham WWTP – Affected Property Owners List

1. Live Oak Partners, L.P., 802 N. Carancahua, Suite 1660, Corpus Christi, TX 78470
2. David Naylor, P.O. Box 67, Calliham, TX 78007
3. David Naylor, P.O. Box 67, Calliham, TX 78007
4. Gary & Karen Franz, 1414 Whisper Mountain, San Antonio, TX 78258
5. Cody Joe & Ashley Overstreet, 270 County Road 303, Calliham, TX 78007
6. Joyce Ray Wood, P.O. Box 100, Calliham, TX 78007
7. United State of America
8. David Alan Woodward, P.O. Box 298, Three Rivers, TX 78071
9. Gary & Karen Franz, 1414 Whisper Mountain, San Antonio, TX 78258
10. Gary & Karen Franz, 1414 Whisper Mountain, San Antonio, TX 78258

June 10, 2025

Tong Li, P.E.
Wastewater Plans & Specs Team
Water Quality Division
Texas Commission on Environmental Quality
Office: 512-239-1372

Subject: **Justification Letter – Texas Pollutant Discharge Elimination System Administrative and Technical Report**

McMullen County, Texas – Calliham Wastewater Treatment Plant Project

Dear Mr. Li:

On behalf of McMullen County and Nueces River Authority, Civil & Environmental Consultants, Inc. (CEC) is submitting this letter along with the TCEQ - Texas Pollutant Discharge Elimination System (TPDES) Domestic Administrative and Technical Report including engineering seal and certification and specifications to TCEQ. The proposed wastewater treatment plant is considered a significant change to the Texas Pollutant Discharge Elimination System and requires TCEQ notification submitted by a professional engineer in the state of Texas.

The proposed Calliham Wastewater Treatment Plant is in McMullen County, Texas. The location of the Calliham service area is south of Choke Canyon Reservoir State Park and north of State Highway 72 within McMullen County. Nueces River Authority will be responsible for operating the new system registered with the Texas Commission on Environmental Quality (TCEQ). The existing wet well is located at the intersection of SH 72 and County Rd 302, on a County owned 10-acre parcel. The County confirmed that this area can be used for future WWTP planning. Currently, for the Calliham service area, McMullen County stores wastewater in a wet well prior to transporting the wastewater to Tilden, Texas for treatment and disposal. McMullen County is interested in evaluating the option for an onsite wastewater treatment plant (WWTP) and discharging the treated wastewater into a creek leading into Choke Canyon while mitigating the annual cost of transporting wastewater for treatment.

Tong Li, P.E.
Wastewater Plans & Specs Team
Water Quality Division
Texas Commission on Environmental Quality
Office: 512-239-1372

A steel package plant for the activated sludge type treatment process would be suitable for the anticipated flows and organic loadings. The influent wastewater will be pumped to a mechanical bar screen intended to capture and remove trash and debris to protect downstream processes. The mechanical bar screen then gravity flows to the first rectangular bioreactor/ aeration basin. The aeration basin and digester are split with a common wall. Aeration basin(s) will primarily remove BOD and ammonia nitrogen. The wastewater will then gravity flow to a circular clarifier for solids settling before continuing via gravity to a rectangular chlorine contact chamber with a minimum 20-minute contact time during peak flow. The solids will settle to the bottom of the clarifier creating sludge which will either be wasted to the digester or returned to the head of the plant as part of the treatment process.

Please allow this letter to serve as justification to TCEQ regarding the approval of the TPDES Domestic Administrative and Technical Reports. If you need additional information or have any questions, please call or email Austin DeGaish, P.E., Civil & Environmental Consultants Inc., at 361-658-3267 or adegaish@cecinc.com.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Austin DeGaish, P.E.
Project Manager

John A. Loera
Assistant Project Manager

Cc: Travis Pruski
Chief Operations Officer
Nueces River Authority
tpruski@nueces-ra.org

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: McMullen County

PERMIT NUMBER (If new, leave blank): WQ00Click to enter text.

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	☒	☐
Summary of Application (PLS)	☒	☐	Flow Diagram	☒	☐
Public Involvement Plan Form	☒	☐	Site Drawing	☒	☐
Technical Report 1.0	☒	☐	Original Photographs	☒	☐
Technical Report 1.1	☒	☐	Design Calculations	☒	☐
Worksheet 2.0	☒	☐	Solids Management Plan	☒	☐
Worksheet 2.1	☒	☐	Water Balance	☒	☐
Worksheet 3.0	☐	☒			
Worksheet 3.1	☐	☒			
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

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

For any questions about this form, please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 26)

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: Click to enter text.

Check/Money Order Amount: $350.00

Name Printed on Check: McMullen County

EPAY — Voucher Number: Click to enter text.

Copy of Payment Voucher enclosed? Yes ☐

Section 2. Type of Application (Instructions Page 26)

a. Check the box next to the appropriate authorization type.

☒ Publicly Owned Domestic Wastewater

☐ Privately-Owned Domestic Wastewater

☐ Conventional Water Treatment

b. Check the box next to the appropriate facility status.

☐ Active ☒ Inactive

c. Check the box next to the appropriate permit type.

- ☒ TPDES Permit
- ☐ TLAP
- ☐ TPDES Permit with TLAP component
- ☐ Subsurface Area Drip Dispersal System (SADDS)

d. Check the box next to the appropriate application type

- ☒ New
- ☐ Major Amendment *with* Renewal
- ☐ Minor Amendment *with* Renewal
- ☐ Major Amendment *without* Renewal
- ☐ Minor Amendment *without* Renewal
- ☐ Renewal without changes
- ☐ Minor Modification of permit

e. For amendments or modifications, describe the proposed changes: N/A

f. **For existing permits**:

Permit Number: WQ00 Click to enter text.

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

Expiration Date: Click to enter text.

Section 3. Facility Owner (Applicant) and Co-Applicant Information (Instructions Page 26)

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

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

McMullen County

(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: CN600900955

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. Last Name, First Name: Teal, James E.

Title: County Judge Credential: Judge

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 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 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: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Click 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. Attached – Core Data Form

Section 4. Application Contact Information (Instructions Page 27)

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. Last Name, First Name: DeGaish, Austin

Title: Project Manager Credential: P.E.

Organization Name: Civil & Environmental Consultants, Inc.

Mailing Address: 400 Mann St. STE. 505 City, State, Zip Code: Corpus Christi, TX 78401

Phone No.: (346) 293-1310 E-mail Address: adegaish@cecinc.com

Check one or both: ☒ Administrative Contact ☒ Technical Contact

B. Prefix: Mr. Last Name, First Name: Loera, John

Title: Assistant Project Manager Credential: Click to enter text.

Organization Name: Civil & Environmental Consultants, Inc.

Mailing Address: 400 Mann St. STE. 505 City, State, Zip Code: Corpus Christi, TX 78401

Phone No.: 361-260-5613 E-mail Address: jloera@cecinc.com

Check one or both: ☒ Administrative Contact ☐ Technical Contact

Section 5. Permit Contact Information (Instructions Page 27)

Provide the names and contact information for two individuals that can be contacted throughout the permit term.

C. Prefix: Mr. Last Name, First Name: DeGaish, Austin

Title: Project Manager Credential: P.E.

Organization Name: Civil & Environmental Consultants, Inc.

Mailing Address: 400 Mann St. STE. 505 City, State, Zip Code: Corpus Christi, TX 78401

Phone No.: (346) 293-1310 E-mail Address: adegaish@cecinc.com

D. Prefix: Mr. Last Name, First Name: Pruski, Travis

Title: Chief Operations Officer Credential: Click to enter text.

Organization Name: Nueces River Authority

Mailing Address: 539 S. HWY 83 City, State, Zip Code: Uvalde, TX 78801

Phone No.: 210-710-0617 E-mail Address: tpruski@nueces-ra.org

Check one or both: ☒ Administrative Contact ☐ Technical Contact

Section 6. Billing Contact Information (Instructions Page 27)

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).

E. Prefix: Mr. Last Name, First Name: Pruski, Travis

Title: Chief Operations Officer Credential: COO

Organization Name: Nueces River Authority

Mailing Address: 539 S. HWY 83 City, State, Zip Code: Uvalde, TX 78801

Phone No.: 210-710-0617 E-mail Address: tpruski@nueces-ra.org

Section 7. DMR/MER Contact Information (Instructions Page 27)

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

F. Prefix: Mr. Last Name, First Name: Pruski, Travis

Title: Chief Operations Officer Credential: Click to enter text.

Organization Name: Nueces River Authority

Mailing Address: 539 S. HWY 83 City, State, Zip Code: Uvalde, TX 78801

Phone No.: 210-710-0617 E-mail Address: tpruski@nueces-ra.org

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

B. Prefix: Mr. Last Name, First Name: Pruski, Travis

Title: Chief Operations Officer Credential: Click to enter text.

Organization Name: Nueces River Authority

Mailing Address: 539 S. HWY 83 City, State, Zip Code: Uvalde, TX 78801

Phone No.: 210-710-0617 E-mail Address: tpruski@nueces-ra.org

C. 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

D. Contact permit to be listed in the Notices

Prefix: **Mr.** Last Name, First Name: **Pruski, Travis**

Title: **Chief Operations Officer** Credential: Click to enter text.

Organization Name: **Nueces River Authority**

Mailing Address: 539 S. HWY 83 City, State, Zip Code: **Uvalde, TX 78801**

Phone No.: **210-710-0617** E-mail Address: **tpruski@nueces-ra.org**

E. 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: McMullen County Courthouse

Location within the building: Commissioner's Courtroom

Physical Address of Building: 501 River St.

City: Tilden, Texas County: McMullen County

Contact (Last Name, First Name): Pruski, Travis

Phone No.: 210-710-0617 Ext.: Click to enter text.

F. Bilingual Notice Requirements

This information **is required** for **new, major amendment, minor amendment or minor modification, and renewal** applications.

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

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

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

   ☐ Yes ☒ No

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

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

   ☒ Yes ☐ No

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

   ☐ Yes ☒ No

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

   ☐ Yes ☒ No

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

G. Summary of Application in Plain Language Template

Complete the F. Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS, and include as an attachment.

Attachment: See attached.

H. Public Involvement Plan Form

Complete the Public Involvement Plan Form (TCEQ Form 20960) for each application for a **new permit or major amendment to a permit** and include as an attachment.

Attachment: See attached.

Section 9. Regulated Entity and Permitted Site Information (Instructions Page 29)

A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. **RN** 1011398808

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):

Calliham Wastewater Treatment Plant Project

C. Owner of treatment facility: McMullen County

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

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

Prefix: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Organization Name: McMullen County

Mailing Address: 501 River St City, State, Zip Code: Tilden, TX 78072

Phone No.: Click to enter text. E-mail Address: Click 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: N/A

E. Owner of effluent disposal site:

Prefix: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Organization Name: TxDOT

Mailing Address: Click to enter text. City, State, Zip Code: Click to enter text.

Phone No.: Click to enter text. E-mail Address: Click 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: N/A

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

Prefix: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Organization Name: N/A

Mailing Address: Click to enter text. City, State, Zip Code: Click to enter text.

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

Section 10. TPDES Discharge Information (Instructions Page 31)

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

☐ Yes ☒ No

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

N/A

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:

N/A (No existing permit)

City nearest the outfall(s): Calliham, Texas

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

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: N/A

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 32)

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

☐ Yes ☒ No

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

N/A

B. City nearest the disposal site: N/A

C. County in which the disposal site is located: N/A

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

N/A

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

Section 12. Miscellaneous Information (Instructions Page 32)

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

☐ Yes ☒ No

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

☐ Yes ☐ No ☒ Not Applicable

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

N/A

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

☐ Yes ☒ No

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

D. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

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

Account number: Click to enter text.

Amount past due: Click 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 to enter text.

Amount past due: Click to enter text.

Section 13. Attachments (Instructions Page 33)

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

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

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

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

☐ Attachment 1 for Individuals as co-applicants

☒ Other Attachments. Please specify: N/A

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: Click to enter text.

Applicant: McMullen County

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): Click to enter text.

Signatory title: Click to enter text.

Signature: James E. Teal Date: 06/23/2025
(Use blue ink)

Subscribed and Sworn to before me by the said James E. Teal
on this 23 day of June, 2025.
My commission expires on the 19 day of September, 2025.

Desiree Berlanga
Notary Public

[SEAL]
Desiree Berlanga
My Commission Expires
9/19/2028
Notary ID135099088

MCMULLEN
County, Texas

DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 36)

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

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

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

C. ☐ Indicate by a check mark that the landowners list has also been provided as mailing labels in electronic format (Avery 5160).

D. Provide the source of the landowners' names and mailing addresses: Click to enter text.

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 to enter text.

Section 2. Original Photographs (Instructions Page 38)

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

- ☒ At least one original photograph of the new or expanded treatment unit location
- ☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☐ At least one photograph of the existing/proposed effluent disposal site
- ☒ A plot plan or map showing the location and direction of each photograph

Section 3. Buffer Zone Map (Instructions Page 38)

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

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

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

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

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

☒ Yes ☐ No

DOMESTIC WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: See attached - SPIF.

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:** Click to enter text.

1. Check or Money Order Number: Click to enter text.
2. Check or Money Order Amount: Click to enter text.
3. Date of Check or Money Order: Click to enter text.
4. Name on Check or Money Order: Click to enter text.
5. APPLICATION INFORMATION

   Name of Project or Site: Calliham Wastewater Treatment Plant

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

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

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Section 1. Individual Information (Instructions Page 41)

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

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

Full legal name (Last Name, First Name, Middle Initial): Click to enter text.

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

Date of Birth: Click to enter text.

Mailing Address: Click to enter text.

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

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

E-mail Address: Click to enter text.

CN: Click to enter text.

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

DOMESTIC WASTEWATER PERMIT APPLICATION 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 application 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 ☐ 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 Labels and Cross Reference List ☐ N/A ☐ Yes
(See instructions for landowner requirements)

Electronic Application Submittal ☐ Yes
(See application submittal requirements on page 23 of the instructions.)

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)

Summary of Application (in Plain Language) ☐ Yes

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 600900955		RN 101398808

SECTION II: Customer Information

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

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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

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

MCMULLEN COUNTY

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

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☒ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

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

13. Independently Owned and Operated?
☐ Yes ☐ No

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

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

501 River St.							
City	Tilden	**State**	TX	**ZIP**	78072	**ZIP + 4**	

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	judge.teal@mcmullencounty.org

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

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ 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 Core 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.)*

Calliham Wastewater Treatment Plant

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	501 River St.							
	City	Tilden	**State**	TX	**ZIP**	78072	**ZIP + 4**	
24. County								

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:			
26. Nearest City		**State**	**Nearest ZIP Code**

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

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)

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

34. Mailing Address:							
	City		**State**		**ZIP**		**ZIP + 4**
35. E-Mail Address:							

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

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	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Austin DeGaish, PE	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(346) 293-1310		( ) -	adegaish@cecinc.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:	Civil & Environmental Consultants	**Job Title:**	Project Manager
Name *(In Print):*	Austin DeGaish, PE	**Phone:**	(361) 658- 3267
Signature:		**Date:**	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

For any questions about this form, please contact the Domestic Wastewater Permitting Team at 512-239-4671.

The following information is required for all renewal, new, and amendment applications.

Section 1. Permitted or Proposed Flows (Instructions Page 42)

A. Existing/Interim I Phase

Design Flow (MGD): .02

2-Hr Peak Flow (MGD): .08

Estimated construction start date: April 1, 2026

Estimated waste disposal start date: January 31, 2027

B. Interim II Phase

Design Flow (MGD): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

C. Final Phase

Design Flow (MGD): N/A

2-Hr Peak Flow (MGD): N/A

Estimated construction start date: N/A

Estimated waste disposal start date: N/A

D. Current Operating Phase

Provide the startup date of the facility: N/A

Section 2. Treatment Process (Instructions Page 42)

A. Current Operating Phase

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, a description of *each phase* must be provided.**

CONVENTIONAL ACTIVATED SLUDGE (CAS) TREATMENT. This is one of the most widely used treatment processes used for secondary treatment of wastewater. A steel package plant for activated sludge type treatment process will be suitable for the anticipated flows and organic loadings. The influent wastewater will be pumped to a manual fine bar screen intended to capture and remove trash and debris to protect downstream processes. After the manual bar screen, flows will continue via gravity to the first rectangular bioreactor/ aeration basin. The aeration basin and digester will be split with a common wall. Aeration basin(s) will primarily remove BOD and ammonia nitrogen. The wastewater will then gravity flow to a circular clarifier for solids settling before continuing via gravity to a rectangular chlorine contact chamber with a minimum 20-minute contact time during peak flow. The solids will settle to the bottom of the clarifier creating sludge which will either be wasted to the digester or returned to the head of the plant as part of the treatment process. Additional sludge operations (i.e., sludge thickening, sludge dewatering, sludge land application, etc.) were not considered economically feasible for this size WWTP. The effluent from the chlorine contact chamber will gravity flow to a pump station for discharge via force main to an outfall at an unnamed creek approximately 1/2 mile west of the proposed WWTP site and ¾ of a mile upstream from Choke Canyon Lake. Steel package plants can either be field erected or shop fabricated. Treatment capacities typically range from 0.05 MGD to 0.5 MGD for this type of package plant which is within the range of anticipated wastewater flows.

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.**

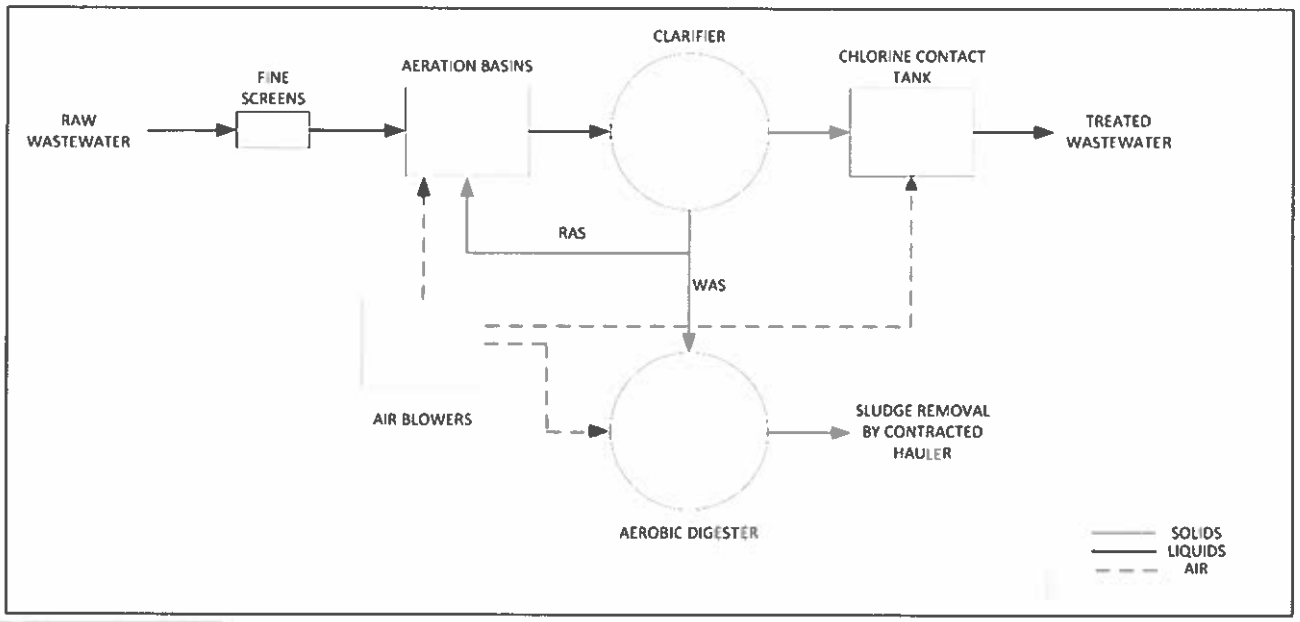
Table 1.0(1) - Treatment Units

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
Aeration Basin	2	10'x12'x10.3' SWD
Clarifier	1	12' Dia. X 10' SWD
Chlorine Contact Basin	1	6'x4'x7' SWD
Aerobic Digester	2	8'x12'x10.3' SWD

C. Process Flow Diagram

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

Attachment:



Click to enter text.

Section 3. Site Information and Drawing (Instructions Page 43)

Provide the TPDES discharge outfall latitude and longitude. Enter N/A if not applicable.

- Latitude: 28°27'10.62"N
- Longitude: 98°22'38.38"W

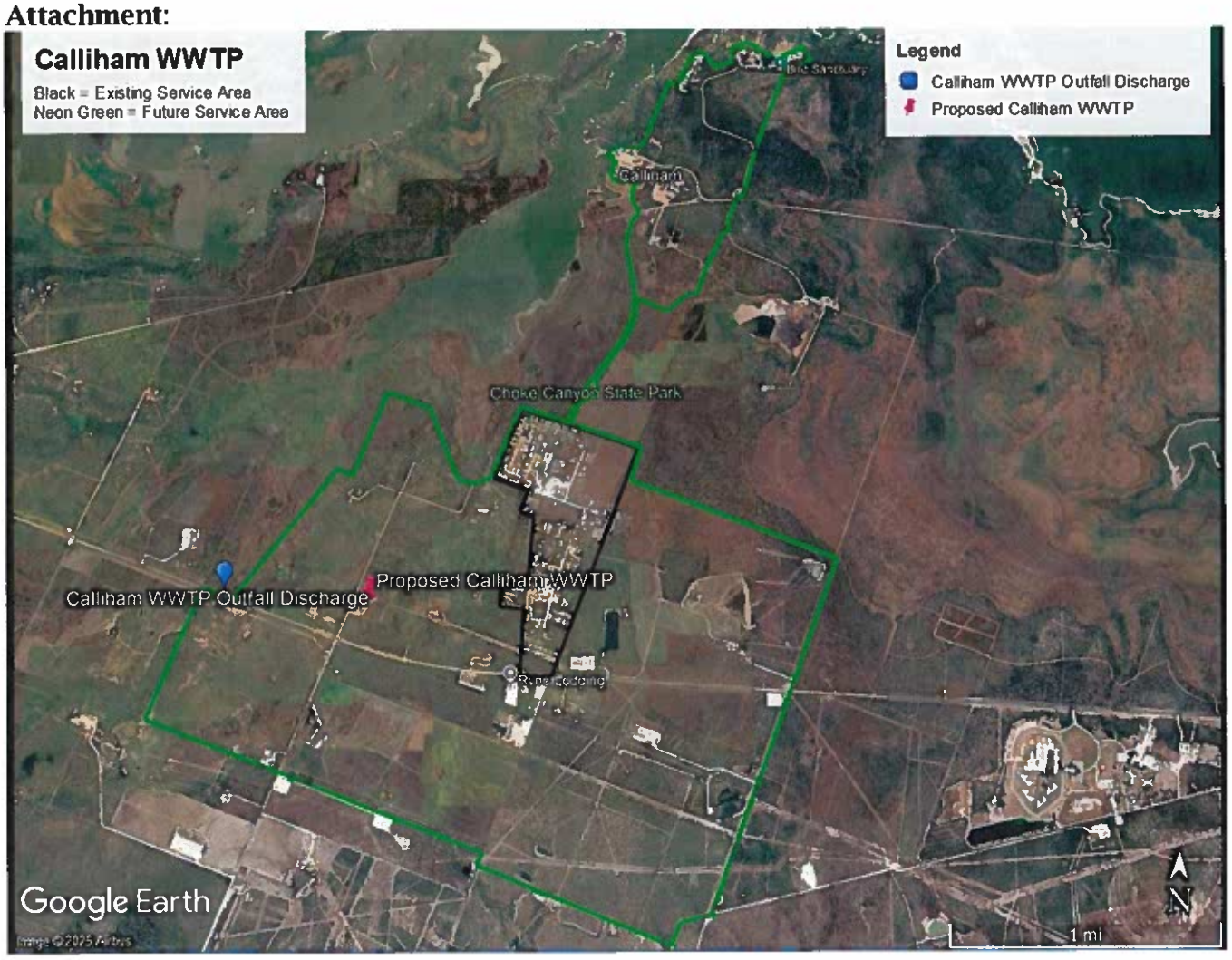
Provide the TLAP disposal site latitude and longitude. Enter N/A if not applicable.

- Latitude: N/A
- Longitude: N/A

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:


Calliham WWTP
Black = Existing Service Area
Neon Green = Future Service Area
Legend
Calliham WWTP Outfall Discharge
Proposed Calliham WWTP
Calliham
Choke Canyon State Park
Calliham WWTP Outfall Discharge
Proposed Calliham WWTP
Google Earth
1 mi
N

Click to enter text.

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

Existing Service Area: Calliham, Texas/Future Service Area Calliham, Texas & Choke Canyon Lake – Calliham Unit

Collection System Information **for wastewater TPDES permits only**: Provide information for each **uniquely owned** collection system, existing and new, served by this facility, including satellite collection systems. **Please see the instructions for a detailed explanation and examples.**

Collection System Information

Collection System Name	Owner Name	Owner Type	Population Served
Calliham	**McMullen County**	**Publicly Owned**	**250**
		Choose an item.	
		Choose an item.	
		Choose an item.	

Section 4. Unbuilt Phases (Instructions Page 44)

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.**

N/A

Section 5. Closure Plans (Instructions Page 44)

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.

N/A

Section 6. Permit Specific Requirements (Instructions Page 44)

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: N/A

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.**

N/A

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.

Treatment Feasibility Study – McMullen County – Calliham Development WWTP Evaluation report by Plummer, January 2023 that included map of WWTP facilities and associated buffer zones.

C. Other actions required by the current permit

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

☐ Yes ☒ No

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

N/A

D. Grit and grease treatment

1. Acceptance of grit and grease waste

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

☐ Yes ☒ No

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

2. ***Grit and grease processing***

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

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 512-239-2335. 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 512-239-2335.

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 to enter text. or TXRNE Click 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 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 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.

N/A

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

6. ***Request for coverage in individual permit***

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

☐ Yes ☒ No

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

N/A

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

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

If yes, attach a Sewage Sludge Solids Management Plan. See Example 5 in the instructions.
Click to enter text.

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

1. ***Acceptance of sludge from other WWTPs***

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

☐ Yes ☒ No

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

In addition, provide the date the plant started 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.

N/A

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

2. ***Acceptance of septic waste***

Is the facility accepting or will it accept septic waste?

☐ Yes ☒ No

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

☐ Yes ☒ No

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

☐ Yes ☒ No

If yes to any of the above, provide the date the plant started 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.

N/A

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 or will the facility 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.

N/A

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 49)

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). ***Water treatment facilities*** discharging filter backwash water, complete Table 1.0(3). Provide copies of the laboratory results sheets. **These tables are not applicable for a minor amendment without renewal.** See the instructions for guidance.

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

Table1.0(2) – Pollutant Analysis for Wastewater Treatment Facilities

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
$CBOD_5$, mg/l					
Total Suspended Solids, mg/l					
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l					
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l					
Chloride, mg/l					
Total Phosphorus, mg/l					
pH, standard units					
Dissolved Oxygen*, mg/l					
Chlorine Residual, mg/l					
E.coli (CFU/100ml) freshwater					
Entercocci (CFU/100ml) saltwater					
Total Dissolved Solids, mg/l					
Electrical Conductivity, µmohs/cm, †					

Oil & Grease, mg/l					
Alkalinity ($CaCO_3$)*, mg/l					

*TPDES permits only
†TLAP permits only

Table1.0(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 49)

Facility Operator Name: Kristian Freeze

Facility Operator's License Classification and Level: Wastewater Treatment Operator – Level D

Facility Operator's License Number: WW0060693

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 50)

A. WWTP's Sewage Sludge or Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☐ Design flow>= 1 MGD
- ☐ Serves >= 10,000 people
- ☐ Class I Sludge Management Facility (per 40 CFR § 503.9)
- ☐ Biosolids generator
- ☐ Biosolids end user - land application (onsite)
- ☐ Biosolids end user - surface disposal (onsite)
- ☐ Biosolids end user - incinerator (onsite)

B. WWTP's Sewage Sludge or Biosolids Treatment Process

Check all that apply. See instructions for guidance.

- ☒ Aerobic Digestion
- ☐ Air Drying (or sludge drying beds)
- ☐ Lower Temperature Composting
- ☐ Lime Stabilization
- ☐ Higher Temperature Composting

- ☐ Heat Drying
- ☐ Thermophilic Aerobic Digestion
- ☐ Beta Ray Irradiation
- ☐ Gamma Ray Irradiation
- ☐ Pasteurization
- ☐ Preliminary Operation (e.g. grinding, de-gritting, blending)
- ☐ Thickening (e.g. gravity thickening, centrifugation, filter press, vacuum filter)
- ☐ Sludge Lagoon
- ☐ Temporary Storage (< 2 years)
- ☐ Long Term Storage (>= 2 years)
- ☐ Methane or Biogas Recovery
- ☐ Other Treatment Process: Click to enter text.

C. Sewage Sludge or Biosolids Management

Provide information on the *intended* sewage sludge or biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the permit will authorize all sewage sludge or biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

Biosolids Management

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Other	Off-site Third-Party Handler or Preparer	Bulk		N/A: Transported to another facility for further processing	N/A: Trasporrted to another facility for further processing
Storage	On-Site Owner or Operator	Bulk		Class B: PSRP Aerobic Digestion	N/A: Transported to antoher facility for further processing
Choose an item.	Choose an item.	Choose an item.		Choose an item.	Choose an item.

If "Other" is selected for Management Practice, please explain (e.g. monofill or transport to another WWTP): Wasted sludge that is removed from the clarifier will be sent to a digester or sludge holding tank. Due to smaller flows, onsite processing of sludge would be cost prohibitive. Offsite hauling and disposal of sludge is the most suitable option. The County will arrange an agreement with a licensed sludge hauler for sludge disposal. The licensed sludge hauler will connect to digester or sludge holding tank via outlet with valve (quick connect) at the bottom of the basin,

pump out the sludge, and haul it offsite. The sludge disposal site is dependent on which sludge hauler is contracted.

D. Disposal site

Disposal site name: To Be Determined – Dependent upon which licensed sludge hauler is contracted.

TCEQ permit or registration number: To Be Determined – Dependent upon which licensed sludge hauler is contracted.

County where disposal site is located: To Be Determined – Dependent upon which licensed sludge hauler is contracted.

E. Transportation method

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

Name of the hauler: To Be Determined – Dependent upon which licensed sludge hauler is contracted.

Hauler registration number: To Be Determined – Dependent upon which licenses sludge hauler is contracted.

Sludge is transported as a:

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

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 52)

A. Beneficial use authorization

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

☐ Yes ☒ No

If yes, are you requesting to continue this authorization to land apply biosolids 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 Biosolids	☐ 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 53)

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 to enter text.
- USDA Natural Resources Conservation Service Soil Map:

  Attachment: Click to enter text.
- Federal Emergency Management Map:

  Attachment: Click to enter text.
- Site map:

  Attachment: Click 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 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 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 to enter text.

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

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

Phosphorus, mg/kg: Click to enter text.

Potassium, mg/kg: Click to enter text.

pH, standard units: Click to enter text.

Ammonia Nitrogen mg/kg: Click to enter text.

Arsenic: Click to enter text.

Cadmium: Click to enter text.

Chromium: Click to enter text.

Copper: Click to enter text.

Lead: Click to enter text.

Mercury: Click to enter text.

Molybdenum: Click to enter text.

Nickel: Click to enter text.

Selenium: Click to enter text.

Zinc: Click to enter text.

Total PCBs: Click to enter text.

Provide the following information:

Volume and frequency of sludge to the lagoon(s): Click to enter text.

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

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

D. Site development plan

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

Click to enter text.

Attach the following documents to the application.

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

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

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

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

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

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

  Attachment: Click 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 to enter text.

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 54)

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 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 to enter text.

Section 13. RCRA/CERCLA Wastes (Instructions Page 55)

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 to enter text.

Section 14. Laboratory Accreditation (Instructions Page 55)

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: To Be Determined.

Title:

Signature: _____

Date: _____

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.1

The following information is required for new and amendment major applications.

Section 1. Justification for Permit (Instructions Page 56)

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.

Currently, for the Calliham service area, McMullen County stores wastewater in a wet well prior to transporting the wastewater to Tilden, Texas for treatment and disposal. McMullen County is interested in evaluating the option for an onsite wastewater treatment plant (WWTP) and discharging treated effluent to facilitate possible future expansion while mitigating the annual cost of transporting wastewater for treatment. Calliham currently consists of approximately 80 connections in the service area. Of these 80 connections, approximately 70 are single family homes and 10 are RVs. Current average flow is 9,083 gpd derived from the average septage hauling rate provided by NRA for the period of February 2022 through May 2022 attached as Appendix B. This value was rounded up to 10,000 gpd for design purposes. In the future, the service boundary is anticipated to be expanded to include the Choke Canyon State Park which will contribute an additional 5,000 gpd wastewater. Due to future unknown wastewater contributions, a 5,000 gpd buffer was added to the design flow for a total design flow of 20,000 gpd. The design flow of 20,000 gpd will also allow NRA to go up to 15,000 gpd without triggering TCEQ's 75/90 rule. TCEQ's 75/90 rule outlines that once you exceed 75% of the design capacity, the next wastewater phase should begin design and once 90% of the design capacity is reached, the next wastewater phase should begin construction.

B. Regionalization of facilities

For additional guidance, please review TCEQ's Regionalization Policy for Wastewater Treatment[1].

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 to enter text.

If yes, attach correspondence from the city.

Attachment: Click 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 to enter text.

[1] https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater

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 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 and collection systems that includes each permittee's name and permit number, and an area map showing the location of these facilities and collection systems.

Attachment: Click to enter text.

If yes, attach proof of mailing a request for service to each facility and collection system, the letters requesting service, and correspondence from each facility and collection system.

Attachment: Click to enter text.

If the facility or collection system agrees to provide service, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the facility or collection system versus the cost of the proposed facility or expansion.

Attachment: Click to enter text.

Section 2. Proposed Organic Loading (Instructions Page 58)

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): Click to enter text.

Average Influent Organic Strength or BOD_5 Concentration in mg/l: Click to enter text.

Average Influent Loading (lbs/day = total average flow X average BOD_5 conc. X 8.34): Click to enter text.

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

Click to enter text.

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 BOD5 Concentration (mg/l)
Municipality	.02	250
Subdivision		
Trailer park - transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, 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	.02	250
AVERAGE BOD_5 from all sources	.02	250

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 58)

A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: 250

Total Suspended Solids, mg/l: 250

Ammonia Nitrogen, mg/l: 40

Total Phosphorus, mg/l: See "Other" below

Dissolved Oxygen, mg/l: See "Other" below

Other: NRA collected influent wastewater samples on 10/18/2022, which showed BOD_5, TSS, and NH_3-N values lower than expected. The lab report is provided in Appendix C and summarized in the below table. TCEQ for BOD_5 and NH_3-N respectively unless historical organic loading information is available. Although the grab sample indicated low BOD_5, the TCEQ minimum of 250 mg/l was assumed since no historical organic loading data is available. Additionally, the unknown organic loadings of future annexations to the existing wastewater service area are accounted for with the higher design organic loadings. Therefore, Plummer recommends using the Design Organic Loading parameters presented in Table 1 to determine feasibility. An extended regiment of continuous influent wastewater sampling would be required to justify design organic loadings lower than the TCEQ minimum requirements.

B. Interim II Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: N/A

Total Suspended Solids, mg/l: N/A

Ammonia Nitrogen, mg/l: N/A

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: N/A

Other: N/A

C. Final Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: N/A

Total Suspended Solids, mg/l: N/A

Ammonia Nitrogen, mg/l: N/A

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: N/A

Other: N/A

D. Disinfection Method

Identify the proposed method of disinfection.

☒ Chlorine: Click to enter text. mg/l after 22.6 minutes detention time at peak flow

Dechlorination process: Click to enter text.

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

☐ Other: Click to enter text.

Section 4. Design Calculations (Instructions Page 58)

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

Attachment: See attachment – Design Calculations

Section 5. Facility Site (Instructions Page 59)

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 to enter text.

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

FEMA Flood Map Service Center

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: N/A

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

B. Wind rose

Attach a wind rose: See attached.

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 59)

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)**: Click 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 the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)**: Click to enter text.

Section 7. Sewage Sludge Solids Management Plan (Instructions Page 60)

Attach a solids management plan to the application.

Attachment: Click to enter text.

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 WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

Section 1. Domestic Drinking Water Supply (Instructions Page 63)

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

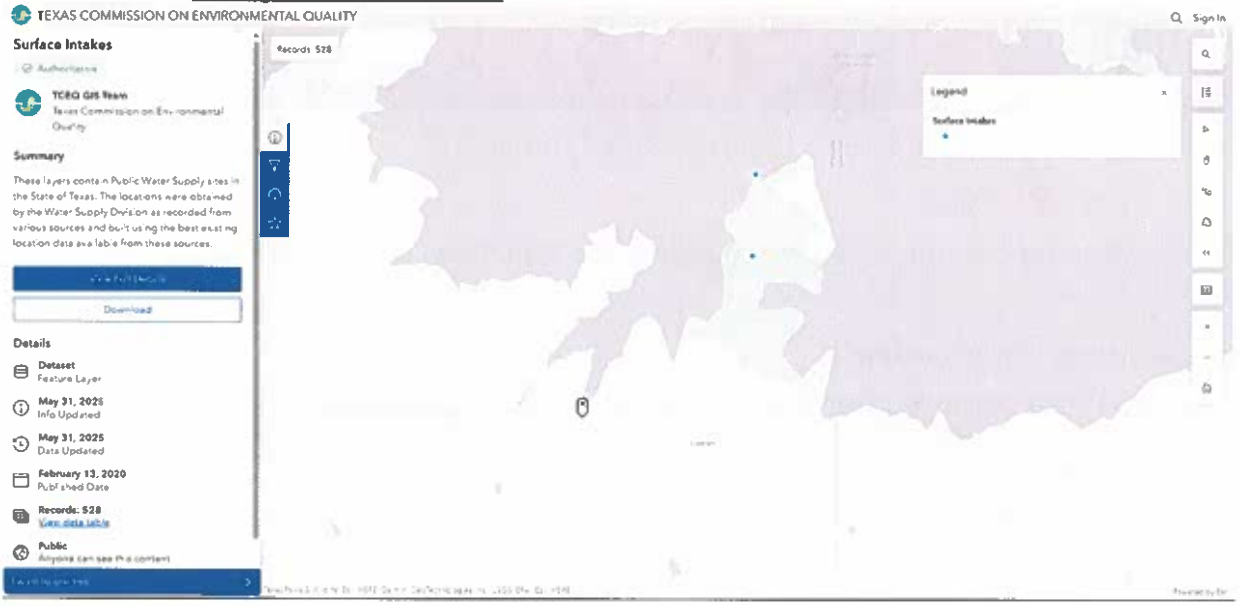
If **no**, proceed it Section 2. **If yes**, provide the following:

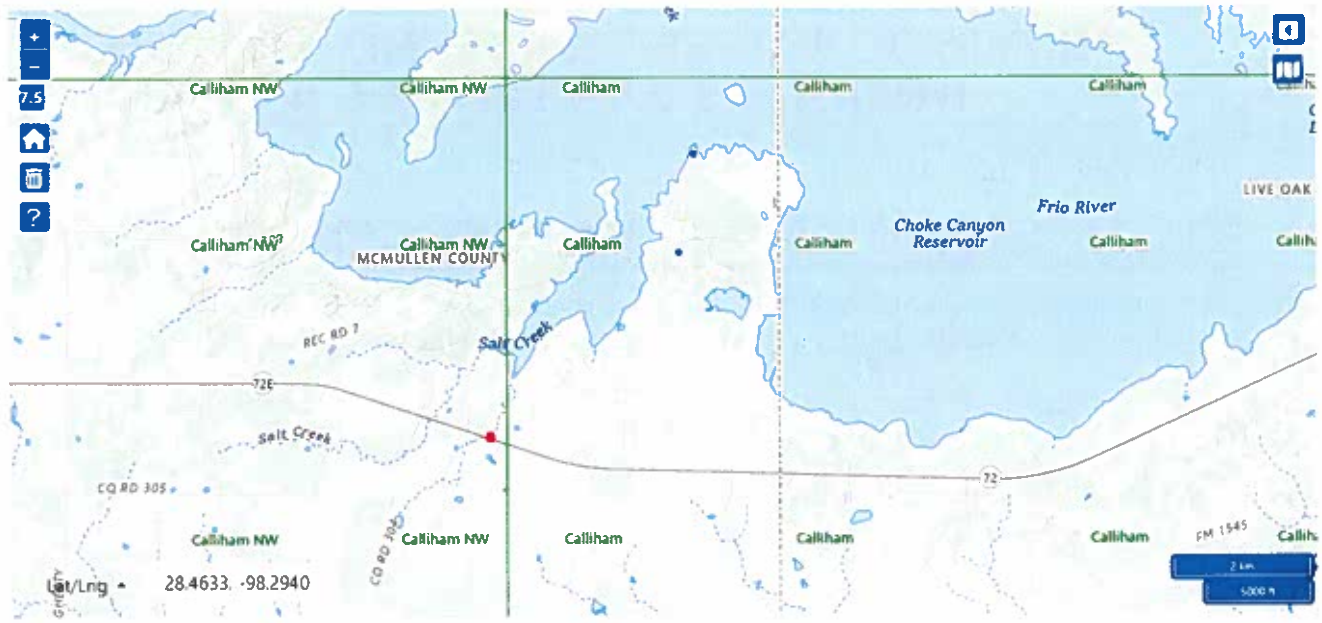
Owner of the drinking water supply: TPWD – Choke Canyon State Park – Intake 1 Camp & Intake 3 - Plant

Distance and direction to the intake: Intake 1 Camp 3.1 Miles NE; Intake 3 Plant 2.4 Miles NE

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

Attachment: TCEQ – Surface Intakes





Section 2. Discharge into Tidally Affected Waters (Instructions Page 63)

Does the facility discharge into tidally affected waters?

☐ Yes ☒ No

If **no**, proceed to Section 3. **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 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 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 to enter text.

Section 3. Classified Segments (Instructions Page 63)

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 63)

Name of the immediate receiving waters: Choke Canyon Lake

A. Receiving water type

Identify the appropriate description of the receiving waters.

☐ Stream

☐ Freshwater Swamp or Marsh

☒ Lake or Pond

Surface area, in acres: 25670

Average depth of the entire water body, in feet: Maximum Depth 95.5 feet when full

Average depth of water body within a 500-foot radius of discharge point, in feet: 0 Feet – The discharge point is located at an elevation above the conservation pool elevation of the lake

☐ Man-made Channel or Ditch

☐ Open Bay

☐ Tidal Stream, Bayou, or Marsh

☐ Other, specify: Click 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: Google Earth Aerial Imagery shows a dry swale leading from the proposed discharge point to the maximum limits of the lake's shoreline

C. Downstream perennial confluences

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

Frio River; Salt 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.

Click to enter text.

E. Normal dry weather characteristics

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

Choke Canyon has a conservation pool elevation of 220.5 feet msl and normally fluctuates 10-20 feet depending upon drought conditions or hurricane rain events.

Date and time of observation: June 11, 2025

Was the water body influenced by stormwater runoff during observations?

☐ Yes ☒ No

Section 5. General Characteristics of the Waterbody (Instructions Page 65)

A. Upstream influences

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

☒ Oil field activities
☐ Urban runoff
☐ Upstream discharges
☒ Agricultural runoff
☐ Septic tanks
☐ Other(s), specify: Click to enter text.

B. Waterbody uses

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

- ☒ Livestock watering
- ☐ Irrigation withdrawal
- ☐ Fishing
- ☐ Domestic water supply
- ☐ Park activities
- ☐ Contact recreation
- ☐ Non-contact recreation
- ☐ Navigation
- ☐ Industrial water supply
- ☐ Other(s), specify: Click to enter text.

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 WASTEWATER PERMIT APPLICATION 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 65)

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

Stream name: Click to enter text.

Location: Click to enter text.

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

☐ Perennial ☐ Intermittent with perennial pools

Section 2. Data Collection (Instructions Page 65)

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

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

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

Number of riffles: Click to enter text.

Evidence of flow fluctuations (check one):

☐ Minor ☐ moderate ☐ severe

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

Click to enter text.

Stream transects

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

Table 2.1(1) - Stream Transect Records

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

Section 3. Summarize Measurements (Instructions Page 65)

Streambed slope of entire reach, from USGS map in feet/feet: Click to enter text.

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

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

Number of lateral transects made: Click to enter text.

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

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

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

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

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

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

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

The following is required for renewal, new, and amendment permit applications.

Section 1. Type of Disposal System (Instructions Page 67)

Identify the method of land disposal:

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

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

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

Section 2. Land Application Site(s) (Instructions Page 67)

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

Table 3.0(1) – Land Application Site Crops

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

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 67)

Table 3.0(2) – Storage and Evaporation Ponds

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

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

Attachment: Click to enter text.

Section 4. Flood and Runoff Protection (Instructions Page 67)

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

☐ Yes ☐ No

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

Click to enter text.

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

Click to enter text.

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

Click to enter text.

Section 5. Annual Cropping Plan (Instructions Page 67)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment**: Click to enter text.

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

Section 6. Well and Map Information (Instructions Page 68)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment**: Click to enter text.

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

List and cross reference all water wells located within a half-mile radius of the disposal site or property boundaries shown on the USGS map in the following table. Attach additional pages as necessary to include all of the wells.

Table 3.0(3) – Water Well Data

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

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

Attachment: Click to enter text.

Section 7. Groundwater Quality (Instructions Page 68)

Attach a Groundwater Quality Technical Report which assesses the impact of the wastewater disposal system on groundwater. This report shall include an evaluation of the water wells (including the information in the well table provided in Item 6. above), the wastewater application rate, and pond liners. Indicate by a check mark that this report is provided.

Attachment: Click to enter text.

Are groundwater monitoring wells available onsite? ☐ Yes ☐ No

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

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

Attachment: Click to enter text.

Section 8. Soil Map and Soil Analyses (Instructions Page 69)

A. Soil map

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

Attachment: Click to enter text.

B. Soil analyses

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

Attachment: Click to enter text.

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

Table 3.0(4) – Soil Data

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number

Section 9. Effluent Monitoring Data (Instructions Page 70)

Is the facility in operation?

☐ Yes ☐ No

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

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

Table 3.0(5) – Effluent Monitoring Data

Date	30 Day Avg Flow MGD	BOD5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

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

Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.1: SURFACE LAND DISPOSAL OF EFFLUENT

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

Section 1. Surface Disposal (Instructions Page 71)

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

A. Irrigation

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

Design application frequency:

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

Land grade (slope):

average percent (%): Click to enter text.

maximum percent (%): Click to enter text.

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

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

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

Method of application: Click to enter text.

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

Attachment: Click to enter text.

B. Evaporation ponds

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

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

Attachment: Click to enter text.

C. Evapotranspiration beds

Number of beds: Click to enter text.

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

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

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

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

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

Attachment: Click to enter text.

D. Overland flow

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

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

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

Slope length, in feet: Click to enter text.

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

Design application frequency:

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

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

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 72)

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

☐ Yes ☐ No

If **yes**, is the facility located on the Edwards Aquifer Recharge Zone?

☐ Yes ☐ No

If yes, attach a geological report addressing potential recharge features.

Attachment: Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.2: SURFACE LAND DISPOSAL OF EFFLUENT

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

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

Section 1. Subsurface Application (Instructions Page 73)

Identify the type of system:

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

Application area, in acres: Click to enter text.

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

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

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

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

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

Number of beds: Click to enter text.

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

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

Storage volume, in gallons: Click to enter text.

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

Soil Classification: Click to enter text.

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

Attachment: Click to enter text.

Section 2. Edwards Aquifer (Instructions Page 73)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.3: SUBSURFACE AREA DRIP DISPERSAL (SADDS) LAND DISPOSAL OF EFFLUENT

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

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

Section 1. Administrative Information (Instructions Page 74)

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

B. Click to enter text. Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

☐ Yes ☐ No

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

Click to enter text.

C. Owner of the subsurface area drip dispersal system: Click to enter text.

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

☐ Yes ☐ No

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

Click to enter text.

E. Owner of the land where the subsurface area drip dispersal system is located: Click to enter text.

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

☐ Yes ☐ No

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

Click to enter text.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 74)

A. Type of system

- ☐ Subsurface Drip Irrigation
- ☐ Surface Drip Irrigation
- ☐ Other, specify: Click to enter text.

B. Irrigation operations

Application area, in acres: Click to enter text.

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

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

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

Storage volume, in gallons: Click to enter text.

Major soil series: Click to enter text.

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

C. Application rate

Is the facility located **west** of the boundary shown in *30 TAC § 222.83* **and** also using a vegetative cover of non-native grasses over seeded with cool season grasses during the winter months (October-March)?

☐ Yes ☐ No

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

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

☐ Yes ☐ No

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

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

☐ Yes ☐ No

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

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

D. Dosing information

Number of doses per day: Click to enter text.

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

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

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

Number of zones: Click to enter text.

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

☐ Yes ☐ No

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

Attachment: Click to enter text.

Section 3. Required Plans (Instructions Page 74)

A. Recharge feature plan

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

Attachment: Click to enter text.

B. Soil evaluation

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

Attachment: Click to enter text.

C. Site preparation plan

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

Attachment: Click to enter text.

D. Soil sampling/testing

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

Attachment: Click to enter text.

Section 4. Floodway Designation (Instructions Page 75)

A. Site location

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

☐ Yes ☐ No

B. Flood map

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

Attachment: Click to enter text.

Section 5. Surface Waters in the State (Instructions Page 75)

A. Buffer Map

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

Attachment: Click to enter text.

B. Buffer variance request

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

☐ Yes ☐ No

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

Attachment: Click to enter text.

Section 6. Edwards Aquifer (Instructions Page 75)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 4.0: POLLUTANT ANALYSIS 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 minor amendments without renewal.

Section 1. Toxic Pollutants (Instructions Page 76)

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

Grab ☐ Composite ☐

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

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
Aldrin				0.01
Aluminum				2.5
Anthracene				10
Antimony				5
Arsenic				0.5
Barium				3
Benzene				10
Benzidine				50
Benzo(a)anthracene				5
Benzo(a)pyrene				5
Bis(2-chloroethyl)ether				10
Bis(2-ethylhexyl)phthalate				10
Bromodichloromethane				10
Bromoform				10
Cadmium				1
Carbon Tetrachloride				2
Carbaryl				5
Chlordane*				0.2
Chlorobenzene				10
Chlorodibromomethane				10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Chloroform				10
Chlorpyrifos				0.05
Chromium (Total)				3
Chromium (Tri) **(*1)**				N/A
Chromium (Hex)				3
Copper				2
Chrysene				5
p-Chloro-m-Cresol				10
4,6-Dinitro-o-Cresol				50
p-Cresol				10
Cyanide **(*2)**				10
4,4'- DDD				0.1
4,4'- DDE				0.1
4,4'- DDT				0.02
2,4-D				0.7
Demeton (O and S)				0.20
Diazinon				0.5/0.1
1,2-Dibromoethane				10
m-Dichlorobenzene				10
o-Dichlorobenzene				10
p-Dichlorobenzene				10
3,3'-Dichlorobenzidine				5
1,2-Dichloroethane				10
1,1-Dichloroethylene				10
Dichloromethane				20
1,2-Dichloropropane				10
1,3-Dichloropropene				10
Dicofol				1
Dieldrin				0.02
2,4-Dimethylphenol				10
Di-n-Butyl Phthalate				10
Diuron				0.09
Endosulfan I (alpha)				0.01

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan II (beta)				0.02
Endosulfan Sulfate				0.1
Endrin				0.02
Epichlorohydrin				---
Ethylbenzene				10
Ethylene Glycol				---
Fluoride				500
Guthion				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclohexane (alpha)				0.05
Hexachlorocyclohexane (beta)				0.05
gamma-Hexachlorocyclohexane (Lindane)				0.05
Hexachlorocyclopentadiene				10
Hexachloroethane				20
Hexachlorophene				10
4,4'-Isopropylidenediphenol				1
Lead				0.5
Malathion				0.1
Mercury				0.005
Methoxychlor				2
Methyl Ethyl Ketone				50
Methyl tert-butyl ether				---
Mirex				0.02
Nickel				2
Nitrate-Nitrogen				100
Nitrobenzene				10
N-Nitrosodiethylamine				20
N-Nitroso-di-n-Butylamine				20
Nonylphenol				333

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Parathion (ethyl)				0.1
Pentachlorobenzene				20
Pentachlorophenol				5
Phenanthrene				10
Polychlorinated Biphenyls (PCB's) (*3)				0.2
Pyridine				20
Selenium				5
Silver				0.5
1,2,4,5-Tetrachlorobenzene				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Thallium				0.5
Toluene				10
Toxaphene				0.3
2,4,5-TP (Silvex)				0.3
Tributyltin (see instructions for explanation)				0.01
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
2,4,5-Trichlorophenol				50
TTHM (Total Trihalomethanes)				10
Vinyl Chloride				10
Zinc				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: Click to enter text.

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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Antimony				5
Arsenic				0.5
Beryllium				0.5
Cadmium				1
Chromium (Total)				3
Chromium (Hex)				3
Chromium (Tri) **(*1)**				N/A
Copper				2
Lead				0.5
Mercury				0.005
Nickel				2
Selenium				5
Silver				0.5
Thallium				0.5
Zinc				5
Cyanide **(*2)**				10
Phenols, Total				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
Acrylonitrile				50
Benzene				10
Bromoform				10
Carbon Tetrachloride				2
Chlorobenzene				10
Chlorodibromomethane				10
Chloroethane				50
2-Chloroethylvinyl Ether				10
Chloroform				10
Dichlorobromomethane [Bromodichloromethane]				10
1,1-Dichloroethane				10
1,2-Dichloroethane				10
1,1-Dichloroethylene				10
1,2-Dichloropropane				10
1,3-Dichloropropylene [1,3-Dichloropropene]				10
1,2-Trans-Dichloroethylene				10
Ethylbenzene				10
Methyl Bromide				50
Methyl Chloride				50
Methylene Chloride				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Toluene				10
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
Vinyl Chloride				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
2,4-Dichlorophenol				10
2,4-Dimethylphenol				10
4,6-Dinitro-o-Cresol				50
2,4-Dinitrophenol				50
2-Nitrophenol				20
4-Nitrophenol				50
P-Chloro-m-Cresol				10
Pentalchlorophenol				5
Phenol				10
2,4,6-Trichlorophenol				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
Acenaphthylene				10
Anthracene				10
Benzidine				50
Benzo(a)Anthracene				5
Benzo(a)Pyrene				5
3,4-Benzofluoranthene				10
Benzo(ghi)Perylene				20
Benzo(k)Fluoranthene				5
Bis(2-Chloroethoxy)Methane				10
Bis(2-Chloroethyl)Ether				10
Bis(2-Chloroisopropyl)Ether				10
Bis(2-Ethylhexyl)Phthalate				10
4-Bromophenyl Phenyl Ether				10
Butyl benzyl Phthalate				10
2-Chloronaphthalene				10
4-Chlorophenyl phenyl ether				10
Chrysene				5
Dibenzo(a,h)Anthracene				5
1,2-(o)Dichlorobenzene				10
1,3-(m)Dichlorobenzene				10
1,4-(p)Dichlorobenzene				10
3,3-Dichlorobenzidine				5
Diethyl Phthalate				10
Dimethyl Phthalate				10
Di-n-Butyl Phthalate				10
2,4-Dinitrotoluene				10
2,6-Dinitrotoluene				10
Di-n-Octyl Phthalate				10
1,2-Diphenylhydrazine (as Azo-benzene)				20
Fluoranthene				10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Fluorene				10
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclo-pentadiene				10
Hexachloroethane				20
Indeno(1,2,3-cd)pyrene				5
Isophorone				10
Naphthalene				10
Nitrobenzene				10
N-Nitrosodimethylamine				50
N-Nitrosodi-n-Propylamine				20
N-Nitrosodiphenylamine				20
Phenanthrene				10
Pyrene				10
1,2,4-Trichlorobenzene				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
alpha-BHC (Hexachlorocyclohexane)				0.05
beta-BHC (Hexachlorocyclohexane)				0.05
gamma-BHC (Hexachlorocyclohexane)				0.05
delta-BHC (Hexachlorocyclohexane)				0.05
Chlordane				0.2
4,4-DDT				0.02
4,4-DDE				0.1
4,4,-DDD				0.1
Dieldrin				0.02
Endosulfan I (alpha)				0.01
Endosulfan II (beta)				0.02
Endosulfan Sulfate				0.1
Endrin				0.02
Endrin Aldehyde				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
PCB-1242				0.2
PCB-1254				0.2
PCB-1221				0.2
PCB-1232				0.2
PCB-1248				0.2
PCB-1260				0.2
PCB-1016				0.2
Toxaphene				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 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 to enter text.

C. 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 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 PeCDD	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 HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					0.5
PCB 81	0.0003					0.5
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

The following **is required** for facilities with a current operating design flow of **1.0 MGD or greater**, with an EPA-approved **pretreatment** program (or those required to have one under 40 CFR Part 403), or are required to perform Whole Effluent Toxicity testing. See Page 86 of the instructions for further details.

This worksheet is not required minor amendments without renewal.

Section 1. Required Tests

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

7-day Chronic: Click to enter text.

48-hour Acute: Click to enter text.

Section 2. Toxicity Reduction Evaluations (TREs)

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

☐ Yes ☐ No

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

Click to enter text.

Section 3. Summary of WET Tests

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

Table 5.0(1) Summary of WET Tests

Test Date	Test Species	NOEC Survival	NOEC Sub-lethal

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following **is required** for **all publicly owned treatment works.**

Section 1. All POTWs (Instructions Page 87)

A. Industrial users (IUs)

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: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

Significant IUs - non-categorical:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

Other IUs:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

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 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 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 87)

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 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 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 to enter text.

Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 88)

A. General information

Company Name: Click to enter text.

SIC Code: Click to enter text.

Contact name: Click to enter text.

Address: Click to enter text.

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

Telephone number: Click to enter text.

Email address: Click 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 to enter text.

C. Product and service information

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

Click 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 to enter text.

Discharge Type: ☐ Continuous ☐ Batch ☐ Intermittent

Non-Process Wastewater:

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

Click or tap here to enter text. Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click 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 to enter text.

WORKSHEET 7.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit the completed form to:

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

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

Section 1. General Information (Instructions Page 90)

1. **TCEQ Program Area**

   Program Area (PST, VCP, IHW, etc.): Click to enter text.

   Program ID: Click to enter text.

   Contact Name: Click to enter text.

   Phone Number: Click to enter text.

2. **Agent/Consultant Contact Information**

   Contact Name: Click to enter text.

   Address: Click to enter text.

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

   Phone Number: Click to enter text.

3. **Owner/Operator Contact Information**

   ☐ Owner ☐ Operator

   Owner/Operator Name: Click to enter text.

   Contact Name: Click to enter text.

   Address: Click to enter text.

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

   Phone Number: Click to enter text.

4. **Facility Contact Information**

   Facility Name: Click to enter text.

   Address: Click to enter text.

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

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

   Facility Contact Person: Click to enter text.

   Phone Number: Click to enter text.

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

Latitude: Click to enter text.

Longitude: Click to enter text.

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

Attach topographic quadrangle map as attachment A.

6. **Well Information**

Type of Well Construction, select one:

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

Number of Injection Wells: Click to enter text.

7. **Purpose**

Detailed Description regarding purpose of Injection System:

Click to enter text.

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

8. **Water Well Driller/Installer**

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

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

Phone Number: Click to enter text.

License Number: Click to enter text.

Section 2. Proposed Down Hole Design

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

Table 7.0(1) – Down Hole Design Table

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

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

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

System(s) Dimensions: Click to enter text.

System(s) Construction: Click to enter text.

Section 4. Site Hydrogeological and Injection Zone Data

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

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

   Name: Click to enter text.

   Thickness: Click to enter text.
8. Provide a list of contaminants and the levels (ppm) in contaminated aquifer

   Attach as Attachment E.
9. Horizontal and Vertical extent of contamination and injection plume

   Attach as Attachment F.
10. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc.

    Attach as Attachment G.
11. Injection Fluid Chemistry in PPM at point of injection

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

Section 5. Site History

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

NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can begin. Attach additional pages as necessary.

Class V Injection Well Designations

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL 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)

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

Do not refer to your response to any item in the permit application form. Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: McMullen County

   Permit No. WQ00 New EPA ID No. TX New

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

   28 Degrees 27 Minutes 09.27 Seconds NORTH | 98 Degrees 22 Minutes 04.58 Seconds West 0.17 Miles Northeast of the Intersection of State Highway 72 and County Road 302 near Calliham in McMullen County, Texas

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: Austin DeGaish

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

Title: Project Manager

Mailing Address: 400 Mann St. STE. 505

City, State, Zip Code: Corpus Christi, TX 78401

Phone No.: 3462931310 Ext.: Click here to enter text Fax No.: Click here to enter text

E-mail Address: adegaish@cecinc.com

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

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.

The proposed point of discharge will be located 0.5 miles west of the intersection of Highway 72 and County Road 302, at the northern (westbound side) of the Highway 72 right-of-way. From there, the effluent will travel into Choke Canyon Lake for which there is no identified classified stream segment.

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

1. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

Proposed WWTP site will be located on existing 5.6-acre tract already in use for truck hauling of wastewater. It is assumed that there could be construction impact upon this entire tract. In addition, the outfall line will likely disturb approximately 1.7 acres along the proposed discharge line route. Total surface area 7.3 acres. Depth of excavation will vary from a few inches for surface clearing and grubbing to several feet for pipeline trenches. We are not aware of any caves or other karst features.

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

Existing disturbances include gravel access road for haul trucks at the site and county and state highway roadways. Vegetation consists of sparce grasses, brush and trees.

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

3. List construction dates of all buildings and structures on the property:

Existing wastewater collection wet wells and haul truck access roads were designed in 2014-2015 and constructed in 2016.

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

Existing wastewater collection wet wells and haul truck access roads were designed in 2014-2015 and constructed in 2016. Engineer of Record was Brian Longworth, P.E. No. 106144 with Halff Associates, Inc.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER

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

McMullen County (CN#600900955) proposes to operate Calliham WWTP (RN1011398808), a Wastewater Treatment Plant. The facility will be located at Highway 72 & County Road 302, in Calliham, McMullen County, Texas 78007. The proposed Calliham Wastewater Treatment Plant is in McMullen County, Texas. The location of the Calliham service area is south of Choke Canyon Reservoir State Park and north of State Highway 72 within McMullen County. Nueces River Authority will be responsible for operating the new system registered with the Texas Commission on Environmental Quality (TCEQ). The existing wet well is located at the intersection of SH 72 and County Rd 302, on a County owned 10-acre parcel. The County confirmed that this area can be used for future WWTP planning. Currently, for the Calliham service area, McMullen County stores wastewater in a wet well prior to transporting the wastewater to Tilden, Texas for treatment and disposal. McMullen County is interested in evaluating the option for an onsite wastewater treatment plant (WWTP) and discharging the treated wastewater into a creek leading into Choke Canyon Lake while mitigating the annual cost of transporting wastewater for treatment..

Discharges from the facility are expected to contain treated domestic wastewater effluent. Domestic wastewater will be treated by a steel package plant for the activated sludge type treatment process which would be suitable for the anticipated flows and organic loadings. The influent wastewater will be pumped to a manual fine bar screen intended to capture and remove trash and debris to protect downstream processes. The manual bar screen will then gravity flow to the first rectangular bioreactor/ aeration basin. The aeration basin and digester will be split with a common wall. Aeration basin(s) will primarily remove BOD and ammonia nitrogen. The wastewater will then gravity flow to a circular clarifier for solids settling before continuing via gravity to a rectangular chlorine contact chamber with a minimum 20-minute contact time during peak flow. The solids will settle to the bottom of the clarifier creating sludge which will either be wasted to the digester or returned to the head of the plant as part of the treatment process.

CURRENT AND FUTURE FLOWS

Calliham currently consists of approximately 80 connections in the service area. Of these 80 connections, approximately 70 are single family homes and 10 are RVs. Current average flow is 9,083 gpd derived from the average septage hauling rate provided by NRA for the period of February 2022 through May 2022 attached as Appendix B. This value was rounded up to 10,000 gpd for design purposes.

In the future, the service boundary is anticipated to be expanded to include the Choke Canyon State Park which will contribute an additional 5,000 gpd wastewater. Due to future unknown wastewater contributions, a

5,000 gpd buffer was added to the design flow for a total design flow of 20,000 gpd. The design flow of 20,000 gpd will also allow NRA to go up to 15,000 gpd without triggering TCEQ's 75/90 rule. TCEQ's 75/90 rule outlines that once you exceed 75% of the design capacity, the next wastewater phase should begin design and once 90% of the design capacity is reached, the next wastewater phase should begin construction.

WET WEATHER FLOWS

In the absence of site-specific data, a peaking factor of 4.0 is assumed per TCEQ Chapter 217, Subchapter B, and Rule 217.32(B) to determine the corresponding instantaneous 2-hour peak flow of 80,000 gpd.

WATER QUALITY

NRA collected influent wastewater samples on 10/18/2022, which showed BOD5, TSS, and NH3-N values lower than expected. The lab report is provided in Appendix C and summarized in the below table. TCEQ 30 TAC §217.32(a)(3) lists the minimum design requirements for a new WWTP as 250 mg/l and for BOD5 and NH3-N respectively unless historical organic loading information is available. Although the grab sample indicated low BOD5, the TCEQ minimum of 250 mg/l was assumed since no historical organic loading data is available. Additionally, the unknown organic loadings of future annexations to the existing wastewater service area are accounted for with the higher design organic loadings. Therefore, Plummer recommends using the Design Organic Loading parameters presented in Table 1 to determine feasibility. An extended regiment of continuous influent wastewater sampling would be required to justify design organic loadings lower than the TCEQ minimum requirements.

Table 1: Summary of Influent Wastewater Flow and Design Parameters

Parameter	Design Organic Loading	Grab Sample Organic Loading	Min TCEQ Design Organic Loading
Flow, gpd	20,000	-	-
BOD_5, mg/L (lbs/d)	250 (42)	48	250
TSS, mg/L (lbs/d)	250 (42)	204	-
NH_3-N, mg/L (lbs/d)	40 (10)	23	15

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

AGUAS RESIDUALES DOMESTICAS /AGUAS PLUVIALES

El siguiente resumen se presenta para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas, según lo exige el Título 30 del Código Administrativo de Texas (TAC), Capítulo 39. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no constituye una declaración federalmente vinculante de la misma. El Condado de McMullen (CN#600900955) propone operar la Planta de Tratamiento de Aguas Residuales Calliham (RN1011398808). La instalación estará ubicada en la Carretera 72 y la Carretera del Condado 302, en Calliham, Condado de McMullen, Texas 78007. La Planta de Tratamiento de Aguas Residuales de Calliham propuesta se encuentra en el Condado de McMullen, Texas. El área de servicio de Calliham se encuentra al sur del Parque Estatal Choke Canyon Reservoir y al norte de la Carretera Estatal 72, dentro del Condado de McMullen. La Autoridad del Río Nueces será responsable de la operación del nuevo sistema registrado ante la Comisión de Calidad Ambiental de Texas (TCEQ). El pozo húmedo existente se encuentra en la intersección de la SH 72 y County Rd 302, en una parcela de 10 acres propiedad del Condado. El Condado confirmó que esta área puede utilizarse para la planificación futura de la PTAR. Actualmente, para el área de servicio de Calliham, el Condado de McMullen almacena las aguas residuales en un pozo húmedo antes de transportarlas a Tilden, Texas, para su tratamiento y eliminación. El Condado de McMullen está interesado en evaluar la opción de una planta de tratamiento de aguas residuales (PTAR) in situ y descargar las aguas residuales tratadas en un arroyo que desemboca en el lago Choke Canyon, mitigando así el costo anual de transporte de aguas residuales para su tratamiento. Se espera que las descargas de la instalación contengan efluentes de aguas residuales domésticas tratadas. Las aguas residuales domésticas se tratarán en una planta de tratamiento de paquetes de acero mediante el proceso de lodos activados, adecuado para los caudales y las cargas orgánicas previstos. Las aguas residuales del afluente se bombearán a una rejilla manual de barras finas, diseñada para capturar y eliminar residuos y proteger los procesos posteriores. La rejilla manual fluirá por gravedad hacia el primer biorreactor/depósito de aireación rectangular. El depósito de aireación y el digestor estarán separados por una pared común. El/los depósito(s) de aireación eliminarán principalmente la DBO y el nitrógeno amoniacal. Las aguas residuales fluirán por gravedad a un clarificador circular para la sedimentación de sólidos, antes de continuar por gravedad a una cámara rectangular de contacto con cloro, con un tiempo de contacto mínimo de 20 minutos durante el flujo máximo. Los sólidos sedimentarán en el fondo del clarificador, creando lodos que se descargarán en el digestor o se devolverán a la cabecera de la planta como parte del proceso de tratamiento.

CAUDALES ACTUALES Y FUTUROS Calliham cuenta actualmente con aproximadamente 80 conexiones en su área de servicio. De estas, aproximadamente 70 corresponden a viviendas unifamiliares y 10 a vehículos recreativos. El caudal promedio actual es de 9083 gpd, derivado de la tasa promedio de transporte de aguas sépticas proporcionada por la NRA para el período de febrero a mayo de 2022, que se adjunta como Apéndice B. Este valor se redondeó a 10 000 gpd para fines de diseño. En el futuro, se prevé ampliar el límite de servicio para incluir el Parque Estatal Choke Canyon, que aportará 5000 gpd adicionales de aguas residuales. Debido a futuras contribuciones desconocidas de aguas residuales, se añadió un margen de 5000 gpd al caudal de diseño, para un caudal total de diseño de 20 000 gpd. El caudal de diseño de 20,000 gpd también permitirá a la NRA alcanzar 15,000 gpd sin activar la regla 75/90 de la TCEQ. Esta regla establece que, una vez superado el 75% de la capacidad de diseño, se debe iniciar el diseño de la siguiente fase de aguas residuales, y una vez alcanzado el 90% de la capacidad de diseño, se debe iniciar la construcción de la siguiente fase de aguas residuales. CAUDALES EN TIEMPO HÚMEDO A falta de datos específicos del sitio, se asume un factor de pico de 4.0, según el Capítulo 217, Subcapítulo B, y la Regla 217.32(B) de la TCEQ, para determinar el caudal pico instantáneo correspondiente a 2 horas de 80,000 gpd. CALIDAD DEL AGUA La NRA recolectó muestras de aguas residuales del afluente el 18/10/2022, que mostraron valores de DBO5, SST y NH3-N inferiores a los esperados. El informe de laboratorio se incluye en el Apéndice C y se resume en la tabla a continuación. TCEQ para DBO5 y NH3-N respectivamente, a menos que se disponga de información histórica sobre la carga orgánica. Si bien la muestra al azar indicó una DBO5 baja, se asumió el mínimo de 250 mg/l de la TCEQ, ya que no se dispone de datos históricos sobre la carga

orgánica. Además, las cargas orgánicas desconocidas de futuras anexiones al área de servicio de aguas residuales existente se contabilizan con las cargas orgánicas de diseño más altas. Por lo tanto, Plummer recomienda utilizar los parámetros de Carga Orgánica de Diseño que se presentan en la Tabla 1 para determinar la viabilidad. Se requeriría un programa extendido de muestreo continuo de aguas residuales de afluentes para justificar cargas orgánicas de diseño inferiores a los requisitos mínimos de la TCEQ.

Tabla 1: Resumen del Caudal de Aguas Residuales de Afluentes y Parámetros de Diseño

Parameter	Design Organic Loading	Grab Sample Organic Loading	Min TCEQ Design Organic Loading
Flow, gpd	20,000	-	-
BOD_5, mg/L (lbs/d)	250 (42)	48	250
TSS, mg/L (lbs/d)	250 (42)	204	-
NH_3-N, mg/L (lbs/d)	40 (10)	23	15

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

☒ New Permit or Registration Application

☐ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☒ Requires public notice,

☒ Considered to have significant public interest, **and**

☒ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.

☐ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☒ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☒ Texas Pollutant Discharge Elimination System (TPDES)

- ☐ Texas Land Application Permit (TLAP)
- ☐ State Only Concentrated Animal Feeding Operation (CAFO)
- ☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

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

Section 4. Plain Language Summary

Provide a brief description of planned activities.

A steel package plant for activated sludge type treatment process will be constructed be for the anticipated flows and organic loadings. The influent wastewater will be pumped to a manual fine bar screen intended to capture and remove trash and debris to protect downstream processes. The manual bar screen then gravity flows to the first rectangular bioreactor/ aeration basin. The aeration basin and digester are split with a common wall. Aeration basin(s) will primarily remove BOD and ammonia nitrogen. The wastewater will then gravity flow to a circular clarifier for solids settling before continuing via gravity to a rectangular chlorine contact chamber with a minimum 20-minute contact time during peak flow. The solids will settle to the bottom of the clarifier creating sludge which will either be wasted to the digester or returned to the head of the plant as part of the treatment process. The effluent from the chlorine contact chamber will then gravity flow to the discharge location

Section 5. Community and Demographic Information

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

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

Calliham

(City)

McMullen

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

☐ City ☒ County ☐ Census Tract

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

44.1%

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

Median Household Income in McMullen County, Texas = $45,833

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

McMullen County: Total Population 2020 Census = 600
1 American Indian = 0.17% | 3 Asian = 0.5% | 3 Black = 0.5% | 224 Hispanic = 37.3% | 5 Hawaiian/Pacific Islander = 0.83% | 353 White = 58.8% | 25 Other = 4.2%

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

Language Spoken at Home: English 87.9% | Spanish 12.1%

(e) Languages commonly spoken in area by percentage

Language Spoken at Home: English 87.9% | Spanish 12.1%

(f) Community and/or Stakeholder Groups

Calliham Community
Choke Canyon Lake - Calliham Unit

(g) Historic public interest or involvement

Choke Canyon Lake

Section 6. Planned Public Outreach Activities

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

☒ Yes ☐ No

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

☐ Yes ☒ No

If Yes, please describe.

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

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

☐ Yes ☐ No

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

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

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

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

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

☒ Yes ☐ No

What types of notice will be provided?

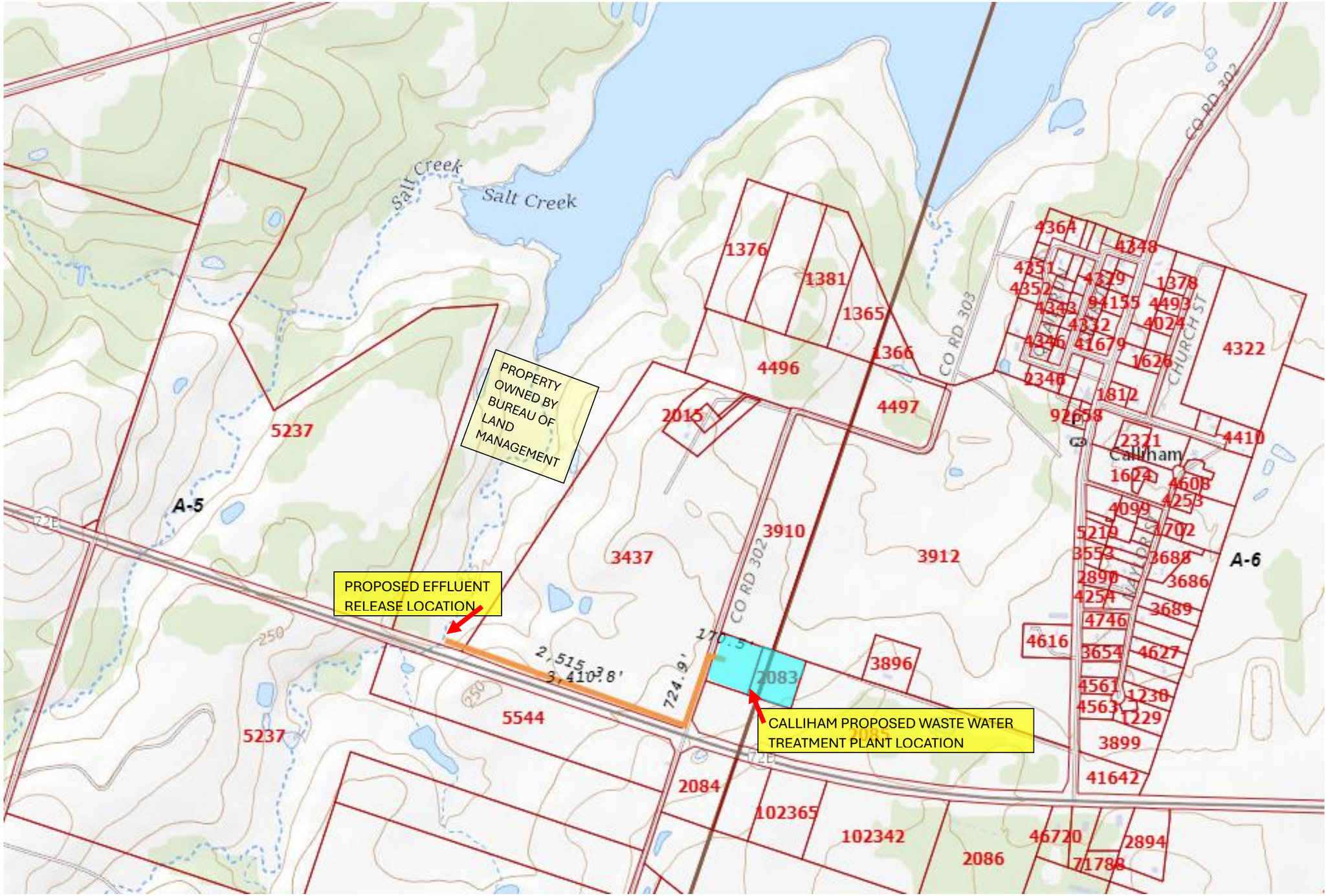
☒ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☑ Other (specify) Posted at McMullen County Courthouse
Posted in local newspaper

CALLIHAM PROPOSED TREATED WASTE WATER EFFLUENT RELEASE LOCATION

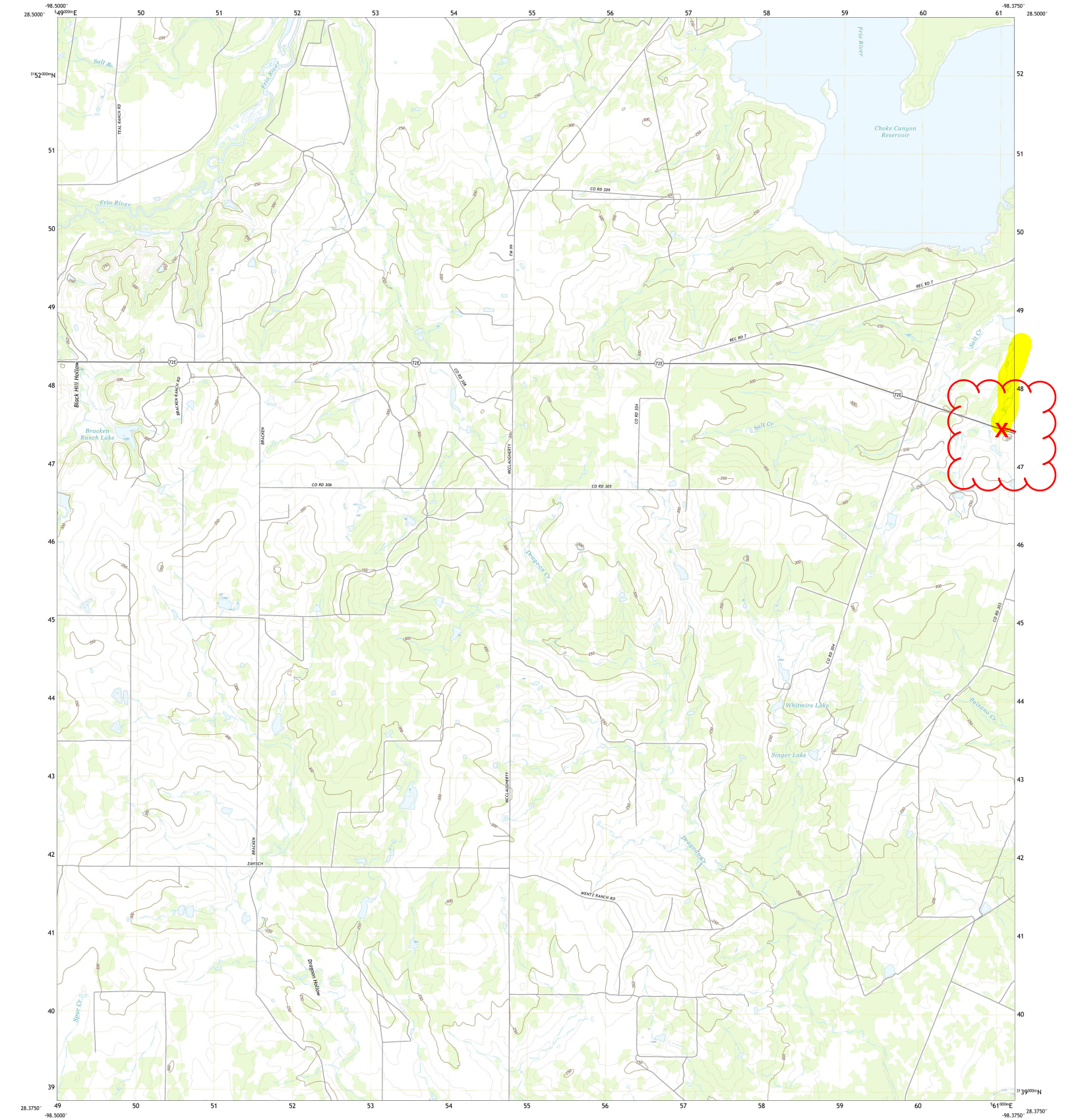


Proposed effluent release site is approximately 3,500 feet from the proposed Calliham waste water treatment plant. The next creek west is about 3,000 feet on a private landowner.

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

The National Map US Topo

CALLIHAM NW QUADRANGLE
TEXAS - MCMULLEN COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R

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, October 2016 - December 2016
Roads.....U.S. Census Bureau, 2015
Names.....GNIS, 2000 - 2015
Hydrography.....National Hydrography Dataset, 2002 - 2020
Contours.....National Elevation Dataset, 2021
Boundaries.....Multiple sources; see metadata file 2019 - 2021

Wetlands.....FWS National Wetlands Inventory Not Available

MN
GN
4°8'
73 MILS
0°16'
9 MILS
UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

SCALE 1:24 000

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

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Cross
2 Crowther
3 Willow Hollow Tank
4 Tilden
5 Calliham
6 Fitzpatrick Hollow
7 San Caja Hill
8 Live Oak Hollow

ROAD CLASSIFICATION

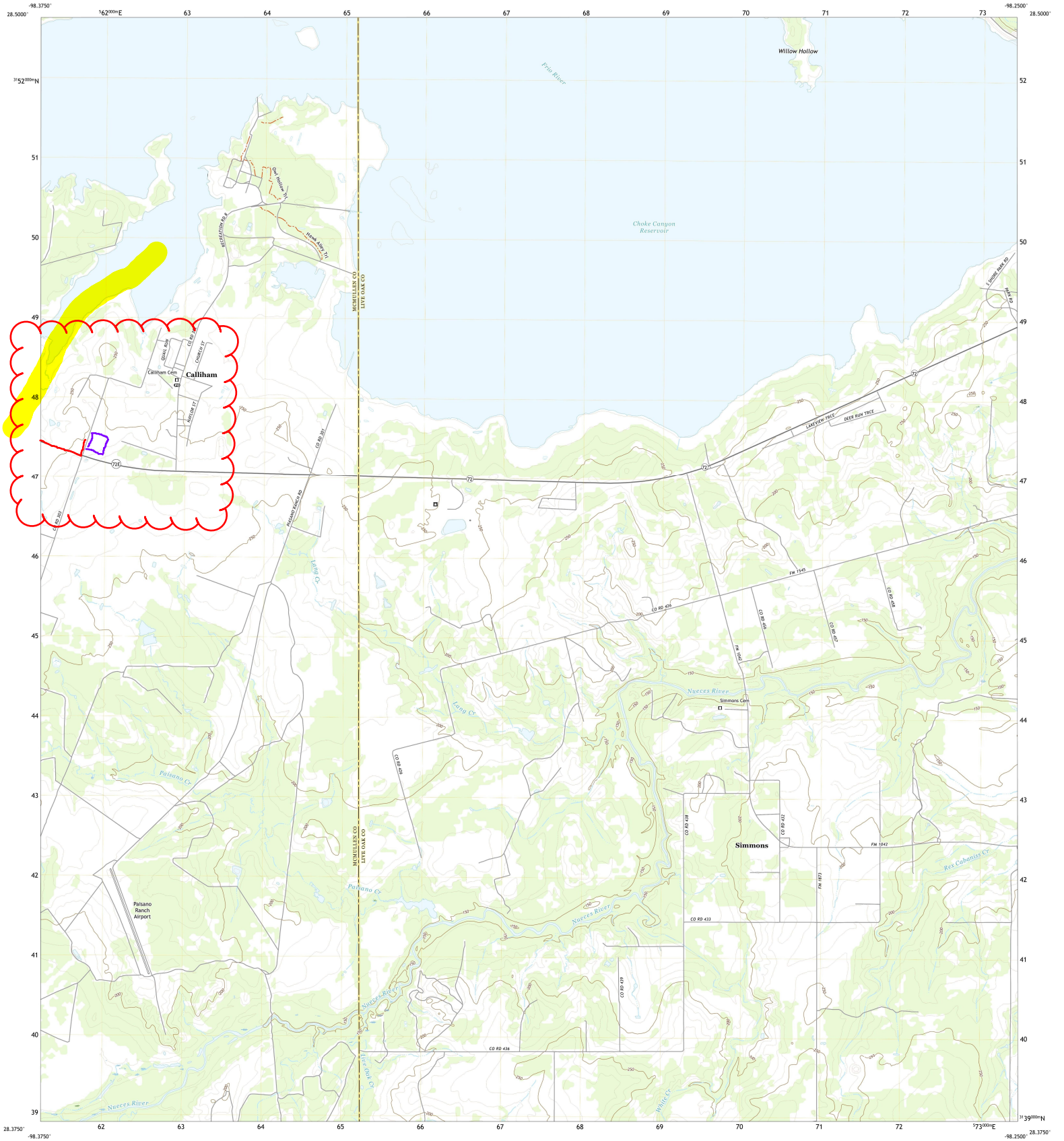
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

CALLIHAM NW, TX
2022

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

The National Map US Topo

CALLIHAM QUADRANGLE
TEXAS
7.5-MINUTE SERIES



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Imagery.....NAIP, October 2016 - December 2016
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Wetlands.....FWS National Wetlands Inventory Not Available

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

MN
GN
4°2'
72 MILS
9°20'
6 MILS

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

SCALE 1:24 000

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

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Crowther
2 Willow Hollow Tank
3 Comanche Hills
4 Calliham NW
5 Three Rivers
6 San Caja Hill
7 Live Oak Hollow
8 Oakville SW

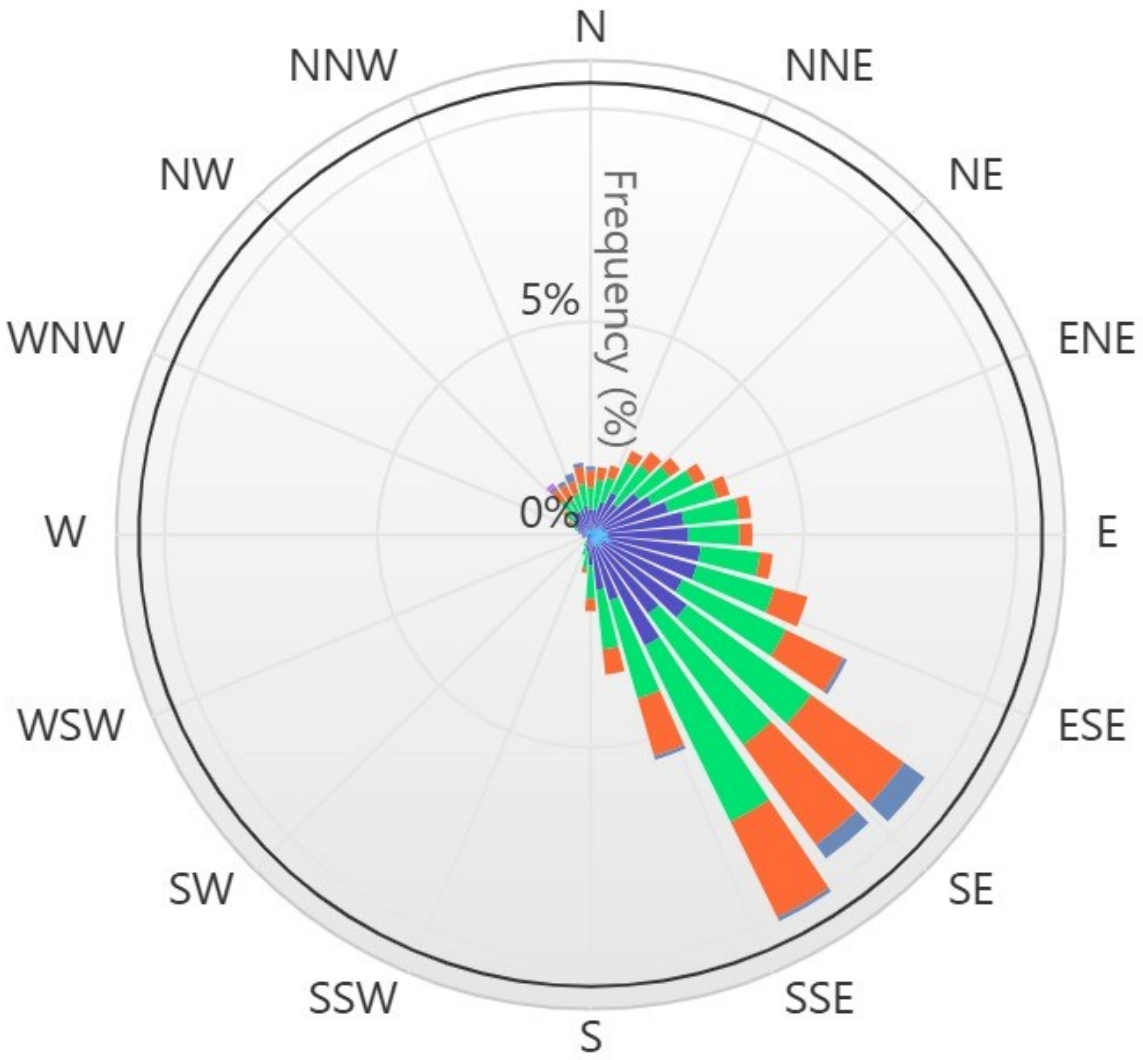
ROAD CLASSIFICATION

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

CALLIHAM, TX
2022

COTULLA LA SALLE COUNTY AP (TX) Wind Rose

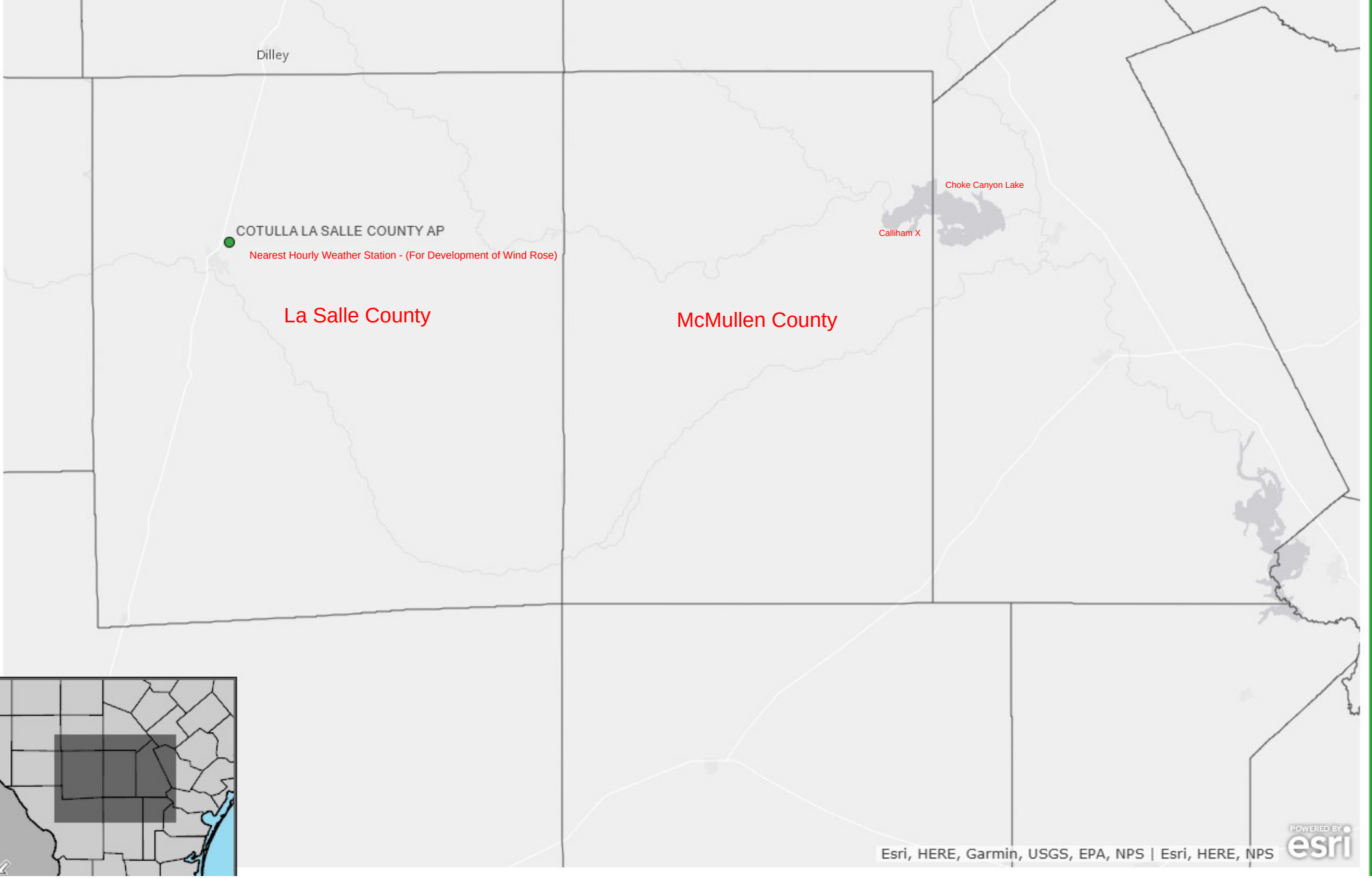
June 27, 2024 - June 26, 2025
Sub-Interval: January 1 - December 31, 0 - 24



Wind Speed (mph)

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

Click and drag to zoom


Dilley
COTULLA LA SALLE COUNTY AP
Nearest Hourly Weather Station - (For Development of Wind Rose)
La Salle County
McMullen County
Choke Canyon Lake
Calliham X
Esri, HERE, Garmin, USGS, EPA, NPS | Esri, HERE, NPS

THIS STUDY WAS PERFORMED BY ANOTHER ENGINEER UNDER AN EARLIER SEPARATE PROFESSIONAL SERVICES AGREEMENT AND IS BEING INCLUDED HERE FOR REFERENCE.

McMullen County

Treatment Feasibility Study

McMullen County Calliham Development WWTP Evaluation

FOR REFERENCE

January 2023

Project #: 0495-007-01

PLUMMER

Treatment Feasibility Study
McMullen County

0495-007-01
January 19, 2023

Version {Final}

Plummer: 6300 La Calma Dr. Suite 400 | Austin, TX 78752

Prepared By: Suparna Mukhopadhyay, PE
Ryan Byrd, PE

Reviewed By: Mary Portillo, PE
Meg Pierce-Walsh

THIS STUDY WAS PERFORMED BY ANOTHER ENGINEER UNDER AN EARLIER SEPARATE PROFESSIONAL SERVICES AGREEMENT AND IS BEING INCLUDED HERE FOR REFERENCE.

2023.01.19

PLUMMER

TABLE OF CONTENTS

LIST OF TABLES

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

LIST OF FIGURES

APPENDICES

LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
BOD	Biological Oxygen Demand
BRT	Bioreactor Tank
CAS	Conventional Activated Sludge
CCT	Chlorine Contact Tank
CN	Curve Number
FST	Final Settling Tank
gpd	Gallons Per Day
MGD	Million Gallons per Day
NRA	Nueces River Authority
NRCS	Natural Resources Conservation Service
PFD	Process Flow Diagram
RVs	Recreational Vehicles
SFBBR	Submerged Fixed-Bed Biofilm Reactor
SHT	Sludge Holding Tank
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TLAP	Texas Land Application Permit
WWTP	Wastewater Treatment Plant

1 INTRODUCTION

The Nueces River Authority (NRA) has contracted Plummer to evaluate the feasibility of on-site wastewater treatment and land application for the Calliham service area in McMullen County, Texas. This feasibility study provides a summary of wastewater treatment options, regulatory considerations, and cost considerations for the land application of treated wastewater.

This study outlines design parameters, the Texas Commission on Environmental Quality (TCEQ) requirements, and TCEQ's Texas Administrative Code (TAC).

1.1 PROJECT BACKGROUND

Currently, for the Calliham service area, McMullen County stores wastewater in a wet well prior to transporting the wastewater to Tilden, Texas for treatment and disposal. McMullen County is interested in evaluating the option for an onsite wastewater treatment plant (WWTP) and land applying the treated wastewater to facilitate possible future expansion while mitigating the annual cost of transporting wastewater for treatment.

This conceptual feasibility study demonstrates the feasibility of treating wastewater at an onsite WWTP and land applying the treated wastewater on nearby/adjacent parcels.

1.2 PROJECT LOCATION

The location of the Calliham service area is south of Choke Canyon Reservoir State Park and north of State Highway 72 within McMullen County depicted in Figure 1. The existing wet well is located at the intersection of SH 72 and County Rd 302, on a County owned 10-acre parcel. The County confirmed that this area can be used for future WWTP planning. The proposed onsite WWTP location and the existing and proposed future service area boundaries are presented in Appendix A. The existing service area is a mix of single-family homes and recreational vehicles (RVs).

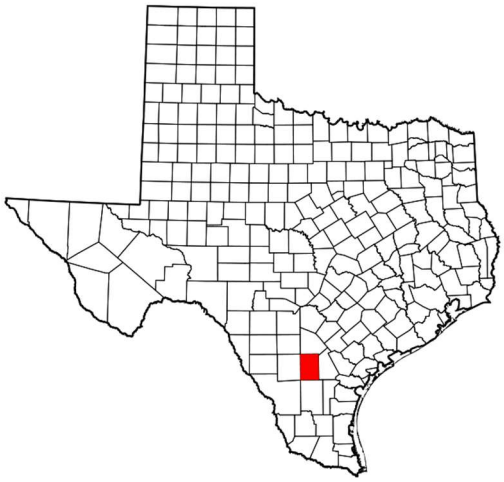


Figure 1: McMullen County, TX

2 WASTEWATER FLOWS AND ORGANIC LOADINGS

The treatment feasibility evaluation is based on current wastewater flows, future wastewater flow assumptions, and wastewater organic loading design assumptions.

2.1 CURRENT AND FUTURE FLOWS

Calliham currently consists of approximately 80 connections in the service area. Of these 80 connections, approximately 70 are single family homes and 10 are RVs. Current average flow is 9,083 gpd derived from the average septage hauling rate provided by NRA for the period of February 2022 through May 2022 attached as Appendix B. This value was rounded up to 10,000 gpd for design purposes.

In the future, the service boundary is anticipated to be expanded to include the Choke Canyon State Park which will contribute an additional 5,000 gpd wastewater. Due to future unknown wastewater contributions, a 5,000 gpd buffer was added to the design flow for a total design flow of 20,000 gpd. The design flow of 20,000 gpd will also allow NRA to go up to 15,000 gpd without triggering TCEQ's 75/90 rule. TCEQ's 75/90 rule outlines that once you exceed 75% of the design capacity, the next wastewater phase should begin design and once 90% of the design capacity is reached, the next wastewater phase should begin construction.

2.2 WET WEATHER FLOWS

In the absence of site-specific data, a peaking factor of 4.0 is assumed per TCEQ Chapter 217, Subchapter B, and Rule 217.32(B) to determine the corresponding instantaneous 2-hour peak flow of 80,000 gpd.

2.3 WATER QUALITY

NRA collected influent wastewater samples on 10/18/2022, which showed BOD_5, TSS, and NH_3-N values lower than expected. The lab report is provided in Appendix C and summarized in the below table. TCEQ 30 TAC §217.32(a)(3) lists the minimum design requirements for a new WWTP as 250 mg/l and 15 mg/l for BOD_5 and NH_3-N respectively unless historical organic loading information is available. Although the grab sample indicated low BOD_5, the TCEQ minimum of 250 mg/l was assumed since no historical organic loading data is available. Additionally, the unknown organic loadings of future annexations to the existing wastewater service area are accounted for with the higher design organic loadings. Therefore, Plummer recommends using the Design Organic Loading parameters presented in Table 1 to determine feasibility. An extended regiment of continuous influent wastewater sampling would be required to justify design organic loadings lower than the TCEQ minimum requirements.

Table 1: Summary of Influent Wastewater Flow and Design Parameters

Parameter	Design Organic Loading	Grab Sample Organic Loading	Min TCEQ Design Organic Loading
Flow, gpd	20,000	-	-
BOD_5, mg/L (lbs/d)	250 (42)	48	250
TSS, mg/L (lbs/d)	250 (42)	204	-
NH_3-N, mg/L (lbs/d)	40 (10)	23	15

3 REGULATORY AND PERMITTING CONSIDERATIONS

There are key regulatory requirements applicable to future wastewater operations at the onsite WWTP and land application site. These requirements are outlined in the TCEQ's Texas Administrative Code.

3.1 WASTEWATER TREATMENT REGULATORY CONSIDERATIONS

The TCEQ is the permitting and governing authority for the permitting, construction, and operation of wastewater treatment facilities within the State of Texas. Key TCEQ requirements pertaining to wastewater treatment facilities are that agencies wishing to construct and operate such facilities must:

- Obtain and comply with all requirements of Texas Land Application (TLAP) permit; and
- Construct treatment facilities in accordance with TCEQ's 30 TAC §217, Design Criteria.
- Land apply in compliance with TCEQ's 30 TAC §309.12 and §309.20 requirements.

It is intended that all new WWTP facilities be designed in accordance with design requirements of the latest version of 30 TAC §217. If any variations are proposed, the engineer of record (EOR) will submit and coordinate the variance request with TCEQ for review and approval.

3.2 WATER QUALITY

Plummer will assist in applying to TCEQ for a new domestic wastewater permit. While TCEQ review will determine the final effluent flow and effluent pollutant limitations, in the application for permit the County may propose the suggested effluent limits presented in **Table 2**. These suggested effluent limits are currently TCEQ's standard effluent pollutant limits for wastewater discharge permits. Note the TCEQ has included less stringent effluent pollutant limits in NRA's Leakey Regional Wastewater Treatment Facility TLAP (Permit No. WQ0015083001).

Table 2: Suggested Effluent Limits for Proposed WWTP

Flow	BOD_5 mg/L	TSS mg/L	NH_3-N mg/L	DO mg/L
Influent	250	250	40	-
Effluent	10	15	3	6

3.3 LAND APPLICATION REGULATORY AND PERMITTING APPLICABILITY

The TCEQ regulates land application of effluent under 30 TAC §309.20 and provides siting considerations for the land application area in 30 TAC §309.13. Land application of treated wastewater is required to be permitted under a TLAP, which is a state-issued permit that identifies the associated regulatory requirements and conditions for disposal by land application. The owner/operator of the land application site is required to demonstrate compliance with land application requirements by conducting a water balance and water storage study and by operating within the conditions of the TLAP. Water balance and water storage results are included in Section 6. Additional design and engineering requirements beyond those introduced in this report are required prior to land application approvals as outlined in 30 TAC §309.20.

4 INFLUENT LIFT STATION

McMullen County currently collects all the wastewater from the service area at a wet well northeast of the CR 302 and Hwy 72 intersection. The consolidated wastewater is then pumped and hauled to be treated offsite. Part of this study is to evaluate the feasibility of converting the wet well into a functioning influent lift station for the future onsite WWTP.

4.1 LIFT STATION CONVERSION

The existing wet well is 6-ft in diameter and 25-ft deep. The inflow invert is approximately 12-ft measured from the bottom of the wet well to the inflow invert. The anticipated peak flow, average flow x peaking factor of 4, is 55.6 gpm. The peak flow was rounded up to 60 gpm for pumping considerations and a minimum run time of 10 minutes was assumed which exceeds the minimum TCEQ minimum run time of 6 minutes for pumps less than 50 HP.

For a 60-gpm pump with a minimum run time of 10 minutes, the minimum wet well volume needed per TCEQ is 21 ft^3 which equates to a height of 0.8-ft with the existing 6-ft diameter wet well. An additional height of 1.6-ft is needed in the wet well to account for height of impeller off wet well bottom, minimum submergence requirements, lag pump on, and high-water alarm conditions.

The total height needed in the existing 6-ft diameter wet well is 2.4-ft. Therefore, the existing 12-ft available from the bottom of the wet well to the inflow invert is adequate to convert the existing wet well into an influent lift station and meet TCEQ minimum requirements.

The existing 6-ft diameter wet well is also large enough to fit the necessary piping, guide rails, supports, and pumps. It is recommended to retrofit the existing wet well with a concrete pad for above ground discharge piping and valving. The below Table 3 summarizes the needed wet well height based on preliminary manufacturer requirements, Hydraulic Institute (HI) 9.8 criteria, and TCEQ minimum requirements.

Table 3: Lift Station Wet Well Summary

Description	Wet Well Height [ft]	Min Wet Well Height [ft]
Impeller Clearance	0.25	0.25
Minimum Submergence	0.35	0.35
Active Zone	0.8	0.5
Lag Zone	0.5	-
High Water Alarm	0.5	-
Total Req Wet Well Height	**2.4**	

5 WASTEWATER TREATMENT ALTERNATIVES

This section describes and summarizes the alternative wastewater treatment evaluations and development of the most appropriate wastewater treatment and sludge disposal strategies and technologies for the new onsite WWTP. The intent of this effort is to:

- Evaluate alternatives to document the basis of process selection
- Develop the treatment process flow diagram (PFD) for the wastewater treatment (including peak flow handling), and solids management

The wastewater treatment process evaluation was conducted with the intent of reviewing potentially applicable treatment processes and technologies against initial and long-term effluent water quality requirements and anticipated ammonia-nitrogen removal requirements. Both treatment alternatives have similar nutrient removal capabilities. Differences in the treatment alternatives regarding nutrient removal is discussed in subsequent sections. The criteria used to determine which treatment processes should be evaluated are as follows:

- Nutrient removal capabilities
- Ability to meet effluent quality typically required by TLAP
- Protect public health within land area receiving effluent
- Operational simplicity
- Maintenance costs

Based on these criteria and size of the WWTP, the following two treatment alternatives were evaluated for this study:

1) Conventional Activated Sludge (CAS)
2) Submerged Fixed-Bed Biofilm Reactor (SFBBR)

5.1 CONVENTIONAL ACTIVATED SLUDGE (CAS) TREATMENT

This wastewater treatment alternative is one of the most widely used treatment processes used for secondary treatment of wastewater. Figure 2 shows a process flow diagram for this option.

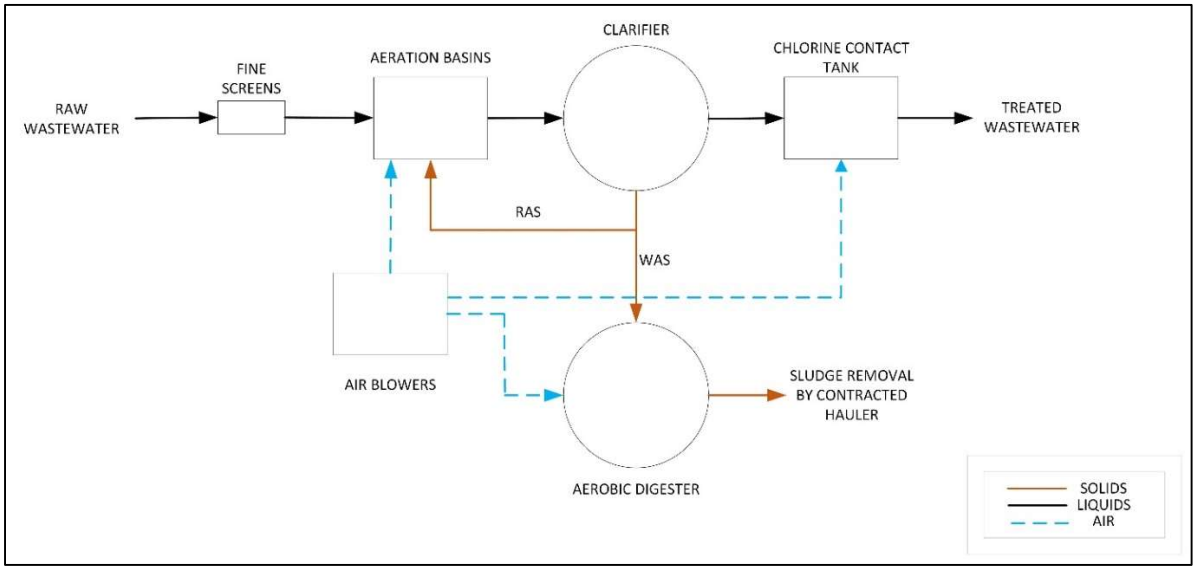


Figure 2: Process Flow Diagram - CAS

A steel package plant for activated sludge type treatment process would be suitable for the anticipated flows and organic loadings. The influent wastewater will be pumped to a manual fine bar screen intended to capture and remove trash and debris to protect downstream processes. The manual bar screen then gravity flows to the first rectangular bioreactor/ aeration basin. The aeration basin and digester are split with a common wall. Aeration basin(s) will primarily remove BOD and ammonia nitrogen.

The wastewater will then gravity flow to a circular clarifier for solids settling before continuing via gravity to a rectangular chlorine contact chamber with a minimum 20-minute contact time during peak flow. The solids will settle to the bottom of the clarifier creating sludge which will either be wasted to the digester or returned to the head of the plant as part of the treatment process. Additional sludge operations (i.e., sludge thickening, sludge dewatering, sludge land application, etc.) were not considered economically feasible for this size WWTP, thus, not considered for this study. The effluent from the chlorine contact chamber will then gravity flow to the TLAP storage pond or holding tank before being land applied.

Steel package plants can either be field erected or shop fabricated. Treatment capacities typically range from 0.05 MGD to 0.5 MGD for this type of package plant which is within the range of anticipated wastewater flows. Advantages of this type of package plant over a bullseye type package plant include ease of construction, ease of maintenance, and less construction cost based on current material pricing.

Table 4 summarizes the design criteria for the CAS treatment alternative.

Table 4: CAS Preliminary Design Criteria Summary

Parameter	Value	Unit
Aeration Basin		
Number of Basins	2	
Length	10	ft
Width	12	ft
Side water depth (SWD)	10.3	ft

Total Liquid Volume	1,236	ft^3
Aeration Equipment		
Blower type	Positive Displacement	
Blower capacity, each	250	scfm
Number of blowers	2 duty/1 standby	
Discharge pressure	7	psig
Clarifier		
Number of Basins	1	
Diameter	12	ft
Side Water Depth (SWD)	10	ft
Total Liquid Volume	1,131	ft^3
Chlorine Contact Basin		
Number of Basins	1	
Length	6	ft
Width	4	ft
Side water depth (SWD)	7	ft
Total Liquid Volume	168	ft^3
Contact time at peak flow	22.6	min
Aerobic Digester		
Number of Basins	2	
Length	8	ft
Width	12	ft
Side water depth (SWD)	10.3	ft
Total Liquid Volume	989	ft^3

Considerations for buffer zone requirements between any treatment process facility and property lines were made. There is room for potential expansion of treatment capacity in the future.

5.2 SUBMERGED FIXED BED BIOFILM (SFBBR) TREATMENT

Wastewater treatment systems using biofilms that grow attached to a support media are an alternative to the widely used suspended growth activated sludge process. SFBBRs are based on aerated submerged fixed open structured plastic media for the support of the biofilm. This treatment alternative is very similar to the CAS process description. The main differences are SFBBRs use media for attached growth and there is no return activated sludge. These plants are generally operated without sludge recirculation to avoid clogging of the media and to mitigate problems with the control of the biofilm. Instead of returning sludge from the clarifier to achieve the desired food-to-microbe (F:M) ratio, the SFBBR's fixed-film media promotes biofilm growth, which provides the microbial concentrations needed for biological treatment. The influent design parameters, along with the required treatment capacity, dictate the surface area of media required for each project. Once established, the microbes in a biofilm state become highly resilient to adverse conditions and dynamically responsive to variations in hydraulic flows and pollutant concentrations. Due to solids retention in the treatment basins as part of biofilm formation, loading on

the settling tank is drastically reduced compared to activated sludge treatment. The treatment units are simple to maintain and without recycling the operation becomes easier. Overall, this system has a lower footprint than CAS for similar sludge settling characteristics. The biofilm can simultaneously remove BOD and Nitrogen which also contributes to the smaller footprint. This treatment process has also been shown to inherently remove a portion of phosphorous loading.

The process train consists of separate basins and associated air blowers, influent manual fine screen, waste sludge transfer piping, electrical control panel, disinfection apparatus, and flow measurement equipment. Unit operations for proposed WWTP would include aerobic treatment stages for BOD removal, Nitrogen removal, and inherent Phosphorus removal. Additional basins are incorporated for final settling (with sludge and scum removal), disinfection, and aerobic sludge digestion. The treatment system will be custom designed and fabricated to meet specific discharge permit requirements. Typical materials for this type of small SFBBR include FRP and steel.

Figure 3 shows a process flow diagram for the SFBBR treatment alternative.

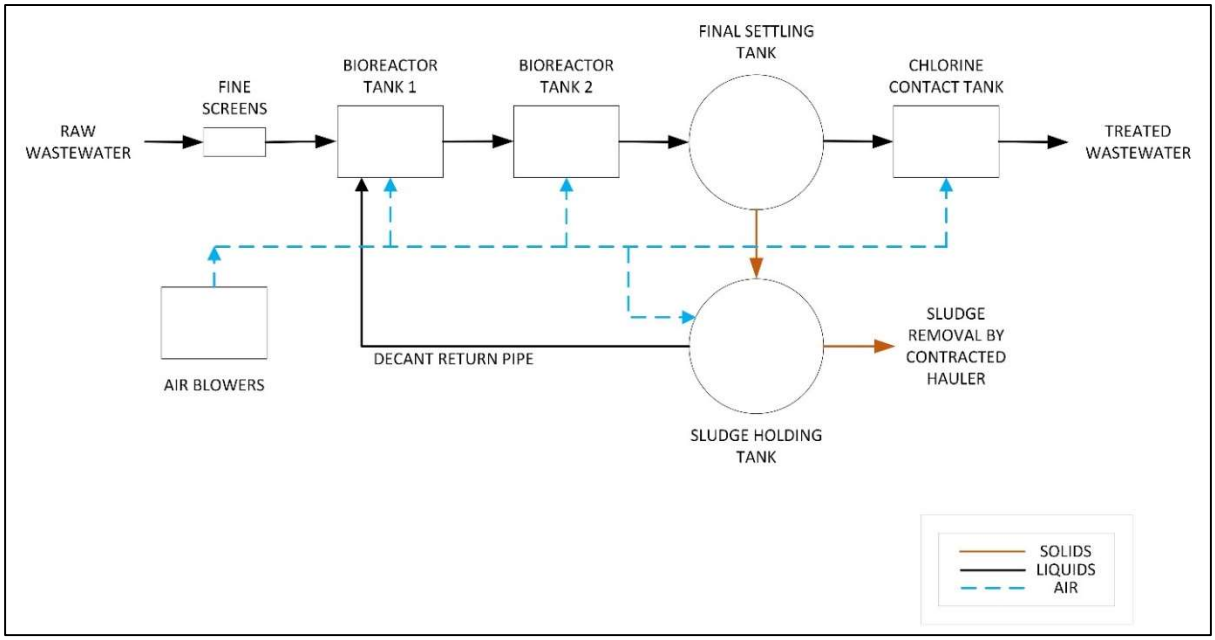


Figure 3: Process Flow Diagram – SFBBR

Raw wastewater will be pumped to an above-ground treatment system constructed of steel or fiber reinforced plastic (FRP). From that point, the process is gravity flow. The first tank Bioreactor Tank (BRT) is equipped with a fine screen that removes non-degradable solids collected and disposed of in a local permitted landfill. The screened raw influent drops into the aerated bioreactor and submerges the fixed media on which the biofilm develops and oxidizes the soluble organic material. The fixed media is fastened and positioned above the stainless steel coarse-bubble air diffusers. The typical configuration for this size plant includes two BRTs separated by a common wall. The treatment system will include two blowers for 100% redundancy.

From the BRTs, the wastewater is directed to a stilling well placed in the Final Settling Tank (FST) to reduce the stream's velocity and allow for the settlement of solids. The FST includes tube-settlers to

increase surface area effectively lowering the solids loading per area unit. The clarified wastewater is directed to an overflow V-notched weir, which is baffled for added restriction of solids. Overflow from the FST proceeds to the Chlorine Contact Tank (CCT) for disinfection before flow over a V-notched weir and discharged. Liquid chlorine will be used for disinfection. Sludge from the FST is pumped to the Sludge Holding Tank (SHT). Simultaneously, scum and floating solids can be removed and directed to the SHT using a scum trough and a Tsurumi floating skimmer designed for wastewater applications. The SHT can be periodically decanted with the decant stream directed back to BRT.

The design criteria for the SFBBR treatment alternative are summarized below in Table 5.

Table 5: SFBBR Preliminary Design Criteria Summary

Parameter	Value	Unit
Bio-Reactor Tank 1		
Length	7	ft
Width	11.5	ft
Side water depth (SWD)	8	ft
Volume	805	ft^3
Media surface area	23,688	ft^2
Media volume	504	ft^3
Bio-reactor Tank 2		
Length	13	ft
Width	11.5	ft
Side water depth (SWD)	8	ft
Volume	1,495	ft^3
Media surface area	48,384	ft^2
Media volume	1,008	ft^3
Final Settling Tank		
Length	10	ft
Width	11.5	ft
Side Water Depth (SWD)	7	ft
Volume	805	ft^3
Aeration Equipment		
Blower type	Positive Displacement	
Blower capacity, each	250	scfm
Discharge pressure	7.0	psig
Chlorine Contact Basin		
Length	8	ft
Width	5	ft
Side water depth (SWD)	9	ft
Volume	360	ft^3

Contact time at peak flow	49	min
Sludge Holding Tank		
Length	8	ft
Width	8	ft
Side water depth (SWD)	9	ft
Volume	576	ft^3
Sludge holding capacity	47	days

Considerations for buffer zone requirements between any treatment process facility and property lines were made. There is room for potential expansion of treatment capacity in the future.

5.3 TREATMENT ALTERNATIVE COMPARISON

There are distinguishable advantages between the CAS and SFBBR treatment processes. Summarized below are the advantages of each system regarding treatment process and operation. Cost comparison will be discussed in subsequent sections.

The conventional activated sludge system (CAS) is the most widely used treatment process in Texas, possibly the nation. Finding an operator able to operate this type of treatment process will be easier which is important when considering typical turnover in an organization. The typical operator will be experienced in troubleshooting this type of system should issues arise. Another advantage of CAS is contractors are widely familiar with building this type of system. Therefore, the Owner will typically receive more bids and the competition will be higher. The consequence of additional competition on cost impact will be discussed in subsequent sections.

The submerged fixed bed biofilm reactor (SFBBR) is advantageous when variations in loading occur. Once the biofilm is established on the fixed media, this treatment process can be resilient in treating organic loadings beyond what was expected. The SFBBR has less sludge production and lower solids loading on the settling tank, thus, the SFBBR typically has a slightly smaller footprint than CAS when the design conditions are constant between the two systems. The SFBBR treatment process tends to run without issues after initial setup. However, it is typically harder to find an operator familiar with this type of treatment process, thus, it may be harder for an operator to troubleshoot should issues arise. Additionally, contractors in the area aren't typically as familiar with the construction of these treatment systems. The below Table 6 summarizes the main advantages of each system discussed above.

Table 6: Treatment Alternative Comparison

Description	CAS	SFBBR
Operator Familiarity	x	
Contractor Familiarity	x	
Treatment Resilience		x
Smaller Footprint		x

5.4 RELATIVE TREATMENT COSTS

Based on recent bids in the volatile 2021-2022 market, SFBBRs have averaged $16/ gal and CAS $18/gal for just the package treatment plant, excluding lift stations, generators, electrical service, and all other appurtenances. Considering the current planned design for 20,000 gpd, this would equate to $320,000 for an SFBBR and $360,000 for CAS. The $40,000 increase for CAS is attributed to the larger footprint, thus, more material. All other appurtenances for either treatment alternative is the same cost, further illustrated in Appendix E.

Both treatment alternatives will be designed to hold wasted sludge between 3 to 4 weeks. Although the SFBBR has a slightly smaller sludge holding tank compared to the CAS digester, the designed sludge holding times are similar since the SFBBR produces less solids. Therefore, the relative sludge pump and haul costs are the same for each alternative.

5.5 DESCRIPTION OF SLUDGE DISPOSAL STRATEGY

Wasted sludge that is removed from the clarifier or final settling tank (dependent on the treatment alternative) will be sent to a digester or sludge holding tank. Due to smaller flows, onsite processing of sludge would be cost prohibitive. Offsite hauling and disposal of sludge is the most suitable option. The County will arrange an agreement with a licensed sludge hauler for sludge disposal. The licensed sludge hauler will connect to digester or sludge holding tank via outlet with valve (quick connect) at the bottom of the basin, pump out the sludge, and haul it offsite. The sludge disposal site is dependent on which sludge hauler is contracted.

5.6 TREATMENT RECOMMENDATION

Plummer recommends installing a conventional activated sludge (CAS) treatment plant to treat the wastewater in the service area. Although the CAS treatment plant will be slightly higher in cost than the SFBBR, Plummer believes the CAS treatment plant is a better option for McMullen County due to the below reasons.

- McMullen County is a rural area. Although the cost of CAS is slightly higher, if operator turnover is experienced, it should be easier for the Owner to find an operator familiar with operating a CAS treatment plant.

- Based on testing provided by the Owner, it is unlikely the plant will experience loading greater than the design loadings. Therefore, the advantage of the SFBBR process handling a wide range of loadings is mitigated.

- The Owner may receive more bids since Contractors are typically more familiar with CAS treatment plants than SFBBR treatment plants in the region.

6 LAND APPLICATION EVALUATION

The proposed land application area consists of several parcels adjacent to the existing wet well and proposed onsite wastewater treatment plant. These parcels and their respective acreages are shown in Figure 4. The purpose of this is section summarizes the evaluation conducted is to determine the land area needed to land apply treated wastewater. This evaluation considers the available land area, characteristics of land area, and effluent water quality and presents the results of a water balance study and storage volume study consistent with 30 TAC §309.20(b)(3)(B).

Figure 4: Available Land Application Areas

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

6.1 LAND APPLICATION BUFFER ZONES

Buffer zones are applied to land application areas to prevent nuisance conditions and protect waters of the state. Buffer zones required for the disposal of primary effluent are stipulated in 30 TAC §309.13, whereas buffer zones for the disposal of treated effluent may be evaluated on a case-by-case basis. Based on recent conversations with the TCEQ, case-by-case buffer zones for land applying treated effluent should be based on 30 TAC §309.13 requirements; however, these requirements may be modified if there is reasonable justification for not conforming to these buffer zones. TCEQ identified that justification for modified buffer zones would need to consider topography, soils, and other relevant site features.

The following buffer zone requirements specified in 30 TAC §309.13 were applied to the available land application area:

- 150-feet from the nearest property line [30 TAC §309.13(e)(1)]
- 500-feet from a public water source [30 TAC §302.13(c)]
- 150-feet from apparent residential structures on the proposed land application parcels [case-by-case professional judgment].

No wells or other features requiring buffer zones were identified within or near the proposed land application parcels.

Note that a case-by-case determination was used to apply a 150-ft buffer zone from structures within the available land application parcels to prevent nuisance conditions for residences. In addition, a case-by-case determination could be made for eliminating the 500-foot buffer to protect the pond located across Highway 72. The pond is located in a separate drainage area, such that the roadway and grading prevent irrigation run-off from reaching the pond.

Figure 5 shows the applicable buffer zones applied to the proposed land application parcels. Note that the figure does not include property line buffer zones between available application parcels. If property line buffer zones need to be applied between the adjacent proposed parcels, then less land application area would be available. This requirement will be determined during the pre-application meeting with TCEQ.

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

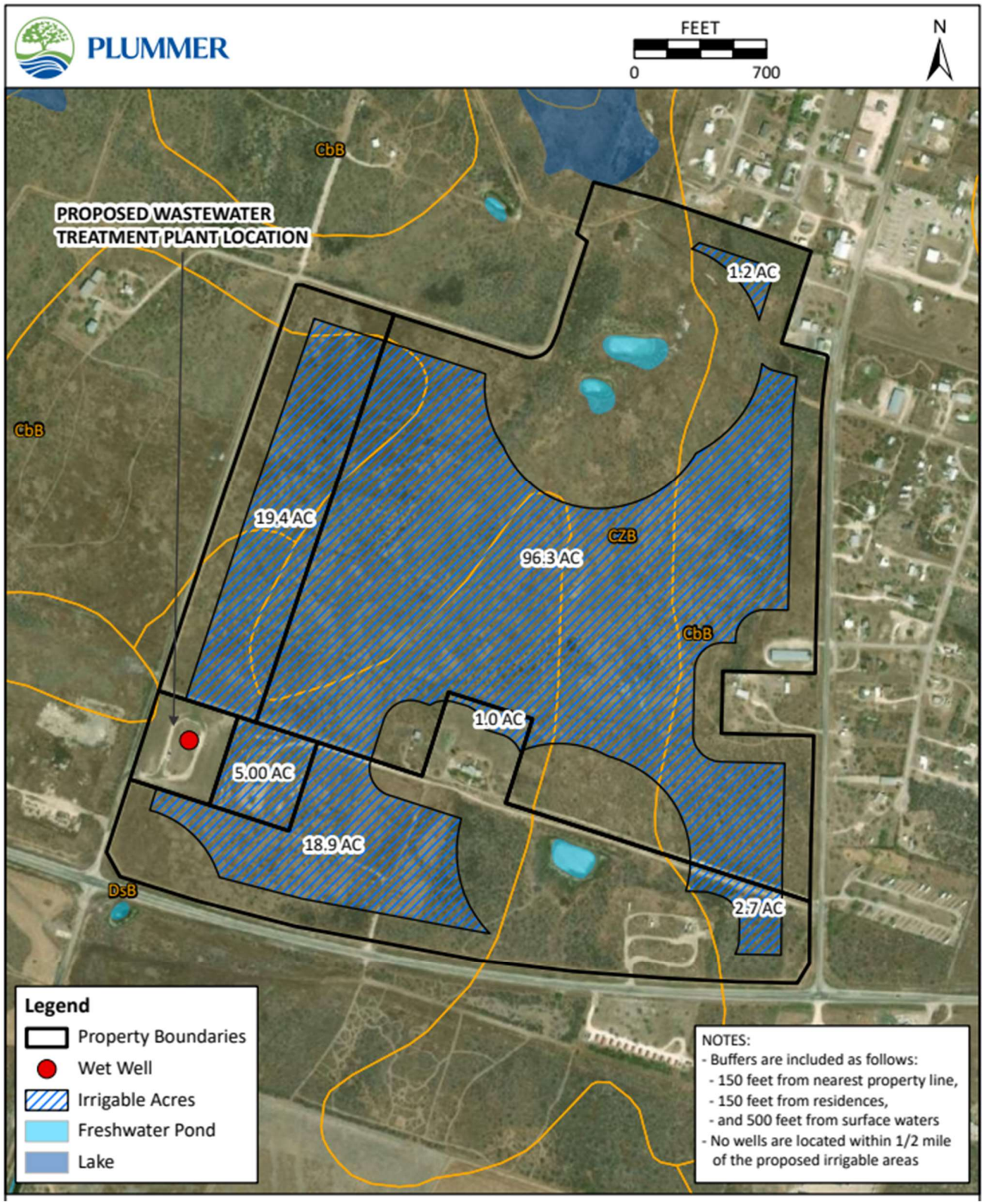


Figure 5: Applicable Buffer Zones for Proposed Land Application Parcels

6.2 SITE CHARACTERISTICS

Soils, topography, and vegetation at a land application site influences whether irrigated effluent infiltrates into the subsurface or becomes runoff.

6.2.1 Soil and Topography Characteristics

The portion of the irrigated effluent that infiltrates or becomes direct runoff is quantified through the runoff curve number (CN), which is predicted based on soil types. Soils at the site range from sandy clay loams to clay depending on the site location. A summary of the soil types and their corresponding hydrologic soil groups are included in Table 7. Data are adapted from the Natural Resources Conservation Service (NRCS) Web Soil Survey map.

Table 7: Soil Types and Topography within Available Land Application Area

Soil Type Symbol	Soil Type Name (1)	Hydrologic Soil Group (2)
CbB	Campbellton clay loam, 1 to 3 percent slopes	C
CZB	Czar-Clareville complex, 0 10 2 percent slopes, sandy clay loams to clay loams, rarely flooded	B & C
DsB	Dosrios clay, 1 to 3 percent slopes	D

(1) Adapted from NRCS Web Soil Survey map. Accessed at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
(2) Adapted from NRCS Technical Release No. 55 (TR-55).

Figure 6 shows the soil types and topography within the available land application area. The soil types for the available land application area nearest the proposed wastewater treatment plant are clay soils while the soil types further from the proposed wastewater treatment plant are more commonly clay loams and sandy clay loams. Soil types (DsB soil types) adjacent to the proposed wastewater treatment plant have a higher propensity for irrigation runoff than soils north and northeast of the proposed wastewater treatment plant (CbB and CZB soil types), and thus require greater land application area than more permeable soil types. Appendix D includes the web soil survey report generated by NRCS.

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

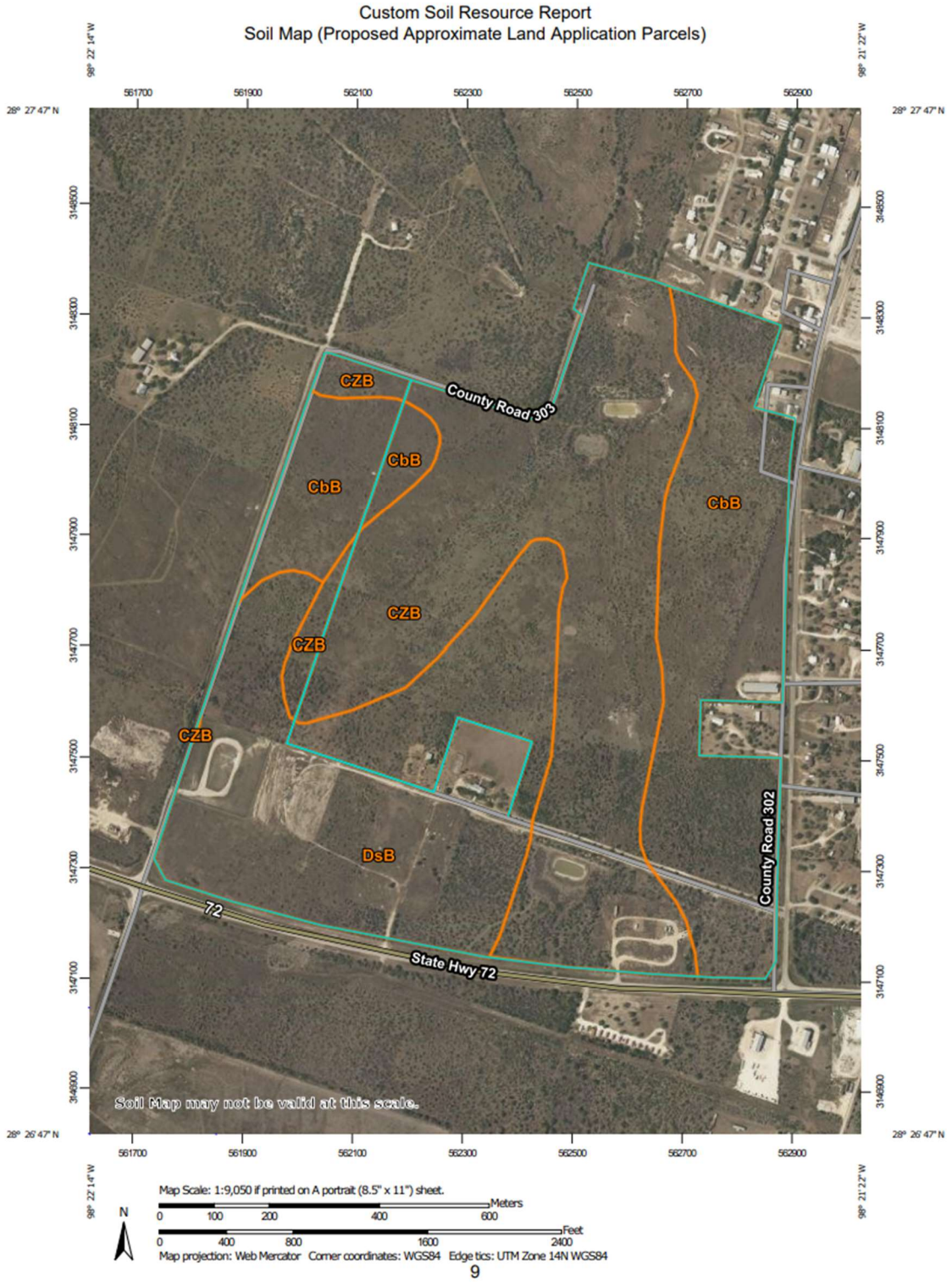


Figure 6: Soil Types Present within Available Land Application Parcels

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

6.2.2 Vegetation Characteristics

Vegetation type within the proposed application area influences the salinity uptake able to be accommodated from the effluent. Vegetation within the proposed land application area appears to consist of natural grasses and scrub. Table 3 of 30 TAC §309.20 includes ranges of salinity tolerance for specific plant species. The assumed characteristics of vegetation within the proposed land application area are assumed to be relatively to highly salinity tolerant and will consist of either natural vegetation or more tolerant vegetation, such as Bermuda grass.

6.3 WATER BALANCE AND STORAGE VOLUME CALCULATIONS

Estimated needed land application area is dependent on the treated wastewater quality and wastewater volume, as well as soil types, vegetation coverage, and climatic information. TCEQ uses a land application screening spreadsheet that calculates a water balance for the site to identify the necessary land application area and storage/pond volume. Table 8 summarizes the variables and corresponding values used in the TCEQ's land application screening spreadsheet.

Table 8: Land Application Screening Spreadsheet Input Values

Variable	Input Value	Units	Source
Precipitation Data	Various	--	Texas Water Development Board, Water Data for Texas, McMullen County
Evapotranspiration	Various	--	Texas A&M AgriLife Extension, Historic Eto values from San Antonio
Soil Solution Conductivity (Cl)	7.0	mmhos/cm	Estimate for moderately salt tolerant species
Runoff Coefficient (CN)	80	--	NRCS TR-55, Table 2-2a based on grass cover >75% and hydrologic soil group D
Effluent Conductivity	1.5	mmhos/cm	Estimate
Irrigation Efficiency	0.85	--	Standard value from TCEQ land application screening spreadsheet
Wastewater volume	0.020	MGD	Proposed permitted flow rate

6.4 LAND APPLICATION AND STORAGE OPTIONS

The land application rate, application area, and required storage volume are dependent on the results of the water balance and storage calculations. The application rate is a product of the land application area, while the required storage volume is a product of the land application area available. As such, the applicant can maximize the configuration of land application area and storage area in their TLAP application to best accommodate their site and still meet the TLAP requirements. Three land application options are provided as part of this evaluation. A summary of the results of three options are included in Table 9.

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

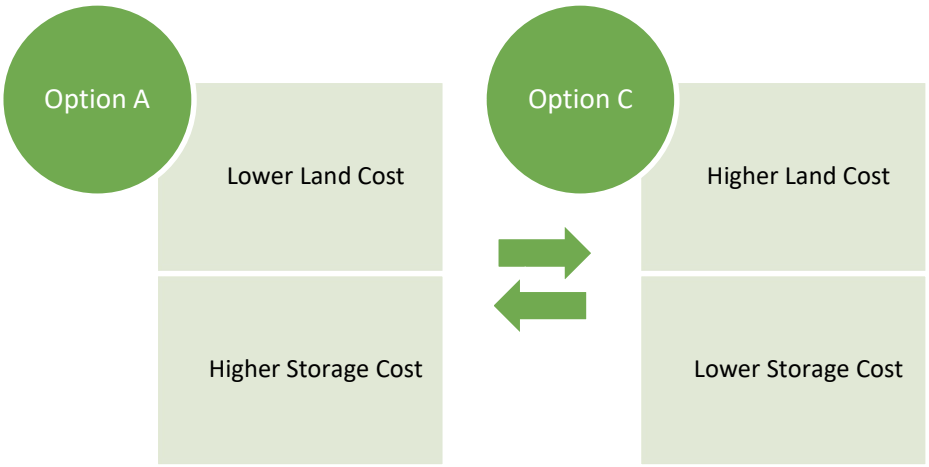
Table 9: Land Application and Storage Volume Options

Option	Land Application Area (acres)	Storage Volume (ac-feet)	Storage Pond Area (acres)	Recommended Application Rate (ac-in/ac/month)
A	5.00	5.17	1.0	5.50
B	12.00	0.97	1.0	5.17
C	15.00	0.21	1.0	5.12

Appendix D includes the evaluation calculations for each land application area option. Each option demonstrates that land application is feasible within the proposed, available land application area. Available land refers to land McMullen County already owns or land that could be acquired.

These land application and storage volume options would be able to be sited within the parcels east of the proposed wastewater treatment plant site as shown in Figure 7. This siting options maintains land application on McMullen County-owned property and an adjacent parcel owned by Live Oak LP (refer also to Figure 4). Case-by-case buffer zone options described in Section 6.1 are also shown on Figure 7.

Each option listed in the above table has varying cost implications. For example, Option A will potentially fit on the land McMullen County currently owns, however, the required storage volume is greater. Option C would require McMullen County to purchase land with the storage volume being less. The financial advantage of either option is dependent on the cost of land McMullen County can negotiate with the landowner. This cost is further discussed in subsequent sections.



Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

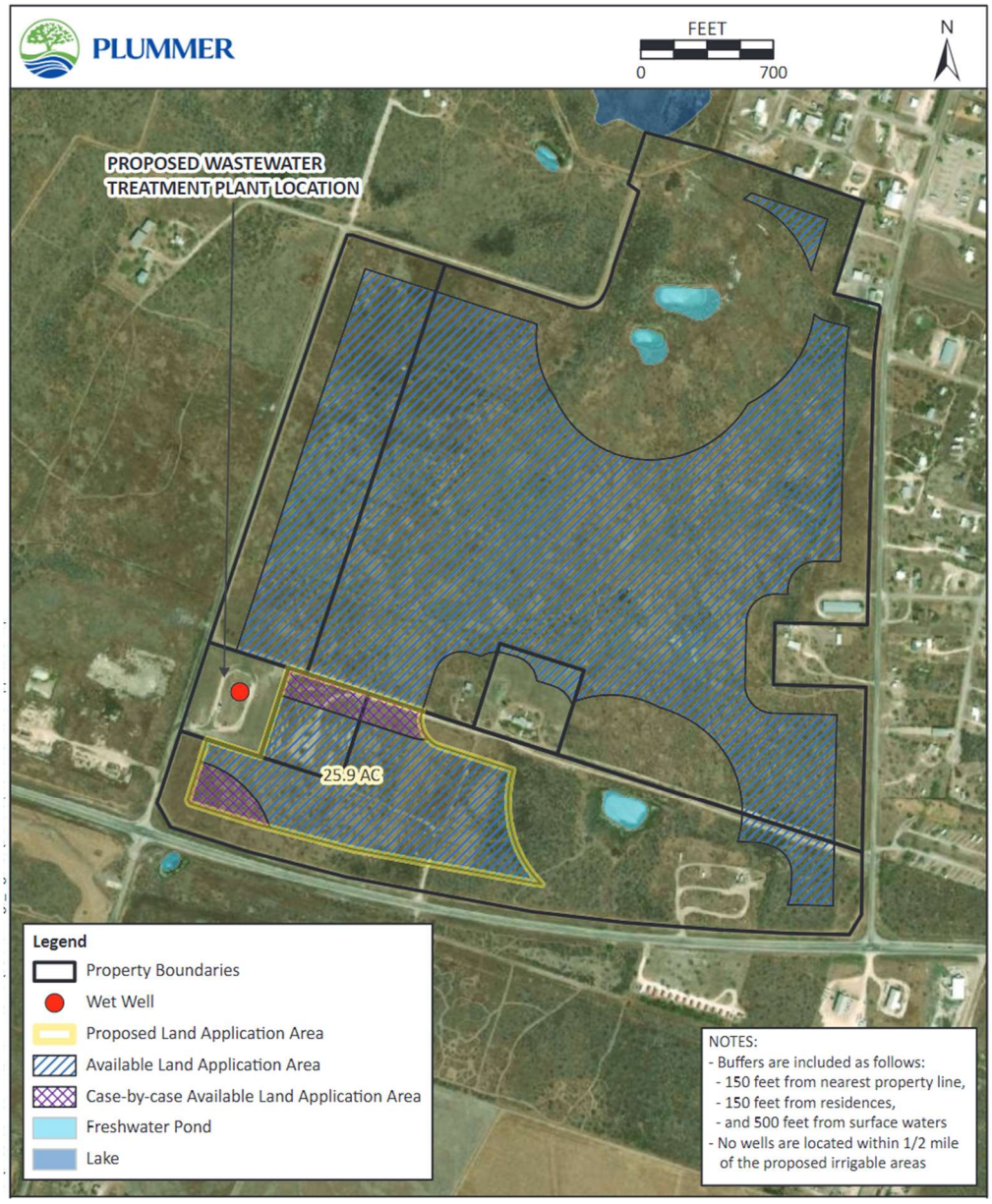


Figure 7: Proposed Land Application Area

Irrigating the available land application areas nearest the proposed wastewater treatment plant (refer also to Figure 7) is the most efficient conveyance of treated wastewater. The County owns the land adjacent to the east of the existing wet well site. Additionally, the NRA expressed that the landowner to the south/ southeast is willing to sell land to help with the needed wastewater land application area. Therefore, depending on the land application area option chosen, the County will have adequate acreage to land apply wastewater.

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

6.5 LAND APPLICATION PROCESS

The treated wastewater effluent will gravity flow from the chlorine contact tank to the storage pond with liner. The storage pond will be sized based on the option agreed upon by McMullen County discussed above. An effluent lift station will pump the treated wastewater from the storage pond to the distribution device (i.e., center pivot or similar). This cost included as Appendix E also includes control devices, piping, valves, electrical, and maintenance equipment.

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

7 SCHEDULE & COST

The current market can affect schedule and cost due to equipment cost, labor cost, and labor availability. This has been apparent in the recent 2020-2022 market most visibly seen in equipment lead time, project duration, and project bid cost. The below sections are based on recent market conditions; however, future market conditions could affect both schedule and cost.

7.1 SCHEDULE

The permitting and design phase of the WWTP will begin after the acceptance of this feasibility report by the Owner. Obtaining an approved TCEQ TLAP permit after submitting will take a minimum of 1-year assuming no public meetings, public hearings, legal involvement, etc. During the permit process, the project will be publicly advertised after TCEQ declares the project administratively complete, approximately 2 months after submitting the permit. The second public advertisement will occur when TCEQ has approved the technical review of the permit, approximately 8-months after submitting. Typically, the design effort will commence once the project has finished TCEQ's technical review.

The start of the design will be concurrent with the later stages of the TCEQ TLAP permit. The production of construction drawings and specifications for this project will take approximately 4-months before going to bid. The design is typically complete around month 12 when the final TCEQ TLAP permit is expected to be issued. The bid process is assumed to take 2-months from advertisement to contract award and execution.

The anticipated construction duration is 365 days, 1-year. Construction duration is contingent on current market conditions when the project is bid and Contractor availability.

The total anticipated duration of this project from the start of permitting to the completion of construction is 790 days, 2.2 years. Major milestone durations during this process are summarized in Table 10, below. To reiterate, this assumes no public hearings or legal inquiries during the TCEQ permit process.

Table 10: Schedule Milestones

Deliverable/Task	Duration (months)
Permitting	12 (minimum)
Detailed Design*	4
Pre-construction/bidding	2
Construction	12

*The majority of, if not all, the design will be concurrent with permitting process

7.2 TOTAL COST

The cost estimate was developed in general accordance with guidelines established by the Association for the Advancement of Cost Estimating International (AACEI) and is defined as a Class 5 cost estimate. The description of a Class 5 cost estimate is as follows:

Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5

estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with little effort expended— sometimes requiring less than an hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation.

Typical accuracy ranges for Class 5 estimates are - 20% to -50% on the low side, and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

Based on AACEIs description, a 30% contingency was included in the Class 5 cost estimate and an additional 10% for anticipated escalation. The current estimated construction cost is $1,999,140 including:

- Converting wet well to lift station
- Site work and site appurtenances
- Chlorine injection and chlorine building
- Blowers
- Electrical and generator
- Package WWTP
- TLAP storage and distribution including effluent lift station

The breakdown of these costs is provided in Appendix E. As previously discussed in this report, there are some factors that can alter this cost estimate. Market conditions could affect the cost from the time of this report to the time of bidding. This will be apparent in the form of equipment lead times, material costs, and labor cost/ labor availability. The contingency and escalation are intended to account for market conditions.

The cost estimate is for a CAS WWTP per the Recommendations section, hereafter. If an SFBBR treatment plant is selected by the Owner, the total difference in cost is estimated to be $40,000 less than the current cost estimate.

The land application option that is chosen will be the largest cost variable. The balance between storage and land acquisition will need to be considered for the most cost-effective option. Land cost the County and/or NRA is able to negotiate will affect this consideration. The highest cost scenario was assumed for the cost estimate included in Appendix E. This assumes a large land acquisition with a smaller storage capacity since land acquisition is anticipated to be larger than storage construction cost.

8 RECOMMENDATIONS

Plummer recommends installing a conventional activated sludge (CAS) treatment plant to treat the wastewater in the service area. The anticipated high-level cost of all treatment and TLAP equipment/ appurtenances is $2M escalated to the mid-point of construction in mid-2024. Price escalation has been considerable over the last couple of years and should be reevaluated as design progresses.

The key factors for this treatment recommendation are:

- McMullen County is a rural area. Although the cost of CAS is slightly higher, if operator turnover is experienced, it should be easier for the Owner to find an operator familiar with operating a CAS treatment plant.

- Based on testing provided by the Owner, it is unlikely the plant will experience loading greater than the design loadings. Therefore, the advantage of the SFBBR process handling a wide range of loadings is mitigated.

- The Owner may receive more bids since Contractors are typically more familiar with CAS treatment plants than SFBBR treatment plants in the region.

As previously mentioned, land cost will be the deciding factor for which option is chosen for the land application of treated wastewater. TLAP disposal of effluent near the proposed wastewater treatment plant is a technically feasible option within adjacent parcels. Plummer recommends

1) Identifying needs for acquiring or leasing land application areas not currently owned by McMullen County, and

2) Commencing with the collection of additional field data such as influent salinity and soil chemistry consistent with TCEQ 30 TAC §309.20.

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Appendix A

Project Location & Service Area Maps

PLUMMER

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PLUMMER

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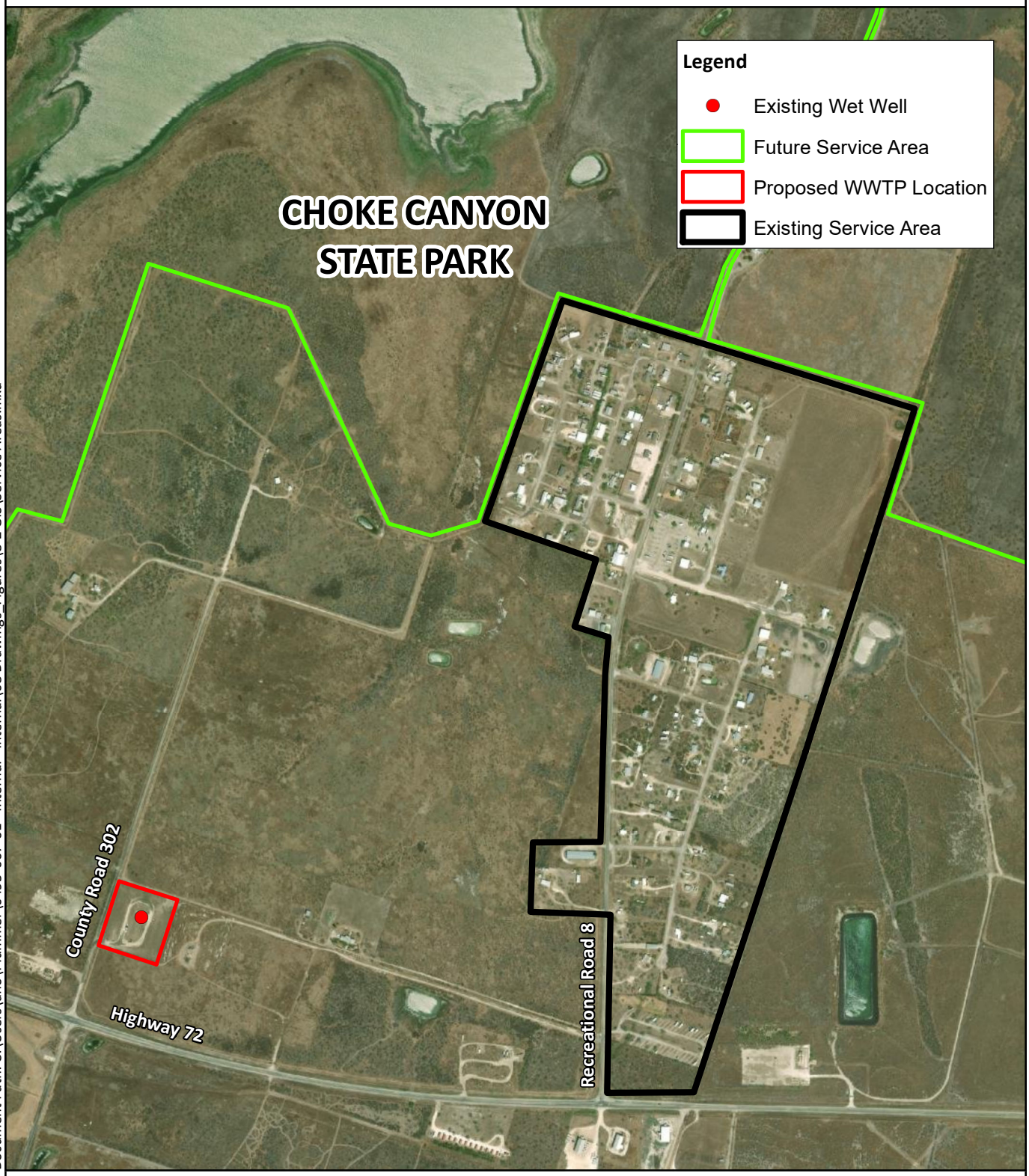

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APPENDIX B

Wastewater Hauling Correspondence

Mukhopadhyay, Suparna

From: Pierce-Walsh, Meg
Sent: Wednesday, November 9, 2022 10:51 AM
To: Byrd, Ryan; Mukhopadhyay, Suparna
Subject: FW: Average Daily flow for Callingham WW System

Meg Pierce-Walsh, M.S.
Water Quality/Permitting Practice Leader
Plummer

P: 512.452.5905
D: 512.359.7764
C: 715.520.7630
www.plummer.com

From: jbyrum <jbyrum@nueces-ra.org>
Sent: Wednesday, June 22, 2022 11:39 AM
To: Pierce-Walsh, Meg <mpierce-walsh@plummer.com>; Middleton, Amy <amiddleton@plummer.com>; Hunt, Rex <rhunt@plummer.com>
Subject: Average Daily flow for Callingham WW System

CAUTION: This email originated from outside of Plummer. DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Meg,

The average daily flow for the system for the past 4 months has been 9083 gallons per day.

In May, which is the beginning of the peak season, the flow was average daily flow was 11,452 gallons per day.

Best Regards,

John Byrum
Executive Director
Nueces River Authority
539 S. Highway 83
Uvalde, Texas 78801
Phone: 830-278-6810
www.nueces-ra.org

Since 1935

Change is the law of life. And those who look only to the past or the present are certain to miss the future." - JFK 6/ 25/63

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APPENDIX C

Wastewater Laboratory Report

City of Corpus Christi
Water Utilities Laboratory
13101 Leopard Street
361-826-1200 Fax: 361-242-9131

Analytical Report

Client Info Nueces River Authority
539 S. Hwy 83
Uvalde, TX 78801
830-278-6810

Phone:

EMAIL: rsalazar@nueces-ra.org

Report# /Lab ID#: AB99551 **Report Date:** 10/18/22
Sample Name: MCMULLEN WWTP
Date Received: 10/12/2022 **Time:** 08:27
Date Sampled: 10/11/2022 **Time:** 10:30

Parameter	Result	Unit	Flag	RL [5]	Date/Time Analyzed	Method	Analyst	Analysis Comments
Ammonia (AP)	23	mg/l	E	0.2	10/17/22 10:48	EPA 350.1	VP	
Biochemical Oxygen Demand	48	mg/l		2.0	10/12/22 12:49	SM 5210B	FM,CF	
Total Suspended Solids	204	mg/l		2.5	10/13/22 10:10	SM2540D	CF	

Sample Comments:

This analytical report is respectfully submitted by the Water Utilities Laboratory. The enclosed results reflect only the sample(s) identified above. The results have been carefully reviewed and, unless otherwise indicated, meet the NELAC requirements as described by the Water Utilities Lab's QA/QC program. No part of this report shall be reproduced or transmitted in any form or by any means without the written consent of the City of Corpus Christi-Water Utilities Lab.

Respectfully Submitted,

Technical Director (or designee)

1. Quality assurance data for the sample batch which included this sample.
2. Precision (PREC) is the absolute value of the relative percent difference between duplicate results .
3. Recovery (RECOV) is the percent of analyte recovered from a spiked sample.
4. Laboratory Control Sample (LCS) results are expressed as the percent recovery of analyte.
5. Reporting Limit (RL), typically at or above the Limit of Quantitation (LOQ) of the analytical method.
6. Data Qualifiers:

N=Analysis not performed as per client request. **H**=Sample exceeded holding time. **P**=Analysis is from an unpreserved sample. **J**=Value reported is less than the RL but greater than the MDL .
X=MS/MSD recovery or duplicates analysis exceeded the acceptance limit or Standard failed. **LA**=Lab accident. **LE**=Lab error. **OA**=Outside the scope of the lab's NELAC accreditation.
U=Unsuitable; sample turned turbid after incubation. **T**=Sample below temp requirement; not on ice. **EQ**=Equipment failure. **I**=Information on sample bottle and COC does not match.
S=Slow to filter; sample contains floc and/or large amount of residue on filter. **O**=Analysis performed by an outside NELAC accredited lab; **O^**=Analysis flagged by outside laboratory.
Z=Too many colonies present to provide a result (TNTC). **A**=Value reported is the mean of two or more determinations . **R**=Reagent water contamination suspected. **B**=Sample broken in transit.
NI=Not analyzed due to interferences. **K**=BOD result estimated due to blank exceeding the allowable oxygen depletion. **D**=Sample dilution required for analysis/ quality control.

CHAIN OF CUSTODY RECORD

Client Name: McMullen CID #2

Address:

City: Calliham State: TX Zip:

Phone: 361 271 5686 Fax:

Send Email report to:

Sampler: (PLEASE PRINT) Joel Salazar

Water Utilities Laboratory
13101 Leopard St.
Corpus Christi, TX 78410
Ph: (361) 826-1200
Fax: (361) 242-9131

Sample ID	Lab ID# (Lab Use Only)	Date Sampled	Time Sampled	Grab	Composite	Other	No. of Containers/ Preservative: H_2SO_4	HNO_3	Thio	None	Matrix: WW Influent	WW Effluent	Water	Other-Specify	Residual Chlorine: Total mg/L	Free mg/L	Analyze For: CBOD	BOD	TSS	TDS	Ammonia-N	TKN	Chloride	Sulfate	Phosphorus	Nitrate	Nitrite	Total Alkalinity	TOC	Fecal Coliform	Total Coliform	Enterococci	E. coli	Other*
1 McMullen WWTP	AB99551	10-11-22	10:30	/						/	/							/	/														
2 McMullen WWTP	↓	10-11-22	10:30	/			/				/										/												
3																																	
4																																	
5																																	
6																																	

Relinquished By:	Joel Salazar	Date: 10-12-22	Time: 8:00
Received By:	[signature]	Date: 10-12-22	Time: 8:00
Relinquished By:	[signature]	Date: 10-12-22	Time: 0827
Received By:	Darren Deason	Date: 10/12/22	Time: 0827

***** For Laboratory Use Only *****

Sample(s) on ice: (YES) NO	pH Strip Lot/ ID: N2427		
Receiving Temp (°C): 4.6	pH < 2? (YES) NO	Line(s) #: 2	
Corrected Temp (°C): 4.6			
Temp. Device ID: A			

Special Instructions/Comments:

Corpus Christi Water
CCW
Serving the Coastal Bend

WHITE (ORIGINAL) – Lab Copy YELLOW – Submitter Copy

Revision September 13, 2022

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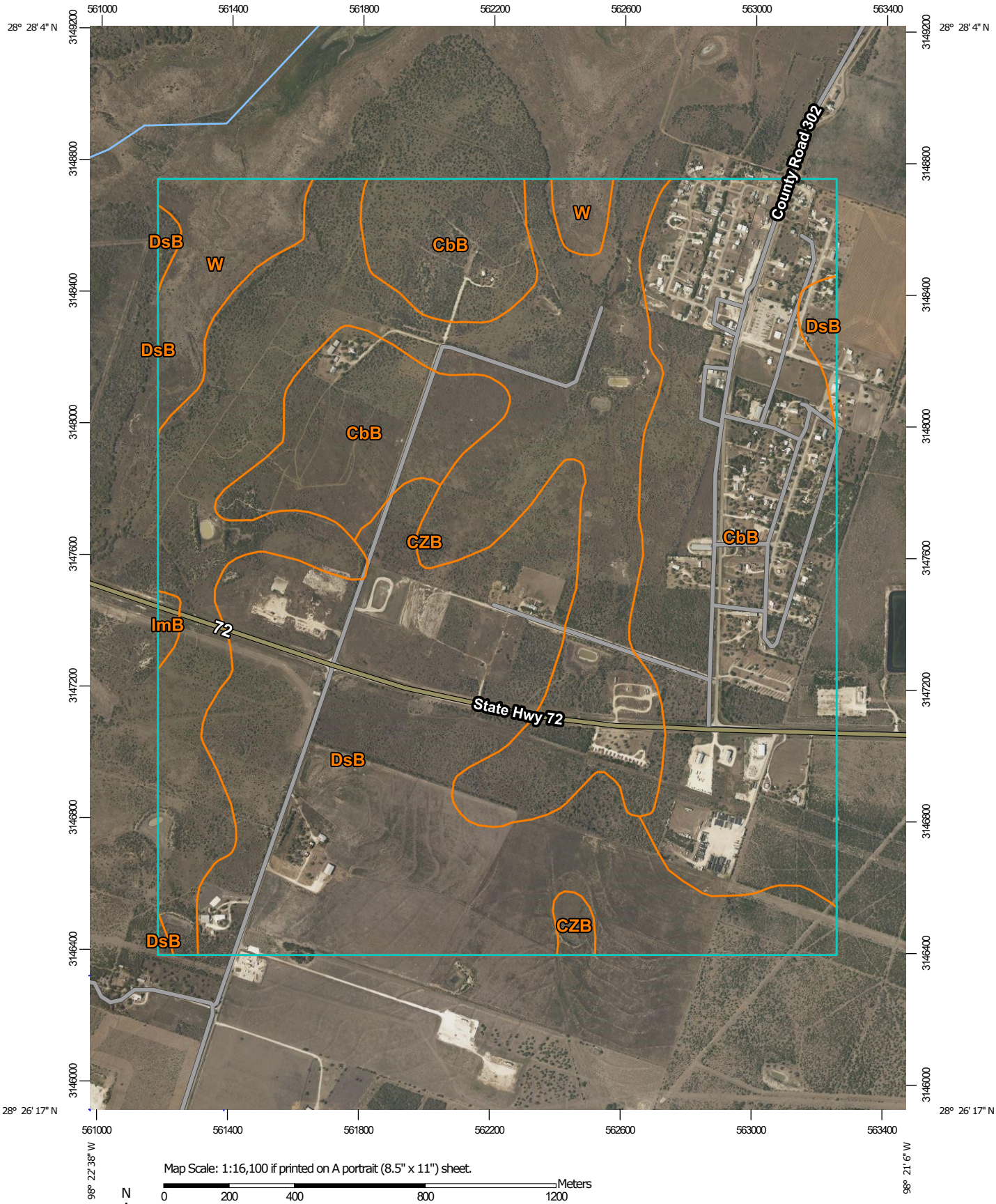
APPENDIX D

NRCS Web Soil Survey Report
&
Land Application Water Balance Calculations
5-acre Option
12-acre Option
15-acre Option

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Soil Map—McMullen County, Texas
(Soil Types for Proposed Calliham Housing Development TLAP Area)



Map Scale: 1:16,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: McMullen County, Texas
Survey Area Data: Version 23, Aug 24, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 20, 2021—Apr 10, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CbB	Campbellton clay loam, 1 to 3 percent slopes	423.7	34.9%
CZB	Czar-Clareville complex, 0 to 2 percent slopes, rarely flooded	350.4	28.9%
DsB	Dosrios clay, 1 to 3 percent slopes	383.3	31.6%
ImB	Imogene fine sandy loam, 0 to 2 percent slopes, occasionally flooded	3.0	0.2%
W	Water	52.9	4.4%
Totals for Area of Interest		**1,213.3**	**100.0%**

Land Application Calculations
5.0 Irrigation Acres Option

WATER BALANCE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: **McMullen County**
Permit No.: **New TLAP**

TWDB Data Quadrangle: **909**

The water balance calculations are designed to evaluate the maximum application rate (hydraulic loading rate) for the land area where irrigation is to occur. The applicant's proposed application rate must not must not exceed the maximum calculated application rate or the maximum application rate based on agronomic analysis.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
Month	Avg Rain	Avg Runoff	Avg Infilt Rainfall	Evapo-trans.	Required Leach	Total Water Needs	Effluent Needed in Root Zone	Raw Net Evap. from Reservoir	Reservoir Net Evap. (as inches on plot acres)	Effluent Needed Based on Irrigation Efficiency	Reservoir Consumption (as inches on plot acres)
Units →	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*
January	1.26	0.18	1.08	2.42	0.31	2.73	1.64	1.14	0.23	1.93	2.16
February	1.17	0.14	1.03	2.90	0.43	3.33	2.30	1.49	0.30	2.71	3.01
March	2.03	0.58	1.45	4.42	0.69	5.11	3.66	2.07	0.41	4.30	4.72
April	1.82	0.46	1.36	5.47	0.95	6.42	5.05	3.25	0.65	5.95	6.60
May	3.21	1.41	1.80	6.47	1.08	7.55	5.75	2.66	0.53	6.76	7.29
June	2.52	0.90	1.62	6.97	1.24	8.21	6.59	4.69	0.94	7.75	8.69
July	3.03	1.27	1.76	7.31	1.28	8.59	6.83	4.80	0.96	8.04	9.00
August	1.91	0.51	1.40	6.99	1.29	8.28	6.88	6.02	1.20	8.09	9.29
September	3.70	1.79	1.90	5.64	0.86	6.50	4.60	2.18	0.44	5.41	5.85
October	2.36	0.79	1.57	4.44	0.66	5.10	3.54	2.44	0.49	4.16	4.65
November	1.60	0.34	1.27	2.85	0.37	3.22	1.95	1.56	0.31	2.29	2.61
December	1.25	0.17	1.07	2.36	0.30	2.66	1.58	1.15	0.23	1.86	2.09
Totals	25.85	8.54	17.31	58.24	9.45	67.69	50.38	33.45	6.69	59.27	65.96

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
5.0 Irrigation Acres Option

Crop is		
CN	80.00	*dimensionless*
Ce	1.50	*mmhos/cm*
Cl	8.00	*mmhos/cm*
Pond area	1.00	*acres*
Irrigation area	5.00	*acres*
Irrigation Efficiency, *K*	0.85	*dimensionless*
Design Flow	0.020	*MGD*

Maximum calculated application rate =	5.50	*ac-in/ac/month* **OR** *ac-ft/ac/year*
Applicant's proposed application rate =	27.50	*ac-ft/ac/year*
Maximum rate from agronomic analysis =	N/A	*ac-in/ac/month* **OR** *ac-ft/ac/year*

Recommended rate for permit = 5.50 *ac-in/ac/month* **OR** *ac-ft/ac/year*

Limiting factor = Click this cell to choose from list.

Gross rate (from design flow, acres) = 4.48 **OK**

(2) Average rainfall – Data source: Texas Water Development Board (see Quadrangle above)

(3) Average runoff = ⟦(*average rainfall* – (0.2*((1000/*CN*) – 10)))⟧^2/((*average rainfall* + (0.8*((1000/*CN*) – 10))))

(4) Average infiltrated rainfall = (*average rainfall* – *average runoff*)

(5) Evapotranspiration – Data Source: Texas A&M AgriLife Extension, Historic Eto Reference from San Antonio (54 years data)

(6) Required leaching =

If: *evapotranspiration* – *average infiltrated rainfall* ≤ 0, then 0;

If: *evapotranspiration* – *average infiltrated rainfall* > 0, *Ce* /(*Cl* – *Ce*)*(*evapotranspiration* – *avg infiltrated rainfall*)

(7) Total water needs = *evapotranspiration* + *required leaching*

(8) Effluent needed in root zone = *total water needs* – *average infiltrated rainfall*

(9a) Net evaporation – Data source: Texas Water Development Board (see Quadrangle above)

(9b) Raw net evaporation from reservoir surface = (*net evaporation from reservoir*)*((*pond area*)/(*irrigation area*))

(10) Effluent needed based on irrigation efficiency = (*effluent needed in root zone*)/(*irrigation efficiency*)

(11) Consumption from reservoir = *net evaporation from reservoir surface* + *effluent needed based on irrigation efficiency*

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
5.0 Irrigation Acres Option

STORAGE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: McMullen County
Permit No.: New TLAP

The storage calculations are designed to evaluate the storage capacity and surface area of the applicant's storage pond (or multiple ponds). The pond must have enough surface area to evaporate all the flow to the pond under low-net evaporation and corresponding annual rainfall conditions. The pond is considered adequately sized when the additional storage required is equal to zero (or "none"). If the additional storage required is greater than zero, then:
(1) the pond's storage capacity must be increase, (2) the pond's surface area must be increased, (3) the effluent flow must be reduced, or (4) other approved measures must be taken to ensure that no accumulation occurs during low-net evaporation and corresponding annual rainfall conditions.

(12)	(13)	(14a)	(14b)	(15)	(16)	(17)	(18a)	(18b)	(19)	(20)
Month	Effluent Available (as inches on plot acres)	Average Rainfall Distrib. (%)	Rain Worst Year	Field Runoff Worst Year	Infiltrated Rain	Avail Water	Average Net Evap. Distrib. (%)	Low Net Evap. from Reservoir Surface	Effluent to Storage (as inches on plot acres)	Accum Storage (as inches on plot acres)
Units →	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*
January	4.48	4.89%	2.17	0.67	1.50	5.98	3.40%	0.02	3.02	9.54
February	4.48	4.52%	2.01	0.57	1.44	5.92	4.46%	0.02	2.24	11.77
March	4.48	7.85%	3.49	1.63	1.86	6.34	6.19%	0.03	0.64	12.41
April	4.48	7.04%	3.13	1.35	1.78	6.26	9.72%	0.04	-1.02	0
May	4.48	12.42%	5.53	3.36	2.17	6.65	7.94%	0.04	-1.88	0
June	4.48	9.73%	4.33	2.32	2.01	6.49	14.02%	0.06	-2.87	0
July	4.48	11.72%	5.21	3.08	2.13	6.61	14.34%	0.07	-3.18	0
August	4.48	7.40%	3.29	1.47	1.82	6.30	18.00%	0.08	-3.20	0
September	4.48	14.31%	6.37	4.11	2.25	6.73	6.52%	0.03	-0.55	0
October	4.48	9.12%	4.06	2.09	1.97	6.45	7.31%	0.03	0.76	0.76
November	4.48	6.20%	2.76	1.07	1.69	6.17	4.67%	0.02	2.66	3.42
December	4.48	4.82%	2.14	0.65	1.49	5.97	3.42%	0.02	3.09	6.51
Totals	53.77	100%	44.50	22.38	22.12	75.89	100%	0.46	—	12.41

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
5.0 Irrigation Acres Option

Land Application Calculations

5.0 Irrigation Acres Option

Worst (low) net evap. =	2.31 inches	Storage required =	5.17	*ac-ft*
Corresponding rain =	44.5 inches	Actual storage =		*ac-ft*
Worst-case net year =	2007	Additional storage required =	5.17	*ac-ft*
		Storage days =	84	*days*

(13) Effluent available for irrigation (assumes design flow is applied to entire acreage unless different flow values are justified).

(14a) Average rainfall distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(14b) Rainfall worst year = (*rainfall distribution* as fraction or %/100*) *maximum annual rainfall*

(15) Field runoff worst year = ⟦(*rainfall worst year* – (0.2*((1000/*CN*) – 10)))⟧^2/((*rainfall worst year* + (0.8*((1000/*CN*) – 10))))

(16) Infiltrated rainfall = (rainfall worst year- field runoff worst year)

(17) Available water = (effluent available for land application + infiltrated rainfall check)

(18a) Average net evaporation distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(18b) Net low evaporation from reservoir surface = [(|*low net evaporation*|)*(*net low evaporation avg. dist*)]*[(*pond area*)/(*irrigation area*)]

(19) Storage =

If: (*total water needs – infiltrated rainfall*) < 0, (*effluent available for land application – net low evaporation from reservoir surface*);

If: (*total water needs – infiltrated rainfall*) ≥ 0,

(effluent available for land application – net low evaporation from reservoir surface) * [(total water needs – infiltrated rainfall)/(irrigation efficiency)]

(20) Accumulated storage =

If: *net low evaporation from reservoir surface + storage* ≤ 0, 0

If: *net low evaporation from reservoir surface + storage* > 0, enter value

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations

12.0 Irrigation Acres Option

WATER BALANCE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: **McMullen County**

Permit No.: **New TLAP**

TWDB Data Quadrangle: **909**

The water balance calculations are designed to evaluate the maximum application rate (hydraulic loading rate) for the land area where irrigation is to occur. The applicant's proposed application rate must not must not exceed the maximum calculated application rate or the maximum application rate based on agronomic analysis.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
Month	Avg Rain	Avg Runoff	Avg Infilt Rainfall	Evapo-trans.	Required Leach	Total Water Needs	Effluent Needed in Root Zone	Raw Net Evap. from Reservoir	Reservoir Net Evap. (as inches on plot acres)	Effluent Needed Based on Irrigation Efficiency	Reservoir Consumption (as inches on plot acres)
Units →	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*
January	1.26	0.18	1.08	2.42	0.31	2.73	1.64	1.14	0.09	1.93	2.03
February	1.17	0.14	1.03	2.90	0.43	3.33	2.30	1.49	0.12	2.71	2.84
March	2.03	0.58	1.45	4.42	0.69	5.11	3.66	2.07	0.17	4.30	4.48
April	1.82	0.46	1.36	5.47	0.95	6.42	5.05	3.25	0.27	5.95	6.22
May	3.21	1.41	1.80	6.47	1.08	7.55	5.75	2.66	0.22	6.76	6.98
June	2.52	0.90	1.62	6.97	1.24	8.21	6.59	4.69	0.39	7.75	8.14
July	3.03	1.27	1.76	7.31	1.28	8.59	6.83	4.80	0.40	8.04	8.44
August	1.91	0.51	1.40	6.99	1.29	8.28	6.88	6.02	0.50	8.09	8.59
September	3.70	1.79	1.90	5.64	0.86	6.50	4.60	2.18	0.18	5.41	5.59
October	2.36	0.79	1.57	4.44	0.66	5.10	3.54	2.44	0.20	4.16	4.37
November	1.60	0.34	1.27	2.85	0.37	3.22	1.95	1.56	0.13	2.29	2.43
December	1.25	0.17	1.07	2.36	0.30	2.66	1.58	1.15	0.10	1.86	1.96
Totals	25.85	8.54	17.31	58.24	9.45	67.69	50.38	33.45	2.79	59.27	62.05

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
12.0 Irrigation Acres Option

Crop is		
CN	80.00	*dimensionless*
Ce	1.50	*mmhos/cm*
Cl	8.00	*mmhos/cm*
Pond area	1.00	*acres*
Irrigation area	12.00	*acres*
Irrigation Efficiency, *K*	0.85	*dimensionless*
Design Flow	0.020	*MGD*

Maximum calculated application rate =	5.17	*ac-in/ac/month* **OR** *ac-ft/ac/year*
Applicant's proposed application rate =	27.50	*ac-ft/ac/year*
Maximum rate from agronomic analysis =	N/A	*ac-in/ac/month* **OR** *ac-ft/ac/year*

Recommended rate for permit =	**5.17**	*ac-in/ac/month* **OR** *ac-ft/ac/year*
Limiting factor =	Click this cell to choose from list.	
Gross rate (from design flow, acres) =	1.87	**OK**

(2) Average rainfall – Data source: Texas Water Development Board (see Quadrangle above)
(3) Average runoff = ⟦(*average rainfall* – (0.2*((1000/*CN*) – 10)))⟧^2/((*average rainfall* + (0.8*((1000/*CN*) – 10))))
(4) Average infiltrated rainfall = (*average rainfall* – *average runoff*)
(5) Evapotranspiration – Data Source: Texas A&M AgriLife Extension, Historic Eto Reference from San Antonio (54 years data)
(6) Required leaching =
If: *evapotranspiration* – *average infiltrated rainfall* ≤ 0, then 0;
If: *evapotranspiration* – *average infiltrated rainfall* > 0, *Ce* /(*Cl* – *Ce*)*(*evapotranspiration* – *avg infiltrated rainfall*)
(7) Total water needs = *evapotranspiration* + *required leaching*
(8) Effluent needed in root zone = *total water needs* – *average infiltrated rainfall*
(9a) Net evaporation – Data source: Texas Water Development Board (see Quadrangle above)
(9b) Raw net evaporation from reservoir surface = (*net evaporation from reservoir*)*((*pond area*)/(*irrigation area*))
(10) Effluent needed based on irrigation efficiency = (*effluent needed in root zone*)/(*irrigation efficiency*)
(11) Consumption from reservoir = *net evaporation from reservoir surface* + *effluent needed based on irrigation efficiency*

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
12.0 Irrigation Acres Option

STORAGE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: McMullen County
Permit No.: New TLAP

The storage calculations are designed to evaluate the storage capacity and surface area of the applicant's storage pond (or multiple ponds). The pond must have enough surface area to evaporate all the flow to the pond under low-net evaporation and corresponding annual rainfall conditions. The pond is considered adequately sized when the additional storage required is equal to zero (or "none"). If the additional storage required is greater than zero, then:
(1) the pond's storage capacity must be increase, (2) the pond's surface area must be increased, (3) the effluent flow must be reduced, or (4) other approved measures must be taken to ensure that no accumulation occurs during low-net evaporation and corresponding annual rainfall conditions.

(12)	(13)	(14a)	(14b)	(15)	(16)	(17)	(18a)	(18b)	(19)	(20)
Month	Effluent Available (as inches on plot acres)	Average Rainfall Distrib. (%)	Rain Worst Year	Field Runoff Worst Year	Infiltrated Rain	Avail Water	Average Net Evap. Distrib. (%)	Low Net Evap. from Reservoir Surface	Effluent to Storage (as inches on plot acres)	Accum Storage (as inches on plot acres)
Units →	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*
January	1.87	4.89%	2.17	0.67	1.50	3.37	3.40%	0.01	0.42	0.97
February	1.87	4.52%	2.01	0.57	1.44	3.31	4.46%	0.01	-0.37	0
March	1.87	7.85%	3.49	1.63	1.86	3.73	6.19%	0.01	-1.96	0
April	1.87	7.04%	3.13	1.35	1.78	3.65	9.72%	0.02	-3.61	0
May	1.87	12.42%	5.53	3.36	2.17	4.04	7.94%	0.02	-4.48	0
June	1.87	9.73%	4.33	2.32	2.01	3.88	14.02%	0.03	-5.45	0
July	1.87	11.72%	5.21	3.08	2.13	4.00	14.34%	0.03	-5.76	0
August	1.87	7.40%	3.29	1.47	1.82	3.69	18.00%	0.03	-5.77	0
September	1.87	14.31%	6.37	4.11	2.25	4.12	6.52%	0.01	-3.14	0
October	1.87	9.12%	4.06	2.09	1.97	3.84	7.31%	0.01	-1.83	0
November	1.87	6.20%	2.76	1.07	1.69	3.55	4.67%	0.01	0.06	0.06
December	1.87	4.82%	2.14	0.65	1.49	3.36	3.42%	0.01	0.49	0.55
Totals	22.40	100%	44.50	22.38	22.12	44.53	100%	0.19	—	0.97

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
12.0 Irrigation Acres Option

Land Application Calculations

12.0 Irrigation Acres Option

Worst (low) net evap. =	2.31 inches	Storage required =	0.97	*ac-ft*
Corresponding rain =	44.5 inches	Actual storage =		*ac-ft*
Worst-case net year =	2007	Additional storage required =	0.97	*ac-ft*
		Storage days =	16	*days*

(13) Effluent available for irrigation (assumes design flow is applied to entire acreage unless different flow values are justified).

(14a) Average rainfall distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(14b) Rainfall worst year = (*rainfall distribution* as fraction or %/100*) *maximum annual rainfall*

(15) Field runoff worst year = ⟦(*rainfall worst year* – (0.2*((1000/*CN*) – 10)))⟧^2/((*rainfall worst year* + (0.8*((1000/*CN*) – 10))))

(16) Infiltrated rainfall = (rainfall worst year- field runoff worst year)

(17) Available water = (effluent available for land application + infiltrated rainfall check)

(18a) Average net evaporation distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(18b) Net low evaporation from reservoir surface = [(|*low net evaporation*|)*(*net low evaporation avg. dist*)]*[(*pond area*)/(*irrigation area*)]

(19) Storage =

If: (*total water needs – infiltrated rainfall*) < 0, (*effluent available for land application – net low evaporation from reservoir surface*);

If: (*total water needs – infiltrated rainfall*) ≥ 0,

(effluent available for land application – net low evaporation from reservoir surface) * [(total water needs – infiltrated rainfall)/(irrigation efficiency)]

(20) Accumulated storage =

If: *net low evaporation from reservoir surface* + *storage* ≤ 0, 0

If: *net low evaporation from reservoir surface* + *storage* > 0, enter value

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
15.0 Irrigation Acres Option

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

WATER BALANCE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: **McMullen County**
Permit No.: **New TLAP**

TWDB Data Quadrangle: **909**

The water balance calculations are designed to evaluate the maximum application rate (hydraulic loading rate) for the land area where irrigation is to occur. The applicant's proposed application rate must not must not exceed the maximum calculated application rate or the maximum application rate based on agronomic analysis.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
Month	Avg Rain	Avg Runoff	Avg Infilt Rainfall	Evapo-trans.	Required Leach	Total Water Needs	Effluent Needed in Root Zone	Raw Net Evap. from Reservoir	Reservoir Net Evap. (as inches on plot acres)	Effluent Needed Based on Irrigation Efficiency	Reservoir Consumption (as inches on plot acres)
Units →	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*
January	1.26	0.18	1.08	2.42	0.31	2.73	1.64	1.14	0.08	1.93	2.01
February	1.17	0.14	1.03	2.90	0.43	3.33	2.30	1.49	0.10	2.71	2.81
March	2.03	0.58	1.45	4.42	0.69	5.11	3.66	2.07	0.14	4.30	4.44
April	1.82	0.46	1.36	5.47	0.95	6.42	5.05	3.25	0.22	5.95	6.16
May	3.21	1.41	1.80	6.47	1.08	7.55	5.75	2.66	0.18	6.76	6.94
June	2.52	0.90	1.62	6.97	1.24	8.21	6.59	4.69	0.31	7.75	8.06
July	3.03	1.27	1.76	7.31	1.28	8.59	6.83	4.80	0.32	8.04	8.36
August	1.91	0.51	1.40	6.99	1.29	8.28	6.88	6.02	0.40	8.09	8.49
September	3.70	1.79	1.90	5.64	0.86	6.50	4.60	2.18	0.15	5.41	5.56
October	2.36	0.79	1.57	4.44	0.66	5.10	3.54	2.44	0.16	4.16	4.32
November	1.60	0.34	1.27	2.85	0.37	3.22	1.95	1.56	0.10	2.29	2.40
December	1.25	0.17	1.07	2.36	0.30	2.66	1.58	1.15	0.08	1.86	1.94

Land Application Calculations

15.0 Irrigation Acres Option

Totals	25.85	8.54	17.31	58.24	9.45	67.69	50.38	33.45	2.23	59.27	61.50

Crop is		
CN	80.00	*dimensionless*
Ce	1.50	*mmhos/cm*
Cl	8.00	*mmhos/cm*
Pond area	1.00	*acres*
Irrigation area	15.00	*acres*
Irrigation Efficiency, *K*	0.85	*dimensionless*
Design Flow	0.020	*MGD*

Maximum calculated application rate =	5.12	*ac-in/ac/month* **OR** *ac-ft/ac/year*
Applicant's proposed application rate =	27.50	*ac-ft/ac/year*
Maximum rate from agronomic analysis =	N/A	*ac-in/ac/month* **OR** *ac-ft/ac/year*

Recommended rate for permit =	**5.12**	*ac-in/ac/month* **OR** *ac-ft/ac/year*
Limiting factor =	Click this cell to choose from list.	
Gross rate (from design flow, acres) =	1.49	**OK**

(2) Average rainfall – Data source: Texas Water Development Board (see Quadrangle above)
(3) Average runoff = ⟦(*average rainfall* – (0.2*((1000/*CN*) – 10)))⟧^2/((*average rainfall* + (0.8*((1000/*CN*) – 10))))
(4) Average infiltrated rainfall = (*average rainfall* – *average runoff*)
(5) Evapotranspiration – Data Source: Texas A&M AgriLife Extension, Historic Eto Reference from San Antonio (54 years data)
(6) Required leaching =
If: *evapotranspiration* – *average infiltrated rainfall* ≤ 0, then 0;
If: *evapotranspiration* – *average infiltrated rainfall* > 0, *Ce* /(*Cl* – *Ce*)*(*evapotranspiration* – *avg infiltrated rainfall*)
(7) Total water needs = *evapotranspiration* + *required leaching*
(8) Effluent needed in root zone = *total water needs* – *average infiltrated rainfall*
(9a) Net evaporation – Data source: Texas Water Development Board (see Quadrangle above)
(9b) Raw net evaporation from reservoir surface = (*net evaporation from reservoir*)*((*pond area*)/(*irrigation area*))
(10) Effluent needed based on irrigation efficiency = (*effluent needed in root zone*)/(*irrigation efficiency*)
(11) Consumption from reservoir = *net evaporation from reservoir surface* + *effluent needed based on irrigation efficiency*

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

Land Application Calculations
15.0 Irrigation Acres Option

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

STORAGE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: McMullen County
Permit No.: New TLAP

The storage calculations are designed to evaluate the storage capacity and surface area of the applicant's storage pond (or multiple ponds). The pond must have enough surface area to evaporate all the flow to the pond under low-net evaporation and corresponding annual rainfall conditions. The pond is considered adequately sized when the additional storage required is equal to zero (or "none"). If the additional storage required is greater than zero, then:
(1) the pond's storage capacity must be increase, (2) the pond's surface area must be increased, (3) the effluent flow must be reduced, or (4) other approved measures must be taken to ensure that no accumulation occurs during low-net evaporation and corresponding annual rainfall conditions.

(12)	(13)	(14a)	(14b)	(15)	(16)	(17)	(18a)	(18b)	(19)	(20)
Month	Effluent Available (as inches on plot acres)	Average Rainfall Distrib. (%)	Rain Worst Year	Field Runoff Worst Year	Infiltrated Rain	Avail Water	Average Net Evap. Distrib. (%)	Low Net Evap. from Reservoir Surface	Effluent to Storage (as inches on plot acres)	Accum Storage (as inches on plot acres)
Units →	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*	*inches*
January	1.49	4.89%	2.17	0.67	1.50	3.00	3.40%	0.01	0.05	0.16
February	1.49	4.52%	2.01	0.57	1.44	2.94	4.46%	0.01	-0.74	0
March	1.49	7.85%	3.49	1.63	1.86	3.36	6.19%	0.01	-2.33	0
April	1.49	7.04%	3.13	1.35	1.78	3.28	9.72%	0.01	-3.97	0
May	1.49	12.42%	5.53	3.36	2.17	3.66	7.94%	0.01	-4.85	0
June	1.49	9.73%	4.33	2.32	2.01	3.51	14.02%	0.02	-5.81	0
July	1.49	11.72%	5.21	3.08	2.13	3.63	14.34%	0.02	-6.13	0
August	1.49	7.40%	3.29	1.47	1.82	3.31	18.00%	0.03	-6.13	0
September	1.49	14.31%	6.37	4.11	2.25	3.75	6.52%	0.01	-3.52	0
October	1.49	9.12%	4.06	2.09	1.97	3.46	7.31%	0.01	-2.21	0
November	1.49	6.20%	2.76	1.07	1.69	3.18	4.67%	0.01	-0.31	0
December	1.49	4.82%	2.14	0.65	1.49	2.99	3.42%	0.01	0.12	0.12
Totals	17.92	100%	44.50	22.38	22.12	40.05	100%	0.15	—	0.16

Land Application Calculations
15.0 Irrigation Acres Option

Land Application Calculations

15.0 Irrigation Acres Option

Worst (low) net evap. =	2.31 inches	Storage required =	0.21	*ac-ft*
Corresponding rain =	44.5 inches	Actual storage =		*ac-ft*
Worst-case net year =	2007	Additional storage required =	0.21	*ac-ft*
		Storage days =	3	*days*

(13) Effluent available for irrigation (assumes design flow is applied to entire acreage unless different flow values are justified).

(14a) Average rainfall distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(14b) Rainfall worst year = (*rainfall distribution* as fraction or %/100*) *maximum annual rainfall*

(15) Field runoff worst year = ⟦(*rainfall worst year* – (0.2*((1000/*CN*) – 10)))⟧^2/((*rainfall worst year* + (0.8*((1000/*CN*) – 10))))

(16) Infiltrated rainfall = (rainfall worst year- field runoff worst year)

(17) Available water = (effluent available for land application + infiltrated rainfall check)

(18a) Average net evaporation distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(18b) Net low evaporation from reservoir surface = [(|*low net evaporation*|)*(*net low evaporation avg. dist*)]*[(*pond area*)/(*irrigation area*)]

(19) Storage =

If: (*total water needs – infiltrated rainfall*) < 0, (*effluent available for land application – net low evaporation from reservoir surface*);

If: (*total water needs – infiltrated rainfall*) ≥ 0,

(effluent available for land application – net low evaporation from reservoir surface) * [(total water needs – infiltrated rainfall)/(irrigation efficiency)]

(20) Accumulated storage =

If: *net low evaporation from reservoir surface + storage* ≤ 0, 0

If: *net low evaporation from reservoir surface + storage* > 0, enter value

Note: In this feasibility study, the land application alternative that was initially being considered by McMullen County has been rejected as no longer a viable alternative and therefore is NOT being pursued in the current TPDES permit application.

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APPENDIX E

Construction Cost

PLUMMER

McMullen County WWTP & TLAP
Class 5 Cost Estimate

#	Description	# of Units	Unit Type	Unit Price	Total Price
1	Mobilization and Demobilization	1	LS	-	$65,000.00
2	Fencing	1	LS	-	$70,000.00
3	Potable Water Line and RPZ	1	LS	-	$10,000.00
4	Chlorine Injection & Building	1	LS	-	$75,000.00
5	Eyewash	1	LS	-	$15,000.00
6	Blowers	3	EA	$25,000.00	$75,000.00
7	Generator and Pad	1	LS	-	$85,000.00
8	Electrical	1	LS	-	$150,000.00
9	Site Restoration & Grading	1	LS	-	$20,000.00
10	Convert Wet Well to Lift Station	1	LS	-	$60,000.00
11	20,000 gpd WWTP	1	LS	-	$360,000.00
12	Land Acquisition	13	AC	$15,000.00	$195,000.00
13	TLAP Storage Pond	1	LS	-	$40,000.00
14	TLAP Lift Station	1	LS	-	$90,000.00
15	TLAP Distribution & Equipment	1	LS	-	$88,000.00

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PLUMMER

McMullen County WWTP & TLAP
Class 5 Cost Estimate

Sub-Total:	$1,398,000.00
30% Contingency	$419,400.00
10% Escalation	$181,740.00
Total:	**$1,999,140.00**
Estimated Calendar Days	**365**

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