



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

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary as required by [Title 30, Texas Administrative Code \(30 TAC\), Chapter 39, Subchapter H](#). Applicants may modify the template as necessary to accurately describe their facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS Enter 'INDUSTRIAL' or 'DOMESTIC' here 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.

Travis County Water Control and Improvement District No. 17 (CN600669048) operates the Flintrock Wastewater Treatment Facility (RN102177433), an activated sludge domestic wastewater treatment plant using sequencing batch reactors. The facility is located at 2200 Lohmans Spur, in Lakeway, Travis County, Texas 78738. This application is for a renewal with major amendment to the existing permit WQ0013878001 which authorizes the treatment and disposal of up to 1.0 MGD via spray and drip irrigation. The major amendment is proposing to remove the total phosphorus testing requirement from effluent monitoring requirements of the permit. No other changes to the permit are proposed. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, and chlorine (CL₂). Domestic wastewater is treated by step screen headworks, influent equalization basin, sequencing batch reactor (SBR) basins, effluent equalization, tertiary filters, sludge digesters, and a belt press.

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

AGUAS RESIDUALES Introduzca 'INDUSTRIALES' o 'DOMÉSTICAS' aquí **/AGUAS PLUVIALES**

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

Travis County Water Control and Improvement District No. 17 (CN600669048) opera la instalacion de Tratamiento de Aguas Residuales de Flintrock (RN102177433), una planta de tratamiento de aguas residuals domesticas de lodos activados que utiliza reactores discontinuous de secuenciacion. La instalación está ubicada en 2200 Lohmans Spur, en Lakeway, Condado de Travis, Texas Esta solicitud es para una renovacion con enmienda importante al permsioi existent WQ0013878001 que autoriza el tratamiento y eliminacion de hasta 1,0 MGD mediante riego por aspersion y goteo. La enmienda principal propone eliminar el requisito de prueba de fosforo total de los requisitos de monitoreo de efluentes del permiso. No se proponen ostros cambiso al permiso. Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan demanda bioquímica de oxígeno (BOD5), solidos suspendidos totals (TSS), pH y cloro (CL2). Las aguas residuals domesticas. está tratado por cabeceras de criba escalonada, cuenca de ecualización de afluentes, cuencas de reactor discontinuo de secuenciación (SBR), ecualización de efluentes, filtros terciarios, digestores de lodos y una prensa de cinta.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



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

PERMIT NO. WQ0013878001

APPLICATION. Travis County Water Control and Improvement District No. 17, 3812 Eck Lane, Austin, Texas 78734, has applied to the Texas Commission on Environmental Quality (TCEQ) to amend Texas Land Application Permit (TLAP) No. WQ0013878001 to authorize removal of the total phosphorus limit. The domestic wastewater treatment facility is located at 2200 Lohmans Spur Road, in the city of Lakeway, Travis County, Texas 78738. The effluent disposal areas are located from approximately one mile northwest of the intersection of Serene Hills Drive and State Highway 71, to approximately 1,700 feet northwest of the intersection of Flint Rock Road and Ranch-to-Market Road 620, in Travis County, Texas 78738. TCEQ received this application on September 9, 2024. The permit application will be available for viewing and copying at Travis County WCID No. 17 Main Office, 3812 Eck Lane, Austin, in Travis County, 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/tlap-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=-97.972222,30.337777&level=18>

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications>. El aviso de idioma alternativo en español está disponible en <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-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 draft permit 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 Travis County Water Control and Improvement District No. 17 at the address stated above or by calling Mr. Michael Bevilacqua, P.E., Baxter and Woodman, at 737-358-8103.

Issuance Date: September 30, 2024

Comisión de Calidad Ambiental del Estado de Texas



AVISO DE RECIBO DE LA SOLICITUD E INTENCION DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA MODIFICACION

PERMISO NO. WQ0013878001

SOLICITUD. Travis County Water Control and Improvement District No. 17, 3812 Eck Lane, Austin, Texas 78734, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) que modifique el Permiso de Solicitud de Tierras de Texas (TLAP) No. WQ0013878001 para autorizar la eliminación del límite total de fósforo. La planta de tratamiento de aguas residuales domésticas está ubicada en 2200 Lohmans Spur Road, en la ciudad de Lakeway, condado de Travis, Texas 78738. Las áreas de eliminación de efluentes están ubicadas desde aproximadamente una milla al noroeste de la intersección de Serene Hills Drive y State Highway 71, hasta aproximadamente 1700 pies al noroeste de la intersección de Flint Rock Road y Ranch-to-Market Road 620, en el condado de Travis, Texas 78738. TCEQ recibió esta solicitud el 9 de septiembre de 2024. La solicitud de permiso estará disponible para su visualización y copia en la oficina principal de Travis County WCID No. 17, 3812 Eck Lane, Austin, en el condado de Travis, Texas, antes de la fecha en que se publique este aviso en el periódico. La solicitud, incluidas las actualizaciones y los avisos asociados, están disponibles electrónicamente en la siguiente página web:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications>

Este enlace a un mapa electrónico de la ubicación general del sitio o instalación se proporciona como cortesía pública y no forma parte de la solicitud ni del aviso. Para conocer la ubicación exacta, consulte la solicitud.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.972222,30.337777&level=18>

AVISO DE IDIOMA ALTERNATIVO. El aviso de idioma alternativo en español está disponible en <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-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 mas 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 específico. Si desea que se agregue 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 información adicional del Travis County Water Control and Improvement District No. 17 a la dirección indicada arriba o llamando a Sr. Michael Bevilacqua, P.E., Baxter and Woodman al 737-358-8103.

Fecha de emisión el 30 de septiembre de 2024

Leah Whallon

From: Mike Bevilacqua <mbevilacqua@baxterwoodman.com>
Sent: Tuesday, September 24, 2024 9:38 AM
To: Leah Whallon
Cc: jkunz@wcid17.org; Linda Engelman; Will Pena
Subject: RE: Application to Amend Permit No. WQ0013878001; Travis County WCID 17; Flintrock WWTP

Attachments: TCEQ.WQ0013878001 Response To Admin Comments #1.2024.09.24.pdf; Mailing Labels - WQ0013878001.docx; Flintrock NORI_Spanish.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Leah,

Attached is our response to comments. Also attached are the mailing labels in word form, and a translated copy of the Spanish NORI.

Please let me know if you have any questions or need any additional information.

Thanks

Michael E. Bevilacqua, P.E.
Senior Project Manager

Green Civil Design
A Baxter & Woodman Company
Direct: 737-358-8103
Cell: 512-568-9974
301 Denali Pass, Suite #3
Cedar Park, TX 78613
TBPELS Registration No. F-21783

This email and any attachments are confidential and are intended solely for the use of the intended addressee(s). If you have received this email in error, please notify the sender immediately or call 815.459.1260 and delete this email. If you are not the intended recipient(s), any use, retention, dissemination, forwarding, printing, or copying of this e-mail is strictly prohibited. The integrity and security of this message cannot be guaranteed on the Internet. Thank You.

From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
Sent: Friday, September 20, 2024 10:40 AM
To: Mike Bevilacqua <mbevilacqua@baxterwoodman.com>
Cc: jkunz@wcid17.org
Subject: Application to Amend Permit No. WQ0013878001; Travis County WCID 17; Flintrock WWTP

***** CAUTION: Think Security!** This email originated from outside of Baxter & Woodman, Inc. Do not click on links or open attachments unless you recognize the sender and know that the content is safe.

Good Afternoon,

Please see the attached Notice of Deficiency letter dated September 20, 2024 requesting additional information needed to declare the application administratively complete. Please send the complete response by October 4, 2024.

Please let me know if you have any questions.

Thank you,



Leah Whallon

Texas Commission on Environmental Quality

Water Quality Division

512-239-0084

leah.whallon@tceq.texas.gov

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

September 24, 2024

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

Re: Application to Amend Permit No.: WQ0013878001
Applicant Name: Travis County Water Control and Improvement District 17 (CN600669048)
Site Name: Flintrock WWTP (RN102177433)
Response to Admin Review Comments #1

Leah Whallon,

We have received your administrative review comments dated 9/20/2024 for the above referenced application. A summary of the comments is provided below with our response in italics.

1. Provide mailing labels per Administrative Report 1.1, Sections 1.
 - *A word doc containing the mailing labels will be emailed as part of this response.*
2. Please provide payment for the additional notice fee of \$150.00.
 - *The fee has been paid and a copy of the receipt is attached. The voucher number is 722528.*
3. Please review the NORI and provide comments if necessary.
 - *We have reviewed to NORI and have two (2) comments. 1st is to change the zip code of the treatment facility to 78738 (this is per TCAD address). 2nd comment is to add "No." as part of the Owner's name. See attached in red.*
4. Provide a translated Spanish NORI using the attached template.
 - *The translated Spanish NORI will be emailed as part of this response.*

If you have any questions, or need additional information, please do not hesitate to contact me. My address and phone number are listed above, and my email is mbevilacqua@baxterwoodman.com.

Sincerely,
Baxter & Woodman.



Michael E. Bevilacqua, P.E.

Your transaction is complete. Thank you for using TCEQ ePay.

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number: 582EA000626535
Date: 09/24/2024 08:19 AM
Payment Method: CC - Authorization 0000304921
ePay Actor: MICHAEL BEVILACQUA
Actor Email: mbevilacqua@baxterwoodman.com
IP: 71.40.193.118
TCEQ Amount: \$150.00
Texas.gov Price: \$153.63*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

Name: MICHAEL BEVILACQUA
Company: BAXTER AND WOODMAN
Address: 301 DENALI PASS SUITE 3, CEDAR PARK, TX 78613
Phone: 512-568-9974

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
722528	ADDITIONAL 30 TAC 305.53B WQ NOTIFICATION FEE		\$150.00
TCEQ Amount:			\$150.00

[ePay Again](#)

[Exit ePay](#)

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt for your records.

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 20, 2024

Mr. Michael Bevilacqua, P.E.
Senior Project Manager
Baxter and Woodman
301 Denali Pass, Suite 3
Cedar Park, Texas 78613

RE: Application to Amend Permit No.: WQ0013878001
Applicant Name: Travis County Water Control and Improvement District 17 (CN600669048)
Site Name: Flintrock WWTP (RN102177433)
Type of Application: Major amendment with renewal

VIA EMAIL

Dear Mr. Bevilacqua:

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

1. Administrative Report 1.1, Section 1
Please provide the affected landowner list formatted for mailing labels (Avery 5160) in a Microsoft Word document.
2. The \$50.00 notice fee included in the application fee covers notice of up to 100 landowners. An additional notice fee of \$50.00 for each increment of 100 additional landowners is required. Please provide payment for the additional notice fee of \$150.00 and include the check or ePay voucher number in your response.
3. 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.

No. 17

78738

APPLICATION. Travis County Water Control and Improvement District 17, 3812 Eck Lane, Austin, Texas 78734, has applied to the Texas Commission on Environmental Quality (TCEQ) to amend Texas Land Application Permit (TLAP) No. WQ0013878001 to authorize removal of the total phosphorus limit. The domestic wastewater treatment facility is located at 2200 Lohmans Spur Road, in the city of Lakeway, Travis County, Texas 78734. The effluent disposal areas are located from approximately one mile northwest of the intersection of Serene Hills Drive and State Highway 71, to approximately 1,700 feet northwest of the intersection of Flint Rock Road and Ranch-to-Market Road 620, in Travis County, Texas 78734. TCEQ received this application on September 9, 2024. The permit application will be available for viewing and copying at Travis County WCID No. 17 Main Office, 3812 Eck Lane, Austin, in Travis County, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

LOHMANS LAKEWAY PARTNERS LTD
PO BOX 340519
LAKEWAY TX 78734

GADDIS EVAN AND BONNITA TRUST
214 NEVILLE WOOD COURT
AUSTIN TX 78738

STEVEN KIP AND SAMANTHA K HARRIS
223 NEVILLE WOOD COURT
AUSTIN TX 78738

FLINTROCK TRACE LP
8616 BIG VIEW DRIVE
AUSTIN TX 78730

PETER C III AND CYNTHIA D MCCABE
REVOCABLE TRUST
216 NEVILLE WOOD COURT
AUSTIN TX 78738

DEBORAH ANN TEAGUE
221 NEVILLE WOOD COURT
AUSTIN TX 78738

PAUL L AND BEVERLY L WYATT
109 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

STEPHEN C AND MARIA D FOUST
218 NEVILLE WOOD COURT
AUSTIN TX 78738

JOSEPH W AND JENNIFER D RAPP
PO BOX 341419
LAKEWAY TX 78734

JESUS MANTAS-PEREZ AND CRISTINA CALERO-
MOLINO
102 GOLDEN BEAR COVE
AUSTIN TX 78738

KAMRAN AND ZAHRA DURRANI
220 NEVILLE WOOD COURT
AUSTIN TX 78738

RODNEY M AND ROBIN LYN HAWTHORNE
217 NEVILLE WOOD COURT
AUSTIN TX 78738

RON AND DIAHANN POTTER
104 GOLDEN BEAR COVE
AUSTIN TX 78738

NATALIA MYERS
224 NEVILLE WOOD COURT
AUSTIN TX 78738

DONNA L STERLING
11248 TOM SASSMAN ROAD
AUSTIN TX 78747

GLEN A BRYNTESON
106 GOLDEN BEAR COVE
AUSTIN TX 78738

HURST CREEK M U D
102 TROPHY DRIVE
THE HILLS TX 78738

ERIC AND KENDRA DEGROAT
215 NEVILLE WOOD COURT
AUSTIN TX 78738

CHARLES AND SUSAN ZEYNEL
108 GOLDEN BEAR COVE
LAKEWAY TX 78738

2050 LOHMANS SPUR LP
8121 FM 2244
SUITE 200
AUSTIN TX 78746

MATTHEWS LEE A AND BARBARA TRUST
213 NEVILLE WOOD COURT
AUSTIN TX 78738

MARTHA ALBRITTON
110 GOLDEN BEAR COVE
AUSTIN TX 78738

JH TUSCAN VILLAGE LP
102 BELLA TOSCANA AVENUE
SUITE 1109
LAKEWAY TX 78734

HUPP JON A AND KAREN L REVOCABLE TRUST
211 NEVILLE WOOD COURT
AUSTIN TX 78738

HAROLD D LANHAM AND KATHY HARDY
112 GOLDEN BEAR COVE
LAKEWAY TX 78738

JAMIE CHRISTOPHER AND GAYLE MCFARLAND
ARNN
227 NEVILLE WOOD COURT
AUSTIN TX 78738

AMER HUSAINI
209 NEVILLE WOOD COURT
AUSTIN TX 78738

GEORGIA G JONES
212 NEVILLE WOOD COURT
AUSTIN TX 78738

PETER AND SHELLEY MADDOX REVOCABLE
TRUST
225 NEVILLE WOOD COURT
AUSTIN TX 78738

JOHN A AND JANICE A LEFFLER
207 NEVILLE WOOD COURT
AUSTIN TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

LARRY D YORK AND LINDA YORK
205 NEVILLE WOOD COURT
AUSTIN TX 78738

MARY ANNE MARQUIS
207 JACK NICKLAUS DRIVE
LAKEWAY TX 78738

SHORE FAMILY REVOCABLE TRUST
403 LAGO VERDE ROAD
AUSTIN TX 78734

WILLIAM A AND GERALDINE R MILLER
203 NEVILLE WOOD COURT
AUSTIN TX 78738

ROBERT MILES AND ANNE J MILLER
209 JACK NICKLAUS DRIVE
AUSTIN TX 78738

ADAM AND KAREN FINGERMAN
309 JACK NICKLAUS DRIVE
AUSTIN TX 78738

KANG BYUNG AND JUNGHEE REVOCABLE
TRUST
201 NEVILLE WOOD COURT
AUSTIN TX 78738

BRIAN AND MARCIA ARMSTRONG
211 JACK NICKLAUS DRIVE
AUSTIN TX 78738

JUSTIN AND MICHAELA KNAPLUND
17 HIGHTRAIL WAY
THE HILLS TX 78738

FRED AND KATHLEEN MICHELLE MURABITO
15253 MONTALVO ROAD
SARATOGA CA 93070

PATRICK M AND DEBORAH S CONNER
213 JACK NICKLAUS DRIVE
AUSTIN TX 78738

MARVIN AND CHRISTINA BUTTON
19 HIGHTRAIL WAY
THE HILLS TX 78738

MCLEMORE MICHAEL T TRUST
107 NELVILLE WOOD COURT
LAKEWAY TX 78738

WILLIAM D AND STACY L MIKRUT
215 JACK NICKLAUS DRIVE
LAKEWAY TX 78738

MIROSLAV V AND SANJA DOKIC
21 HIGHTRAIL WAY
THE HILLS TX 78738

FRANK R AND LINDA R SOUTHERS
105 NEVILLE WOOD COURT
AUSTIN TX 78738

MARKOVICH PAUL N AND MARY H TRUST
217 JACK NICKLAUS DRIVE
AUSTIN TX 78738

STOKES-HEARN REVOCABLE TRUST
4 FIRWOOD COURT
THE HILLS TX 78738

JON B AND NANCY L WELLS
103 NEVILLE WOOD COURT
AUSTIN TX 78738

ERIC NIELS AND
DEBORAH W FLORANDER
219 JACK NICKLAUS DRIVE
AUSTIN TX US 78738

MICHAEL AND JOANNE MARIE KOVACICH
1 TIBURON DRIVE
THE HILLS TX 78738

PAUL AND APRIL DODD
302 JACK NICKLAUS DRIVE
LAKEWAY TX 78738

RESNIK WILLIAM A AND DEBORAH A
REVOCABLE TRUST
301 JACK NICKLAUS DRIVE
AUSTIN TX 78738

R AND D WHEELER TRUST
5 TORRINGTON COURT
THE HILLS TX 78738

SAMUEL AND TORI FISCHER
116 GOLDEN BEAR DRIVE
AUSTIN TX 78738

DAVID M GRETT
303 JACK NICKLAUS DRIVE
AUSTIN TX 78738

JAMES AND CAITLIN PAISLEY
8 TORRINGTON COURT
THE HILLS TX 78738

SCOTT L BRANSON
203 JACK NICKLAUS DRIVE
AUSTIN TX 78738

MARK A ROE AND PATRICIA A MANGUM
305 JACK NICKLAUS DRIVE
AUSTIN TX 78738

THOMAS M AND MARGO L STEVENSON
2 WATERFALL DRIVE
THE HILLS TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

SURVIVING GRANTORS TRUST
1 WATERFALL DRIVE
THE HILLS TX 78738

DAVID R AND MARICELA WILSON
106 COG HILL COURT
AUSTIN TX 78738

KERLEY LIVING TRUST
202 BLACK WOLF RUN
AUSTIN TX 78738

LISA S MAGENHEIMER
508 BLACK WOLF RUN
AUSTIN TX 78738

ROBERT CHARLES AND TANYA L DORSETT JR
220 BLACK WOLF RUN
AUSTIN TX 78738

ROBERT W AND MARY LEOLA JOLLY
107 ESCAVERA COVE
AUSTIN TX 78738

BARRY ALEXANDER AND PEASE MICHELLE
506 BLACK WOLF RUN
AUSTIN TX 78738

MILTON BARTLETT FAMILY TRUST
218 BLACK WOLF RUN
AUSTIN TX 78738

LYNN AND MARYJO DONNELL
109 ESCAVERA COVE
AUSTIN TX 78738

DAVID CHADWICK AND MARIANNA JACOBS
504 BLACK WOLF RUN
LAKEWAY TX 78738

RODNEY C HOESMAN AND DANA L FREEMAN
216 BLACK WOLF RUN
AUSTIN TX 78738

HAFERMANN FAMILY TRUST
111 ESCAVERA COVE
AUSTIN TX 78738

DONOVAN FAMILY TRUST
502 BLACK WOLF RUN
AUSTIN TX 78738

WATKINS LIVING TRUST
214 BLACK WOLF RUN
LAKEWAY TX 78738

KEVIN FRANKLIN AND DEBORAH MCMORRIES
STEVENSON
113 ESCAVERA COVE
AUSTIN TX 78738

BRUCE WILLIAM SIMMONS AND KELLY
VARNEY
411 GOLDEN BEAR DRIVE
AUSTIN TX 78738

JOHN M AND CHARLOTTE K BERRA
212 BLACK WOLF RUN
AUSTIN TX 78738

WELLS FAMILY TRUST
115 ESCAVERA COVE
AUSTIN TX 78738

KENNEDY JAMES W AND SHERRY L REVOCABLE
TRUST
404 BLACK WOLF DRIVE
AUSTIN TX 78738

EDWARD B AND KIRSTEN R NELSON
210 BLACK WOLF RUN
AUSTIN TX 78738

BERGAN REVOCABLE TRUST
117 ESCAVERA COVE
AUSTIN TX 78738

COVINGTON CHRISTOPHER AND CHRISTINA
TRUST
402 BLACK WOLF RUN
LAKEWAY TX 78738

RUSSELL DANNY BRISTOL AND KELLY LYNN
ADELIA
208 BLACK WOLF RUN
AUSTIN TX 78738

HARRINGTON JEANNE TRUST
119 ESCAVERA COVE
AUSTIN TX 78738

SCHULTZ DEBORAH Z 10689 TRUST
105 COG HILL COURT
AUSTIN TX 78738

MICHAEL W AND JANET S KAMPEN
206 BLACK WOLF RUN
AUSTIN TX 78738

WELLS J KENT AND E GAIL LIFE ESTATE AND
KENT AND GAIL WELLS FAMILY TRUST
121 ESCAVERA COVE
AUSTIN TX 78738

RAND N AND KAREN M SHULMAN
108 COG HILL COURT
AUSTIN TX 78738

SALEK JAMES AND DIANE REVOCABLE TRUST
204 BLACK WOLF RUN
AUSTIN TX 78738

ELIZABETH AND FREDERIC RELLO
130 ESCAVERA COVE
AUSTIN TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

STEVEN E GOTTLIEB
512 BLACK WOLF RUN
AUSTIN TX 78738

THE KELLY MICHELE FRANCES TRUST
110 ESCAVERA COVE
AUSTIN TX 78738

STEPHEN AND LINDSAY LAGASSE
102 STEPHANIE LANE
LAKEWAY TX 78738

RICHARD W AND KIMBERLY T MCARDLE
128 ESCAVERA COVE
AUSTIN TX 78738

ROBERT AND SHERRI CLEMONS TRUST
108 ESCAVERA COVE
AUSTIN TX 78738

TRACADAS FAMILY TRUST
101 TONKAWA TRL W
AUSTIN TX 78738

BRYAN AND NICKY BRADEMAN
126 ESCAVERA COVE
AUSTIN TX 78738

WILLIAM AND SONJA TALBOT
102 ESCAVERA COVE
AUSTIN TX 78738

BOGDAN ODULINSKI AND MICHELE
MAYSONAVE
103 W TONKAWA TRL
LAKEWAY TX 78738

SCOTT W ELDER
124 EXCAVERA COVE
AUSTIN TX 78738

PATRICIA H AND LYNDON D MUELLER
116 BLACK WOLF RUN
AUSTIN TX 78738

SANTO AND JAMIE DASARO
105 TONKAWA TRL W
AUSTIN TX 78738

AMY AND LARRY MICON
122 ESCAVERA COVE
AUSTIN TX 78738

DAVID AND AMBER D YEW
114 BLACK WOLF RUN
LAKEWAY TX 78738

DAN DINESHI CHAND
107 W TONKAWA TRAIL
AUSTIN TX 78738

KRIBBS WILLIAM AND SHANNA TRUST
120 ESCAVERA COVE
AUSTIN TX 78738

STEVEN S AND LESLIE U KNISELY
112 BLACK WOLF RUN
AUSTIN TX 78738

DANA KIRSTEN GLASS
109 W TONKAWA TRL
LAKEWAY TX 78738

JOHANNES AND EMILY LE LARCHER
PO BOX 964
RED LODGE MT 59068

CHARLINE DOUTY
91 RED RIVER STREET
APT 2811
AUSTIN TX 78701

CRAIG AND CAREY KING
111 TONKAWA TRL WEST
LAKEWAY TX 78738

CHARLES AND AMY FOWLER JR
116 ESCAVERA COVE
AUSTIN TX 78738

KELLY RODNEY P AND MARY ANN KELLY
REVOCABLE TRUST
104 BLACK WOLF RUN
AUSTIN TX 78738

ZULFIQAR AND RABAIL ANSARI
113 TONKAWA TRL
LAKEWAY TX 78738

ROBERT M AND KAY P BEASLEY
114 ESCAVERA COVE
AUSTIN TX 78738

GREGG R AND SHAYNE F SKINNER
102 BLACK WOLF RUN
AUSTIN TX 78738

DON L AND CONSTANCE M RAGLAND
115 W TONKAWA TRL
AUSTIN TX 78738

MICHAEL A AND PATRICIA BURNS HAHN
112 ESCAVERA COVE
AUSTIN TX 78738

SCOTT R OLSON
107 KADEN WAY
LAKEWAY TX 78738

ELIZABETH BROOKE TOELLER
117 TONKAWA TRL W
AUSTIN TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

CHRISTOPHER BENJAMIN AND RHONDA A
ROBINSON
119 TONKAWA TRL W
LAKEWAY TX 78738

PAUL BANCROFT AND CLARA BERNACHEA
13501 GALLERIA CIR
SUITE 280
AUSTIN TX 78738

BIN HU KARG AND LARS MARKUS KARG
106 SHORE OAKS COURT
AUSTIN TX 78738

JAMES L AND TARA A STANISLAUS
16500 FLINTROCK ROAD
AUSTIN TX 78738

DARYL AND NADINE HIGGINS
603 GOLDEN BEAR
AUSTIN TX 78738

KURT D WISSNER
104 SHORE OAKS COURT
AUSTIN TX 78738

CREED AND CATHERINE FORD IV
16490 FLINTROCK ROAD
AUSTIN TX 78738

UMESH BHANDARI AND HOLLY KINGET
3820 PAWNEE PASS
AUSTIN TX 78738

MCKINZIE DAVID J AND LAURA M TRUST
516 GOLDEN BEAR DRIVE
AUSTIN TX 78738

JOSEPH P AND LEILANI M CONNORS
402 TONKAWA TRL W
AUSTIN TX 78738

DAVID J AND HEATHER L KENYON
3810 PAWNEE PASS
AUSTIN TX 78738

POWELL JAMES L LLEWELLYN II AND MAUREEN
TRUST
514 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

FRED JACOB AND ANITA K SCHLOTTERBACK
PO BOX 340414
AUSTIN TX 78734

JARED S POPLIN
3800 PAWNEE PASS
AUSTIN TX 78738

BRYAN H AND CHRISTY N KRANIK
512 GOLDEN BEAR DRIVE
AUSTIN TX 78738

KENNETH J AND DOROTHY E AUNE LIVING
TRUST
3910 PAWNEE PASS
AUSTIN TX 78738

BAOYING YANG
519 GOLDEN BEAR DRIVE
AUSTIN TX 78738

WILLIAM JENNINGS AND KATHERINE BEE
PAVETO
510 GOLDEN BEAR DRIVE
AUSTIN TX 78738

AF TRUST
3860 PAWNEE PASS
AUSTIN TX 78738

DANIEL S AND DONNA LYNN M ALLEN
522 GOLDEN BEAR DRIVE
AUSTIN TX 78738

JAMES AND BARBARA ELIZABETH WANG
508 GOLDEN BEAR DRIVE
AUSTIN TX 78738

ROBERT DUNKERLEY AND MICHELLE MOGGIO
3850 PAWNEE PASS
AUSTIN TX 78738

TERENCE AND SHELLEY RABBITT
105 SHORES OAKS COURT
LAKEWAY TX 78738

JEFFREY C AND MONICA WILLIAMS
504 GOLDEN BEAR DRIVE
AUSTIN TX 78738

SPOUSES TRUST
UTA HUSSEY 2000 FAMILY TRUST
3840 PAWNEE PASS
LAKEWAY TX 78738

MCGIVERAN STANLEY AND CHRISTINE TRUST
107 SHORE OAKS COURT
AUSTIN TX 78738

STEPHEN AND MELISSA ODEA
503 GOLDEN BEAR DRIVE
AUSTIN TX 78738

SHAWN D MORRIS
3830 PAWNEE PASS
AUSTIN TX 78738

THOMAS J TRAUGHBER
108 SHORE OAKS COURT
LAKEWAY TX 78738

BRIAN M AND CHRISTINE L PRIBYL
403 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

AMOR AND SUZANNE FORWOOD III
408 GOLDEN BEAR DRIVE
AUSTIN TX 78738

MICHAEL G AND PATRICIA L TOMBARI
7 BOARDWATER COURT
SHENANDOAH TX 77381

SEAN AND JENNIFER KOONTZ
216 GOLDEN BEAR DRIVE
AUSTIN TX 78738

RICHARD AND LAURA LAWLOR
406 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

PATTERSON FAMILY TRUST
104 PORTO CIMA
LAKEWAY TX 78738

AIMEE KIRCHER
214 GOLDEN BEAR DRIVE
AUSTIN TX 78738

NATHANIEL AND JULIET PENISTON
404 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

ROSS E WINSTON JR AND ANN MARIE
PO BOX 26560
AUSTIN TX 78755

212 GOLDEN BEAR REVOCABLE TRUST
212 GOLDEN BEAR DRIVE
AUSTIN TX 78738

TOM AND DEBBIE WOODARD
103 CABO DEL SOL COURT
AUSTIN TX 78738

SCHWENDINGER FAMILY TRUST
230 GOLDEN BEAR DRIVE
AUSTIN TX 78738

FENG XU AND YUN WANG
210 GOLDEN BEAR DRIVE
AUSTIN TX 78738

JAMES C AND LINDA L GRIMSLEY JR
105 CABO DEL SOL COURT
AUSTIN TX 78738

GETTEN FAMILY TRUST
228 GOLDEN BEAR DRIVE
AUSTIN TX 78738

STEVEN AND CHRISTINA M QUAKENBUSH
208 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

KANE TIMOTHY AND RITA TRUST
107 CABO DEL SOL COURT
AUSTIN TX 78738

RDBD TRUST
226 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

BRYAN DECORDOVA
206 GOLDEN BEAR DRIVE
AUSTIN TX 78738

CURTIS A AND JAMIE J IMBER
109 CABO DEL SOL COURT
AUSTIN TX 78738

JACQUELINE MILLER
224 GOLDEN BEAR DRIVE
AUSTIN TX 78738

CHRISTIAN RIVERA
204 GOLDEN BEAR DRIVE
AUSTIN TX 78738

JAMES HOUSLEY FURMAN AND SUSAN
BARNETT
108 CABO DEL SOL COURT
AUSTIN TX 78738

ROBERT A AND SHARI COLLIER
222 GOLDEN BEAR DRIVE
AUSTIN TX 78738

KEVIN JAMES AND RONDA MARIE FANNING
203 GOLDEN BEAR DRIVE
LAKEWAY TX 78738

WILLIAM W AND JENNIFER F FURGERSON
106 CABO DEL SOL COURT
AUSTIN TX 78738

BURKE T AND TRICIA T EDWARDS
220 GOLDEN BEAR DRIVE
AUSTIN TX 78738

LAKEWAY REGIONAL MEDICAL CENTER
3 GREENWAY PLAZA
HOUSTON TX 77046

JERRY D AND CYNTHIA A JOHNSON
105 PORTO CIMA COURT
AUSTIN TX 78738

RAIFORD WAYNE AND CANDYCE L CRAWFORD
218 GOLDEN BEAR DRIVE
AUSTIN TX 78738

LAKE TRAVIS ISD
3322 RANCH ROAD 620 S
AUSTIN TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

JEFFREY FISHER
3703 PEAK LOOKOUT DRIVE
AUSTIN TX 78738

MITCHUM THOMAS A SUPPLEMENTAL NEEDS
TRUST AND ABIGAIL M MITCHUM TRUST
336 S CONGRESS AVENUE
SUITE 100
AUSTIN TX 78704

JOSEPH A AND JILL AUBY MANCINO
4500 SERENE HILLS DRIVE
AUSTIN TX 78738

CARY KRIER
3701 PEAK LOOKOUT DRIVE
AUSTIN TX 78738

VILLAS AT FLINTROCK CONDOMINIUMS
315 JACK NICKLAUS DRIVE
AUSTIN TX 78738

EASTSIDE LANDINGS DEVELOPMENT LLC
2101 LAKEWAY BOULEVARD
SUITE 130
LAKEWAY TX 78734

AMERICO PROPERTIES LLC
2 AUTUMN OAKS DRIVE
AUSTIN TX 78738

JORGE ROBERTO AND AMY CRENWEIGE ELLIS
3726 HUNTERWOOD PT
AUSTIN TX 78746

WELLS HARRIETTE A FAMILY TRUST
JOHN L COULTRUP TRUSTEE
2300 BARTON CREEK BOULEVARD
APT 2
AUSTIN TX 78735

LAKEWAY MOB PARTNERS LLC
PO BOX 978
ARGYLE TX 76226

WEEMS LIVING TRUST
16327 FLINT ROCK ROAD
AUSTIN TX 78738

TRAVIS COUNTY WATER CONTROL AND
IMPROVEMENT DISTRICT 17
3812 ECK LN
AUSTIN TX 78734

JOHN C GRIFFITHS
208 RIVULET LN
LAKEWAY TX 78738

WILLIAM J AND SHELLIE ANN HOLLIS
4222 SERENE HILLS DRIVE
AUSTIN TX 78738

NICHOLAS AND JUNE YUAN NICASTRO
510 MISSION BELL COVE
LAKEWAY TX 78738

NANCY PETERS
2400 CORBIN WAY
CEDAR PARK TX 78613

SERENE HILLS HOMEOWNERS ASSOCIATION
INC
PO BOX 203310
AUSTIN TX 78720

JOHN AND DANIELLE FRONS MAJOR
508 MISSION BELL COVE
AUSTIN TX 78738

CASSIDY ANDREW HUMPHREY
9968 BOBCAT COURT
GILROY CA 95020

RYAN AND PAM JOHNSTONE
17001 FLINT ROCK ROAD
AUSTIN TX 78738

JHF HOMES LLC
2303 RANCH ROAD 620 S
SUITE 160
LAKEWAY TX 78734

JOSHUA LEE WARD
296 BRIGHT SKY DRIVE
AUSTIN TX 78737

ANDREA HOFACRE
17004 FLINTROCK
AUSTIN TX 78738

CHARLES AND CHELSY TANNER
703 SERENE ESTATES DRIVE
AUSTIN TX 78738

HILLSONG DEVELOPMENT LLC
2101 LAKEWAY BOULEVARD
SUITE 130
LAKEWAY TX 78734

BRIAN C AND YOSHIKO DEATON
17006 FLINTROCK ROAD
AUSTIN TX 78738

SERENE HILLS HOMEOWNERS ASSOCIATION
INC
11149 RESEARCH BOULEVARD
SUITE 100
AUSTIN TX 78759

CHERRY PEAK LTD
PO BOX 33
COLLEYVILLE TX 76034

JEFF DAVID AND SHEJI R WOODS
17008 FLINTROCK ROAD
AUSTIN TX 78738

NICHOLAS AND ANANDA SANSON
513 DOE WHISPER WAY
AUSTIN TX 7873sw

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

DAVID GORDON RAPOPORT AND CASSIDY
ASHTON HURWITZ
515 DOE WHISPER WAY
LAKEWAY TX 78738

DAMON LAMAR AND KELLY ANN JOSLIN
302 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

ANDERSEN PHILIP EARL AND PATRICIA M
REVOCABLE TRUST
301 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

JEFFREY RANDOLPH AND DIANA HANSON
517 DOE WHISPER WAY
LAKEWAY TX 78738

EDUARDO ALVAREZ MARQUARD AND SANDRA
RODRIQUEZ JIMENEZ
212 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

ROBERT AND SHARON HANNAFORD
303 SWEET GRASS LN
LAKEWAY TX 78738

ANAND USHAKANT AND
UMA ANAND SHIRUR
519 DOE WHISPER WAY
LAKEWAY TX 78738

STEVEN C MATHEWS
210 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

KEVIN J ELLE AND MARIA T CURRY
305 SWEET GRASS LN
LAKEWAY TX 78738

JEFFREY WILLIAM GEROUX AND
JULIETA ARELLANO LEE
521 DOE WHISPER WAY
AUSTIN TX 78738

DITRELL AND JERELL E BINKLEY
208 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

EDWARD JAMES AND TERESA ANNETTE DAVIS
307 SWEET GRASS LN
LAKEWAY TX 78738

CHIWON SUH AND MI HEE KIL
606 SWEET GRASS LN
LAKEWAY TX US 78738

JERICO AND LAUREL GOVEIA GRAFFAGNINI
206 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

ERIC AND MEGHAN PARK
309 SWEET GRASS LN
LAKEWAY TX 78738

ELIZABETH DEE ROGERS
419 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

KURT D AND GENEVAL NESS
204 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

CLAUDELL AND CAROLYN K WILLIAMS
304 DUCKHORN PASS
AUSTIN TX 78738

RICHARD AND DANA SHERMAN TRUST
412 RINGTAIL STREAM
LAKEWAY TX 78738

OFFILL WILLIAM J AND STEPHANIE G
REVOCABLE TRUST
202 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

MONTGOMERY FAMILY TRUST
302 DUCKHORN PASS
AUSTIN TX 78738

TRAVIS COUNTY ESD NO. 6
PO BOX 340196
AUSTIN TX 78734

VANESSA HOUCK
203 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

MARK J AND LEEANN Z GORMAN
303 DUCKHORN PASS
AUSTIN TX 78738

H E B GROCERY COMPANY LP
PO BOX 839999
SAN ANTONIO TX 78283

NICHOLAS TAYLOR AND KAREN MELENDEZ
205 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

MF FAMILY TRUST
216 DUCKHORN PASS
LAKEWAY TX 78738

PATRICK AND MARY-KRISTIAN WOOD
304 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

GARY A AND DENISE D MARX
207 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

SCOTT AND FELECIA SHAW
214 DUCKHORN PASS
LAKEWAY TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

SCOTT HENDRIX AND TERRI GATES DAILEY
212 DUCKHORN PASS
LAKEWAY TX 78738

LAZY NINE MUD NO 1A
C/O ALLEN BOONE HUMPHRIES ROBINSON LLP
1108 LAVACA ST
SUITE 510
AUSTIN TX US 78701

KYLE A AND KATHERINE PHILLIPS
4805 SERENE HILLS DRIVE
LAKEWAY TX 78738

ANTONIO AND JESSICA K DIBIASIO
210 DUCKHORN PASS
LAKEWAY TX 78738

GREY FOREST DEVELOPMENT LLC
6101 HOLIDAY HILL ROAD
MIDLAND TX 79707

ANKUR AND SWATI DWIVEDI
4803 SERENE HILLS DRIVE
LAKEWAY TX 78738

KYLE MURPHY RHODES AND CECILLIA HANG
NGUYEN
208 DUCKHORN PASS
LAKEWAY TX 78738

JPMORGAN CHASE BANK
PO BOX 561305
DALLAS TX 75356

FERNANDO JOSE REITER LANDA AND
MAYRA ALEJANDRA ESPADA DOMINGUEZ
4801 SERENE HILLS DRIVE
LAKEWAY TX 78738

ANNA MARIE SANCHEZ AND
KATRINA E PRUITT
205 DUCKHORN PASS
AUSTIN TX US 78738

SERENE HILLS COMMONS LP
100 E ANDERSON LN
SUITE 200
AUSTIN TX 78752

SRIDHARAN AND SAVITHA PARTHASARATHY
701 SWEET GRASS LN
LAKEWAY TX 78738

ANUJ SINGHANIA
303 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

BMEF LAKEWAY LLC
C/O ALTUS GROUP
PO BOX 92129
SOUTHLAKE TX 76092

ALEXANDER AND IRINA ZOLLER
4705 SERENE HILLS DRIVE
LAKEWAY TX 78738

RH LAKEWAY DEVELOPMENT LTD
2101 LAKEWAY BOULEVARD
SUITE 100
LAKEWAY TX 78734

FALCONHEAD WEST OWNERS ASSOCIATION
INC
5316 WEST US-290 SERVICE ROAD
SUITE 100
AUSTIN TX 78735

ADITYA AND RASHI GARG
4703 SERENE HILLS DRIVE
LAKEWAY TX 78738

KIW LAKEWAY VENTURE LLC
6710 E CAMELBACK ROAD
SUITE 100
SCOTTSDALE AZ 85251

CITY OF LAKEWAY
1102 LOHMANS CROSSING
LAKEWAY TX 78734

JOONHO SUNG AND SOYOON KUM
802 SERENE ESTATES DRIVE
AUSTIN TX 78738

GRANT STACY REVOCABLE TRUST
AN ARIZONA TRUST
11065 PECAN PARK BOULEVARD
CEDAR PARK TX 78613

SEAN AND WENDY WHALING
110 STEPHANIE LN
AUSTIN TX 78738

JASON AND RACHEL JOY ROTHSCHILD
801 SERENE ESTATES DRIVE
AUSTIN TX 78738

NASH SWEETWATER LLC
9600 N MOPAC EXPRESSWAY
SUITE 750
AUSTIN TX 78759

4809 SERENE HILLS LLC
111 SENDERA BONITA
LAKEWAY TX 78734

ANDREW M AND ERINN SMITH
1111 CRESTONE STREAM DRIVE
AUSTIN TX 78738

SWEETWATER MASTER COMMUNITY INC
PO BOX 203310
AUSTIN TX 78720

SERGEY FROLOV AND ELENA KLOCHIKHINA
4807 SERENE HILLS DRIVE
LAKEWAY TX 78738

ALI MEHDI AND KAUSER MEHDI
14309 BROADWINGED HAWK DRIVE
AUSTIN TX 78738

Travis County WCID 17 - Flintrock WWTP Mailing Labels WQ0013878001

WS COS INVESTMENTS LLC
WHEELOCK ST ACQUISITIONS LLC
660 STEAMBOAD ROAD
FLOOR 3
GREENWICH CT 06830

DWAYNE F REYNOLDS
81 THE HILLS DRIVE
AUSTIN TX 78738

MAKIM LLC
1345 E PUTNAM AVE
OLD GREENWICH CT 06870

DAVID AND JUDITH A BLAND JR
73 THE HILLS DRIVE
THE HILLS TX 78738

ROBERT A KRULISKY AND MAI T NGOC
308 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

HILLS II OF LAKEWAY INC
PO BOX 4900
SCOTTSDALE AZ 85261

JOSEPH AND SHELBY WYATT
310 RINGTAIL STREAM DRIVE
LAKEWAY TX 78738

CLUBCORP GOLF OF TEXAS LP
PO BOX 790830
SAN ANTONIO TX 78279

STEVEN AND SUSANA PURDY
312 RINGTAIL STREAM DRIVE
AUSTIN TX 78738

FLINTROCK AT HURST CREEK POA
PO BOX 342585
AUSTIN TX 78734

TRAUTMANN REVOCABLE TRUST
512 BOWCROSS POINT
AUSTIN TX 78738

COSKEY FAMILY LIVING TRUST
3 DASHWOOD COURT
THE HILLS TX 78738

JOHN K HANDLEY
509 PADRES PLACE
AUSTIN TX 78738

KAREN S MORTER
4 GRAPEWOOD COURT
THE HILLS TX 78738

JILYNN ELYCE DAVIS
506 PADRES PLACE
LAKEWAY TX 78738

Name Unknown
Property not found on TCAD
52 THE HILLS DRIVE
THE HILLS TX 78738

MITCHELL MOORE
2303 RANCH ROAD 620 S
SUITE 241
LAKEWAY TX 78734

SEAN AND JENIFER CROXDALE
514 BLACK WOLF RUN
AUSTIN TX 78738

HPK VENTURES LTD
PO BOX 163265
AUSTIN TX 78716

Comisión de Calidad Ambiental del Estado de Texas



AVISO DE RECIBO DE LA SOLICITUD E INTENCION DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA MODIFICACION

PERMISO NO. WQ00_____

SOLICITUD. Travis County Water Control and Improvement District No. 17, 3812 Eck Lane, Austin, Texas 78734, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) que modifique el Permiso de Solicitud de Tierras de Texas (TLAP) No. WQ0013878001 para autorizar la eliminación del límite total de fósforo. La planta de tratamiento de aguas residuales domésticas está ubicada en 2200 Lohmans Spur Road, en la ciudad de Lakeway, condado de Travis, Texas 78738. Las áreas de eliminación de efluentes están ubicadas desde aproximadamente una milla al noroeste de la intersección de Serene Hills Drive y State Highway 71, hasta aproximadamente 1700 pies al noroeste de la intersección de Flint Rock Road y Ranch-to-Market Road 620, en el condado de Travis, Texas 78734. TCEQ recibió esta solicitud el 9 de Septiembre de 2024. La solicitud de permiso estará disponible para su visualización y copia en la oficina principal de Travis County WCID No. 17, 3812 Eck Lane, Austin, en el condado de Travis, Texas, antes de la fecha en que se publique este aviso en el periódico. La solicitud, incluidas las actualizaciones y los avisos asociados, están disponibles electrónicamente en la siguiente página web:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tlap-applications>

Este enlace a un mapa electrónico de la ubicación general del sitio o instalación se proporciona como cortesía pública y no forma parte de la solicitud ni del aviso. Para conocer la ubicación exacta, consulte la solicitud.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.972222,30.337777&level=18>

Include the following non-italicized sentence if the facility is located in the Coastal Management Program boundary and is an application for a major amendment which will increase the pollutant loads to coastal waters or would result in relocation of an outfall to a critical areas, or a renewal with such a major amendment. 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. If the application is for amendment that does not meet the above description, do not include the sentence: 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 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 de correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado específico. Si desea que se agregue 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.

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 información adicional del Travis County Water Control and Improvement District No. 17 a la dirección indicada arriba o llamando a Mr. Michael Bevilacqua, P.E., Baxter and Woodman al 737-358-8103.

Fecha de emisión _____ *[Date notice issued]*

TCEQ TLAP MAJOR AMENDMENT WITH RENEWAL APPLICATION

FLINTROCK
WASTEWATER TREATMENT FACILITY
WQ0013878001

Prepared For:
TRAVIS COUNTY WCID NO. 17



TX Registered Engineering Firm F-21783
301 Denali Pass, Suite 3
Cedar Park, TX 78613
281-350-7027

TABLE OF CONTENTS

Introduction Summary Letter

Section 1

- Administrative Report 1.0
- Administrative Report 1.1
- Technical Report 1.0
- Technical Report 1.1
- Worksheet 3.0
- Worksheet 3.1
- Worksheet 3.3
- Worksheet 6.0

Section 2

Attachments

- Attachment A – Core Data Form
- Attachment B – Plain Language Summaries
- Attachment C – Public Involvement Plan
- Attachment D – Wastewater Treatment Plant and Irrigation Easements and Deeds
- Attachment E – USGS Maps
- Attachment F – Affected Landowners Information and Map
- Attachment G – Original Photographs
- Attachment H – Buffer Zone Map
- Attachment I – Treatment Process Description and Treatment Unit Sizing
- Attachment J – Flow Diagram
- Attachment K – Site Drawing
- Attachment L – Pollutant Analysis
- Attachment M – Design Calculations
- Attachment N – FEMA FIRM Map
- Attachment O – Wind Rose
- Attachment P – Sewage Sludge Management Plan
- Attachment Q – Storage Summary & Liner Certification
- Attachment R – Annual Cropping Plan
- Attachment S – Well and Map Information
- Attachment T – Ground Water Quality Technical Report
- Attachment U – Web Soil Survey
- Attachment V – Soil Analysis
- Attachment W – Effluent Monitoring Data Summary
- Attachment X – Water Balance
- Attachment Y – Spray Irrigation Engineering Report
- Attachment Z – Drip Irrigation Engineering Report
- Attachment AA – Special Provisions Summary Letter and TCEQ Approvals
- Attachment AB – Disposal Site Location Maps and Summary
- Attachment AC – Disposal Site Buffer Maps

September 06, 2024

Texas Commission on Environmental Quality
Applications Review and Processing Team (MC 158)
P.O. Box 13087
Austin, Texas 78711-3087

**Re: TCEQ TLAP Major Amendment with Renewal Application
Travis County WCID No. 17
Flintrock Wastewater Treatment Facility
WQ0013878001
CN: 600669048 RN:102177433**

To Whom it May Concern,

The attached application is for a major amendment with renewal to an existing TLAP Permit for the above referenced Wastewater Treatment Facility (WWTF). The current permit expires on 3/16/2025.

The Flintrock WWTF has a treatment and disposal capacity of 1.0 MGD. This proposed major amendment with renewal is to remove the 2 mg/L total phosphorus limit in the permit. No other changes to the permit are proposed with the amendment.

If you have any questions, or need additional information, please do not hesitate to contact me. My address and phone number are listed above, and my email is mbevilacqua@baxterwoodman.com.

Sincerely,
Baxter & Woodman


Michael E. Bevilacqua, P.E.



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: Travis County Water Control and Improvement District No. 17

PERMIT NUMBER (If new, leave blank): WQ00 13878001

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

	Y	N		Y	N
Administrative Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original USGS Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Administrative Report 1.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Affected Landowners Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SPIF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Landowner Disk or Labels	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Core Data Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffer Zone Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Involvement Plan Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 2.0	<input type="checkbox"/>	<input type="checkbox"/>	Design Calculations	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 2.1	<input type="checkbox"/>	<input type="checkbox"/>	Solids Management Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water Balance	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Worksheet 3.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 3.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 3.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 4.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 5.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 6.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 7.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

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 <input type="checkbox"/>	\$315.00 <input type="checkbox"/>
≥0.05 but <0.10 MGD	\$550.00 <input type="checkbox"/>	\$515.00 <input type="checkbox"/>
≥0.10 but <0.25 MGD	\$850.00 <input type="checkbox"/>	\$815.00 <input type="checkbox"/>
≥0.25 but <0.50 MGD	\$1,250.00 <input type="checkbox"/>	\$1,215.00 <input type="checkbox"/>
≥0.50 but <1.0 MGD	\$1,650.00 <input type="checkbox"/>	\$1,615.00 <input type="checkbox"/>
≥1.0 MGD	\$2,050.00 <input checked="" type="checkbox"/>	\$2,015.00 <input type="checkbox"/>

Minor Amendment (for any flow) \$150.00 ☐

Payment Information:

Mailed Check/Money Order Number: 54101
Check/Money Order Amount: \$2,050.00
Name Printed on Check: Travis County WCID No. 17

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 Wastewater 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

- | | |
|---|---|
| <input type="checkbox"/> New | |
| <input checked="" type="checkbox"/> Major Amendment <u>with</u> Renewal | <input type="checkbox"/> Minor Amendment <u>with</u> Renewal |
| <input type="checkbox"/> Major Amendment <u>without</u> Renewal | <input type="checkbox"/> Minor Amendment <u>without</u> Renewal |
| <input type="checkbox"/> Renewal without changes | <input type="checkbox"/> Minor Modification of permit |

e. For amendments or modifications, describe the proposed changes: Remove the total phosphorus limit of 2 mg/L from the permit

f. For existing permits:

Permit Number: WQ00 13878001

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

Expiration Date: 3/16/2025

Section 3. Facility Owner (Applicant) and Co-Applcant 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?

Travis County Water Control and Improvement District No. 17

(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: 600669048

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: Homan, Jason

Title: General Manager

Credential: Click to enter text.

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. A

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: Bevilacqua, Michael

Title: Senior Project Manager

Credential: P.E.

Organization Name: Baxter and Woodman

Mailing Address: 301 Denali Pass, Suite #3 City, State, Zip Code: Cedar Park, TX 78613

Phone No.: 737-358-8103

E-mail Address: mbevilacqua@baxterwoodman.com

Check one or both:

☒

Administrative Contact

☒

Technical Contact

B. Prefix: Mr.

Last Name, First Name: Kunz, Joe

Title: Operations Manager

Credential: Click to enter text.

Organization Name: Travis County WCID No. 17

Mailing Address: 3812 Eck Lane

City, State, Zip Code: Austin, TX 78734

Phone No.: 512-266-1111

E-mail Address: jkunz@wcid17.org

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.

A. Prefix: Mr.

Last Name, First Name: Gonzalez, Matthew

Title: Wastewater Supervisor

Credential: Click to enter text.

Organization Name: Travis County WCID No. 17

Mailing Address: 382 Eck Lane

City, State, Zip Code: Austin, TX 78734

Phone No.: 512-801-4893

E-mail Address: mgonzalez@wcid17.org

B. Prefix: Mr.

Last Name, First Name: Kunz, Joe

Title: Operations Manager

Credential: Click to enter text.

Organization Name: Travis County WCID No. 17

Mailing Address: 382 Eck Lane

City, State, Zip Code: Austin, TX 78734

Phone No.: 512-266-1111

E-mail Address: jkunz@wcid17.org

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).

Prefix: Ms.

Last Name, First Name: Henderson, Monica

Title: Accounting Supervisor

Credential: Click to enter text.

Organization Name: Travis County WCID No. 17

Mailing Address: 3812 Eck Lane

City, State, Zip Code: Austin, TX 78734

Phone No.: 512-266-1111

E-mail Address: accountspayable@wcid17.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).

Prefix: Mr.

Last Name, First Name: Gonzalez, Matthew

Title: Wastewater Supervisor

Credential: Click to enter text.

Organization Name: Travis County WCID No. 17

Mailing Address: 3812 Eck Lane

City, State, Zip Code: Austin, TX 78734

Phone No.: 512-801-4893

E-mail Address: mgonzalez@wcid17.org

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Mr.

Last Name, First Name: Bevilacqua, Michael

Title: Senior Project Manager

Credential: P.E.

Organization Name: Baxter and Woodman

Mailing Address: 301 Denali Pass, Suite #3

City, State, Zip Code: Cedar Park, TX 78613

Phone No.: 737-358-8103

E-mail Address: mbevilacqua@baxterwoodman.com

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

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

☒ E-mail Address

☐ Fax

☐ Regular Mail

C. Contact permit to be listed in the Notices

Prefix: Mr.

Last Name, First Name: Bevilacqua, Michael

Title: Senior Project Manager

Credential: P.E.

Organization Name: Baxter and Woodman

Mailing Address: 301 Denali Pass, Suite #3 City, State, Zip Code: Cedar Park, TX 78613

Phone No.: 737-358-8103

E-mail Address: mbevilacqua@baxterwoodman.com

D. Public Viewing Information

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

Public building name: Travis County WCID No. 17 Main Office

Location within the building: Conference Room

Physical Address of Building: 3812 Eck Lane

City: Austin

County: Travis

Contact (Last Name, First Name): Kunz, Joe

Phone No.: 512-266-1111 Ext.: Click to enter text.

E. 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

F. Plain Language Summary Template

Complete the Plain Language Summary (TCEQ Form 20972) and include as an attachment.

Attachment: B

G. 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: C

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 102177433

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):

Flintrock Wastewater Treatment Plant

C. Owner of treatment facility: Travis County WCID No. 17

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

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

Prefix: Mr.

Last Name, First Name: Homan, Jason

Title: General Manager

Credential: Click to enter text.

Organization Name: Travis County WCID No. 17

Mailing Address: 3812 Eck Lane

City, State, Zip Code: Austin, TX 78734

Phone No.: 512-266-1111

E-mail Address: jkunz@wcid17.org

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.

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: [Click to enter text.](#)

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: [Varies/Multiple – See Attachment D](#)

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: [Click to enter text.](#)

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:

[Click to enter text.](#)

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

☐ Yes ☐ No

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

[Click to enter text.](#)

City nearest the outfall(s): [Click to enter text.](#)

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

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

☐ Yes ☐ No

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

- ☐ Authorization granted ☐ Authorization pending

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

Attachment: [Click to enter text.](#)

- D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: [Click to enter text.](#)

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 – The location in the existing permit is correct. This amendment is regarding the effluent limitation/monitoring requirements. Effluent disposal sites are not changing with this amendment.

- B. City nearest the disposal site: Lakeway

- C. County in which the disposal site is located: Travis

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

For the existing phases, effluent flows from the plant to one of the following: 1) Storage ponds at the Flintrock Estates Golf Course where it is used for irrigation, or 2) A storage pond at Hurst Creek MUD or 3) A storage tank at the Lakeway Regional Center. For future phases, effluent will flow from the plant to any of the permitted disposal sites. See Attachment C for more information.

- E. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Yaupon Creek or Hurst Creek, which are in the Lake Travis Drainage Basin

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.

[Click to enter text.](#)

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

☐ Yes ☒ No

If yes, list each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application: [Click to enter text.](#)

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: [Click to enter text.](#)

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: WQ0013878001

Applicant: Travis County Water Control and Improvement District No. 17

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): Jason Homan

Signatory title: General Manager

Signature: _____ Date: 9/4/2024

(Use blue ink)

Subscribed and Sworn to before me by the said JASON F HOMAN

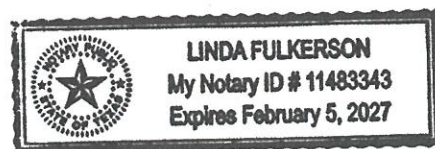
on this 4th day of SEPTEMBER, 2024.

My commission expires on the 5th day of FEBRUARY, 2027.

Linda Fulkerson
Notary Public

[SEAL]

TRAVIS
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 in which format the landowners list is submitted:
- ☒ USB Drive ☐ Four sets of labels
- D. Provide the source of the landowners' names and mailing addresses: Travis County Appraisal District
- E. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?
- ☐ Yes ☒ No

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

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

Landowners Labels or USB Drive attached ☐ N/A ☒ Yes
(See instructions for landowner requirements)

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

Plain Language Summary ☒ Yes



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 43)

A. Existing/Interim I Phase

Design Flow (MGD): 0.633

2-Hr Peak Flow (MGD): 2.532

Estimated construction start date: Existing

Estimated waste disposal start date: Existing

B. Interim II Phase

Design Flow (MGD): 0.6498

2-Hr Peak Flow (MGD): 2.5992

Estimated construction start date: N/A - Plant built to capacity

Estimated waste disposal start date: 1/2026

C. Final Phase

Design Flow (MGD): 1.0

2-Hr Peak Flow (MGD): 4.0

Estimated construction start date: N/A - Plant built to capacity

Estimated waste disposal start date: 1/2030

D. Current Operating Phase

Provide the startup date of the facility: 1/13/2022

Section 2. Treatment Process (Instructions Page 43)

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.**

See Attachment I

B. Treatment Units

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

Table 1.0(1) - Treatment Units

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

C. Process Flow Diagram

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

Attachment: J

Section 3. Site Information and Drawing (Instructions Page 44)

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

- Latitude: [Click to enter text.](#)
- Longitude: [Click to enter text.](#)

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

- Latitude: [Multiple Sites – See Attachment ‘AB’](#)
- Longitude: [Multiple Sites – See Attachment ‘AB’](#)

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: K

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

The Flintrock WWTP serves the Flintrock development area consisting of residential and commercial development. The Flintrock WWTP has a service area of approximately 3,920-acres and ranges from Creek Road & Highway 71 to Stewart Road and RR 620. The service area includes the Serene Hills, Falconhead West, Flintrock, Alta Vista and Cardinal Hills subdivisions.

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
		Choose an item.	
		Choose an item.	
		Choose an item.	
		Choose an item.	

Section 4. Unbuilt Phases (Instructions Page 45)

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.**

Both yes and no have been checked. The wastewater treatment plant is existing and has been built to serve the final phase flow of 1.0 MGD. However, there are disposal fields that have not yet been constructed which will serve the future Interim II and Final phases. These disposal fields are constructed as developments are completed and capacity is needed. The service area has continued to see growth year over year and the future phases are still required to serve this growth.

Section 5. Closure Plans (Instructions Page 45)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

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

Click to enter text.

Section 6. Permit Specific Requirements (Instructions Page 45)

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: See Attachment AA

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.**

Click to enter text.

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.

Ownership & Easements (See Attachment D).

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*.

Notifications of Completion and Summary Transmittal Letters – See Attachment AA, Annual Soil Analysis– See Attachment V, Liner Certification – See Attachment Q, Updated Recharge Feature Plan (RFP) – Not applicable since no recharge features were found during construction, Seeps/Springs Monitoring Plan – See Attachments Y and Z. Serene Hills Provisions – Not applicable since construction of disposal fields in Serene Hills has not been completed.

D. Grit and grease treatment

1. Acceptance of grit and grease waste

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

☐ Yes ☒ No

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

2. Grit and grease processing

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

Click to enter text.

3. Grit disposal

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

☐ Yes ☐ No

If No, contact the TCEQ Municipal Solid Waste team at 512-239-2335. 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.

Click to enter text.

4. *Grease and decanted liquid disposal*

Note: A registration or permit is required for grease disposal. Grease shall not be combined with treatment plant sludge. For more information, contact the TCEQ Municipal Solid Waste team at 512-239-2335.

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

Click to enter text.

E. Stormwater management

1. *Applicability*

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

☒ Yes ☐ No

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

☐ Yes ☒ No

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

2. *MSGP coverage*

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

☐ Yes ☒ No

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

TXR05 [Click 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.

Click to enter text.

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

6. Request for coverage in individual permit

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

☐ Yes ☒ No

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

Click to enter text.

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

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

☐ Yes ☒ No

If yes, 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 the 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 BOD₅ concentration of the sludge, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Click to enter text.

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

2. Acceptance of septic waste

Is the facility accepting or will it accept septic waste?

☐ Yes ☒ No

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

☐ Yes ☒ No

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

☐ Yes ☒ No

If **yes to any of the above**, provide 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 BOD₅ concentration of the septic waste, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Click to enter text.

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

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

Is 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.

Click to enter text.

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 50)

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.

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

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
CBOD ₅ , mg/l	1	1	1	Grab	7/25/24 @ 11:35am
Total Suspended Solids, mg/l	<1	<1	1	Grab	7/25/24 @ 11:35am
Ammonia Nitrogen, mg/l	< 0.05	< 0.05	1	Grab	7/25/24 @ 11:35am

Nitrate Nitrogen, mg/l	12	12	1	Grab	7/25/24 @ 11:35am
Total Kjeldahl Nitrogen, mg/l	< 0.20	< 0.20	1	Grab	7/25/24 @ 11:35am
Sulfate, mg/l	73.2	73.2	1	Grab	7/25/24 @ 11:35am
Chloride, mg/l	146	146	1	Grab	7/25/24 @ 11:35am
Total Phosphorus, mg/l	0.719	0.719	1	Grab	7/25/24 @ 11:35am
pH, standard units	7.12	7.12	1	Grabe	6/27/24 @ 08:30am
Dissolved Oxygen*, mg/l	N/A	N/A	N/A	N/A	N/A
Chlorine Residual, mg/l	3.3	3.3	1	Grabe	6/27/24 @ 08:30am
<i>E.coli</i> (CFU/100ml) freshwater	2	2	1	Grab	7/25/24 @ 11:35am
Enterococci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids, mg/l	530	530	1	Grab	7/25/24 @ 11:35am
Electrical Conductivity, μ mohs/cm, †	987	987	1	Grab	7/25/24 @ 11:35am
Oil & Grease, mg/l	<4.8	<4.8	1	Grab	7/25/24 @ 11:35am
Alkalinity (CaCO ₃)*, mg/l	108	108	1	Grab	7/25/24 @ 11:35am

*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 50)

Facility Operator Name: Matthew Gonzalez

Facility Operator's License Classification and Level: WWOL, Operator B

Facility Operator's License Number: WW0058748

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 51)

A. WWTP's Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☒ Design flow \geq 1 MGD
- ☐ Serves \geq 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 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. Biosolids Management

Provide information on the *intended* biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the permit will authorize

all 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
Disposal in Landfill	Off-site Third-Party Preparer	Bulk		Class B: PSRP Aerobic Digestion	Option 1: Volatile solids reduced by 38%
Agricultural Land Application	Off-site Third-Party Preparer	Bulk		Class B: PSRP Aerobic Digestion	Option 1: Volatile solids reduced by 38%
Choose an item.	Choose an item.	Bulk		Class B: PSRP Aerobic Digestion	Option 1: Volatile solids reduced by 38%

If "Other" is selected for Management Practice, please explain (e.g. monofill or transport to another WWTP): [Click to enter text.](#)

D. Disposal site

Disposal site name: Sheridan Environmental dba Texas Organic Recovery

TCEQ permit or registration number: 24220

County where disposal site is located: Travis

E. Transportation method

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

Name of the hauler: Travis County WCID No. 17

Hauler registration number: 2267

Sludge is transported as a:

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

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 53)

A. Beneficial use authorization

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

☐ Yes ☐ No

B. Sludge processing authorization

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

Sludge Composting	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Marketing and Distribution of sludge	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Sludge Surface Disposal or Sludge Monofill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Temporary storage in sludge lagoons	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> 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 1×10^{-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 55)

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:

Beneficial Reuse R13878001

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 56)

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: Jason Homan

Title: General Manager

Signature: _____

Date: _____ 9/4/2024

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 57)

A. Justification of permit need

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

The wastewater treatment plant is existing and has been built to serve the final phase flow of 1.0 MGD. However, there are disposal fields that have not yet been constructed which will serve the future Interim II and Final phases. These disposal fields are constructed as developments are completed and capacity is needed. The service area has continued to see growth year over year and the future phases are still required to serve this growth. This amendment does not include any additional phases and/or increases in flow. This amendment does not contain or propose any phases not currently permitted.

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: Lakeway

If yes, attach correspondence from the city.

Attachment: Not Applicable – City of Lakeway does not provide wastewater service. Portions of the City are with WCID 17's CCN. WCID 17 provides wastewater service to these areas of Lakeway and has been for decades. Other areas of Lakeway are provided by Hurst Creek MUD and Lakeway MUD.

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.](#)

2. Utility CCN areas

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

¹ <https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater>

☐ 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: Not applicable – Hurst Creek MUD, Lakeway MUD, and WCID 17 have facilities within 3-miles of each other but have been around for decades and each serve their own areas. This amendment is not proposing a change/increase in flows and is only requesting a change in the effluent monitoring requirement.

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: Not applicable – Hurst Creek MUD, Lakeway MUD, and WCID 17 have facilities within 3-miles of each other but have been around for decades and each serve their own areas. This amendment is not proposing a change/increase in flows and is only requesting a change in the effluent monitoring requirement.

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 59)

Is this facility in operation?

☒ Yes ☐ No

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

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

A. Current organic loading

Facility Design Flow (flow being requested in application): 1 MGD

Average Influent Organic Strength or BOD₅ Concentration in mg/l: 300

Average Influent Loading (lbs/day = total average flow X average BOD₅ conc. X 8.34): 2502

Provide the source of the average organic strength or BOD₅ concentration.

B. Proposed organic loading

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

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD ₅ Concentration (mg/l)
Municipality		
Subdivision	0.775	300
Trailer park – transient		
Mobile home park		
School with cafeteria and showers	0.075	300
School with cafeteria, no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory	0.050	300
Motel		
Restaurant	0.050	300
Hospital	0.025	300
Nursing home		
Other	0.025	300
TOTAL FLOW from all sources	1.0	
AVERAGE BOD ₅ from all sources		300

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 59)

A. Existing/Interim I Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 10

Ammonia Nitrogen, mg/l: N/A

Total Phosphorus, mg/l: N/A

Dissolved Oxygen, mg/l: N/A

Other: N/A

B. Interim II Phase Design Effluent Quality

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

Total Suspended Solids, mg/l: 10

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: 5

Total Suspended Solids, mg/l: 10

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: 1 mg/l after 20 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 59)

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

Attachment: M

Section 5. Facility Site (Instructions Page 60)

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.

FEMA FIRM Map (See Attachment N).

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

[Click to enter text.](#)

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

☐ Yes ☒ No

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

☐ Yes ☐ No

If **yes**, provide the permit number: [Click to enter text.](#)

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: [O](#)

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 60)

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 61)

Attach a solids management plan to the application.

Attachment: P

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 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 68)

Identify the method of land disposal:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Surface application | <input type="checkbox"/> Subsurface application |
| <input checked="" type="checkbox"/> Irrigation | <input type="checkbox"/> Subsurface soils absorption |
| <input checked="" type="checkbox"/> Drip irrigation system | <input checked="" type="checkbox"/> Subsurface area drip dispersal system |
| <input type="checkbox"/> Evaporation | <input type="checkbox"/> Evapotranspiration beds |
| <input type="checkbox"/> 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: 102177433

Section 2. Land Application Site(s) (Instructions Page 68)

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
Golf Course: Bermuda-Warm, Winter Rye-Cool (Flintrock Golf Course, Spray irrigation)	152.646	517,840	Y
Landscaping: Bermuda-Warm, Winter Rye-Cool (Serene Hills Drive ROW, Spray irrigation)	6.86	23,267	Y
Drip Irrigation Fields: Native oak and cedar trees, Bermuda-warm, Winter Rye-cool will be installed (Thomas Tract, Lakeway Regional, Creekside Tract, & Serene Hills Area A1, A3, A4)	50.333	219,253	N
Drip Irrigation Fields: Native oak and cedar trees, Bermuda-warm, Winter Rye-cool will be installed (Serene Hills Area A2)	11.50	48,591	N
Drip Irrigation Fields: Native oak and cedar trees, Bermuda-warm, Winter Rye-cool will be installed (Serene Hills Area A5)	24.5045	95,000	N

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 68)

Table 3.0(2) – Storage and Evaporation Ponds

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

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

Attachment: Q

Section 4. Flood and Runoff Protection (Instructions Page 68)

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:

FEMA FIRM Map-See Attachment N

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

N/A

Section 5. Annual Cropping Plan (Instructions Page 68)

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:** R

- 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 69)

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

- 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
See Attachment S			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: S

Section 7. Groundwater Quality (Instructions Page 69)

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: T

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 70)

A. Soil map

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

Attachment: U

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: V

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
BID (Brackett-Rock Outcrop Complex) - Drip and Spray Irrigation	0-60 inches	Moderately low to high	0.06 to 1.98 in/hr	Hydro Group D
BoF (Brackett-Rock Outcrop-Real Complex) - Drip and Spray Irrigation	0-60 inches	Moderately low to high	0.06 to 1.98 in/hr	Hydro Group D
Md (Mixed alluvial land) - Drip and Spray Irrigation	0-48 inches	High to very high	5.95 to 19.98 in/hr	Hydro Group A
TaD (Eckrant very stony clay) - Drip and Spray Irrigation	0-30 inches	Moderately low to high	0.06 to 0.57 in/hr	Hydro Group D
TcA (Eckrant and Speck soils) - Drip and Spray Irrigation	0-30 inches	Moderately low to high	0.06 to 0.57 in/hr	Hydro Group D
VoD (Volente silty clay loam) - Drip and Spray Irrigation	0-59 inches	Moderately low to high	0.06 to 0.57 in/hr	Hydro Group C

Section 9. Effluent Monitoring Data (Instructions Page 71)

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
Jul-22	0.5055	1.00	1.00	7.90	6.50	152.6
Aug-22	0.5046	1.00	1.00	7.70	10.00	152.6
Sep-22	0.4905	1.00	1.00	8.00	9.20	152.6
Oct-22	0.4870	2.00	1.00	7.90	7.30	152.6
Nov-22	0.5136	2.00	1.00	7.70	10.60	152.6
Dec-22	0.5306	2.00	1.00	7.70	9.00	152.6
Jan-23	0.5214	2.00	1.00	7.10	10.90	152.6
Feb-23	0.5012	3.00	2.00	7.10	10.90	152.6
Mar-23	0.4796	4.00	2.00	7.35	9.80	152.6
Apr-23	0.4906	1.00	1.00	7.41	10.00	152.6
May-23	0.4855	2.00	1.00	7.72	10.00	152.6
Jun-23	0.4825	2.00	1.00	7.56	10.00	152.6
Jul-23	0.4536	1.00	1.00	7.43	10.00	152.6
Aug-23	0.4642	1.00	1.00	7.29	9.60	152.6
Sep-23	0.4643	1.00	2.00	7.50	8.30	152.6
Oct-23	0.4705	2.00	1.00	7.67	9.40	152.6
Nov-23	0.4842	2.00	1.00	7.62	10.00	152.6
Dec-23	0.5126	3.00	1.00	7.56	10.00	152.6
Jan-24	0.5370	2.00	1.00	7.10	10.90	152.6
Feb-24	0.5084	3.00	1.00	7.10	10.90	152.6
Mar-24	0.5111	4.00	4.00	7.38	8.90	152.6
Apr-24	0.5190	3.00	1.00	7.45	8.20	152.6
May-24	0.5300	4.00	1.00	7.39	5.10	152.6
Jun-24	0.5073	1.00	1.00	7.36	10.00	152.6

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 72)

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

A. Irrigation

Area under irrigation, in acres: 159.506

Design application frequency:

hours/day 8 And days/week 7

Land grade (slope):

average percent (%): 5

maximum percent (%): 15

Design application rate in acre-feet/acre/year: 3.80

Design total nitrogen loading rate, in lbs N/acre/year: 0.141

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

Method of application: Spray Irrigation

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

Attachment: X and Y

B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: 100,000

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

Attachment: Click to enter text.

C. Evapotranspiration beds

Number of beds: 0

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:

Slopes for application area, percent (%):

Design application rate, in gpm/foot of slope width:

Slope length, in feet:

Design BOD₅ loading rate, in lbs BOD₅/acre/day:

Design application frequency:

hours/day: And days/week:

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

Attachment:

Section 2. Edwards Aquifer (Instructions Page 73)

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:

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 75)

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. Travis County WCID No. 17 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.

See Attachment D

C. Owner of the subsurface area drip dispersal system: Travis County WCID No. 17

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.

See Attachment D

E. Owner of the land where the subsurface area drip dispersal system is located: Varies- See Attachment D

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.

Varies- See Attachment D

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 75)

A. Type of system

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

B. Irrigation operations

Application area, in acres: 86.3378

Infiltration Rate, in inches/hour: 0.0133

Average slope of the application area, percent (%): 10

Maximum slope of the application area, percent (%): 29

Storage volume, in gallons: 34,031,000 gallons provided for entire disposal system

Major soil series: Hydro Group D

Depth to groundwater, in feet: minimum of 4

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: Existing permit allows 0.1, except site A2 which was 0.089 and A4 which uses 0.097. No changes proposed with this amendment.

Nitrogen application rate, in lbs/gal/day: 66.26

D. Dosing information

Number of doses per day: 2

Dosing duration per area, in hours: Varies

Rest period between doses, in hours: 4

Dosing amount per area, in inches/day: 0.16

Number of zones: Unknown at this time

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: N/A – Previously permitted and not proposing any changes regarding this with this renewal/major amendment.

Section 3. Required Plans (Instructions Page 75)

A. Recharge feature plan

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

Attachment: N/A – Previously permitted and not proposing any changes regarding this with this renewal/major amendment.

B. Soil evaluation

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

Attachment: N/A – Previously permitted and not proposing any changes regarding this with this renewal/major amendment.

C. Site preparation plan

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

Attachment: N/A – Previously permitted and not proposing any changes regarding this with this renewal/major amendment.

D. Soil sampling/testing

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

Attachment: N/A – Previously permitted and not proposing any changes regarding this with this renewal/major amendment.

Section 4. Floodway Designation (Instructions Page 76)

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: N

Section 5. Surface Waters in the State (Instructions Page 76)

A. Buffer Map

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

Attachment: AC

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 76)

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 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following is required for all publicly owned treatment works.

Section 1. All POTWs (Instructions Page 89)

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: 0

Average Daily Flows, in MGD: 0

Significant IUs - non-categorical:

Number of IUs: 0

Average Daily Flows, in MGD: 0

Other IUs:

Number of IUs: 0

Average Daily Flows, in MGD: 0

B. Treatment plant interference

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

☐ Yes ☒ No

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

Click 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.

E. Service Area Map

Attach a map indicating the service area of the POTW. The map should include the applicant's service area boundaries and the location of any known industrial users discharging to the POTW. Please see the instructions for guidance.

Attachment: N/A – No CIU'S or Siu's

Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 90)

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 90)

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.](#)

ATTACHMENT A
CORE DATA FORM



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.)		
<input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input checked="" type="checkbox"/> Other Renewal with major amendment	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 600669048		RN 102177433

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		9/6/2024	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership					
<input type="checkbox"/> 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)				<i>If new Customer, enter previous Customer below:</i>	
Travis County Water Control and Improvement District No. 17					
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:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input checked="" type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
12. Number of Employees				13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input checked="" type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other:					
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant					
15. Mailing Address:	3812 Eck Lane				
	City	Austin	State	TX	ZIP 78734 ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
				jhoman@wcid17.org	

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(512) 266-1111		() -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected, a new permit application is also required.)								
<input type="checkbox"/> New Regulated Entity <input checked="" type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information								
<i>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).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
Flintrock Wastewater Treatment Plant								
23. Street Address of the Regulated Entity: (No PO Boxes)	2200 Lohmans Spur							
	City	Lakeway	State	TX	ZIP	78738	ZIP + 4	
24. County	Travis							

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

25. Description to Physical Location:								
26. Nearest City						State	Nearest ZIP Code	
<i>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).</i>								
27. Latitude (N) In Decimal:						28. Longitude (W) In Decimal:		
Degrees	Minutes		Seconds		Degrees	Minutes		Seconds
29. Primary SIC Code	30. Secondary SIC Code		31. Primary NAICS Code			32. Secondary NAICS Code		
(4 digits)	(4 digits)		(5 or 6 digits)			(5 or 6 digits)		
4952			221320					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
Treat and dispose of domestic wastewater								
34. Mailing Address:	3812 Eck Lane							
	City	Austin	State	TX	ZIP	78734	ZIP + 4	
35. E-Mail Address:	jhoman@wcid17.org							
36. Telephone Number	37. Extension or Code		38. Fax Number (if applicable)					
(512) 266-1111			() -					

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.

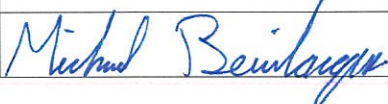
<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Michael Bevilacqua	41. Title:	Senior Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(737) 358-8103		() -	mbevilacqua@baxterwoodman.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:	Baxter and Woodman	Job Title:	Senior Project Manager
Name (In Print):	Michael Bevilacqua	Phone:	(737) 358- 8103
Signature:		Date:	9/6/2024

ATTACHMENT B
PLAIN LANGUAGE SUMMARIES



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary as required by [Title 30, Texas Administrative Code \(30 TAC\), Chapter 39, Subchapter H](#). Applicants may modify the template as necessary to accurately describe their facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in [30 TAC Section 39.426](#), **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS Enter 'INDUSTRIAL' or 'DOMESTIC' here 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.

Travis County Water Control and Improvement District No. 17 (CN600669048) operates the Flintrock Wastewater Treatment Facility (RN102177433), an activated sludge domestic wastewater treatment plant using sequencing batch reactors. The facility is located at 2200 Lohmans Spur, in Lakeway, Travis County, Texas 78738. This application is for a renewal with major amendment to the existing permit WQ0013878001 which authorizes the treatment and disposal of up to 1.0 MGD via spray and drip irrigation. The major amendment is proposing to remove the total phosphorus testing requirement from effluent monitoring requirements of the permit. No other changes to the permit are proposed. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, and chlorine (CL₂). Domestic wastewater is treated by step screen headworks, influent equalization basin, sequencing batch reactor (SBR) basins, effluent equalization, tertiary filters, sludge digesters, and a belt press.

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

AGUAS RESIDUALES Introduzca 'INDUSTRIALES' o 'DOMÉSTICAS' aquí /AGUAS PLUVIALES

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

Travis County Water Control and Improvement District No. 17 (CN600669048) opera la instalación de Tratamiento de Aguas Residuales de Flintrock (RN102177433), una planta de tratamiento de aguas residuales domesticas de lodos activados que utiliza reactores discontinuous de secuenciación. La instalación está ubicada en 2200 Lohmans Spur, en Lakeway, Condado de Travis, Texas Esta solicitud es para una renovación con enmienda importante al permiso existente WQ0013878001 que autoriza el tratamiento y eliminación de hasta 1,0 MGD mediante riego por aspersión y goteo. La enmienda principal propone eliminar el requisito de prueba de fósforo total de los requisitos de monitoreo de efluentes del permiso. No se proponen otros cambios al permiso. Este permiso no autorizará una descarga de contaminantes en el agua en el estado.

Se espera que las descargas de la instalación contengan demanda bioquímica de oxígeno (BOD5), sólidos suspendidos totales (TSS), pH y cloro (CL2). Las aguas residuales domesticas. está tratado por cabezales de criba escalonada, cuenca de equalización de afluentes, cuencas de reactor discontinuo de secuenciación (SBR), equalización de efluentes, filtros terciarios, digestores de lodos y una prensa de cinta.

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose “operates” in this section for existing facility applications or choose “proposes to operate” for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose “is” for an existing facility or “will be” for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.
14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

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.

Example

Individual Industrial Wastewater Application

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 are not federal enforceable representations of the permit application.

ABC Corporation (CN600000000) operates the Starr Power Station (RN10000000000), a two-unit gas-fired electric generating facility. Unit 1 has a generating capacity of 393 megawatts (MWs) and Unit 2 has a generating capacity of 528 MWs. The facility is located at 1356 Starr Street, near the City of Austin, Travis County, Texas 78753.

This application is for a renewal to discharge 870,000,000 gallons per day of once through cooling water, auxiliary cooling water, and also authorizes the following waste streams monitored inside the facility (internal outfalls) before it is mixed with the other wastewaters authorized for discharge via main Outfall 001, referred to as “previously monitored effluents” (low-volume wastewater, metal-cleaning waste, and stormwater (from diked oil storage area yards and storm drains)) via Outfall 001. Low-volume waste sources, metal-cleaning waste, and stormwater drains on a continuous and flow-variable basis via internal Outfall 101.

The discharge of once through cooling water via Outfall 001 and low-volume waste and metal-cleaning waste via Outfall 101 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges based on 40 CFR Part 423 are: free available chlorine, total residual chlorine, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from these discharges. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility’s potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from blowdown of boiler Units 1 and 2 and metal-cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal-cleaning waste from equipment cleaning is generally disposed of off-site.

ATTACHMENT C
PUBLIC INVOLVEMENT PLAN



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.

Section 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)

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

City

County

Census Tract

- (a) Percent of people over 25 years of age who at least graduated from high school
- (b) Per capita income for population near the specified location
- (c) Percent of minority population and percent of population by race within the specified location
- (d) Percent of Linguistically Isolated Households by language within the specified location
- (e) Languages commonly spoken in area by percentage
- (f) Community and/or Stakeholder Groups
- (g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

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

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)

ATTACHMENT D

WASTEWATER TREATMENT PLANT AND IRRIGATION EASEMENTS AND DEEDS

EFFLUENT DISPOSAL SITE OWNERSHIP & EASEMENT SUMMARY

Disposal Site	Deed or Easement	Recorded Document #	Owner Contact	Total Easement or Deed Acreage	Proposed Irrigation Area	Irrigation Type
Flintrock Golf Course	Easement	2000141825	N/A - Easement	152.6460	152.6460	Spray
Thomas Tract	Easement	2012044884, & 2012044885	N/A - Easement	11.2200	6.0147	Drip
Lakeway Regional	Easement	2014084856	N/A - Easement	8.5000	3.5582	Drip
Serene Hills Drive	Easement	2014104865	N/A - Easement	13.4600	6.8600	Spray
Creekside Tract	Easement	2014104864	N/A - Easement	5.3970	3.8000	Drip
Serene Hills A1	Deed & Easement	Deed: 2011084172 Easement: 2013221200	Travis County WCID No. 17 Joe Kunz - Operations Manager 3812 Eck Lane, Austin, TX 78734 512-266-1111	15.3300	12.3966	Drip
Serene Hills A2	Deed	2011084172, & 2011006950	Travis County WCID No. 17 Joe Kunz - Operations Manager 3812 Eck Lane, Austin, TX 78734 512-266-1111	14.2500	11.5000	Drip
Serene Hills A3	Deed	2011084172, & 2011006950	Travis County WCID No. 17 Joe Kunz - Operations Manager 3812 Eck Lane, Austin, TX 78734 512-266-1111	21.7400	15.6795	Drip
Serene Hills A4	Deed	2011084172, & 2013085418	Travis County WCID No. 17 Joe Kunz - Operations Manager 3812 Eck Lane, Austin, TX 78734 512-266-1111	12.8000	8.8843	Drip
Serene Hills A5	Deed	2011084172	Travis County WCID No. 17 Joe Kunz - Operations Manager 3812 Eck Lane, Austin, TX 78734 512-266-1111	51.8100	24.5045	Drip

**FLINTROCK GOLF COURSE
(EASEMENT)**

**EFFLUENT DISPOSAL AGREEMENT
BETWEEN TRAVIS COUNTY WATER CONTROL & IMPROVEMENT
DISTRICT NO. 17 AND
HILLS II OF LAKEWAY, INC.**

This Effluent Disposal Agreement is entered into by and between Travis County Water Control & Improvement District No. 17, a water control and improvement district organized and operating under the provisions of Chapters 49 and 51 of the Texas Water Code (the "District"), and Hills II of Lakeway, Inc., a Texas corporation ("Owner").

Recitals

1. The District proposes to construct and own a wastewater collection, treatment, storage and disposal system to provide retail wastewater service to its customers located in the southern portion of the District.
2. The District has been granted an irrigation easement (the "Irrigation Easement") from Owner's predecessor in interest HPK Ventures, Ltd. ("HPK") for the irrigation of certain property with treated wastewater effluent generated by the District (the "Easement Property").
3. The District proposes to use the rights granted to it by the Irrigation Easement for disposal of its treated wastewater effluent.
4. Owner proposes to construct, own and operate a premier, first-class golf course on the Easement Property which may be irrigated with treated wastewater effluent in accordance with the rights granted to the District by the Irrigation Easement.
5. Since Owner proposes to construct and operate a golf course on the Easement Property, the parties believe that it will be more efficient for Owner to also operate and maintain the storage facilities and irrigation system needed to dispose of the District's effluent on the Irrigation Easement.
6. The parties desire to specify the terms and conditions governing such irrigation including, the construction of the irrigation system and storage facilities on the Easement Property, the efficient operation and maintenance of such system by Owner, and the rates and charges associated with the provision of effluent for irrigation purposes, if any.

Agreement

NOW, THEREFORE, for and in consideration of the mutual promises, covenants, obligations and benefits of this Agreement, the District and Owner contract and agree as follows:

I. Definitions

In addition to the terms defined in the above introduction and recitals which are incorporated herein for all purposes, the following terms shall have the meanings specified below:

Agreement means this Effluent Disposal Agreement.

Board means the District Board of Directors.

Construction Completion means the time at which the construction of all of the Effluent Storage Facilities and Irrigation System necessary to irrigate the Easement Property has been completed and all the conditions contained in Section 3.7 have been met.

District Wastewater Treatment Facilities means the wastewater collection, pumping, transmission, treatment and metering equipment and facilities to be acquired, installed and constructed and used by or on behalf of the District that are necessary for the District to collect wastewater from its retail wastewater customers, transmit and deliver such wastewater to its treatment facilities, treat the wastewater, and transport the Effluent to the Effluent Storage Facilities.

Effective Date means the latest date shown following the parties' signatures below on which this Agreement shall be effective.

Effluent means the effluent generated by the District's treatment of wastewater collected from its retail wastewater customers through use of the District Wastewater Treatment Facilities and treated to the levels and quality required in the Effluent Disposal Permit, and all applicable governmental laws and regulations.

Effluent Storage Facilities means one or more effluent storage ponds to be constructed on the Irrigation Easement by Owner for the purpose of storing treated effluent prior to disposal of such effluent through the Irrigation System.

Irrigation System means the pumps, force mains, lines, pipes, irrigation pipe, sprinkler heads, control system and other related appurtenances to be constructed by Owner on the Irrigation Easement for conveyance of Effluent from the Effluent Storage Facilities to the Irrigation Easement and the disposal of the Effluent on the Irrigation Easement through spray irrigation.

Terminating Default means the circumstances under which the District may terminate this Agreement as defined in Section 5.8(b).

TNRCC means the Texas Natural Resource Conservation Commission and its successor agencies.

Wastewater Disposal Permit means the TPDES Permit issued by the TNRCC to the District in accordance with Chapter 26 of the Texas Water Code authorizing disposal of the Effluent on the Irrigation Easement, as such permit may be amended from time to time.

II. Supply of Effluent for Irrigation Purposes

2.1 District to Deliver Effluent. The District agrees to deliver, subject to the limitations herein, all Effluent generated by the District Wastewater Treatment Facilities to the Effluent Storage Facilities at its sole cost and expense. The quality and quantity of the Effluent delivered in accordance with this section shall comply with the requirements of this Agreement, the Wastewater Disposal Permit and all other applicable local, state, or federal rules or regulations. Such delivery shall commence upon Construction Completion.

2.2 Owner's Receipt and Use of Effluent. Owner agrees to receive all Effluent delivered by the District to the Effluent Storage Facilities and use such Effluent to irrigate the property within the Irrigation Easement, provided however, that Owner shall have no obligation to receive or use any amounts (i) in excess of 650,000 gallons per day based on a 30-day average and 500,000 gallons per day based on an annual average, whichever is less as measured by the District; (ii) that would cause the golf course to be constructed on the Easement Property (the "Golf Course") to be unacceptable as a first-class golf course; or (iii) in violation of law, including any limits on the quantities of treated wastewater that may be disposed of on the Golf Course. Owner shall comply with all applicable local, state, or federal rules or regulations regarding land disposal of the Effluent, and the terms and conditions of the Wastewater Disposal Permit when irrigating the property within the Irrigation Easement with the Effluent.

2.3 Rates and Charges. The District shall not charge the Owner for Effluent delivered pursuant to this Agreement except as provided in this Section. Owner shall reimburse the District for incremental additional costs for delivery of the Effluent to the Effluent Storage Facilities, if any, incurred by the District where such costs may not be recovered by the District from retail wastewater customers through retail rates.

III. Construction of Facilities and Conveyance to District

3.1 Facilities Construction. Owner shall design and construct the Effluent Storage Facilities and the Irrigation System at its sole cost and expense in compliance with all applicable local, state, or federal rules or regulations governing land disposal of Effluent, including, but not limited to Title 30, Texas Administrative Code, Chapter 210 as may be amended from time to time. All facilities shall be constructed and all related equipment, materials, and supplies shall be acquired in the name of Owner. All contracts and agreements shall contain provisions to the effect that the contractor shall look solely to Owner for payment.

3.2 Approval of Plans and Specs. Owner shall submit construction plans and specifications (the "Plans and Specifications") for the Effluent Storage Facilities and Irrigation System to the District's General Manager and the District's Engineer within 180 days of the Effective Date of this Agreement. Owner shall obtain approval of the Plans and Specifications from the Board prior to submission to the TNRCC or any other agencies with applicable jurisdiction and prior to the award of construction contracts for such facilities. Board approval shall not be unreasonably withheld or delayed and shall be provided within 30 days of submission of the Plans and Specifications to the District.

3.3 Construction Contracts. All bids for the Effluent Storage Facilities and the Irrigation System shall be advertised and all construction contracts for such facilities shall be awarded in the manner provided by law applicable to water control and improvement districts and in full compliance with the rules and regulations of the TNRCC governing developer reimbursement, including Chapters 49 and 51 of the Texas Water Code and 30 Texas Administrative Code Chapter 293 as may be amended from time to time. The Board shall review all bids received and Owner shall obtain the Board's approval of any construction contract prior to its award. Board approval shall not be unreasonably withheld or delayed. No changes to the Plans and Specifications for the Effluent Storage Facilities or the Irrigation System and no material change orders to any construction contract shall be made without approval of the Board.

3.4 Owner Warranties. With respect to the construction of the Effluent Storage Facilities and the Irrigation System, Owner warrants that:

- (a) such facilities shall be constructed in a good and workmanlike manner and in accordance with the Plans and Specifications, and that the materials used in the construction of the facilities shall be free from defects and fit for their intended purpose; and
- (b) such facilities shall be constructed wholly within the Irrigation Easement and, subject to obtaining Owner's approval, not to be unreasonably withheld, Owner shall provide any additional easements, rights of way and sites for the facilities and access to the facilities by the District on lands owned by Owner, if necessary, at no cost to the District, provided the same do not interfere with the construction, development or operation of the Golf Course.

3.5 Timing of Construction. The parties acknowledge that construction of the Effluent Disposal Facilities and the Irrigation System may take place in stages and that full use of the Irrigation Easement may not be made until the Irrigation System is extended to all property located within the Easement Property. It shall be the responsibility of Owner to construct the Irrigation System and Effluent Disposal Facilities in the time and manner that will allow the District to meet the conditions and requirements contained in the Wastewater Discharge Permit, subject to *force majeure*. The parties agree that time is of the essence to this Agreement and, therefore, Owner shall proceed with construction of the Effluent Storage Facilities and the Irrigation System with all due diligence and shall use its best efforts to achieve Construction Completion no later than three years from the Effective Date.

3.6 Remedy of Defects. Prior to the District's acquisition of the Effluent Storage Facilities and the Irrigation System, Owner shall remedy or cause to be remedied, and pay all expenses attributable to remedying all material design, construction and/or material defects in the facilities.

3.7 Completion of Construction. The parties agree that construction of the Effluent Storage Facilities and the Irrigation System shall be deemed complete when the following conditions are met:

- (a) all facilities have been constructed that allow full and complete use of the disposal capacity available of the Irrigation Easement as shown on the Plans and Specifications previously approved by the Board under Section 3.2 above;
- (b) a complete set of as-built mylar plans of the facilities, substantially the same as those approved, including complete and accurate locations of all facilities in the Irrigation Easement is delivered to the District;
- (c) complete operations and maintenance manuals for those portions of the facilities deemed desirable by the District's General Manager are delivered to the District;
- (d) a completed affidavit by the Owner's Engineer stating the facilities are fully completed in compliance with the Plans and Specifications and in accordance with the as-built plans delivered to the District;
- (e) the District receives a complete, signed and sealed affidavit from Owner's Engineer stating the final costs of the facilities and providing a breakdown of such cost in a manner consistent with the bid therefore; and
- (f) the District receives an assignment of all bonds, warranties and guaranties by the contractor or other document(s) securing the contractor's warranty reasonably acceptable to the District; and
- (g) the facilities, as constructed, are approved by the Board, which approval shall be granted if the requirements of Section 3.7(a)-(f) herein are met.

3.8 Facility Conveyance. Upon Construction Completion, Owner shall convey ownership of the Effluent Storage Facilities and the Irrigation System to the District. The form of the conveyance instrument to convey the Effluent Storage Facilities and the Irrigation System to the District is attached hereto as Exhibit A. Owner shall prepare, execute, and file all instruments reasonably necessary to convey the Effluent Storage Facilities and the Irrigation System, exclusive of the real property, to the District, and shall execute an affidavit that to the best of Owner's knowledge, no debt remains unpaid to any contractor, laborer, or material supplier which has or could result in a valid lien encumbering, or claim against the facilities.

3.9 Owner Reimbursement. Upon Construction Completion, the District shall file and prosecute with due diligence an application with the TNRCC to reimburse Owner its design, construction, and administrative costs associated with construction of the Effluent Storage Facilities and the Irrigation System. All costs and expenses included in such application shall be reviewed and approved by the Board and such approval shall not be unreasonably withheld or delayed. The District shall reimburse Owner the amount approved by the TNRCC in accordance with the District's application and Chapter 293 of the Commission's rules regarding developer reimbursement. The District acknowledges and agrees that (i) the Effluent Storage Facilities and the Irrigation System are components of the Defined Area Facilities as provided in the Annexation, Utility Development, and Conveyance Agreement executed October 21, 1999

("UDCA") by the District and HPK; (ii) that HPK has assigned its rights to reimbursement for the construction of the Effluent Storage Facilities and the Irrigation System under the UDCA to Owner pursuant to the First Amendment to Development and Purchase and Sale Agreement executed February 29, 2000 by HPK and Owner; and (iii) that construction, conveyance and reimbursement for the Effluent Storage Facilities and Irrigation System shall be governed by the terms of this Agreement.

IV. Operation and Maintenance of Facilities

4.1 Facility Operation and Maintenance. After conveyance of the Effluent Storage Facilities and Irrigation System to the District, Owner shall have the sole right to use, operate and maintain the Effluent Storage Facilities and the Irrigation System, subject to Section 4.3 herein, within the standard of a reasonably prudent person operating and maintaining an effluent disposal system in compliance with all applicable local, state and federal rules and regulations including the terms and conditions of the Wastewater Disposal Permit. With respect to the maintenance and operation of the Effluent Storage Facilities and the Irrigation System, the District and Owner further agree as follows: (i) except as set forth in clause (ii) below, all decisions with respect to the maintenance, operation, repair and replacement of the Effluent Storage Facilities and the Irrigation System shall be made by Owner, (ii) the District shall be entitled to make all decisions with respect the repair and/or replacement of the effluent storage pond located on the Easement Property, and (iii) Owner and District shall each pay one-half (1/2) of the repair and/or replacement costs of the Effluent Storage Facilities and the Irrigation System. Owner shall pay all utility costs in connection with the operation of the Effluent Storage Facilities and the Irrigation System.

Owner shall have the full right to access the Effluent Storage Facilities and the Irrigation System and to utilize the Easement Property in connection with its rights and obligations hereunder. Owner shall use the facilities to irrigate the Easement Property with Effluent delivered by the District in accordance with Section 2.1 above. Owner shall use all Effluent delivered to it by the District prior to irrigating the property within the Irrigation Easement with another water source, such as raw water or potable water, unless the mixing of raw or potable water and the Effluent is required to maintain the quality of the tees, greens or fairways. Owner shall provide a written report to the District on a monthly basis or as otherwise required by the Wastewater Disposal Permit stating the amount of effluent used for irrigation and the amount of area irrigated.

4.2 Alternate Water Supplies. The parties acknowledge that during the initial construction of the District's Wastewater Treatment Facilities, and in certain times during the year, there may not be enough Effluent available to irrigate the Irrigation Easement and allow Owner to maintain a premier, first class golf course on its property. In such conditions, Owner may wish to supplement its irrigation supply with raw or potable water. The District agrees that Owner may use the Effluent Storage Facilities and the Irrigation System for irrigation of the Irrigation Easement with potable or raw water in addition to the Effluent, provided, however, that Owner shall first use all Effluent that is delivered by the District before introducing alternate water supplies, unless the use of the alternate water source is required to maintain the quality of the

tees, greens or fairways. Owner shall be responsible for obtaining such additional supplies through separate agreement with the District or other supplier.

4.3 District Assumption of Operation and Maintenance. The District shall have the right, but not the obligation, to assume operational control of the Effluent Storage Facilities and/or the Irrigation System, prior to or after Owner's conveyance of the facilities to the District, if it finds that such facilities are not being properly operated or maintained by Owner so that a violation of the Wastewater Disposal Permit or other applicable rule or regulation of a governmental entity with jurisdiction has occurred or is likely to occur. The District shall provide written notice to Owner of its intent to assume operational control under this Section and provide Owner 30 days, or if such defect is not capable of being cured within 30 days, such longer period of time as is necessary to cure such defect, provided that Owner has commenced to cure such defect with all due diligence within such 30-day period and is proceeding to cure such defect. If such defect is not cured within the time period specified by the District in its written notice, the District may assume operational control of the facilities under this Section and take such action, including operation, repair, modification or extension of the facilities, as required to cure the defect. Operational control of the facilities shall revert back to Owner upon Owner's delivery to the District of reasonably satisfactory evidence that the problem giving rise to the District's assumption of operational control has been cured. In the event the District exercises its rights to maintain, modify, extend, and/or operate the facilities as provided in this Section, the District shall take all reasonable steps consistent with the compliance of the Wastewater Disposal Permit to avoid or minimize interference with Owner's operation of a premier, first-class golf course or Owner's other uses of its property.

4.4 Cooperation by Owner. Owner agrees to cooperate with the District and execute all necessary documents required by TNRCC or other governmental agency related to the amendment, renewal, or modification of the Wastewater Disposal Permit.

4.5 Compliance with Disposal Permit. The District shall be responsible for maintaining and submitting all reports and records to the TNRCC as required by the Wastewater Disposal Permit regarding disposal of the effluent by irrigation, including soil sampling prior to commencement of irrigation and water quality monitoring. The District also shall construct and operate, as part of the District Wastewater Treatment Facilities, a rechlorination facility if required by the Wastewater Disposal Permit. Such rechlorination facility shall not be deemed a part of the Effluent Storage Facilities, or the Irrigation System, and shall be owned, operated and maintained by the District at its expense.

V. General Provisions

5.1 Risk of Loss. As between Owner and the District, Owner shall bear all risk of loss or of damage to the Effluent Storage Facilities and the Irrigation System occurring prior to the time of the District's acquisition of the facilities as specified in Section 3.8 above.

5.2 Insurance. Prior to the District's acquisition of the Effluent Storage Facilities and the Irrigation System, Owner shall maintain fire and extended coverage insurance covering the Effluent Storage Facilities and the Irrigation System, as well as any other insurance customarily

maintained on facilities of comparable character by public entities such as the District. All such insurance shall name as the insured both the District and Owner. All proceeds from the insurance shall be utilized to repair and restore the Effluent Storage Facilities and Irrigation System.

5.3 Taxes. Owner understands and agrees that this Agreement does not affect Owner's obligation to pay property or maintenance taxes, or any other tax, charge, or fee imposed by the District, or any tax imposed by a school district, other special district, Travis County, the State of Texas, or in the United States. Owner shall also abide by all the rules and regulations adopted by the District provided, however, that all fees, charges or expenses to be paid by Owner in connection with the delivery of Effluent shall be governed by Section 2.3 herein.

5.4 Representations of Owner. Owner represents that:

- (a) This Agreement, the transactions contemplated herein, and the execution and delivery of this Agreement have been duly authorized.
- (b) This Agreement and the representations and covenants contained herein, and the consummation of the transactions contemplated herein, will not violate or constitute a breach of any contract or other agreement to which Owner is a party, or any order, judgment, or decision against the Owner.

5.5 Representations of District. District represents and warrants that it has full authority to enter into this Agreement. Upon the execution of this Agreement, District shall initiate and diligently pursue all actions reasonably necessary to obtain all governmental approvals for the District's obligations under this Agreement.

5.6 Term. This Agreement shall be in force and effect for a term of fifty (50) years from the date hereof. At the end of the fifty-year term, the parties agree to use reasonable efforts to reach agreement on the terms and conditions for renewal of this Agreement.

5.7 Amendment or Modification. This Agreement may be modified or amended by written instrument executed by the District and Owner.

5.8 Default and Remedies.

- (a) This provision is in addition to other remedies available to the District in this Agreement. In the event of default by Owner, other than a Terminating Default, the District may give to Owner written notice of such default specifying the failure or default relied upon. If Owner fails to fully cure the default specified in such notice within thirty (30) days after receipt of such notice, or such longer period as may be required to cure such default if the default is not capable of being cured within such 30-day period and Owner has failed to commence cure of such default within such 30-day period or proceed in curing such default, the District shall have the right to pursue all legal or equitable remedies other than termination of this Agreement.

- (b) For the purposes of this Agreement, a Terminating Default by Owner shall mean where (i) Owner refuses to accept Effluent as required pursuant to the terms of this Agreement or (ii) if the District has assumed operational control of the Effluent Storage Facilities and the Irrigation System pursuant to Section 4.3 and Owner has not provided the District with evidence that the problem giving rise to the District's assumption of operational control has been cured within twelve (12) months after the time that the District assumes operational control of the Effluent Storage Facilities and the Irrigation System. In the event of a Terminating Default by Owner, the District shall send notice of such Terminating Default to Owner, as well as notice that the District intends to terminate the Agreement. If Owner does not begin accepting Effluent, irrigating pursuant to this Agreement, or otherwise cure such default within twenty (20) days of receipt of the District's written notice of a Terminating Default, except *force majeure*, then the District shall have the right to terminate this Agreement. This Agreement may only be terminated by the District due to a Terminating Default of Owner that is not cured as described herein. No other default of Owner shall entitle the District the right to terminate the Agreement. In the event that the District terminates this Agreement because of a Terminating Default of Owner, the District shall take all reasonable steps to avoid or minimize interference with Owner's use of the Golf Course, including the construction, operation, and maintenance of a premier, first-class golf course; this sentence shall survive the termination of this Agreement for any reason.
- (c) The District may employ attorneys to pursue its legal rights, and if the District prevails before any court or agency or competent jurisdiction, Owner shall be obligated to pay all expenses incurred by the District, including reasonable attorneys' fees.
- (d) In the event of default by the District, Owner may give to the District written notice of such default specifying the failure or default relied upon. If the District fails to fully cure the default specified in such notice or such longer period as may be required to cure such default if the default is not capable of being cured within such 30-day period and Owner has commenced to cure such default within such 30-day period and is proceeding to cure such default within thirty (30) days after receipt of such notice, Owner shall be entitled to a writ of mandamus issued by a court of competent jurisdiction compelling and requiring the District and the officials thereof to observe and perform the covenants, obligations and conditions prescribed in this Agreement. In addition to the foregoing, Owner may bring an action for any other legal or equitable remedies.

5.9 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the respective parties hereto, including all persons and entities acquiring said Property or any part thereof, whether by descent, devise, purchase, foreclosure, or any other means, and any person by acceptance of title to said property or any party thereof shall thereby agree and covenant to abide by and forthwith perform this Agreement and the covenants

herein; provided, however, that nothing herein shall prevent the parties hereto or their respective successors, legal representatives or assigns, by mutual agreement in writing, from revising or amending this Agreement as may be necessary in the future because of changed circumstances or otherwise. Owner, upon consent of the District, which consent may not be unreasonably withheld, may assign all or any part of its rights and obligations hereunder, including but not limited to the right of reimbursement as herein defined for any specific water, sewer, or drainage improvements. The District hereby specifically consents to assignment of reimbursement rights to HPK Ventures, Ltd. for costs associated with the construction of the Effluent Storage Facilities and Irrigation System.

5.10 Severability. The provisions of this Agreement are severable and, if any provision or part of this Agreement or the application thereof to any person or circumstance shall ever be held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, the remainder of this Agreement and the application of such provision or part of this Agreement to other persons or circumstances shall not be affected thereby.

5.11 Force Majeure. In the event either party is rendered unable, wholly or in part, by *force majeure*, to carry out any of its obligations under this Agreement, then the obligations of such party, to the extent affected by such *force majeure* and to the extent that due diligence is being used to resume performance at the earliest practicable time, shall be suspended during the continuance of any inability so caused to the extent provided but for no longer period. Such cause, as far as possible, shall be remedied with all reasonable diligence. The term "*force majeure*" as used herein shall include acts of God, such as unusually severe weather, governmental restrictions, regulations or controls, or other conditions similar to those enumerated in this Section beyond the reasonable control of the party claiming *force majeure*, strikes, lockouts, or other industrial disturbances, acts of the public enemy, orders of any kind of any governmental entity or any civil or military authority, or other civil disturbances.

5.12 Caption. The captions appearing at the first of each numbered section or paragraph in this Agreement shall never be considered or given any effect in construing this Agreement.

5.13 Governing Law. This Agreement shall be governed by, and construed in accordance with, the laws of the State of Texas.

5.14 Venue. Venue for the purpose of litigation regarding this Agreement shall be in Travis County.

5.15 Third Parties. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall never be construed to confer any benefit to any third party.

5.16 Entire Agreement. This Agreement constitutes the entire agreement and supersedes all prior agreements and understandings, both written and oral, between the District and Owner with respect to the subject matter hereof.

5.17 Waiver. Each party may specifically, but only in writing, waive any breach of this Agreement by the other party, but no such waiver shall be deemed to constitute a waiver of similar or other breaches by such other party.

5.18 Notices. All notices by Owner to the District shall be in writing and mailed by certified mail, return receipt requested, addressed to:

Deborah S. Gernes
Manager
TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT #17
3812 Eck Lane
Austin, Texas 78734

cc: Lauren Kalisek
LLOYD GOSSELINK BLEVINS ROCHELLE BALDWIN & TOWNSEND
111 Congress, Suite 1800
Austin, Texas 78701
(512) 322-5800 -- (512) 472-0532 - FAX

All notices by the District to Owner shall be in writing and mailed by Certified Mail, Return Receipt Requested, addressed to:

HILLS II OF LAKEWAY, INC.
P.O. Box 819012
Dallas, Texas 75381-9012
Attention: Mr. Terry Taylor
Facsimile: 972/888-7717

With a copy to:
ADDISON LAW FIRM,
a Professional Corporation
14901 Quorum Drive, Suite 650
Dallas, Texas 75240
Attention: Mr. Randolph D. Addison
Facsimile: 972/960-7719

Notice in any other manner shall be effective only if and when received by the other party to be notified and acknowledged in writing by the party to be notified. Either party may change its address by giving written notice of such change to the other party.

5.19 Memorandum of Agreement. The parties agree to execute and record in the real property records of Travis County, Texas a Memorandum of this Agreement in the form of Exhibit B attached hereto.

5.20 Counterparts. This Agreement shall be executed in a number of counterparts, each of which shall for all purposes be deemed to be an original, and all such counterparts shall together constitute and be one and the same instrument.

IN WITNESS WHEREOF, Owner has caused its corporate name to be hereunto subscribed by its officers, thereunto duly authorized, and the President of the District has executed, and the Secretary of the District has attested this instrument on behalf of said District.

EXECUTED AND EFFECTIVE as of the latest date appearing below.

HILLS II OF LAKEWAY, INC.

By: 

Date: 8/21/00

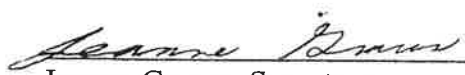
TRAVIS COUNTY WATER CONTROL AND
IMPROVEMENT DISTRICT NO. 17

By: 

David Lewis Steed
President, Board of Directors

Date: 9/7/00

ATTEST:


Jeanne Graves, Secretary

THE STATE OF TEXAS

§
§
§

COUNTY OF TRAVIS

Before me, the undersigned authority, on this day personally appeared Mark Dietz, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated and as the act and deed of said corporation.

Given under my hand and seal of office on this the 21st day of Aug., 2000.



Cheryl Finkelstein
Notary Public, State of Texas

Notary's Typed or Printed Name _____

My Commission Expires _____

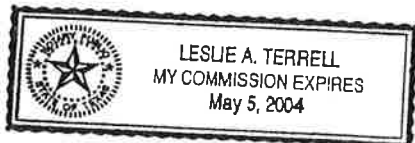
THE STATE OF TEXAS

§
§
§

COUNTY OF TRAVIS

Before me, the undersigned authority, on this day personally appeared David Lewis Steed, President of Travis County Water Control and Improvement District No. 17, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same as the act of Travis County Water Control and Improvement District No. 17 and for the purposes and consideration therein expressed, in the capacity therein stated and as the act and deed of said corporation.

Given under my hand and seal of office on this the 1st day of September, 2000.



Leslie A. Terrell
Notary Public, State of Texas

Notary's Typed or Printed Name _____

My Commission Expires _____

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

REVISED PERMANENT IRRIGATION EASEMENT

09-05-2000 12:55 PM 2000141825

STRONG \$41.00

DANA DEBEAUVOR, COUNTY CLERK
TRAVIS COUNTY, TEXAS

THE STATE OF TEXAS

COUNTY OF TRAVIS

HPK Ventures, Ltd., a Texas limited partnership ("Grantor"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto Travis County Water Control & Improvement District No. 17, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734, Attn: General Manager ("Grantee") a permanent easement and right of way upon, in, and across the approximately 172 acres of land more specifically described by metes and bounds on the attached Exhibit A (collectively the "Easement Property") for the following purposes:

- (i) constructing, maintaining, operating, repairing, or replacing wastewater effluent storage ponds to be located as shown on the attached Exhibit B and not to exceed a total storage capacity of fifteen million (15,000,000) gallons;
- (ii) constructing, maintaining, operating, repairing, or replacing an irrigation system on the Easement Property; and
- (iii) irrigating the Easement Property with treated wastewater effluent generated by Grantee in compliance with all applicable statutes, rules and regulations of all governmental agencies with jurisdiction, provided that Grantee shall have no right to deliver, and Grantor shall have no obligation to receive upon the Easement Property any amounts in excess of 650,000 gallons per day based on a thirty-day average and 500,000 gallons per day based on an annual average, whichever is less.

This Permanent Easement shall be exclusive as to its purpose. Grantor shall not grant any easements, licenses or similar rights to any other person or entity for the irrigation of the Easement Property with treated wastewater effluent.

Grantor shall not be charged by Grantee for the irrigation of the Easement Property with treated wastewater effluent, except that Grantee may charge Grantor for additional incremental costs incurred, if any, for the delivery of the treated wastewater effluent to the Easement Property, where such costs may not be recovered by Grantee from retail wastewater customers through retail rates.

Grantor, its successors and assigns, may use and enjoy the Easement Property for purposes consistent with Grantee's rights herein, including Grantor's construction, operation and

County West 17 5122 2790

maintenance of a premier, first-class golf course to be irrigated by Grantee's treated wastewater effluent. In exercising its rights under this Permanent Easement, Grantee shall take all reasonable steps to avoid or minimize interference with Grantor's use of the Easement Property, including the construction, operation and maintenance of a premier, first-class golf course. If a premier, first-class golf course is constructed by Grantor on the Easement Property, Grantee agrees that its irrigation pursuant to its rights hereunder shall not cause the sustained inundation of the Easement Property over an extended period of time that would cause the golf course to be unacceptable as a first-class golf course. Grantor agrees it shall operate and maintain the golf course constructed on the Easement Property in a manner consistent with Grantee's rights hereunder and Grantee's duty to comply with all applicable permits, statutes, rules, or regulations governing land disposal of effluent.

The Permanent Easement rights and privileges herein granted shall be perpetual and said rights shall constitute covenants running with the land and shall be binding upon and inure to the benefit of Grantor and Grantee, respectively, and their respective successors and assigns.

In witness whereof this instrument is executed this 8 day of June 2000.

HPK Ventures, Ltd., a Texas limited partnership

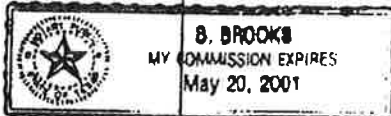
By: HPK Development, Inc., a Texas
corporation, General Partner

By: 
James Kerby
Vice President

STATE OF TEXAS

COUNTY OF TRAVIS

This instrument was acknowledged before me on the 8 day of June 2000 by James Kerby, Vice President of HPK Development, Inc., on behalf of said corporation.



Notary Public, State of Texas

Printed Name: S. Brooks

My Commission expires:

Approved as to form:

TRAVIS COUNTY WATER CONTROL
& IMPROVEMENT DISTRICT NO. 17By: David Lewis Steed

David Lewis Steed, President

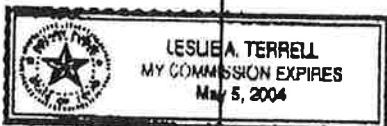
ATTEST:

Jeanne Graves
Jeanne Graves, SecretaryDate: 8-1-2000

STATE OF TEXAS

COUNTY OF TRAVIS

This instrument was acknowledged before me on the 17th day of August 2000 by David Lewis Steed, President of the Board of Directors of Travis County Water Control & Improvement District No. 17 on behalf of said District.



Notary Public, State of Texas

Printed Name: Leslie A. Terrell

My Commission expires:

County WCID#17 512- 52790 P.04

The Law Office of
STEVE HURST, P.C.

June 22, 2000

Ms. Lauren Kalisek
Lloyd, Gosselink, Blevins, Rochelle, Baldwin & Towasend, P.C.
111 Congress Ave., Ste. 1800
Austin, Texas 78701

RE: HPK Ventures, Ltd.
Travis County Water Control & Improvement District No. 17

Dear Lauren:

This letter is in response to your latest request for a signature by a lienholder for consent and subordination on the Revised Permanent Irrigation Easement. There is not a lienholder on the property. The previous lienholder has been paid off.

Should you have any questions regarding this matter, do not hesitate to contact me.

Yours very truly,


Steve Hurst

SH/jmh

11

JUN 22 PM 04:22PM STEVE HURST, P.C.

THENCE with the south line of the said Hurst Creek Municipal Utility District tract and a north line of said Tract 1, S 88°19'07" E, a distance of 455.70 feet to a capped iron rod set, for an angle corner of the said Hurst Creek tract, for the West corner of the said 1.884 acre tract, and for an angle corner of this tract;

THENCE with the north line of the said 1.884 acre tract, N 62°16'42" E, a distance of 687.46 feet to a capped iron rod set;

THENCE with the east line of the said 1.884 acre tract, S 21°57'51" E, a distance of 225.65 feet to an iron rod found for the southeast corner of said 1.884 acre tract and for an angle point in the north line of said TRACT 1;

THENCE crossing the said TRACT 1 the following two (2) courses:

1. S 41°00'41" E, a distance of 204.74 feet, to an iron rod and cap set;
2. S 05°07'18" E, 204.53 feet, for an iron rod set in the south line of said TRACT 1 and in the north right-of-way line of Flint Rock Road;

Exhibit A

Tract 1, continued:

THENCE with the south line of said TRACT 1 and the north right-of-way line of Flint Rock Road the following (4) four courses:

1. S71°15'27" W, a distance of 266.28 feet, to an iron rod found;
2. S 85°20'38" W, a distance of 339.57 feet, to an iron rod found;
3. S 78°29'12" W, a distance of 486.67 feet, to an iron rod found;
4. S 75°40'02" W, a distance of 410.05 feet, for an iron rod and cap set;

THENCE departing the north right-of-way line of Flint Rock Road and crossing said TRACT 1 the following twenty-two (22) courses:

1. N 14°19'58" W, a distance of 25.00 feet, for an iron rod and cap set;
2. 32.71 feet along a curve to the right having a radius of 25.00 feet, a central angle of 74°58'01", and a chord bearing N 66°51'22" W a distance of 30.43 feet, for an iron rod and cap set;
3. N 29°22'46" W, for a distance of 32.19 feet, for an iron rod and cap set;
4. 20.51 feet along a curve to the right having a radius of 25.00 feet, a central angle of 47°00'51", and a chord bearing N 05°52'21" W a distance of 19.94 feet, to an iron rod and cap set;
5. 51.69 feet along a curve to the left having a radius of 63.00 feet, a central angle of 47°00'51", and a chord bearing N 05°52'21" W a distance of 50.26 feet, to an iron rod and cap set;
6. N 29°22'46" W, a distance of 41.37 feet, to an iron rod and cap set;
7. 262.52 feet along a curve to the left having a radius of 264.50 feet, a central angle of 56°52'01", and a chord bearing N 57°48'46" W a distance of 251.87 feet, to an iron rod and cap set;
8. 37.69 feet along a curve to the right having a radius of 25.00 feet, a central angle of 86°22'49", and a chord bearing N 43°03'22" W a distance of 34.22 feet, to an iron rod and cap set;
9. N 00°08'02" E, a distance of 1.94 feet, to an iron rod and cap set;
10. N 81°03'14" E, a distance of 123.42 feet, to an iron rod and cap set;
11. N 00°54'36" E, a distance of 89.98 feet, to an iron rod and cap set;
12. N 41°26'01" E, a distance of 191.53 feet, to an iron rod and cap set;
13. N 14°58'34" E, to a distance of 327.17 feet, to an iron rod and cap set;
14. N 23°44'22" W, a distance of 151.02 feet, to an iron rod and cap set;
15. N 38°52'07" E, a distance of 179.64 feet, to an iron rod and cap set;
16. N 10°42'22" E, a distance of 72.45 feet, to an iron rod and cap set;
17. N 50°53'00" W, a distance of 134.56 feet, to an iron rod and cap set;
18. N 39°07'00" E, a distance of 82.55 feet, to an iron rod and cap set;

acre tract, and for an angle corner of this tract;

THENCE with the north line of the said 1.884 acre tract, N 62°16'42" E, a distance of 687.46 feet to a capped iron rod set;

THENCE with the east line of the said 1.884 acre tract, S 21°57'51" E, a distance of 225.65 feet to an iron rod found for the southeast corner of said 1.884 acre tract and for an angle point in the north line of said TRACT 1;

THENCE crossing the said TRACT 1 the following two (2) courses:

1. S 41°00'41" E, a distance of 204.74 feet, to an iron rod and cap set;
2. S 05°07'18" E, 204.53 feet, for an iron rod set in the south line of said TRACT 1 and in the north right-of-way line of Flint Rock Road;

Exhibit A


Tract I, continued:

19. 61.60 feet along a curve to the right having a radius of 275.00 feet, a central angle of $12^{\circ}50'00''$, and a chord bearing $N 45^{\circ}32'00'' E$ a distance of 61.47 feet, to an iron rod and cap set;
20. $N 51^{\circ}57'00'' E$, a distance of 105.74 feet, to an iron rod and cap set;
21. $S 38^{\circ}03'00'' E$, a distance of 173.83 feet, to an iron rod and cap set;
22. $N 86^{\circ}24'14'' E$, a distance of 109.09 feet, to an iron rod set in the west line of the said Hurst Creek Municipal Utility District tract and in the east line of said TRACT I;

THENCE, with the west line of said Hurst Creek Municipal Utility District tract and an east line of said TRACT I, the following two (2) courses:

1. $S 14^{\circ}53'38'' W$, a distance of 490.21 feet to an iron rod found;
2. $S 14^{\circ}48'07'' W$, a distance of 341.22 feet, to the said Point of Beginning.

Containing 23.349 acres, more or less.


George E. Lucas

4-27-2000
Date: April 27, 2000

Registered Professional Land Surveyor No. 4160
State of Texas

Randall Jones Engineering, Inc.
1212 East Braker Lane
Austin, Texas 78753

File: 613-TR1



TRACT 1

BEING A TRACT OR PARCEL OF LAND SITUATED IN TRAVIS COUNTY, TEXAS, AND BEING OUT OF AND A PART OF THE J. P. WARNOCK SURVEY NO. 56, THE C. P. REINKE SURVEY NO. 67, AND THE C. W. WALDRON SURVEY NO. 78, AND BEING A PART OF THAT CERTAIN TRACT OF LAND DESCRIBED AS TRACT 1 IN A DEED TO HPK VENTURES, LTD. FROM FINIAL/PATRON COMPANY, DATED MARCH 26, 1999, AND RECORDED IN VOLUME 13401, PAGE 612, OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS, AND ALL OF THAT CERTAIN TRACT OF LAND SAID TO CONTAIN 1.884 ACRES OF LAND AS DESCRIBED IN A DEED TO HPK VENTURES, LTD. FROM LYNN ACRES, L.L.C., DATED MARCH 23, 2000, AND RECORDED IN DOCUMENT NO. 2000046933, OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at an iron rod found, for the Southwest corner of that certain tract of land as described in a deed to Hurst Creek Municipal Utility District from Lynn Acres, L.L.C., dated August 23, 1996, and recorded in Volume 12792, Page 1356, of the Real Property Records of Travis County, Texas, for an interior corner of the said HPK tract, and for an interior corner of the herein described tract;

THENCE with the south line of the said Hurst Creek Municipal Utility District tract and a north line of said Tract 1, S 88°19'07" E, a distance of 455.70 feet to a capped iron rod set, for an angle corner of the said Hurst Creek tract, for the West corner of the said 1.884 acre tract, and for an angle corner of this tract;

THENCE with the north line of the said 1.884 acre tract, N 62°16'42" E, a distance of 687.46 feet to a capped iron rod set;

TRACT 1

BEING A TRACT OR PARCEL OF LAND SITUATED IN TRAVIS COUNTY, TEXAS, AND BEING OUT OF AND A PART OF THE J. P. WARNOCK SURVEY NO. 56, THE C. P. REINKE SURVEY NO. 67, AND THE C. W. WALDRON SURVEY NO. 78, AND BEING A PART OF THAT CERTAIN TRACT OF LAND DESCRIBED AS TRACT 1 IN A DEED TO HPK VENTURES, LTD. FROM FINIAL/PATRON COMPANY, DATED MARCH 26, 1999, AND RECORDED IN VOLUME 13401, PAGE 612, OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS, AND ALL OF THAT CERTAIN TRACT OF LAND SAID TO CONTAIN 1.884 ACRES OF LAND AS DESCRIBED IN A DEED TO HPK VENTURES, LTD. FROM LYNN ACRES, L.L.C., DATED MARCH 23, 2000, AND RECORDED IN DOCUMENT NO. 2000046933, OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at an iron rod found, for the Southwest corner of that certain tract of land as described in a deed to Hurst Creek Municipal Utility District from Lynn Acres, L.L.C., dated August 23, 1996, and recorded in Volume 12792, Page 1356, of the Real Property Records of Travis County, Texas, for an interior corner of the said HPK tract, and for an interior corner of the herein described tract;

THENCE with the south line of the said Hurst Creek Municipal Utility District tract and a north line of said Tract 1, S 88°19'07" E, a distance of 455.70 feet to a capped iron rod set, for an angle corner of the said Hurst Creek tract, for the West corner of the said 1.884 acre tract, and for an angle corner of this tract;

THENCE with the north line of the said 1.884 acre tract, N 62°16'42" E, a distance of 687.46 feet to a capped iron rod set;

THENCE with the east line of the said 1.884 acre tract, S 21°57'51" E, a distance of 225.65 feet to an iron rod found for the southeast corner of said 1.884 acre tract and for an angle point in the north line of said TRACT 1;

THENCE crossing the said TRACT 1 the following two (2) courses:

1. S 41°00'41" E, a distance of 204.74 feet, to an iron rod and cap set;
2. S 05°07'18" E, 204.53 feet, for an iron rod set in the south line of said TRACT 1 and in the north right-of-way line of Flint Rock Road;

TRACT 2

THAT PART OF THE C.P. REINKE SURVEY NO. 67, ABSTRACT NO. 688 AND THE C. W. WALDRON SURVEY NO. 78 IN TRAVIS COUNTY, TEXAS, BEING A PORTION OF THAT 357.843 ACRE TRACT CONVEYED TO HPK VENTURES, LTD., BY DEED RECORDED IN VOLUME 13401, PAGE 612 OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS.

Beginning at an iron rod found for the Southeast corner of Lot 609 and the East corner of Lot No. 608, of The Hills of Lakeway, Phase Eight P.U.D., according to the plat thereof recorded in Volume 82, Pages 1, 2, 3 and 4 of the Plat Records of Travis County, Texas, and for an angle corner of the said 357.843 acre tract

Thence with the common boundary line of said The Hills of Lakeway, Phase Eight and the said 357.843 acre tract, N 02°47'56" W a distance of 238.68 feet to an iron rod found an exterior ell corner of that certain tract said to contain 91.55 acres of land as described in a deed to Lynn Acres, L.L.C. from Irvin Wall, dated May 5, 1995, and recorded in Volume 12486, Page 464, of the Real Property Records of Travis County, Texas, for an exterior ell corner of the said 357.843 acre tract, and for the Northwest corner of this tract;

Thence departing the easterly boundary line of said subdivision, with the common boundary line of said 357.843 acre tract, and said 91.55 acre tract S 86°04'53" E, a distance of 697.68 feet for an iron rod and cap set, for the Northeast corner of this tract;

Thence crossing the said 357.843 acre tract the following seventeen (17) courses:

1. S 44°08'58" W, a distance of 410.68 feet to an iron rod and cap set;
2. S 38°01'00" E, a distance of 162.82 feet to an iron rod and cap set;
3. S 51°57'00" W, a distance of 15.77 feet to an iron rod and cap set;
4. 9.23 feet along a tangent curve to the left, having a radius of 325.00 feet, a central angle of 1°37'37", and a chord of which bears S 51°08'11" W for a distance of 9.23 feet to an iron rod and cap set;
5. N 38°08'00" W, a distance of 160.41 feet to an iron rod and cap set;
6. S 45°56'43" W, a distance of 186.68 feet to an iron rod and cap set;
7. S 57°07'21" W, a distance of 149.03 feet to an iron rod and cap set;
8. S 71°03'18" W, a distance of 76.28 feet to an iron rod and cap set;
9. S 74°13'43" W, a distance of 195.41 feet to an iron rod and cap set;
10. S 66°28'50" W, a distance of 213.51 feet to an iron rod and cap set;

Tract 2, continued:

11. S 75°26'07" W, a distance of 486.32 feet for an iron rod and cap set;
12. S 22°00'08" W, a distance of 83.64 feet for an iron rod and cap set;
13. 97.62 feet along a tangent curve to the left having a radius of 335.00 feet, a central angle of 16°41'43", and a chord bearing N 84°30'39" W a distance of 97.27 feet for an iron rod and cap set;
14. S 87°08'30" W, a distance of 100.00 feet to an iron rod and cap set;
15. 239.85 feet along a tangent curve to the right having a radius of 320.27 feet, a central angle of 42°54'32", and a chord bearing N 71°24'14" W a distance of 234.29 feet to an iron rod and cap set;
16. N 61°57'45" E, a distance of 720.86 feet to an iron rod and cap set;
17. N 65°54'41" E, a distance of 678.74 feet to the said Point of Beginning.

Containing 13.429 acres, more or less.


George E. Lucas

4-27-2000
Date: April 27, 2000

Registered Professional Land Surveyor No. 4160
State of Texas

Randall Jones Engineering, Inc.
1212 East Braker Lane
Austin, Texas 78753

File: G13-TR-2



Tract 3, continued:


4. N.05°50'33"W., 121.09 feet to an iron rod found;
5. N.14°20'58"W., 124.03 feet to an iron rod found;
6. N.28°08'17"W., 76.48 feet to a capped iron rod set;

Thence N.00°03'09"E., crossing the said right of way for Tonkawa Trail (at a distance of 81.59 feet pass the north right of way line of Tonkawa Trail and the south line of the said 357.843 acre tract) in all a total distance of 483.22 feet to an iron rod and cap set;

Thence continue crossing the said 357.843 acre tract the following ten (10) courses:

1. N.49°3'13"W., 181.55 feet to an iron rod and cap set;
2. S.61°25'06"W., 394.43 feet to an iron rod and cap set;
3. S.08°19'36"W., 218.61 feet to an iron rod and cap set;
4. N.88°16'28"W., 490.25 feet to an iron rod and cap set;
5. 381.27 feet along a curve to the right having a radius of 365.00 feet, a central angle of 59°51'00", and a chord bearing N58°20'59"W., 364.17 feet; to an iron rod and cap set;
6. N.28°25'29"W., 190.90 feet to an iron rod and cap set;
7. N.66°11'33"E., 334.78 feet to an iron rod and cap set;
8. N.72°19'53"E., 302.59 feet to an iron rod and cap set;
9. N.42°55'39"E., 115.63 feet to an iron rod and cap set;
10. N.06°53'46"E., 126.80 feet to the said Point of Beginning.

Containing 92,790 acres, more or less.


George E. Lucas Date: May 8, 2000
Registered Professional Land Surveyor No. 4160
State of Texas

Randall Jones Engineering, Inc.
1212 East Braker Lane
Austin, Texas 78753

File: 613-IRR3



TRACT 4

THAT PART OF THE W. FAWCETT SURVEY NO. 427, THE C.W. WALDRON SURVEY NO. 79, THE C.W. WALDRON SURVEY NO. 78 AND THE W. FAWCETT SURVEY NO. 426, IN TRAVIS COUNTY, TEXAS, BEING A PORTION OF THAT 357.843 ACRE TRACT CONVEYED TO HPK VENTURES, LTD., BY DEED RECORDED IN VOLUME 13401, PAGE 612 OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS.

BEGINNING at an iron rod found in the west right-of-way line of Tonkawa Trail (a 50 foot right-of-way), same being in the north right-of-way line of Flint Rock Road (a 50 foot right-of-way), from which an iron rod found for the most westerly corner of the plat of Palomba Addition No. 2 a subdivision according to the plat thereof recorded in Volume 87, Page 195 of the Plat Records of said County bears N.81°02'14"E., a distance, of 52.79 feet:

THENCE, with the northerly right-of-way line of Flint Rock Road, same being the south line of said 357.843 acre tract the following (4) three courses:

1. S 79°58'46" W, a distance of 28.40 feet to an iron rod found;
2. S 85°22'30" W, a distance of 122.68 feet to an iron rod found;
3. N 60°46'30" W, a distance of 18.86 feet to an iron rod found;
4. N 37°29'30" W, a distance of 125.89 feet to an iron rod and cap set for an angle point hereof;

THENCE, departing the northerly right-of-way line of Flint Rock Road, through the interior of said 357.843 acre tract the following (38) thirty eight courses:

1. N 52°31'14" E, a distance of 70.62 feet to an iron rod and cap set;
2. N 25°22'37" W, a distance of 620.32 feet to an iron rod and cap set;
3. N 07°37'56" W, a distance of 330.08 feet to an iron rod and cap set;
4. N 05°09'29" E, a distance of 175.27 feet to an iron rod and cap set;
5. N 30°13'24" E, a distance of 57.65 feet to an iron rod and cap set;
6. N 66°10'44" E, a distance of 49.15 feet to an iron rod and cap set;
7. N 82°34'38" E, a distance of 70.60 feet to an iron rod and cap set;
8. N 19°37'22" E, a distance of 119.76 feet to an iron rod and cap set;
9. S 58°28'46" E, a distance of 52.93 feet to an iron rod and cap set;
10. S 22°08'13" W, a distance of 141.91 feet to an iron rod and cap set;
11. S 78°48'25" E, a distance of 125.48 feet to an iron rod and cap set;
12. S 17°35'17" E, a distance of 115.75 feet to an iron rod and cap set;

Tract 4, continued:


13. S 10°49'16" E, a distance of 207.65 feet to an iron rod and cap set;
14. S 59°34'23" E, a distance of 72.72 feet to an iron rod and cap set;
15. N 48°55'17" E, a distance of 397.38 feet to an iron rod and cap set;
16. N 55°10'45" E, a distance of 110.81 feet to an iron rod and cap set;
17. N 35°04'14" E, a distance of 257.06 feet to an iron rod and cap set;
18. N 72°02'34" E, a distance of 291.35 feet to an iron rod and cap set;
19. N 12°17'58" E, a distance of 243.30 feet to an iron rod and cap set;
20. N 79°02'09" W, a distance of 249.85 feet to an iron rod and cap set;
21. S 71°31'28" W, a distance of 127.61 feet to an iron rod and cap set;
22. S 63°08'35" W, a distance of 125.87 feet to an iron rod and cap set;
23. S 67°59'43" W, a distance of 583.13 feet to an iron rod and cap set;
24. S 25°44'25" W, a distance of 52.87 feet to an iron rod and cap set;
25. N 58°28'46" W, a distance of 93.71 feet to an iron rod and cap set;
26. N 13°12'58" E, a distance of 115.86 feet to an iron rod and cap set;
27. N 31°31'14" E, a distance of 114.05 feet to an iron rod and cap set;
28. N 57°16'59" E, a distance of 760.99 feet to an iron rod and cap set;
29. S 83°38'14" E, a distance of 539.29 feet to an iron rod and cap set;
30. N 49°13'18" E, a distance of 34.26 feet to an iron rod and cap set;
31. N 01°14'04" E, a distance of 272.71 feet to an iron rod and cap set;
32. N 04°08'40" W, a distance of 107.06 feet to an iron rod and cap set;
33. N 35°06'26" E, a distance of 153.27 feet to an iron rod and cap set;
34. N 61°40'19" E, a distance of 206.68 feet to an iron rod and cap set for the most northerly corner hereof;
35. S 28°25'29" E, a distance of 143.71 feet to an iron rod and cap set;
36. 224.09 feet along a curve to the left having a radius of 435.00 feet, a central angle of 29°30'59", and a chord bearing S 43°10'58" E a distance of 221.62 feet; to an iron rod and cap set;
37. S 32°03'32" W, a distance of 150.00 feet to an iron rod and cap set;
38. S 57°22'51" E, a distance of 242.15 feet to an iron rod and cap set in the northerly right-of-way line of Tonkawa Trail, same being a point in the southerly line of said 357.843 acre tract, being the most easterly corner hereof, and from which a iron rod in the southerly boundary line of said 357.843 acre tract, same being the northerly right-of-way line of Tonkawa Trail acre tract bears N52°00'18"E, a distance of 243.14 feet;

Tract 4, continued:

THENCE, with the southerly line of said 357.843 acre tract, same being the northerly right-of-way line of Tonkawa Trail the following (20) twenty courses:

1. S 52°00'18" W, a distance of 26.69 feet to an iron rod found;
2. S 48°53'59" W, a distance of 121.30 feet to an iron rod found;
3. S 38°29'37" W, a distance of 99.81 feet to an iron rod found;
4. S 20°51'41" W, a distance of 119.07 feet to an iron rod found;
5. S 02°56'24" W, a distance of 381.20 feet to an iron rod found;
6. S 16°04'14" W, a distance of 47.72 feet to an iron rod found;
7. S 42°43'49" W, a distance of 68.93 feet to an iron rod found;
8. S 53°17'31" W, a distance of 55.55 feet to an iron rod found;
9. S 67°36'39" W, a distance of 62.51 feet to an iron rod found;
10. S 80°21'40" W, a distance of 202.52 feet to an iron rod found;
11. S 67°55'52" W, a distance of 105.15 feet to an iron rod found;
12. S 55°25'51" W, a distance of 185.07 feet to an iron rod found;
13. S 41°33'22" W, a distance of 212.88 feet to an iron rod found;
14. S 52°21'04" W, a distance of 184.69 feet an iron rod found;
15. S 44°45'43" W, a distance of 76.37 feet to an iron rod found;
16. S 35°03'17" W, a distance of 148.18 feet to an iron rod found;
17. S 37°37'25" W, a distance of 223.42 feet to an iron rod found;
18. S 33°07'14" W, a distance of 184.82 feet to an iron rod found;
19. S 25°36'14" W, a distance of 132.99 feet to an iron rod found;
20. S 08°55'01" W, a distance of 201.15 feet to the said POINT OF BEGINNING.

Containing 42.920 acres, more or less.


George E. Lucas

4-27-2000
Date: April 27, 2000

Registered Professional Land Surveyor No. 4160
State of Texas

Randall Jones Engineering, Inc.
1212 East Braker Lane
Austin, Texas 78753

File: 613-TR-4



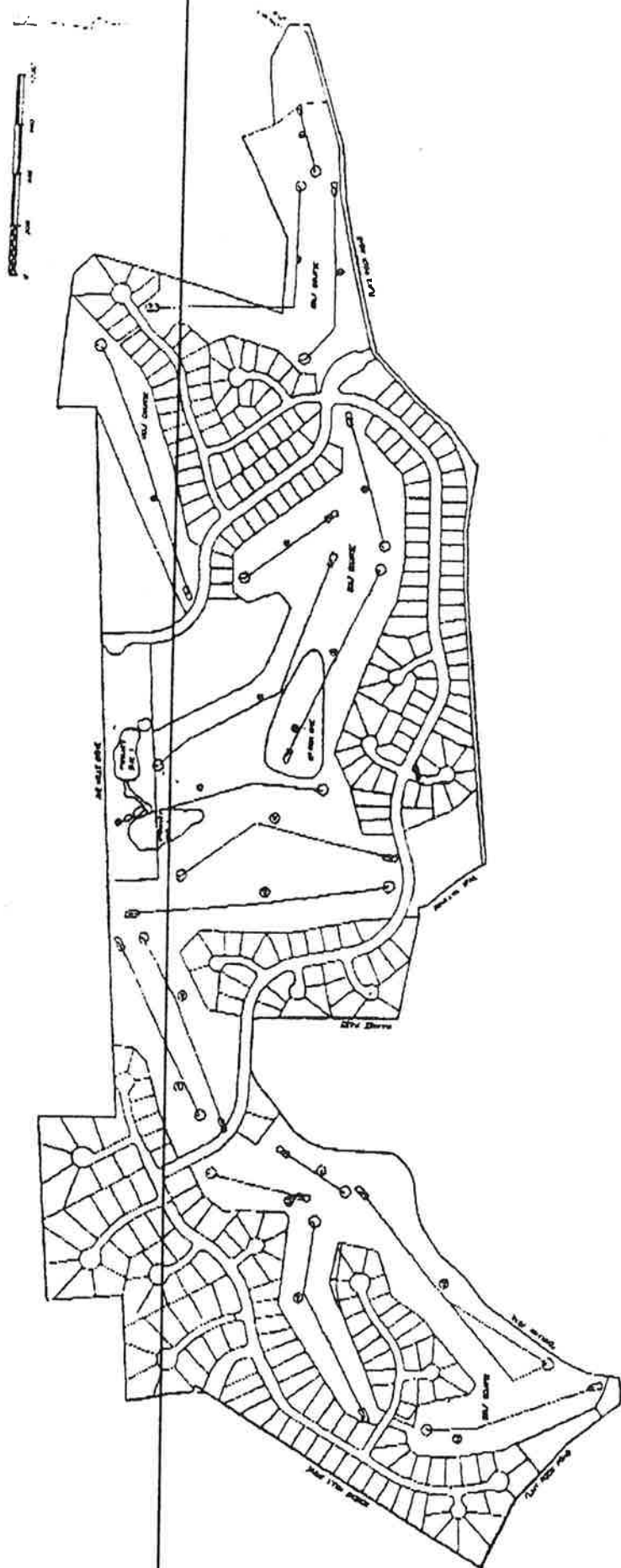


Exhibit B

EXHIBIT B
EFFLUENT TREATMENT & COLLECTION SYSTEM

WATER & SEWER
ENGINEERING, INC.

**THOMAS TRACT
(EASEMENT)**

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PERMANENT ACCESS AND UTILITY EASEMENT

THE STATE OF TEXAS

§

§

COUNTY OF TRAVIS

§

LEE R. THOMAS, III, individually, whose address is 16177 Flintrock Road, Austin, Travis County, Texas 78738 ("**Grantor**"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto **TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 17**, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734 ("**Grantee**") (Grantor and Grantee are collectively referred to as the "**Parties**"), a permanent and exclusive easement and right of way (the "**Access Easement**") upon, in, over, under, along, and across, together with the right of ingress and egress upon, in, over, under, along and across, the property of Grantor, which is more particularly described as follows:

BEING ALL OR A PART OF THAT CERTAIN 0.507 ACRE TRACT OF LAND OUT OF AND A PART OF THE C.W. WALDRON SURVEY NO. 78, ABSTRACT NO. 821, SITUATED IN TRAVIS COUNTY, TEXAS, SAID TRACT OF LAND BEING OUT OF AND A PART OF THAT CERTAIN 60.613 ACRE TRACT OF LAND CONVEYED TO LEE THOMAS, III; IN DOCUMENT NUMBER 2010066046 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS; SAID 0.507 ACRE TRACT BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AND DEPICTED IN THE ACCOMPANYING SKETCH IN EXHIBIT 1, ATTACHED HERETO AND MADE A PART HEREOF FOR ALL PURPOSES (THE "**EASEMENT TRACT**").

PURPOSE OF EASEMENT:

The Easement Tract may be used by Grantee (i) for pedestrian and vehicular ingress and egress; (ii) for the construction, reconstruction, replacement, relocation, alteration, removal, operation, use and maintenance of certain access drive improvements thereon from time to time, including, without limitation, a paved access road and associated landscaping; and (iii) constructing, installing, operating, repairing, maintaining, replacing, inspecting, upgrading and activities related thereto, water lines, wastewater lines, irrigation lines, and related facilities upon, over, under and across the Easement Tract. The Parties shall use commercially reasonable efforts to ensure that the Easement Tract shall be free and clear of obstructions and interference and shall allow for the free flow of pedestrian and vehicular traffic by Grantee and its employees, representatives, and consultants.

DURATION OF EASEMENT:

This Access Easement shall be permanent and irrevocable.

DOMINANT USE OF EASEMENT PROPERTY:

Grantor agrees that Grantee shall have the dominant right to use of the Easement Tract for the purposes stated above and Grantor shall make no use of the Easement Tract that unreasonably interferes with Grantee's use, including, but not limited to, the construction of stone walls, extensive landscaping or similar improvements that would impede Grantee's use of the Easement Tract. This Access Easement shall further include the right to cut and trim trees and shrubbery that may encroach on the Easement Tract. Grantor shall not grant any easements, licenses or similar rights to any other person or entity on the Easement Tract.

ENTIRE AGREEMENT:

This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument will be of no force and effect.

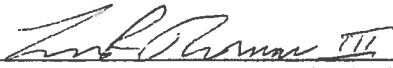
BINDING EFFECT:

This agreement will run with the land, and will bind and inure to the benefit of the Parties hereto, and their respective successors and assigns. Grantor does hereby covenant and agree to WARRANT AND FOREVER DEFEND title to the Access Easement herein granted unto the Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof subject to the matters set forth herein.

In witness whereof this instrument is executed this 17th day of MARCH, 2012.

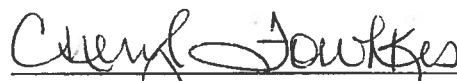
GRANTOR

LEE R. THOMAS, III, individually

By: 
Lee R. Thomas, III, individually

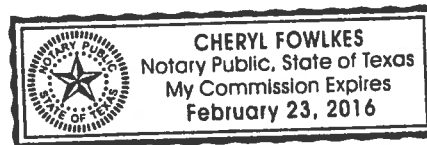
STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 17th day of ~~February~~ ^{MARCH}, 2012 by Lee R. Thomas, III, individually, on his own behalf.


Notary Public, State of Texas

Printed Name: CHERYL FOWLKES

My Commission expires: FEB 23, 2016



ACCEPTED

TRAVIS COUNTY WATER CONTROL AND
IMPROVEMENT DISTRICT NO. 17

By: _____

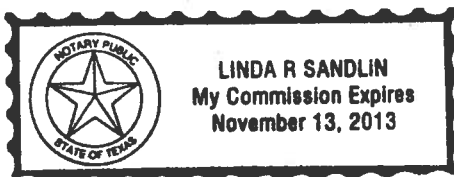
David Lewis Steed
President, Board of Directors

STATE OF TEXAS

§
§
§

COUNTY OF TRAVIS

This instrument was acknowledged before me on the 20th day of March, 2012 by David Lewis Steed, President of the Board of Directors of Travis County Water Control & Improvement District No. 17 on behalf of said District.



Linda R. Sandlin
Notary Public, State of Texas

Printed Name: Linda R. Sandlin

My Commission expires: 11-13-13

CONSENT AND SUBORDINATION BY LIENHOLDER

Wells Fargo Bank, National Association ("Lienholder"), as the holder of lien(s) on the Easement Tract, including, but not limited to, the certain instrument recorded under Document No. 2010106196 of the Official Public Records of Travis County, consents to the above grant of an easement, including the terms and conditions of such grant, and Lienholder subordinates its lien(s) to the rights and interests of the easement, such that a foreclosure of the lien(s) shall not extinguish the rights and interests of the easement.

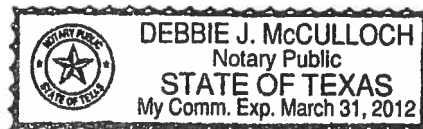
By: W.M. Keenan
Its: V.P.
Date: 3/12/12

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 12th day of MARCH, 2012 by WILLIAM M. KEENAN, VICE PRESIDENT of Wells Fargo Bank, National Association, on behalf of said banking corporation.

Debbie J. McCulloch
Notary Public, State of Texas

Printed Name: DEBBIE J. McCULLOCH



My Commission expires: March 31, 2012

EXHIBIT 1

Easement Tract

FIELD NOTES

BEING ALL OR PART OF THAT CERTAIN TRACT OF LAND OUT OF AND A PART OF THE C. W. WALDRON SURVEY NUMBER 78, ABSTRACT NUMBER 821, SITUATED IN TRAVIS COUNTY, TEXAS, SAID TRACT OF LAND BEING OUT OF AND A PART OF THAT CERTAIN 60.613 ACRE TRACT OF LAND CONVEYED TO LEE THOMAS, III, IN DOCUMENT NUMBER 2010066046 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, SAID 0.507 ACRE (22,081 SQ. FT.) TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at an iron rod found at a northern corner of said 60.613 acre tract, common to a southwestern corner of a 35.803 acre tract of land conveyed to David O. Faust in Vol. 13237, Pg. 4379, of the Official Public Records of Travis County, Texas, also being the easternmost corner of the remainder of a 109.34 acre tract conveyed to R2 Development Properties, Ltd., in Document No. 2006246364, of the Official Public Records of Travis County, Texas, for the northernmost corner and **POINT OF BEGINNING** of the herein described tract,

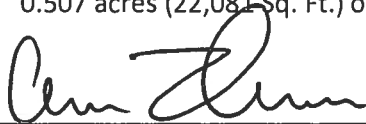
THENCE, crossing said 60.613 acre tract, the following four (4) courses and distances, numbered 1 through 4,

1. S17°14'06"E, a distance of 66.00 feet to a calculated point,
2. S20°04'05"W, a distance of 107.77 feet to a calculated point,
3. S61°52'09"W, a distance of 440.90 feet to a calculated point, and
4. N07°16'02"W, a distance of 42.81 feet to a calculated point, in the northern line of said 60.613 acre tract, also being in a southern line of the said remainder of a 109.34 acre tract,

THENCE, with the common boundary line of said remainder of 109.34 acre tract and said 60.613 acre tract, the following two (2) courses and distances, numbered 1 and 2,

1. N61°52'09"E, a distance of 410.38 feet to an iron rod found, and
2. N20°04'05"E, a distance of 144.99 feet to the **POINT OF BEGINNING** and containing 0.507 acres (22,081 Sq. Ft.) of land.

Surveyed by:

 17 Feb 2012

AARON V. THOMASON, R.P.L.S. NO. 6214

Carlson, Brigrance and Doering, Inc.

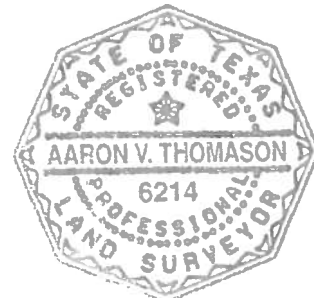
5501 West William Cannon

Austin, TX 78749

Ph: 512-280-5160

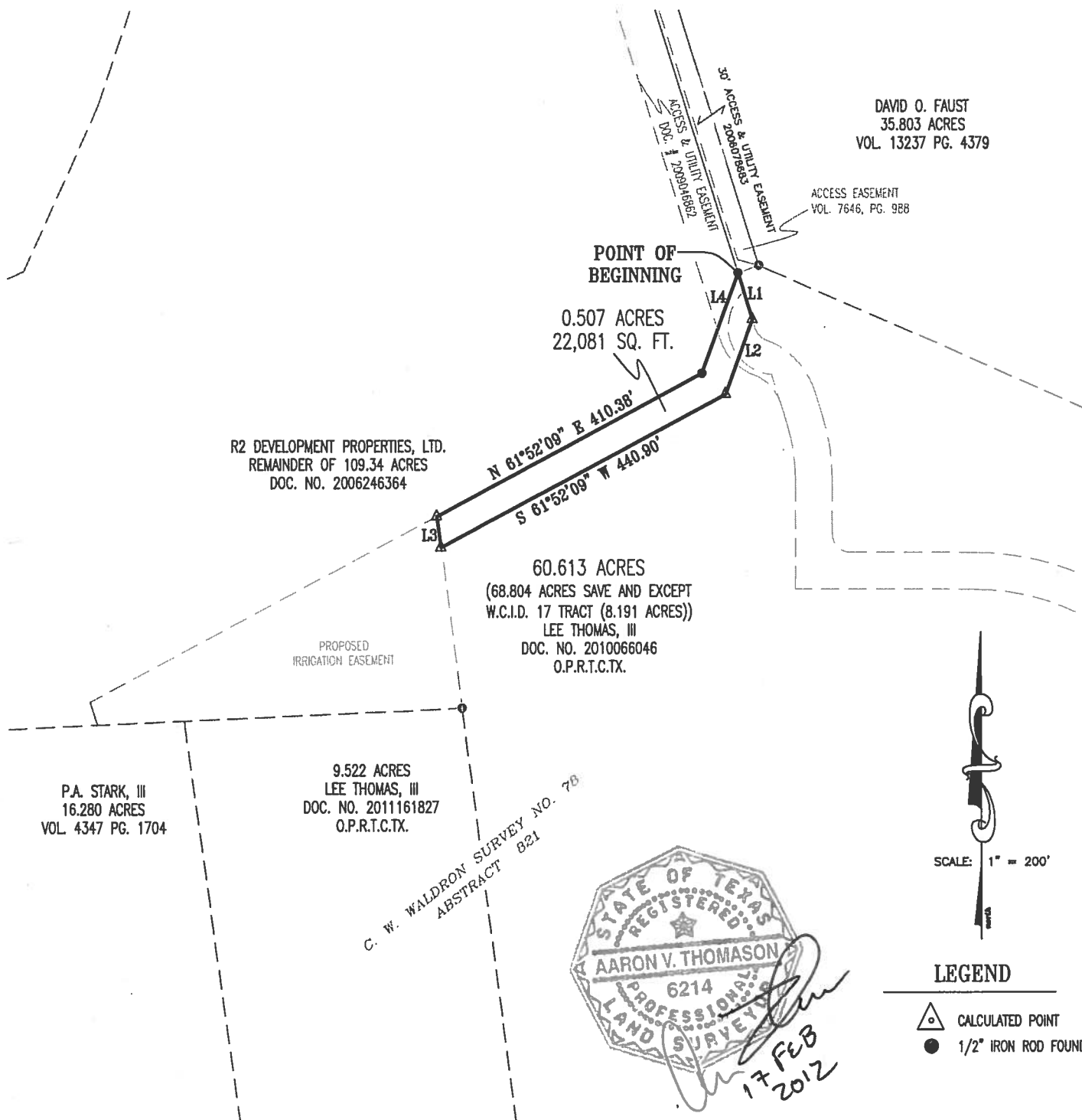
Fax: 512-280-5165

aaron@cbdeng.com



BEARING BASIS: 60.613 ACRE TRACT CONVEYED TO LEE THOMAS, III, IN DOCUMENT NO. 2010066046, OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS

SKETCH TO ACCOMPANY FIELD NOTES



LINE TABLE		
LINE	LENGTH	BEARING
L1	66.00	S17°14'06"E
L2	107.77	S20°04'05"W
L3	42.81	N07°16'02"W
L4	144.99	N20°04'05"E

BEARING BASIS: 60.613 ACRE TRACT CONVEYED TO LEE THOMAS, III, IN
DOCUMENT NO. 2010066046, OFFICIAL PUBLIC RECORDS OF TRAVIS
COUNTY, TEXAS

Carlson, Brigrance & Doering, Inc.

Civil Engineering ♦ Surveying

5501 West William Cannon Drive ♦ Austin, Texas 78749

Phone No. (512) 280-5160 ♦ Fax No. (512) 280-5165

PATH:- J: 4456-037\DWG\FN-ACCESS ESMT

After Recording, please return to:
Linda R. Sandlin
Water District No. 17
3812 Eck Lane
Austin TX 78734

FILED AND RECORDED

OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Mar 23, 2012 09:27 AM

2012044884

SCOTTR: \$48.00

Dana DeBeauvoir, County Clerk

Travis County TEXAS

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PERMANENT IRRIGATION EASEMENT

THE STATE OF TEXAS

§

COUNTY OF TRAVIS

§

§

LEE R. THOMAS, III, individually ("**Grantor**"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto **TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 17**, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734 ("**Grantee**") (Grantor and Grantee are collectively referred to as the "**Parties**"), a permanent and non-exclusive easement and right of way (the "**Permanent Easement**") upon, in, over, under, along, and across, together with the right of ingress and egress upon, in, over, under, along and across, the properties of Grantor, which are more particularly described as follows:

TRACT 1

A 9.522 ACRE TRACT OF LAND LOCATED IN THE C.W. WALDRON SURVEY NO. 78, ABSTRACT NO. 821, IN TRAVIS COUNTY, TEXAS; SAME BEING A PORTION OF THAT 38.5 ACRE TRACT OF LAND CONVEYED BY DEED RECORDED IN VOLUME 2944, PAGE 1919, DEED RECORDS OF TRAVIS COUNTY, TEXAS, AND BEING A PORTION OF THAT 12.11 ACRE TRACT OF LAND CONVEYED TO JAMES S. WEEMS AND HARRIETT WEEMS BY DEED RECORDED IN VOLUME 8576, PAGE 416 OF THE DEED RECORDS OF TRAVIS COUNTY, TEXAS; SAID 9.522 ACRE TRACT BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AND DEPICTED IN THE ACCOMPANYING SKETCH IN EXHIBIT 1, ATTACHED HERETO AND MADE A PART HEREOF FOR ALL PURPOSES ("**EASEMENT TRACT 1**").

AND

TRACT 2

A 1.70 ACRE TRACT OF LAND OUT OF AND A PART OF THE C.W. WALDRON SURVEY NO. 78, ABSTRACT NO. 821, SITUATED IN TRAVIS COUNTY, TEXAS; SAID TRACT OF LAND BEING OUT OF AND A PART OF THAT CERTAIN 60.613 ACRE TRACT OF LAND CONVEYED TO LEE THOMAS, III, IN DOCUMENT NUMBER 2010066046 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS; SAID 1.70 ACRE TRACT BEING MORE FULLY DESCRIBED BY METES

AND BOUNDS AND DEPICTED IN THE ACCOMPANYING SKETCH IN EXHIBIT 2, ATTACHED HERETO AND MADE A PART HEREOF FOR ALL PURPOSES ("**EASEMENT TRACT 2**") (EASEMENT TRACT 1 AND EASEMENT TRACT 2 ARE COLLECTIVELY REFERRED TO AS THE "**EASEMENT TRACTS**").

PURPOSE OF EASEMENT:

The Easement Tracts may be used by Grantee for the following purposes:

- (i) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing an irrigation system, and related facilities (i.e., including, but not limited to a pump house, storage tank or equipment) on the Easement Tracts. Grantor to have input on the location of above ground facilities;
- (ii) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing underground wastewater lines, irrigation lines, manholes, and related facilities and equipment on the Easement Tracts; and
- (iii) irrigating the Easement Tracts with treated wastewater effluent generated by Grantee from its wastewater treatment plants (collectively, the "**Facilities**").

Also, Grantee is granted the right of ingress and egress upon, over, under, along, and across the Easement Tracts to accomplish the purposes described herein.

DURATION OF EASEMENT:

This Easement shall be permanent and irrevocable.

DOMINANT USE OF EASEMENT PROPERTY:

Grantor agrees that Grantee shall have the dominant right to use of the Easement Tracts for the purposes stated above and Grantor shall make no use of the Easement Tracts that unreasonably interferes with Grantee's use, including, but not limited to, the construction of stone walls, extensive landscaping or similar improvements that would impede Grantee's access to the Facilities. This Permanent Easement shall further include the right to cut and trim trees and shrubbery that may encroach on the Easement Tracts. Grantor shall not grant any easements, licenses or similar rights to any other person or entity on the Easement Tracts.

ENTIRE AGREEMENT:

This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument will be of no force and effect.


BINDING EFFECT:

This agreement will run with the land, and will bind and inure to the benefit of the Parties hereto, and their respective successors and assigns. Grantor does hereby covenant and agree to WARRANT AND FOREVER DEFEND title to the Easement herein granted unto the Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof subject to the matters set forth herein.

In witness whereof this instrument is executed this 17th day of MARCH, 2012.


GRANTOR

LEE R. THOMAS, III, individually

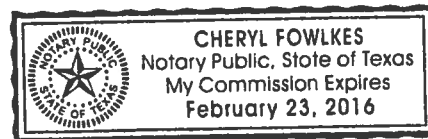
By: 
Lee R. Thomas, III, individually

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 17th day of ~~February~~ ^{MARCH}, 2012 by Lee R. Thomas, III, individually, on his own behalf.


Notary Public, State of Texas
Printed Name: CHERYL FOWLKES
My Commission expires: FEB 23, 2016

My Commission Expires FEB 23, 2016



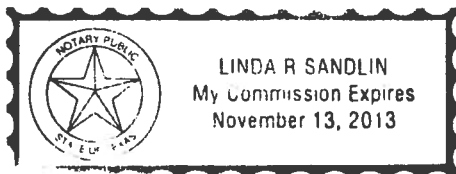
ACCEPTED

TRAVIS COUNTY WATER CONTROL AND
IMPROVEMENT DISTRICT NO. 17

By: David Lewis Steed
David Lewis Steed
President, Board of Directors

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 20th day of March, 2012 by David Lewis Steed, President of the Board of Directors of Travis County Water Control & Improvement District No. 17 on behalf of said District.



Linda R. Sandlin
Notary Public, State of Texas

Printed Name: Linda R. Sandlin

My Commission expires: 11-13-13

CONSENT AND SUBORDINATION BY LIENHOLDER

Wells Fargo Bank, National Association ("Lienholder"), as the holder of lien(s) on the Easement Tract, including, but not limited to, the certain instrument recorded under Document No. 2010106196 of the Official Public Records of Travis County, consents to the above grant of an easement, including the terms and conditions of such grant, and Lienholder subordinates its lien(s) to the rights and interests of the easement, such that a foreclosure of the lien(s) shall not extinguish the rights and interests of the easement.

By: W.M. Keenan

Its: V.P.

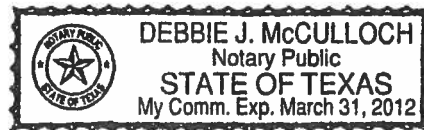
Date: 3/12/12

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 12th day of MARCH, 2012 by WILLIAM M. KEENAN, VICE PRESIDENT of Wells Fargo Bank, National Association, on behalf of said banking corporation.

Debbie J. McCulloch
Notary Public, State of Texas

Printed Name: DEBBIE J. McCULLOCH



My Commission expires: March 31, 2012

EXHIBIT 1

Easement Tract 1

FIELD NOTES

BEING ALL OF THAT CERTAIN TRACT OF LAND OUT OF AND A PART OF THE C.W. WALDRON SURVEY NUMBER 78, ABSTRACT 821, SITUATED IN TRAVIS COUNTY, TEXAS, BEING MORE FULLY DESCRIBED AS BEING A PORTION OF THAT CERTAIN 12.132 ACRE (CALLED 12.14 ACRE) TRACT OF LAND CONVEYED TO JAMES S. WEEMS, IN VOLUME 8576, PAGE 416 OF THE DEED RECORDS OF TRAVIS COUNTY, TEXAS, SAID 9.522 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at a ½" iron rod found at the northwest corner of said 12.132 acre tract, also being a point on a southwestern line of a 60.61 acre tract conveyed to Lee Thomas, III in Document No. 2010066046, in the Official Public Records of Travis County, Texas (O.P.R.T.C.TX.), also being the northeast corner of that certain 16.28 acre tract conveyed to Prescott A. Stark, III, et al in Vol. 4347, Pg. 1704, in the Deed Records of Travis County, Texas, for the northwest corner and **POINT OF BEGINNING** of the herein described tract,

THENCE, with the common boundary line of said 12.132 acre tract and said 60.61 acre tract, the following two (2) courses and distances numbered 1 and 2,

1. N87°22'08"E, a distance of 377.49 feet to a 5/8" iron rod found, and
2. S07°16'02"E, a distance of 1287.93 feet to a capped ½" iron rod set for the southeast corner of the herein described tract,

THENCE, crossing said 12.132 acre Weems tract, the following two (2) courses and distances, numbered 1 and 2,

1. N50°31'17"W, a distance of 396.69 feet to a capped ½" iron rod set and
2. S84°23'05"W, a distance of 88.75 feet to a capped ½" iron rod set on the common boundary line of said 12.132 acre Weems tract and said 16.28 acre Stark tract, for the southwest corner of the herein described tract,

THENCE, with the common boundary line of said 12.132 acre Weems tract and said 16.28 acre Stark tract, the following two (2) courses and distances numbered 1 and 2,

1. N08°48'26"W, a distance of 355.85 feet to a ½" iron rod found, and
2. N07°47'32"W, a distance of 671.27 feet to the **POINT OF BEGINNING**, and containing 9.522 acres of land.

Surveyed by:

 16 Jan 2012

AARON V. THOMASON, R.P.L.S. NO. 6214

Carlson, Brigrance and Doering, Inc.

5501 West William Cannon
Austin, TX 78749

Ph: 512-280-5160

Fax: 512-280-5165

aaron@cbdeng.com



BEARING BASIS: 60.61 ACRES CONVEYED TO LEE THOMAS, III, IN DOCUMENT NO. 2010066046, O.P.R.T.C.TX.

SKETCH TO ACCOMPANY FIELD NOTES

EXHIBIT 1
Page 2 of 2

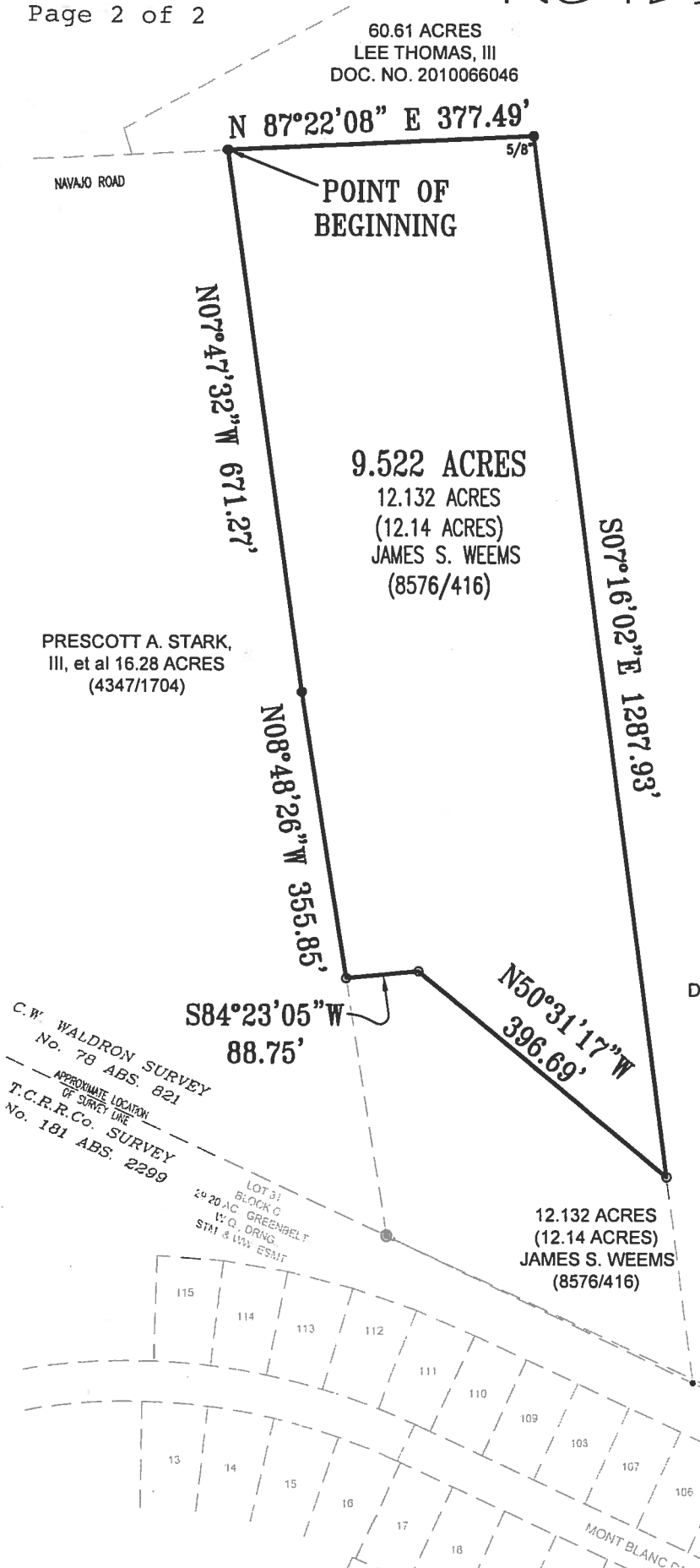
60.61 ACRES
LEE THOMAS, III
DOC. NO. 2010066046



SCALE: 1" = 200'

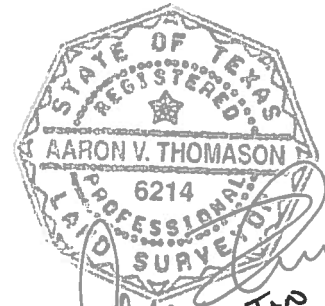
LEGEND

- IRON ROD SET
- IRON ROD FOUND
- X— WIRE FENCE



C. W. WALDRON SURVEY NO. 78
ABSTRACT 821

60.61 ACRES
LEE THOMAS, III
DOC. NO. 2010066046



16 Jan 2012

BEARING BASIS: 60.61 ACRES CONVEYED TO LEE THOMAS, III, IN DOCUMENT NO. 2010066046, O.P.R.T.C.TX.



Carlson, Brigrance & Doering, Inc.

Civil Engineering ♦ Surveying
5501 West William Cannon Drive ♦ Austin, Texas 78749
Phone No. (512) 280-5160 ♦ Fax No. (512) 280-5165

PATH:- J: 4486-053\DWG\FN-9.522 ACRES

EXHIBIT 2

Easement Tract 2

FIELD NOTES

BEING ALL OR PART OF THAT CERTAIN TRACT OF LAND OUT OF AND A PART OF THE C. W. WALDRON SURVEY NUMBER 78, ABSTRACT NUMBER 821, SITUATED IN TRAVIS COUNTY, TEXAS, SAID TRACT OF LAND BEING OUT OF AND A PART OF THAT CERTAIN 60.613 ACRE TRACT OF LAND CONVEYED TO LEE THOMAS, III, IN DOCUMENT NUMBER 2010066046 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, SAID 1.70 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at an iron rod found at the northeastern corner of a 9.522 acre tract of land conveyed to Lee Thomas, III, in Document No. 2011161827, of the Official Public Records of Travis County, Texas, common to a point in the western line of said 60.613 acre tract, for the easternmost corner and **POINT OF BEGINNING** of the herein described tract,

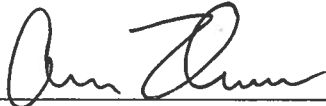
THENCE, with the common boundary line of said 9.522 acre tract, said 60.613 acre tract and a 16.280 acre tract conveyed to P.A. Stark, III, in Vol. 4347, Pg. 1704, in the Deed Records of Travis County, Texas, S87°22'08"W, a distance of 497.17 feet to an iron rod found, for a southern corner of the remainder of a 109.34 acre tract conveyed to R2 Development Properties, Ltd. in Document No. 2006246364, of the Official Public Records of Travis County, Texas,

THENCE, with the common boundary line of said remainder of 109.34 acre tract and said 60.613 acre tract, the following two (2) courses and distances, numbered 1 and 2,

1. N17°24'50"W, a distance of 32.90 feet to an iron rod found,
2. N61°52'09"E, a distance of 536.52 feet to a calculated point,

THENCE, leaving said common boundary line and crossing said 60.613 acre tract, S07°16'02"E, a distance of 263.65 feet to the **POINT OF BEGINNING** and containing 1.70 acres of land.

Surveyed by:



08 FEB 2012

AARON V. THOMASON, R.P.L.S. NO. 6214

Carlson, Brigrance and Doering, Inc.

5501 West William Cannon

Austin, TX 78749

Ph: 512-280-5160

Fax: 512-280-5165

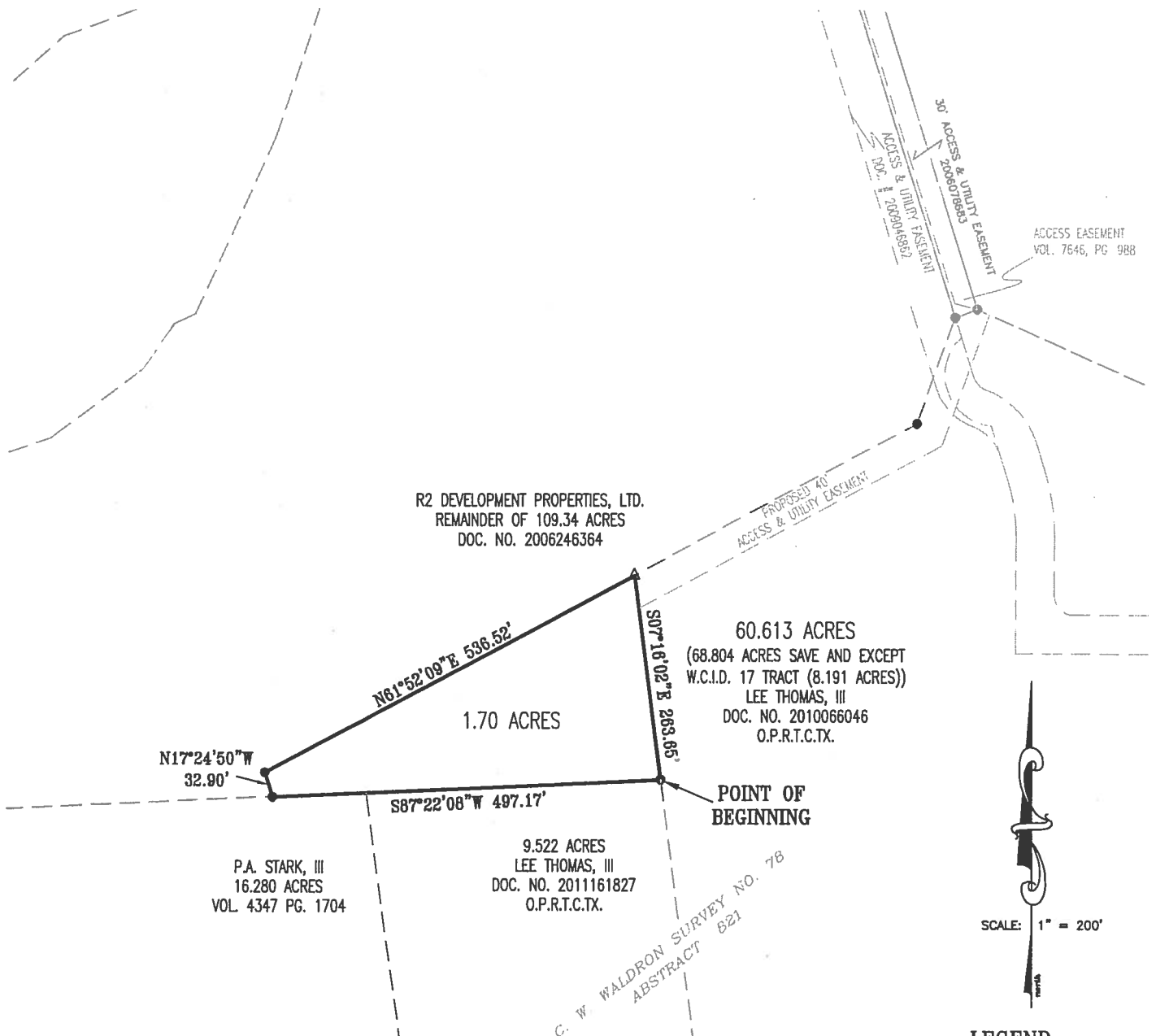
aaron@cbdeng.com





BEARING BASIS: 60.613 ACRE TRACT CONVEYED TO LEE THOMAS, III, IN DOCUMENT NO. 2010066046, OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS

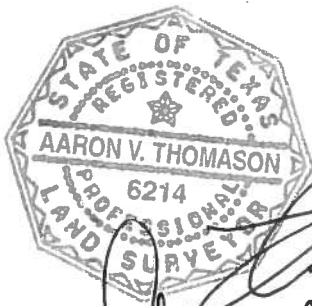
SKETCH TO ACCOMPANY FIELD NOTES

EXHIBIT 2
Page 2 of 2



LEGEND

-  CALCULATED POINT
-  1/2" IRON ROD FOUND



Handwritten signature and date:
08 FEB 2012

BEARING BASIS: 60.613 ACRE TRACT CONVEYED TO LEE THOMAS, III, IN DOCUMENT NO. 2010066046, OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS



Carlson, Brigrance & Doering, Inc.

Civil Engineering ♦ Surveying
5501 West William Cannon Drive ♦ Austin, Texas 78749
Phone No. (512) 280-5160 ♦ Fax No. (512) 280-5165

PATH:- J: 4456-037\DWG\FN-IRRIGATION ESMT

After Recording, please return to:
Linda R. Sandlin
Water District No. 17
3812 Eck Lane
Austin TX 78734

FILED AND RECORDED

OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Mar 23, 2012 09:27 AM

2012044885

SCOTTR: \$50.00

Dana DeBeauvoir, County Clerk

Travis County TEXAS

**LAKEWAY REGIONAL
(EASEMENT)**

PERMANENT EASEMENT

THE STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

GRANT OF PERMANENT EASEMENT:

Lakeway Regional Medical Center Condominium Association, Inc., a Texas non-profit corporation ("GRANTOR"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto **Travis County Water Control & Improvement District No. 17**, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734 ("GRANTEE") (GRANTOR and GRANTEE are collectively referred to as the "Parties"), a permanent and non-exclusive easement ("the Permanent Easement") upon, in, over, under, along and across, together with the right of ingress and egress upon, in, over, under, along and across, the property(s) of GRANTOR which is more particularly described as follows:

The approximately 8.499 acre tract of land in Travis County, Texas which is described by metes and bounds in the attached Exhibit A ("Easement Property").

PURPOSE OF EASEMENT:

The Easement Property may be used by GRANTEE AND OR ITS ASSIGNS for the following purposes:

- (i) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing effluent irrigation systems, wastewater equipment, and related facilities on the Easement Property;
- (ii) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing tanks, wastewater lines, irrigation lines, control boxes, and related facilities and equipment on the Easement Property; and
- (iii) irrigating the Easement Property with treated wastewater effluent generated by GRANTEE from its wastewater treatment plants (collectively, the "Facilities").

Also, GRANTEE is granted the right of ingress and egress upon, over, under, along, and across the Easement Property to accomplish the purposed described herein.

DURATION OF EASEMENT:

This Easement shall be permanent and irrevocable.

DOMINANT USE OF EASEMENT PROPERTY:

GRANTOR agrees that GRANTEE shall have the dominant right to use of the Easement Property for the purposes stated above and GRANTOR shall make no use of the Easement Property that unreasonably interferes with GRANTEE'S use, including, but not limited to, the construction of stone walls, extensive landscaping or similar improvements that would impede GRANTEE'S access to the Facilities. This Permanent Easement shall further include the right to cut and trim trees and shrubbery that may encroach on the Easement Property. GRANTOR shall not grant any easements, licenses or similar rights to any other person or entity on the Easement Property which interfere with the Permanent Easement.

ENTIRE AGREEMENT:

This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument will be of no force and effect.

BINDING EFFECT:

This agreement will run with the land, and will bind and inure to the benefit of the Parties hereto, and their respective successors and assigns. GRANTOR does hereby bind itself and its successors and assigns to WARRANT AND FOREVER DEFEND title to the said Easement herein granted unto GRANTEE, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof subject to all matters of record which affect the Easement Property and are valid and subsisting and to the matters set forth herein.

[THE REMAINDER OF PAGE IS LEFT BLANK INTENTIONALLY.]

In witness whereof, this instrument is executed this 5th day of June, 2014.

GRANTOR:

LAKEWAY REGIONAL MEDICAL CENTER
CONDOMINIUM ASSOCIATION, INC.,
a Texas non-profit corporation

By:

Kendall G. Phinney
Kendall G. Phinney, President

STATE OF TEXAS

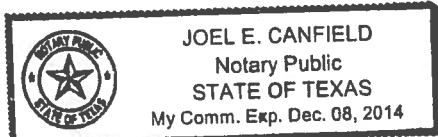
§

§

COUNTY OF HARRIS

§

This instrument was acknowledged before me on the 5th day of June, 2014, by Kendall G. Phinney, President of Lakeway Regional Medical Center Condominium Association, Inc., a Texas non-profit corporation, on behalf of said non-profit corporation.



[Seal]

Joel E. Canfield
Notary Public, State of Texas

Printed Name: JOEL E. CANFIELD

My Commission expires: 12/2014

ACCEPTED:



TRAVIS COUNTY WATER CONTROL
& IMPROVEMENT DISTRICT NO. 17

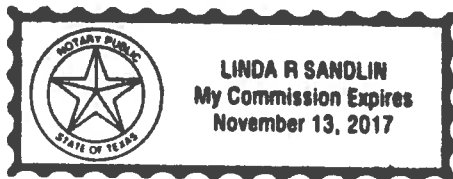
By: David Lewis Steed
David Lewis Steed, President

STATE OF TEXAS

§
§
§

COUNTY OF TRAVIS

This instrument was acknowledged before me on the 10th day of June, 2014,
by David Lewis Steed, President of the Board of Directors of Travis County Water Control &
Improvement District No. 17 on behalf of said District.



[Seal]

Linda R. Sandlin
Notary Public, State of Texas
Printed Name: Linda R. Sandlin
My Commission expires: 11.13.17

EXHIBIT A
“Easement Property”

EXHIBIT A

FIELD NOTES

BEING ALL OF THAT CERTAIN TRACT OR PARCEL OF LAND OUT OF THE A. BECK SURVEY NUMBER 54, ABSTRACT 2241, SITUATED IN TRAVIS COUNTY, TEXAS, SAID TRACT OF LAND BEING A PORTION OF LOT 1, BLOCK 'A', LAKEWAY REGIONAL MEDICAL CENTER PLAT, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 200800246, OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, CONVEYED TO AQUA LAND LAKEWAY MEDICAL DEVELOPMENT, LLC., IN DOCUMENT NUMBER 2009024418 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, SAID 8.499 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at an iron rod found for the southernmost corner of said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, common to a southeastern corner of Lot 4, of said Cherry Mountain Phase II, a subdivision recorded in Book 76, Page 67, in the Plat Records of Travis County, Texas, and also being in the northwestern line of that certain 25.27 acre tract of land conveyed to Lake Travis Independent School District by eminent domain in cause no. 1358 of Travis County Court at Law No. 1, from Lydia Spillman in Volume 741, Page 494, in the Deed Records of Travis County, Texas, and **POINT OF BEGINNING** of the herein described tract,

THENCE, with the common boundary line of said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, and said The Estates at Cherry Mountain, Replat of Lots 3 & 4, Cherry Mountain I, Lots 13, 14, & 15, Cherry Mountain Phase II, and Lots 1-A & 2-A, Resubdivision of Lots 1, 2, 3, 9, and 10, Cherry Mountain Phase II, a subdivision recorded in Document No. 200800013, in the Official Public Records of Travis County, Texas, Resubdivision of Lots 1, 2, 3, 9, and 10, Cherry Mountain Phase II, a subdivision recorded in Book 76, Page 230, in the Plat Records of Travis County, Texas, and said Cherry Mountain Phase II, the following five (5) course and distances, numbered 1 through 5,

1. N33°50'30"W, a distance of 135.20 feet to a wood post found, from which a ½" iron rod with 'Burris' cap bears S12°05'16"W, a distance of 1.60 feet,
2. N17°07'03"W, a distance of 466.24 feet to a ½" iron rod found,
3. N17°04'39"W, a distance of 214.01 feet to a ½" iron rod found,
4. N17°06'45"W, a distance of 137.11 feet to a ½" iron rod found,
5. N16°56'20"W, a distance of 497.47 feet to a 60d nail in fence post found, for the northwestern corner of said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, common to the northernmost corner of Lot 2, Block 'B' of said The Estates at Cherry Mountain, Replat of Lots 3 & 4, Cherry Mountain I, also being in the southeastern right-of-way line of Wild Cherry Drive (60' R.O.W.),

THENCE, with the common boundary line of said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, and said southeastern right-of-way line of Wild Cherry Drive, N45°52'25"E, a distance of 136.29 feet to an iron rod found, for the westernmost corner of Lot 2, of said Cherry Mountain I, in the southeastern right-of-way line of said Wild Cherry Drive, also being in the northwestern line of said Lot 1, Block 'A', Lakeway Regional Medical Center Plat,

THENCE, and with said Cherry Mountain I, and said Lot 1, Block 'A', Lakeway Medical Center Plat, N46°18'47"E, a distance of 336.56 feet to a calculated point, from which an iron rod found in the southern right-of-way line of Flint Rock Road (110' R.O.W.), and also being the northwestern most corner of said Lot 1, Block "A", Lakeway Regional Medical Center Plat, bears N46°18'47"E, a distance of 578.21 feet ,

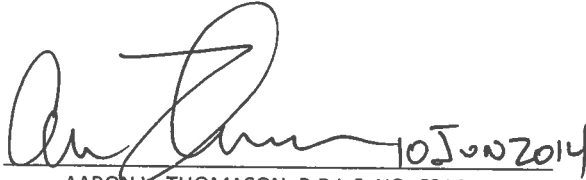
THENCE, crossing said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, the following nine (9) course and distances, numbered 1 through 9,

1. S19°42'46"W, a distance of 116.71 feet to a calculated point,
2. S00°00'00"E, a distance of 183.34 feet to a calculated point,
3. S87°37'37"E, a distance of 63.18 feet to a calculated point,
4. S01°16'32"E, a distance of 294.69 feet to a calculated point,
5. S11°27'43"E, a distance of 134.99 feet to a calculated point,
6. S40°41'09"E, a distance of 56.44 feet to a calculated point,
7. S01°50'05"E, a distance of 51.61 feet to a calculated point,
8. S01°49'32"E, a distance of 636.83 feet to a calculated point, and

9. S75°30'23"E, a distance of 217.44 feet to a calculated point in the common boundary line of said 25.27 acre tract, and said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, from which an iron rod found in the western most corner of said 25.27 acre tract bears N47°38'32"E, a distance of 457.95 feet,

THENCE, with the common boundary line of said 25.27 acre tract, and said Lot 1, Block 'A', Lakeway Regional Medical Center Plat, S47°38'32"W, a distance of 280.07 feet to the **POINT OF BEGINNING** and containing 8.449 acres of land.

Surveyed by:

 10 Jun 2014

AARON V. THOMASON, R.P.L.S. NO. 6214
Carlson, Brigrance and Doering, Inc.
5501 West William Cannon
Austin, TX 78749
Ph: 512-280-5160 Fax: 512-280-5165
aaron@cbdeng.com



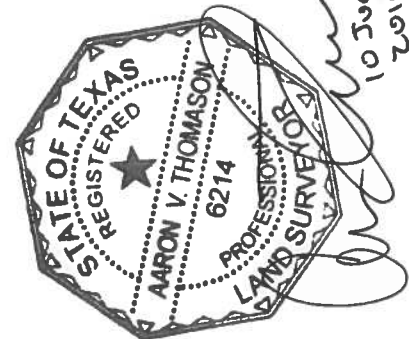
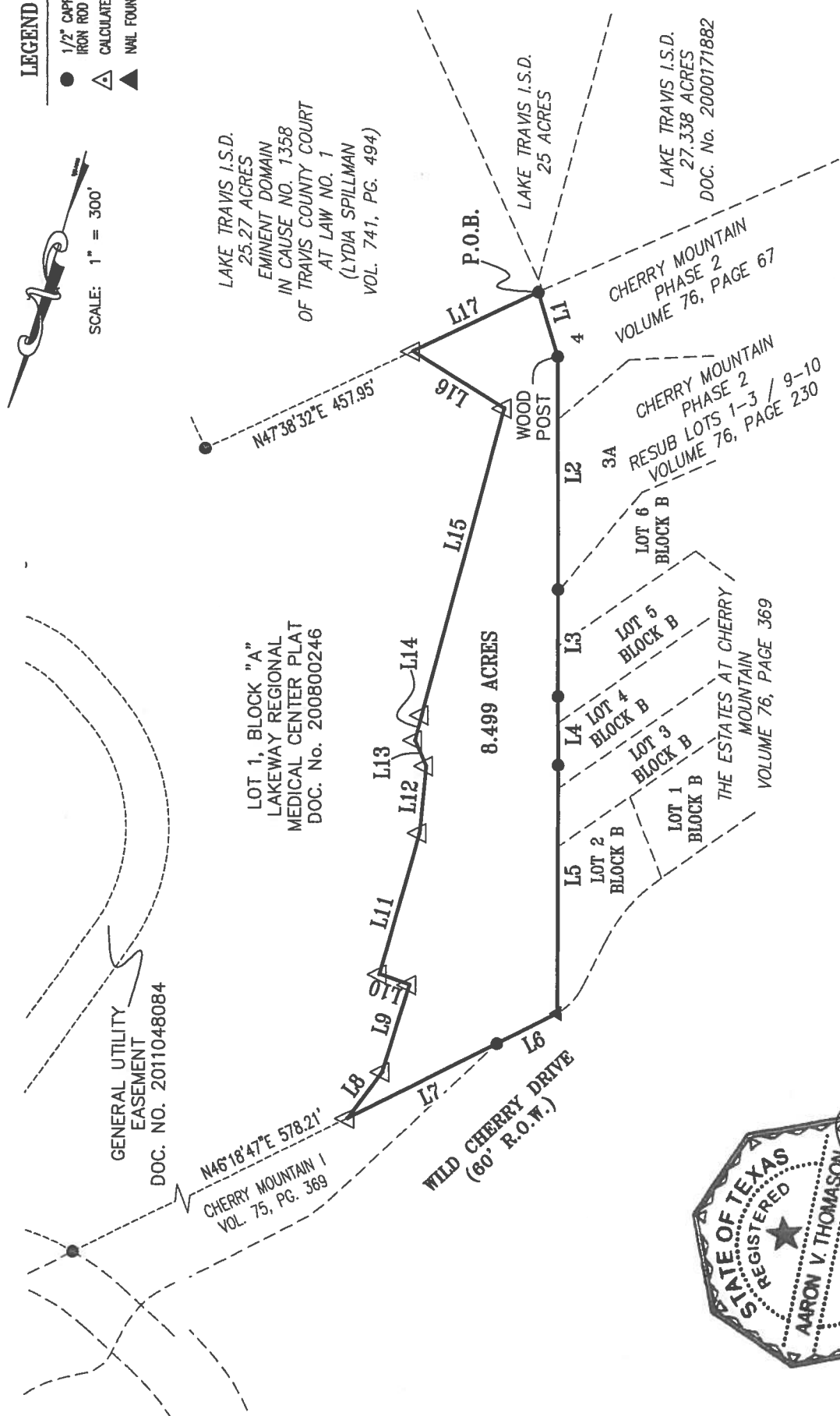
BEARING BASIS: TEXAS COORDINATE SYSTEM CENTRAL ZONE (4203)

SKETCH TO ACCOMPANY FIELD NOTES

LEGEND

- 1/2" CAPPED IRON ROD FOUND
- △ CALCULATED POINT
- ▲ NAIL FOUND

SCALE: 1" = 300'



BEARING BASIS:

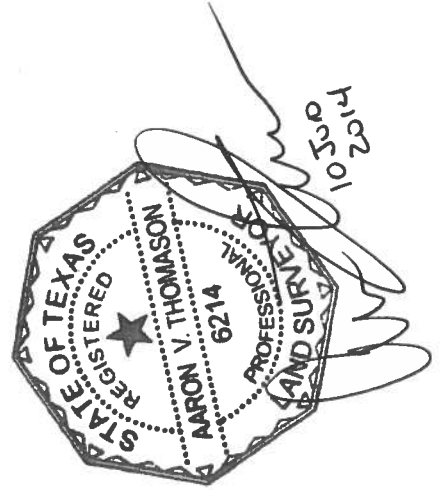
Carlson, Brigrance & Doering, Inc.

FIRM ID #F3791 REG. # 10024900

Civil Engineering Surveying
5501 West William Cannon Austin, Texas 78749
Phone No. (512) 280-5160 Fax No. (512) 280-5165

SKETCH TO ACCOMPANY FIELD NOTES

Line Table		
Line #	Length	Direction
L1	135.20	N33°50'30"W
L2	466.24	N17°07'03"W
L3	214.01	N17°04'39"W
L4	137.11	N17°06'45"W
L5	497.47	N16°56'20"W
L6	136.29	N45°52'25"E
L7	336.56	N46°18'47"E
L8	116.71	S19°42'46"W
L9	183.34	S00°00'00"E
L10	63.18	S87°37'37"E
L11	294.69	S01°16'32"E
L12	134.99	S11°27'43"E
L13	56.44	S40°41'09"E
L14	51.61	S01°50'05"E
L15	636.83	S01°49'32"E
L16	217.44	S75°30'23"E
L17	280.07	S47°38'32"W



BEARING BASIS:

Carlson, Brigrance & Doering, Inc.

FIRM ID #F3791 REG. # 10024900

Civil Engineering Surveying

5501 West Willow Canyon Austin, Texas 78749

Phone No. (512) 280-5160 Fax No. (512) 280-5165

[This page is left blank INTENTIONALLY
FOR PURPOSE OF RECORDATION STAMP]

After Recording Please Return to:

Travis County WC & ID 17
Attn: Linda Sandlin
3812 Eck Lane
Austin TX 78734

512-266-1111, ext. 15

FILED AND RECORDED

OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Jun 11, 2014 10:35 AM

2014084856

BENAVIDESV: \$62.00

Dana DeBeauvoir, County Clerk

Travis County TEXAS

**SERENE HILLS DRIVE
(EASEMENT)**

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PERMANENT IRRIGATION EASEMENT

THE STATE OF TEXAS

§

COUNTY OF TRAVIS

§

§

**ORIGINAL
FILED FOR RECORD**

GRANT OF PERMANENT IRRIGATION EASEMENT:

City of Lakeway ("GRANTOR"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto **Travis County Water Control & Improvement District No. 17**, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734 (**"GRANTEE"**) (GRANTOR and GRANTEE are collectively referred to as the **"Parties"**), a permanent and non-exclusive easement and right of way (**"the Permanent Easement"**) upon, in, over, under, along and across, together with the right of ingress and egress upon, in, over, under, along and across, the property(s) of GRANTOR which is more particularly described as follows:

Being a 13.460-acres tract of land known as the Serene Hills Drive Right-of-Way, consisting of a 2.922-acres tract located on the Serene Hills Phase 1A Plat, Document No. 200700347 of the Plat Records, Travis County, Texas; and a 10.538-acres tract located on the Serene Hills Phase 1B Plat, Document No. 200800175 of the Plat Records, Travis County, Texas; such 2.922 and 10.538 acres tracts are more particularly described on Exhibits A and B, respectively, attached hereto(collectively, the "Easement Property").

PURPOSE OF EASEMENT:

The Property(s) may be used by GRANTEE AND OR ASSIGNS for the following purposes:

- (i) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing an irrigation system, and related facilities on the Easement Property;
- (ii) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing underground wastewater lines, irrigation lines, control boxes, and related facilities and equipment on the Easement Property; and

- (iii) irrigating the Easement Property with treated wastewater effluent generated by GRANTEE from its wastewater treatment plants (collectively, the "Facilities"), under the GRANTEE'S Texas Land Application Permit No. WQ0013878001 to apply up to an anticipated 23,279 gallons per day as approved by Texas Commission on Environmental Quality (TCEQ).

Also, GRANTEE is granted the right of ingress and egress upon, over, under, along, and across the Easement Property to accomplish the purposed described herein.

DURATION OF EASEMENT:

This Easement shall be permanent and irrevocable.

USE OF EASEMENT PROPERTY:

GRANTOR agrees that GRANTEE shall have the right to use the Easement Property for the purposes stated above; provided, however, that GRANTOR shall provide GRANTEE with prior written notice if any alterations, modifications, maintenance or repairs to the Easement Property are necessary. After providing GRANTEE with such notice, the Parties agree to work together to accomplish GRANTOR's activities. This Permanent Easement shall further include the right for GRANTEE to cut and trim trees and shrubbery that may encroach on the Easement Property. GRANTOR shall not grant any easements, licenses or similar rights to any other person or entity on the Easement Property without prior written notice to GRANTEE.

ENTIRE AGREEMENT:

This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument will be of no force and effect.

BINDING EFFECT:

This agreement will run with the land, and will bind and inure to the benefit of the Parties hereto, and their respective successors and assigns. GRANTOR does hereby bind itself and its successors and assigns to WARRANT AND FOREVER DEFEND title to the said Easement herein granted unto GRANTEE, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof subject to the matters set forth herein.

[THE REMAINDER OF PAGE IS LEFT BLANK INTENTIONALLY.]

In witness whereof, this instrument is executed this 18th day of June, 20 14.

GRANTOR:

CITY OF LAKEWAY

David P. De Ome
Signature

David P. De Ome
Print

MAYOR
Its

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 18th day of June, 20 14, by David P. De Ome.



[Seal]

Donna Lynn Boyle
Notary Public, State of Texas
Printed Name: Donna Lynn Boyle
My Commission expires: 07/21/2018

ACCEPTED:

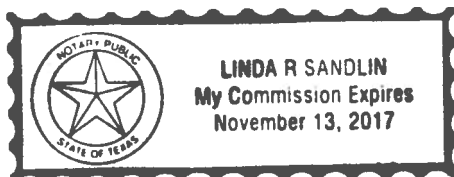
TRAVIS COUNTY WATER CONTROL
& IMPROVEMENT DISTRICT NO. 17

By: David Lewis Steed
David Lewis Steed, President

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 19th day of June, 2014, by David Lewis Steed, President of the Board of Directors of Travis County Water Control & Improvement District No. 17 on behalf of said District.

[Seal]



Linda R. Sandlin
Notary Public, State of Texas
Printed Name: Linda R. Sandlin
My Commission expires: 11.13.17

EXHIBIT A
“Easement Property”

11.21.07

#92.00

200700347

THE STATE OF TEXAS
THE COUNTY OF TRAVIS

EXHIBIT A

WE, SERENE HILLS LTD., ACTING BY AND THROUGH JAMES MEREDITH, MANAGER OF SERENE HILLS GP, LLC, GENERAL PARTNER OF SERENE HILLS, LTD., THE UNDERSIGNED OFFERS OF 1.82 ACRES OF LAND (SUBDIVISION OF THIS C.W. WALSHEN SURVEY 76, ABSTRACT NO. 821 OF TRAVIS COUNTY, TEXAS, CONVEYED TO MR. (S) BY DEED RECORDED BY DOCUMENT NO. 2007079161, OF THE TRAVIS COUNTY OFFICIAL PUBLIC RECORDS, AND SHOWN ON THIS PLAT AND DESIGNATED HEREIN AS THE SERENE HILLS RIGHT-OF-WAY, PHASE 1A SUBDIVISION OF THE CITY OF LAKEWAY, TRAVIS COUNTY, TEXAS, DO HEREBY SUBDIVIDE SAID 1.82 ACRES OF LAND TO BE KNOWN AS THE SERENE HILLS RIGHT-OF-WAY, PHASE 1A SUBDIVISION AND DO HEREBY DEDICATE TO THE PUBLIC FOREVER ALL STREETS, ALLEYS, PARKS, WATERCOURSES, DRAINAGE, PUBLIC EASEMENTS, AND PUBLIC PLACES THEREON, SHOWN FOR THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED.

WITNESS MY HAND THIS 21st DAY OF SEPTEMBER, A.D. 2007

James Meredith
MANAGER OF SERENE HILLS GP, LLC
GENERAL PARTNER OF
SERENE HILLS, LTD.

THE STATE OF TEXAS
THE COUNTY OF TRAVIS

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED JAMES MEREDITH, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 22nd DAY OF SEPTEMBER, 2007

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

ACCORDING TO F.E.M.A. MAP No. 4843100130 E, DATED JUNE 14, 1991, SUBJECT TRACT IS WITHIN ZONE X, OTHER AREAS (AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN). THIS STATEMENT IS MADE FOR INSURANCE PURPOSES ONLY AND IS NO GUARANTEE THAT THE PROPERTY WILL OR WILL NOT FLOOD.

I, THE UNDERSIGNED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, THAT ALL REQUIRED DOCUMENTS ENCLOSED ARE ACCURATE AND COMPLETE AND THAT THE PROVISIONS CONTAINED ON THIS PLAT COMPLY WITH THE DEVELOPMENT ORDINANCES AND ORDINANCE POLICIES ADOPTED BY THE CITY OF LAKEWAY AND OTHER FEDERAL, STATE, COUNTY, AND LOCAL REGULATIONS IN EFFECT ON THIS DATE.

DATED: 9/24/07

(SEAL)



AARON GOOGINS
REGISTRATION NO. 86730
2211 S. 35th STREET 300
AUSTIN, TX 78741
512-462-4921

I, THE UNDERSIGNED SURVEYOR, AM AUTHORIZED UNDER THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING AND HEREBY CERTIFY THAT THE NOTES, INFORMATION, AND PROVISIONS CONTAINED ON THIS PLAT COMPLY WITH THE DEVELOPMENT ORDINANCES ADOPTED BY THE CITY OF LAKEWAY, AND WAS PREPARED FROM A SURVEY MADE ON THE GROUND UNDER MY DIRECT SUPERVISION.

DATED: 9/24/07

JOHN E. BRAITHWAITE
REGISTERED PROFESSIONAL LAND SURVEYOR
REGISTRATION NO. 3657
DELTA SURVEY GROUP INC.
613 BRODIE LANE STE. 102
AUSTIN, TEXAS 78745
TEL: (512) 282-5200
FAX: (512) 282-5230

THE TRACT OF LAND DESCRIBED ON THIS PLAT IS WITHIN THE BOUNDARIES OF TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT (WCID) NO. 17 AND HAS WATER AND WASTEWATER SERVICE AVAILABLE.

DATED: 11-6-07

General Manager
DEPARTMENT OF PUBLIC WORKS
CITY OF LAKEWAY, TEXAS
TRAVIS COUNTY WCID NO. 17

THIS PLAT HAS BEEN SUBMITTED TO AND CONSIDERED BY THE ZONING AND PLANNING COMMISSION OF THE CITY OF LAKEWAY, TEXAS AND IS HEREBY RECOMMENDED FOR APPROVAL BY THE CITY COUNCIL.

DATED: 11/14/07

Chairman
ZONING AND PLANNING COMMISSION

THIS SUBDIVISION IS WITHIN THE CITY LIMITS OF THE CITY OF LAKEWAY ON THIS THE 14th DAY OF NOVEMBER, 2007.

Mayor
CITY OFFICIAL
CITY OF LAKEWAY, TEXAS

DATED: 11-2-07

Steve Suran
MAYOR, CITY OF LAKEWAY, TEXAS

ATTN:

Shirley Hines
CITY SECRETARY

THE STATE OF TEXAS
THE COUNTY OF TRAVIS

I, DIANA DEBEAUVOUR, CLERK OF TRAVIS COUNTY, TEXAS DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT OF WRITING AND ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE 21 DAY OF NOV, 2007, AT 10:23 O'CLOCK A.M., DULY RECORDED ON THE 21 DAY OF NOV, 2007, AT 10:23 O'CLOCK A.M., PLAT RECORDS OF SAID COUNTY AND STATE IN DOCUMENT NUMBER 2007079161 OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY.

WITNESS MY HAND AND SEAL OF OFFICE OF THE COUNTY CLERK, THIS 21 DAY OF Nov, 2007.

DIANA DEBEAUVOUR, COUNTY CLERK

TRAVIS COUNTY, TEXAS

DEPUTY

K. HAYWOOD



THIS PROPERTY IS WITHIN THE CITY LIMITS OF LAKEWAY.

GENERAL NOTES:

1. PRIOR TO CONSTRUCTION OF SUBDIVISION IMPROVEMENTS (PAVING AND DRAINAGE), PLANS, DETAILS, AND SPECIFICATIONS SHALL BE SUBMITTED TO THE CITY OF LAKEWAY FOR REVIEW AND APPROVAL.
2. THE BUILDING OF STREETS, ROADS AND OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT (PLAN) AND ANY BRIDGES OR CULVERTS NECESSARY TO BE CONSTRUCTED OR PLACED IN SUCH STREETS, ROADS, OR PUBLIC THOROUGHFARES OR IN CONNECTION THEREWITH, SHALL BE THE RESPONSIBILITY OF THE OWNER AND/OR DEVELOPER OF THIS TRACT OF LAND COVERED BY THIS PLAT (PLAN) IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE CITY COUNCIL OF THE CITY OF LAKEWAY, TARRANT COUNTY, TEXAS. THE CITY OF LAKEWAY DOES NOT ASSUME ANY RESPONSIBILITY TO BUILD ANY OF THE STREETS, ROADS OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT (PLAN) OR ANY BRIDGES OR CULVERTS IN CONNECTION THEREWITH. THE DIRECTION OF TRAFFIC-CONTROL SIGNS, SUCH AS SPEED LIMITS, "STOP" AND "YIELD" SIGNS, ETC. SHALL REMAIN THE RESPONSIBILITY OF THE DEVELOPER. ALL CURB CUTS, ENTRANCES AND EXITS ONTO PUBLIC STREETS OR HIGHWAYS SHALL FIRST BE APPROVED BY THE CITY OF LAKEWAY, TEXAS.
3. THE CONSTRUCTION OF PRIVATE ROADWAYS AND SUBDIVISION DRAINAGE SHALL BE IN ACCORDANCE WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
4. ALL PRIVATE STREET RIGHT-OF-WAY ARE ALSO PUBLIC UTILITY EASEMENTS.
5. ALL GOVERNMENTAL AUTHORITIES, EMERGENCY SERVICES, UTILITY COMPANY PERSONNEL, GARBAGE COLLECTION CONTRACTORS, ETC. SHALL HAVE FULL ACCESS TO THE SUBDIVISION VIA THE PRIVATE STREETS SHOWN HEREON.
6. DRIVEWAY GRADINGS SHALL BE WITHIN THE LIMITS ESTABLISHED BY THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
7. BUILDING SETBACK LINES SHALL BE IN CONFORMANCE WITH CURRENT CITY OF LAKEWAY REGULATIONS.

WATERSHED NOTES:

1. THIS SUBDIVISION IS LOCATED IN THE HURST CREEK WATERSHED. CONSTRUCTION ON SLOPES AND IMPERVIOUS COVER ARE LIMITED BY PROVISIONS OF THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
2. NO CONSTRUCTION WILL BE PERMITTED ON SLOPES IN THIS SUBDIVISION THAT EXCEED 2% UNLESS A WAIVER OR VARIANCE IS GRANTED BY THE CITY OF LAKEWAY.
3. CUT AND FILL SHALL NOT EXCEED 11 FEET OF DEPTH EXCEPT WHERE A VARIANCE IS GRANTED.
4. NO FILL SHALL BE PLACED ON ANY LOT PRIOR TO THE ISSUANCE OF A SITE DEVELOPMENT PERMIT.
5. EROSION CONTROLS ARE REQUIRED FOR ALL SITE CONSTRUCTION IN ACCORDANCE WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
6. EVERY LOT IN THIS SUBDIVISION IS SUBJECT TO THE CITY OF LAKEWAY'S SITE CLEARANCE PROCEDURES. NO SITE CLEARANCE, EXCAVATION, GRADING, OR LANDFILL SHALL COMMENCE UNLESS A PERMIT SHALL HAVE FIRST BEEN ISSUED FOR SUCH WORK IN ACCORDANCE WITH THE PROVISIONS OF APPLICABLE ORDINANCES.
7. IMPERVIOUS COVER SHALL NOT EXCEED THE MAXIMUM PERCENTAGE PERMITTED UNDER THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
8. ALL DEVELOPMENT WITHIN THIS SUBDIVISION SHALL COMPLY WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.

UTILITY NOTES:

1. ORGANIZED WATER SYSTEMS SERVING THIS SUBDIVISION SHALL BE DESIGNED IN ACCORDANCE WITH W.C.D. #17 CRITERIA. PLANS AND SPECIFICATIONS FOR IMPROVEMENTS SHALL BE APPROVED BY W.C.D. #17 PRIOR TO CONSTRUCTION.
2. NO STRUCTURE IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO A PUBLIC OR APPROVED PRIVATE WATER AND WASTEWATER SYSTEM.
3. THIS SUBDIVISION SHALL BE SERVED BY UNDERGROUND UTILITIES.
4. LANDSCAPING AND OTHER IMPROVEMENTS CONSTRUCTED IN A PUBLIC UTILITY EASEMENT THAT ARE DAMAGED DUE TO UTILITY LINE MAINTENANCE OR INSTALLATION SHALL BE REPLACED AT THE OWNER'S EXPENSE.
5. THE ELECTRIC UTILITY HAS THE RIGHT TO CUT AND TRIM TREES AND SHRUBBERY AND REMOVE OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP EASEMENTS CLEAR OF OBSTRUCTIONS.
6. ADDITIONAL DRAINAGE, PUBLIC UTILITY OR ELECTRICAL EASEMENTS MAY BE REQUIRED TO BE MADE AVAILABLE BY THE OWNER TO THE CITY OF LAKEWAY AND UTILITY COMPANIES AS REASONABLY REQUIRED FOR DEVELOPMENT OF THIS SUBDIVISION.
7. REASONABLE ACCESS FOR ALL EASEMENTS SHALL BE PROVIDED.
8. EVERY LOT IN THIS SUBDIVISION NOT ON AN ORGANIZED WASTEWATER SYSTEM IS SUBJECT TO THE REGULATIONS OF THE LOWER COLORADO RIVER AUTHORITY (LCRA). NO PRIVATE SEWAGE FACILITY MAY BE USED UNTIL THE FACILITY HAS BEEN APPROVED AND LICENSED BY THE LCRA. LOT SIZE REQUIREMENTS FOR RESIDENTIAL AND COMMERCIAL PRIVATE SEWAGE FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF LAKEWAY AND ANY OTHER ENTITY HAVING APPROVED AUTHORITY. (06-18-03)

DRAINAGE NOTES:

1. NO DEVELOPMENT OR CONSTRUCTION SHALL TAKE PLACE ON ANY LOT UNTIL CONSTRUCTION PLANS FOR SITE DRAINAGE AND WATER QUALITY ARE APPROVED BY THE CITY OF LAKEWAY IN ACCORDANCE WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE. THE CITY HAS WAIVED ANY WATER QUALITY AND/OR DETENTION REQUIREMENTS FOR CONSTRUCTION WITHIN THE RIGHT-OF-WAY.
2. THE PROPERTY OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL WATER QUALITY FACILITIES, STORM WATER DETENTION PONDS, ON-SITE DRAINAGE EASEMENTS AND ROADSIDE DITCHES IN PUBLIC RIGHTS-OF-WAY ONCE THE LOT ABUTTING THIS RIGHT-OF-WAY IS DEVELOPED. MAINTENANCE SHALL BE THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE CITY OF LAKEWAY DEVELOPMENT ORDINANCE IN EFFECT AT THE TIME MAINTENANCE IS REQUIRED.
3. THE OWNER OF ANY LOT RECEIVING DRAINAGE FROM AN ADJACENT PROPERTY SHALL INSTALL THE IMPROVEMENTS NECESSARY TO CONVEY THE 100 YEAR STORM THROUGH THE SUBJECT LOT IN THE DRAINAGE EASEMENTS DESIGNATED ON THIS SUBDIVISION PLAT.
4. THE PROPERTY OWNER SHALL PROVIDE FOR ACCESS TO DRAINAGE EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY GOVERNMENT AUTHORITY.
5. ALL PUBLIC UTILITY EASEMENTS DEDICATED ALONG ALL SIDE AND REAR RESIDENTIAL LOT LINES SHALL ALSO FUNCTION AS DRAINAGE EASEMENTS AND BE FREE OF OBSTRUCTIONS.
6. NO OBJECTS, INCLUDING BUT NOT LIMITED TO BUILDINGS, FENCES OR LANDSCAPING, SHALL BE ALLOWED IN A DRAINAGE EASEMENT EXCEPT AS APPROVED BY THE CITY OF LAKEWAY.
7. THE CONSTRUCTION AND MAINTENANCE OF ALL DRAINAGE IMPROVEMENTS, INCLUDING INLETS, STORM SEWER PIPING AND APPURTENANCES SUCH AS HEADWALLS, ETC. INSTALLED IN STREET RIGHT-OF-WAYS DESIGNATED AS "PRIVATE" SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, HIS SUCCESSORS, OR ASSIGNS, OR THE SUBDIVISION HOMEOWNERS' ASSOCIATION.

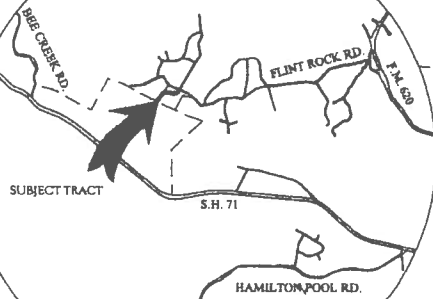
BENCHMARKS:

- BM - 01 COTTON SPINDLE SET IN POWER POLE AT NORTHWEST CORNER OF WELLS TRACT (ELEV. 943.96)
- BM - 02 COTTON SPINDLE IN LIVESTOCK AT SOUTHEAST CORNER OF FLEETROCK / SERENE HILLS INTERSECTION (ELEV. - 1036.32)

800 700 347

C.W. WALDRON SUR. 79, ABS. 818
TRAVIS COUNTY, TEXAS
JUNE 2007
SCALE: 1" = 100'

LOCATION MAP
NOT TO SCALE



FOX CREEK ESTATES
DOC. #200300004
O.P.R.T.C.TX

FLINT ROCK ESTATES
VOLUME 98 PAGE 22

23.05 ACRES
HARRIETTE WELLS
VOL. 3939, PG. 2077
D.R.T.C.TX

15.65 ACRES
NORMAN AND SUZANNE MYERS
VOL. 12467, PG. 1641
R.P.R.T.C.TX

2.922 ACRES
SERENE HILLS LTD.,
DOC. #2007079265
O.P.R.T.C.TX

23.05 ACRES
HARRIETTE WELLS
VOL. 3939, PG. 2077
D.R.T.C.TX

BEARING BASIS
TEXAS STATE PLANE COORDINATES, TEXAS CENTRAL ZONE, NAD 83/HARN

LEGEND

- 1/1 INCH IRON ROD FOUND
- 1/2 INCH ROD WITH "DELTA SURVEY" CAP SET
- 1/1 INCH IRON ROD FOUND
- ⊕ BENCHMARK
- B.L. BUILDING SET-BACK LINE
- P.U.E. PUBLIC UTILITY EASEMENT
- N.T.S. NOT TO SCALE
- D.E. DRAINAGE EASEMENT
- PROPOSED SIDEWALK
- P.R.T.C.TX. PLAT RECORDS, TRAVIS COUNTY, TEXAS
- O.P.R.T.C.TX. OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
- () RECORD PLAT BEARING AND DISTANCE

453.63 ACRES
JOHN POWER HEARD, ET AL.
DOC. #2000133661
O.P.R.T.C.TX

OWNER / PRIMARY CONTACT PERSON

GOODE, AARON C.
2211 E. 181 ST, SUITE 200
AUSTIN, TX 78741
TEL: (512) 462-4921
FAX: (512) 462-1172

ENGINEER

GOODE, AARON C.
2211 E. 181 ST, SUITE 200
AUSTIN, TX 78741
(512) 462-4921
FAX: (512) 462-1172

SURVEYOR

JOHN B. BRALTOGAM R.P.L.S.
DELTA SURVEY GROUP INC.
8213 BRODIE LANE, SUITE 102
AUSTIN, TEXAS 78745
TEL: (512) 282-5200
FAX: (512) 282-5230

UTILITY INFORMATION

WATER SERVICE: WCD No. 17
WASTEWATER SERVICE: WCD No. 17
ELECTRICAL SERVICE: PEC
TELEPHONE SERVICE: AT&T

SUMMARY INFORMATION

TOTAL ACRES: 2.922
TOTAL NUMBER OF LOTS: 1
TOTAL AVERAGE EASEMENT DEPTH: 144.42
TOTAL LINEAR FEET OF NEW EASEMENTS

LINE	BEARING	DISTANCE
L1	N38°33'43"E	452.92'
L2	S74°48'55"E	185.11'
L3	N38°33'40"E	42.00'
L4	S68°36'48"E	91.25'
L5	S30°52'40"W	57.13'
L6	N74°48'55"W	185.11'
L7	S38°33'43"W	430.53'
L8	N65°12'10"W	92.66'
L9	N23°38'23"E	55.04'
L10	S68°36'38"E	18.52'

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	345.00'	401.16'	66°37'22"	N71°52'24"E	378.94'
C2	255.00'	330.64'	74°17'25"	N68°02'22"E	307.59'
C3	345.00'	447.33'	74°17'25"	S68°02'22"W	436.65'
C4	255.00'	296.51'	66°37'22"	S71°52'24"W	280.09'

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
office: (512) 282-5200 fax: (512) 282-5230

SERENE HILLS RIGHT-OF-WAY
PHASE 1A

SHEET
3
OF
3

THE STATE OF TEXAS
THE COUNTY OF TRAVIS

EXHIBIT B

WE, SERENE HILLS LTD., ACTING BY AND THROUGH JAMES MEREDITH, MANAGER OF SERENE HILLS GP, LLC, GENERAL PARTNER OF SERENE HILLS LTD., THE UNDERSIGNED OWNERS OF 12.533 ACRES OF LAND OUT OF THE G. WOLFE SURVEY NUMBER 125 ABSTRACT NUMBER 2242 AND 2525, AND THE J.A. POLVADO SURVEY NUMBER 547 ABSTRACT 645, OF TRAVIS COUNTY, TEXAS, CONVEYED TO ME (SB) BY DEED RECORDED IN DOCUMENT No. 200709964, OF THE TRAVIS COUNTY OFFICIAL PUBLIC RECORDS, AND SHOWN ON THIS PLAT AND DESCRIBED HEREIN AS "THE SERENE HILLS PHASE 1B SUBDIVISION" OF THE CITY OF LAKEWAY, TRAVIS COUNTY, TEXAS, HEREBY SUBDIVIDE SAID 12.533 ACRES OF LAND TO BE KNOWN AS THE SERENE HILLS PHASE 1B SUBDIVISION AND DO HEREBY INDICATE TO THE PUBLIC PURSUER ALL STREETS, ALLEYS, PARKS, WATERCOURSES, DRAINS, PUBLIC EASEMENTS, AND PUBLIC PLACES THEREON, SHOWN FOR THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED.

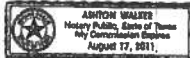
WITNESS MY HAND THIS 21st DAY OF April, A.D. 2008

JAMES MEREDITH
MANAGER OF SERENE HILLS GP, LLC
GENERAL PARTNER OF
SERENE HILLS LTD.
1094 MOPAC CIRCLE, SUITE 201
AUSTIN, TX 78746

THE STATE OF TEXAS
THE COUNTY OF TRAVIS

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED JAMES MEREDITH, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 21st DAY OF April, 2008



ASHTON WALKER
NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

A PORTION OF THE TRACT IS WITHIN THE BOUNDARY OF THE 100-YEAR FLOOD PLAIN AS INDICATED ON THE FEDERAL FLOOD INSURANCE ADMINISTRATION F.I.R.M. PANEL No. 45302930 E, DATED JUNE 16, 1999 FOR TRAVIS COUNTY TEXAS.

I, THE UNDERSIGNED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, THAT ALL REQUIRED DOCUMENTS ENCLOSED ARE ACCURATE AND COMPLETE AND THAT THE PROVISIONS CONTAINED ON THIS PLAT COMPLY WITH THE DEVELOPMENT ORDINANCES AND DRAINAGE POLICIES ADOPTED BY THE CITY OF LAKEWAY AND OTHER FEDERAL, STATE, COUNTY, AND LOCAL REGULATIONS IN EFFECT ON THIS DATE.

DATED 3/14/08
(SEAL)



AARON GOODEN
REGISTRATION NO. 85730
ERGO ENGINEERING ASSOCIATES, INC.
2211 E. 81st ST, SUITE 200
AUSTIN, TX 78741
512-463-4921

I, THE UNDERSIGNED SURVEYOR, AM AUTHORIZED UNDER THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING AND HEREBY CERTIFY THAT THE NOTES, INFORMATION, AND PROVISIONS CONTAINED ON THIS PLAT COMPLY WITH THE DEVELOPMENT ORDINANCES ADOPTED BY THE CITY OF LAKEWAY, AND WAS PREPARED FROM A SURVEY MADE ON THE GROUND UNDER MY DIRECT SUPERVISION.

DATED 3/14/08



JOHN E. BRANTMAN
REGISTERED PROFESSIONAL LAND SURVEYOR
REGISTRATION NO. 3257
DELTA SURVEY GROUP INC.
213 BRODIE LANE STE. 102
AUSTIN, TEXAS 78745
TEL: (512) 282-5200
FAX: (512) 282-5230

THE TRACT OF LAND DESCRIBED ON THIS PLAT IS WITHIN THE BOUNDARIES OF TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT (WCID) NO. 17 AND HAS WATER AND WASTEWATER SERVICE AVAILABLE.

DATED 4/17/08

Shirley Hester
PRESIDENT OF THE BOARD
WCID #17

THIS PLAT HAS BEEN SUBMITTED TO AND CONSIDERED BY THE ZONING AND PLANNING COMMISSION OF THE CITY OF LAKEWAY, TEXAS AND IS HEREBY RECOMMENDED FOR APPROVAL BY THE CITY COUNCIL.

DATED 6/17/08

Shirley Hester
CHAIRPERSON
ZONING AND PLANNING COMMISSION

THIS SUBDIVISION IS WITHIN THE CITY LIMITS OF THE CITY OF LAKEWAY ON THIS THE 3rd DAY OF June, 2008.

Shirley Hester
CODE OFFICIAL
CITY OF LAKEWAY, TEXAS

APPROVED AND AUTHORIZED FOR RECORD BY THE CITY COUNCIL OF THE CITY OF LAKEWAY, TEXAS.

DATED June 3, 2008

Steve Swan
MAYOR, CITY OF LAKEWAY, TEXAS

ATTEST:

Shirley Hester CITY SECRETARY



THE STATE OF TEXAS
THE COUNTY OF TRAVIS

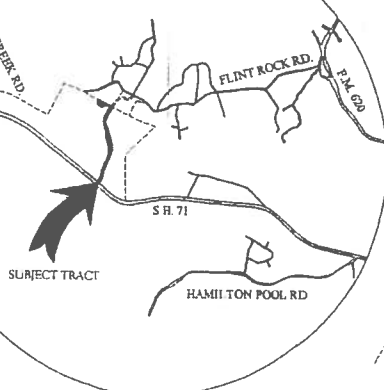
I, DANA DEBRAUNVOER, CLERK OF TRAVIS COUNTY, TEXAS DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT OF WRITING AND ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE 10th DAY OF June, 2008 A.D. AT 9:00 O'CLOCK A.M., FULLY RECORDED ON THE 10th DAY OF June, 2008 A.D. AT 9:00 O'CLOCK A.M., PLAT RECORDS OF SAID COUNTY AND STATE IN DOCUMENT NUMBER 2008 001 75 OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY.

WITNESS MY HAND AND SEAL OF OFFICE OF THE COUNTY CLERK, THIS 10th DAY OF June, 2008 A.D.

DANA DEBRAUNVOER, COUNTY CLERK
TRAVIS COUNTY, TEXAS

Teresa Carter
DEPUTY
Teresa Carter



LOCATION MAP
NOT TO SCALE

O. WOLFE SUR. 182, ABS. 2525
O. WOLFE SUR. 182, ABS. 2282
J.A. POLVADO SUR. 547, ABS. 645
TRAVIS COUNTY, TEXAS
FEBRUARY 2008

GENERAL NOTES

1. PRIOR TO CONSTRUCTION OF SUBDIVISION IMPROVEMENTS (PAVING AND DRAINAGE), PLANS, DETAILS AND SPECIFICATIONS SHALL BE SUBMITTED TO THE CITY OF LAKEWAY FOR REVIEW AND APPROVAL.
2. THE BUILDING OF STREETS, ROADS AND OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT (PLAN) AND ANY BRIDGES OR CULVERTS NECESSARY TO BE CONSTRUCTED OR PLACED IN SUCH STREETS, ROADS OR PUBLIC THOROUGHFARES OR IN CONNECTION THEREWITH, SHALL BE THE RESPONSIBILITY OF THE OWNER AND/OR DEVELOPER OF THE TRACT OF LAND COVERED BY THIS PLAT (PLAN) IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE CITY COUNCIL OF THE CITY OF LAKEWAY, TRAVIS COUNTY, TEXAS. THE CITY OF LAKEWAY DOES NOT ASSUME ANY RESPONSIBILITY TO BUILD ANY OF THE STREETS, ROADS OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT (PLAN) OR ANY BRIDGES OR CULVERTS IN CONNECTION THEREWITH. THE DIRECTION OF TRAFFIC-CONTROL SIGNS, SUCH AS SPEED LIMITS, STOP AND YIELD SIGNS, ETC. SHALL REMAIN THE RESPONSIBILITY OF THE DEVELOPER. ALL CURB CUTS, ENTRANCES AND EXITS ONTO PUBLIC STREETS OR HIGHWAYS SHALL FIRST BE APPROVED BY THE CITY OF LAKEWAY, TEXAS.
3. THE CONSTRUCTION OF PRIVATE ROADWAYS AND SUBDIVISION DRAINAGE SHALL BE IN ACCORDANCE WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
4. ALL STREET RIGHT-OF-WAY ARE ALSO PUBLIC UTILITY BASEMENTS.
5. ALL GOVERNMENTAL, AUTHORITY, EMERGENCY SERVICES, UTILITY COMPANY PERSONNEL, GARBAGE COLLECTION CONTRACTORS, ETC. SHALL HAVE FULL ACCESS TO THE SUBDIVISION VIA THE PRIVATE STREETS SHOWN HEREON.
6. DRIVEWAY GRADES SHALL BE WITHIN THE LIMITS ESTABLISHED BY THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
7. BUILDING SETBACK LINES SHALL BE IN CONFORMANCE WITH CURRENT CITY OF LAKEWAY REGULATIONS.
8. LOT 402 IS DEDICATED FOR A WATER QUALITY DETENTION POND. ALL OF LOT 402 IS CONTAINED WITHIN A DRAINAGE, ACCESS, AND PUBLIC UTILITY EASEMENT.

WATERSHED NOTES

1. THIS SUBDIVISION IS LOCATED IN THE BURNT CREEK WATERSHED. CONSTRUCTION ON SLOPES AND IMPERVIOUS COVER ARE LIMITED BY PROVISIONS OF THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
2. NO CONSTRUCTION WILL BE PERMITTED ON SLOPES IN THIS SUBDIVISION THAT EXCEED 15% UNLESS A VARIANCE OR VARIANCES IS GRANTED BY THE CITY OF LAKEWAY.
3. CUT AND FILL SHALL NOT EXCEED 11 FEET OF DEPTH EXCEPT WHERE A VARIANCE IS GRANTED.
4. NO FILL SHALL BE PLACED ON ANY LOT PRIOR TO THE ISSUANCE OF A SITE DEVELOPMENT PERMIT.
5. EROSION CONTROLS ARE REQUIRED FOR ALL SITE CONSTRUCTION IN ACCORDANCE WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
6. EVERY LOT IN THIS SUBDIVISION IS SUBJECT TO THE CITY OF LAKEWAY'S SITE CLEARANCE PROCEDURES. NO SITE CLEARANCE, EXCAVATION, GRADING, OR LANDFILL SHALL COMMENCE UNLESS A PERMIT SHALL HAVE FIRST BEEN ISSUED FOR SUCH WORK IN ACCORDANCE WITH THE PROVISIONS OF APPLICABLE ORDINANCE.
7. IMPERVIOUS COVER SHALL NOT EXCEED THE MAXIMUM PERCENTAGE PERMITTED UNDER THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
8. ALL DEVELOPMENT WITHIN THIS SUBDIVISION SHALL COMPLY WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.

UTILITY NOTES

1. ORIGINATED WATER SYSTEMS SERVING THIS SUBDIVISION SHALL BE DESIGNED IN ACCORDANCE WITH W.C.D. #17 CRITERIA PLANS AND SPECIFICATIONS FOR IMPROVEMENTS SHALL BE APPROVED BY W.C.D. #17 PRIOR TO CONSTRUCTION.
2. NO STRUCTURE SHALL BE OCCUPIED UNTIL CONNECTED TO A PUBLIC OR APPROVED PRIVATE WATER AND WASTEWATER SYSTEM.
3. THIS SUBDIVISION SHALL BE SERVED BY UNDERGROUND UTILITIES.
4. LANDSCAPING AND OTHER IMPROVEMENTS CONSTRUCTED IN A PUBLIC UTILITY EASEMENT THAT ARE DAMAGED DUE TO UTILITY LINE MAINTENANCE OR INSTALLATION SHALL BE REPLACED AT THE OWNER'S EXPENSE.
5. THE ELECTRIC UTILITY HAS THE RIGHT TO CUT AND TRIM TREES AND SHRUBBERY AND REMOVE OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP EASEMENTS CLEAR OF OBSTRUCTIONS.
6. ADDITIONAL DRAINAGE, PUBLIC UTILITY OR ELECTRICAL EASEMENTS MAY BE REQUIRED TO BE MADE AVAILABLE TO THE OWNER TO THE CITY OF LAKEWAY AND UTILITY COMPANIES AS REASONABLY REQUIRED FOR DEVELOPMENT OF THE SUBDIVISION. REASONABLE ACCESS FOR ALL EASEMENTS SHALL BE PROVIDED.
7. EVERY LOT IN THIS SUBDIVISION NOT ON AN ORGANIZED WASTEWATER SYSTEM IS SUBJECT TO THE REGULATIONS OF THE LOWER COLORADO RIVER AUTHORITY (LCRA). NO PRIVATE SEWAGE FACILITY MAY BE USED UNTIL THIS FACILITY HAS BEEN APPROVED AND LICENSED BY THE LCRA. LOT SIZE REQUIREMENTS FOR RESIDENTIAL AND COMMERCIAL PRIVATE SEWAGE FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF LAKEWAY AND ANY OTHER ENTITY HAVING APPROVED AUTHORITY. (08-10-05)

DRAINAGE NOTES

1. NO DEVELOPMENT OR CONSTRUCTION SHALL TAKE PLACE ON ANY LOT UNTIL CONSTRUCTION PLANS FOR SITE DRAINAGE AND WATER QUALITY ARE APPROVED BY THE CITY OF LAKEWAY IN ACCORDANCE WITH THE CITY OF LAKEWAY'S DEVELOPMENT ORDINANCE.
2. THE PROPERTY OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL WATER QUALITY FACILITIES, STORM WATER DETENTION POND, ON-SITE DRAINAGE EASEMENTS AND ROADSIDE DITCHES IN PUBLIC RIGHT-OF-WAY ONCE THE LOT ABUTTING THE RIGHT-OF-WAY IS DEVELOPED. MAINTENANCE SHALL BE THE STANDARD AND SPECIFICATIONS CONTAINED IN THE CITY OF LAKEWAY DEVELOPMENT ORDINANCE IN EFFECT AT THE TIME MAINTENANCE IS REQUIRED.
3. THE OWNER OF ANY LOT RECEIVING DRAINAGE FROM AN ADJACENT PROPERTY SHALL INSTALL THE IMPROVEMENTS NECESSARY TO CONVEY THE 10 YEAR STORM THROUGH THE SUBJECT LOT IN THE DRAINAGE EASEMENTS DESIGNATED ON THIS SUBDIVISION PLAT.
4. THE PROPERTY OWNER SHALL PROVIDE FREE ACCESS TO DRAINAGE EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY GOVERNMENT AUTHORITY.
5. ALL PUBLIC UTILITY EASEMENTS DESIGNATED ALONG ALL SIDE AND REAR RESIDENTIAL LOT LINES SHALL ALSO FUNCTION AS DRAINAGE EASEMENTS AND BE FREE OF OBSTRUCTIONS.
6. NO OBJECTS, INCLUDING BUT NOT LIMITED TO BUILDINGS, FENCES OR LANDSCAPING, SHALL BE ALLOWED IN A DRAINAGE EASEMENT EXCEPT AS APPROVED BY THE CITY OF LAKEWAY.
7. THE CONSTRUCTION AND MAINTENANCE OF ALL DRAINAGE IMPROVEMENTS, INCLUDING INLETS, STORM SEWER PIPING AND APPURTENANCES SUCH AS MANHOLES, ETC. INSTALLED IN STREET RIGHT-OF-WAY DESIGNATED AS "PRIVATE" SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, ITS SUCCESSORS, OR ASSIGNS, OR THE SUBDIVISION HOMEOWNERS ASSOCIATION.

BENCHMARKS

- TBM - 01 COTTON SPINDLE SET IN POWER POLE AT NORTHWEST CORNER OF WELLS TRACT. (BLV - 983.97)
- TBM - 02 COTTON SPINDLE IN LYONX AT SOUTHEAST CORNER OF FLINT ROCK / SERENE HILLS INTERSECTION. (BLV - 1030.32)

SERENE HILLS LTD
456.978 ACRES
DOC #2007079264
O.P.R.T.C.TX

SERENE HILLS LTD
456.978 ACRES
DOC #2007079264
O.P.R.T.C.TX

LEGEND

- 1/2 INCH ROD WITH "DELTA SURVEY" CAP SET
- 1/2 INCH INCH ROD FOUND
- CONCRETE HIGHWAY MONUMENT FOUND
- ★ PER F.E.M.A. FLOOD MAP No. 48-5103130 E
- FLOWING SIDEWALK
- 100 YEAR FLOOD PLAIN
- PLAT RECORDS, TRAVIS COUNTY, TEXAS
- OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS

P.R.T.C.TX
O.P.R.T.C.TX

SERENE HILLS LTD
456.978 ACRES
DOC #2007079264
O.P.R.T.C.TX

OWNER / PRIMARY CONTACT PERSON

GOODE, AARON C.
2211 E. BE 36, SUITE 200
AUSTIN, TX 78741
TEL: (512) 482-4991
FAX: (512) 482-1372

ENGINEER

GOODE, AARON C.
KING ENGINEERING
2211 E. BE 36, SUITE 200
AUSTIN, TX 78741
(512) 482-4991
FAX: (512) 482-1372

SURVEYOR

JOHN R. BRANTHAM R.P.L.S.
DELTA SURVEY GROUP INC.
8213 BRODIE LANE, SUITE 102
AUSTIN, TEXAS 78743
TEL: (512) 282-5200
FAX: (512) 282-5209

UTILITY INFORMATION

WATER SERVICE: WCD No. 17
WASTEWATER SERVICE: WCD No. 17
ELECTRICAL SERVICE: PSC
TELEPHONE SERVICE: AT&T

SINGULAR INFORMATION

TOTAL ACRES: 12.825
TOTAL NUMBER OF LOTS: 1
TOTAL AVERAGE RESIDENTIAL DENSITY: 1
TOTAL LINEAR FEET OF NEW FENCES: 4138

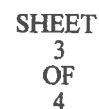
BEARING BASIS
TENTATIVE PLANS COORDINATE SYSTEM, TEXAS CENTRAL ZONE, NAD 83/NA83

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
offices (512) 282-5200 fax: (512) 282-5230

SERENE HILLS PHASE 1B

SHEET
2
OF
4



BEARING BASIS
TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS CENTRAL ZONE, NAD 83/2011

MATCH SHEET 3 OF 4
MATCH SHEET 4 OF 4

O. WOLFE SUR. 182, ABS. 2525
O. WOLFE SUR. 182, ABS. 2282
J.A. POLVADO SUR. 547, ABS. 645
TRAVIS COUNTY, TEXAS
FEBRUARY 2008

SCALE: 1" = 100'

LINE	BEARING	DISTANCE
L9	N74°22'44"W	4.00
L10	N51°23'00"W	90.00
L11	N62°58'46"E	50.00
L12	S82°28'00"W	13.50
L13	S81°23'00"E	178.70
L14	N10°23'00"W	557.87

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C24	450.00	134.61	128.30	S14°28'00"W	28°10'11"
C25	545.00	140.50	134.80	S50°02'31"W	39°08'50"
C26	435.00	284.12	275.54	N20°02'31"E	59°48'52"
C27	545.00	219.97	218.44	N14°23'48"E	22°00'11"
C28	35.00	74.82	35.84	N11°11'28"W	88°28'53"
C29	21.00	22.72	19.87	N10°20'30"E	14°31'28"
C30	966.00	550.69	514.37	N10°49'49"E	38°11'50"
C31	978.50	581.81	578.37	N12°23'36"W	22°20'42"
C32	1774.87	690.44	681.89	S80°30'40"E	11°34'00"
C33	1368.87	275.52	273.04	S79°40'46"W	12°27'04"
C34	180.00	68.27	58.13	S80°14'21"W	24°29'50"
C35	970.50	91.52	81.48	S14°23'21"E	48°22'54"
C36	1375.87	448.28	443.81	S20°28'21"W	28°40'22"

SERENE HILLS, LTD.
456.978 ACRES
DOC. 4880797684
O.P.R.T.C.T.X.

SERENE HILLS, LTD.
456.978 ACRES
DOC. 4880797684
O.P.R.T.C.T.X.

APPROXIMATE LOCATION
J.A. POLVADO SUR. 547, ABS. 645
O. WOLFE SUR. 182, ABS. 2282

LEGEND

- 1/2 INCH ROD WITH "DELTA SURVEY" CAPSET
- 1/2 INCH IRON ROD FOUND
- CONCRETE HIGHWAY MONUMENT FOUND
- * PER F.B.M.A. FLOOD MAP 04-481530230 D DATED JUNE 14, 1993
- PROPOSED SIDEWALK
- 100 YEAR FLOOD PLAIN
- P.R.T.C.T.X. PLAT RECORDS, TRAVIS COUNTY, TEXAS
- O.P.R.T.C.T.X. OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS

STATE HIGHWAY 71
(R.O.W. VARIATION)

After Recording Please Return to:

Travis County WC & ID 17
Attn: Linda Sandlin
3812 Eck Lane
Austin TX 78734

512-266-1111, ext. 15

FILED AND RECORDED

OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Jul 16, 2014 09:35 AM

2014104865

BENAVIDESV: \$78.00

Dana DeBeauvoir, County Clerk

Travis County TEXAS

**CREEKSIDE TRACT
(EASEMENT)**

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PERMANENT EASEMENT

**ORIGINAL
FILED FOR RECORD**

THE STATE OF TEXAS

§

§

COUNTY OF TRAVIS

§

GRANT OF PERMANENT EASEMENT:

Coastal Rim Properties, Inc., a California corporation ("GRANTOR"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto **Travis County Water Control & Improvement District No. 17**, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734 ("GRANTEE") (GRANTOR and GRANTEE are collectively referred to as the "Parties"), a permanent and non-exclusive easement ("the Permanent Easement") upon, in, over, under, along and across, together with the right of ingress and egress upon, in, over, under, along and across, the property(s) of GRANTOR which is more particularly described as follows:

An approximate 5.397 acre tract of land, being a portion of Lot 1, Block A, Creekside at Lakeway, a Subdivision recorded in Document Number 200700288, Official Public Records of Travis County, Texas which is described by metes and bounds in the attached Exhibit A ("Easement Property").

PURPOSE OF EASEMENT:

The Easement Property may be used by GRANTEE AND OR ITS ASSIGNS for the following purposes:

- (i) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing effluent irrigation systems, wastewater equipment, and related facilities on the Easement Property;
- (ii) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing tanks, wastewater lines, irrigation lines, control boxes, and related facilities and equipment on the Easement Property; and

- (iii) irrigating the Easement Property with treated wastewater effluent generated by GRANTEE from its wastewater treatment plants (collectively, the "Facilities").

Also, GRANTEE is granted the right of ingress and egress upon, over, under, along, and across the Easement Property to accomplish the purposed described herein.

DURATION OF EASEMENT:

This Easement shall be permanent and irrevocable.

DOMINANT USE OF EASEMENT PROPERTY:

GRANTOR agrees that GRANTEE shall have the dominant right to use of the Easement Property for the purposes stated above and GRANTOR shall make no use of the Easement Property that unreasonably interferes with GRANTEE'S use, including, but not limited to, the construction of stone walls, extensive landscaping or similar improvements that would impede GRANTEE'S access to the Facilities. This Permanent Easement shall further include the right to cut and trim trees and shrubbery that may encroach on the Easement Property. GRANTOR shall not grant any easements, licenses or similar rights to any other person or entity on the Easement Property which interfere with the Permanent Easement.

ENTIRE AGREEMENT:

This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument will be of no force and effect.

BINDING EFFECT:

This agreement will run with the land, and will bind and inure to the benefit of the Parties hereto, and their respective successors and assigns. GRANTOR does hereby bind itself and its successors and assigns to WARRANT AND FOREVER DEFEND title to the said Easement herein granted unto GRANTEE, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof subject to all matters of record which affect the Easement Property and are valid and subsisting and to the matters set forth herein.

[THE REMAINDER OF PAGE IS LEFT BLANK INTENTIONALLY.]

In witness whereof, this instrument is executed this 10 day of July, 2014.

GRANTOR:

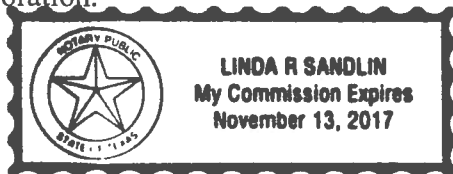
COASTAL RIM PROPERTIES, INC.,

By: [Signature]
Franco Mola

Its: President.

STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me on the 10th day of July, 2014, by Franco Mola, President, of Coastal Rim Properties, Inc. on behalf of said Corporation.



[Seal]

[Signature]
Notary Public, State of Texas
Printed Name: Linda R. Sandlin
My Commission expires: 11.13.17

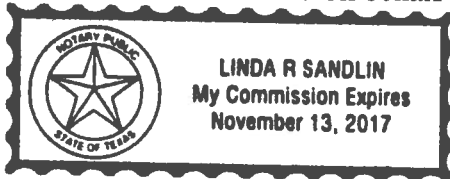
ACCEPTED:

TRAVIS COUNTY WATER CONTROL
& IMPROVEMENT DISTRICT NO. 17

By: 
Jeff Roberts, President

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 11th day of July, 2014,
by Jeff Roberts, President of the Board of Directors of Travis County Water Control &
Improvement District No. 17 on behalf of said District.



[Seal]



Notary Public, State of Texas
Printed Name: Linda R. Sandlin
My Commission expires: 11.13.17

EXHIBIT A
“Easement Property”

EXHIBIT A

Page 1 of 3

FIELD NOTES

BEING ALL THAT CERTAIN TRACT OR PARCEL OF LAND OUT OF AND A PART OF THE C.P. REINKE SURVEY NUMBER 67, ABSTRACT NUMBER 686 AND THE J.P. WARNOCK SURVEY NUMBER 56, ABSTRACT NUMBER 204 SITUATED IN TRAVIS COUNTY, TEXAS, SAID TRACT OF LAND BEING MORE PARTICULARLY DESCRIBED AS BEING A PORTION OF LOT 1, BLOCK A, CREEKSIDE AT LAKEWAY, A SUBDIVISION RECORDED IN DOCUMENT NUMBER 200700288, OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS (O.P.R.T.C.TX.), SAID 5.397 ACRE TRACT OF LAND BEING MORE FULLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING, at a ½" iron rod found at the westernmost southwestern corner of said Lot 1, Block A, Creekside at Lakeway, also being in the northern line of Lot 3, Amended Plat of Flintrock at Hurst Creek Phase 8, a subdivision recorded in Document No. 200200092 (O.P.R.T.C.TX.) and also being a southeastern corner of that certain called 16.00 acre tract of land conveyed to Hurst Creek Municipal Utility District in Volume 12792, Page 1356, Real Property Records of Travis County, Texas (R.P.R.T.C.TX.) for the westernmost southwestern corner and **POINT OF BEGINNING** of the herein described tract,

THENCE, with the common boundary line of said Lot 1, Block A, Creekside at Lakeway and said 16.00 acre tract, the following five (5) courses and distances, numbered 1 through 5,

1. N06°21'41"E, a distance of 111.86 feet to a ½" iron rod found,
2. N04°48'08"W, a distance of 143.54 feet to a ½" iron rod found,
3. N15°37'25"E, a distance of 176.12 feet to a ½" iron rod found,
4. N20°46'25"E, a distance of 112.55 feet to a ½" iron rod found, and
5. N17°47'45"E, a distance of 68.80 feet to a calculated point, for the northernmost northwestern corner of the herein described tract,

THENCE, crossing said Lot 1, Block A, Creekside at Lakeway, the following six (6) courses and distances, numbered 1 through 6,

1. S72°12'15"E, a distance of 86.82 feet to a calculated point,
2. S58°41'25"E, a distance of 59.33 feet to a calculated point,
3. N53°22'41"E, a distance of 42.38 feet to a calculated point,
4. S63°51'50"E, a distance of 85.61 feet to a calculated point,
5. N89°08'44"E, a distance of 73.84 feet to a calculated point, and
6. N72°17'54"E, a distance of 160.64 feet to a calculated point, in the eastern line of said Lot 1, Block A, Creekside at Lakeway, also being in the western line of Lot 1, Final Plat of Lohman's Crossing Shopping Center Subdivision, a subdivision recorded in Document No. 200200236 (O.P.R.T.C.TX.), for the easternmost northeastern corner of the herein described tract,

THENCE, with the common boundary line of said Lot 1, Block A, Creekside at Lakeway, said Lot 1, Final Plat of Lohman's Crossing Shopping Center Subdivision and the western line of Lot 2 of said Final Plat of Lohman's Crossing Shopping Center Subdivision, the following two (2) courses and distances, numbered 1 through 2,

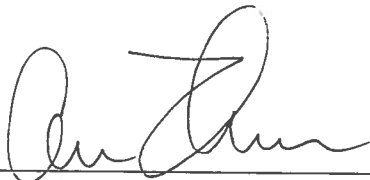
1. S30°00'05"W, a distance of 377.88 feet to a ½" iron rod found at the westernmost corner of said Lot 2, Final Plat of Lohman's Crossing Shopping Center Subdivision, and
2. S31°49'51"E, a distance of 345.31 feet to a ½" iron rod found at a southern corner of said Lot 1, Block A, Creekside at Lakeway, also being the southeastern corner of said Lot 1, Block A, Creekside at Lakeway, the southwestern corner of said Lot 1, Final Plat of Lohman's Crossing Shopping Center Subdivision and also being in the northern line of that certain called 357.051 acre tract of land conveyed to HPK Ventures, Ltd. in Volume 13401, Page 612 (R.P.R.T.C.TX.), for the southeastern corner of the herein described tract,

THENCE with the common boundary line of said Lot 1, Block A, Creekside at Lakeway and said HPK Ventures, Ltd. tract, S83°48'32"W, a distance of 213.65 feet to a ½" iron rod found at the northwestern corner of said HPK Ventures, Ltd. tract and also being in the eastern line of said Lot 3, Amended Plat of Flintrock at Hurst Creek Phase 8,

THENCE, with the common boundary line of said Lot 1, Block A, Creekside at Lakeway and said Lot 3, Amended Plat of Flintrock at Hurst Creek Phase 8, the following two (2) courses and distances, numbered 1 and 2,

1. N21°02'36"W, a distance of 225.70 feet to a ½" iron rod found, and
1. S63°07'28"W, a distance of 313.41 feet to the **POINT OF BEGINNING** and containing 5.397 acres of land.

Surveyed by:

 10 Jun 2014

Aaron V. Thomason ~ R.P.L.S. No. 6214
Carlson, Brigance & Doering, Inc.
5501 West William Cannon Drive
Austin, TX 78749
Phone: (512) 280-5160



BEARING BASIS: CREEKSIDE AT LAKEWAY SUBDIVISION

SKETCH TO ACCOMPANY FIELD NOTES

SCALE: 1" = 100'

LOT 1 BLOCK A
CREEKSIDE AT LAKEWAY
DOCUMENT NO. 200700288

60' ELECTRIC UTILITY
EASEMENT TO P.E.C. PER
VOL. 12870, PG. 1178

25' ACCESS EASEMENT
DOCUMENT NO. 2003092025

16.00 AC.
HURST CREEK MUNICIPAL
UTILITY DISTRICT
VOLUME 12792, PAGE 1356

C.P. REINKE SURVEY NO.
67, ABSTRACT NO. 686

LOT 1 BLOCK A
CREEKSIDE AT LAKEWAY
DOCUMENT NO. 200700288

**5.397 ACRE
WASTEWATER AND
IRRIGATION
EASEMENT**

1.8081 AC. BUFFER ESMT. TO
T.C.W.C.I.D. NO. 17
DOCUMENT NO. 200018634

0.892 AC-20' WIDE W.W.E.
TO T.C.W.C.I.D. NO. 17 DOC.
NO. 200018632

LOT 2
FINAL PLAT OF LOHMAN'S CROSSING
SHOPPING CENTER SUBDIVISION
DOCUMENT NO. 200200236

LOT 1
FINAL PLAT OF LOHMAN'S CROSSING
SHOPPING CENTER SUBDIVISION
DOCUMENT NO. 200200236

A. BECK SURVEY NO. 54
ABSTRACT NO. 2241
(APPROXIMATE LOCATION)

(357.051 AC.)
HPK VENTURES, LTD.
VOLUME 13401, PAGE 612

J.P. WARNOCK SURVEY NO. 56,
ABSTRACT NO. 204

BEARING BASIS: CREEKSIDE AT LAKEWAY SUBDIVISION

Carlson, Brigrance & Doering, Inc.

FIRM ID #F3791 REG. # 10024900

Civil Engineering Surveying
5501 West William Cannon Austin, Texas 78749
Phone No. (512) 280-5160 Fax No. (512) 280-5165

PATH:- J:\4659\DWG\4659-FN-WW & IRRIGATION ESMT.dwg

LEGEND

- IRON ROD FOUND
- △ CALCULATED POINT
- BL BUILDING LINE
- PUE PUBLIC UTILITY EASEMENT



10 JUN 2014

POINT OF BEGINNING

N06°21'41"E 111.86'

N15°37'25"E 176.12'

N20°46'25"E 112.55'

S63°07'28"W 313.41'

N21°02'36"W 225.70'

S83°48'32"W 213.65'

S31°49'51"E 345.31'

S30°00'05"W 377.88'

N89°08'44"E 73.84'

S63°51'50"E 85.61'

S58°41'25"E 59.33'

S72°12'15"E 86.82'

[This page is left blank INTENTIONALLY
FOR PURPOSE OF RECORDATION STAMP]

After Recording Please Return to:

Travis County WC & ID 17
Attn: Linda Sandlin
3812 Eck Lane
Austin TX 78734

512-266-1111, ext. 15

FILED AND RECORDED

OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Jul 16, 2014 09:35 AM

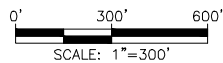
2014104864


BENAVIDESV: \$58.00

Dana DeBeauvoir, County Clerk

Travis County TEXAS

SERENE HILLS
(DEEDS)



 <p>Green Civil Design</p> <p>11130 Jollyville Rd., Ste. 101 Austin, Texas 78759 (512) 640-6590</p> <hr/> <p><i>Engineering & Consulting</i></p> <hr/> <p>Texas Registered Engineering Firm F-17563</p>	<p>TRAVIS COUNTY WATER WCID NO. 17 FLINTROCK WWTP</p>
	<p>ATTACHMENT B EFFLUENT DISPOSAL EASEMENTS & DEEDS SERENE HILLS OWNERSHIP EXHIBIT</p>



NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

Special Warranty Deed
(Correction Deed)

Effective Date: June 22, 2010

Grantor: Serene Hills Ltd., a Texas limited partnership

Grantor's Mailing Address:

1004 Mopac Circle Suite 200
Austin, Travis County, Texas 78746

Grantee: Travis County Water Control and Improvement District No. 17, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code

Grantee's Mailing Address:

Attn: Debbie Gernes, General Manager
3812 Eck Lane
Austin, Travis County, Texas 78734

Consideration:

Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged.

Property (including any improvements):

40.776 acres of land located in Travis County, Texas and being more particularly described in Exhibit "A" attached hereto and incorporated herein by reference (the "Property")

Reservations from Conveyance:

None.

Exceptions to Conveyance and Warranty:

Validly existing easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded and validly existing instruments, other than conveyances of the surface fee

estate, that affect the Property, such as those certain items shown on Exhibit "B"; all taxes and assessments assessed against the Property for 2010 up to the Effective Date, have been paid by Grantor as of the Effective Date.

Conveyance:

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof when the claim is by, through, or under Grantor but not otherwise, except as to the Exceptions to Conveyance and Warranty.

Except as specifically set forth in this Deed, Grantor makes no covenant, representation or warranty as to the suitability of the Property for any purpose whatsoever or as to the physical condition of the Property or relating to its economic, legal, environmental, Property use or other condition or status or regarding any other matter or thing relating to the Property. Except as specifically set forth in this Deed, the Property is being conveyed "AS IS", "WHERE IS", "WITH ALL FAULTS" and "SUBJECT TO ALL DEFECTS." ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

When the context requires, singular nouns and pronouns include the plural.

This correction deed is made in substitution of the deed titled "Special Warranty Deed" (the "Corrected Deed") dated June 22, 2010 and recorded under Document No. 2010090161 of the Official Public Records of Travis County, Texas, to correct the following incorrect information: the legal descriptions of Tract I and Tract II contained errors. Other than the stated correction, this deed is intended to restate in all respects the Corrected Deed, and the effective date of this correction deed relates back to the effective date of the Corrected Deed.

[SIGNATURE APPEARS ON THE FOLLOWING PAGE]

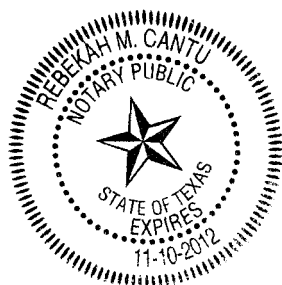
SERENE HILLS, LTD.,
A Texas limited partnership

By: ES-DH Serene, LLC
A Delaware limited liability company
Its general partner

By: [Signature]
Printed Name: Douglas Hunter
Title: fully authorized member

STATE OF TEXAS §
 §
COUNTY OF Travis §

This instrument was acknowledged before me on January 12, 2011, by Douglas Hunter, as Member of ES-DH Serene, LLC, a Delaware limited liability company, General Partner of Serene Hills, Ltd., a Texas limited partnership, on behalf of said entities.



[Signature: Rebekah M. Cantu]
Notary Public, State of Texas
My commission expires: _____

AFTER RECORDING RETURN TO:

McLean & Howard, LLP
901 S. Mopac Expy, Bldg 2, Suite 225
Austin, Texas 78746

Exhibit "A"

**THREE TRACTS OF LAND TOTALING 40.776 ACRES OF LAND
CONTAINING THE FOLLOWING DESCRIBED TRACTS I, II AND III**

Tract I

Recorders Memorandum-At the time of recordation this instrument was found to be inadequate for the best reproduction, because of illegibility, carbon or photocopy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

DESCRIPTION OF A 21.753 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN MAY 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645, TRAVIS COUNTY, TEXAS AND THE O. WOLFE SURVEY NUMBER 182, ABSTRACT 2282 BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 21.753 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 1/2 inch iron rod found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southeast corner of said 456.978 acre tract, also being the southwest corner of a 377.460 acre tract described in Document Number 2000133662, Official Public Records, Travis County, Texas;

THENCE with the north ROW line of said State Highway 71, same being the south line of said 456.978 acre tract the following two (2) courses and distances:

1. with the arc of a curve to the right a distance of 771.63 feet, through a central angle of 32°56'06", with a radius of 1342.37 feet, and whose chord bears N67°51'53"W, a distance of 761.05 feet to a TxDOT concrete monument found, and
2. N51°23'09"W a distance of 78.28 feet

THENCE leaving said common line and crossing said 456.978 acre tract the following eleven (11) courses and distances;

1. N38°36'51"E a distance of 300.84 feet to a calculated point,
2. N51°02'16"W a distance of 552.52 feet to a calculated point,
3. N38°58'29"E a distance of 346.71 feet to a calculated point,
4. N67°55'39"W a distance of 30.56 feet to a calculated point,
5. N62°19'58"W a distance of 61.03 feet to a calculated point,
6. N48°35'35"W a distance of 60.25 feet to a calculated point,
7. N49°31'18"W a distance of 103.68 feet to a calculated point,
8. N76°11'34"W a distance of 55.66 feet to a calculated point,
9. N89°20'58"W a distance of 77.98 feet to a calculated point,
10. N09°28'04"W a distance of 26.94 feet to a calculated point, and
11. N75°23'58"W a distance of 77.14 feet to a calculated point in the east ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, same being a west line of said 456.978 acre tract;

THENCE leaving said common line and crossing said 456.978 acre tract the following twelve (12) course and distances:

1. S86°22'25"E a distance of 157.40 feet to a calculated point,
2. S86°22'25"E a distance of 206.94 feet to a calculated point,
3. S17°52'43"W a distance of 156.83 feet to a calculated point,
4. S74°03'17"E a distance of 136.93 feet to a calculated point,

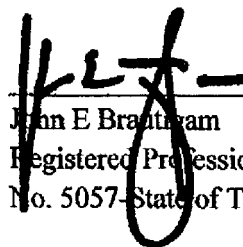
5. N15°15'18"E a distance of 119.14 feet to a calculated point,
6. N12°33'35"E a distance of 48.03 feet to a calculated point,
7. N54°27'47"E a distance of 342.98 feet to a calculated point,
8. S18°26'06"E a distance of 224.71 feet to a calculated point,
9. S13°00'41"E a distance of 226.97 feet to a calculated point,
10. S06°25'08"W a distance of 168.25 feet to a calculated point,
11. N90°00'00"E a distance of 146.29 feet to a calculated point, and
12. S89°53'17"E a distance of 180.70 feet to a calculated point in an east line of said 456.978 acre tract, same being a west line of said 377.460 acre tract;

THENCE with said common line, S00°06'43"W a distance of 999.00 feet to the **POINT OF BEGINNING** and containing 21.753 acres of land, more or less.

BEARING BASIS: Texas State Plane Coordinate System/NAD 83 (Texas HARN)

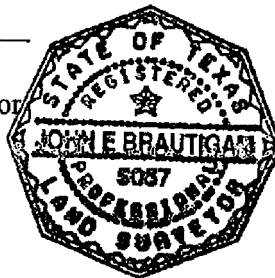
I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during November 2008, and is true and correct to the best of my knowledge and belief.

Date: 12-10-10



John E Brautigam

Registered Professional Land Surveyor
No. 5057-State of Texas



Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745

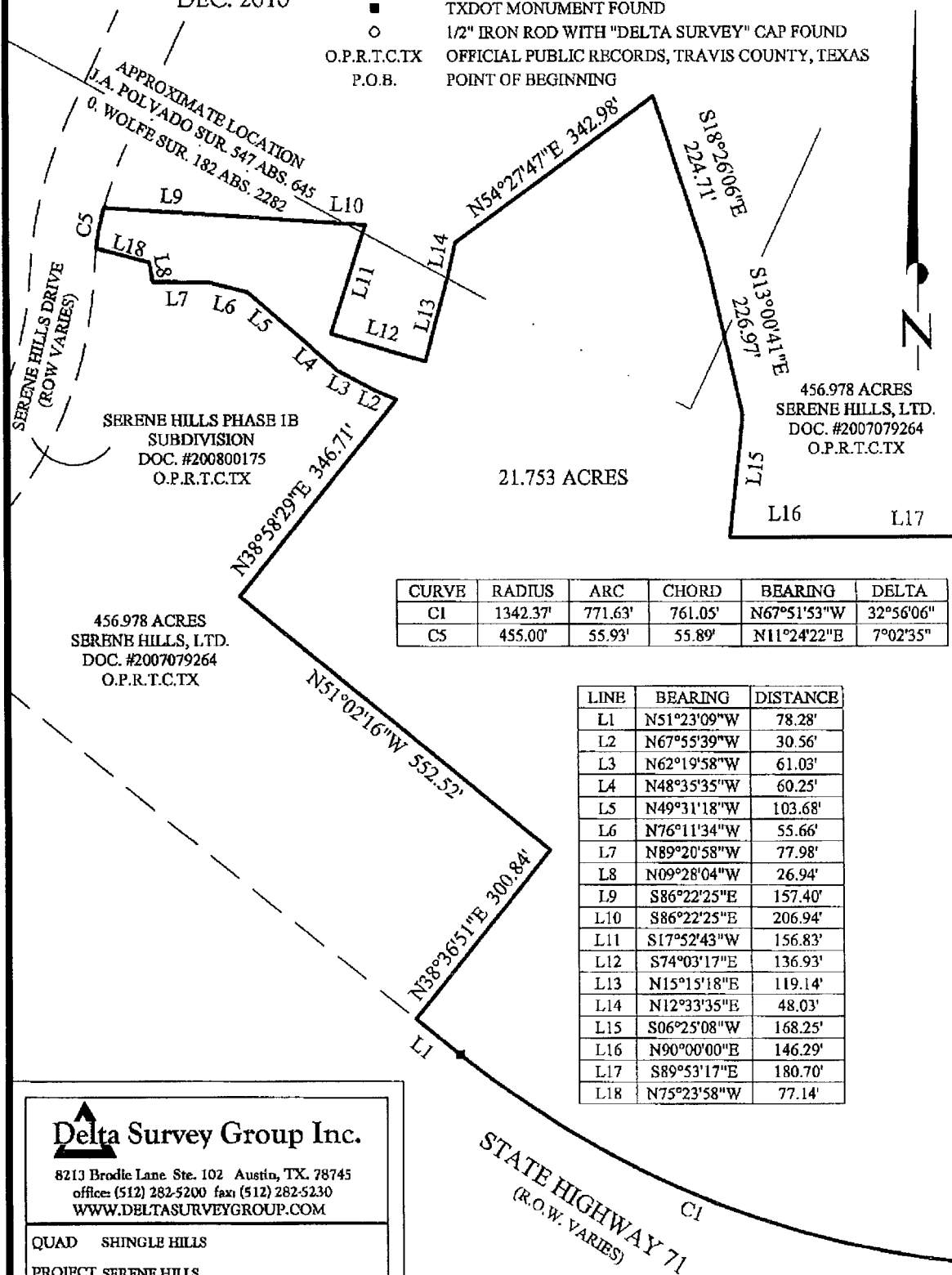
O. WOLFE SUR. 182, ABS. 2282
 J.A. POLVADO SUR. 547, ABS. 645
 TRAVIS COUNTY, TEXAS
 DEC. 2010



LEGEND

SCALE : 1" = 200'

- TXDOT MONUMENT FOUND
- 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
- O.P.R.T.C.TX OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
- P.O.B. POINT OF BEGINNING



CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
CI	1342.37'	771.63'	761.05'	N67°51'53"W	32°56'06"
C5	455.00'	55.93'	55.89'	N11°24'22"E	7°02'35"

LINE	BEARING	DISTANCE
L1	N51°23'09"W	78.28'
L2	N67°55'39"W	30.56'
L3	N62°19'58"W	61.03'
L4	N48°35'35"W	60.25'
L5	N49°31'18"W	103.68'
L6	N76°11'34"W	55.66'
L7	N89°20'58"W	77.98'
L8	N09°28'04"W	26.94'
L9	S86°22'25"E	157.40'
L10	S86°22'25"E	206.94'
L11	S17°52'43"W	156.83'
L12	S74°03'17"E	136.93'
L13	N15°15'18"E	119.14'
L14	N12°33'35"E	48.03'
L15	S06°25'08"W	168.25'
L16	N90°00'00"E	146.29'
L17	S89°53'17"E	180.70'
L18	N75°23'58"W	77.14'

LAWREN E. BRADFORD ET AL
 377.460 AC.
 DOC. NO. 2000133662
 O.P.R.T.C.TX

S00°06'43"W 999.00'

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
 offices: (512) 282-5200 fax: (512) 282-5230
 WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT SERENE HILLS

DWG. 21.756 ACRES

Tract II

Recorders Memorandum-At the time of recordation this instrument was found to be inadequate for the best reproduction, because of illegibility, carbon or photocopy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

DESCRIPTION OF A 15.684 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN MAY 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645 AND THE O. WOLFE SURVEY NUMBER 182, ABSTRACT 2282, TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 15.684 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 1/2 inch iron rod with "Delta Survey" cap found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southwest corner of the west ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, also being an east corner of said 456.978 acre tract;

THENCE with the west right-of-way line of said Serene Hills Drive, same being east lines of said 456.978 acre tract the following four (4) courses and distances:

1. N38°36'59"E a distance of 200.00 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 284.15 feet, through a central angle of 35°46'55", with a radius of 455.00 feet, and whose chord bears N20°43'31"E, a distance of 279.56 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
3. with the arc of a curve to the right a distance of 219.93 feet, through a central angle of 23°07'15", with a radius of 545.00 feet, and whose chord bears N14°23'40"E, a distance of 218.44 feet to a 1/2 inch iron rod with "Delta Survey" cap found, and
4. N25°57'18"E a distance of 260.82 feet to a calculated point for the **POINT OF BEGINNING**;

THENCE leaving said common line and crossing said 456.978 acre tract the following nineteen (19) courses and distances:

1. N63°01'14"W a distance of 532.08 feet to a calculated point,
2. S57°36'24"W a distance of 273.04 feet to a calculated point,
3. S57°36'24"W a distance of 17.97 feet to a calculated point,
4. S63°14'03"W a distance of 65.29 feet to a calculated point,
5. N79°00'30"W a distance of 169.04 feet to a calculated point,
6. N23°05'22"W a distance of 183.25 feet to a calculated point,
7. S66°08'37"W a distance of 89.27 feet to a calculated point,
8. S84°28'02"W a distance of 127.87 feet to a calculated point,
9. N51°12'09"W a distance of 425.84 feet to a calculated point,
10. N68°57'45"E a distance of 44.65 feet to a calculated point,
11. N66°22'14"E a distance of 246.99 feet to a calculated point,
12. N62°06'39"E a distance of 165.24 feet to a calculated point,
13. N84°48'20"E a distance of 461.86 feet to a calculated point,
14. S18°51'11"E a distance of 15.07 feet to a calculated point,

15. N75°57'48"E a distance of 171.60 feet to a calculated point,
16. S50°29'06"E a distance of 481.56 feet to a calculated point,
17. S63°00'12"E a distance of 66.76 feet to a calculated point,
18. S63°01'14"E a distance of 233.03 feet to a calculated point, and
19. S64°02'42"E a distance of 14.46 feet to a calculated point in the west ROW line of said Serene Hills Drive, same being an east line of said 456.978 acre tract;

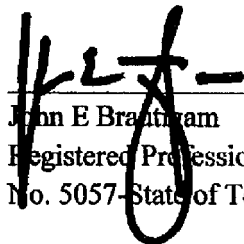
THENCE with said common line the following five (5) courses and distances:

1. S25°57'18"W a distance of 104.83 feet to a 1/2 inch iron rod with "Delta Survey" cap found
2. with the arc of a curve to the right a distance of 39.72 feet, through a central angle of 91°01'28", with a radius of 25.00 feet, and whose chord bears S71°28'02"W, a distance of 35.67 feet to a 1/2 inch iron rod with "Delta Survey" cap found
3. S24°55'52"W a distance of 50.03 feet to a 1/2 inch iron rod with "Delta Survey" cap found
4. with the arc of a curve to the right a distance of 38.82 feet, through a central angle of 88°58'32", with a radius of 25.00 feet, and whose chord bears S18°31'58"E, a distance of 35.04 feet to a 1/2 inch iron rod with "Delta Survey" cap found, and
5. S25°57'18"W a distance of 115.47 feet to the **POINT OF BEGINNING** and containing 15.684 acres of land, more or less

BEARING BASIS: Texas State Plane Coordinate System/NAD 83 (Texas HARN)

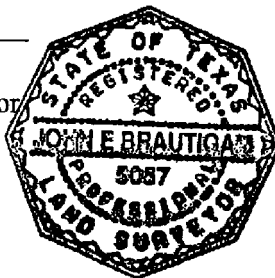
I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during November 2008, and is true and correct to the best of my knowledge and belief.

Date: 05-03-10



John E Brautigam

Registered Professional Land Surveyor
No. 5057-State of Texas



Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745

15.684 ACRES

456,978 ACRES
SERENE HILLS, LTD.
DOC. #200709264
O.P.R.I.C.T.X

O. WOLFE SUR. 182, ABS. 2282
J.A. POLVADO SUR. 547, ABS. 645
TRAVIS COUNTY, TEXAS
MAY 2010

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C1	455.00'	284.15'	279.56'	N20°43'31"E	35°46'55"
C2	545.00'	219.93'	218.44'	N14°23'40"E	23°07'15"
C3	25.00'	39.72'	35.67'	S71°28'02"W	91°01'28"
C4	25.00'	38.82'	35.04'	S18°31'58"E	88°58'32"

LEGEND

- O 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
- O.P.R.I.C.T.X OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT



SCALE : 1" = 200'

LINE	BEARING	DISTANCE
L1	N38°36'59"E	200.00'
L2	N25°57'18"E	260.82'
L3	S57°36'24"W	273.04'
L4	S57°36'24"W	17.97'
L5	S63°14'03"W	65.29'
L6	N79°00'30"W	169.04'
L7	N23°05'22"W	183.25'
L8	S66°08'37"W	89.27'
L9	S84°28'02"W	127.87'
L10	N68°57'45"E	44.65'
L11	N66°22'14"E	246.99'
L12	N62°06'39"E	165.24'
L13	S18°51'11"E	15.07'
L14	N75°57'48"E	171.60'
L15	S63°00'12"E	66.76'
L16	S63°01'14"E	233.03'
L17	S64°02'42"E	14.46'
L18	S25°57'18"W	104.83'
L19	S24°55'52"W	50.03'
L20	S25°57'18"W	115.47'

APPROXIMATE LOCATION
O. WOLFE SUR. 182, ABS. 2282
J.A. POLVADO SUR. 547, ABS. 645

456,978 ACRES
SERENE HILLS, LTD.
DOC. #200709264
O.P.R.I.C.T.X

SERENE HILLS PHASE 1B
SUBDIVISION
DOC. #200800175
O.P.R.I.C.T.X

456,978 ACRES
SERENE HILLS, LTD.
DOC. #200709264
O.P.R.I.C.T.X

STATE HIGHWAY 71
(R.O.W. VARIES)

SERENE HILLS DRIVE
(ROW VARIES)

Delta Survey Group Inc.
8213 Brodie Lane Ste. 102 Austin, TX 78745
office (512) 282-5200 fax (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SEDNGLE HILLS
PROJECT SERENE HILLS
DWG. 15.684 ACRES

Tract III

Recorders Memorandum-At the time of recordation this instrument was found to be inadequate for the best reproduction, because of illegibility, carbon or photocopy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

DESCRIPTION OF A 3.339 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN MAY 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645, TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 3.339 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 1/2 inch iron rod with "Delta Survey" cap found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southeast corner of the east ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, also being a west corner of said 456.978 acre tract;

THENCE with the east right-of-way line of said Serene Hills Drive, same being west lines of said 456.978 acre tract the following four (4) courses and distances:

1. N38°36'59"E a distance of 200.00 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 340.36 feet, through a central angle of 35°46'55", with a radius of 545.00 feet, and whose chord bears N20°43'31"E, a distance of 334.86 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
3. with the arc of a curve to the right a distance of 183.61 feet, through a central angle of 23°07'15", with a radius of 455.00 feet, and whose chord bears N14°23'40"E, a distance of 182.36 feet to a 1/2 inch iron rod with "Delta Survey" cap found, and
4. N25°57'18"E a distance of 534.19 feet to a calculated point for the **POINT OF BEGINNING**,

THENCE continuing with said common line the following four (4) courses and distances:

1. N25°57'18"E a distance of 163.53 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 275.55 feet, through a central angle of 12°27'04", with a radius of 1268.00 feet, and whose chord bears N19°43'46"E, a distance of 275.01 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
3. S76°29'46"E a distance of 4.00 feet to a 1/2 inch iron rod with "Delta Survey" cap found, and
4. with the arc of a curve to the left a distance of 445.28 feet, through a central angle of 20°03'25", with a radius of 1272.00 feet, and whose chord bears N03°28'31"E, a distance of 443.01 feet to a 1/2 inch iron rod with "Delta Survey" cap found,

THENCE leaving said common line and crossing said 456.978 acre tract the following five (5) courses and distances:

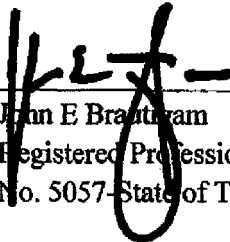
1. N89°59'50"E a distance of 150.88 feet to a calculated point,

2. with the arc of a curve to the right a distance of 789.59 feet, through a central angle of $31^{\circ}48'52''$, with a radius of 1422.00 feet, and whose chord bears $S10^{\circ}02'52''W$, a distance of 779.48 feet to a calculated point,
3. $S25^{\circ}57'18''W$ a distance of 270.58 feet to a calculated point,
4. $N12^{\circ}51'57''W$ a distance of 91.59 feet to a calculated point,
5. $N43^{\circ}45'52''W$ a distance of 102.97 feet to the **POINT OF BEGINNING** and containing 3.339 acres of land, more or less.

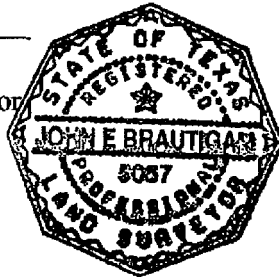
BEARING BASIS: Texas State Plane Coordinate System/NAD 83 (Texas HARN)

I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during November 2008, and is true and correct to the best of my knowledge and belief.

Date: 05-03-10



John E Brautigam
Registered Professional Land Surveyor
No. 5057-State of Texas



Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745

J.A. POLVADO SUR. 547, ABS. 645
 TRAVIS COUNTY, TEXAS
 MAY 2010

0' 200' 400' 600'



SCALE : 1" = 200'

SERENE HILLS PHASE 1B
 SUBDIVISION
 DOC. #200800175
 O.P.R.T.C.TX

LEGEND

○ 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
 O.P.R.T.C.TX OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
 P.O.B. POINT OF BEGINNING
 P.O.C. POINT OF COMMENCEMENT

456.978 ACRES
 SERENE HILLS, LTD.
 DOC. #2007079264
 O.P.R.T.C.TX

456.978 ACRES
 SERENE HILLS, LTD.
 DOC. #2007079264
 O.P.R.T.C.TX

LINE	BEARING	DISTANCE
L1	N38°36'59"E	200.00'
L2	N25°57'18"E	534.15'
L3	N25°57'18"E	163.53'
L4	S76°29'46"E	4.00'
L5	N89°59'50"E	150.88'
L6	S25°57'18"W	270.58'
L7	N12°51'57"W	91.59'
L8	N43°45'52"W	102.97'

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C1	545.00'	340.36'	334.86'	N20°43'31"E	35°46'55"
C2	455.00'	183.61'	182.36'	N14°23'40"E	23°07'15"
C3	1268.00'	275.55'	275.01'	N19°43'46"E	12°27'04"
C4	1272.00'	445.28'	443.01'	N03°28'31"E	20°03'25"
C5	1422.00'	789.59'	779.48'	S10°02'52"W	31°48'52"

SERENE HILLS DRIVE
 (ROW VARIES)

STATE HIGHWAY 71
 (R.O.W. VARIES)

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
 office: (512) 282-5200 fax: (512) 282-5230
 WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT SERENE HILLS

DWG. 3.339 ACRES

© 2008 Delta Survey Group, Inc.

Exhibit "B"

Permitted Exceptions

1. Memorandum of First Amendment to Utility Development and Conveyance Agreement recorded in Document No. 2010086539 of the Official Public Records of Travis County, Texas.
2. Declaration of Restrictive Covenants for water conservation measures recorded in Document No. 2010090153 of the Official Public Records of Travis County, Texas.
3. Declaration of Restrictive Covenants (HEB Covenant) recorded in Document No. 2010090156 of the Official Public Records of Travis County, Texas.
4. Drainage Easement Agreement (HEB) recorded under Document No. 2010090157 of the Official Public Records of Travis County, Texas.
5. Access Easement Agreement (HEB) recorded under Document No. 2010090158 of the Official Public Records of Travis County, Texas.
6. Document No. 2007063335, as refiled under Document No. 2007079263 of the Official Public Records of Travis County, Texas.
7. All oil, gas, and other minerals, together with all rights related thereto, express or implied, reserved in instrument recorded in Volume 911, Page 552 of the Deed Records of Travis County, Texas.
8. Terms, conditions and stipulations set out in that certain Utility Development and Conveyance Agreement, dated January 17, 2008, as evidenced by Memorandum of Agreement, recorded under Document No. 2008038360 of the Official Public Records of Travis County, Texas.
9. Permanent right of way and easement granted to Travis County Water Control & Improvement District No. 17, by instrument dated May 22, 2008, recorded under Document No. 2008087092 of the Official Public Records of Travis County, Texas.
10. Public utility, drainage and access easement granted to Water Control & Improvement District No. 17, by instrument dated May 28, 2008, recorded under Document No. 2008090125 of the Official Public Records of Travis County, Texas.
11. Water line easement granted to Travis County Water Control & Improvement District No. 17, by instrument dated May 28, 2008, recorded under Document No. 200809127 of the Official Public Records of Travis County, Texas.
12. Wastewater Easement Agreement (Serene to HEB I) recorded under Document No. 2010090159 of the Official Public Records of Travis County, Texas.

Recorders Memorandum-At the time of recordation this instrument was found to be inadequate for the best reproduction, because of illegibility, carbon or photocopy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Jan 13, 2011 02:48 PM

2011006950

HOLMC: \$84.00

Dana DeBeauvoir, County Clerk
Travis County TEXAS

11-GF# 201000/43 JPB
RETURN TO: HERITAGE TITLE
401 CONGRESS, SUITE 1500
AUSTIN, TEXAS 78701



TRV 2011084172
27 PGS

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

Special Warranty Deed

Effective Date: June 9, 2011

Handwritten signature/initials

Grantor: Serene Hills Ltd., a Texas limited partnership

Grantor's Mailing Address:

ES-DH Serene, LLC
c/o Hunter Interests
1315 Falcon Ledge
Austin, Texas 78746

Grantee: Travis County Water Control and Improvement District No. 17, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code

Grantee's Mailing Address:

Attn: Debbie Gernes, General Manager
3812 Eck Lane
Austin, Travis County, Texas 78734

Consideration:

Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged.

Property (including any improvements):

97.159 acres of land located in Travis County, Texas and being more particularly described in **Exhibit "A"** attached hereto and incorporated herein by reference (the "Property")

Reservations from Conveyance:

None.

Exceptions to Conveyance and Warranty:

Validly existing easements, rights-of-way, and prescriptive rights, whether of record or not:

all presently recorded and validly existing instruments, other than conveyances of the surface fee estate, that affect the Property, such as those certain items shown on **Exhibit "B"**; all taxes and assessments assessed against the Property for 2011 up to the Effective Date, have been paid by Grantor as of the Effective Date.

Conveyance:

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof when the claim is by, through, or under Grantor but not otherwise, except as to the Exceptions to Conveyance and Warranty.

Except as specifically set forth in this Deed, Grantor makes no covenant, representation or warranty as to the suitability of the Property for any purpose whatsoever or as to the physical condition of the Property or relating to its economic, legal, environmental, Property use or other condition or status or regarding any other matter or thing relating to the Property. Except as specifically set forth in this Deed, the Property is being conveyed "AS IS", "WHERE IS", "WITH ALL FAULTS" and "SUBJECT TO ALL DEFECTS." ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

When the context requires, singular nouns and pronouns include the plural.

[SIGNATURE APPEARS ON THE FOLLOWING PAGE]

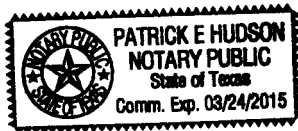
SERENE HILLS, LTD.,
A Texas limited partnership

By: ES-DH Serene, LLC
A Texas limited liability company
Its general partner

By: ES-DH Serene, LLC
Name: Douglas Hunter
Title: member

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on June 3, 2011, by Douglas Hunter, as member of ES-DH Serene, LLC, a Texas limited liability company, General Partner of Serene Hills, Ltd., a Texas limited partnership, on behalf of said entities.



Patrick E. Hudson
Notary Public, State of Texas
My commission expires: 3/24/15

AFTER RECORDING RETURN TO:

~~McLean & Howard, LLP
901 S. Mopac Expy, Bldg 2, Suite 225
Austin, Texas 78746~~

Exhibit "A"
Legal Description

A 97.159 acre tract of land located in Travis County, Texas and more particularly described in the attached metes and bounds attached hereto.

DESCRIPTION OF A 2.148 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN AUGUST 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645 AND THE O. WOLFE SURVEY 182, ABSTRACT 2282 TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 2.148 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 1/2 inch iron rod with "Delta Survey" cap found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southwest corner of the west ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, also being an east corner of said 456.978 acre tract;

THENCE with the west right-of-way line of said Serene Hills Drive, same being east lines of said 456.978 acre tract the following four (4) courses and distances:

1. N38°36'59"E a distance of 200.00 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 284.15 feet, through a central angle of 35°46'55", with a radius of 455.00 feet, and whose chord bears N20°43'31"E, a distance of 279.56 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
3. with the arc of a curve to the right a distance of 219.93 feet, through a central angle of 23°07'15", with a radius of 545.00 feet, and whose chord bears N14°23'40"E, a distance of 218.44 feet to a 1/2 inch iron rod found, and
4. N25°57'18"E a distance of 235.81 feet to a calculated point for the **POINT OF BEGINNING**;

THENCE leaving said common line and crossing said 456.978 acre tract the following eleven (11) courses and distances:

1. N63°01'14"W a distance of 484.47 feet to a calculated point,
2. S63°14'03"W a distance of 554.44 feet to a calculated point,
3. N51°33'39"W a distance of 829.70 feet to a calculated point,
4. N68°57'45"E a distance of 32.99 feet to a calculated point,
5. S51°12'09"E a distance of 425.84 feet to a calculated point,
6. N84°28'02"E a distance of 127.87 feet to a calculated point,
7. N66°08'37"E a distance of 89.27 feet to a calculated point,
8. S23°05'22"E a distance of 183.25 feet to a calculated point,
9. S79°00'30"E a distance of 169.04 feet to a calculated point,
10. N63°14'03"E a distance of 65.29 feet to a calculated point,
11. N57°36'24"E a distance of 291.01 feet to a calculated point, and
12. S63°01'14"E a distance of 532.08 feet to a calculated point in an east line of said 456.978 acre tract, same being the west ROW line of said Serene Hills Drive:

Serene Hills
2.148 Acres

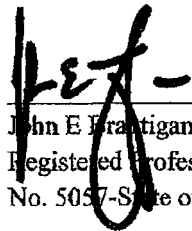
Page 2 of 3

THENCE with said common line, S25°57'18"W a distance of 25.00 feet to the **POINT OF BEGINNING** and containing 2.148 acres of land, more or less.

BEARING BASIS: State Plane Coordinate System, Texas Central Zone, NAD 83/HARN

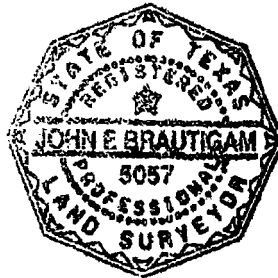
I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during August 2010, and is true and correct to the best of my knowledge and belief.

Date: 08-09-10

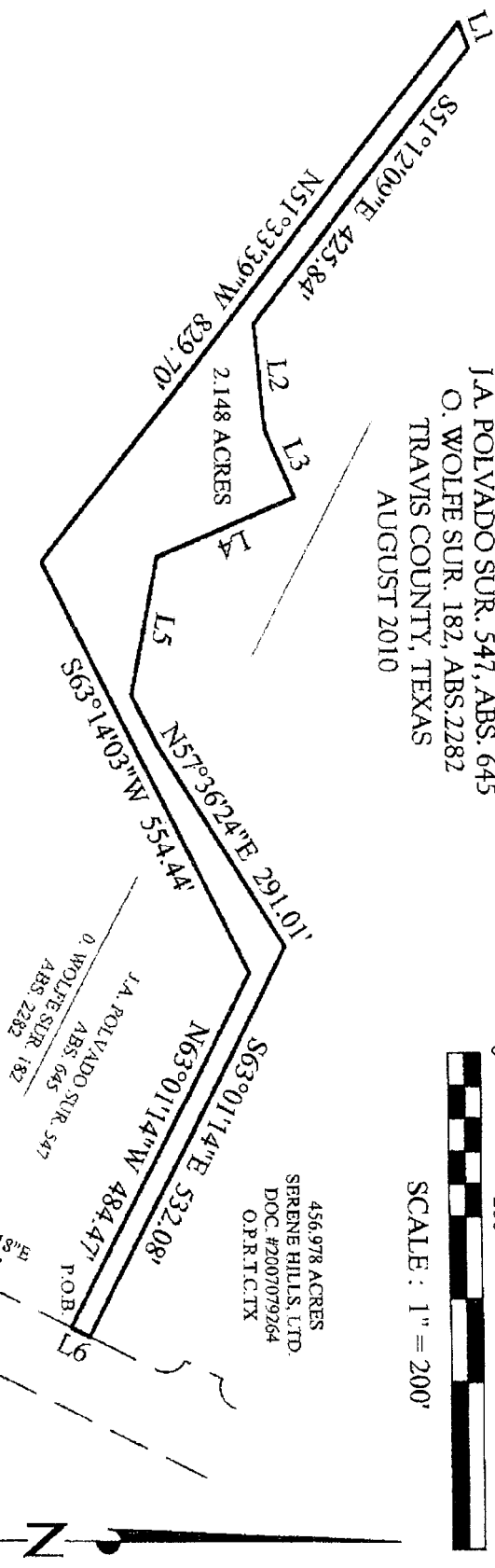
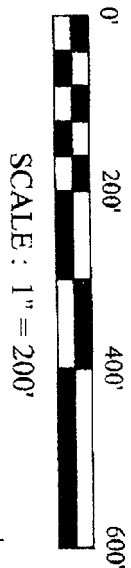


John E Brautigam
Registered Professional Land Surveyor
No. 5057-State of Texas

Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745



J.A. POLVADO SUR. 547, ABS. 645
O. WOLFE SUR. 182, ABS. 2282
TRAVIS COUNTY, TEXAS
AUGUST 2010



LINE	BEARING	DISTANCE
L1	N68°57'45"E	32.99'
L2	N84°28'02"E	127.87'
L3	N66°08'37"E	89.27'
L4	S23°05'22"E	183.25'
L5	S79°00'30"E	169.04'
L6	S25°57'18"W	25.00'

LEGEND

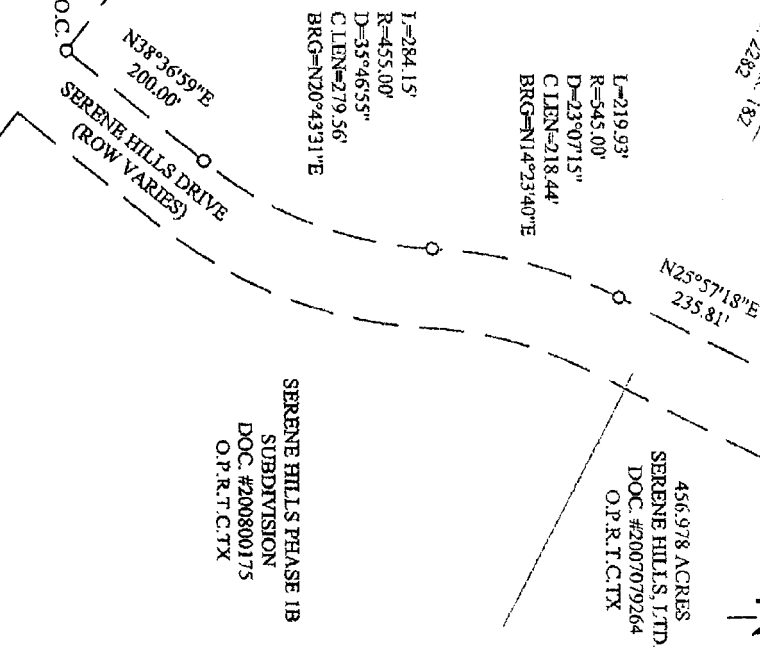
- O 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
- O.P.R.T.C.T.X. OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT

Delta Survey Group Inc.
8213 Brodie Lane Ste. 102 Austin, TX. 78745
Office: (512) 282-5300 Fax: (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS
PROJECT SERENE HILLS
DWG. 2.148 ACRE

* SKETCH TO ACCOMPANY FIELD NOTES *

-ALL POINTS CALCULATED UNLESS OTHERWISE NOTED-



TRACT 2

Serene Hills
3.273 Acres

Page 1 of 3

DESCRIPTION OF A 3.273 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN JUNE 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645 AND THE O. WOLFE SURVEY 182, ABSTRACT 2282 TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 3.273 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 1/2 inch iron rod with "Delta Survey" cap found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southeast corner of the east ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, also being a west corner of said 456.978 acre tract;

THENCE with the east right-of-way line of said Serene Hills Drive, same being west lines of said 456.978 acre tract the following three (3) courses and distances:

1. N38°36'59"E a distance of 200.00 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 340.36 feet, through a central angle of 35°46'55", with a radius of 545.00 feet, and whose chord bears N20°43'31"E, a distance of 334.86 feet to a 1/2 inch iron rod with "Delta Survey" cap found, and
3. with the arc of a curve to the right a distance of 96.04 feet, through a central angle of 12°05'36", with a radius of 455.00 feet, and whose chord bears N08°52'51"E, a distance of 95.86 feet to a calculated point for the **POINT OF BEGINNING**;

THENCE continuing with said common line the following two (2) courses and distances:

1. with the arc of a curve to the right a distance of 87.57 feet, through a central angle of 11°01'39", with a radius of 455.00 feet, and whose chord bears N20°26'28"E, a distance of 87.44 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found, and
2. N25°57'18"E a distance of 534.15 feet to a calculated point;

THENCE leaving said common line and crossing said 456.978 acre tract the following nine (9) courses and distances:

1. S43°45'52"E a distance of 102.97 feet to a calculated point,
2. S12°51'57"E a distance of 161.95 feet to a calculated point,
3. S16°00'37"W a distance of 111.11 feet to a calculated point,
4. S66°13'42"E a distance of 182.27 feet to a calculated point,
5. S54°27'44"W a distance of 129.51 feet to a calculated point,
6. S52°52'57"W a distance of 4.14 feet to a calculated point,
7. S22°45'21"W a distance of 54.06 feet to a calculated point,
8. S17°52'43"W a distance of 47.40 feet to a calculated point, and

Serene Hills
3.273 Acres

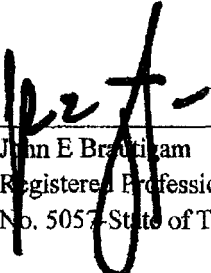
Page 2 of 3

9. N86°22'25"W a distance of 364.34 feet to the **POINT OF BEGINNING** and containing 3.273 acres of land, more or less.

BEARING BASIS: State Plane Coordinate System, Texas Central Zone, NAD 83/HARN

I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during August 2010, and is true and correct to the best of my knowledge and belief.

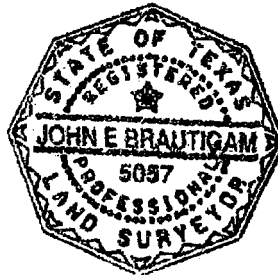
Date: 08-09-10



John E Brautigam

Registered Professional Land Surveyor
No. 5057 State of Texas

Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745



J.A. POLVADO SUR. 547, ABS. 645
 O. WOLFE SUR. 182, ABS. 2282
 TRAVIS COUNTY, TEXAS
 AUGUST 2010

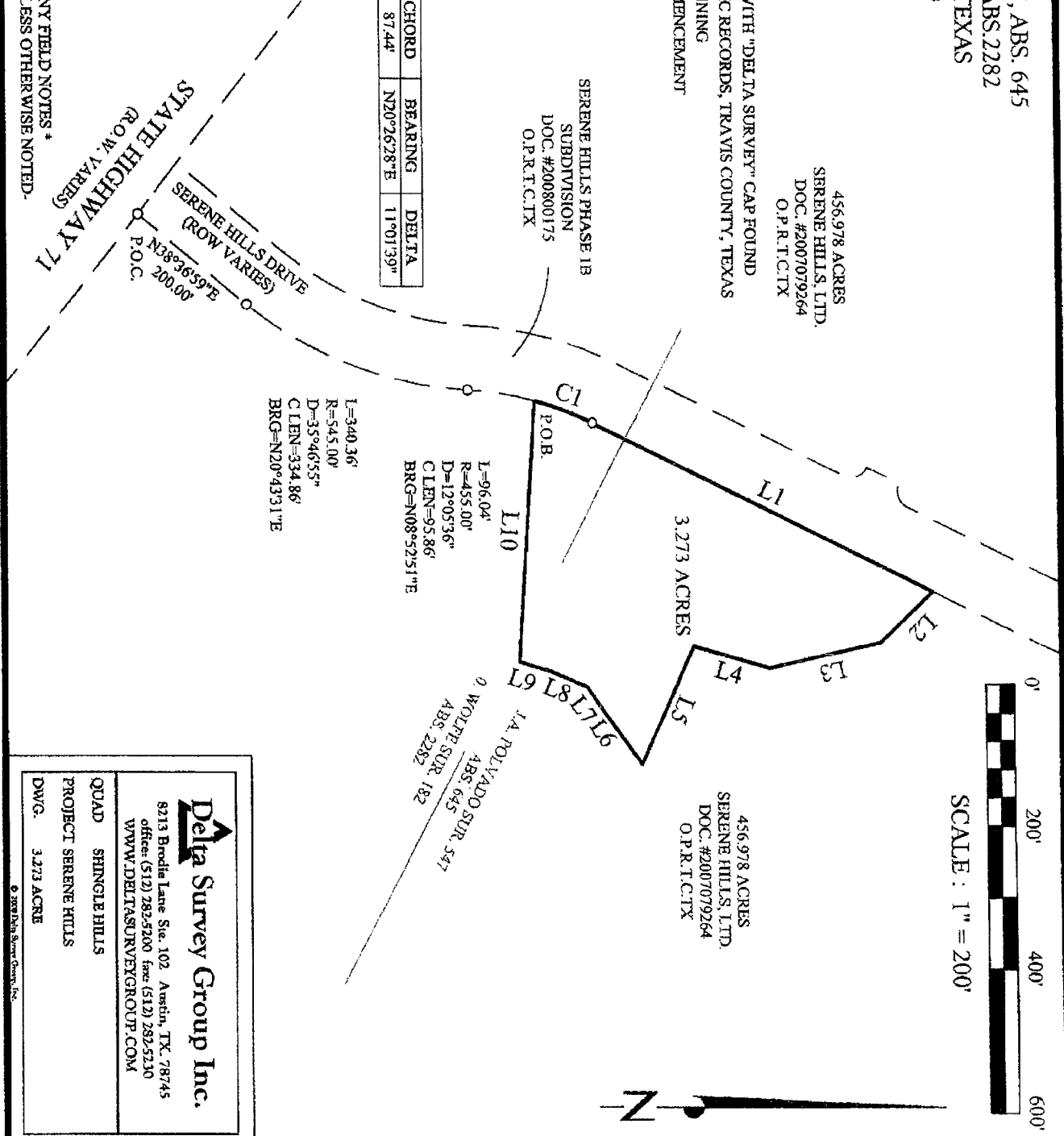
LEGEND

- O 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
- O.P.R.T.C.TX OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C1	455.00'	87.57'	87.44'	N20°26'28"E	11°01'39"

LINE	BEARING	DISTANCE
L1	N25°57'18"E	534.15'
L2	S43°45'52"E	102.97'
L3	S12°51'57"E	161.95'
L4	S16°00'37"W	111.11'
L5	S66°13'42"E	182.27'
L6	S54°27'44"W	129.51'
L7	S52°52'57"W	4.14'
L8	S22°45'21"W	54.06'
L9	S17°52'43"W	47.40'
L10	N86°22'25"W	364.34'

* SKETCH TO ACCOMPANY FIELD NOTES *
 -ALL POINTS CALCULATED UNLESS OTHERWISE NOTED-



Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
 office: (512) 283.5200 fax: (512) 283.5230
 WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS
 PROJECT SERENE HILLS
 DWG. 3.273 ACRE

© 2009 Delta Survey Group, Inc.

TRACT 3

Serene Hills
4.831 acre

Page 1 of 2
irrigation esmt

DESCRIPTION OF A 4.831 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., NOVEMBER 2007 LOCATED IN THE W.A. BARLOW SURVEY NUMBER 86, ABSTRACT 2679 AND THE O. WOLFE SURVEY NUMBER 182, ABSTRACT 2282 TRAVIS COUNTY, TEXAS, AND BEING A PORTION OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 2007079264, OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 4.831 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a concrete highway monument in the north right-of-way (ROW) line of State Highway 71, same being the south line of said 456.978 acre tract, same being a ROW transition point (180 feet to 200 feet) for the **POINT OF BEGINNING**;

THENCE with said common line the following two (2) courses and distances:

1. N45°39'21"W a distance of 100.16 feet to a concrete highway monument, and
2. N51°23'09"W a distance of 536.79 feet to a calculated point from which a concrete highway monument bears N51°23'09"W a distance of 926.17 feet;

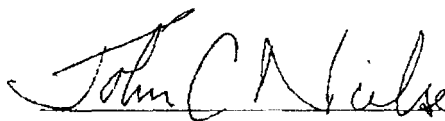
THENCE leaving said common line and crossing said 456.978 acre tract the following four (4) courses and distances:

1. N08°32'05"E a distance of 82.18 feet to a calculated point,
2. N55°11'17"E a distance of 197.54 feet to a calculated point,
3. S48°46'42"E a distance of 778.61 feet to a calculated point, and
4. S15°37'30"W a distance of 255.30 feet to a calculated point in the north ROW line of said State Highway 71, same being the south line of said 456.978 acre tract;

THENCE with said common line N51°23'09"W a distance of 256.22 feet to the **POINT OF BEGINNING** and containing 4.831 acres of land more or less.

BEARING BASIS state plane coordinates, NAD83/HARN, Texas Central Zone

I, John C. Nielsen hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during November 2007, and is true and correct to the best of my knowledge and belief.


John C. Nielsen
Registered Professional Land Surveyor
No. 5541-State of Texas



11-15-2007
Date

Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745

O. WOLFE SURVEY NO. 182 ABS. 2282
 W.A. BARLOW SURVEY NO. 86 ABS. 2679
 TRAVIS COUNTY, TEXAS
 NOVEMBER 2007

SCALE : 1" = 200'

SERENE HILLS, LTD.
 456.978 AC.
 DOC. No. 2007079264
 O.P.R.T.C.TX.



LINE	BEARING	DISTANCE
L1	N45°39'21"W	100.16'
L2	N08°32'05"E	82.18'

LEGEND
 ■ CONCRETE HIGHWAY MONUMENT
 P.O.B. POINT OF BEGINNING
 O.P.R.T.C.TX. OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS

* SKETCH TO ACCOMPANY FIELD NOTES *
 ALL POINTS ARE CALCULATED POINTS UNLESS OTHERWISE NOTED

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
 office: (512) 282-5200 fax: (512) 282-5230
 WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT HEARD TRACT

DWG. 4.831 ACRE ESMT

© 2007 Delta Survey Group, Inc.

TRACT 4

Serene Hills
7.720 Acres

Page 1 of 3

DESCRIPTION OF A 7.720 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN AUGUST 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645 AND THE O. WOLFE SURVEY 182, ABSTRACT 2282 TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 7.720 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 1/2 inch iron rod with "Delta Survey" cap found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southwest corner of the west ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, also being an east corner of said 456.978 acre tract;

THENCE with the west right-of-way line of said Serene Hills Drive, same being east lines of said 456.978 acre tract the following eight (8) courses and distances:

1. N38°36'59"E a distance of 200.00 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 284.15 feet, through a central angle of 35°46'55", with a radius of 455.00 feet, and whose chord bears N20°43'31"E, a distance of 279.56 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
3. with the arc of a curve to the right a distance of 219.93 feet, through a central angle of 23°07'15", with a radius of 545.00 feet, and whose chord bears N14°23'40"E, a distance of 218.44 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
4. N25°57'18"E a distance of 351.28 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
5. with the arc of a curve to the left a distance of 38.82 feet, through a central angle of 88°58'32", with a radius of 25.00 feet, and whose chord bears N18°31'58"W, a distance of 35.04 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
6. N24°55'52"E a distance of 50.03 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
7. with the arc of a curve to the left a distance of 39.72 feet, through a central angle of 91°01'28", with a radius of 25.00 feet, and whose chord bears N71°28'02"E, a distance of 35.67 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found, and
8. N25°57'18"E a distance of 129.83 feet to the **POINT OF BEGINNING**;

THENCE leaving said common line and crossing said 456.978 acre tract the following ten (10) courses and distances:

1. N64°02'42"W a distance of 14.46 feet to a calculated point,
2. N63°01'14"W a distance of 233.03 feet to a calculated point,
3. N63°00'12"W a distance of 66.76 feet to a calculated point,
4. N50°29'06"W a distance of 481.56 feet to a calculated point,

5. N75°57'48"E a distance of 41.73 feet to a calculated point,
6. with the arc of a curve to the left a distance of 74.41 feet, through a central angle of 42°34'59", with a radius of 100.12 feet, and whose chord bears N54°56'15"E, a distance of 72.71 feet to a calculated point,
7. N33°41'24"E a distance of 151.56 feet to a calculated point,
8. N71°33'54"E a distance of 112.59 feet to a calculated point,
9. N89°59'52"E a distance of 448.06 feet to a calculated point, and
10. with the arc of a curve to the left a distance of 18.47 feet, through a central angle of 10°34'59", with a radius of 100.00 feet, and whose chord bears N84°42'23"E, a distance of 18.44 feet, to a calculated point, in the ROW line of said Serene Hills Drive, same being an east line of said 456.978 acre tract;

THENCE with said common line the following four (4) courses and distance:

1. with the arc of a curve to the right a distance of 91.52 feet, through a central angle of 5°23'32", with a radius of 972.50 feet, and whose chord bears S06°59'21"E, a distance of 91.49 feet, to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
2. N85°26'00"E a distance of 13.50 feet to a 1/2 inch iron rod with plastic "Delta Survey" cap found,
3. with the arc of a curve to the right a distance of 520.60 feet, through a central angle of 30°15'06", with a radius of 986.00 feet, and whose chord bears S10°49'45"W, a distance of 514.57 feet, to a 1/2 inch iron rod with plastic "Delta Survey" cap found, and
4. S25°57'18"W a distance of 76.67 feet to the **POINT OF BEGINNING** and containing 7.720 acres of land, more or less.

BEARING BASIS: State Plane Coordinate System, Texas Central Zone, NAD 83/HARN

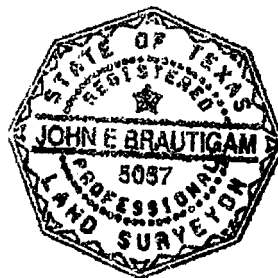
I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during August 2010, and is true and correct to the best of my knowledge and belief.

Date: 08-09-10



John E Brautigam
Registered Professional Land Surveyor
No. 5057 - State of Texas

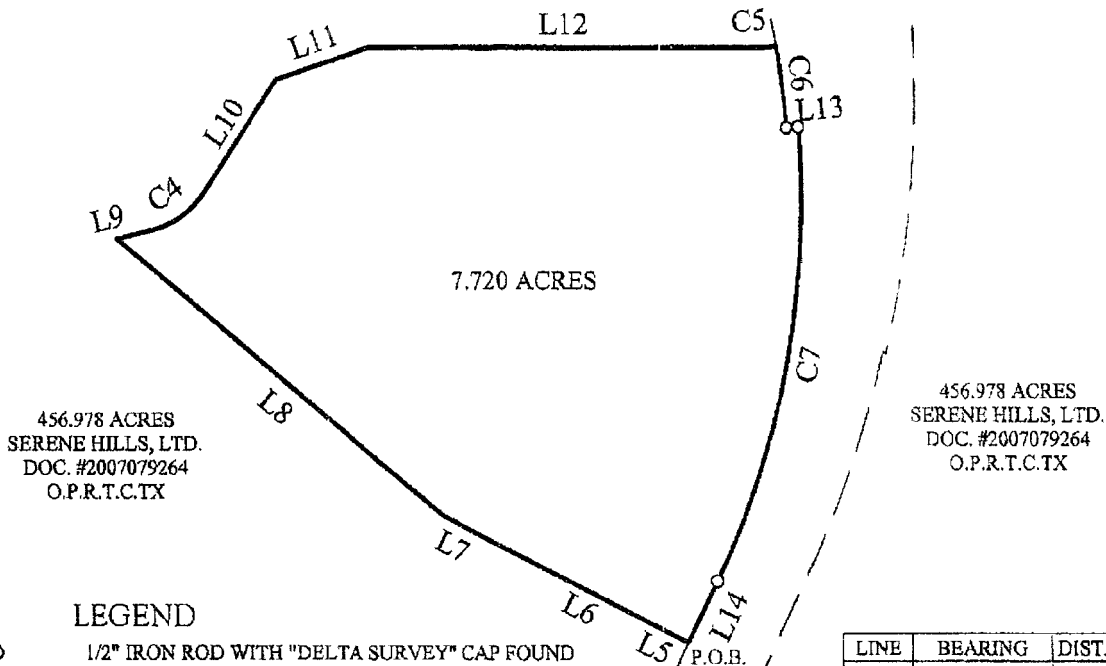
Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745



J.A. POLVADO SUR. 547, ABS. 645
TRAVIS COUNTY, TEXAS
JUNE 2010



SCALE: 1" = 200'



456.978 ACRES
SERENE HILLS, LTD.
DOC. #2007079264
O.P.R.T.C.TX

456.978 ACRES
SERENE HILLS, LTD.
DOC. #2007079264
O.P.R.T.C.TX

LEGEND

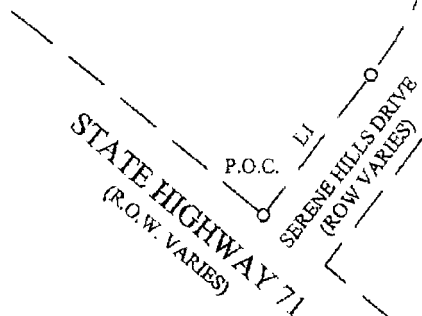
- 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
- O.P.R.T.C.TX OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT

* SKETCH TO ACCOMPANY FIELD NOTES *
-ALL POINTS CALCULATED UNLESS OTHERWISE NOTED-

LINE	BEARING	DISTANCE
L1	N38°36'59"E	200.00'
L2	N25°57'18"E	351.28'
L3	N24°55'52"E	50.03'
L4	N25°57'18"E	129.83'
L5	N64°02'42"W	14.46'
L6	N63°01'14"W	233.03'
L7	N63°00'12"W	66.76'
L8	N50°29'06"W	481.56'
L9	N75°57'48"E	41.73'
L10	N33°41'24"E	151.56'
L11	N71°33'54"E	112.59'
L12	N89°59'52"E	448.06'
L13	N85°26'00"E	13.50'
L14	S25°57'18"W	76.67'

SERENE HILLS PHASE 1B
SUBDIVISION
DOC. #200800175
O.P.R.T.C.TX

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C1	545.00'	219.93'	218.44'	N14°23'40"E	23°07'15"
C2	25.00'	38.82'	35.04'	N18°31'58"W	88°58'32"
C3	25.00'	39.72'	35.67'	N71°28'02"E	91°01'28"
C4	100.12'	74.41'	72.71'	N54°56'15"E	42°34'59"
C5	100.00'	18.47'	18.44'	N84°42'23"E	10°34'59"
C6	972.50'	91.52'	91.49'	S06°59'21"E	5°23'32"
C7	986.00'	520.60'	514.57'	S10°49'45"W	30°15'06"
C8	455.00'	284.15'	279.56'	N20°43'31"E	35°46'55"



Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
office: (512) 282-5200 fax: (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT SERENE HILLS

DWG. 7.720 ACRE

© 2008 Delta Survey Group, Inc.

TRACT 5

Serene Hills
11.634 Acres

Page 1 of 3

DESCRIPTION OF A 11.634 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN DECEMBER 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 11.634 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a 1/2 inch iron rod with "Delta Survey" cap found in the north right-of-way (ROW) line of State Highway 71 (ROW varies), same being the southeast corner of the east ROW line of Serene Hills Drive (ROW varies) as dedicated on Serene Hills Phase 1B Subdivision, a subdivision of record in Document Number 200800175, Official Public Records, Travis County, Texas, also being the southwest corner of a 8.9938 acre tract conveyed to HEB Grocery Company, LP., and described in Document Number 2010090154, Official Public Records, Travis County, Texas;

THENCE with the east right-of-way line of said Serene Hills Drive, same being west lines of said 8.9938 acre tract, a 21.756 acre tract conveyed to Travis County Water Control and Improvement District No. 17, and described in Document Number 2010090161, Official Public Records, Travis County, Texas and said 456.978 acre tract the following four (4) courses and distances:

1. N38°36'59"E a distance of 200.00 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
2. with the arc of a curve to the left a distance of 340.36 feet, through a central angle of 35°46'55", with a radius of 545.00 feet, and whose chord bears N20°43'31"E, a distance of 334.86 feet to a 1/2 inch iron rod with "Delta Survey" cap found,
3. with the arc of a curve to the right a distance of 183.61 feet, through a central angle of 23°07'15", with a radius of 455.00 feet, and whose chord bears N14°23'40"E, a distance of 182.36 feet to a 1/2 inch iron rod with "Delta Survey" cap found, and
4. N25°57'18"E a distance of 534.19 feet to a calculated point for the southwest corner of a 3.339 acre tract conveyed to Travis County Water Control and Improvement District No. 17, called Tract III and described in Document Number 2010090161, Official Public Records, Travis County, Texas;

THENCE leaving said common line and with the south lines of said 3.339 acre tract same being north lines of said 456.978 acre tract the following two (2) courses and distances:

1. S43°45'52"E a distance of 102.97 feet to a calculated point, and
2. S12°51'57"E a distance of 534.19 feet to a calculated point for the southeast corner of said 3.339 acre tract and the **POINT OF BEGINNING** of the subject tract;

THENCE with the east line of said 3.339 acre tract same being a west line of said 456.978 acre tract the following two (2) courses and distances:

1. N25°57'18"E a distance of 270.58 feet to a calculated point, and

2. with the arc of a curve to the left a distance of 789.59 feet, through a central angle of $31^{\circ}48'52''$, with a radius of 1422.00 feet, and whose chord bears $N10^{\circ}02'52''E$, a distance of 779.48 feet to a calculated point for the northeast corner of said 3.339 acre tract;

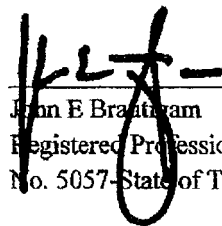
THENCE leaving said 3.339 acre tract and crossing said 456.978 acre tract the following thirteen (13) courses and distances:

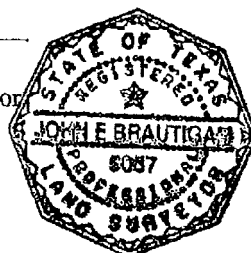
1. $N89^{\circ}59'50''E$ a distance of 196.75 feet to a calculated point,
2. with the arc of a curve to the left a distance of 38.04 feet, through a central angle of $21^{\circ}47'53''$, with a radius of 100.00 feet, and whose chord bears $N79^{\circ}05'54''E$, a distance of 37.82 feet to a calculated point,
3. $N68^{\circ}11'58''E$ a distance of 258.50 feet to a calculated point,
4. $N90^{\circ}00'00''E$ a distance of 88.04 feet to a calculated point,
5. $S12^{\circ}31'44''W$ a distance of 341.23 feet to a calculated point,
6. $S35^{\circ}32'16''W$ a distance of 428.49 feet to a calculated point,
7. with the arc of a curve to the left a distance of 81.29 feet, through a central angle of $62^{\circ}06'10''$, with a radius of 75.00 feet, and whose chord bears $S04^{\circ}29'11''W$, a distance of 77.37 feet to a calculated point,
8. $S26^{\circ}33'54''E$ a distance of 82.64 feet to a calculated point,
9. $S20^{\circ}33'22''W$ a distance of 385.18 feet to a calculated point,
10. $S54^{\circ}27'44''W$ a distance of 291.39 feet to a calculated point,
11. $N66^{\circ}13'42''W$ a distance of 182.27 feet to a calculated point,
12. $N16^{\circ}00'37''E$ a distance of 111.11 feet to a calculated point, and
13. $N12^{\circ}51'57''W$ a distance of 70.37 feet to the **POINT OF BEGINNING** and containing 11.634 acres of land, more or less.

BEARING BASIS: State Plane Coordinate System, Texas Central Zone, NAD 83/HARN

I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during December 2010, and is true and correct to the best of my knowledge and belief.

Date: 12-13-10


John E Brautigam
Registered Professional Land Surveyor
No. 5057-State of Texas



Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745

J.A. POLVADO SURVEY NO. 547
TRAVIS COUNTY, TEXAS
DECEMBER 2010

LEGEND

○ 1/2" IRON ROD WITH "DELTA SURVEY" CAP FOUND
O.P.R.T.C.TX OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
P.O.B. POINT OF BEGINNING
P.O.C. POINT OF COMMENCEMENT

LINE	BEARING	DISTANCE
L1	N38°36'59"E	200.00'
L2	N25°57'18"E	534.19'
L3	S43°45'52"E	102.97'
L4	S12°51'57"E	91.59'
L5	N25°57'18"E	270.58'
L6	N89°59'50"E	196.75'
L7	N68°11'58"E	258.50'
L8	N90°00'00"E	88.04'
L9	S12°31'44"W	341.23'
L10	S35°32'16"W	428.49'
L11	S26°33'54"E	82.64'
L12	S20°33'22"W	385.18'
L13	S54°27'44"W	291.39'
L14	N66°13'42"W	182.27'
L15	N16°00'37"E	111.11'
L16	N12°51'57"W	70.37'

3.339 ACRES (TRACT III)
T.C.W.C.I.D. #17
DOC. #2010090161
O.P.R.T.C.TX

11.634 ACRES

456.978 ACRES
SERENE HILLS, LTD.
DOC. #2007079264
O.P.R.T.C.TX

SERENE HILLS PHASE 1B
SUBDIVISION
DOC. #200800175
O.P.R.T.C.TX

21.756 ACRES
T.C.W.C.I.D. #17
DOC. #2010090161
O.P.R.T.C.TX

HEB GROCERY COMPANY, LP.
8.9938 ACRES
DOC. #2010090154
O.P.R.T.C.TX

SKETCH TO ACCOMPANY FIELD NOTES
ALL POINTS ARE CALCULATED UNLESS
OTHERWISE NOTED

SCALE: 1" = 200'

BEARING BASIS: TEXAS STATE PLANE
COORDINATE SYSTEM, CENTRAL ZONE,
NAD83/HARN

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C1	545.00'	340.36'	334.86'	N20°43'31"E	35°46'55"
C2	455.00'	183.61'	182.36'	N14°23'40"E	23°07'15"
C3	1422.00'	789.59'	779.48'	N10°02'52"E	31°48'52"
C4	100.00'	38.04'	37.82'	N79°05'54"E	21°47'53"
C5	75.00'	81.29'	77.37'	S04°29'11"W	62°06'10"

Delta Survey Group Inc.

3213 Brodie Lane Ste. 102 Austin, TX. 78745
office: (512) 282-5200 fax: (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT SERENE HILLS

DWG. 11.634 ACRES

© 2010 Delta Survey Group, Inc.

TRACT 6

Serene Hills
15.747 Acres

Page 1 of 3

DESCRIPTION OF A 15.747 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN AUGUST 2010, LOCATED IN THE J.A. POLVADO SURVEY NUMBER 547, ABSTRACT 645 AND THE O. WOLFE SURVEY NUMBER 182, ABSTRACT 2282 AND THE T. C. R. R. CO. SURVEY NUMBER TRAVIS COUNTY, TEXAS, BEING A PORTION OF A REMAINDER OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 20070779264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 15.747 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH, BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 1/2 inch iron rod found for the northeast corner of said 456.978 acre tract, same being a south corner of Flint Valley Subdivision a subdivision of record in Document Number 199900389, Official Public Records, Travis County, Texas, also being the northwest corner of a 377.460 acre tract described in Document Number 2000133662, Official Public Records, Travis County, Texas;

THENCE with an east line of said 456.978 acre tract, same being a west line of said 377.460 acre tract the following two (2) courses and distances:

1. S46°45'12"W a distance of 2106.51 feet to a 1/2 inch iron rod found, and
2. S00°06'43"W a distance of 1302.96 feet to a calculated point;

THENCE leaving said common line and crossing said 456.978 acre tract the following twenty (20) courses and distances:

1. N89°53'17"W a distance of 180.70 feet to a calculated point,
2. N05°46'57"E a distance of 165.95 feet to a calculated point,
3. N11°04'51"W a distance of 275.81 feet to a calculated point,
4. N18°26'06"W a distance of 299.70 feet to a calculated point,
5. N20°33'22"E a distance of 414.19 feet to a calculated point,
6. with the arc of a curve to the left a distance of 61.68 feet, through a central angle of 47°07'07", with a radius of 75.00 feet, and whose chord bears N03°00'16"W, a distance of 59.95 feet to a calculated point,
7. N26°33'54"W a distance of 70.19 feet to a calculated point,
8. N35°32'16"E a distance of 398.60 feet to a calculated point,
9. with the arc of a curve to the left a distance of 30.12 feet, through a central angle of 23°00'28", with a radius of 75.00 feet, and whose chord bears N24°02'00"E, a distance of 29.92 feet to a calculated point,
10. N12°31'44"E a distance of 389.88 feet to a calculated point,
11. with the arc of a curve to the left a distance of 30.52 feet, through a central angle of 17°29'07", with a radius of 100.00 feet, and whose chord bears N79°30'18"E, a distance of 30.40 feet to a calculated point,
12. S45°15'53"E a distance of 73.20 feet to a calculated point,

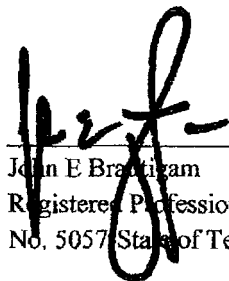
13. with the arc of a curve to the left a distance of 95.33 feet, through a central angle of $27^{\circ}18'35''$, with a radius of 200.00 feet, and whose chord bears $N66^{\circ}35'35''E$, a distance of 94.43 feet to a calculated point,
14. $N53^{\circ}07'48''E$ a distance of 191.26 feet to a calculated point,
15. $N90^{\circ}00'00''E$ a distance of 36.51 feet to a calculated point,
16. with the arc of a curve to the left a distance of 141.72 feet, through a central angle of $40^{\circ}35'57''$, with a radius of 200.00 feet, and whose chord bears $N69^{\circ}41'58''E$, a distance of 138.77 feet to a calculated point,
17. $N49^{\circ}23'55''E$ a distance of 436.42 feet to a calculated point,
18. $N71^{\circ}33'54''E$ a distance of 111.27 feet to a calculated point,
19. $N46^{\circ}36'26''E$ a distance of 204.79 feet to a calculated point, and
20. $N29^{\circ}44'42''E$ a distance of 272.09 feet to a calculated point in the north line of said 456.978 acre tract, same being a south line of said Flint Valley Subdivision;

THENCE with said common line, $S71^{\circ}22'23''E$ a distance of 211.51 feet to the **POINT OF BEGINNING** and containing 15.747 acres of land, more or less.

BEARING BASIS: State Plane Coordinate System, Texas Central Zone, NAD 83/HARN

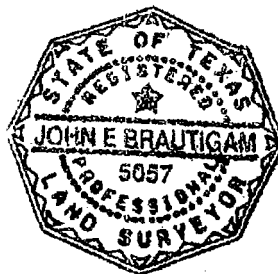
I, John E Brautigam hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during August 2010, and is true and correct to the best of my knowledge and belief.

Date: 08-09-10



John E Brautigam
Registered Professional Land Surveyor
No. 5057 State of Texas

Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745



A horizontal graphic scale bar with a black background. It is divided into four equal segments by white vertical lines. Above the bar, the numbers 0, 400, 800, and 1200 are printed in white, corresponding to the segment boundaries. The bar itself is composed of alternating black and white horizontal stripes within each segment.

$$1'' = 400'$$

● 1/2" IRON ROD FOUND
O.P.R.T.C.TX OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS
P.O.B. POINT OF BEGINNING

456.978 ACRES
SERENE HILLS, LTD.
DOC. #2007079264
O.P.R.T.C.TX

LAWREN E. BRADFORD ET AL
377.460 AC.
DOC. No. 2000133662
O.P.R.T.C.TX.

T.C.R.R.CO. SUR. 181
ABS. 2259

LINE	BEARING	DISTANCE
L1	N89°53'17"W	180.70'
L2	N05°46'57"E	165.95'
L3	N11°04'51"W	275.81'
L4	N18°26'06"W	299.70'
L5	N20°33'22"E	414.19'
L6	N26°33'54"W	70.19'
L7	N35°32'16"E	398.60'
L8	N12°31'44"E	389.88'
L9	S45°15'53"E	73.20'
L10	N53°07'48"E	191.26'
L11	N90°00'00"E	36.51'
L12	N49°23'55"E	436.42'
L13	N71°33'54"E	111.27'
L14	N46°36'26"E	204.79'
L15	N29°44'42"E	272.09'
L16	S71°22'23"E	211.51'

CURVE	RADIUS	ARC	CHORD	BEARING	DELTA
C1	75.00'	61.68'	59.95'	N03°00'16"W	47°07'07"
C2	75.00'	30.12'	29.92'	N24°02'00"E	23°00'28"
C3	100.00'	30.52'	30.40'	N79°30'18"E	17°29'07"
C4	200.00'	95.33'	94.43'	N66°35'35"E	27°18'35"
C5	200.00'	141.72'	138.77'	N69°41'58"E	40°35'57"

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
office: (512) 282-5200 fax: (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT SERENE HILLS

DWG. 15,747 ACRES

TRACT 7

Serene Hills
51.806 acres

Page 1 of 3
1-24-08 IRRGA ESMT

DESCRIPTION OF A 51.806 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., JANUARY 2008 LOCATED IN THE J.H. LOHMAN SURVEY 524, ABSTRACT 502, AND THE W.A. BARLOW SURVEY 86, ABSTRACT 2679, TRAVIS COUNTY, TEXAS, AND BEING A PORTION OF A 456.978 ACRE TRACT CONVEYED TO SERENE HILLS LTD., IN DOCUMENT NUMBER 2007079264, OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 51.806 ACRE TRACT AS SHOWN ON ACCOMPANYING SKETCH BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 60d nail found at the southeast corner of a 1232.45 acre tract conveyed to Commercial Lakeway Ltd. Partnership in Volume 13241, Page 436, Official Public Records, Travis County, Texas, same being an ell corner in the west line of said 456.978 acre tract for the **POINT OF BEGINNING**;

THENCE leaving said common line and crossing said 456.978 acre tract S36°41'06"W a distance of 985.44 feet to a calculated point in the north right-of-way (ROW) line of State Highway 71, same being the south line of said 456.978 acre tract from which a concrete highway monument bears S52°21'24"E a distance of 194.96 feet;

THENCE with said common line the following three (3) courses and distances:

1. With a curve to the left an arc length of 1715.80 feet, with a radius of 5829.58 feet, with a chord bearing of N61°44'48"W, with a chord length of 1709.61 feet to a concrete highway monument,
2. N70°08'04"W a distance of 281.20 feet to a concrete highway monument, and
3. With a curve to the right an arc length of 28.44 feet, with a radius of 1045.85 feet, with a chord bearing of N69°21'20"W, with a chord length of 28.44 feet to a calculated point;

THENCE leaving said common line and crossing said 456.978 acre tract the following four (4) courses and distances:

1. N34°50'46"E a distance of 300.19 feet to a calculated point,
2. N64°31'22"W a distance of 258.21 feet to a calculated point,
3. N32°11'12"W a distance of 220.40 feet to a calculated point, and
4. N16°35'00"E a distance of 515.99 feet to a calculated point in the south line of said 1232.45 acre tract, same being a north line of said 456.978 acre tract from which a cotton spindle found for a northwest corner of said 456.978 acre tract bears N73°57'41"W a distance of 412.98 feet;

THENCE with said common line the following two (2) courses and distances:

1. S73°57'41"E a distance of 532.71 feet to an iron pipe found, and

Serene Hills
51.806 acres

Page 2 of 3
1-24-08 IRRGA ESMT

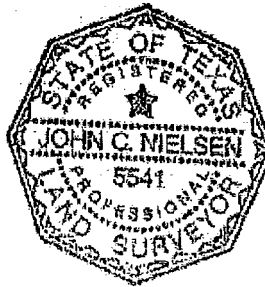
2. S61°56'07"E a distance of 2159.37 feet to the **POINT OF BEGINNING** and containing 51.815 acres of land more or less.

BEARING BASIS state plane coordinates, NAD83/HARN, Texas Central Zone

I, John C. Nielsen hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during November 2007, and is true and correct to the best of my knowledge and belief.



John C. Nielsen
Registered Professional Land Surveyor
No. 5541-State of Texas



Date 1-24-2008

Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745

J.H. LOHMAN SURVEY NO. 524 ABS. 502
W.A. BARLOW SURVEY NO. 86 ABS. 2679
TRAVIS COUNTY, TEXAS
JANUARY 2008

SCALE : 1" = 400'

COMMERCIAL LAKEWAY LTD. PARTNERSHIP
1232.45 AC.
VOL. 13241, PAGE 436
O.P.R.T.C.TX.

SERENE HILLS, LTD.
456.978 AC.
DOC. No. 2007079264
O.P.R.T.C.TX.

SERENE HILLS, LTD.
456.978 AC.
DOC. No. 2007079264
O.P.R.T.C.TX.

51.806 ACRES

STATE HIGHWAY 71
(R.O.W. VARIES)

LINE	BEARING	DISTANCE
L1	S52°21'24"E	194.96'
L2	N70°08'04"W	281.20'
L3	N34°50'46"E	300.19'
L4	N64°31'22"W	258.21'
L5	N32°11'12"W	220.40'
L6	N73°57'41"W	412.98'

CURVE	RADIUS	ARC	DELTA	BEARING	CHORD
C1	5829.58'	1715.80'	16°51'48"	N 61°44'48" W	1709.61'
C2	1045.85'	28.44'	01°33'28"	N 69°21'20" W	28.44'

LEGEND

- ▲ 60d NAIL FOUND
- CONCRETE HIGHWAY MONUMENT
- ⊙ IRON PIPE FOUND
- ⊕ COTTON SPINDLE FOUND

P.O.B. POINT OF BEGINNING

O.P.R.T.C.TX. OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS

* SKETCH TO ACCOMPANY FIELD NOTES *
ALL POINTS ARE CALCULATED POINTS UNLESS OTHERWISE NOTED

Delta Survey Group Inc.

8213 Brodie Lane Ste. 102 Austin, TX. 78745
office: (512) 282-5200 fax: (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS

PROJECT HEARD TRACT

DWG. 01-24-08 IRRGA ESMT

© 2008 Delta Survey Group, Inc.

Exhibit "B"
Permitted Exceptions

Recorders Memorandum-At the time of recordation this instrument was found to be inadequate for the best reproduction, because of illegibility, carbon or photocopy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

PERMITTED EXCEPTIONS

Document No. 2007063335, as re-filed under Document No. 2007079263, and Document Nos 2010090153, 2010090156 and 2011084173 all of the Official Public Records of Travis County, Texas.

1. All oil, gas and other minerals, together with all rights relating thereto, express or implied, reserved in instrument recorded in Volume 911, Page 552 of the Deed Records of Travis County, Texas. Said mineral estate not traced further herein. (ALL TRACTS)
2. Water line and temporary construction easements granted to Travis County Municipal Utility District No. 12, by instrument dated January 30, 2008, recorded under Document No. 2008015396 of the Official Public Records of Travis County, Texas. (TRACT 7)
3. The terms, conditions and stipulations of that certain Utility Development and Conveyance Agreement dated effective January 17, 2008, as evidenced by Memorandum of Agreement Regarding the Utility Development and Conveyance Agreement recorded under Document No. 2008038360, as amended by instrument recorded under Document No. 2010086539, both of the Official Public Records of Travis County, Texas. (ALL TRACTS)
4. Wastewater and irrigation systems and facilities easement granted to Travis County Water Control & Improvement District No. 17, by instrument dated May 22, 2008, recorded under Document No. 2008087091 of the Official Public Records of Travis County, Texas. (TRACT 7)
5. Wastewater and irrigation systems and facilities easement granted to Travis County Water Control & Improvement District No. 17, by instrument dated May 22, 2008, recorded under Document No. 2008087092 of the Official Public Records of Travis County, Texas. (TRACTS 1, 2, 3, 4 AND 6)
6. Public utility, drainage and access easement granted to Water Control and Improvements District No. 17 and the City of Lakeway, by instrument dated May 28, 2008, recorded under Document No. 2008090125 of the Official Public Records of Travis County, Texas. (TRACT 2)
7. Public utility, drainage and access easement granted to Water Control and Improvements District No. 17 and the City of Lakeway, by instrument dated May 28, 2008, recorded under Document No. 2008090126 of the Official Public Records of Travis County, Texas. (TRACTS 5 AND 6)
8. Wastewater and irrigation systems and facilities easement granted to Travis County Water Control & Improvement District No. 17, by instrument dated October 14, 2008, recorded under Document No. 2008177214 of the Official Public Records of Travis County, Texas. (TRACTS 2 AND 5)
9. Electric utility easement granted to Pedernales Electric Cooperative, Inc., by instrument dated April 22, 2009, recorded under Document No. 2009068591 of the Official Public Records of Travis County, Texas. (TRACT 7)
10. Drainage easement granted to HEB Grocery Company, LP, by instrument dated June 22, 2010, recorded under Document No. 2010090157 of the Official Public Records of Travis County, Texas. (TRACT 1)
11. Wastewater easement granted to HEB Grocery Company, LP, by instrument dated June 22, 2010, recorded under Document No. 2010090159 of the Official Public Records of Travis County, Texas. (TRACTS 1 AND 4)
12. Wastewater easement granted to HEB Grocery Company, LP, by instrument dated June 22, 2010, recorded under Document No. 2010090160 of the Official Public Records of Travis County, Texas. (ALL TRACTS)
13. INTENTIONALLY DELETED.
14. INTENTIONALLY DELETED.
15. INTENTIONALLY DELETED.
16. INTENTIONALLY DELETED.
17. INTENTIONALLY DELETED.
18. The terms, conditions and stipulations of that certain Declaration of Restrictive Covenants dated June 22, 2010, recorded under Document No. 2010090167 of the Official Public Records of Travis County, Texas. (ALL TRACTS)

19. Electric utility easement granted to Pedernales Electric Cooperative, Inc., by instrument dated July 16, 2010, recorded under Document No. 2010107190 of the Official Public Records of Travis County, Texas. (TRACT 7)
20. The rights of Travis County Water Control and Improvement District No. 17 to levy taxes and issue bonds.
21. Rights of tenants in possession, as tenants only, under unrecorded lease agreements.
22. Easements, or claims of easements, which are not recorded in the public records.
23. Rights of parties in possession. (Owner Policy Only)
24. The terms, conditions and stipulations of that certain Public Utility Easement Agreement dated June 9th, 2011, recorded under Document No. 2011084174 of the Official Public Records of Travis County, Texas. (TRACTS 1, 2 AND 4)
25. The terms, conditions and stipulations of that certain Drainage Easement Agreement dated June 9th, 2011, recorded under Document No. 2011084175 of the Official Public Records of Travis County, Texas. (TRACTS 4 AND 6)
26. The terms, conditions and stipulations of that certain Access, Drainage and Public Utility Easement Agreement dated June 9th, 2011, recorded under Document No. 2011084176 of the Official Public Records of Travis County, Texas. (TRACT 2)
27. The terms, conditions and stipulations of that certain Propane and Access Easement Agreement dated June 9th, 2011, recorded under Document No. 2011084177 of the Official Public Records of Travis County, Texas. (TRACT 2)

Recorders Memorandum-At the time of recordation this instrument was found to be inadequate for the best reproduction, because of illegibility, carbon or photocopy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

Jun 10, 2011 03:13 PM

2011084172

SCOTTR: \$120.00

Dana DeBeauvoir, County Clerk

Travis County TEXAS

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

15/11/2014/ 1308133-A-Com

SPECIAL WARRANTY DEED

STATE OF TEXAS

§
§
§

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF TRAVIS

That Serene Hills, Ltd., a Texas limited partnership ("Grantor"), for and in consideration of the sum of \$10.00 and other good and valuable consideration paid by the Travis County Water Control and Improvement District No. 17, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code ("Grantee"), the receipt of which is hereby acknowledged, has GRANTED, SOLD AND CONVEYED, and by these presents does GRANT, SELL AND CONVEY, unto Grantee, that certain land located in Travis County, Texas, as described in "Exhibit A" attached hereto and incorporated herein by reference for all purposes together with (ii) all of Grantor's right, title, interest, privilege and appurtenances pertaining thereto (collectively, the "Property"). To the extent that they may affect the Property, this grant and conveyance is made and accepted subject to those matters set forth on "Exhibit B" attached hereto and incorporated herein by reference for all purposes (the "Permitted Exceptions").

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereto in anywise belonging, unto Grantees, their successors and assigns, forever; and Grantor does hereby bind Grantor and his heirs, personal representatives, successors and assigns to WARRANT AND FOREVER DEFEND all and singular the Property unto Grantee, their successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, when the claim is by, through or under Grantor but not otherwise.


Executed effective this the 10 day of May, 2013.

GRANTOR:

SERENE HILLS, LTD., a Texas limited partnership

By: **ES-DH Serene, LLC**, a Delaware limited liability company, its general partner

By:


Douglas Hunter

Member and Authorized Signatory


Acknowledgment

STATE OF TEXAS

COUNTY OF TRAVIS

§
§
§

This instrument was acknowledged before me on the ^{10th} ~~9~~ day of May, 2013, by Douglas Hunter, member and authorized signatory of ES-DH Serene, LLC, a Delaware limited liability company, general partner of Serene Hills, Ltd., a Texas limited partnership, on behalf of said company and partnership.



Notary Public, State of Texas



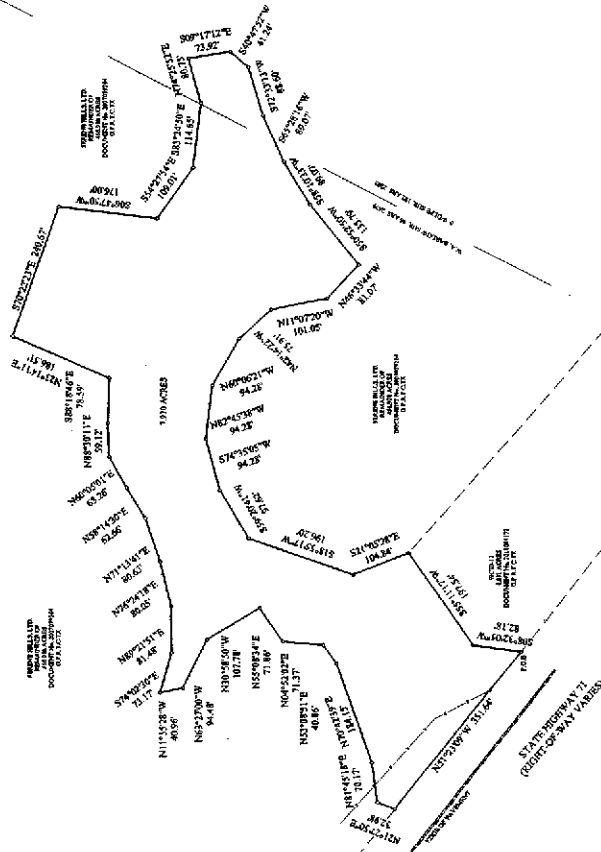
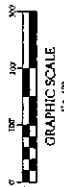
After recording please return to:
Independence Title Company
9442 N. Capital of Texas Hwy., Bldg. 2, Ste. 200
Austin, TX 78739

After recording please return to:
~~Munsch Hardy Kopf & Haer~~
~~Attn: Catherine C. Slack~~
~~101 Congress Ave., Ste. 3050~~
~~Austin, Texas 78701~~

EXHIBIT A

Description of Serene Hills Tract

**TITLE SURVEY
OF 7.790 ACRES
TRAVIS COUNTY, TEXAS
APRIL 2013**



LEGEND

○	BUILDING WITH TOLATA QUARRY CARPET
—	BOUNDARY LINE
- - -	PENDING FENCE
□	SUBSIDIARY
■	POINT OF RESIGNMENT
▲	PALE

TITLE EXCLUSIVELY TO PARTIES INVOLVED IN HEREIN TITLE COMPANY'S TITLE COMMITMENT FILE NO. 100-10436 (DATED APRIL 2, 1981).

SEE FIELD NOTES OF SAME DATE

NOTE: IN ACCORDANCE WITH FLA. MAP NO. 16-15-0000-001, DATED SEPTEMBER 15, 2009, THIS SUBJECT PROPERTY IS AN ADEQUATE LIEUTENANT FIRE AND RESCUE STATION. THIS PROPERTY IS NOT BEING OFFERED FOR SALE OR LEASE PLACES. THIS STATEMENT IS FOR INFORMATION PURPOSES ONLY AND IS NOT A GUARANTEE THAT THE PROPERTY WILL BE ADEQUATE FOR THE INTENDED USE. NO EMPLOYMENT OPPORTUNITIES WILL BE LOCATED FOR THE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835

1-800-451-5321

Delta Survey Group Inc.
8213 Brodie Lane Ste. 102 Austin, TX 78745
office: (512) 282-5200 fax: (512) 282-5230
WWW.DELTASURVEYGROUP.COM

QUAD SHINGLE HILLS
PROJECT SERENE HILLS
DWG. 7.970 ACRE TITLE

© 2004 Wiley Periodicals, Inc.

DESCRIPTION OF A 7.970 ACRE TRACT PREPARED BY DELTA SURVEY GROUP INC., IN APRIL 2013, LOCATED IN THE W. A. BARLOW SURVEY NUMBER 86, ABSTRACT 2679, IN TRAVIS COUNTY, TEXAS. BEING A PORTION OF A REMAINDER OF 456.978 ACRE TRACT CONVEYED TO SERENE HILLS, LTD., IN DOCUMENT NUMBER 2007079264 OF THE OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS, SAID 7.970 ACRE TRACT BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING at a ½ inch iron rod with "Delta Survey" cap set in the north right-of-way (ROW) line of State highway 71(S.H. 71) (ROW varies), same being the southwest corner of a 21.1827 acre tract conveyed to HEB Grocery Company, LP., in Document Number 2010090154, Official Public Records, Travis County, Texas, and also being the southeast corner of a 4.831 acre tract conveyed to WCID-17 in Document Number 2011084172, Official Public Records, Travis County, Texas for the **POINT OF COMMENCEMENT**;

THENCE with the north R.O.W. line of said S.H. 71, same being south lines of said 4.831 acre tract the following three (3) courses and distances:

1. N51°23'09"W a distance of 256.21 feet to a TXDOT Type I concrete monument found,
2. N45°39'21"W a distance of 100.16 feet to a TXDOT Type I concrete monument found, and
3. N51°23'09"W a distance of 536.79 feet to a ½ inch iron rod with "Delta Survey" cap set for the southwest corner of said 4.831 acre tract, same being a southeast corner of said remainder tract, and being the **POINT OF BEGINNING**;

THENCE continuing with the north R.O.W line of said S.H. 71 same being a south line of said remainder tract N51°23'09"W a distance of 351.64 feet to a ½ inch iron rod with "Delta Survey" cap set;

THENCE leaving said common line and crossing said remainder tract the following thirty six (36) courses and distances:

1. N 21°27'50" E a distance of 32.98 feet to a ½ inch iron rod with "Delta Survey" cap set;
2. N 81°45'18" E a distance of 70.17 feet to a ½ inch iron rod with "Delta Survey" cap set;
3. N 70°42'39" E a distance of 184.15 feet to a ½ inch iron rod with "Delta Survey" cap set;
4. N 53°08'51" E a distance of 40.86 feet to a ½ inch iron rod with "Delta Survey" cap set;
5. N 04°52'02" E a distance of 71.37 feet to a ½ inch iron rod with "Delta Survey" cap set;
6. N 55°08'34" E a distance of 71.86 feet to a ½ inch iron rod with "Delta Survey" cap set;
7. N 30°58'50" W a distance of 107.78 feet to a ½ inch iron rod with "Delta Survey" cap set;

8. N 63°27'00" W a distance of 94.48 feet to a ½ inch iron rod with "Delta Survey" cap set;
9. N 11°55'28" W a distance of 40.96 feet to a ½ inch iron rod with "Delta Survey" cap set;
10. S 74°02'30" E a distance of 73.17 feet to a ½ inch iron rod with "Delta Survey" cap set;
11. N 89°21'51" E a distance of 81.48 feet to a ½ inch iron rod with "Delta Survey" cap set;
12. N 76°24'18" E a distance of 80.05 feet to a ½ inch iron rod with "Delta Survey" cap set;
13. N 71°13'41" E a distance of 80.63 feet to a ½ inch iron rod with "Delta Survey" cap set;
14. N 58°14'30" E a distance of 62.66 feet to a ½ inch iron rod with "Delta Survey" cap set;
15. N 60°05'01" E a distance of 63.26 feet to a ½ inch iron rod with "Delta Survey" cap set;
16. N 88°30'11" E a distance of 59.12 feet to a ½ inch iron rod with "Delta Survey" cap set;
17. S 88°18'46" E a distance of 78.59 feet to a ½ inch iron rod with "Delta Survey" cap set;
18. N 23°14'11" E a distance of 186.51 feet to a ½ inch iron rod with "Delta Survey" cap set;
19. S 70°22'23" E a distance of 240.67 feet to a ½ inch iron rod with "Delta Survey" cap set;
20. S 06°47'50" W a distance of 176.00 feet to a ½ inch iron rod with "Delta Survey" cap set;
21. S 54°27'54" E a distance of 109.01 feet to a ½ inch iron rod with "Delta Survey" cap set;
22. S 83°24'50" E a distance of 114.65 feet to a ½ inch iron rod with "Delta Survey" cap set;
23. N 74°25'52" E a distance of 80.75 feet to a ½ inch iron rod with "Delta Survey" cap set;
24. S 09°17'12" E a distance of 73.92 feet to a ½ inch iron rod with "Delta Survey" cap set;
25. S 40°47'52" W a distance of 41.24 feet to a ½ inch iron rod with "Delta Survey" cap set;
26. S 72°33'13" W a distance of 88.60 feet to a ½ inch iron rod with "Delta Survey" cap set;
27. S 65°28'16" W a distance of 89.07 feet to a ½ inch iron rod with "Delta Survey" cap set;
28. S 58°10'33" W a distance of 89.07 feet to a ½ inch iron rod with "Delta Survey" cap set;
29. S 50°52'50" W a distance of 135.79 feet to a ½ inch iron rod with "Delta Survey" cap set;
30. N 46°33'44" W a distance of 81.07 feet to a ½ inch iron rod with "Delta Survey" cap set;

31. N 11°07'20" W a distance of 101.05 feet to a ½ inch iron rod with "Delta Survey" cap set;
32. N 42°14'22" W a distance of 75.91 feet to a ½ inch iron rod with "Delta Survey" cap set;
33. N 60°06'21" W a distance of 94.28 feet to a ½ inch iron rod with "Delta Survey" cap set;
34. N 82°45'38" W a distance of 94.28 feet to a ½ inch iron rod with "Delta Survey" cap set;
35. S 74°35'05" W a distance of 94.28 feet to a ½ inch iron rod with "Delta Survey" cap set;
36. S 59°20'41" W a distance of 97.62 feet to a ½ inch iron rod with "Delta Survey" cap found for the northwest corner of said 4.831 acre tract, same being a south corner of said remainder tract;

THENCE with west lines of said 4.831 acre tract, same being east lines of said remainder tract the following two (2) courses and distances:

1. S55°11'17"W a distance of 197.54 feet to a ½ inch iron rod with "Delta Survey" cap set, and
2. S08°32'05"W a distance of 82.18 feet to the **POINT OF BEGINNING** and containing 7.970 acres of land more or less.

BEARING BASIS: Texas State Plane Coordinate System, Central Zone, NAD 83/HARN

I, John C. Nielsen hereby certify that the foregoing description represents an on-the-ground survey performed under my direction and supervision during April 2013, and is true and correct to the best of my knowledge and belief.

Date: 4-29-13



John C. Nielsen
Registered Professional Land Surveyor
No. 5541-State of Texas
Delta Survey Group, Inc.
8213 Brodie Lane, Suite 102
Austin, Texas 78745



EXHIBIT B

Permitted Exceptions

1. The following restrictive covenants of record itemized below:

Document No. 2006242485, Document No. 2007063335, re-recorded in Document No. 2007079263, Document No. 2010090153, Document No. 2010090156, Document No. 2010090167, Document No. 2010136125, Document No. 2010147206, Document No. 2010147207, Document No. 2011084173, Document No. 2013073299, Official Public Records, Travis County, Texas, but omitting any covenant or restriction based on race, color, religion, sex, disability, handicap, familial status or national origin.
2. Easement to Pedernales Electric Cooperative, Inc., for electric transmission and/or distribution lines or systems, recorded at Volume 1147, Page 167, Deed Records, Travis County, Texas.
3. Terms, Conditions, and Stipulations in the Memorandum of Utility Development and Conveyance Agreement, as amended, recorded in Document No. 2008038360, and Document No. 2010086539, Official Public Records, Travis County, Texas.
4. Easement to HEB Grocery Company, LP, for wastewater, recorded in Document No. 2010090160, Official Public Records, Travis County, Texas.
5. Inclusion within the Travis County Water Control and Improvement District No. 17.
6. Fence does not conform to the southwesterly property line, as shown on the survey prepared by John C. Nielsen, R.P.L.S. No. 5541, dated April 29, 2013.



FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

Dana DeBeauvoir

DANA DEBEAUVOIR, COUNTY CLERK
TRAVIS COUNTY, TEXAS

May 10 2013 02:43 PM

FEE: \$ 48.00 2013085418

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

LT/1003-46402

PERMANENT IRRIGATION EASEMENT

THE STATE OF TEXAS

§

§

COUNTY OF TRAVIS

§

GRANT OF PERMANENT IRRIGATION EASEMENT:

Western Rim Investors 2013-4, L.P., a Texas limited partnership, located at 2505 N. State Highway 360, Suite 800, Grand Prairie, Texas 75050 ("**GRANTOR**"), for \$10.00 and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, sell and convey unto **Travis County Water Control & Improvement District No. 17**, a water control and improvement district operating pursuant to Chapters 49 and 51 of the Texas Water Code, located in Travis County, Texas, and whose address is 3812 Eck Lane, Austin, Texas 78734 ("**GRANTEE**") (GRANTOR and GRANTEE are collectively referred to as the "**Parties**"), a permanent easement and right of way (the "**Easement**") upon, in, over, under, along and across, together with the right of ingress and egress upon, in, over, under, along and across, the property(s) of GRANTOR which is more particularly described as follows:

Being a 5.9273 acre tract of land in Travis County, Texas, as shown on the accompanying sketch, being more particularly described by metes and bounds in the attached Exhibit A ("Easement Property**").**

PURPOSE OF EASEMENT:

The Easement Property(s) may be used by GRANTEE for the following purposes:

- (i) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing an irrigation system, and related facilities on the Easement Property;
- (ii) constructing, installing, maintaining, operating, inspecting, upgrading, repairing, and replacing underground wastewater lines, irrigation lines, control boxes, and related facilities and equipment on the Easement Property; and
- (iii) irrigating the Easement Property with treated wastewater effluent generated by GRANTEE from its wastewater treatment plants (all infrastructure in these sections (i), (ii), and (iii) are collectively referred to as the "**Facilities**").

GRANTEE is further granted the right of vehicular and pedestrian ingress and egress upon, over, under, along, and across the Easement Property to accomplish the purposes described herein.

DURATION OF EASEMENT:

This Easement shall be permanent and irrevocable.

DOMINANT USE OF EASEMENT PROPERTY:

GRANTOR agrees that GRANTEE shall have the dominant right to use of the Easement Property for the purposes stated above and GRANTOR shall make no use of the Easement Property that unreasonably interferes with GRANTEE's use, including, but not limited to, the construction of stone walls, or similar improvements that would impede GRANTEE's access to the Easement Property or Facilities. This Easement shall further include the right to cut and trim trees and shrubbery that encroach on the Easement Property and interfere with Grantee's use of the Easement Property for the easement purpose in any material respect. GRANTOR shall not grant any easements, licenses or similar rights to any other person or entity on the Easement Property unless such easements, licenses or similar rights are subject and subordinate to the terms hereof.

GRANTOR'S RETAINED RIGHTS

GRANTOR retains the right to (i) landscape the Easement Property; (ii) install a hike and bike trail and other similar amenities across the Easement Property that do not interfere with GRANTEE'S use of the Easement Property for the easement purpose in any material respect; and (iii) grant easements, licenses, or similar rights on the Easement Property to other persons or entities provided such easements, licenses or similar rights are subject and subordinate to the terms hereof.

ENTIRE AGREEMENT:

This instrument contains the entire agreement between the Parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument will be of no force and effect.

BINDING EFFECT:

This Easement shall be for the benefit of the GRANTEE and shall run with the land. This provisions of this Easement shall bind and inure to the benefit of the Parties hereto, and their respective successors and assigns. GRANTOR does hereby bind itself and its successors and assigns to WARRANT AND FOREVER DEFEND title to the said Easement herein granted unto GRANTEE, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof subject to the matters set forth herein. Any oral representations or modifications concerning this instrument shall be of no force and effect.

[THE REMAINDER OF PAGE IS LEFT BLANK INTENTIONALLY.]

In witness whereof, this instrument is executed this 12 day of December, 2013.

GRANTOR:

WESTERN RIM INVESTORS 2013-4, L.P.,
a Texas limited partnership

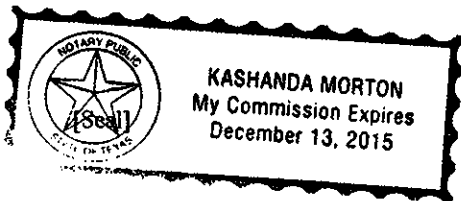
By: Western Rim GenPar 13-4, L.P.,
a Texas limited partnership,
its general partner

By: Western Rim Investment Advisors 13-
4, LLC, a Texas limited liability
company, its general partner

By: _____
Marcus D. Hiles,
Managing Member

STATE OF TEXAS §
 §
COUNTY OF Tarrant §

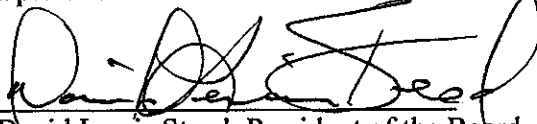
This instrument was acknowledged before me on the 12 day of December, 2013,
by Marcus D. Hiles, Managing Member of Western Rim Investment Advisors 13-4, LLC, a
Texas limited liability company, in its capacity as general partner of Western Rim GenPar 13-4,
L.P., a Texas limited partnership, in its capacity as general partner of Western Rim Investors
2013-4, L.P., a Texas limited partnership, on behalf of said partnership.



Kashanda Morton
Notary Public, State of Texas
Printed Name: Kashanda Morton
My Commission expires: 12-13-15

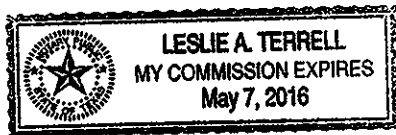
ACCEPTED:

TRAVIS COUNTY WATER CONTROL
& IMPROVEMENT DISTRICT NO. 17, a water
control and improvement district operating pursuant
to Chapters 49 and 51 of the Texas Water Code


By: 
David Lewis Steed, President of the Board

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

This instrument was acknowledged before me on the 12th day of December 2013,
by David Lewis Steed, President of the Board of Travis County Water Control & Improvement
District No. 17 on behalf of said District.



[Seal]


Notary Public, State of Texas
Printed Name: Leslie A. Terrell
My Commission expires: May 7, 2016

AFTER RECORDING RETURN TO:
Republic Title of Texas, Inc.
550 Bailey Avenue, Ste. 100
Fort Worth, TX 76107

EXHIBIT A
"Easement Property"

BEING A 5.9273 ACRE (258,193 SQUARE FEET) TRACT OF LAND OUT OF A PORTION OF THE REMAINDER OF 456.978 ACRE TRACT DESCRIBED IN DOCUMENT NO 2007079264, A PORTION OF A 15.747 ACRE TRACT DESCRIBED IN DOCUMENT NO 2011084172, AND ALL OF A CALLED 21.756 ACRE TRACT DESCRIBED IN DOCUMENT NO 2007079264, BEING OUT OF THE JA PALVADO SURVEY NO 547, ABSTRACT NO 645, O WOLFE SURVEY NO 182 ABSTRACT 2525 AND OUT OF THE TC RR CO SURVEY NO 181, ABSTRACT NO 2259, ALL OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS:

COMMENCING: At a found $\frac{1}{2}$ " iron rod and cap "Delta", said $\frac{1}{2}$ " iron rod being the south west corner of Falcon Head West Phase 1, Section 2 and Phase 2 final plat (Doc. #200800106), of the Official Public Records, Travis County, Texas, said $\frac{1}{2}$ " iron rod also being on the north right of way line of State Highway 71 (a public right-of-way varies) Grid Coordinates, Northing 10087053.6415, Easting 3032065.3549, Texas Coordinate System, Texas Central Zone, N.A.D. 1983;

THENCE: N 00°06'43" E, 1182.59 feet, leaving the north right-of-way line of said Highway 71, along and with the west line of said Falcon Head west, Phase 1, section 2 and Phase 2, to a point, at the POINT OF BEGINNING of this tract, Grid Coordinates, Northing 10088236.2271, Easting 3032067.6654, Texas Coordinate System, Texas Central Zone, N.A.D. 1983;

THENCE: N 89°53'17" W, 100.05 feet, leaving the west line of said Falcon Head West, Phase 1, Section 2 and Phase 2, to a point;

THENCE: N 00°06'43" E, 15.46 feet, to a point;

THENCE: N 89°53'01" 30.00 feet, to a point;

THENCE: S 00°06'43" W, 27.48 feet, to a point;

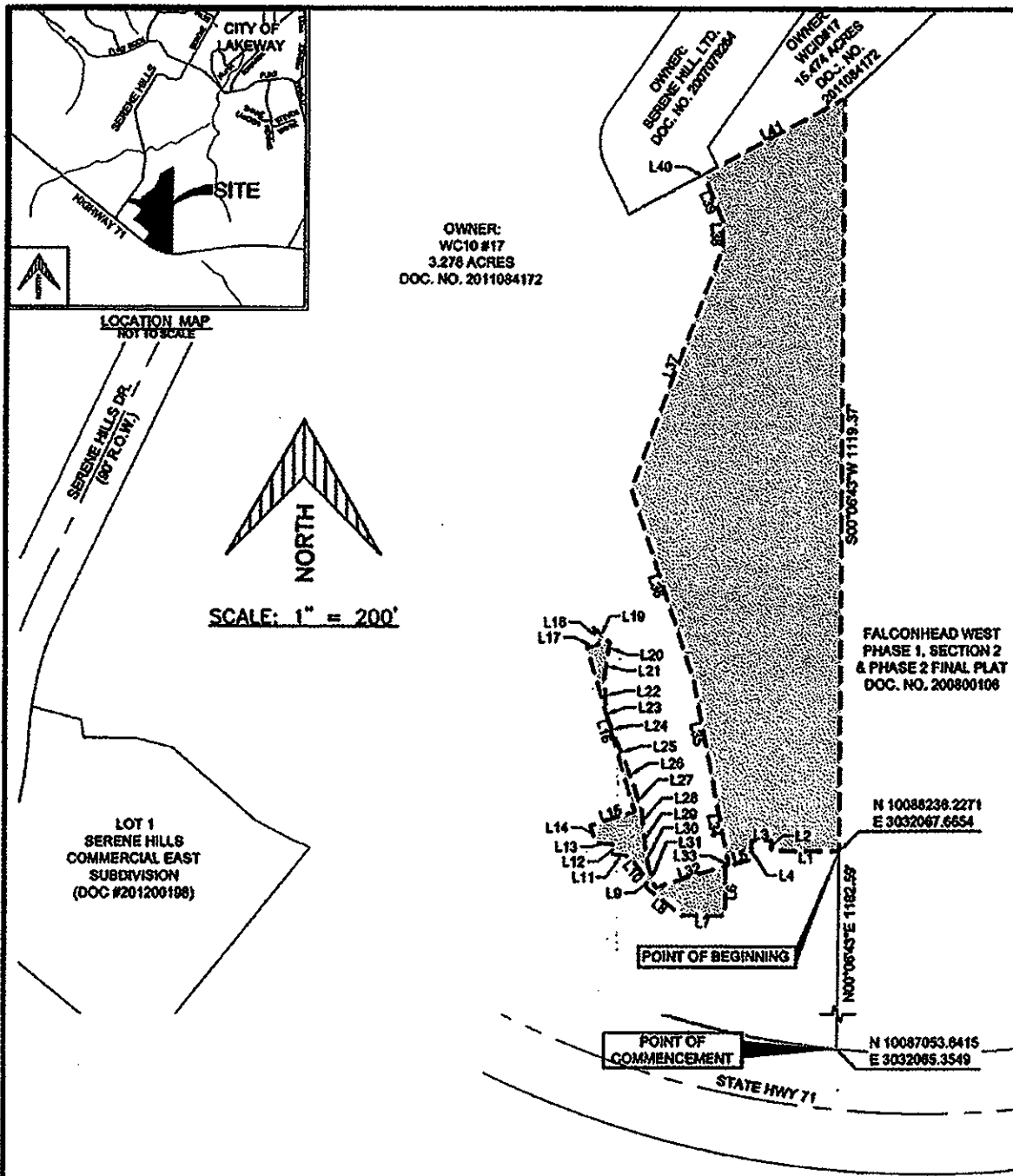
THENCE: S 72°36'01" W, 40.70 feet, to a point;

THENCE: S 00°09'44" W, 71.53 feet, to a point;

THENCE: N 89°51'55" W, 64.00 feet, to a point;

THENCE: N 52°04'15" W, 68.09 feet, to a point;
THENCE: N 07°25'27" E, 11.74 feet, to a point;
THENCE: N 37°34'33" W, 42.96 feet, to a point;
THENCE: N 82°34'33" W, 26.16 feet, to a point;
THENCE: N 07°25'27" E, 14.00 feet, to a point;
THENCE: N 82°34'33" W, 28.71 feet, to a point;
THENCE: N 16°51'18" W, 25.94 feet, to a point;
THENCE: N 73°08'42" E, 69.85 feet, to a point;
THENCE: N 16°51'18" W, 252.78 feet, to a point;
THENCE: N 73°08'42" E, 17.82 feet, to a point;
THENCE: N 16°51'18" W, 26.38 feet, to a point;
THENCE: S 48°50'19" E, 33.49 feet, to a point;
THENCE: S 10°03'10" W, 15.88 feet, to a point;
THENCE: S 07°38'27" W, 38.53 feet, to a point;
THENCE: S 02°52'06" E, 50.54 feet, to a point;
THENCE: S 15°31'00" E, 3.60 feet, to a point;
THENCE: S 21°35'17" E, 45.61 feet, to a point;
THENCE: S 23°26'48" E, 28.75 feet, to a point;
THENCE: S 21°47'18" E, 42.76 feet, to a point;
THENCE: S 10°34'36" E, 36.05 feet, to a point;
THENCE: S 50°03'15" E, 26.10 feet, to a point;
THENCE: S 05°47'55" E, 30.61 feet, to a point;
THENCE: S 11°04'47" E, 25.68 feet, to a point;
THENCE: S 17°23'59" E, 32.09 feet, to a point;

THENCE: N 72°36'01" E, 113.69 feet, to a point;
THENCE: N 06°07'07" E, 2.39 feet, to a point;
THENCE: N 11°05'27" W, 116.84 feet, to a point;
THENCE: N 11°04'24" W, 158.97 feet, to a point;
THENCE: N 18°26'22" W, 299.68 feet, to a point;
THENCE: N 20°33'26" E, 383.64 feet, to a point;
THENCE: N 00°39'11" W, 39.97 feet, to a point;
THENCE: N 22°01'43" W, 68.45 feet, to a point;
THENCE: N 22°06'38" W, 8.11 feet, to a point;
THENCE: N 61°42'06" E, 22.85 feet, to a point;
THENCE: N 61°42'47" E, 214.27 feet, to a point said point
being on the west line of said Falcon Head West, Phase
1, Section 2 and Phase 2;
THENCE: S 00°06'43" W, 1119.37 feet, along and with the west
line of said Falcon Head West, Phase 1, Sections 2 and
Phase 2, to the point of beginning of this tract.

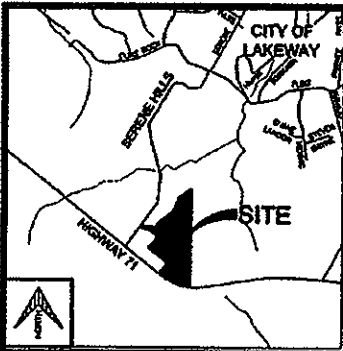


mbc
ENGINEERS
1033 Central Parkway North
San Antonio, Texas 78232
(210) 545-1122 FAX (210) 545-9302
TEXAS REGISTERED ENGINEERING FIRM F-784

METES AND BOUNDS DESCRIPTION

BEING A 5.9273 ACRE (258,193 SQUARE FEET) TRACT OF LAND
OUT OF A PORTION OF THE REMAINDER OF 456.978 ACRE TRACT
DESCRIBED IN DOCUMENT NO 2007079264, A PORTION OF A 15.747
ACRE TRACT DESCRIBED IN DOCUMENT NO 2011084172, AND ALL OF
A CALLED 21.756 ACRE TRACT DESCRIBED IN DOCUMENT NO
2007079264, BEING OUT OF THE JA PALVADO SURVEY NO 547,
ABSTRACT NO 645, O WOLFE SURVEY NO 182 ABSTRACT 2525 AND
OUT OF THE TC RR CO SURVEY NO 181, ABSTRACT NO 2259, ALL
OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS

DESIGN _____
DRAWN ADG
CHECKED _____
DATE 11-14-13
JOB NO. 30794-TRAVIS
PAGE 4 of 5



LOCATION MAP
NOT TO SCALE

Line Table		
Line #	Length	Direction
L1	100.051	N89° 53' 17.03"W
L2	15.460	N0° 06' 43.02"E
L3	30.000	N89° 53' 01.46"W
L4	27.481	S0° 06' 43.00"W
L5	40.898	S72° 36' 00.68"W
L6	71.529	S0° 09' 44.24"W
L7	84.001	N89° 51' 54.95"W
L8	68.087	N52° 04' 15.09"W
L9	11.737	N7° 25' 28.69"E
L10	42.956	N37° 34' 33.41"W
L11	28.158	N82° 34' 33.41"W
L12	14.000	N7° 25' 28.69"E
L13	28.708	N82° 34' 33.41"W
L14	26.944	N18° 51' 18.26"W
L15	69.850	N73° 06' 41.74"E
L16	252.783	N18° 51' 18.26"W
L17	17.824	N73° 06' 41.74"E
L18	28.380	N18° 51' 18.26"W
L19	33.493	S48° 00' 19.24"E
L20	18.879	S10° 03' 09.60"W
L21	38.533	S1° 38' 28.80"W
L22	80.530	S2° 52' 06.49"E
L23	3.597	S15° 31' 00.32"E
L24	45.814	S21° 35' 17.15"E
L25	28.763	S23° 26' 48.09"E
L26	42.764	S21° 41' 17.67"E
L27	38.048	S16° 34' 35.73"E
L28	26.101	S6° 03' 14.97"E
L29	30.610	S5° 47' 55.11"E
L30	25.683	S11° 04' 47.35"E
L31	32.091	S17° 27' 59.42"E
L32	113.888	N72° 36' 00.68"E
L33	2.388	N6° 07' 06.85"E
L34	118.840	N11° 05' 27.43"W
L35	188.970	N11° 04' 24.23"W
L36	299.883	N18° 28' 21.83"W
L37	383.638	N20° 33' 25.87"E
L38	39.909	N0° 39' 11.48"W
L39	68.452	N22° 01' 42.87"W
L40	8.114	N22° 06' 38.38"W
L41	237.119	N61° 42' 43.00"E



1035 Central Parkway North
San Antonio, Texas 78232
(210) 545-1122 FAX (210) 545-9302
TEXAS REGISTERED ENGINEERING FIRM F-784

LINE TABLE FOR

A 5.9273 ACRE (258,193 SQUARE FEET) TRACT OF LAND OUT OF A PORTION OF THE REMAINDER OF 456.978 ACRE TRACT DESCRIBED IN DOCUMENT NO 2007079264, A PORTION OF A 15.747 ACRE TRACT DESCRIBED IN DOCUMENT NO 2011084172, AND ALL OF A CALLED 21.756 ACRE TRACT DESCRIBED IN DOCUMENT NO 2007079264, BEING OUT OF THE JA PALVADO SURVEY NO 547, ABSTRACT NO 645, O HOLFE SURVEY NO 182 ABSTRACT 2525 AND OUT OF THE TC RR CO SURVEY NO 181, ABSTRACT NO 2259, ALL OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS

DESIGN _____
DRAWN ADG
CHECKED _____
DATE 11-14-13
JOB NO. 30794-TRAVIS
PAGE 5 of 5



FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

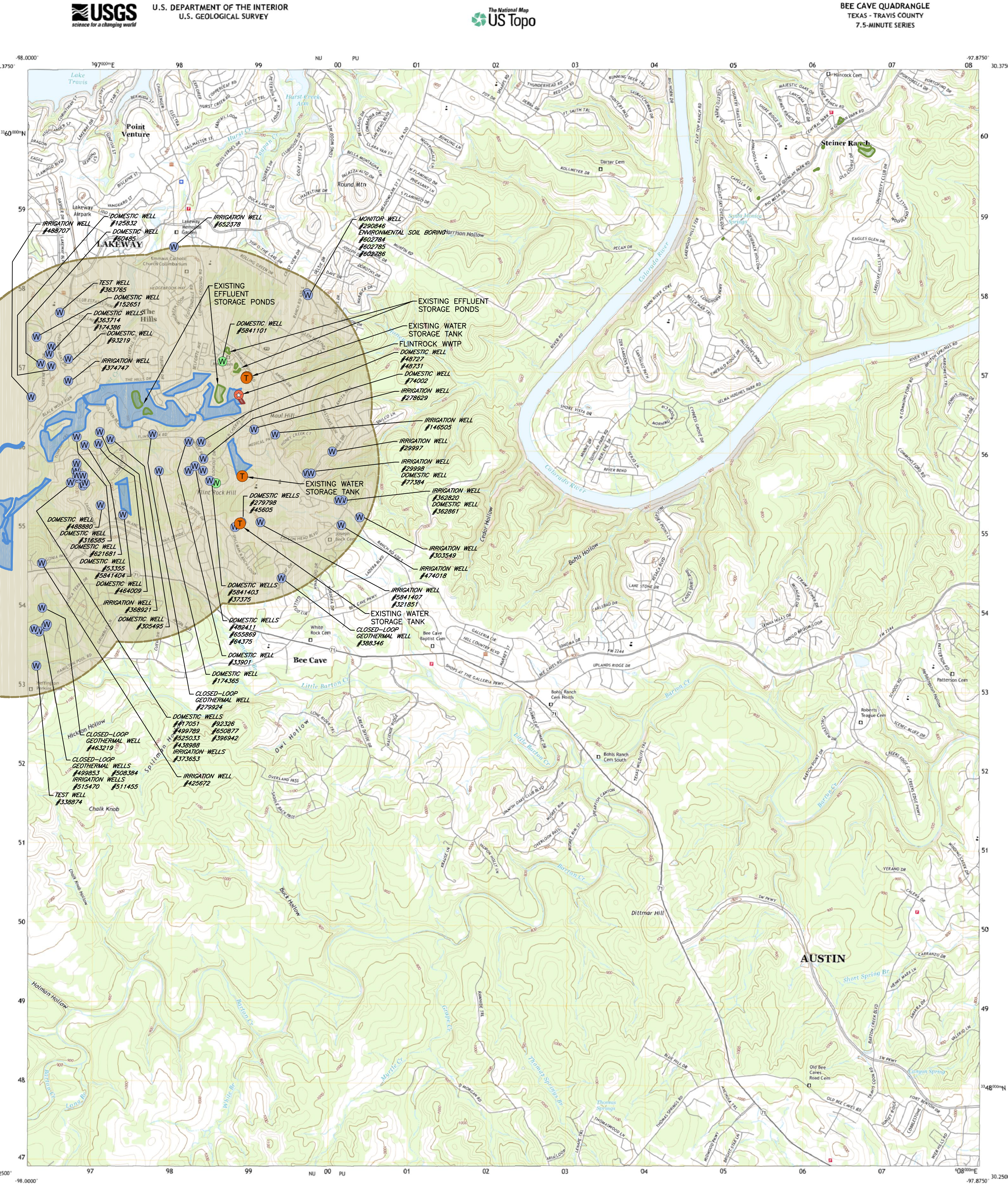
Dana Debeauvoir

DANA DEBEAUVOIR, COUNTY CLERK
TRAVIS COUNTY, TEXAS

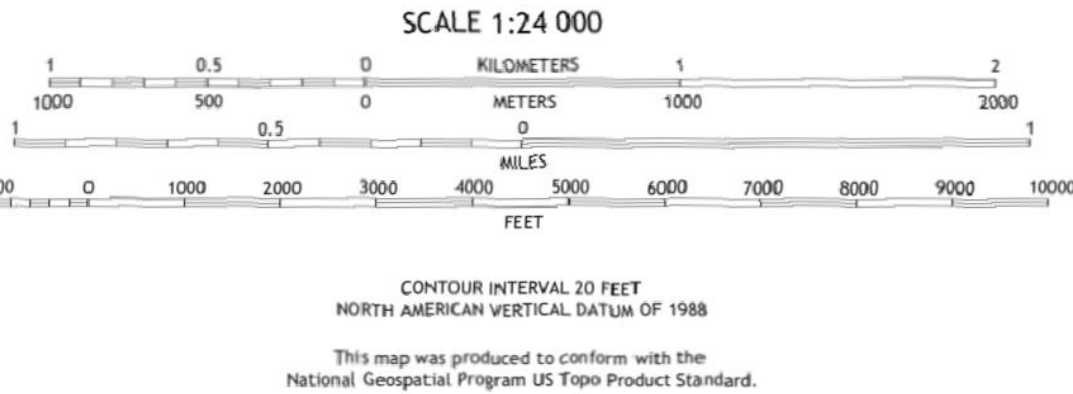
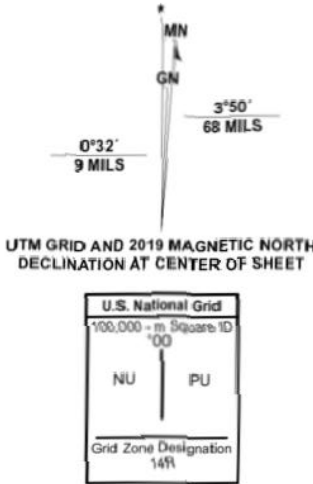
December 17 2013 03:00 PM

FEE: \$ 62.00 2013221200

ATTACHMENT E
USGS MAPS



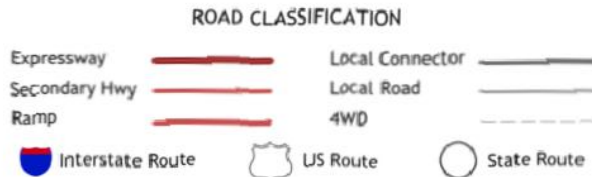
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 14R.
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.
Imagery:.....NAP, September 2016 - November 2016
Roads:.....U.S. Census Bureau, 2015 - 2019
Names:.....GNS, 1979 - 2022
Hydrography:.....National Hydrography Dataset, 2002 - 2018
Contours:.....National Elevation Dataset, 2019
Boundaries:.....Multiple sources; see metadata file 2019 - 2021
Wetlands:.....FWS National Wetlands Inventory Not Available



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

1 Pace Bend
2 Mansfield Dam
3 Jollyville
4 Shingle Hills
5 Austin West
6 Dripping Springs
7 Signal Hill
8 Oak Hill



BEE CAVE, TX
2022

Default (2)

- Map Base
- WASTEWATER TREATMENT PLANT
- EXISTING WATER TANK
- EXISTING WELL (SDRDB)
- EXISTING WELL (GWDB)
- EXISTING SPRING OR SEEP
- WWTP PROPERTY & FACILITY BOUNDARY
- EFFLUENT STORAGE PONDS
- EFFLUENT DISPOSAL SITE BOUNDARY
- 1 MILE BUFFER - DISPOSAL AREA
- TX_Bee_Cave_20220811_TM_geo



301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

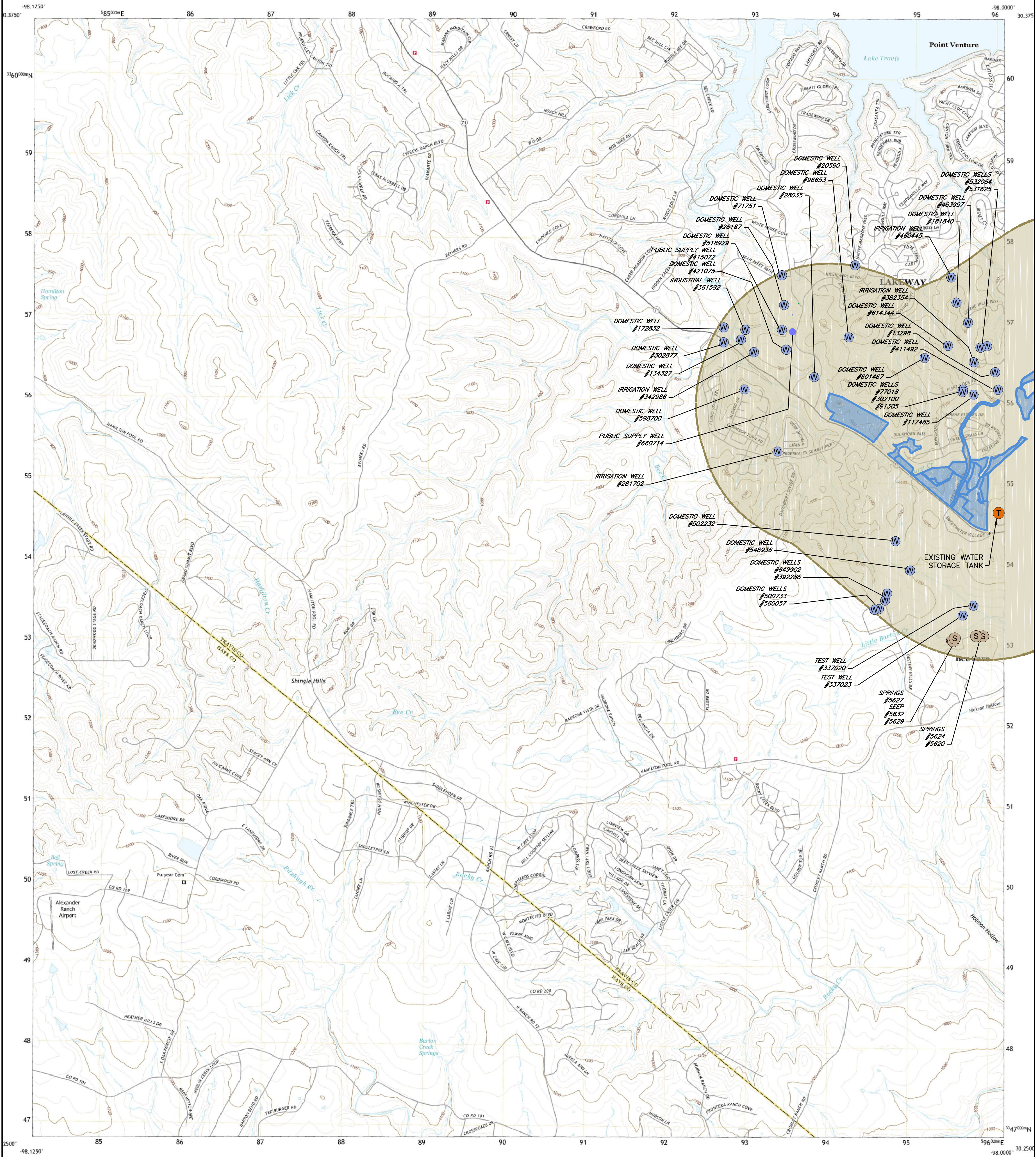
ATTACHMENT 'E'
USGS MAP (1 OF 2)



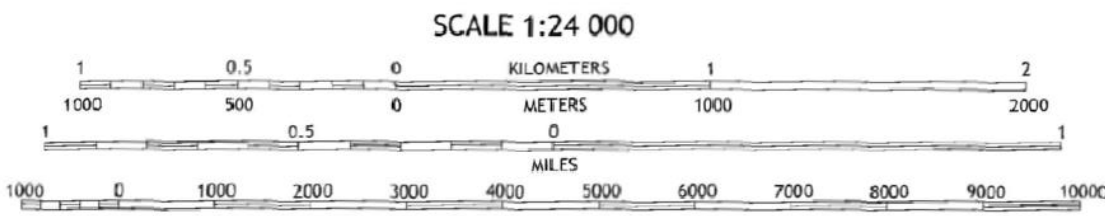
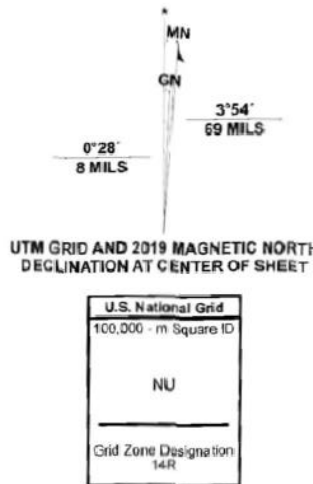
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



SHINGLE HILLS QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 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:.....NADP, September 2016 - November 2016
Roads:.....U.S. Census Bureau, 2015 - 2019
Names:.....GNIS, 1979 - 2021
Hydrography:.....National Hydrography Dataset, 2002 - 2018
Contours:.....National Elevation Dataset, 2019
Boundaries:.....Multiple sources; see metadata file 2019 - 2021
Wetlands:.....FWS National Wetlands Inventory Not Available



1	2	3	1 Spicewood
4		5	2 Pace Bend
6	7	8	3 Mansfield Dam
			4 Hammetts Crossing
			5 Bee Cave
			6 Henly
			7 Dripping Springs
			8 Signal Hill

ADJOINING QUADRANGLES

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

SHINGLE HILLS, TX
2022

Default

- Map Base
- EXISTING WATER TANK
- EXISTING WELL (SDRDB)
- EXISTING WELL (GWDB)
- EXISTING SPRING OR SEEP
- EFFLUENT STORAGE PONDS
- EFFLUENT DISPOSAL SITE BOUNDARY
- 1 MILE BUFFER
- 1 MILE BUFFER - DISPOSAL AREA
- TX_Shingle_Hills_20220727_TM_geo



301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

ATTACHMENT 'E'
USGS MAP (2 OF 2)

ATTACHMENT F
AFFECTED LANDOWNERS INFORMATION AND MAP

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
1	LOHMANS LAKEWAY PARTNERS LTD	PO BOX 340519 LAKEWAY TX 78734
2	FLINTROCK TRACE LP	8616 BIG VIEW DRIVE AUSTIN TX 78730
3	PAUL L AND BEVERLY L WYATT	109 GOLDEN BEAR DRIVE LAKEWAY TX 78738
4	JESUS R MANTAS-PEREZ AND CRISTINA R CALERO-MOLINO	102 GOLDEN BEAR COVE AUSTIN TX 78738
5	RON AND DIAHANN POTTER	104 GOLDEN BEAR COVE AUSTIN TX 78738
6	GLEN A BRYNTESON	106 GOLDEN BEAR COVE AUSTIN TX 78738
7	CHARLES AND SUSAN ZEYNEL	108 GOLDEN BEAR COVE LAKEWAY TX 78738
8	MARTHA ALBRITTON	110 GOLDEN BEAR COVE AUSTIN TX 78738
9	HAROLD D LANHAM AND KATHY HARDY	112 GOLDEN BEAR COVE LAKEWAY TX 78738
10	GEORGIA G JONES	212 NEVILLE WOOD COURT AUSTIN TX 78738
11	GADDIS EVAN AND BONNITA TRUST	214 NEVILLE WOOD COURT AUSTIN TX 78738
12	PETER C III AND CYNTHIA D MCCABE REVOCABLE TRUST	216 NEVILLE WOOD COURT AUSTIN TX 78738
13	STEPHEN C AND MARIA D FOUST	218 NEVILLE WOOD COURT AUSTIN TX 78738
14	KAMRAN AND ZAHRA DURRANI	220 NEVILLE WOOD COURT AUSTIN TX 78738
15	NATALIA MYERS	224 NEVILLE WOOD COURT AUSTIN TX 78738
16	HURST CREEK M U D	102 TROPHY DRIVE THE HILLS TX 78738
17	2050 LOHMANS SPUR LP	8121 FM 2244 SUITE 200 AUSTIN TX 78746

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
18	JH TUSCAN VILLAGE LP	102 BELLA TOSCANA AVENUE SUITE 1109 LAKEWAY TX 78734
19	JAMIE CHRISTOPHER AND GAYLE MCFARLAND ARNN	227 NEVILLE WOOD COURT AUSTIN TX 78738
20	PETER AND SHELLEY MADDOX REVOCABLE TRUST	225 NEVILLE WOOD COURT AUSTIN TX 78738
21	STEVEN KIP AND SAMANTHA K HARRIS	223 NEVILLE WOOD COURT AUSTIN TX 78738
22	DEBORAH ANN TEAGUE	221 NEVILLE WOOD COURT AUSTIN TX 78738
23	JOSEPH W AND JENNIFER D RAPP	PO BOX 341419 LAKEWAY TX 78734
24	RODNEY M AND ROBIN LYN HAWTHORNE	217 NEVILLE WOOD COURT AUSTIN TX 78738
25	ERIC AND KENDRA DEGROAT	215 NEVILLE WOOD COURT AUSTIN TX 78738
26	MATTHEWS LEE A AND BARBARA TRUST	213 NEVILLE WOOD COURT AUSTIN TX 78738
27	HUPP JON A AND KAREN L REVOCABLE TRUST	211 NEVILLE WOOD COURT AUSTIN TX 78738
28	AMER HUSAINI	209 NEVILLE WOOD COURT AUSTIN TX 78738
29	JOHN A AND JANICE A LEFFLER	207 NEVILLE WOOD COURT AUSTIN TX 78738
30	LARRY D YORK AND LINDA YORK	205 NEVILLE WOOD COURT AUSTIN TX 78738
31	WILLIAM A AND GERALDINE R MILLER	203 NEVILLE WOOD COURT AUSTIN TX 78738
32	KANG BYUNG AND JUNGHEE REVOCABLE TRUST	201 NEVILLE WOOD COURT AUSTIN TX 78738
33	FRED AND KATHLEEN MICHELLE MURABITO	15253 MONTALVO ROAD SARATOGA CA 93070
34	MCLEMORE MICHAEL T TRUST	107 NELVILLE WOOD COURT LAKEWAY TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
35	FRANK R AND LINDA R SOUTHERS	105 NEVILLE WOOD COURT AUSTIN TX 78738
36	JON B AND NANCY L WELLS	103 NEVILLE WOOD COURT AUSTIN TX 78738
37	PAUL AND APRIL DODD	302 JACK NICKLAUS DRIVE LAKEWAY TX 78738
38	SAMUEL AND TORI FISCHER	116 GOLDEN BEAR DRIVE AUSTIN TX 78738
39	SCOTT L BRANSON	203 JACK NICKLAUS DRIVE AUSTIN TX 78738
40	MARY ANNE MARQUIS	207 JACK NICKLAUS DRIVE LAKEWAY TX 78738
41	ROBERT MILES AND ANNE J MILLER	209 JACK NICKLAUS DRIVE AUSTIN TX 78738-
42	BRIAN AND MARCIA ARMSTRONG	211 JACK NICKLAUS DRIVE AUSTIN TX 78738
43	PATRICK M AND DEBORAH S CONNER	213 JACK NICKLAUS DRIVE AUSTIN TX 78738
44	WILLIAM D AND STACY L MIKRUT	215 JACK NICKLAUS DRIVE LAKEWAY TX 78738
45	MARKOVICH PAUL N AND MARY H TRUST	217 JACK NICKLAUS DRIVE AUSTIN TX 78738
46	ERIC NIELS AND DEBORAH W FLORANDER	219 JACK NICKLAUS DRIVE AUSTIN TX US 78738
47	RESNIK WILLIAM A AND DEBORAH A REVOCABLE TRUST	301 JACK NICKLAUS DRIVE AUSTIN TX 78738
48	DAVID M GRETTE	303 JACK NICKLAUS DRIVE AUSTIN TX 78738
49	MARK A ROE AND PATRICIA A MANGUM	305 JACK NICKLAUS DRIVE AUSTIN TX 78738
50	SHORE FAMILY REVOCABLE TRUST	403 LAGO VERDE ROAD AUSTIN TX 78734
51	ADAM AND KAREN FINGERMAN	309 JACK NICKLAUS DRIVE AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
52	JUSTIN AND MICHAELA KNAPLUND	17 HIGHTRAIL WAY THE HILLS TX 78738
53	MARVIN AND CHRISTINA BUTTON	19 HIGHTRAIL WAY THE HILLS TX 78738
54	MIROSLAV V AND SANJA DOKIC	21 HIGHTRAIL WAY THE HILLS TX 78738
55	STOKES-HEARN REVOCABLE TRUST	4 FIRWOOD COURT THE HILLS TX 78738
56	MICHAEL AND JOANNE MARIE KOVACICH	1 TIBURON DRIVE THE HILLS TX 78738
57	R AND D WHEELER TRUST	5 TORRINGTON COURT THE HILLS TX 78738
58	JAMES AND CAITLIN PAISLEY	8 TORRINGTON COURT THE HILLS TX 78738
59	THOMAS M AND MARGO L STEVENSON	2 WATERFALL DRIVE THE HILLS TX 78738
60	SURVIVING GRANTORS TRUST	1 WATERFALL DRIVE THE HILLS TX 78738
61	DWAYNE F REYNOLDS	81 THE HILLS DRIVE AUSTIN TX 78738
62	DAVID AND JUDITH A BLAND JR	73 THE HILLS DRIVE THE HILLS TX 78738
63	HILLS II OF LAKEWAY INC	PO BOX 4900 SCOTTSDALE AZ 85261
64	CLUBCORP GOLF OF TEXAS L P	PO BOX 790830 SAN ANTONIO TX 78279
65	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
66	COSKEY FAMILY LIVING TRUST	3 DASHWOOD COURT THE HILLS TX 78738
67	KAREN S MORTER	4 GRAPEWOOD COURT THE HILLS TX 78738
68	Name Unknown Property not found on TCAD	52 THE HILLS DRIVE THE HILLS TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
69	SEAN AND JENIFER CROXDALE	514 BLACK WOLF RUN AUSTIN TX 78738
70	STEVEN E AND CAROLYN J GOTTLIEB	512 BLACK WOLF RUN AUSTIN TX 78738
71	STEVEN E GOTTLIEB	512 BLACK WOLF RUN AUSTIN TX 78738
72	LISA S MAGENHEIMER	508 BLACK WOLF RUN AUSTIN TX 78738
73	BARRY ALEXANDER AND PEASE MICHELLE	506 BLACK WOLF RUN AUSTIN TX 78738
74	DAVID CHADWICK AND MARIANNA JACOBS	504 BLACK WOLF RUN LAKEWAY TX 78738
75	DONOVAN FAMILY TRUST	502 BLACK WOLF RUN AUSTIN TX 78738
76	BRUCE WILLIAM SIMMONS AND KELLY VARNEY	411 GOLDEN BEAR DRIVE AUSTIN TX 78738
77	KENNEDY JAMES W AND SHERRY L REVOCABLE TRUST	404 BLACK WOLF DRIVE AUSTIN TX 78738
78	COVINGTON CHRISTOPHER AND CHRISTINA TRUST	402 BLACK WOLF RUN LAKEWAY TX 78738
79	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
80	SCHULTZ DEBORAH Z 10689 TRUST	105 COG HILL COURT AUSTIN TX 78738
81	RAND N AND KAREN M SHULMAN	108 COG HILL COURT AUSTIN TX 78738
82	DAVID R AND MARICELA WILSON	106 COG HILL COURT AUSTIN TX 78738
83	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
84	ROBERT CHARLES AND TANYA L DORSETT JR	220 BLACK WOLF RUN AUSTIN TX 78738
85	MILTON BARTLETT FAMILY TRUST	218 BLACK WOLF RUN AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
86	RODNEY C HOESMAN AND DANA L FREEMAN	216 BLACK WOLF RUN AUSTIN TX 78738
87	WATKINS LIVING TRUST	214 BLACK WOLF RUN LAKEWAY TX 78738
88	JOHN M AND CHARLOTTE K BERRA	212 BLACK WOLF RUN AUSTIN TX 78738
89	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
90	EDWARD B AND KIRSTEN R NELSON	210 BLACK WOLF RUN AUSTIN TX 78738
91	RUSSELL DANNY BRISTOL AND KELLY LYNN ADELIA	208 BLACK WOLF RUN AUSTIN TX 78738
92	MICHAEL W AND JANET S KAMPEN	206 BLACK WOLF RUN AUSTIN TX 78738
93	SALEK JAMES AND DIANE REVOCABLE TRUST	204 BLACK WOLF RUN AUSTIN TX 78738
94	KERLEY LIVING TRUST	202 BLACK WOLF RUN AUSTIN TX 78738
95	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
96	ROBERT W AND MARY LEOLA JOLLY	107 ESCAVERA COVE AUSTIN TX 78738
97	LYNN AND MARYJO DONNELL	109 ESCAVERA COVE AUSTIN TX 78738
98	HAFERMANN FAMILY TRUST	111 ESCAVERA COVE AUSTIN TX 78738
99	KEVIN FRANKLIN AND DEBORAH MCMORRIES STEVENSON	113 ESCAVERA COVE AUSTIN TX 78738
100	WELLS FAMILY TRUST	115 ESCAVERA COVE AUSTIN TX 78738
101	BERGAN REVOCABLE TRUST	117 ESCAVERA COVE AUSTIN TX 78738
102	HARRINGTON JEANNE TRUST	119 ESCAVERA COVE AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
103	WELLS J KENT AND E GAIL LIFE ESTATE AND KENT AND GAIL WELLS FAMILY TRUST	121 ESCAVERA COVE AUSTIN TX 78738
104	ELIZABETH AND FREDERIC RELLO	130 ESCAVERA COVE AUSTIN TX 78738
105	RICHARD W AND KIMBERLY T MCARDLE	128 ESCAVERA COVE AUSTIN TX 78738
106	BRYAN AND NICKY BRADEMAN	126 ESCAVERA COVE AUSTIN TX 78738
107	SCOTT W ELDER	124 EXCAVERA COVE AUSTIN TX 78738
108	AMY AND LARRY MICON	122 ESCAVERA COVE AUSTIN TX 78738
109	KRIBBS WILLIAM AND SHANNA TRUST	120 ESCAVERA COVE AUSTIN TX 78738
110	JOHANNES AND EMILY LE LARCHER	PO BOX 964 RED LODGE MT 59068
111	CHARLES AND AMY FOWLER JR	116 ESCAVERA COVE AUSTIN TX 78738
112	ROBERT M AND KAY P BEASLEY	114 ESCAVERA COVE AUSTIN TX 78738
113	MICHAEL A AND PATRICIA BURNS HAHN	112 ESCAVERA COVE AUSTIN TX 78738
114	THE KELLY MICHELE FRANCES TRUST	110 ESCAVERA COVE AUSTIN TX 78738
115	ROBERT AND SHERRI CLEMONS TRUST	108 ESCAVERA COVE AUSTIN TX 78738
116	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
117	WILLIAM AND SONJA TALBOT	102 ESCAVERA COVE AUSTIN TX 78738
118	PATRICIA H AND LYNDON D MUELLER	116 BLACK WOLF RUN AUSTIN TX 78738
119	DAVID AND AMBER D YEW	114 BLACK WOLF RUN LAKEWAY TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
120	STEVEN S AND LESLIE U KNISELY	112 BLACK WOLF RUN AUSTIN TX 78738
121	STEVEN S AND LESLIE U KNISELY	112 BLACK WOLF RUN AUSTIN TX 78738
122	CHARLINE DOUTY	91 RED RIVER STREET APT 2811 AUSTIN TX 78701
123	KELLY RODNEY P AND MARY ANN KELLY REVOCABLE TRUST	104 BLACK WOLF RUN AUSTIN TX 78738
124	GREGG R AND SHAYNE F SKINNER	102 BLACK WOLF RUN AUSTIN TX 78738-
125	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
126	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
127	SCOTT R OLSON	107 KADEN WAY LAKEWAY TX 78738
128	STEPHEN AND LINDSAY LAGASSE	102 STEPHANIE LANE LAKEWAY TX 78738
129	TRACADAS FAMILY TRUST	101 TONKAWA TRL W AUSTIN TX 78738
130	BOGDAN ODULINSKI AND MICHELE MAYSONAVE	103 W TONKAWA TRL LAKEWAY TX 78738
131	SANTO AND JAMIE DASARO	105 TONKAWA TRL W AUSTIN TX 78738
132	DAN DINESHI CHAND	107 W TONKAWA TRAIL AUSTIN TX 78738
133	DANA KIRSTEN GLASS	109 W TONKAWA TRL LAKEWAY TX 78738
134	CRAIG AND CAREY KING	111 TONKAWA TRL WEST LAKEWAY TX 78738
135	ZULFIQAR AND RABAIL ANSARI	113 TONKAWA TRL LAKEWAY TX 78738
136	DON L AND CONSTANCE M RAGLAND	115 W TONKAWA TRL AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
137	ELIZABETH BROOKE TOELLER	117 TONKAWA TRL W AUSTIN TX 78738
138	CHRISTOPHER BENJAMIN AND RHONDA A ROBINSON	119 TONKAWA TRL W LAKEWAY TX 78738
139	JAMES L AND TARA A STANISLAUS	16500 FLINTROCK ROAD AUSTIN TX 78738
140	CREED AND CATHERINE FORD IV	16490 FLINTROCK ROAD AUSTIN TX 78738
141	JOSEPH P AND LEILANI M CONNORS	402 TONKAWA TRL W AUSTIN TX 78738
142	FRED JACOB AND ANITA K SCHLOTTERBACK	PO BOX 340414 AUSTIN TX 78734
143	KENNETH J AND DOROTHY E AUNE LIVING TRUST	3910 PAWNEE PASS AUSTIN TX 78738
144	AF TRUST	3860 PAWNEE PASS AUSTIN TX 78738
145	ROBERT DUNKERLEY AND MICHELLE MOGGIO	3850 PAWNEE PASS AUSTIN TX 78738
146	SPOUSES TRUST UTA HUSSEY 2000 FAMILY TRUST	3840 PAWNEE PASS LAKEWAY TX 78738
147	SHAWN D MORRIS	3830 PAWNEE PASS AUSTIN TX 78738
148	PAUL BANCROFT AND CLARA BERNACHEA	13501 GALLERIA CIR SUITE 280 AUSTIN TX 78738
149	DARYL AND NADINE HIGGINS	603 GOLDEN BEAR AUSTIN TX 78738
150	UMESH BHANDARI AND HOLLY KINGET	3820 PAWNEE PASS AUSTIN TX 78738
151	DAVID J AND HEATHER L KENYON	3810 PAWNEE PASS AUSTIN TX 78738
152	JARED S POPLIN	3800 PAWNEE PASS AUSTIN TX 78738
153	BAOYING YANG	519 GOLDEN BEAR DRIVE AUSTIN TX 78738-

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
154	DANIEL S AND DONNA LYNN M ALLEN	522 GOLDEN BEAR DRIVE AUSTIN TX 78738
155	TERENCE AND SHELLEY RABBITT	105 SHORES OAKS COURT LAKEWAY TX 78738
156	MCGIVERAN STANLEY AND CHRISTINE TRUST	107 SHORE OAKS COURT AUSTIN TX 78738
157	THOMAS J TRAUGHBER	108 SHORE OAKS COURT LAKEWAY TX 78738
158	BIN HU KARG AND LARS MARKUS KARG	106 SHORE OAKS COURT AUSTIN TX 78738
159	KURT D WISSNER	104 SHORE OAKS COURT AUSTIN TX 78738
160	MCKINZIE DAVID J AND LAURA M TRUST	516 GOLDEN BEAR DRIVE AUSTIN TX 78738
161	POWELL JAMES L LLEWELLYN II AND MAUREEN TRUST	514 GOLDEN BEAR DRIVE LAKEWAY TX 78738
162	BRYAN H AND CHRISTY N KRANIK	512 GOLDEN BEAR DRIVE AUSTIN TX 78738
163	WILLIAM JENNINGS AND KATHERINE BEE PAVETO	510 GOLDEN BEAR DRIVE AUSTIN TX 78738
164	JAMES AND BARBARA ELIZABETH WANG	508 GOLDEN BEAR DRIVE AUSTIN TX 78738
165	JEFFREY C AND MONICA WILLIAMS	504 GOLDEN BEAR DRIVE AUSTIN TX 78738
166	STEPHEN AND MELISSA ODEA	503 GOLDEN BEAR DRIVE AUSTIN TX 78738
167	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
168	HILLS II OF LAKEWAY INC	PO BOX 4900 SCOTTSDALE AZ 85261
169	BRIAN M AND CHRISTINE L PRIBYL	403 GOLDEN BEAR DRIVE LAKEWAY TX 78738
170	AMOR AND SUZANNE FORWOOD III	408 GOLDEN BEAR DRIVE AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
171	RICHARD AND LAURA LAWLOR	406 GOLDEN BEAR DRIVE LAKEWAY TX 78738
172	NATHANIEL AND JULIET PENISTON	404 GOLDEN BEAR DRIVE LAKEWAY TX 78738
173	TOM AND DEBBIE WOODARD	103 CABO DEL SOL COURT AUSTIN TX 78738
174	JAMES C AND LINDA L GRIMSLEY JR	105 CABO DEL SOL COURT AUSTIN TX 78738
175	KANE TIMOTHY AND RITA TRUST	107 CABO DEL SOL COURT AUSTIN TX 78738
176	CURTIS A AND JAMIE J IMBER	109 CABO DEL SOL COURT AUSTIN TX 78738
177	JAMES HOUSLEY FURMAN AND SUSAN BARNETT	108 CABO DEL SOL COURT AUSTIN TX 78738
178	WILLIAM W AND JENNIFER F FURGERSON	106 CABO DEL SOL COURT AUSTIN TX 78738
179	JERRY D AND CYNTHIA A JOHNSON	105 PORTO CIMA COURT AUSTIN TX 78738
180	LANDRY LIVING TRUST	107 PORTO CIMA COURT AUSTIN TX 78738
181	MICHAEL G AND PATRICIA L TOMBARI	7 BOARDWATER COURT SHENANDOAH TX 77381
182	PATTERSON FAMILY TRUST	104 PORTO CIMA LAKEWAY TX 78738-
183	ROSS E WINSTON JR AND ANN MARIE	PO BOX 26560 AUSTIN TX 78755
184	SCHWENDINGER FAMILY TRUST	230 GOLDEN BEAR DRIVE AUSTIN TX 78738
185	GETTEN FAMILY TRUST	228 GOLDEN BEAR DRIVE AUSTIN TX 78738
186	RDBD TRUST	226 GOLDEN BEAR DRIVE LAKEWAY TX 78738
187	JACQUELINE MILLER	224 GOLDEN BEAR DRIVE AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
188	ROBERT A AND SHARI COLLIER	222 GOLDEN BEAR DRIVE AUSTIN TX 78738
189	BURKE T AND TRICIA T EDWARDS	220 GOLDEN BEAR DRIVE AUSTIN TX 78738
190	RAIFORD WAYNE AND CANDYCE L CRAWFORD	218 GOLDEN BEAR DRIVE AUSTIN TX 78738
191	SEAN AND JENNIFER KOONTZ	216 GOLDEN BEAR DRIVE AUSTIN TX 78738-
192	AIMEE KIRCHER	214 GOLDEN BEAR DRIVE AUSTIN TX 78738
193	212 GOLDEN BEAR REVOCABLE TRUST	212 GOLDEN BEAR DRIVE AUSTIN TX 78738
194	FENG XU AND YUN WANG	210 GOLDEN BEAR DRIVE AUSTIN TX 78738
195	STEVEN AND CHRISTINA M QUAKENBUSH	208 GOLDEN BEAR DRIVE LAKEWAY TX 78738
196	BRYAN DECORDOVA	206 GOLDEN BEAR DRIVE AUSTIN TX 78738
197	CHRISTIAN RIVERA	204 GOLDEN BEAR DRIVE AUSTIN TX 78738
198	KEVIN JAMES AND RONDA MARIE FANNING	203 GOLDEN BEAR DRIVE LAKEWAY TX 78738
199	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
200	LAKEWAY REGIONAL MEDICAL CENTER	3 GREENWAY PLAZA HOUSTON TX 77046
201	LAKE TRAVIS ISD	3322 RANCH ROAD 620 S AUSTIN TX 78738
202	LAKE TRAVIS ISD	3322 RANCH ROAD 620 S AUSTIN TX 78738
203	LAKE TRAVIS ISD	3322 RANCH ROAD 620 S AUSTIN TX 78738
204	JEFFREY FISHER	3703 PEAK LOOKOUT DRIVE AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
205	CARY KRIER	3701 PEAK LOOKOUT DRIVE AUSTIN TX 78738
206	AMERICO PROPERTIES LLC	2 AUTUMN OAKS DRIVE AUSTIN TX 78738
207	WILLIAM M MCGOWAN AND CARA GAMBINI MCGOWAN	205 JACK NICKLAUS DRIVE AUSTIN TX 78738
208	LAKEWAY MOB PARTNERS LLC	PO BOX 978 ARGYLE TX 76226
209	JOHN C GRIFFITHS	208 RIVULET LN LAKEWAY TX 78738
210	NANCY PETERS	2400 CORBIN WAY CEDAR PARK TX 78613
211	CASSIDY ANDREW HUMPHREY	9968 BOBCAT COURT GILROY CA 95020
212	JOSHUA LEE WARD	296 BRIGHT SKY DRIVE AUSTIN TX 78737
213	HILLSONG DEVELOPMENT LLC	2101 LAKEWAY BOULEVARD SUITE 130 LAKEWAY TX 78734
214	CHERRY PEAK LTD	PO BOX 33 COLLEYVILLE TX 76034
215	MITCHUM THOMAS A SUPPLEMENTAL NEEDS TRUST AND ABIGAIL M MITCHUM TRUST	336 S CONGRESS AVENUE SUITE 100 AUSTIN TX 78704
216	HILLSONG DEVELOPMENT LLC	2101 LAKEWAY BOULEVARD SUITE 130 LAKEWAY TX 78734
217	VILLAS AT FLINTROCK CONDOMINIUMS	315 JACK NICKLAUS DRIVE AUSTIN TX 78738
218	JORGE ROBERTO AND AMY CRENWEIGE ELLIS	3726 HUNTERWOOD PT AUSTIN TX 78746
219	FLINTROCK HOMEOWNERS ASSOCIATION INC	5316 W US-290 SERVICE ROAD SUITE 100 AUSTIN TX 78735
220	JORGE ROBERTO AND AMY CRENWEIGE ELLIS	3726 HUNTERWOOD PT AUSTIN TX 78746
221	WEEMS LIVING TRUST	16327 FLINT ROCK ROAD AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
222	WILLIAM J AND SHELLIE ANN HOLLIS	4222 SERENE HILLS DRIVE AUSTIN TX 78738
223	FLINTROCK AT HURST CREEK POA	PO BOX 342585 AUSTIN TX 78734
224	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
225	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
226	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
227	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
228	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
229	RYAN AND PAM JOHNSTONE	17001 FLINT ROCK ROAD AUSTIN TX 78738
230	ANDREA HOFACRE	17004 FLINTROCK AUSTIN TX 78738
231	BRIAN C AND YOSHIKO DEATON	17006 FLINTROCK ROAD AUSTIN TX 78738
232	JEFF DAVID AND SHEJI R WOODS	17008 FLINTROCK ROAD AUSTIN TX 78738
233	JOSEPH A AND JILL AUBY MANCINO	4500 SERENE HILLS DRIVE AUSTIN TX 78738
234	EASTSIDE LANDINGS DEVELOPMENT LLC	2101 LAKEWAY BOULEVARD SUITE 130 LAKEWAY TX 78734
235	WELLS HARRIETTE A FAMILY TRUST JOHN L COULTRUP TRUSTEE	2300 BARTON CREEK BOULEVARD APT 2 AUSTIN TX 78735
236	TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT 17	3812 ECK LN AUSTIN TX 78734
237	NICHOLAS AND JUNE YUAN NICASTRO	510 MISSION BELL COVE LAKEWAY TX 78738
238	JOHN AND DANIELLE FRONS MAJOR	508 MISSION BELL COVE AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
239	JHF HOMES LLC	2303 RANCH ROAD 620 S SUITE 160 LAKEWAY TX 78734
240	CHARLES AND CHELSY TANNER	703 SERENE ESTATES DRIVE AUSTIN TX 78738
241	SERENE HILLS HOMEOWNERS ASSOCIATION INC	11149 RESEARCH BOULEVARD SUITE 100 AUSTIN TX 78759
242	NICHOLAS AND ANANDA SANSON	513 DOE WHISPER WAY AUSTIN TX 78738
243	DAVID GORDON RAPOPORT AND CASSIDY ASHTON HURWITZ	515 DOE WHISPER WAY LAKEWAY TX 78738
244	JEFFREY RANDOLPH AND DIANA HANSON	517 DOE WHISPER WAY LAKEWAY TX 78738
245	ANAND USHAKANT AND UMA ANAND SHIRUR	519 DOE WHISPER WAY LAKEWAY TX 78738
246	JEFFREY WILLIAM GEROUX AND JULIETA ARELLANO LEE	521 DOE WHISPER WAY AUSTIN TX 78738
247	CHIWON SUH AND MI HEE KIL	606 SWEET GRASS LN LAKEWAY TX US 78738
248	ELIZABETH DEE ROGERS	419 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
249	RICHARD AND DANA SHERMAN TRUST	412 RINGTAIL STREAM LAKEWAY TX 78738
250	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
251	TRAVIS COUNTY ESD NO. 6	PO BOX 340196 AUSTIN TX 78734
252	TRAVIS COUNTY ESD NO. 6	PO BOX 340196 AUSTIN TX 78734
253	H E B GROCERY COMPANY LP	PO BOX 839999 SAN ANTONIO TX 78283
254	TRAVIS COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT 17	3812 ECK LN AUSTIN TX 78734
255	PATRICK AND MARY-KRISTIAN WOOD	304 RINGTAIL STREAM DRIVE LAKEWAY TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
256	DAMON LAMAR AND KELLY ANN JOSLIN	302 RINGTAIL STREAM DRIVE AUSTIN TX 78738
257	EDUARDO ALVAREZ MARQUARD AND SANDRA RODRIQUEZ JIMENEZ	212 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
258	STEVEN C MATHEWS	210 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
259	DITRELL AND JERELL E BINKLEY	208 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
260	JERICO AND LAUREL GOVEIA GRAFFAGNINI	206 RINGTAIL STREAM DRIVE AUSTIN TX 78738
261	KURT D AND GENEVAL NESS	204 RINGTAIL STREAM DRIVE AUSTIN TX 78738
262	OFFILL WILLIAM J AND STEPHANIE G REVOCABLE TRUST	202 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
263	VANESSA HOUCK	203 RINGTAIL STREAM DRIVE AUSTIN TX 78738
264	NICHOLAS TAYLOR AND KAREN MELENDEZ	205 RINGTAIL STREAM DRIVE AUSTIN TX 78738
265	GARY A AND DENISE D MARX	207 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
266	ANDERSEN PHILIP EARL AND PATRICIA M REVOCABLE TRUST	301 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
267	ROBERT AND SHARON HANNAFORD	303 SWEET GRASS LN LAKEWAY TX 78738
268	KEVIN J ELLE AND MARIA T CURRY	305 SWEET GRASS LN LAKEWAY TX 78738
269	EDWARD JAMES AND TERESA ANNETTE DAVIS	307 SWEET GRASS LN LAKEWAY TX 78738-
270	ERIC AND MEGHAN PARK	309 SWEET GRASS LN LAKEWAY TX 78738
271	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
272	CLAUDELL AND CAROLYN K WILLIAMS	304 DUCKHORN PASS AUSTIN TX 78738

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
273	MONTGOMERY FAMILY TRUST	302 DUCKHORN PASS AUSTIN TX 78738
274	MARK J AND LEEANN Z GORMAN	303 DUCKHORN PASS AUSTIN TX 78738
275	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
276	MF FAMILY TRUST	216 DUCKHORN PASS LAKEWAY TX 78738
277	SCOTT AND FELECIA SHAW	214 DUCKHORN PASS LAKEWAY TX 78738-
278	SCOTT HENDRIX AND TERRI GATES DAILEY	212 DUCKHORN PASS LAKEWAY TX 78738
279	ANTONIO AND JESSICA K DIBIASIO	210 DUCKHORN PASS LAKEWAY TX 78738
280	KYLE MURPHY RHODES AND CECILLIA HANG NGUYEN	208 DUCKHORN PASS LAKEWAY TX 78738
281	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
282	ANNA MARIE SANCHEZ AND KATRINA E PRUITT	205 DUCKHORN PASS AUSTIN TX US 78738
283	ANUJ SINGHANIA	303 RINGTAIL STREAM DRIVE AUSTIN TX 78738
284	RH LAKEWAY DEVELOPMENT LTD	2101 LAKEWAY BOULEVARD SUITE 100 LAKEWAY TX 78734
285	KIW LAKEWAY VENTURE LLC	6710 E CAMELBACK ROAD SUITE 100 SCOTTSDALE AZ 85251
286	GRANT STACY REVOCABLE TRUST AN ARIZONA TRUST	11065 PECAN PARK BOULEVARD CEDAR PARK TX 78613
287	NASH SWEETWATER LLC	9600 N MOPAC EXPRESSWAY SUITE 750 AUSTIN TX 78759
288	SWEETWATER MASTER COMMUNITY INC	PO BOX 203310 AUSTIN TX 78720
289	LAZY NINE MUD NO 1A C/O ALLEN BOONE HUMPHRIES ROBINSON LLP	1108 LAVACA ST SUITE 510 AUSTIN TX US 78701

TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
290	GREY FOREST DEVELOPMENT LLC	6101 HOLIDAY HILL ROAD MIDLAND TX 79707
291	JPMORGAN CHASE BANK	PO BOX 561305 DALLAS TX 75356
292	SERENE HILLS COMMONS LP	100 E ANDERSON LN SUITE 200 AUSTIN TX 78752
293	BMEF LAKEWAY LLC C/O ALTUS GROUP	PO BOX 92129 SOUTHLAKE TX 76092
294	FALCONHEAD WEST OWNERS ASSOCIATION INC	5316 WEST US-290 SERVICE ROAD SUITE 100 AUSTIN TX 78735
295	CITY OF LAKEWAY	1102 LOHMANS CROSSING LAKEWAY TX 78734
296	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
297	SEAN AND WENDY WHALING	110 STEPHANIE LN AUSTIN TX 78738
298	4809 SERENE HILLS LLC	111 SENDERA BONITA LAKEWAY TX 78734
299	SERGEY FROLOV AND ELENA KLOCHIKHINA	4807 SERENE HILLS DRIVE LAKEWAY TX 78738
300	KYLE A AND KATHERINE PHILLIPS	4805 SERENE HILLS DRIVE LAKEWAY TX 78738
301	ANKUR AND SWATI DWIVEDI	4803 SERENE HILLS DRIVE LAKEWAY TX 78738
302	FERNANDO JOSE REITER LANDA AND MAYRA ALEJANDRA ESPADA DOMINGUEZ	4801 SERENE HILLS DRIVE LAKEWAY TX 78738
303	SRIDHARAN AND SAVITHA PARTHASARATHY	701 SWEET GRASS LN LAKEWAY TX 78738
304	ALEXANDER AND IRINA ZOLLER	4705 SERENE HILLS DRIVE LAKEWAY TX 78738
305	ADITYA AND RASHI GARG	4703 SERENE HILLS DRIVE LAKEWAY TX 78738

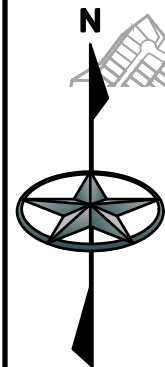
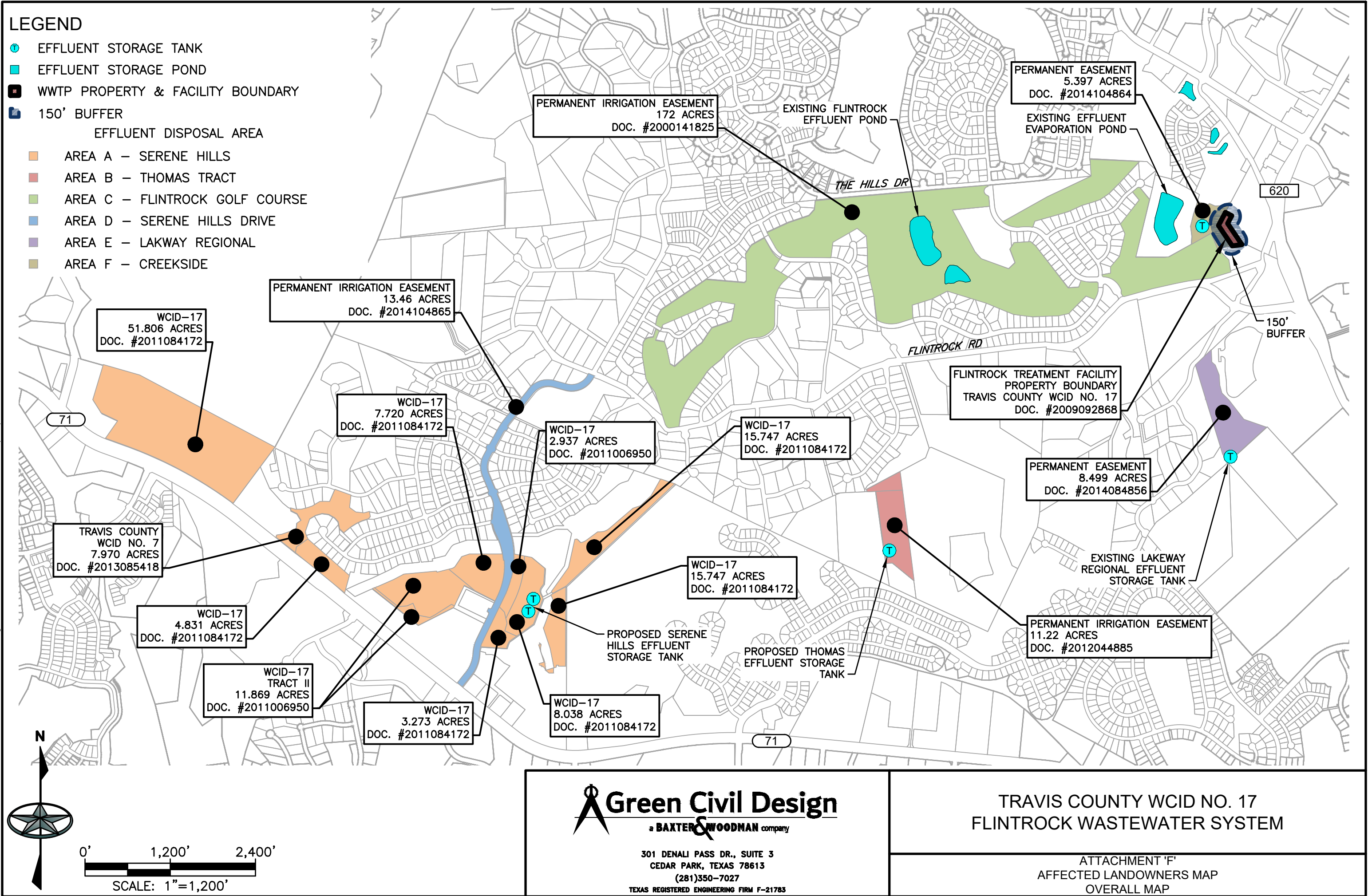
TRAVIS COUNTY WCID NO. 17
WQ0013878001
Attachment F - Affected Landowners List

Number	OWNER NAME	MAILING ADDRESS
306	JOONHO SUNG AND SOYOON KUM	802 SERENE ESTATES DRIVE AUSTIN TX 78738
307	JASON AND RACHEL JOY ROTHSCHILD	801 SERENE ESTATES DRIVE AUSTIN TX 78738
308	ANDREW M AND ERINN SMITH	1111 CRESTONE STREAM DRIVE AUSTIN TX 78738
309	ALI MEHDI AND KAUSER MEHDI	14309 BROADWINGED HAWK DRIVE AUSTIN TX 78738
310	WS COS INVESTMENTS LLC WHEELLOCK ST ACQUISITIONS LLC	660 STEAMBOAD ROAD FLOOR 3 GREENWICH CT 06830
311	MAKIM LLC	1345 E PUTNAM AVE OLD GREENWICH CT 06870
312	SERENE HILLS HOMEOWNERS ASSOCIATION INC	PO BOX 203310 AUSTIN TX 78720
313	ROBERT A KRULISKY AND MAI T NGOC	308 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
314	JOSEPH AND SHELBY WYATT	310 RINGTAIL STREAM DRIVE LAKEWAY TX 78738
315	STEVEN AND SUSANA PURDY	312 RINGTAIL STREAM DRIVE AUSTIN TX 78738
316	TRAUTMANN REVOCABLE TRUST	512 BOWCROSS POINT AUSTIN TX 78738
317	JOHN K HANDLEY	509 PADRES PLACE AUSTIN TX 78738
318	JILYNN ELYCE DAVIS	506 PADRES PLACE LAKEWAY TX 78738
319	MITCHELL MOORE	2303 RANCH ROAD 620 S SUITE 241 LAKEWAY TX 78734
320	EASTSIDE LANDINGS DEVELOPMENT LLC	2101 LAKEWAY BOULEVARD SUITE 130 LAKEWAY TX 78734
321	HPK VENTURES LTD	PO BOX 163265 AUSTIN TX 78716

FILE: 2400662 - AFFECTED LANDOWNERS - OVERALL.dwg TAB: OVERALL MAP PLOTTED: 7/31/2024 3:32 PM BY: GLENN POPE

LEGEND

- EFFLUENT STORAGE TANK
- EFFLUENT STORAGE POND
- WWTP PROPERTY & FACILITY BOUNDARY
- 150' BUFFER
- EFFLUENT DISPOSAL AREA
 - AREA A - SERENE HILLS
 - AREA B - THOMAS TRACT
 - AREA C - FLINTROCK GOLF COURSE
 - AREA D - SERENE HILLS DRIVE
 - AREA E - LAKWAY REGIONAL
 - AREA F - CREEKSIDE



0' 1,200' 2,400'
SCALE: 1"=1,200'

Green Civil Design
a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

ATTACHMENT 'F'
AFFECTED LANDOWNERS MAP
OVERALL MAP

FILE: 2400662 - AFFECTED LANDOWNERS - OVERALL.dwg TAB: FLINTROCK WWTP & GOLF COURSE EFFLUENT DISPOSAL SITE PLOTTED: 8/1/2024 9:11 AM BY: GLENN POPE



Green Civil Design

a **BAXTER & WOODMAN** company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027











TEXAS REGISTERED ENGINEERING FIRM F-21783

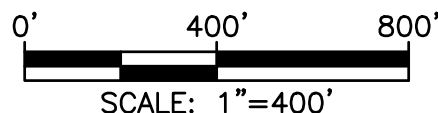
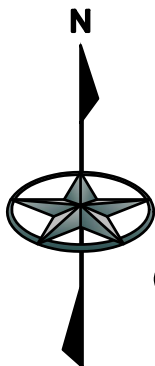
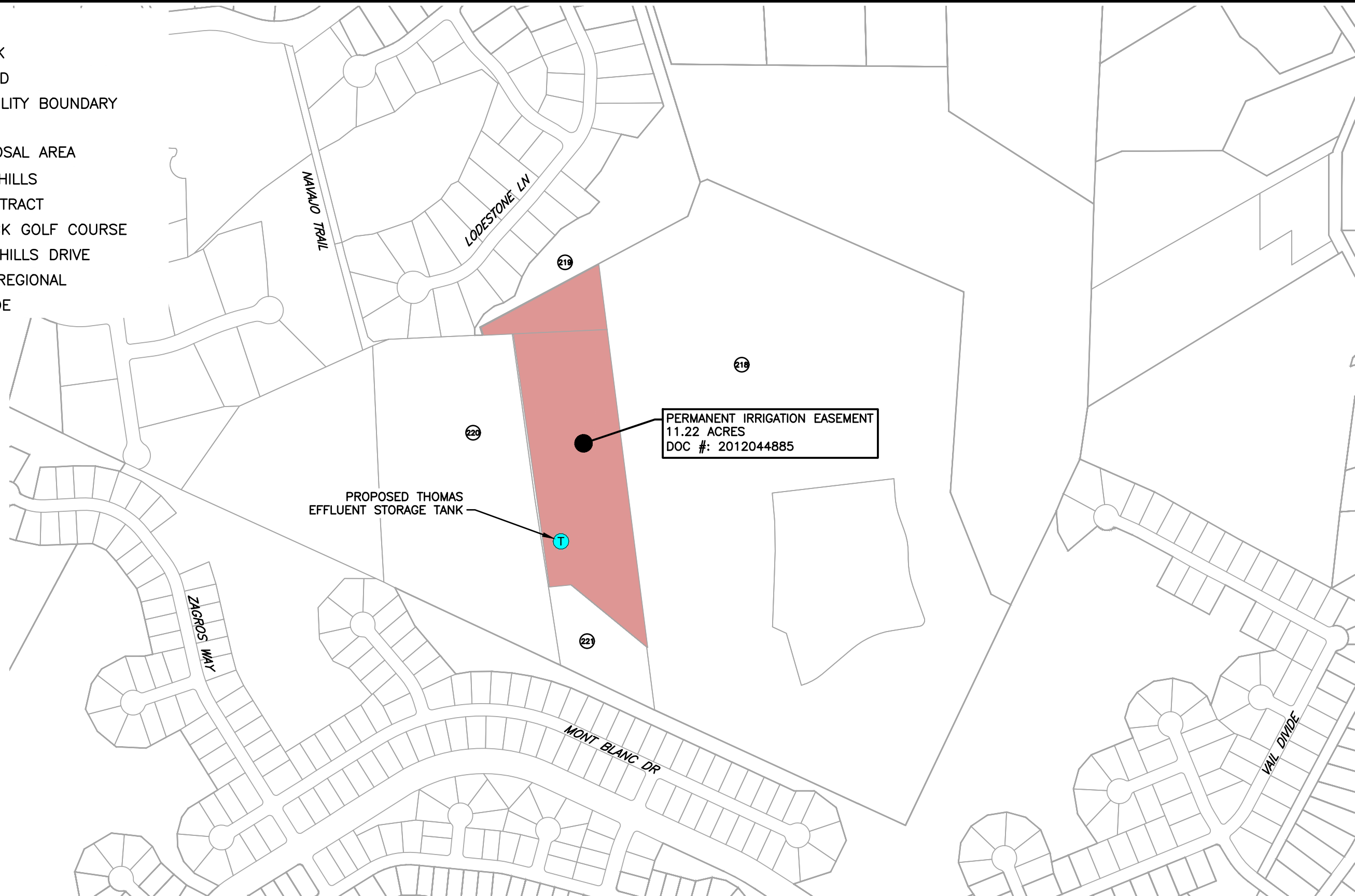
TRAVIS COUNTY WCID NO. 17 FLINTROCK WASTEWATER SYSTEM

ATTACHMENT 'F'
AFFECTED LANDOWNERS MAP
FLINTROCK WWTP & GOLF COURSE EFFLUENT DISPOSAL SITE,
LAKWAY REGIONAL EFFLUENT DISPOSAL SITE,
& CREEKSIDE EFFLUENT DISPOSAL SITE

FILE: 2400662 - AFFECTED LANDOWNERS - OVERALL.dwg TAB: THOMAS TRACT EFFLUENT DISPOSAL SITE PLOTTED: 7/31/2024 3:32 PM BY: GLENN POPE

LEGEND

-  EFFLUENT STORAGE TANK
-  EFFLUENT STORAGE POND
-  WWTP PROPERTY & FACILITY BOUNDARY
-  150' BUFFER
- EFFLUENT DISPOSAL AREA**
-  AREA A - SERENE HILLS
-  AREA B - THOMAS TRACT
-  AREA C - FLINTROCK GOLF COURSE
-  AREA D - SERENE HILLS DRIVE
-  AREA E - LAKWAY REGIONAL
-  AREA F - CREEKSIDE



Green Civil Design

a **BAXTER & WOODMAN** company

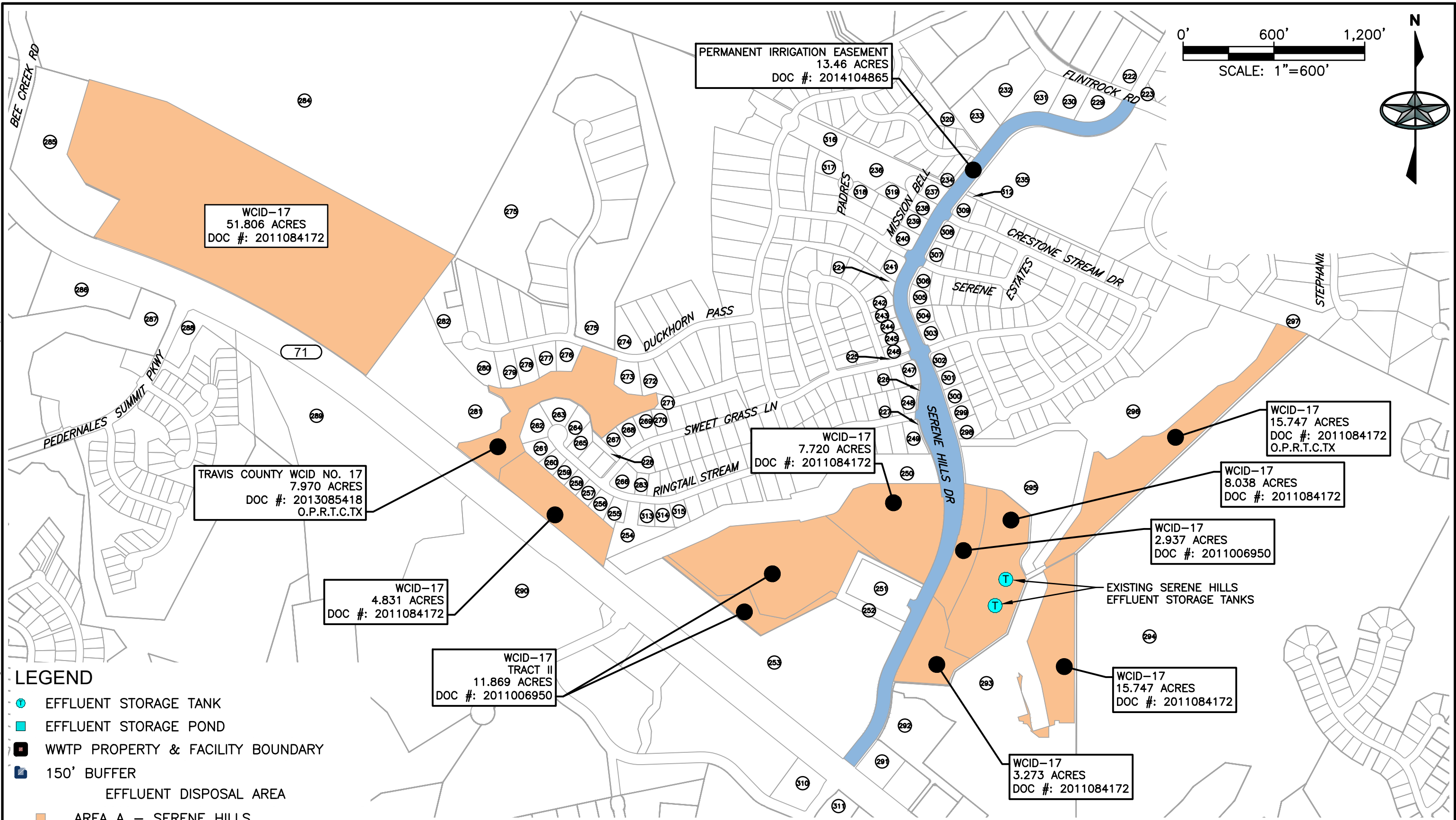
301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027

TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

ATTACHMENT 'F'
AFFECTED LANDOWNERS MAP
THOMAS TRACT EFFLUENT DISPOSAL SITE

FILE: 2400662 - AFFECTED LANDOWNERS - OVERALL.dwg TAB: SERENE HILLS EFFLUENT DISPOSAL SITE PLOTTED: 7/31/2024 3:32 PM BY: GLENN POPE



Green Civil Design
a **BAXTER & WOODMAN** company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

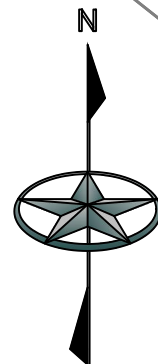
ATTACHMENT 'F'
AFFECTED LANDOWNERS MAP
SERENE HILLS EFFLUENT DISPOSAL SITE

ATTACHMENT G
ORIGINAL PHOTOGRAPHS

LEGEND

- PICTURE LOCATION, DIRECTION TAKEN, AND LIST NUMBER
- WASTEWATER TREATMENT PLANT
- EFFLUENT STORAGE TANK
- EXISTING EFFLUENT LINE
- PROPOSED EFFLUENT LINE
- EFFLUENT STORAGE POND
- IRRIGATION AREA
- FLINTROCK GOLF COURSE
- LAKWAY REGIONAL
- SERENE HILLS
- SERENE HILLS DRIVE
- THOMAS TRACT
- CREEKSIDE TRACT
- TRAVIS COUNTY WCID 17 CCN BOUNDARY

0' 1,200' 2,400'
SCALE: 1"=1,200'



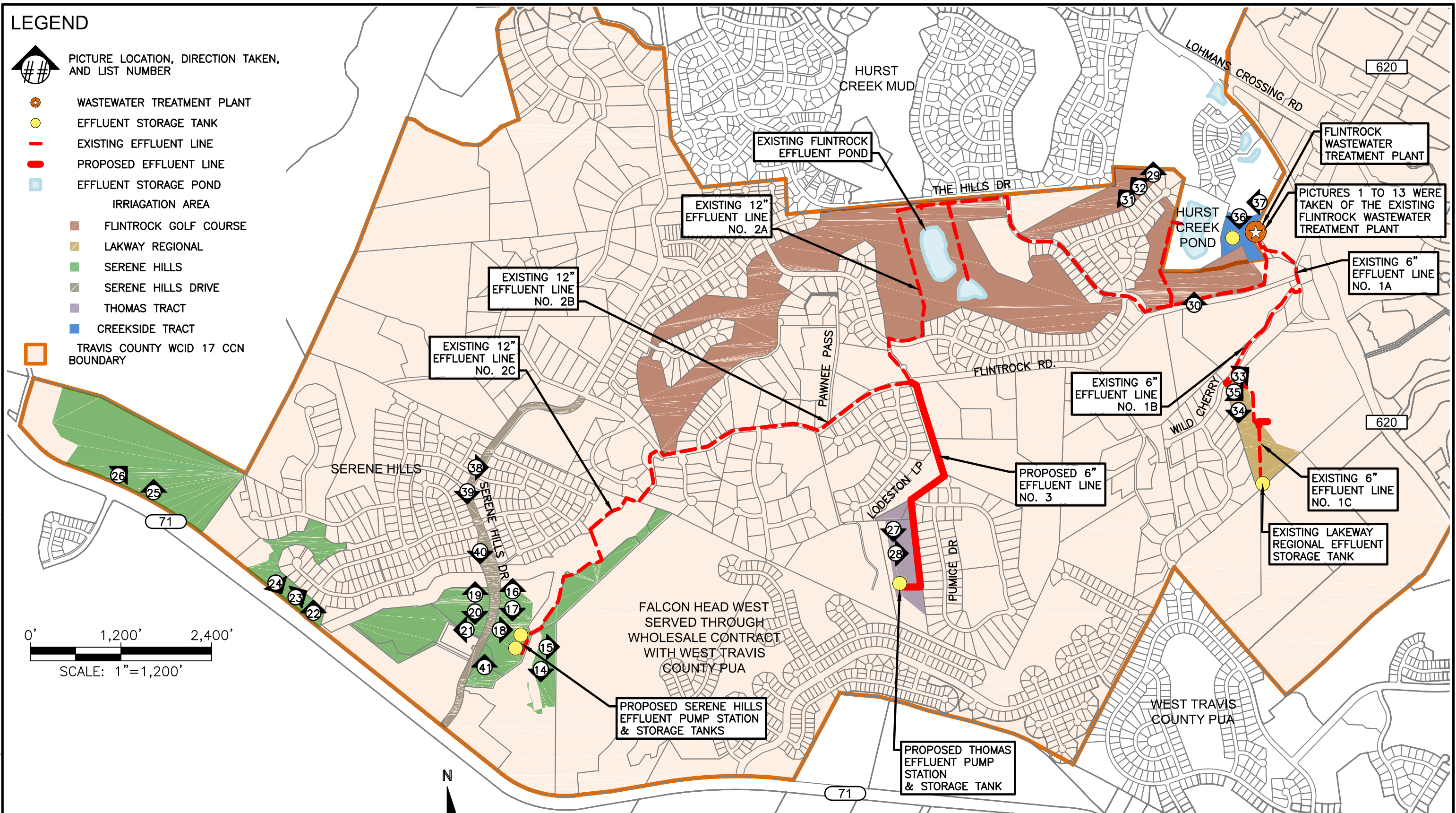
Green Civil Design
a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WATER WCID NO. 17
FLINTROCK WWTP

ATTACHMENT 'G'
ORIGINAL PHOTOGRAPHS MAP

FILE: 2400662 - PHOTOGRAPHS MAP.dwg TAB: EXHIBIT-11X17-L PLOTTED: 8/21/2024 4:17 PM BY: MIKE BEVLACQUA



ATTACHMENT G – ORIGINAL PHOTOGRAPHS
FLINTROCK WWTP AND DISPOSAL SITES

1) Headworks - SOUTH



2) Headworks and Disk Filter - WEST



3) Headworks, Disk Filter, and SBRs 1 & 2 - NORTHWEST



4) Influent EQ Basin - NORTHEAST



5) SBR Basin No. 1 - SOUTHEAST



6) SBR Basin No. 2 - SOUTHWEST



7) SBR Basin No. 3 & 4 – NORTH



8) SBR Basin No.3 - NORTHEAST



9) SBR Basin No.4-NORTHWEST



10) Chlorine Contact Basin No. 1 - SOUTHEAST



11) Chlorine Contact No. 2 - NORTHEAST



12) Disk Filter No.1 - WEST



13) Belt Press - NORTH



DISPOSAL SITE – SERENE HILLS

14) Serene Hills Site A1 – SOUTH



15) Serene Hills Site A1 – EAST



16) Serene Hills Site A2 - NORTH



17) Serene Hills Site A2 - SOUTH



18) Serene Hills Site A2 - EAST



19) Serene Hills Site A3 – NORTH



20) Serene Hills Site A3 - SOUTH



21) Serene Hills Site A3 - WEST



22) Serene Hills Site A4 – NORTH



23) Serene Hills Site A4 - NORTHEAST



24) Serene Hills Site A4 – SOUTHEAST



25) Serene Hills Site A5 - NORTH



26) Serene Hills Site A5 - NORTHEAST



DISPOSAL SITE – THOMAS TRACT

27) Thomas Tract – SOUTH



28) Thomas Tract - EAST



DISPOSAL SITE C – FLINTROCK GOLF COURSE

29) Flintrock Golf Course – NORTH



30) Flintrock Golf Course - NORTH



31) Flintrock Golf Course - NORTHWEST



32) Flintrock Golf Course - NORTHWEST



DISPOSAL SITE – LAKEWAY REGIONAL

33) Lakeway Regional – NORTHEAST



34) Lakeway Regional - SOUTH



35) Lakeway Regional - SOUTHEAST



DISPOSAL SITE – CREEKSIDE

36) Creekside – SOUTH



37) Creekside - WEST



DISPOSAL SITE – SERENE HILLS R.O.W.

38) Serene Hills R.O.W. – EAST



39) Serene Hills R.O.W. – SOUTH



40) Serene Hills R.O.W. – SOUTH





41) Serene Hills R.O.W. – NORTH



ATTACHMENT H
BUFFER ZONE MAP


LEGEND

 WWTP PROPERTY & FACILITY BOUNDARY

 150' BUFFER

EFFLUENT DISPOSAL AREA

 AREA C — FLINTROCK GOLF COURSE

 AREA F — CREEKSIDE

EXISTING SBR BASINS

EXISTING SLUDGE HOLDING/BLOWER BUILDING

EXISTING DISC FILTER BASIN & EFFLUENT PUMP STATION

FLINTROCK PROPERTY BOUNDARY
DOC. #: 2009092868

WASTEWATER AND IRRIGATION EASEMENT
5.397 AC.
DOC. #: 2014104864

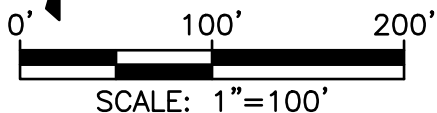
EXISTING CL2 BASINS

150' BUFFER

EXISTING FINE SCREEN BASIN

EXISTING INFLUENT EQUALIZATION BASIN

EXISTING SBR BASINS



Green Civil Design

a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027

TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

ATTACHMENT 'H'
BUFFER ZONE MAP

ATTACHMENT I

TREATMENT PROCESS DESCRIPTION AND TREATMENT UNIT SIZING

ATTACHMENT I – TREATMENT UNIT DETAIL

Treatment Process Description

The Flintrock Wastewater Treatment Facility consist of an activated sludge process plant using the complete mix mode.

Influent is conveyed through a step screen and into an Influent Equalization Basin. From the Influent Equalization Basin wastewater then enters either one (1) of four (4) SBR Basins. Wastewater then flows from the SBR Basins to a Chlorine Contact Basin, then to disk filters. Effluent is then pumped to the district's spray or drip irrigation sites. Sludge from the SBR Basins flows to an Aerobic Digester and then to the belt press where it is dewatered and then hauled to a registered landfill for disposal. A flow diagram is provided in Attachment 'J' of this application.

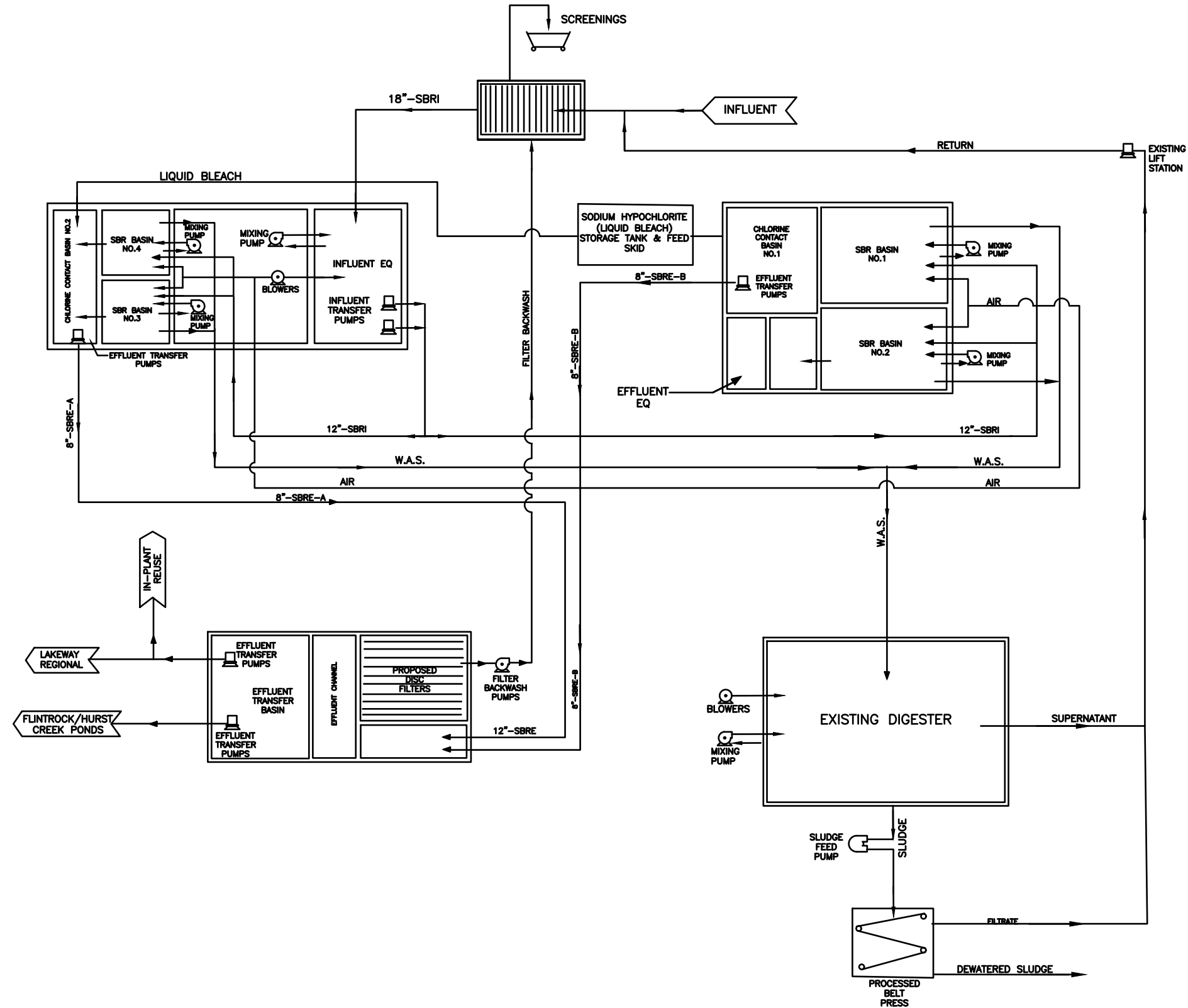
Activated Sludge Process: Influent → Step Screen → Influent Equalization Basin → Sequencing Batch Reactors → Chlorine Contact → Disk Filtration → Drip or Spray Irrigation

Sludge Process: Sludge Handling (storage) Tank → TCEQ Permitted Land Application Site/Landfill

Treatment Unit Type & Dimensions

Treatment Unit	# of Units	Dimensions (L x W x D)
Step Screen	1	39' x 8' x 5'
Influent Equalization Basin	1	70' x 54' x 20'
SBR Basins	4	34' x 48.67' x 23'
Chlorine Contact Basin	2	68' x 19.67' x 13' and 70' x 14' x 13'
Disk Filters	1	32.33' x 19.67' x 15'
Aerobic Digester	1	30' x 30' x 13.5'

ATTACHMENT J
FLOW DIAGRAM








a BAXTER & WOODMAN company
301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

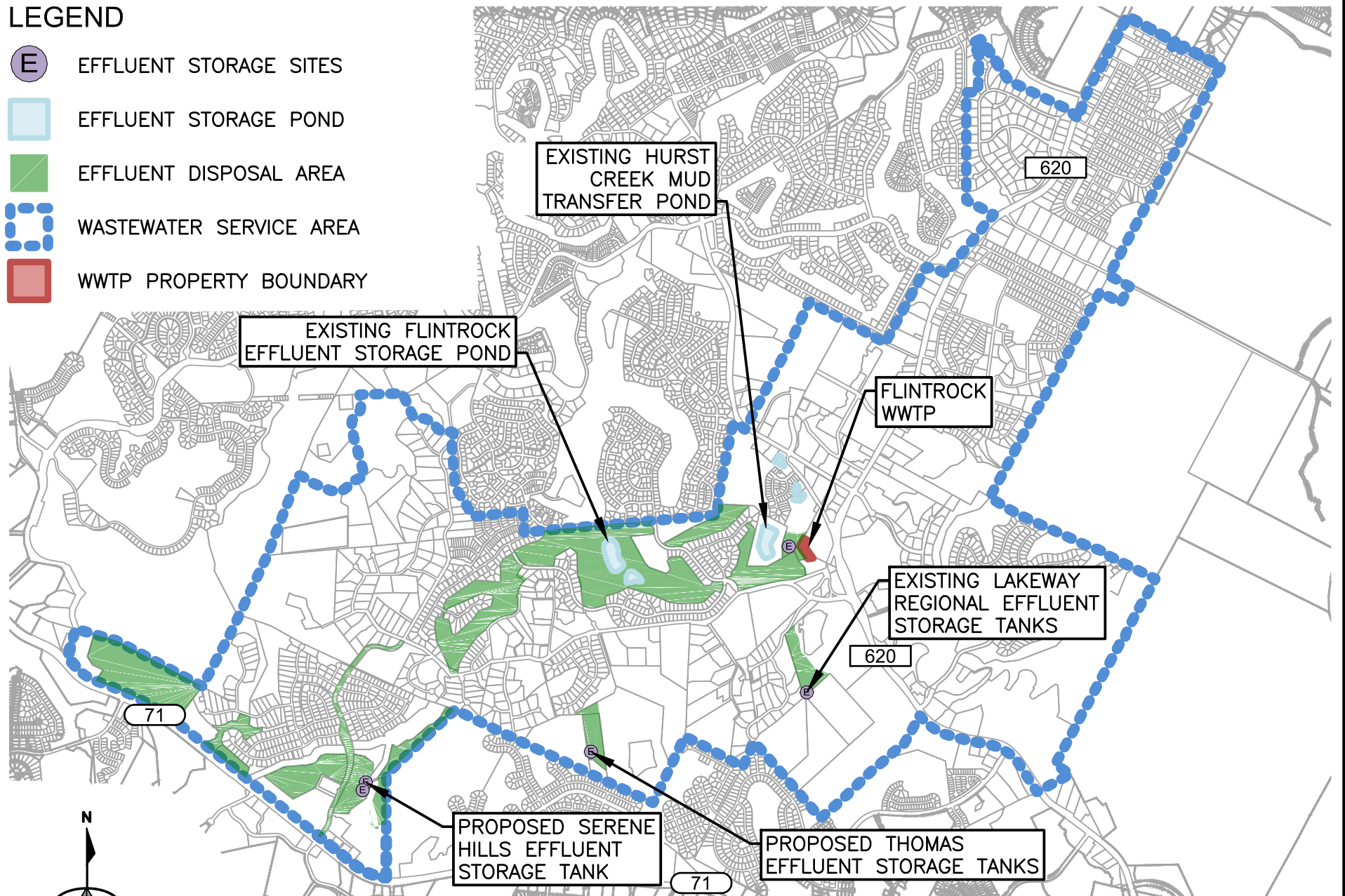
TRAVIS COUNTY WCID NO. 17
FLINTROCK WWTP

ATTACHMENT J - FLOW DIAGRAM

ATTACHMENT K
SITE DRAWING

LEGEND

-  EFFLUENT STORAGE SITES
-  EFFLUENT STORAGE POND
-  EFFLUENT DISPOSAL AREA
-  WASTEWATER SERVICE AREA
-  WWTP PROPERTY BOUNDARY



301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WATER WCID NO. 17
FLINTROCK WWTP

ATTACHMENT 'K'
SITE DRAWING

ATTACHMENT L
POLLUTANT ANALYSIS

Email information for report date:
8/19/24 13:21
H019511

Travis County WCID 17

Attn: Matt Gonzalez
mgonzalez@wcid17.org

3812 ECK LANE
AUSTIN, TX 78734

Please contact us for your sampling needs or if you have any questions. Some convenient contacts are listed below. You can also access your results and reports through our ClientConnect™ portal on our website (www.aqua-techlabs.com).

For sampling questions:

samplingbryan@aqua-techlabs.com (Bryan area)
samplingaustin@aqua-techlabs.com (Austin area)

reporting@aqua-techlabs.com (report questions)

Aqua-Tech values you as a customer and encourages you to speak with our staff at 979-778-3707 or the above emails if you have questions.

Thank you for your business,
June M. Brien
Executive Technical Director

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

The analyses summarized in this report were performed by Aqua-Tech Laboratories, Inc. unless otherwise noted. Aqua-Tech Laboratories, Inc. holds accreditation from the State of Texas in accordance with TNI and/or through the TCEQ Drinking Water Commercial Laboratory Approval Program.

The following abbreviations indicate certification status:

NEL	TNI accredited parameter.
ANR	Accreditation not offered by the State of Texas.
DWP	Approval through the TCEQ Drinking Water Commercial Laboratory Approval Program.
INF	Aqua-Tech Laboratories, Inc. is not accredited for this parameter. It is reported on an informational basis only.

Certificate: T104704371-23-27



TCEQ Lab ID T104704371

Subcontracted data summarized in this report is indicated by "Sub" in the Lab column.

General Definitions:

NR	Not Reported.
RPD	Relative Percent Difference.
% R	Percent Recovery.
dry	Results with the "dry" unit designation are reported on a "dry weight" basis.
SQL	The Sample Quantitation Limit is the value below which the parameter cannot reliably be detected. The SQL includes all sample preparations, dilutions and / or concentrations.
Adj MDL	The Adjusted Method Detection Limit is the MDL value adjusted for any sample dilutions or concentrations.
MDL	The Method Detection Limit is the lowest theoretical value that is statistically different from zero for a specific method, taking into account all preparation steps and instrument settings.

All samples are reported on an "as received" basis unless the designation "dry" is added to the reported unit.

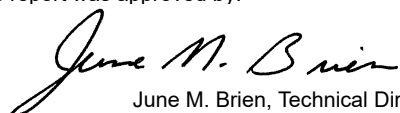
Copies of Aqua-Tech Laboratories, Inc. procedures and individual sampling plans are available upon request. Note that samples are collected by Aqua-Tech Laboratories, Inc. personnel unless otherwise noted in the "Sample Collected" field of this report as "Client" or "CLT".

Samples included in this report were received in acceptable condition according to Aqua-Tech Laboratories, Inc. procedures and 40 CFR, Chapter I, Subchapter D, Part 136.3, TABLE II. - *Required containers, preservation techniques, and holding times*, unless otherwise noted in this report.

Record Retention:

All reports, raw data, and associated quality control data are kept on file for 10 years before being destroyed. Any client that would like copies of records must contact Aqua-Tech Laboratories, Inc. no later than six months prior to the scheduled disposal. An administrative fee for retrieval and distribution will apply.

This report was approved by:


June M. Brien, Technical Director

The results in this report apply only to the samples analyzed. This analytical report must be reproduced in its entirety unless written permission is granted by Aqua-Tech Laboratories, Inc.

corp@aqua-techlabs.com

www.aqua-techlabs.com

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed: 8/19/24 13:21

H019511

Flintrock WWTP Effluent

Collected: 07/25/24 11:35 by CLIENT
Received: 07/25/24 14:00 by Andrew Popan

Type
Grab

Matrix
Non Potable

C-O-C #
H019511

Lab ID#	H019511-01	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch
---------	------------	--------	-------	-------	-----	---------	-----	-----	----------	--------	-------

General Chemistry

Carbonaceous BOD (5 day)	1	mg/L			1	1	1	Austin	07/26/24 07:15 BGB	SM5210 B 2016	M180534	NEL
Total Suspended Solids	<1	mg/L			1	1	1	Austin	07/29/24 14:44 CZ	SM2540 D 2015	M180691	NEL
Total Dissolved Solids	530	mg/L			25.0	50.0	50.0	Austin	07/26/24 15:01 SR	SM2540 C 2015	M180577	NEL
Ammonia as N	<0.05	mg/L			0.05	0.05	0.05	Bryan	08/01/24 11:10 KMA	SM4500-NH3 G 2011	M180828	NEL
Total Kjeldahl Nitrogen as N	<0.20	mg/L			0.13	0.13	0.20	Bryan	07/31/24 14:25 KMA	EPA 351.2 R2.0	M180640	NEL
Nitrate as N	12	mg/L				0.10	0.12	Calc	07/30/24 12:05 BEB	SM4500-NO3-F 2011	[CALC]	NEL
Nitrite as N	<0.01	mg/L		J (0.006)	0.002	0.002	0.01	Austin	07/25/24 15:07 BEB	SM4500 NO2- B 2011	M180517	NEL
Nitrate/Nitrite as N	12	mg/L			0.02	0.10	0.12	Bryan	07/30/24 12:05 KMA	SM4500-NO3-F 2011	M180711	ANR
Total Alkalinity as CaCO3 (pH4.5)	108	mg/L			5.00	20.0	20.0	Austin	07/26/24 09:50 MSA	SM2320 B 2011	M180556	DWP
Oil & Grease (HEM)	<4.8	mg/L			4.4	4.8	4.8	Bryan	08/13/24 09:18 HDH	EPA 1664B	M181300	NEL
Chloride	146	mg/L			0.60	2.41	20.0	Austin	07/26/24 12:00 MSA	SM4500-Cl- B 2011	M180572	NEL
Sulfate as SO4(2-)	73.2	mg/L			2.63	10.5	20.0	Austin	07/30/24 09:00 BEB	ASTM D0516-16	M180716	NEL
Specific Conductance (adjusted to 25.0°C)	987	uS/cm			2.00	2.00	2.00	Austin	07/29/24 10:00 MSA	SM2510 B 2011	M180660	NEL

Microbiological Analyses

E. Coli	2.0	MPN/100 mL			1.0	1.0	1.0	Austin	07/25/24 14:49 ACG	SM9223 B 2004	M180511	NEL
---------	-----	------------	--	--	-----	-----	-----	--------	--------------------	---------------	---------	-----

Results run by SM 9223B are reported as MPN (Most Probable Number). MPN is comparable to CFU (Colony Forming Units). Both MPN and CFU are allowed in most permits.

Metals (Total)

Phosphorus-Total	0.719	mg/L			0.082	0.041	0.050	Austin	07/29/24 15:41 KT	EPA 200.7 R4.4	M180518	NEL
------------------	-------	------	--	--	-------	-------	-------	--------	-------------------	----------------	---------	-----

Explanation of Notes

- J Analyte detected below the SQL but above the MDL.
- SL-01 The dried residue did not yield between 2.5 and 200 mg as specified in the method. Due to holding time constraints or insufficient sample volume, the sample cannot be reanalyzed.

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed: 8/19/24 13:21

H019511

General Chemistry - Quality Control

Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
Ammonia as N - SM4500-NH3 G 2011												Bryan
Initial Cal Check	1.01	mg/L			08/01/24 11:10 KMA	1.00		101	90 - 110			2408012
Low Cal Check	0.05	mg/L			08/01/24 11:10 KMA	0.0500		96.0	70 - 130			2408012
Blank	<0.05	mg/L	0.05	0.05	08/01/24 11:10 KMA							M180828
LCS	0.50	mg/L	0.05	0.05	08/01/24 11:10 KMA	0.500		100	85 - 115			M180828
LCS Dup	0.51	mg/L	0.05	0.05	08/01/24 11:10 KMA	0.500		101	85 - 115	1.19	20	M180828
Matrix Spike	0.55	mg/L	0.05	0.05	08/01/24 11:10 KMA	0.500	<0.05	111	70 - 130			M180828
Matrix Spike Dup	0.52	mg/L	0.05	0.05	08/01/24 11:10 KMA	0.500	<0.05	104	70 - 130	6.33	20	M180828
Carbonaceous BOD (5 day) - SM5210 B 2016												Austin
Diln Water Blk	<0.20	mg/L	1	1	07/26/24 07:15 BGB		-0.1		< or = 0.2 mg/L			2407355
GGA	214	mg/L	1	1	07/26/24 07:15 BGB	198		108	84.6 - 115.4			2407355
GGA	207	mg/L	1	1	07/26/24 07:15 BGB	198		105	84.6 - 115.4			2407355
GGA	212	mg/L	1	1	07/26/24 07:15 BGB	198		107	84.6 - 115.4			2407355
GGA	206	mg/L	1	1	07/26/24 07:15 BGB	198		104	84.6 - 115.4			2407355
Seed Blank	<1	mg/L	1	1	07/26/24 07:15 BGB							2407355
Seed Blank	<1	mg/L	1	1	07/26/24 07:15 BGB							2407355
Seed Blank	<1	mg/L	1	1	07/26/24 07:15 BGB							2407355
Seed Blank	<1	mg/L	1	1	07/26/24 07:15 BGB							2407355
Duplicate	1	mg/L	1	1	07/26/24 07:15 BGB		1			12.6	47.7	M180534
Chloride - SM4500-Cl- B 2011												Austin
Initial Cal Check	49.5	mg/L			07/26/24 12:00 MSA	50.0		99.0	90 - 110			2407364
Blank	<5.00	mg/L	0.60	5.00	07/26/24 12:00 MSA							M180572
LCS	20.6	mg/L	0.60	5.00	07/26/24 12:00 MSA	19.8		104	90 - 110			M180572
LCS Dup	20.1	mg/L	0.60	5.00	07/26/24 12:00 MSA	19.8		101	90 - 110	2.30	5.86	M180572
Matrix Spike	112	mg/L	1.21	10.0	07/26/24 12:00 MSA	39.6	71.9	101	83.4 - 113			M180572
Matrix Spike Dup	112	mg/L	1.21	10.0	07/26/24 12:00 MSA	39.6	71.9	101	83.4 - 113	0.00	10.7	M180572
MRL Check	5.14	mg/L	0.60	5.00	07/26/24 12:00 MSA	4.95		104	70 - 130			M180572
Nitrate/Nitrite as N - SM4500-NO3-F 2011												Bryan
Initial Cal Check	0.98	mg/L			07/30/24 12:05 KMA	0.959		102	90 - 110			2407387
Low Cal Check	0.02	mg/L			07/30/24 12:05 KMA	0.0200		95.0	70 - 130			2407387
Blank	<0.02	mg/L	0.02	0.02	07/30/24 12:05 KMA							M180711
LCS	0.53	mg/L	0.02	0.02	07/30/24 12:05 KMA	0.500		107	92.6 - 108			M180711
LCS Dup	0.53	mg/L	0.02	0.02	07/30/24 12:05 KMA	0.500		107	92.6 - 108	0.187	2.2	M180711
Matrix Spike	0.68	mg/L	0.02	0.02	07/30/24 12:05 KMA	0.500	0.15	107	79.4 - 122			M180711
Matrix Spike Dup	0.68	mg/L	0.02	0.02	07/30/24 12:05 KMA	0.500	0.15	107	79.4 - 122	0.374	7.62	M180711

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed:

8/19/24 13:21

H019511

General Chemistry - Quality Control

Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
Nitrite as N - SM4500 NO2- B 2011												Austin
Initial Cal Check	0.07	mg/L			07/25/24 15:07 BEB	0.0740		99.6	90 - 110			2407346
Blank	<0.01	mg/L	0.002	0.01	07/25/24 15:07 BEB							M180517
Filtered Blank	<0.01	mg/L	0.002	0.01	07/25/24 15:07 BEB							M180517
LCS	0.07	mg/L	0.002	0.01	07/25/24 15:07 BEB	0.0800		91.7	90 - 110			M180517
LCS Dup	0.07	mg/L	0.002	0.01	07/25/24 15:07 BEB	0.0800		92.2	90 - 110	0.488	10	M180517
Matrix Spike	0.08	mg/L	0.002	0.01	07/25/24 15:07 BEB	0.0800	0.007	85.6	57 - 116			M180517
Matrix Spike Dup	0.08	mg/L	0.002	0.01	07/25/24 15:07 BEB	0.0800	0.007	86.5	57 - 116	1.04	10	M180517
MRL Check	<0.01	mg/L	0.002	0.01	07/25/24 15:07 BEB	0.0100		77.3	70 - 130			M180517
Initial Cal Check	0.08	mg/L			10/06/23 11:00 MSA	0.0800		106	90 - 110			2310075
Oil & Grease (HEM) - EPA 1664B												Bryan
Blank	<5.0	mg/L	5.0	5.0	08/13/24 09:18 HDH							M181300
LCS	35.9	mg/L	5.0	5.0	08/13/24 09:18 HDH	40.1		89.4	78 - 114			M181300
LCS Dup	39.3	mg/L	5.0	5.0	08/13/24 09:18 HDH	40.3		97.5	78 - 114	8.74	200	M181300
Matrix Spike	35.8	mg/L	5.0	5.0	08/13/24 09:18 HDH	40.0	<5.0	89.5	78 - 114			M181300
Specific Conductance (adjusted to 25.0°C) - SM2510 B 2011												Austin
Initial Cal Check	533	uS/cm			07/29/24 10:00 MSA	545		97.8	90 - 110			2407374
Blank	<2.00	uS/cm	2.00	2.00	07/29/24 10:00 MSA							M180660
Duplicate	1150	uS/cm	2.00	2.00	07/29/24 10:00 MSA		1150			0.174	10	M180660
LCS	1410	uS/cm	2.00	2.00	07/29/24 10:00 MSA	1410		99.8	90 - 110			M180660
Sulfate as SO4(2-) - ASTM D0516-16												Austin
Initial Cal Check	30.6	mg/L			06/24/24 09:03 BEB	30.0		102	90 - 110			2406303
Low Cal Check	4.34	mg/L			06/24/24 09:03 BEB	5.00		86.8	70 - 130			2406303
Initial Cal Check	31.7	mg/L			07/30/24 09:00 BEB	30.0		106	90 - 110			2407389
Low Cal Check	3.65	mg/L			07/30/24 09:00 BEB	5.00		72.9	70 - 130			2407389
Blank	<5.00	mg/L	2.63	5.00	07/30/24 09:00 BEB							M180716
Duplicate	70.7	mg/L	10.5	20.0	07/30/24 09:00 BEB		73.2			3.36	11.8	M180716
Filtered Blank	<5.00	mg/L	2.63	5.00	07/30/24 09:00 BEB							M180716
LCS	8.52	mg/L	2.63	5.00	07/30/24 09:00 BEB	10.0		85.2	85 - 115			M180716
LCS Dup	<5.00	mg/L	2.63	5.00	07/30/24 09:00 BEB	10.0			85 - 115		13.5	M180716
Matrix Spike	110	mg/L	10.5	20.0	07/30/24 09:00 BEB	40.0	73.2	92.6	67.7 - 129			M180716
Matrix Spike Dup	109	mg/L	10.5	20.0	07/30/24 09:00 BEB	40.0	73.2	89.9	67.7 - 129	2.95	15	M180716
MRL Check	<5.00	mg/L	2.63	5.00	07/30/24 09:00 BEB	5.00		72.9	70 - 130			M180716

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed: 8/19/24 13:21
H019511

General Chemistry - Quality Control												
Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
Total Alkalinity as CaCO3 (pH4.5) - SM2320 B 2011												Austin
Initial Cal Check	6.83	mg/L			07/26/24 09:50 MSA	6.86		99.6	97 - 103			2407359
Initial Cal Check	8.91	mg/L			07/26/24 09:50 MSA	9.18		97.1	97 - 103			2407359
Low Cal Check	20.9	mg/L			07/26/24 09:50 MSA	18.9		110	0 - 200			2407359
Duplicate	337	mg/L	20.0	20.0	07/26/24 09:50 MSA		340			0.797	5.52	M180556
LCS	77.1	mg/L	20.0	20.0	07/26/24 09:50 MSA	75.6		102	95.5 - 105			M180556
LCS Dup	76.2	mg/L	20.0	20.0	07/26/24 09:50 MSA	75.6		101	95.5 - 105	1.15	4.76	M180556
MRL Check	20.9	mg/L	20.0	20.0	07/26/24 09:50 MSA	18.9		110	70 - 130			M180556
Total Dissolved Solids - SM2540 C 2015												Austin
Blank	<25.0	mg/L	25.0	25.0	07/26/24 15:01 SR							M180577
Duplicate	630	mg/L	50.0	50.0	07/26/24 15:01 SR		608			3.55	11.2	M180577
Reference	472	mg/L	100	100	07/26/24 15:01 SR	501		94.2	74.9 - 127			M180577
Total Kjeldahl Nitrogen as N - EPA 351.2 R2.0												Bryan
Initial Cal Check	3.43	mg/L			07/31/24 14:25 KMA	3.38		101	90 - 110			2407414
Low Cal Check	0.22	mg/L			07/31/24 14:25 KMA	0.200		112	70 - 130			2407414
Blank	<0.20	mg/L	0.13	0.20	07/31/24 14:25 KMA							M180640
LCS	4.10	mg/L	0.13	0.20	07/31/24 14:25 KMA	4.00		103	87.4 - 119			M180640
LCS Dup	4.20	mg/L	0.13	0.20	07/31/24 14:25 KMA	4.00		105	87.4 - 119	2.31	5.44	M180640
Matrix Spike	90.9	mg/L	1.30	2.00	07/31/24 14:25 KMA	40.0	49.3	104	62.1 - 130			M180640
Matrix Spike Dup	90.8	mg/L	1.30	2.00	07/31/24 14:25 KMA	40.0	49.3	104	62.1 - 130	0.265	17.5	M180640
Total Suspended Solids - SM2540 D 2015												Austin
Blank	<1	mg/L	1	1	07/29/24 14:44 CZ							M180691
Duplicate	2	mg/L	1	1	07/29/24 14:44 CZ		2			10.5	20	M180691
Reference	93	mg/L	10	10	07/29/24 14:44 CZ	103		90.3	80 - 120			M180691
Metals (Total) - Quality Control												
Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
Phosphorus-Total - EPA 200.7 R4.4												Austin
Blank	<0.050	mg/L	0.041	0.050	07/29/24 15:29 KT							M180518
LCS	2.41	mg/L	0.041	0.050	07/29/24 15:31 KT	2.50		96.4	84.5 - 115.4			M180518
LCS Dup	2.48	mg/L	0.041	0.050	07/29/24 15:34 KT	2.50		99.4	84.5 - 115.4	3.06	20	M180518
Duplicate	1.49	mg/L	0.041	0.050	07/29/24 15:36 KT		1.55			4.08	20	M180518
Matrix Spike	4.20	mg/L	0.041	0.050	07/29/24 15:39 KT	2.50	1.55	106	69.5 - 130.4			M180518

BRYAN FACILITY
 635 Phil Gramm Boulevard
 Bryan, TX 77807
 Phone: (979) 778-3707
 Fax: (979) 778-3193



AUSTIN FACILITY
 3512 Montopolis Dr. Suite A
 Austin, TX 78744
 Phone: (512) 301-9559
 Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed: 8/19/24 13:21
 H019511

Microbiological Analyses - Quality Control											Log10 Comparison		
Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	Range	Control Limit	Batch	
E. Coli - SM9223 B 2004												Austin	
Blank	<1.0	MPN/100 mL	1.0	1.0	07/25/24 14:49 ACG							M180511	
Dup Log10 Range		MPN/100 mL	1.0	1.0	07/25/24 14:49 ACG					0.000		M180511	
Duplicate	<1.0	MPN/100 mL	1.0	1.0	07/25/24 14:49 ACG		<1.0				0.5	M180511	

Sample Preparation Summary									External Dilution	
Sample	Method	Prepared	Lab	Bottle	Initial	Units	Final	Units	Factor	Batch
H019511-01										
Ammonia as N	SM4500-NH3 G 2011	8/1/24 9:34 KMA	Bryan	A	10.0	mL	10.0	mL	1	M180828
Carbonaceous BOD (5 day)	SM5210 B 2016	7/26/24 7:15 BGB	Austin	B	300	mL	300	mL	1	M180534
Chloride	SM4500-Cl- B 2011	7/26/24 12:00 MSA	Austin	C	25.0	mL	100	mL	1	M180572
E. Coli	SM9223 B 2004	7/25/24 14:38 ACG	Austin	D	100	N/A	100	N/A	1	M180511
Nitrate/Nitrite as N	SM4500-NO3-F 2011	7/30/24 9:17 KMA	Bryan	A	1.00	mL	6.00	mL	1	M180711
Nitrite as N	SM4500 NO2- B 2011	7/25/24 15:07 BEB	Austin	C	25.0	mL	25.0	mL	1	M180517
Oil & Grease (HEM)	EPA 1664B	8/13/24 9:18 HDH	Bryan	E	1040	mL	1000	mL	1	M181300
Phosphorus-Total	EPA 200.7 R4.4	7/25/24 16:52 KT	Austin	H	50.0	mL	25.0	mL	1	M180518
Specific Conductance (adjusted to 25.0°C)	SM2510 B 2011	7/29/24 10:00 MSA	Austin	C	25.0	mL	25.0	mL	1	M180660
Sulfate as SO4(2-)	ASTM D0516-16	7/30/24 9:00 BEB	Austin	C	25.0	mL	100	mL	1	M180716
Total Alkalinity as CaCO3 (pH4.5)	SM2320 B 2011	7/26/24 9:50 MSA	Austin	J	50.0	mL	200	mL	1	M180556
Total Dissolved Solids	SM2540 C 2015	7/26/24 15:01 SR	Austin	C	50.0	mL	100	mL	1	M180577
Total Kjeldahl Nitrogen as N	EPA 351.2 R2.0	7/29/24 8:20 CTG	Bryan	A	25.0	mL	25.0	mL	1	M180640
Total Suspended Solids	SM2540 D 2015	7/29/24 14:44 CZ	Austin	I	1000	mL	1000	mL	1	M180691

Chain-of-Custody and Analysis Request

Client / Project Name: Travis County WCID 17
Flintrock Short New PermitContact Information
Name Matt Gonzalez
Address 3812 ECK LANE
City AUSTIN
State TX Zip 78734
Phone (512) 266-1111
emailDefinitions
DW Drinking Water
NP Non-Potable Water
S Solid
CM Custody Maintained
CTU Custody Transfer Unbroken
CT Corrected Temperature
Reagent tracking is available upon request.Analyses Requested: "A" prefix indicates Austin, all others Bryan or Subcontracted, indicated by [SUB].
Name format: Analysis-Matrix-Technology-Method.

[NEL] = NELAP accredited parameter

[CNR] = No NELAP accreditation required or available

[SUB] = NELAP accredited subcontracted parameter

[INF] = Informational only (not NELAC certified)

By relinquishing the samples listed below to Aqua-Tech laboratories, Inc. (ATL), the client agrees to the following terms. Samples will be analyzed by a method that is within ATL's NELAP fields of accreditation (FoA). Analytes requiring an accredited method that is not within ATL's FoA will be subcontracted to a NELAP lab that is accredited for that method. Clients will be notified of the subcontract lab's details. Other analytes not requiring accreditation will be analyzed by a compendial method. If a specific method is required, the client will note the method in the "Analysis Requested" column. The client approves all method modifications documented by ATL or the subcontract lab.

A current list of ATL's NELAC fields of accreditation and other methods are available on request.

Comments:

- LAB RECEIPT - TD1

Temperature - CT (C): 4.3

Preservation Correct: Y

Post-Preservatives: NA

Thermometer ID: 0811654

pH Paper ID: 0816272



Aqua-Tech laboratories, Inc.

Austin

Bryan

3512 Montopolis Dr.
Austin, TX 78744
512.301.9559635 Phil Gramm Blvd.
Bryan, TX 77807
979.778.3707

Test results meet all accreditation/certification requirements unless stated otherwise.

C-O-C #

H019511

Page 1 of 1

rte_ATL COC
012723.rpt

Sample Custody

Relinquished (print & sign) <i>Tim Priem</i>	<input checked="" type="checkbox"/> Sampler <input type="checkbox"/> Client <input type="checkbox"/> ATL Field	Date 7/25/24	<input checked="" type="checkbox"/> Iced / Refrig <input type="checkbox"/> Custody Sealed
Received (print & sign) <i>Andrew Popan</i>	<input type="checkbox"/> Client <input checked="" type="checkbox"/> ATL Field	Date 7/25/24	<input checked="" type="checkbox"/> Iced / Refrig <input type="checkbox"/> CM / CTU
Relinquished (print & sign) <i>NFE</i>	<input type="checkbox"/> Client <input type="checkbox"/> ATL Field	Date	<input type="checkbox"/> Iced / Refrig <input type="checkbox"/> CM / CTU
Received (print & sign) <i>Andrew Popan</i>	<input type="checkbox"/> Client <input checked="" type="checkbox"/> ATL Field	Date 7/25/24	<input checked="" type="checkbox"/> Iced / Refrig <input checked="" type="checkbox"/> CM / CTU / Sealed
Received (print & sign) <i>Andrew Popan</i>	<input type="checkbox"/> Client <input checked="" type="checkbox"/> ATL Field	Date 7-25-24	<input checked="" type="checkbox"/> Cond Good <input checked="" type="checkbox"/> Iced / Refrig <input checked="" type="checkbox"/> CM / CTU

Field Sample ID	Start Date Time	End Date Time	Composite Type	Sample Matrix	Container (Checked box indicates bottle arrived in lab) (Volume - Type - Preservative)	Lab ID
Flintrock WWTP Effluent	7/25/24 11:35	- N/A - - N/A -	Grab	NP	<input checked="" type="checkbox"/> A AMM NO3 TKN 0.25LP H2SO4 pH 4.2 <input checked="" type="checkbox"/> B CBOD 1LP <input checked="" type="checkbox"/> C CL Cond NO2 SO4 TDS 1LP <input checked="" type="checkbox"/> D Ecoli 0.1L StP Na2S2O3 <input checked="" type="checkbox"/> E OG - 1LG Amber HCl <input checked="" type="checkbox"/> F OG - 1LG Amber HCl <input checked="" type="checkbox"/> G OG pH Chk - 1LP HCl pH 12.2 <input checked="" type="checkbox"/> H P 0.25LP H2SO4 <input checked="" type="checkbox"/> I TSS 2LP <input checked="" type="checkbox"/> J ALK 0.25LP	H019511-01
A Alkalinity NP Probe SM 2320 B [NEL] A Cond Probe SM 2510 B [NEL] A NO3N NP CALC SM4500 [NEL] A TDS NP Grav SM2540 C [NEL] NO3N + NO2N NP RFA SM4500 NO3 F [CNR]	A CBOD NP Probe SM 5210 B [NEL] A E.Coli MPN SM9223 B [NEL] A P NP ICP EPA 200.7 [NEL] A TSS NP Grav SM 2540 D [NEL] O&G Grav EPA 1664B [NEL]	A Cl NP Tit SM 4500 Cl- B [NEL] A NO2N NP Spec SM4500 NO2 B [NEL] A SO4 NP Spec D516 [NEL] NH3N NP AUTO SM 4500 G [NEL] TKN NP AUTO EPA 351.2 [NEL]				

ATTACHMENT M
DESIGN CALCULATIONS

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS
SUMMARY

PARAMETERS

Description: Activated sludge process utilizing sequencing batch reactors to treat municipal wastewater. System to include SBR, tertiary treatment, chlorine disinfection, sludge digestion, and belt press.

Influent Flows:

	Exist/Interim I	Interim II	Final
Average Daily (gpd):	633,000	649,800	1,000,000
Peak Daily (2-Hr Peak) (gpd):	2,532,000	2,599,200	4,000,000

Influent Flow Characteristics:

BOD ₅ (mg/l)=	300	300	300
TSS (mg/l)=	300	300	300
NH ₃ N (mg/l)=	35	35	35
Total Nitrogen (mg/l)=	70	70	70

Effluent Water Quality Parameters:

BOD ₅ (mg/l)=	5	5	5
TSS (mg/l)=	10	10	10
NH ₃ N (mg/l)=	2	2	2
Chlorine Residual (after 20 minutes) (mg/l)=	1	1	1
Dissolved Oxygen (mg/l)	2	2	2

PROPOSED FACILITIES

	Exist/Interim I	Interim II	Final
Process:			
Total Plant BOD ₅ Loading (lbs/day):	1557.4	1598.7	2460.3
SBR BOD ₅ Loading (lbs/day):	1531.0	1571.6	2418.6
TSS Loading (lbs/day):	1531.0	1571.6	2418.6
MLSS (mg/l):	3,000	3,000	3,000
Hydraulic Retention Time (days):	1.80	1.75	1.14
Sludge Residence Time (days):	25.00	24.00	18.00
Food to Mass Ratio:	0.056	0.057	0.088
Sludge Yield (lbs/day):	1,140	1,188	1,584
Sludge Yield (gpd):			
(1.5%)	9,116	9,496	12,662

SBR Basin

Max Organic Loading (lbs/day/1,000 cf):	25	25	25
Proposed Organic Loading (lbs/day/1,000 cf):	15	15	24
Max Overflow Rate At peak flow (gal/day/sf):	1,200	1,200	1,200
Proposed Overflow Rate at peak flow (gal/day/sf):	574	785	1,182
Number of Basins =	4	4	4
Number of Cycles per Day =	4	4	4
Volume per Cycle (gallons)=	39,563	40,613	62,500
Minimum Volume per Basin (cf) =	22,850	23,457	36,099
Proposed Volume per Basin (cf) =	38,060	38,060	38,060
Minimum Total Volume Needed (cf) =	91,401	93,827	144,394
Proposed Total Volume (cf) =	152,240	152,240	152,240
Proposed Surface Area per Basin (sf) =	1,655	1,655	1,655
Proposed Total Surface Area (sf) =	6,619	6,619	6,619

Sludge Holding Basin:

Minimum Required Volume (cf):	8,531	8,886	11,848
Proposed Volume (cf):	12,150	12,150	12,150
Proposed Detention Time (days):	10	10	7

Air Supply:

Min Air Supply - SBR (scfm):	212	218	335
Min Air Supply - Digester (scfm):	256	267	355
Min Total Air Supply (scfm):	468	485	690

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS
SIZING CALCULATIONS

SBR BASIN

	Existing/Interim I		Interim II		Final
Number of Basins =	4		4		4
Number of Cycles per Day =	4		4		4
Volume per Cycle =	39,563	gal	40,613	gal	62,500 gal
Side Water Depth (SWD) =	23	ft	23	ft	23 ft
Minimum Total Volume Needed =	91,401	cf	93,827	cf	144,394 cf
Total Volume Proposed =	152,240	cf	152,240	cf	152,240 cf
Minimum Volume per Basin =	22,850	cf	23,457	cf	36,099 cf
Volume Proposed per Basin =	38,060	cf	38,060	cf	38,060 cf
Minimum Surface Area Required per Basin =	993	sf	1,020	sf	1,570 sf
Proposed Basin Length =	34	ft	34	ft	34 ft
Proposed Basin Width =	48.67	ft	48.67	ft	48.67 ft
Proposed Surface Area =	1,655	sf	1,655	sf	1,655 sf
Total Cycle Time =	6.00	hrs	6.00	hrs	6.00 hrs
Max. Fill Time (design flow) (Tf):	0.35	hrs	0.36	hrs	0.56 hrs
Anoxic Fill Time (Tf,an):	0.35	hrs	0.36	hrs	0.56 hrs
Aerated Fill Time (Tf,aer):	0.00	hrs	0.00	hrs	0.00 hrs
React Time (Tr):	4.02	hrs	4.02	hrs	4.02 hrs
Settle Time (Ts):	1.00	hrs	0.75	hrs	0.77 hrs
Decant Time (Td):	0.35	hrs	0.36	hrs	0.55 hrs
Idle Time (Ti):	0.28	hrs	0.51	hrs	0.11 hrs

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS
SIZING CALCULATIONS

SLUDGE DIGESTER

	Existing/Interim I	Interim II	Final
Minimum Volume Required:	8,531 cf	8,886 cf	11,848 cf
No. of Basins:	1	1	1
Proposed SWD:	13.5 ft	13.5 ft	13.5 ft
Length	30	30	30
Width	30 ft	30 ft	30 ft
Proposed Volume:	12,150 cf	12,150 cf	12,150 cf

CHLORINE CONTACT

	Existing/Interim I		Interim II		Final	
Minimum Volume Required:	4,826 cf		4,826 cf		7,427 cf	
	Basin 1	Basin 2	Basin 1	Basin 2	Basin 1	Basin 2
No. of Basins	1	1	1	1	1	1
Proposed SWD:	13	13 ft	13	13	13	13
Width (Ea. Basin):	19.67	14 ft	19.67	14	19.67	14
Length (Ea. Basin):	68	70 ft	68	70	68	70
Total Volume:	17,388.28	12,740.00 cf	17,388.28	12,740.00	17,388.28	12,740.00
Proposed Volume:	30,128.28	cf	30,128.28	cf	30,128.28	cf

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS EXISITING/INTERIM PHASE I

PARAMETERS

<i>Influent:</i>			<i>Effluent:</i>		
Q =	633,000	GPD	S =	5	mg/l, BOD _{5eff}
Qp ₁ =	2,532,000	GPD to Headworks	TS _{Seff} =	10	mg/l
Qp ₂ =	2,532,000	GPD downstream of Infl EQ (N/A)	NH ₃ N =	2	mg/l
So =	300	mg/l, BOD ₅ infl	Chlorine Residual =	1	mg/l @ 20 min det
TSS _{inf} =	300	mg/l			
Chemical Oxygen Demand (COD) =	545	mg/l			
TKN =	70	mg/l			
NH ₃ N =	35	mg/l			
Organic N _{14°C} =	35	mg/l			
Winter Temp. Min. =	14	°C			
Summer Temp. Max. =	29	°C			
MLSS =	3,000	mg/l, conc. Of suspended solids in aeration tank			
MLVSS =	70	% of MLSS			
MLVSS (X) =	2100	mg/l, conc. Of volatile suspended solids in aeration tank			

COEFFICIENTS

θ _c =	20	days, mean cell residence time
Y =	0.4	maximum yield coefficient, range: 0.3 - 0.5 (Metcalf & Eddy Table 8-10)
Y _n =	0.12	g VSS / g NH ₄ -N, range: 0.1 - 0.15 (Metcalf & Eddy Table 8-11)
K _s =	0.5	g / m ³ , range: 0.40 - 0.60 (Metcalf & Eddy Table 8-11)
k _d =	0.12	day ⁻¹ , endogenous decay coefficient, range: 0.06 - 0.2 (Metcalf & Eddy Table 8-10)
K _d =	1.04	unitless, range: 1.03 - 1.08 (Metcalf & Eddy Table 8-10)
K _{d, 14°C} =	0.095	g/g*d
K _{dn} =	0.080	g VSS / g VSS*d, range: 0.05 - 0.15 (Metcalf & Eddy Table 8-10)
K _{dn} =	1.04	unitless, range: 1.03 - 1.08 (Metcalf & Eddy Table 8-11)
K _{dn, 14°C} =	0.063	g/g*d
K _n =	0.740	g NH ₄ -N / m ³ , range: 0.5 - 1.0 (Metcalf & Eddy Table 8-11)
K _n =	1.053	unitless, range: 1.03 - 1.123 (Metcalf & Eddy Table 8-11)
K _{n, 14°C} =	0.543	g / m ³
μ _{mn} =	0.750	g VSS / g VSS*d, range: 0.20 - 0.90 (Metcalf & Eddy Table 8-11)
μ _n =	1.070	unitless, range: 1.06 - 1.123 (Metcalf & Eddy Table 8-11)
μ _{m, 14°C} =	0.500	g / g*d
f _d =	0.150	unitless, range: 0.08 - 0.2 (Metcalf & Eddy Table 8-10)

DESIGN CALCULATIONS

PLANT LOADING

BOD₅ Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34 \times Q (\text{BOD}_5 \text{ inf} - \text{BOD}_5 \text{ eff})}{10^6}$$

$$\text{BOD}_5 \text{ Removed} = 1,557 \text{ lbs/day}$$

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 \times Q (\text{TSS inf} - \text{TSS eff})}{10^6}$$

$$\text{TSS Removed} = 1,531 \text{ lbs/day}$$

SBR LOADING

BOD₅ Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34 \times Q (\text{BOD}_5 \text{ inf} - \text{BOD}_5 \text{ eff})}{10^6}$$

$$\text{BOD}_5 \text{ Removed} = 1,531 \text{ lbs/day}$$

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 \times Q (\text{TSS inf} - \text{TSS eff})}{10^6}$$

$$\text{TSS Removed} = 1,531 \text{ lbs/day}$$

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS EXISTING/INTERIM PHASE I

INITIAL SBR BASIN DESIGN

Number of Basins = 4
Number of Cycles per Day = 4 per Basin
Total Cycle Time = 6.00 hrs / cycle
Volume per Cycle = 39,563 gal / cycle
Side Water Depth (SWD) = 23.0 ft

Fill

Fill Rate = 1,875 gpm
Time to Fill (Tf) = 0.35 hrs / cycle

React

Minimum Required Aeration Volume:
Maximum Organic Loading: 25 lbs BOD5/day/1000 cf
(TCEQ Chap. 217.154, Conventional Activated Sludge
with Nitrification, with temperatures between 13°C and
15°C)
BOD5 Loading: 1,531 lbs/day

Minimum Required Aeration Volume (V_a): 61,239.0 cf

Initial Assumption:
Aerated Portion of Fill: 0%
Portion of Fill Used as Treatment: 0.00 hrs
Aerated Portion of React: 100%
React Portion of Total Cycle: 67%
React Cycle Time (T_r): 4.02 hrs
Aerated React Cycle Time (T_{ra}): 4.02 hrs
Total Aeration Time (T_a): 4.02 hrs 1.98 hrs Anoxic per cycle

Minimum Total Volume Required (V_t) = V_a / T_a
V_t = 91,401 cf = 683,728 gal

Minimum Total Volume Required per Basin = 22,850.4 cf = 170,932.1 gal
Minimum Surface Area Required per Basin = 993.5 sf
Proposed Basin Size = 34.0 ft x 48.67 ft x 23.0 ft SWD
Proposed Volume per Basin = 38,059.9 cf

Settle

Maximum Overflow Rate @ 2-Hr Peak Flow = 1,200 gal/day/sf

(TCEQ Chap. 217.154, Conventional Activated Sludge
with Nitrification, with temperatures between 13°C and
15°C)

Proposed Surface Area per Basin = 1,654.8 sf
Maximum Overflow Rate = 1,379.0 gpm

Volume per Cycle = 39,563 gal

Minimum Settle Time (T_s) = 28.69 min
Use T_s = 60.00 min = 1 hrs

Decant

Assumed Flow Rate of Decanter = 1,900.0 gpm
Decanters per Basin = 1
Total Decant Flow Rate per Basin = 1,900.0 gpm

Volume per Decant = 39,563 gal

Decant Time (T_d) = 20.82 min = 0.34703947 hrs

SBR DESIGN

Hydraulic Retention Time

$$\tau = V / Q$$

Hydraulic Retention Time = 1.80 days

F/M

$$F/M = \frac{Q \times BOD_{5,inf}}{MLSS \times V}$$

F/M = 0.056 gBOD/gMLSS-d

Wastewater Characteristics

bCOD = 1.6(BOD) =	480	mg/l (Biodegradable COD)
nbCOD = COD - bCOD =	65	mg/l (non-biodegradable COD)

iTSS = TSS - VSS			
TSS =	300	mg/l	
VSS =	210	mg/l	
iTSS =	90	mg/l	

$$\frac{bpCOD}{pCOD} = \frac{(bCOD / BOD)(BOD - sBOD)}{COD - sCOD}$$

sBOD: soluble BOD
sCOD: soluble COD
bpCOD: Biodegradable particulate COD
pCOD: Particulate COD

Assume: sCOD = 33% of COD = 180 mg/l
Assume: sBOD = 33% of BOD = 99 mg/l

$$\text{bpCOD/pCOD} = 0.88$$

$$nbVSS = \left[1 - \left(\frac{bpCOD}{pCOD} \right) \right] BOD$$

nbVSS = 36.0 mg/l (non-biodegradable VSS)

TRAVIS COUNTY WCID NO. 17

WQ0013878001

ATTACHMENT M - DESIGN CALCULATIONS EXISITING/INTERIM PHASE I

Sludge Retention Time

$$(P_{X,TSS})SRT = \frac{QY(S_o - S)SRT}{[1 + (k_d)SRT](0.85)} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1 + (k_{dn})SRT](0.85)} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1 + (k_d)SRT](0.85)} + Q(TSS_o - VSS_o)SRT$$

$$(P_{X,TSS})SRT = (V)(X_{MLSS})$$

$$\begin{array}{llll} X_{MLSS} = & 3,000 & \text{g/m}^3 & \\ V = & 38,059.9 & \text{cf/basin} = & 1,077.74 \text{ m}^3 / \text{basin} \\ Q \text{ (per Basin)} = & 0.16 & \text{MGD} = & 599.04 \text{ m}^3 / \text{day} \end{array}$$

$$(P_{X,TSS})SRT = 3,233,209 \text{ g}$$

Assume $S_o \approx S_o - S$

$$S_o = bCOD = 480 \text{ g/m}^3$$

$$\text{Assume } No_x \approx 80\% \text{ of TKN} = 56.0 \text{ g/m}^3$$

$$SRT = 25 \text{ days}$$

MLVSS

$$(P_{X,VSS})SRT = \frac{QY(S_o - S)SRT}{[1 + (k_d)SRT]} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1 + (k_{dn})SRT]} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1 + (k_d)SRT]}$$

$$(P_{X,VSS})SRT = V_T (X_{MLVSS})$$

$$(P_{X,VSS})SRT = 1,702,400 \text{ g}$$

$$MLVSS = 1580 \text{ mg/l}$$

Sludge Yield

$$P_{X,TSS} = \frac{(V)(MLSS)}{SRT}$$

$$P_{X,TSS} = 1,140 \text{ lbs/day}$$

$$Q_{Sludge} = \frac{P_{X,TSS}}{8.34 \times \text{Percent Solids}}$$

$$\text{Assume } P_t = 1.50 \%$$

$$Q_{sludge} = 9,116 \text{ gal/day}$$

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS EXISTING/INTERIM PHASE I

NITRIFICATION / DENITRIFICATION

Nitrification

$$K_n \ln \frac{N_o}{N_t} + (N_o - N_t) = X_n \left(\frac{\mu_{mn}}{Y_n} \right) \left(\frac{DO}{k_o + DO} \right) t$$

Nt = NH4-N concentration at time t (mg/L)
Xn = Nitrifying bacteria concentration (mg/L)
DO = Dissolved Oxygen concent 2.0 mg/L

$$NO_x = TKN_o - N_e - 0.12 P_{x,bio} / Q$$

NOx = Nitrogen oxidized (mg/L)
TKNo = Influent TKN (mg/L)
Ne = Effluent NH4-N (mg/L)
Px,bio = Nitrogen in cell tissue

$$P_{x,bio} = \frac{QY(S_o - S)}{1 + (k_d)SRT} + \frac{QY_n(NO_x)}{1 + (k_{dn})SRT} + \frac{(f_d)(k_d)QY(S_o - S)SRT}{1 + (k_d)SRT}$$

Q = 158,250 gpd/basin = 599.0 m³/day/basin
So - S = 480 g/m³ (from SRT calculation)
Nox = 56.0 g/m³ (from SRT calculation)
SRT = 25 days
Px,bio = 46,531 g/day = 46.5 kg/day
NOx = 58.7 g/m³

NOx added per cycle = Fill Volume x NOx = 8,788 g per fill cycle
NH4-N remaining before Fill Cycle = Settle Volume x Ne = 1,856 g
Total Oxidizable N at beginning of Cycle = 10,644 g

No = Total Oxidizable N at beginning of Cycle / Total Basin Volume = 16.45 g/m³

$$X_n = \frac{Q(Y_n)(NO_x)SRT}{[1 + (k_d)SRT]V}$$

Xn = 37.92 g/m³

Time Needed: 0.12344 days = 2.963 hours
Aeration Time Proposed: 4.02 hours

Adequate Aeration time available for Nitrification

Denitrification

NOx Added per Cycle: 8,788 g/fill cycle
Vt: 1,078 m³
NO3-N: 8.15 g/m³ at end of aeration with tank full
Vs: 928 m³
NO3-N: 7,567 g after decant

$$x_b = \frac{QY(S_o - S)SRT}{(1 + (k_d)SRT)Vt}$$

791.5 g/m³

Biomass in System: 853 kg
BOD Feed Rate: 180 kg/day
F/Mb: 0.211 g/g*day

SDNRb: 0.07 g/g*day at 20°C
From Metcalf & Eddy, Fig. 8-23, Pg 755, for rbCOD/bCOD of 0.10
SDNR14: 0.060 g/g*day

NOx = (SDNRb)(xb)(Vt) = NO3-N removal capacity
NOx: 51,187 g/day

Anoxic Time: 2.0 hrs
NOx at 2.0 hrs = 4,223 g
NO3-N Available: 7,567 g

NO3-N removed during Anoxic: 55.8%

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS EXISITING/INTERIM PHASE I

OXYGEN REQUIERMENTS

1. SBR

Actual Oxygen Transfer Rate (AOTR)

TCEQ Criteria: 2.20 lbs O₂ / lb BOD removed
 BOD₅ Removed = 1,531 lbs/day
 AOTR = 3,368 lbs O₂ / day

Standard Oxygen Transfer Rate (SOTR)

$$SOTR = AOTR \left[\frac{C_{s,20}}{\alpha F (\beta C_{sd} - C)} \right] (1.024^{20-T})$$

T = 29 °C

$$C_{s,20} = 9.07 \times \left(1 + \frac{0.4 \times D}{34} \right)$$

D = 23 ft (depth, SWD)
 C_{s,20} = 11.52 mg/l (DO saturation at standard conditions)

$$C_{sd} = Cst \times \left(Fe + \frac{0.4 \times D}{34} \right)$$

Cst = 8.24 mg/l (DO saturation at liquid temp & sea level)
 Fe = 0.96 Elevation Factor
 C_{sd} = 10.14 mg/l (DO saturation at design conditions)
 α = 0.85 coefficient/correction factor
 β = 0.95 Salinity-surface tension correction factor
 F = 1.00 Fouling factor
 C = 2.0 mg/l (operating Oxygen concentration)
 SOTR = 4,833 lbs O₂ / day

Design SOTR

Aeration time/cycle = 4.02 hrs/cycle
 Cycles/day/basin = 4
 Total Aeration time = 16 hrs/day/basin
 No. of Basins = 4
 Design SOTR for Aeration = 75 lbs O₂/hr/basin

Minimum Design Air Flow

Density of Air at Temp. of 29 °C = 0.072947 lbs/cf
 Amount of Oxygen = 0.01691 lbs/cf
 Minimum Design Air Flow = 212 SCFM (per basin being aerated)

2. Digester Oxygen Requirement = 30 scfm per 1,000 ft³

Minimum oxygen requirement = 256 scfm

3. Total

Total Air Flow Requirement = 468 scfm

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS EXISTING/INTERIM PHASE I

SLUDGE HOLDING BASIN

Minimum SRT:	20 days
- SRT w/Treatment:	25 days
Minimum Sludge Holding SRT:	-5 days

Minimum Sludge Holding Detention Time: 7 days (for operations)

Minimum Sludge Holding Volume using SRT	63,815 gallons =	8,530.9 cf
Minimum Sludge Holding Volume using 20-cf/lbs BOD/Day	232,998 gallons =	31,147.4 cf

Minimum Sludge Holding Volume: 63,815 gallons = 8,530.9 cf

CHLORINE CONTACT BASIN

Minimum Detention Time: 20 minutes at Peak Flow

Minimum Volume: 35166.66667 gallons = 4,701.1 cf

TRAVIS COUNTY WCID NO. 17
WQ0013787001
ATTACHMENT M - DESIGN CALCULATIONS INTERIM PHASE II

PARAMETERS

<i>Influent:</i>			<i>Affluent:</i>		
Q =	649,800	GPD	S =	5	mg/l, BOD _{5eff}
Q _{p1} =	2,599,200	GPD to Headworks	TSS _{eff} =	10	mg/l
Q _{p2} =	2,599,200	GPD downstream of Infl EQ (N/A)	NH ₃ N =	2	mg/l
So =	300	mg/l, BOD ₅ infl	Chlorine Residual =	1	mg/l @ 20 min det
TSS _{infl} =	300	mg/l			
Chemical Oxygen Demand (COD) =	545	mg/l .3-.8 (BOD/COD), used 0.55			
TKN =	70	mg/l			
NH ₃ N =	35	mg/l			
Organic N _{14°C} =	35	mg/l			
Winter Temp. Min. =	14	°C			
Summer Temp. Max. =	29	°C			
MLSS =	3,000	mg/l, conc. Of suspended solids in aeration tank			
MLVSS =	70	% of MLSS			
MLVSS (X) =	2100	mg/l, conc. Of volatile suspended solids in aeration tank			

COEFFICIENTS

θ _c =	20	days, mean cell residence time
Y =	0.4	maximum yield coefficient, range: 0.3 - 0.5 (Metcalf & Eddy Table 8-10)
Y _n =	0.12	g VSS / g NH ₄ -N, range: 0.1 - 0.15 (Metcalf & Eddy Table 8-11)
K _o =	0.5	g / m ³ , range: 0.40 - 0.60 (Metcalf & Eddy Table 8-11)
k _d =	0.12	day ⁻¹ , endogenous decay coefficient, range: 0.06 - 0.2 (Metcalf & Eddy Table 8-10)
k _d =	1.04	unitless, range: 1.03 - 1.08 (Metcalf & Eddy Table 8-10)
k _{d, 14°C} =	0.095	g/g*d
K _{dn} =	0.080	g VSS / g VSS*d, range: 0.05 - 0.15 (Metcalf & Eddy Table 8-10)
K _{dn} =	1.04	unitless, range: 1.03 - 1.08 (Metcalf & Eddy Table 8-11)
K _{dn, 14°C} =	0.063	g/g*d
K _n =	0.740	g NH ₄ -N / m ³ , range: 0.5 - 1.0 (Metcalf & Eddy Table 8-11)
K _n =	1.053	unitless, range: 1.03 - 1.123 (Metcalf & Eddy Table 8-11)
K _{n, 14°C} =	0.543	g / m ³
μ _{mn} =	0.750	g VSS / g VSS*d, range: 0.20 - 0.90 (Metcalf & Eddy Table 8-11)
μ _n =	1.070	unitless, range: 1.06 - 1.123 (Metcalf & Eddy Table 8-11)
μ _{m, 14°C} =	0.500	g / g*d
f _d =	0.150	unitless, range: 0.08 - 0.2 (Metcalf & Eddy Table 8-10)

DESIGN CALCULATIONS

PLANT LOADING

BOD₅ Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34 \times Q (BOD_5 \text{ inf} - BOD_5 \text{ eff})}{10^6}$$

$$\text{BOD}_5 \text{ Removed} = 1,599 \text{ lbs/day}$$

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 \times Q (TSS \text{ inf} - TSS_{eff})}{10^6}$$

$$\text{TSS Removed} = 1,572 \text{ lbs/day}$$

SBR LOADING

BOD₅ Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34 \times Q (BOD_5 \text{ inf} - BOD_5 \text{ eff})}{10^6}$$

$$\text{BOD}_5 \text{ Removed} = 1,572 \text{ lbs/day}$$

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 \times Q (TSS \text{ inf} - TSS_{eff})}{10^6}$$

$$\text{TSS Removed} = 1,572 \text{ lbs/day}$$

TRAVIS COUNTY WCID NO. 17
WQ0013787001
ATTACHMENT M - DESIGN CALCULATIONS INTERIM PHASE II

INITIAL SBR BASIN DESIGN

Number of Basins = 4
Number of Cycles per Day = 4 per Basin
Total Cycle Time = 6.00 hrs / cycle
Volume per Cycle = 40,613 gal / cycle
Side Water Depth (SWD) = 23.0 ft

Fill

Fill Rate = 1,875 gpm
Time to Fill (Tf) = 0.36 hrs / cycle

React

Minimum Required Aeration Volume:
Maximum Organic Loading: 25 lbs BOD5/day/1000 cf
(TCEQ Chap. 217.154, Conventional Activated Sludge with Nitrification, with temperatures between 13°C and 15°C)
BOD5 Loading: 1,572 lbs/day

Minimum Required Aeration Volume (V_a): 62,864.3 cf

Initial Assumption:
Aerated Portion of Fill: 0%
Portion of Fill Used as Treatment: 0.00 hrs
Aerated Portion of React: 100%
React Portion of Total Cycle: 67%
React Cycle Time (T_r): 4.02 hrs
Aerated React Cycle Time (T_{ra}): 4.02 hrs
Total Aeration Time (T_a): 4.02 hrs 1.98 hrs Anoxic per cycle

Minimum Total Volume Required (V_t) = V_a / T_a
V_t = 93,827 cf = 701,875 gal

Minimum Total Volume Required per Basin = 23,456.8 cf = 175,468.7 gal
Minimum Surface Area Required per Basin = 1,019.9 sf
Proposed Basin Size = 34.0 ft x 48.67 ft x 23.0 ft SWD
Proposed Volume per Basin = 38,059.9 cf

Settle

Maximum Overflow Rate @ 2-Hr Peak Flow = 1,200 gal/day/sf

(TCEQ Chap. 217.154, Conventional Activated Sludge with Nitrification, with temperatures between 13°C and 15°C)

Proposed Surface Area per Basin = 1,654.8 sf
Maximum Overflow Rate = 1,379.0 gpm

Volume per Cycle = 40,613 gal

Minimum Settle Time (T_s) = 29.45 min
Use T_s = 45.00 min = 0.75 hrs

Decant

Assumed Flow Rate of Decanter = 1,900.0 gpm
Decanters per Basin = 1
Total Decant Flow Rate per Basin = 1,900.0 gpm

Volume per Decant = 40,613 gal

Decant Time (T_d) = 21.38 min = 0.35625 hrs

SBR DESIGN

Hydraulic Retention Time

$$\tau = V / Q$$

Hydraulic Retention Time = 1.75 days

F/M

$$F/M = \frac{Q \times BOD_{5,inf}}{MLSS \times V}$$

F/M = 0.057 gBOD/gMLSS-d

Wastewater Characteristics

bCOD = 1.6(BOD) =	480	mg/l (Biodegradable COD)
nbCOD = COD - bCOD =	65	mg/l (non-biodegradable COD)

iTSS = TSS - VSS			
TSS =	300	mg/l	
VSS =	210	mg/l	
iTSS =	90	mg/l	

$$\frac{bpCOD}{pCOD} = \frac{(bCOD / BOD)(BOD - sBOD)}{COD - sCOD}$$

sBOD: soluble BOD
sCOD: soluble COD
bpCOD: Biodegradable particulate COD
pCOD: Particulate COD

Assume: sCOD = 33% of COD = 180 mg/l
Assume: sBOD = 33% of BOD = 99 mg/l

$$\text{bpCOD/pCOD} = 0.88$$

$$nbVSS = \left[1 - \left(\frac{bpCOD}{pCOD} \right) \right] BOD$$

nbVSS = 36.0 mg/l (non-biodegradable VSS)

TRAVIS COUNTY WCID NO. 17
WQ0013787001
ATTACHMENT M - DESIGN CALCULATIONS INTERIM PHASE II

Sludge Retention Time

$$(P_{X,TSS})SRT = \frac{QY(S_o - S)SRT}{[1 + (k_d)SRT](0.85)} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1 + (k_{dn})SRT](0.85)} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1 + (k_d)SRT](0.85)} + Q(TSS_o - VSS_o)SRT$$

$$(P_{X,TSS})SRT = (V)(X_{MLSS})$$

XMLSS =	3,000	g/m ³	
V =	38,059.9	cf/basin =	1,077.74 m ³ / basin
Q (per Basin) =	0.16	MGD =	614.94 m ³ / day

(PX,TSS)SRT =	3,233,209	g	
---------------	-----------	---	--

Assume So ≈ So -S		
So = bCOD =	480	g/m ³

Assume Nox ≈	80%	of TKN =	56.0 g/m ³
--------------	-----	----------	----------------------------

SRT =	24	days
--------------	-----------	-------------

MLVSS

$$(P_{X,VSS})SRT = \frac{QY(S_o - S)SRT}{[1 + (k_d)SRT]} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1 + (k_{dn})SRT]} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1 + (k_d)SRT]}$$

$$(P_{X,VSS})SRT = V_T (X_{MLVSS})$$

(Px,vss)SRT =	1,698,626	g
---------------	-----------	---

MLVSS =	1576	mg/l
---------	------	------

Sludge Yield

$$P_{X,TSS} = \frac{(V)(MLSS)}{SRT}$$

PX,TSS =	1,188	lbs/day
----------	-------	---------

$$Q_{Sludge} = \frac{P_{X,TSS}}{8.34 \times \text{PercentSolids}}$$

Assume Percent Solids =	1.50	%
-------------------------	------	---

Qsludge =	9,496	gal/day
------------------	--------------	----------------

TRAVIS COUNTY WCID NO. 17
WQ0013787001
ATTACHMENT M - DESIGN CALCULATIONS INTERIM PHASE II

NITRIFICATION / DENITRIFICATION

Nitrification

$$K_n \ln \frac{N_o}{N_t} + (N_o - N_t) = X_n \left(\frac{\mu_{mn}}{Y_n} \right) \left(\frac{DO}{k_o + DO} \right) t$$

Nt = NH4-N concentration at time t (mg/L)
Xn = Nitrifying bacteria concentration (mg/L)
DO = Dissolved Oxygen concent 2.0 mg/L

$$NO_x = TKN_o - N_e - 0.12 P_{x,bio} / Q$$

NOx = Nitrogen oxidized (mg/L)
TKNo = Influent TKN (mg/L)
Ne = Effluent NH4-N (mg/L)
Px,bio = Nitrogen in cell tissue

$$P_{x,bio} = \frac{QY(S_o - S)}{1 + (k_d)SRT} + \frac{QY_n(NO_x)}{1 + (k_{dn})SRT} + \frac{(f_d)(k_d)QY(S_o - S)SRT}{1 + (k_d)SRT}$$

Q = 162,450 gpd/basin = 614.9 m³/day/basin
So - S = 480 g/m³ (from SRT calculation)
Nox = 56.0 g/m³ (from SRT calculation)
SRT = 24 days
Px,bio = 48,638 g/day = 48.6 kg/day
NOx = 58.5 g/m³

NOx added per cycle = Fill Volume x NOx = 8,995 g per fill cycle
NH4-N remaining before Fill Cycle = Settle Volume x Ne = 1,848 g
Total Oxidizable N at beginning of Cycle = 10,843 g

No = Total Oxidizable N at beginning of Cycle / Total Basin Volume = 16.32 g/m³

$$X_n = \frac{Q(Y_n)(NO_x)SRT}{[1 + (k_d)SRT]V}$$

Xn = 38.19 g/m³

Time Needed: 0.12153 days = 2.917 hours
Aeration Time Proposed: 4.02 hours

Adequate Aeration time available for Nitrification

Denitrification

NOx Added per Cycle: 8,995 g/fill cycle
Vt: 1,078 m³
NO3-N: 8.35 g/m³ at end of aeration with tank full
Vs: 924 m³
NO3-N: 7,712 g after decant

$$x_b = \frac{QY(S_o - S)SRT}{(1 + (k_d)SRT)Vt} = 802.6 \text{ g/m}^3$$

Biomass in System: 865 kg
BOD Feed Rate: 184 kg/day
F/Mb: 0.213 g/g*day

SDNRb: 0.07 g/g*day at 20°C
From Metcalf & Eddy, Fig. 8-23, Pg 755, for rbCOD/bCOD of 0.10
SDNR14: 0.060 g/g*day

NOx = (SDNRb)(xb)(Vt) = NO3-N removal capacity
NOx: 51,904 g/day

Anoxic Time: 2.0 hrs
NOx at 2.0 hrs = 4,282 g
NO3-N Available: 7,712 g

NO3-N removed during Anoxic: 55.5%

TRAVIS COUNTY WCID NO. 17
WQ0013787001
ATTACHMENT M - DESIGN CALCULATIONS INTERIM PHASE II

OXYGEN REQUIERMENTS

1. SBR

Actual Oxygen Transfer Rate (AOTR)

TCEQ Criteria: 2.20 lbs O₂ / lb BOD removed
 BOD₅ Removed = 1,572 lbs/day
 AOTR = 3,458 lbs O₂ / day

Standard Oxygen Transfer Rate (SOTR)

$$SOTR = AOTR \left[\frac{C_{s,20}}{\alpha F (\beta C_{sd} - C)} \right] (1.024^{20-T})$$

T = 29 °C

$$C_{s,20} = 9.07 \times \left(1 + \frac{0.4 \times D}{34} \right)$$

D = 23 ft (depth, SWD)
 C_{s,20} = 11.52 mg/l (DO saturation at standard conditions)

$$C_{sd} = C_{st} \times \left(Fe + \frac{0.4 \times D}{34} \right)$$

C_{st} = 8.24 mg/l (DO saturation at liquid temp & sea level)
 Fe = 0.96 Elevation Factor
 C_{sd} = 10.14 mg/l (DO saturation at design conditions)
 α = 0.85 coefficient/correction factor
 β = 0.95 Salinity-surface tension correction factor
 F = 1.00 Fouling factor
 C = 2.0 mg/l (operating Oxygen concentration)
 SOTR = 4,961 lbs O₂ / day

Design SOTR

Aeration time/cycle = 4.02 hrs/cycle
 Cycles/day/basin = 4
 Total Aeration time = 16 hrs/day/basin
 No. of Basins = 4
 Design SOTR for Aeration = 77 lbs O₂/hr/basin

Minimum Design Air Flow

Density of Air at Temp. of 29 °C = 0.072947 lbs/cf
 Amount of Oxygen = 0.01691 lbs/cf
 Minimum Design Air Flow = 218 SCFM (per basin being aerated)

2. Digester Oxygen Requirement = 30 scfm per 1,000 ft³

Minimum oxygen requirement = 267 scfm

3. Total

Total Air Flow Requirement = 485 scfm

TRAVIS COUNTY WCID NO. 17
WQ0013787001
ATTACHMENT M - DESIGN CALCULATIONS INTERIM PHASE II

SLUDGE HOLDING BASIN

Minimum SRT:	20 days
- SRT w/Treatment:	24 days
Minimum Sludge Holding SRT:	-4 days

Minimum Sludge Holding Detention Time: 7 days (for operations)

Minimum Sludge Holding Volume using SRT	66,474 gallons =	8,886.3 cf
Minimum Sludge Holding Volume using 20-cf/lbs BOD/Day	239,182 gallons =	31,974.1 cf

Minimum Sludge Holding Volume: 66,474 gallons = 8,886.3 cf

CHLORINE CONTACT BASIN

Minimum Detention Time: 20 minutes at Peak Flow

Minimum Volume: 36,100.00 gallons = 4,825.9 cf

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

PARAMETERS

<i>Influent:</i>			<i>Affluent:</i>		
Q =	1,000,000	GPD	S =	5	mg/l, BOD _{5eff}
Q _{p1} =	4,000,000	GPD to Headworks	TS _{Seff} =	10	mg/l
Q _{p2} =	4,000,000	GPD downstream of Infl EQ (N/A)	NH ₃ N =	2	mg/l
So =	300	mg/l, BOD ₅ infl	Chlorine Residual =	1	mg/l @ 20 min det
TSS _{infl} =	300	mg/l			
Chemical Oxygen Demand (COD) =	545	mg/l .3-.8 (BOD/COD), used 0.55			
TKN =	70	mg/l			
NH ₃ N =	35	mg/l			
Organic N _{14°C} =	35	mg/l			
Winter Temp. Min. =	14	°C			
Summer Temp. Max. =	29	°C			
MLSS =	3,000	mg/l, conc. Of suspended solids in aeration tank			
MLVSS =	70	% of MLSS			
MLVSS (X) =	2100	mg/l, conc. Of volatile suspended solids in aeration tank			

COEFFICIENTS

θ _c =	20	days, mean cell residence time
Y =	0.4	maximum yield coefficient, range: 0.3 - 0.5 (Metcalf & Eddy Table 8-10)
Y _n =	0.12	g VSS / g NH ₄ -N, range: 0.1 - 0.15 (Metcalf & Eddy Table 8-11)
K _s =	0.5	g / m ³ , range: 0.40 - 0.60 (Metcalf & Eddy Table 8-11)
k _d =	0.12	day ⁻¹ , endogenous decay coefficient, range: 0.06 - 0.2 (Metcalf & Eddy Table 8-10)
K _d =	1.04	unitless, range: 1.03 - 1.08 (Metcalf & Eddy Table 8-10)
K _{d, 14°C} =	0.095	g/g*d
K _{dn} =	0.080	g VSS / g VSS*d, range: 0.05 - 0.15 (Metcalf & Eddy Table 8-10)
K _{dn} =	1.04	unitless, range: 1.03 - 1.08 (Metcalf & Eddy Table 8-11)
K _{dn, 14°C} =	0.063	g/g*d
K _n =	0.740	g NH ₄ -N / m ³ , range: 0.5 - 1.0 (Metcalf & Eddy Table 8-11)
K _n =	1.053	unitless, range: 1.03 - 1.123 (Metcalf & Eddy Table 8-11)
K _{n, 14°C} =	0.543	g / m ³
μ _{mn} =	0.750	g VSS / g VSS*d, range: 0.20 - 0.90 (Metcalf & Eddy Table 8-11)
μ _n =	1.070	unitless, range: 1.06 - 1.123 (Metcalf & Eddy Table 8-11)
μ _{m, 14°C} =	0.500	g / g*d
f _d =	0.150	unitless, range: 0.08 - 0.2 (Metcalf & Eddy Table 8-10)

DESIGN CALCULATIONS

PLANT LOADING

BOD₅ Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34xQ(\text{BOD}_5 \text{ inf} - \text{BOD}_5 \text{ eff})}{10^6}$$

$$\text{BOD}_5 \text{ Removed} = 2,460 \text{ lbs/day}$$

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 \times Qx (\text{TSS inf} - \text{TSSeff})}{10^6}$$

$$\text{TSS Removed} = 2,419 \text{ lbs/day}$$

SBR LOADING

BOD₅ Loading:

$$\text{BOD}_5 \text{ Removed} = \frac{8.34xQ(\text{BOD}_5 \text{ inf} - \text{BOD}_5 \text{ eff})}{10^6}$$

$$\text{BOD}_5 \text{ Removed} = 2,419 \text{ lbs/day}$$

TSS Loading:

$$\text{TSS Removed} = \frac{8.34 \times Qx (\text{TSS inf} - \text{TSSeff})}{10^6}$$

$$\text{TSS Removed} = 2,419 \text{ lbs/day}$$

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

INITIAL SBR BASIN DESIGN

Number of Basins = 4
Number of Cycles per Day = 4 per Basin
Total Cycle Time = 6.00 hrs / cycle
Volume per Cycle = 62,500 gal / cycle
Side Water Depth (SWD) = 23.0 ft

Fill

Fill Rate = 1,875 gpm
Time to Fill (T_f) = 0.56 hrs / cycle

React

Minimum Required Aeration Volume:
Maximum Organic Loading: 25 lbs BOD₅/day/1000 cf
(TCEQ Chap. 217.154, Conventional Activated
Sludge with Nitrification, with temperatures between
13°C and 15°C)
BOD₅ Loading: 2,419 lbs/day

Minimum Required Aeration Volume (V_a) = 96,744.0 cf

Initial Assumption:

Aerated Portion of Fill: 0%
Portion of Fill Used as Treatment: 0.00 hrs
Aerated Portion of React: 100%
React Portion of Total Cycle: 67%
React Cycle Time (T_r): 4.02 hrs
Aerated React Cycle Time (T_{ra}): 4.02 hrs
Total Aeration Time (T_a): 4.02 hrs 1.98 hrs Anoxic per cycle

Minimum Total Volume Required (V_t) = V_a / T_a

V_t = 144,394 cf = 1,080,140 gal

Minimum Total Volume Required per Basin = 36,098.5 cf = 270,034.9 gal
Minimum Surface Area Required per Basin = 1,569.5 sf
Proposed Basin Size = 34.0 ft x 48.67 ft x 23.0 ft SWD
Proposed Volume per Basin = 38,059.9 cf

Settle

Maximum Overflow Rate @ 2-Hr Peak Flow = 1,200 gal/day/sf

(TCEQ Chap. 217.154, Conventional Activated
Sludge with Nitrification, with temperatures between
13°C and 15°C)

Proposed Surface Area per Basin = 1,654.8 sf
Maximum Overflow Rate = 1,379.0 gpm

Volume per Cycle = 62,500 gal

Minimum Settle Time (T_s) = 45.32 min
Use T_s = 46.00 min = 0.766667 hrs

Decant

Assumed Flow Rate of Decanter = 1,900.0 gpm
Decanters per Basin = 1
Total Decant Flow Rate per Basin = 1,900.0 gpm

Volume per Decant = 62,500 gal

Decant Time (T_d) = 32.89 min = 0.5482456 hrs

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

SBR DESIGN

Number of Basins = 4
 Number of Cycles per Day = 4
 Volume per Cycle = 62,500 gal

Side Water Depth (SWD) = 23 ft
 Minimum Total Volume Needed = 144,394 cf
 Total Volume Proposed = 152,240 cf
 Minimum Volume per Basin = 36,098.5 cf
 Volume Proposed per Basin = 38,059.9 cf
 Minimum Surface Area Required per Basin = 1,569.5 sf
 Proposed Basin Size = 34.0 ft x 48.7 ft x 23.0 ft SWD
 Proposed Surface Area = 1654.8 sf

Total Cycle Time = 6.00 hrs
 Max. Fill Time (Tf): 0.56 hrs (at design flow)
 Anoxic Fill Time (Tf,an): 0.56 hrs
 Aerated Fill Time (Tf,aer): 0.00 hrs
 React Time (Tr): 4.02 hrs
 Settle Time (Ts): 0.77 hrs
 Decant Time (Td): 0.55 hrs
 Idle Time (Ti): 0.11 hrs

Hydraulic Retention Time

$$\tau = V / Q$$

Hydraulic Retention Time = 1.14 days

F/M

$$F / M = \frac{Q \times BOD_{5,inf}}{MLSS \times V}$$

F/M = 0.088 gBOD/gMLSS-d

Wastewater Characteristics

bCOD = 1.6(BOD) = 480 mg/l (Biodegradable COD)
 nbCOD = COD - bCOD = 65 mg/l (non-biodegradable COD)

iTSS = TSS - VSS

TSS = 300 mg/l
 VSS = 210 mg/l
 iTSS = 90 mg/l

$$\frac{bpCOD}{pCOD} = \frac{(bCOD / BOD)(BOD - sBOD)}{COD - sCOD}$$

sBOD: soluble BOD
 sCOD: soluble COD
 bpCOD: Biodegradable particulate COD
 pCOD: Particulate COD

Assume: sCOD = 33% of COD = 180 mg/l
 Assume: sBOD = 33% of BOD = 99 mg/l

bpCOD/pCOD = 0.88

$$nbVSS = \left[1 - \left(\frac{bpCOD}{pCOD} \right) \right] BOD$$

nbVSS = 36.0 mg/l (non-biodegradable VSS)

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

Sludge Retention Time

$$(P_{X,TSS})SRT = \frac{QY(S_o - S)SRT}{[1 + (k_d)SRT](0.85)} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1 + (k_{dn})SRT](0.85)} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1 + (k_d)SRT](0.85)} + Q(TSS_o - VSS_o)SRT$$

$$(P_{X,TSS})SRT = (V)(X_{MLSS})$$

X _{MLSS} =	3,000	g/m ³	
V =	38,059.9	cf/basin =	1,077.74 m ³ / basin
Q (per Basin) =	0.25	MGD =	946.35 m ³ / day
(P _{X,TSS})SRT =	3,233,209	g	

Assume S _o ≈ S _o - S			
S _o = bCOD =	480	g/m ³	
Assume No _x ≈	80%	of TKN =	56.0 g/m ³
SRT =	18	days	

MLVSS

$$(P_{X,VSS})SRT = \frac{QY(S_o - S)SRT}{[1 + (k_d)SRT]} + Q(nbVSS)SRT + \frac{QY_n(NO_x)SRT}{[1 + (k_{dn})SRT]} + \frac{(f_d)(k_d)Q(Y)(S_o - S)SRT^2}{[1 + (k_d)SRT]}$$

$$(P_{X,VSS})SRT = V_T(X_{MLVSS})$$

(P _{X,VSS})SRT =	2,141,393	g	
MLVSS =	1987	mg/l	

Sludge Yield

$$P_{X,TSS} = \frac{(V)(MLSS)}{SRT}$$

P _{X,TSS} =	1,584	lbs/day	
----------------------	-------	---------	--

$$Q_{Sludge} = \frac{P_{X,TSS}}{8.34 \times PercentSolids}$$

Assume P _t	1.50	%	
-----------------------	------	---	--

Q_{sludge} =	12,662	gal/day	
-----------------------------	---------------	----------------	--

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

NITRIFICATION / DENITRIFICATION

Nitrification

$$K_n \ln \frac{N_o}{N_t} + (N_o - N_t) = X_n \left(\frac{\mu_{mn}}{Y_n} \right) \left(\frac{DO}{k_o + DO} \right) t$$

No = Initial NH4-N concentration (mg/L)
 Nt = NH4-N concentration at time t (mg/L)
 Xn = Nitrifying bacteria concentration (mg/L)
 DO = Dissolved Oxygen concent 2.0 mg/L

$$NO_x = TKN_o - N_e - 0.12 P_{x,bio} / Q$$

NOx = Nitrogen oxidized (mg/L)
 TKN_o = Influent TKN (mg/L)
 N_e = Effluent NH4-N (mg/L)
 P_{x,bio} = Nitrogen in cell tissue

$$P_{x,bio} = \frac{QY(S_o - S)}{1 + (k_d)SRT} + \frac{QY_n(NO_x)}{1 + (k_{dn})SRT} + \frac{(f_d)(k_d)QY(S_o - S)SRT}{1 + (k_d)SRT}$$

Q = 250,000 gpd/basin = 946.4 m³/day/basin
 S_o - S = 480 g/m³ (from SRT calculation)
 Nox = 56.0 g/m³ (from SRT calculation)
 SRT = 18 days
 P_{x,bio} = 84,898 g/day = 84.9 kg/day
 NOx = 57.2 g/m³

NOx added per cycle = Fill Volume x NOx = 13,541 g per fill cycle
 NH4-N remaining before Fill Cycle = Settle Volume x N_e = 1,682 g
 Total Oxidizable N at beginning of Cycle = 15,223 g

N_o = Total Oxidizable N at beginning of Cycle / Total Basin Volume = 14.89 g/m³

$$X_n = \frac{Q(Y_n)(NO_x)SRT}{[1 + (k_d)SRT]V}$$

Xn = 50.77 g/m³

Time Needed: 0.08266 days = 1.984 hours
 Aeration Time Proposed: 4.02 hours

Adequate Aeration time available for Nitrification

Denitrification

NOx Added per Cycle: 13,541 g/fill cycle
 V_t: 1,078 m³
 NO3-N: 12.56 g/m³ at end of aeration with tank full
 V_s: 841 m³
 NO3-N: 10,568 g after decant

$$x_b = \frac{QY(S_o - S)SRT}{(1 + (k_d)SRT)V_t} \quad x_b = 1121.0 \text{ g/m}^3$$

Biomass in System: 1,208 kg
 BOD Feed Rate: 284 kg/day
 F/M_b: 0.235 g/g*day

SDNR_b: 0.07 g/g*day at 20°C
 From Metcalf & Eddy, Fig. 8-23, Pg 755, for rbCOD/bCOD of 0.10
 SDNR₁₄: 0.060 g/g*day

NOx = (SDNR_b)(x_b)(V_t) = NO3-N removal capacity
 NOx: 72,500 g/day

Anoxic Time: 2.0 hrs
 NO_r at 2.0 hrs = 5,981 g
 NO3-N Available: 10,568 g

NO3-N removed during Anoxic: 56.6%

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

OXYGEN REQUIERMENTS

1. SBR

Actual Oxygen Transfer Rate (AOTR)

TCEQ Criteria:	2.20	lbs O ₂ / lb BOD removed
BOD ₅ Removed =	2,419	lbs/day
AOTR =	5,321	lbs O ₂ / day

Standard Oxygen Transfer Rate (SOTR)

$$SOTR = AOTR \left[\frac{C_{s,20}}{\alpha F (\beta C_{sd} - C)} \right] (1.024^{20-T})$$

T = 29 °C

$$C_{s,20} = 9.07 \times \left(1 + \frac{0.4 \times D}{34} \right)$$

D =	23	ft (depth, SWD)
C _{s,20} =	11.52	mg/l (DO saturation at standard conditions)

$$C_{sd} = C_{st} \times \left(Fe + \frac{0.4 \times D}{34} \right)$$

C _{st} =	8.24	mg/l (DO saturation at liquid temp & sea level)
Fe =	0.96	Elevation Factor
C _{sd} =	10.14	mg/l (DO saturation at design conditions)
α =	0.85	coefficient/correction factor
β =	0.95	Salinity-surface tension correction factor
F =	1.00	Fouling factor
C =	2.0	mg/l (operating Oxygen concentration)

SOTR =	7,635	lbs O ₂ / day
--------	-------	--------------------------

Design SOTR

Aeration time/cycle =	4.02	hrs/cycle
Cycles/day/basin =	4	
Total Aeration time =	16	hrs/day/basin
No. of Basins =	4	
Design SOTR for Aeration =	119	lbs O ₂ /hr/basin

Minimum Design Air Flow

Density of Air at Temp. of	29	°C =	0.072947 lbs/cf
Amount of Oxygen =	0.01691	lbs/cf	
Minimum Design Air Flow =	335	SCFM (per basin being aerated)	

2. Digester

Oxygen Requirement =	30	scfm per 1,000 ft ³
----------------------	----	--------------------------------

Minimum oxygen requirement =	355	scfm
-------------------------------------	------------	-------------

3. Total

Total Air Flow Requirement =	690	scfm
-------------------------------------	------------	-------------

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT M - DESIGN CALCULATIONS FINAL

SLUDGE HOLDING BASIN

Minimum SRT:	20 days	
- SRT w/Treatment:	18 days	
Minimum Sludge Holding SRT:	2 days	
Minimum Sludge Holding Detention Time:	7 days (for operations)	
Minimum Sludge Holding Volume using SRT	88,632 gallons =	11,848.5 cf
Minimum Sludge Holding Volume using 20-cf/lbs BOD/Day	368,085 gallons =	49,206.0 cf
Minimum Sludge Holding Volume:	88,632 gallons =	11,848.5 cf

CHLORINE CONTACT BASIN

Minimum Detention Time:	20 minutes at Peak Flow	
Minimum Volume:	55,555.56 gallons =	7,426.7 cf

ATTACHMENT N
FEMA FIRM MAP



FLOOD HAZARD INFORMATION

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)

	Without Base Flood Elevation (BFE) Zone A-V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
	NO SCREEN Area of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information Exchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

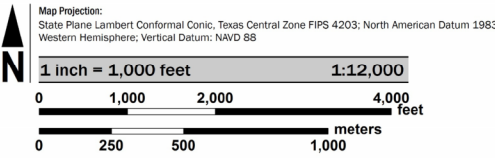
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

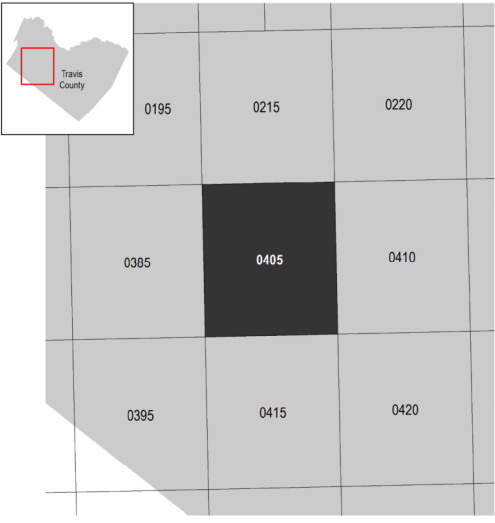
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6629.

Base map information shown on this FIRM was derived from digital data obtained from City of Austin dated 2016, NPHL dated 2014, and CAPCOG dated 2014 and 2016.

SCALE



PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

TRAVIS COUNTY, TEXAS
and Incorporated Areas

PANEL 405 OF 730

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
AUSTIN, CITY OF	480624	0405	J
LAKEWAY, CITY OF	481303	0405	J
TRAVIS COUNTY	481026	0405	J
BEE CAVE, CITY OF	481510	0405	J
THE HILLS, VILLAGE OF	480063	0405	J

VERSION NUMBER
2.3.3.3

MAP NUMBER
48453C0405J

MAP REVISED
JANUARY 22, 2020



FLOOD HAZARD INFORMATION

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A/V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee See Notes. Zone X
OTHER AREAS		Area with Flood Risk due to Levee Zone D
		NO SCREEN Area of Minimal Flood Hazard Zone X
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
OTHER FEATURES		Base Flood Elevation Line (BFE)
		Limit of Study
OTHER FEATURES		Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

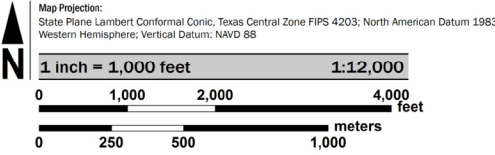
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

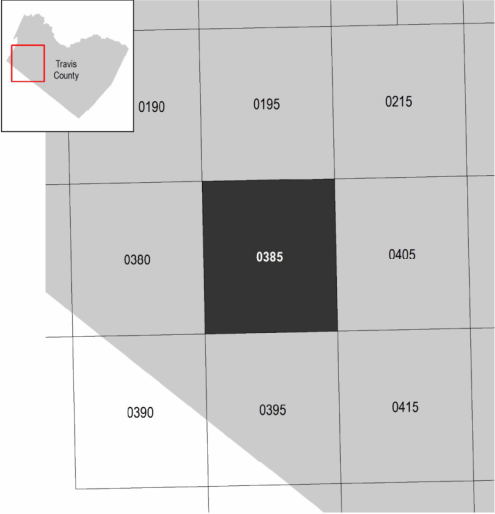
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6629.

Base map information shown on this FIRM was derived from digital data obtained from City of Austin dated 2016, NPHL dated 2014, and CAPCOG dated 2014 and 2016.

SCALE



PANEL LOCATOR



FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

TRAVIS COUNTY, TEXAS
and Incorporated Areas

PANEL 385 OF 730

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
LAKEWAY, CITY OF	481303	0385	J
TRAVIS COUNTY	481026	0385	J

VERSION NUMBER
2.3.3.3

MAP NUMBER
48453C0385J

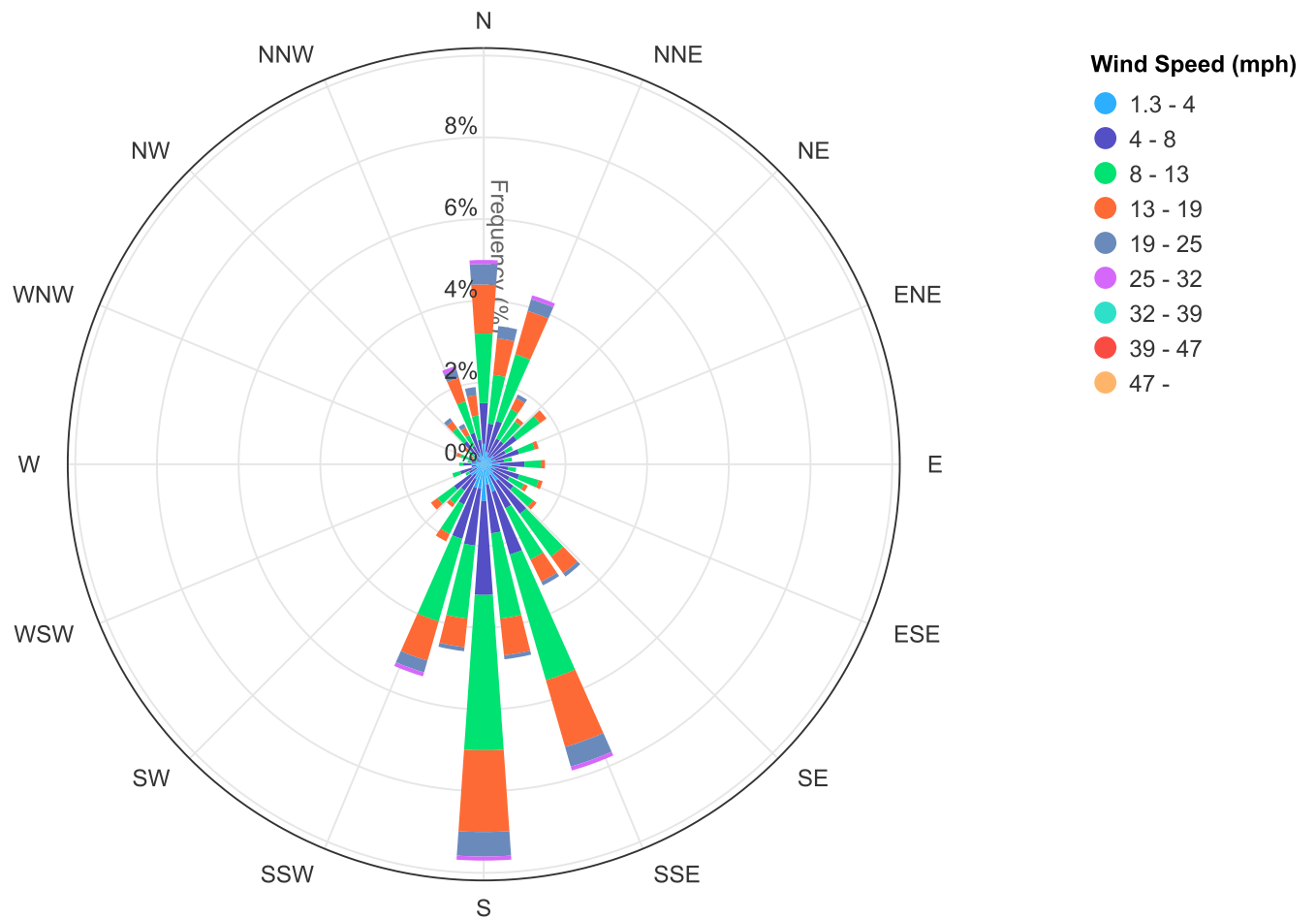
MAP REVISED
JANUARY 22, 2020

ATTACHMENT O
WIND ROSE

AUSTIN BERGSTROM AP (TX) Wind Rose



Oct. 1, 1942 - May 13, 2024
Sub-Interval: Jan. 1 - Dec. 31, 0 - 23



Click and drag to zoom

ATTACHMENT P
SEWAGE SLUDGE MANAGEMENT PLAN

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT P - SEWAGE SLUDGE MANAGEMENT PLAN
EXISTING/INTERIM I

Dimensions and Capacities of Sludge Holding

Average Anticipated Sludge Yield:	9,116	gal/day		
TCEQ Minimum Sludge Retention Time:	20	days		
SRT from Treatment Basins:	25.00	days		
Minimum SRT needed in Sludge Holding:	-5.00	days		
Prop Sludge Holding Basins:	90,888	gal =	12,150	cubic feet
Proposed Sludge Holding SRT:	9.97	days		
Total Proposed Sludge Retention Time:	34.97	days		

Solids Generated

BOD5 Removal	Influent concentration =	300	mg/l
	Effluent concentration =	5	mg/l
	Net removal =	295	mg/l

MLSS Operating Range = 3,000 mg/l

BOD5 removed	1,557	lbs/day
Dry Sludge Produced	1,140	lbs/day
Wet Sludge Produced*	76,031	lbs/day
Wet Sludge Produced*	9,116	gal/day

*Assuming Percent Solids in Sludge: 1.50 % Solids

Length of Sustained Peak (days)	Peaking Factor	Waste Sludge Mass Loading (lbs/day)	Total Sustained Loading (lb)
1	2.4	2,737	2,737
2	2.1	2,395	4,790
3	1.9	2,167	6,501
4	1.8	2,053	8,211
5	1.7	1,939	9,694
7	1.65	1,882	13,172
14	1.32	1,505	21,076
15	1.3	1,483	22,239
365	1	1,140	416,272

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT P - SEWAGE SLUDGE MANAGEMENT PLAN
EXISTING/INTERIM I

Belt Filter Press

Sludge Loading Rate: 600 lb/m*hr (200 to 1500 lb/m*hr typical)

Scenario: One 1.0 m Belt Filter Press

Total Sludge Loading Rate: 600 lb/m*hr

Average Mass Loading Condition (Press 7-days of Sludge in 5-day work week)

1,140 lbs/day x 7 days =	7,983	lbs
7,983 lbs / 5 days =	1,597	lbs /day

1,597 lbs/day / 600 lb/m*hr = **2.66 hrs/day**

Peak Mass Loading Condition (Press 14-days of Peak Sludge in 10-days)

1,505 lbs/day x 14 days =	21,076	lbs
21,076 lbs / 10 days =	2,108	lbs /day

2,108 lbs/day / 600 lb/m*hr = **3.51 hrs/day**

Anticipated Polymer Usage:

One 1-m press at full capacity for 8 hrs/day: 19.2 gpd of polymer (435 gal/mth)

Process:

Activated sludge process utilizing sequence batch reactors will be utilized. Sludge will be wasted from the SBR basins to the sludge digester. Sludge will then be sent to the belt filter press for dewatering. Supernatant from the belt press will be returned to the headworks of the plant. Dewatered sludge will be hauled by a licensed hauler to a TCEQ registered disposal site.

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT P - SEWAGE SLUDGE MANAGEMENT PLAN
INTERIM II

Dimensions and Capacities of Sludge Holding

Average Anticipated Sludge Yield:	9,496	gal/day		
TCEQ Minimum Sludge Retention Time:	20	days		
SRT from Treatment Basins:	24	days		
Minimum SRT needed in Sludge Holding:	-4	days		
Prop Sludge Holdign Basins:	90,888	gal =	12,150	cubic feet
Proposed Sludge Holding SRT:	9.57	days		
Total Proposed Sludge Retention Time:	33.57	days		

Solids Generated

BOD5 Removal	Influent concentration =	300	mg/l
	Effluent concentration =	5	mg/l
	Net removal =	295	mg/l

MLSS Operating Range = 3,000 mg/l

BOD5 removed	1,599	lbs/day
Dry Sludge Produced	1,188	lbs/day
Wet Sludge Produced*	79,199	lbs/day
Wet Sludge Produced*	9,496	gal/day

*Assuming Percent Solids in Sludge: 1.50 % Solids

Length of Sustained Peak (days)	Peaking Factor	Waste Sludge Mass Loading (lbs/day)	Total Sustained Loading (lb)
1	2.4	2,851	2,851
2	2.1	2,495	4,990
3	1.9	2,257	6,772
4	1.8	2,138	8,554
5	1.7	2,020	10,098
7	1.65	1,960	13,721
14	1.32	1,568	21,954
15	1.3	1,544	23,166
365	1	1,188	433,617

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT P - SEWAGE SLUDGE MANAGEMENT PLAN
INTERIM II

Belt Filter Press

Sludge Loading Rate: 600 lb/m*hr (200 to 1500 lb/m*hr typical)

Scenario: One 1.0 m Belt Filter Press

Total Sludge Loading Rate: 600 lb/m*hr

Average Mass Loading Condition (Press 7-days of Sludge in 5-day work week)

1,188 lbs/day x 7 days =	8,316	lbs
8,316 lbs / 5 days =	1,663	lbs /day

1,663 lbs/day / 600 lb/m*hr = **2.77 hrs/day**

Peak Mass Loading Condition (Press 14-days of Peak Sludge in 10-days)

1,568 lbs/day x 14 days =	21,954	lbs
21,954 lbs / 10 days =	2,195	lbs /day

2,195 lbs/day / 600 lb/m*hr = **3.66 hrs/day**

Anticipated Polymer Usage:

One 2-m press at full capacity for 8 hrs/day: 19.2 gpd of polymer (435 gal/mth)

Process:

Activated sludge process utilizing sequence batch reactors will be utilized. Sludge will be wasted from the SBR basins to the sludge digester. Sludge will then be sent to the belt filter press for dewatering. Supernatant from the belt press will be returned to the headworks of the plant. Dewatered sludge will be hauled by a licensed hauler to a TCEQ registered disposal site.

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT P - SEWAGE SLUDGE MANAGEMENT PLAN
FINAL

Dimensions and Capacities of Sludge Holding

Average Anticipated Sludge Yield:	12,662	gal/day		
TCEQ Minimum Sludge Retention Time:	20	days		
SRT from Treatment Basins:	18	days		
Minimum SRT needed in Sludge Holding:	2	days		
Prop Sludge Holdign Basins:	90,888	gal =	12,150	cubic feet
Proposed Sludge Holding SRT:	7.18	days		
Total Proposed Sludge Retention Time:	25.18	days		

Solids Generated

BOD5 Removal	Influent concentration =	300	mg/l
	Effluent concentration =	5	mg/l
	Net removal =	295	mg/l

MLSS Operating Range = 3,000 mg/l

BOD5 removed	2,460	lbs/day
Dry Sludge Produced	1,584	lbs/day
Wet Sludge Produced*	105,599	lbs/day
Wet Sludge Produced*	12,662	gal/day

*Assuming Percent Solids in Sludge: 1.50 % Solids

Length of Sustained Peak (days)	Peaking Factor	Waste Sludge Mass Loading (lbs/day)	Total Sustained Loading (lb)
1	2.4	3,802	3,802
2	2.1	3,326	6,653
3	1.9	3,010	9,029
4	1.8	2,851	11,405
5	1.7	2,693	13,464
7	1.65	2,614	18,295
14	1.32	2,091	29,272
15	1.3	2,059	30,888
365	1	1,584	578,156

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT P - SEWAGE SLUDGE MANAGEMENT PLAN
FINAL

Belt Filter Press

Sludge Loading Rate: 600 lb/m*hr (200 to 1500 lb/m*hr typical)

Scenario: One 1.0 m Belt Filter Press

Total Sludge Loading Rate: 600 lb/m*hr

Average Mass Loading Condition (Press 7-days of Sludge in 5-day work week)

1,584 lbs/day x 7 days =	11,088	lbs
11,088 lbs / 5 days =	2,218	lbs /day

2,218 lbs/day / 600 lb/m*hr = **3.70 hrs/day**

Peak Mass Loading Condition (Press 14-days of Peak Sludge in 10-days)

2,091 lbs/day x 14 days =	29,272	lbs
29,272 lbs / 10 days =	2,927	lbs /day

2,927 lbs/day / 600 lb/m*hr = **4.88 hrs/day**

Anticipated Polymer Usage:

One 1-m press at full capacity for 8 hrs/day: 19.2 gpd of polymer (435 gal/mth)

Process:

Activated sludge process utilizing sequence batch reactors will be utilized. Sludge will be wasted from the SBR basins to the sludge digester. Sludge will then be sent to the belt filter press for dewatering. Supernatant from the belt press will be returned to the headworks of the plant. Dewatered sludge will be hauled by a licensed hauler to a TCEQ registered disposal site.

ATTACHMENT Q
STORAGE SUMMARY & LINER CERTIFICATION

ATTACHMENT Q - STORAGE SUMMARY

Storage Facility	Anticipated Tank Dia (ft)	Anticipated Max SWD (ft)	Surface Area (sf)	Storage Volume (10 ⁶ gal)	Storage Volume (Ac-ft)
Existing					
Flintrock Pond No. 1 ¹	N/A	16	62,116	3.859	11.841
Flintrock Pond No. 2 ²	N/A	35	89,279	9.347	28.685
Lakeway Regional Tank	29.72	39.86	694	0.207	0.635
Proposed					
Serene Hills Tank No. 1 (Under Construction)	187	50	27,465	10.272	31.525
Serene Hills Tank No. 2 (Under Construction)	187	50	27,465	10.272	31.525
Thomas Tract Tank	28	16	616	0.074	0.226
TOTAL PROPOSED:			207,634	34.031	104.437

NOTES:

1. Flintrock Pond No. 1 has a top of berm elevation of 918, maximum WSEL of 916, and a volume of 3.8585 MG excluding the bottom 4' of the bottom.
2. Flintrock Pond No. 2 has a top of berm elevation of 892, maximum WSEL of 890, and a volume of 9.3471 MG excluding the bottom 4' of the bottom.

**EFFLUENT STORAGE POND
SYNTHETIC LINER CERTIFICATION**

The existing synthetic liner used for the effluent storage ponds is a polyethylene liner and meets the requirements of 30 TAC Chapters 309 and 317.



William F. Peña, P.E.



ATTACHMENT R
ANNUAL CROPPING PLAN

ATTACHMENT R – ANNUAL CROPPING PLAN

1.0 – Nitrogen Balance

This drip irrigation system disposes a maximum average flow rate of 362,844 gallons per day (gpd) of treated wastewater effluent, at a maximum application rate of 0.10 gpd per square foot. The application rate is 0.097-gpd/sf for drip disposal field A-2, 0.089-gpd/sf for A-5, and 0.1-gpd/sf for all other drip disposal sites. The treated wastewater effluent is generated by the Flintrock Wastewater Treatment Plant. A possible limiting factor on irrigation rates is the nitrogen application rate. The nitrogen applied from the effluent shall not be greater than the amount that can be taken up and removed by vegetation, so that excess nitrogen does not leach into the ground water system or surface waters.

According to 30 TAC Section 222.83, the allowable annual hydraulic loading rate based on nitrogen limits is given by the following equation:

$$Lw(n) = [(Cp)(Pr-ET) + (U)(4.4)] / [(1-f)(Cn) - Cp]$$

$Lw(n)$ = allowable annual hydraulic loading rate based upon nitrogen limits in inches per year

Cp = total nitrogen concentration in soil solution in milligrams per liter

Nitrogen concentration of soil solution is equal to 9.0 mg/L

Pr = precipitation rate in inches per year

Average precipitation for Austin, over 25-year period of 1988-2012, according to NOAA average precipitation at Austin Bergstrom Airport, Austin, TX and is equal to 33.21 in/yr

ET = evapotranspiration rate in inches per year

Average evapotranspiration rate, calculated using Blaney-Criddle method as described in FAO's "Irrigation Water Management" paper, was calculated to be 63.56 in/yr

U = nitrogen uptake by crop in pounds per acre per year

Average nitrogen uptake for Bermuda Grass, according to Process Design Manual for Land Treatment of Municipal Wastewater, U.S. Environmental Protection, October 1981, is equal to 200 kg/ha/yr or 178 lb/acre/yr

4.4 = combined conversion factor

Cn = total nitrogen concentration in wastewater at time of application to land in milligrams per liter

Proposed effluent maximum permitted concentration equal to 5.0 mg/L

f = fraction of applied nitrogen removed by denitrification and volatilization and assumed to be 0.20

The above equation gives an allowable hydraulic loading rate, based on nitrogen limits, of 103.69 in/yr. The existing hydraulic application rate is 57.04 in/yr. Therefore, the anticipated nitrogen loading is less than what can be used through crop uptake, and nitrogen loading is not a controlling factor in the hydraulic loading rate. No additional fertilizer is proposed to be applied to the site. No supplemental watering is proposed for this site.

2.0 – Annual Cropping Plan

The existing and proposed drip irrigation sites are predominantly occupied by oak and cedar trees. A relatively small number of other native trees are also present. A variety of shrubs exist under the trees and various native grasses exist in the open areas of the tract. The remaining areas are or will be seeded with Bermuda and Winter Rye grasses.

Bermuda grass has a typical growing season lasting from March through October. It will go dormant following the first frost and remain dormant until Spring. Winter Rye has a typical growing season lasting from October through February. Bermuda grass has a maximum height of 15 to 18 inches, and Winter Rye has a maximum height of approximately 12 inches.

As discussed further in Section 1.0 – Nitrogen Balance, the average nitrogen uptake for Bermuda grass is equal to 178 lb/acre/yr. An allowable hydraulic loading rate of 102.01 in/yr, based on nitrogen limits, was established for this system. The existing hydraulic loading rate is 58.56 in/yr. Therefore, the amount of nitrogen applied does not exceed the amount that can be removed by crop uptake. No additional fertilizer is proposed to be applied to the site. No supplemental watering is proposed for this site.

The crop salt tolerances were taken from Table 3 of 30 TAC Section 309.20. Bermuda grass is listed as Highly Salt Tolerant, with a maximum electrical conductivity of 8.0 – 12.0 millimhos/cm at 25 degrees Celsius. Winter Rye is listed as Relatively Salt Tolerant with a maximum electrical conductivity of 6.0 – 8.0 millimhos/cm at 25 degrees Celsius.

ATTACHMENT S
WELL AND MAP INFORMATION

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT S – WELL AND MAP INFORMATION

TABLE 1 – WATER WELL DATA

WELL ID	WELL USE	PRODUCING (Y/N)	OPEN, CASED, CAPPED, OR PLUGGED?	PROPOSED BEST MANAGEMENT PRACTICE
5841101	Domestic	Y	Open	Greater than 150-ft away from irrigation site
5841403	Domestic	Y	Open	Greater than 150-ft away from irrigation site
5841404	Domestic	Y	Open	Greater than 150-ft away from irrigation site
5841407	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
13298	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
20590	Domestic	N	Plugged	Greater than 150-ft away from irrigation site
26187	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
28035	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
29997	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
29998	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
33901	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
37375	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
45605	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
48727	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
48731	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
60485	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
64375	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
71751	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
74002	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
77018	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
77384	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
91305	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
92326	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
93219	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
96653	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
117485	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
125832	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
134327	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
146505	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
152651	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
172832	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
174365	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
174386	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
181840	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
278629	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
279798	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
279924	Closed-Loop Geothermal	N	Plugged	Greater than 150-ft away from irrigation site
281702	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
290846	Monitor	N	Plugged	Greater than 150-ft away from irrigation site
302100	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
302877	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
303549	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
305495	Domestic	Y	Cased	Greater than 150-ft away from irrigation site

TRAVIS COUNTY WCID NO. 17

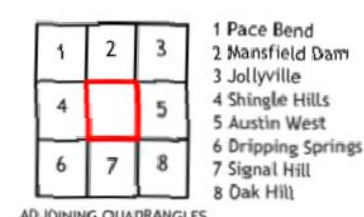
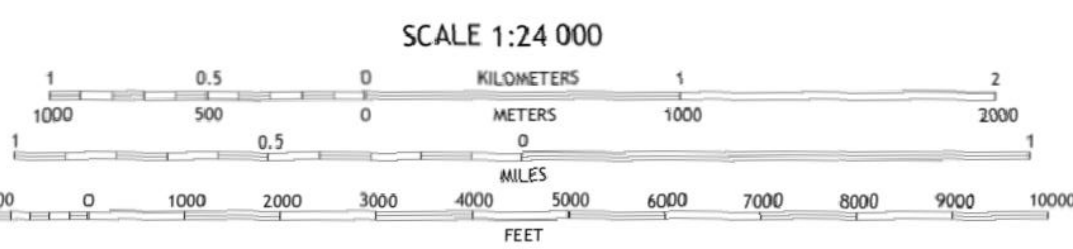
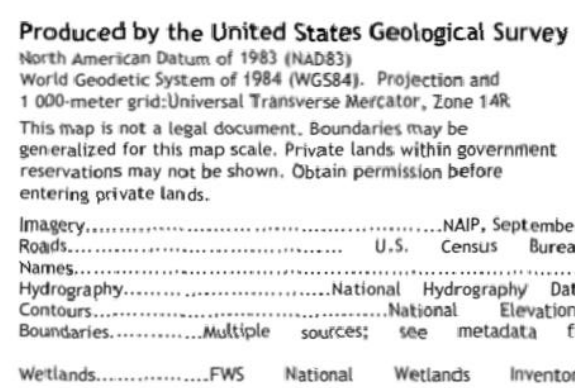
WQ0013878001

ATTACHMENT S – WELL AND MAP INFORMATION

316585	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
321851	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
337020	Test Well	N	Unknown	Greater than 150-ft away from irrigation site
337023	Test Well	N	Unknown	Greater than 150-ft away from irrigation site
338874	Test Well	Y	Cased	Greater than 150-ft away from irrigation site
342896	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
361592	Industrial	Y	Cased	Greater than 150-ft away from irrigation site
362820	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
362861	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
363714	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
363765	Test Well	Y	Cased	Greater than 150-ft away from irrigation site
368921	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
373653	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
374747	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
382354	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
388346	Closed-Loop Geothermal	N	Plugged	Greater than 150-ft away from irrigation site
392286	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
396942	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
411492	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
415072	Public Supply	Y	Cased	Greater than 500-ft away from irrigation site
417051	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
421075	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
425672	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
438988	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
460445	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
463219	Closed-Loop Geothermal	Y	Plugged	Greater than 150-ft away from irrigation site
463997	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
464009	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
474018	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
482411	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
488707	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
488880	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
499789	Domestic	Y	Unknown	Greater than 150-ft away from irrigation site
499853	Closed-Loop Geothermal	Y	Cased	Greater than 150-ft away from irrigation site
500733	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
502232	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
508384	Closed-Loop Geothermal	Y	Cased	Greater than 150-ft away from irrigation site
511455	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
515470	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
518929	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
525033	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
531625	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
532064	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
548936	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
560057	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
598700	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
601467	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
602784	Environmental Soil Boring	Y	Open	Greater than 150-ft away from irrigation site

TRAVIS COUNTY WCID NO. 17**WQ0013878001****ATTACHMENT S – WELL AND MAP INFORMATION**

602785	Environmental Soil Boring	Y	Open	Greater than 150-ft away from irrigation site
602786	Environmental Soil Boring	Y	Open	Greater than 150-ft away from irrigation site
614344	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
620862	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
621681	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
649902	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
650877	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
652387	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
655869	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
667014	Public Supply	Y	Cased	Greater than 500-ft away from irrigation site



ROAD CLASSIFICATION

Expressway		Local Connector	
Secondary Hwy		Local Road	
Ramp		4WD	

Interstate Route US Route State Route

BEE CAVE, TX
2022

Map Base

- WASTEWATER TREATMENT PLANT
- EXISTING WATER TANK
- EXISTING WELL (SDRDB)
- EXISTING WELL (GWDB)
- EXISTING SPRING OR SEEP
- WWTP PROPERTY & FACILITY BOUNDARY
- EFFLUENT STORAGE PONDS
- EFFLUENT DISPOSAL SITE BOUNDARY
- 1 MILE BUFFER - DISPOSAL AREA
- TX_Bee_Cove_20220811_TM_geo

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

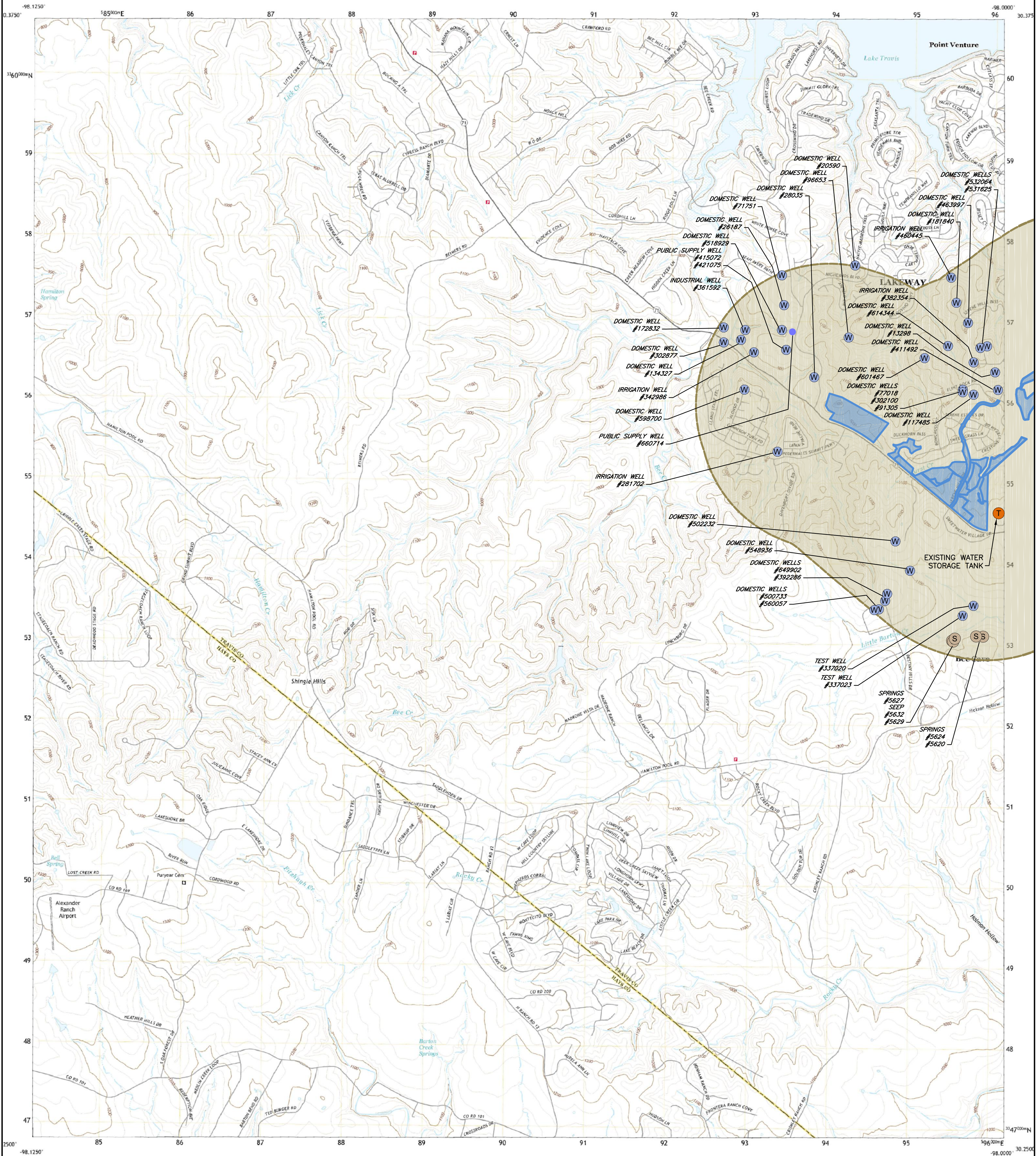
ATTACHMENT 'S'
WELL & MAP INFORMATION (1 OF 2)



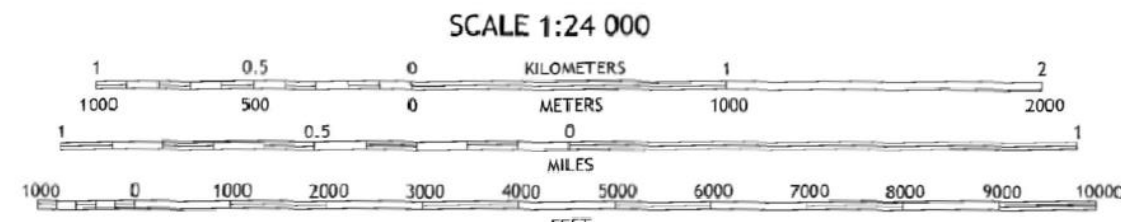
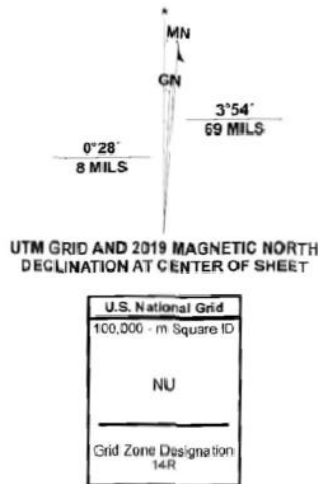
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



SHINGLE HILLS QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) - Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 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:.....NADP, September 2016 - November 2016
Roads:.....U.S. Census Bureau, 2015 - 2019
Names:.....GNIS, 1979 - 2021
Hydrography:.....National Hydrography Dataset, 2002 - 2018
Contours:.....National Elevation Dataset, 2019
Boundaries:.....Multiple sources; see metadata file 2019 - 2021
Wetlands:.....FWS National Wetlands Inventory Not Available



1	2	3
4	5	6
7	8	9

ADjoining Quadrangles

- 1 Spicewood
- 2 Pace Bend
- 3 Montfield Dam
- 4 Hammets Crossing
- 5 Bee Cave
- 6 Henly
- 7 Dripping Springs
- 8 Signal Hill

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

SHINGLE HILLS, TX
2022

- Default
- Map Base
 - EXISTING WATER TANK
 - EXISTING WELL (SDRDB)
 - EXISTING WELL (GWDB)
 - EXISTING SPRING OR SEEP
 - EFFLUENT STORAGE PONDS
 - EFFLUENT DISPOSAL SITE BOUNDARY
 - 1 MILE BUFFER
 - 1 MILE BUFFER - DISPOSAL AREA
 - TX_Shingle_Hills_20220727_TM_geo

Green Civil Design
a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

ATTACHMENT 'S'
WELL & MAP INFORMATION (2 OF 2)

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-101**

[GWDB Reports and Downloads](#)
[Well Basic Details](#)
[Scanned Documents](#)

State Well Number	5841101
County	Travis
River Basin	Colorado
Groundwater Management Area	9
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Southwestern Travis County GCD
Latitude (decimal degrees)	30.341667
Latitude (degrees minutes seconds)	30° 20' 30" N
Longitude (decimal degrees)	-97.974444
Longitude (degrees minutes seconds)	097° 58' 28" W
Coordinate Source	+/- 1 Second
Aquifer Code	217HSTN - Hosston Formation
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	920
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	577
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	10/16/1965
Drilling Method	Cable Tool
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Domestic
Water Level Observation	Historical
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Ivan Wall
Driller	Glass
Other Data Available	Drillers Log; Microlog
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	8/15/1991
Last Update Date	3/4/2020

Remarks Reported yield 5 GPM. Historical observation well.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

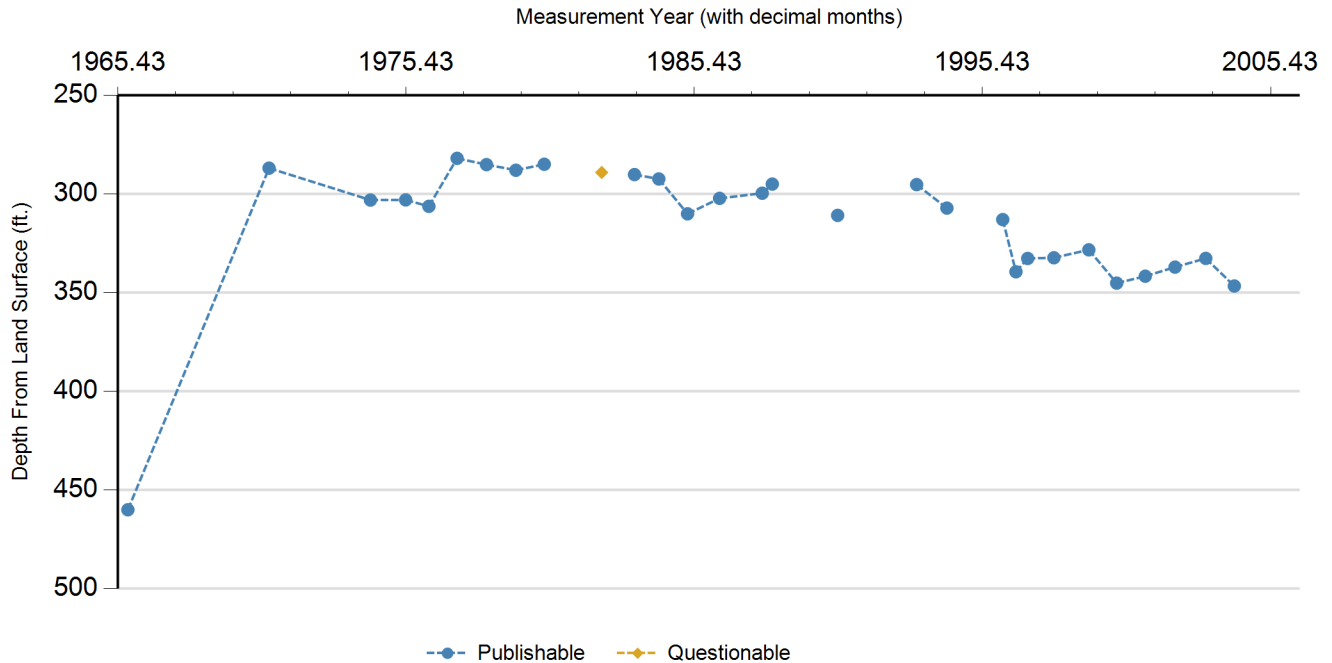
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/16/1965		460		460	1	Registered Water Well Driller	Unknown		
P	9/9/1970		286.95	(173.05)	633.05	1	Texas Water Development Board	Steel Tape		
P	3/13/1974		303.13	16.18	616.87	1	Texas Water Development Board	Steel Tape		
P	6/4/1975		303.05	(0.08)	616.95	1	Texas Water Development Board	Electric Line		
P	3/23/1976		306.3	3.25	613.7	1	Texas Water Development Board	Steel Tape		
P	3/15/1977		282	(24.30)	638	1	Texas Water Development Board	Steel Tape		
P	3/23/1978		285.18	3.18	634.82	1	Texas Water Development Board	Steel Tape		
P	3/30/1979		288.01	2.83	631.99	1	Texas Water Development Board	Steel Tape		
P	3/24/1980		285	(3.01)	635	1	Texas Water Development Board	Steel Tape		
Q	3/22/1982		289.14	4.14	630.86	1	Texas Water Development Board	Steel Tape	12	
P	5/12/1983		290.23	1.09	629.77	1	Texas Water Development Board	Steel Tape		
P	3/15/1984		292.43	2.20	627.57	1	Texas Water Development Board	Steel Tape		
P	3/14/1985		310.1	17.67	609.9	1	Texas Water Development Board	Steel Tape		
P	4/25/1986		302.26	(7.84)	617.74	1	Texas Water Development Board	Steel Tape		
P	10/20/1987		299.65	(2.61)	620.35	1	Texas Water Development Board	Steel Tape		
P	2/22/1988		295.04	(4.61)	624.96	1	Texas Water Development Board	Steel Tape		
X	1/12/1989					1	Texas Water Development Board		30	
P	5/30/1990		310.88		609.12	1	Texas Water Development Board	Steel Tape		
X	3/5/1991					1	Texas Water Development Board		29	
X	2/28/1992					1	Texas Water Development Board		29	
P	2/25/1993		295.3		624.7	1	Texas Water Development Board	Steel Tape		

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-101**

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	3/14/1994		307.2	11.90	612.8	1	Texas Water Development Board	Steel Tape		
X	1/31/1995					1	Texas Water Development Board	Steel Tape	21	
P	2/21/1996		313.02		606.98	1	Texas Water Development Board	Steel Tape		
P	8/8/1996		339.46	26.44	580.54	1	Texas Water Development Board	Steel Tape		
P	1/2/1997		332.7	(6.76)	587.3	1	Texas Water Development Board	Steel Tape		
P	12/4/1997		332.35	(0.35)	587.65	1	Texas Water Development Board	Steel Tape		
P	2/16/1999		328.33	(4.02)	591.67	1	Texas Water Development Board	Steel Tape		
P	2/4/2000		345.2	16.87	574.8	1	Texas Water Development Board	Steel Tape		
P	2/1/2001		341.7	(3.50)	578.3	1	Texas Water Development Board	Steel Tape		
P	2/13/2002		337.09	(4.61)	582.91	1	Texas Water Development Board	Steel Tape		
P	3/7/2003		332.67	(4.42)	587.33	1	Texas Water Development Board	Steel Tape		
P	3/4/2004		346.67	14.00	573.33	1	Texas Water Development Board	Steel Tape		
X	2/9/2006					1	Texas Water Development Board		18	

Code Descriptions

Status Code	Status Description
P	Publishable
Q	Questionable
X	No Measurement

Remark ID	Remark Description
12	Uncertain of reason for questionable measurement
18	Well destroyed
21	Unable to reach water level with available measuring equipment
29	Unable to locate well
30	Well temporarily inaccessible due to impassable roads, locked gate, etc.

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-101**

Water Quality Analysis

Sample Date: 9/9/1970 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO ₃)		188	mg/L as CaCO ₃	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO ₃)		229.43	mg/L	
00910	CALCIUM (MG/L)		97	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO ₃)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		110	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		0.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO ₃)		476	mg/L as CaCO ₃	
00920	MAGNESIUM (MG/L)		57	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO ₃)	<	0.4	mg/L as NO ₃	
00400	PH (STANDARD UNITS), FIELD		7.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO ₂)		15	mg/L as SiO ₂	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		4.82		
00932	SODIUM, CALCULATED, PERCENT		52	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		242	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		2363	MICR	
00945	SULFATE, TOTAL (MG/L AS SO ₄)		650	mg/L as SO ₄	
00010	TEMPERATURE, WATER (CELSIUS)		27	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		1284	mg/L	

Water Quality Analysis

Sample Date: 3/13/1974 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		183	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		223.32	mg/L	
00910	CALCIUM (MG/L)		100	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		113	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		467	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		53	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.4	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		15	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		5.13		
00932	SODIUM, CALCULATED, PERCENT		54	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		255	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		2400	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		630	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		1277	mg/L	

Water Quality Analysis

Sample Date: 3/24/1980 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health **Reliability:** From well not sufficiently pumped; not filtered or preserved

Collection Remarks: FAUCET IN BACK YARD

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		296	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		361.22	mg/L	
00910	CALCIUM (MG/L)		289	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		42	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		1494	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		188	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.1	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.7	SU	
00937	POTASSIUM, TOTAL (MG/L AS K)		18	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		11	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.8		
00932	SODIUM, CALCULATED, PERCENT		9	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		71	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		3852	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		1289	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2087	mg/L	

Water Quality Analysis

Sample Date: 6/9/1986 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: faucet at pump house

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		297	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		362.44	mg/L	
00910	CALCIUM (MG/L)		272	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		40	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		1460	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		190	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0.09	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.6	SU	
00937	POTASSIUM, TOTAL (MG/L AS K)		16	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		11	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.67		
00932	SODIUM, CALCULATED, PERCENT		8	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		59	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		3772	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		1225	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		24	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		1993	mg/L	

Water Quality Analysis

Sample Date: 8/15/1991 **Sample Time:** 1115 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: TWDB Field Analysis **Reliability:** Sampled using TWDB protocols but through Hach DR-2000 lab

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO ₃		260	mg/L as CaCO ₃	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO ₃)		260	mg/L as CaCO ₃	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO ₃)		317.29	mg/L	
00910	CALCIUM (MG/L)		215.43	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO ₃)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		9.7	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.66	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO ₃)		1465	mg/L as CaCO ₃	
01046	IRON, DISSOLVED (UG/L AS FE)		11657	ug/L	
00920	MAGNESIUM (MG/L)		225.45	mg/L	
00618	NITRATE NITROGEN, DISSOLVED (MG/L AS N)	<	0.1	mg/L as N	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO ₃)	<	0.44	mg/L as NO ₃	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		-231.1	MV	
00400	PH (STANDARD UNITS), FIELD		7.3	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO ₂)		7.24	mg/L as SiO ₂	
00945	SULFATE, TOTAL (MG/L AS SO ₄)		1787.5	mg/L as SO ₄	
00010	TEMPERATURE, WATER (CELSIUS)		26	C	

Water Quality Analysis

Sample Date: 8/15/1991 **Sample Time:** 1120 **Sample Number:** 2 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Hosston Formation

Analyzed Lab: Texas Department of Health

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		253	mg/L as CaCO3	
01503	ALPHA, DISSOLVED (PC/L)		4.1	PC/L	1.6
01005	BARIUM, DISSOLVED (UG/L AS BA)	<	20	ug/L	
03503	BETA, DISSOLVED (PC/L)		25	PC/L	15
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		308.75	mg/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		279	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		52	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.89	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		1625	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		12200	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		221	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		113	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.3	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		25	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		17	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		1.17		
00932	SODIUM, CALCULATED, PERCENT		12	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		108	mg/L	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		17300	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		1460	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		26	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2333	mg/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		631	ug/L	

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

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-101**

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (<https://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

[GWDB Reports and Downloads](#)
[Well Basic Details](#)
[Scanned Documents](#)

State Well Number	5841403
County	Travis
River Basin	Colorado
Groundwater Management Area	9
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Southwestern Travis County GCD
Latitude (decimal degrees)	30.327778
Latitude (degrees minutes seconds)	30° 19' 40" N
Longitude (decimal degrees)	-97.975278
Longitude (degrees minutes seconds)	097° 58' 31" W
Coordinate Source	+/- 1 Second
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1112
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	816
Well Depth Source	Owner
Drilling Start Date	
Drilling End Date	0/0/1970
Drilling Method	Cable Tool
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Domestic
Water Level Observation	Miscellaneous Measurements
Water Quality Available	No
Pump	
Pump Depth (feet below land surface)	
Power Type	
Annular Seal Method	
Surface Completion	
Owner	Charles Glass
Driller	Emmett Glass
Other Data Available	
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	10/22/1998
Last Update Date	3/4/2020

Remarks	Reported yield 18 GPM.
---------	------------------------

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

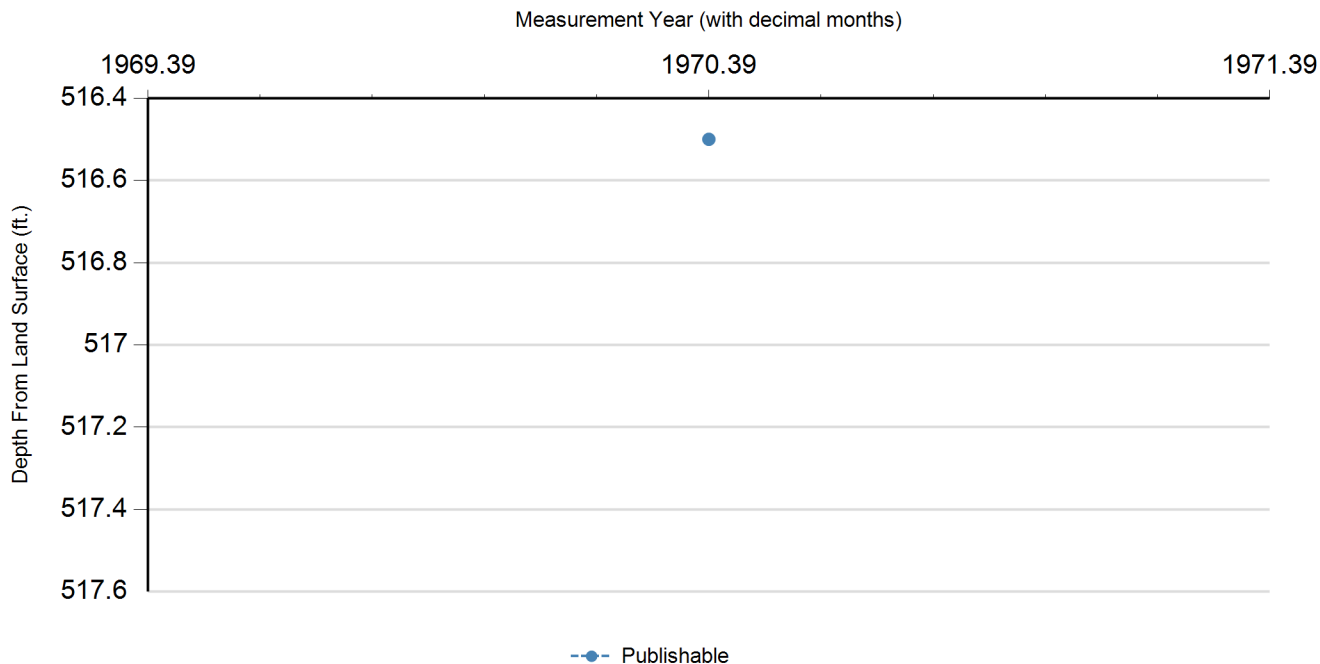
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	5/21/1970		516.5		595.5	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis - No Data Available

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (<https://www.twdb.texas.gov/groundwater/data/gwdb rpt.asp>) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-404**

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	5841404
County	Travis
River Basin	Colorado
Groundwater Management Area	9
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Southwestern Travis County GCD
Latitude (decimal degrees)	30.324167
Latitude (degrees minutes seconds)	30° 19' 27" N
Longitude (decimal degrees)	-97.9875
Longitude (degrees minutes seconds)	097° 59' 15" W
Coordinate Source	+/- 1 Second
Aquifer Code	218GLRSL - Glen Rose Limestone, Lower Member
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1080
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	547
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	2/14/1973
Drilling Method	
Borehole Completion	Open Hole

Well Type	Withdrawal of Water
Well Use	Domestic
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	James Weems Jr.
Driller	Glass Drilling Co.
Other Data Available	Microlog
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	
Last Update Date	3/4/2020

Remarks Cemented from 0 to 225 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
5	Blank	Steel			0	448
	Open Hole				448	547

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

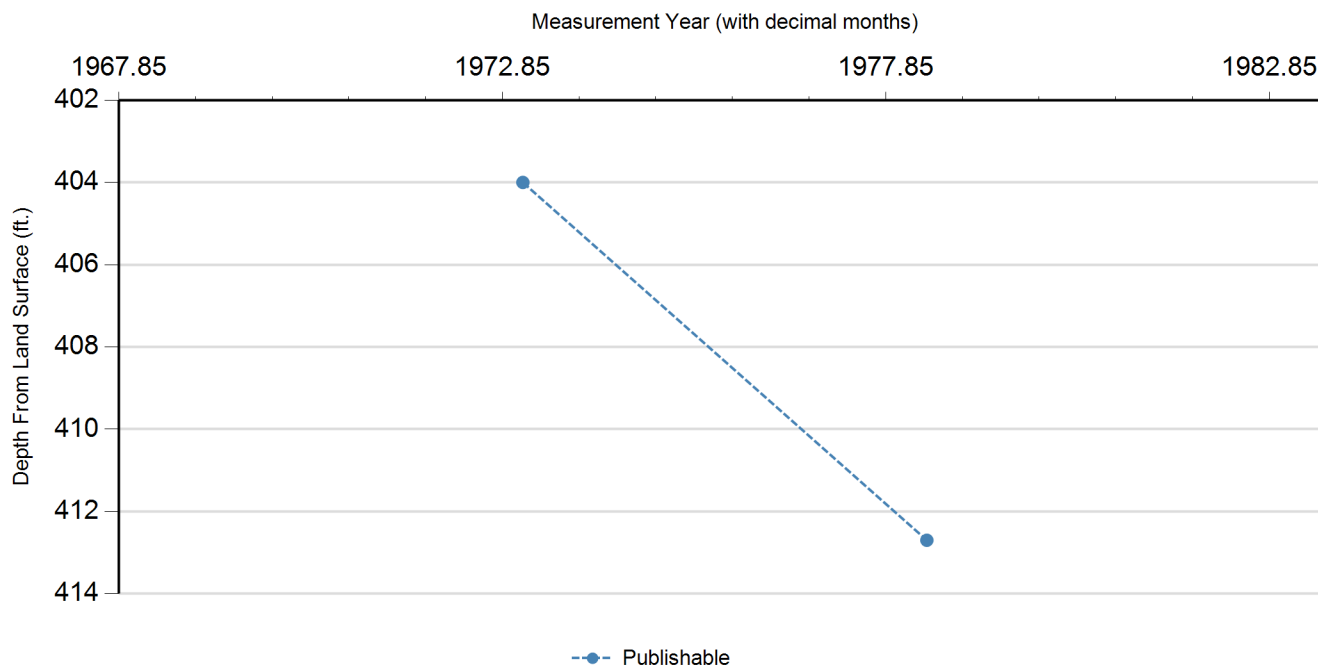
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	2/14/1973		404		676	1	Other or Source of Measurement Unknown	Unknown		
P	5/22/1978		412.7	8.70	667.3	1	Other or Source of Measurement Unknown	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-404**

Water Quality Analysis

Sample Date: 5/28/1978 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		278	mg/L as CaCO 3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		339.26	mg/L	
00910	CALCIUM (MG/L)		404	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		48	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2.3	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		2258	mg/L as CaCO 3	
00920	MAGNESIUM (MG/L)		304	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.4	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.7	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		13	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.58		
00932	SODIUM, CALCULATED, PERCENT		5	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		63	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		5488	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		1995	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2996	mg/L	

Water Quality Analysis

Sample Date: 6/9/1986 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health

Reliability: Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		291	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		355.12	mg/L	
00910	CALCIUM (MG/L)		405	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		49	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2.5	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		2162	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		280	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.2	SU	
00937	POTASSIUM, TOTAL (MG/L AS K)		22	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		14	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.65		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00929	SODIUM, TOTAL (MG/L AS Na)		69	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		5544	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		1933	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		24	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2949	mg/L	

Water Quality Analysis

Sample Date: 8/15/1991 **Sample Time:** 0940 **Sample Number:** 1 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: TWDB Field Analysis **Reliability:** Sampled using TWDB protocols but through Hach DR-2000 lab

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		284	mg/L as CaCO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		346.58	mg/L	
00910	CALCIUM (MG/L)		350.35	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		45	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.94	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		2110	mg/L as CaCO3	
00920	MAGNESIUM (MG/L)		300.46	mg/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.44	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		6.47	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		11.08	mg/L as SiO2	
00945	SULFATE, TOTAL (MG/L AS SO4)		2324.5	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		24	C	

Water Quality Analysis

Sample Date: 8/15/1991 **Sample Time:** 0940 **Sample Number:** 2 **Collection Entity:** Texas Water Development Board

Sampled Aquifer: Glen Rose Limestone, Lower Member

Analyzed Lab: Texas Department of Health

Reliability: Sampled using TWDB protocols

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
39086	ALKALINITY FIELD DISSOLVED AS CaCO3		284	mg/L as CaCO3	
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO3)		285	mg/L as CaCO3	
01503	ALPHA, DISSOLVED (PC/L)		12	PC/L	3
01005	BARIUM, DISSOLVED (UG/L AS BA)	<	20	ug/L	
03503	BETA, DISSOLVED (PC/L)	<	25	PC/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		347.8	mg/L	
00915	CALCIUM, DISSOLVED (MG/L AS Ca)		398	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		51	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		2.4	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO3)		2169	mg/L as CaCO3	
01046	IRON, DISSOLVED (UG/L AS FE)		52	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		282	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)	<	20	ug/L	
00618	NITRATE NITROGEN, DISSOLVED (MG/L AS N)	<	0.1	mg/L as N	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)	<	0.04	mg/L as NO3	
00090	OXIDATION REDUCTION POTENTIAL (ORP), MILLIVOLTS		70.6	MV	
00400	PH (STANDARD UNITS), FIELD		6.47	SU	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		28	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00955	SILICA, DISSOLVED (MG/L AS SiO2)		13	mg/L as SiO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		0.65		
00932	SODIUM, CALCULATED, PERCENT		6	PCT	
00930	SODIUM, DISSOLVED (MG/L AS Na)		69	mg/L	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		14500	ug/L	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		1950	mg/L as SO4	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-404**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00010	TEMPERATURE, WATER (CELSIUS)		24	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		2979	mg/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)	<	20	ug/L	

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

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (<https://www.twdb.texas.gov/groundwater/data/gwdb rpt.asp>) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-407**

[GWDB Reports and Downloads](#)

Well Basic Details

[Scanned Documents](#)

State Well Number	5841407
County	Travis
River Basin	Colorado
Groundwater Management Area	9
Regional Water Planning Area	K - Lower Colorado
Groundwater Conservation District	Southwestern Travis County GCD
Latitude (decimal degrees)	30.3233333
Latitude (degrees minutes seconds)	30° 19' 24" N
Longitude (decimal degrees)	-97.9694444
Longitude (degrees minutes seconds)	097° 58' 10" W
Coordinate Source	+/- 1 Second
Aquifer Code	217HSTN - Hosston Formation
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1095
Land Surface Elevation Method	Digital Elevation Model -DEM
Well Depth (feet below land surface)	1000
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	6/13/2013
Drilling Method	Air Rotary
Borehole Completion	Open End

Well Type	Withdrawal of Water
Well Use	Irrigation
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Submersible
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	Pos. Displacement
Surface Completion	Surface Slab Installed
Owner	Lake Travis High School #2
Driller	Whisenant & Lyle
Other Data Available	Drillers Log; Gamma Ray; Induction; Other
Well Report Tracking Number	321851
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Groundwater Conservation District
Created Date	7/31/2013
Last Update Date	3/4/2020

Remarks	Yield: 25 GPM. 6/13/2013.
----------------	---------------------------

Casing						
Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
7	Blank	Plastic (PVC)			0	840
7	Screen				840	938
7	Blank	Plastic (PVC)			938	940
12	Open Hole				940	1000

Well Tests				
Test Date	Test Type	Yield (gallons per minute)	Drawdown (ft.)	Test Hours
2013-06-13	Pump	25		

Lithology

Top Depth (ft.)	Bottom Depth (ft.)	Description
0	3	Topsoil
3	9	Brown Limestone
9	18	Caliche
18	27	Brown Tan Limestone
27	1000	Void

Annular Seal Range - No Data

Borehole

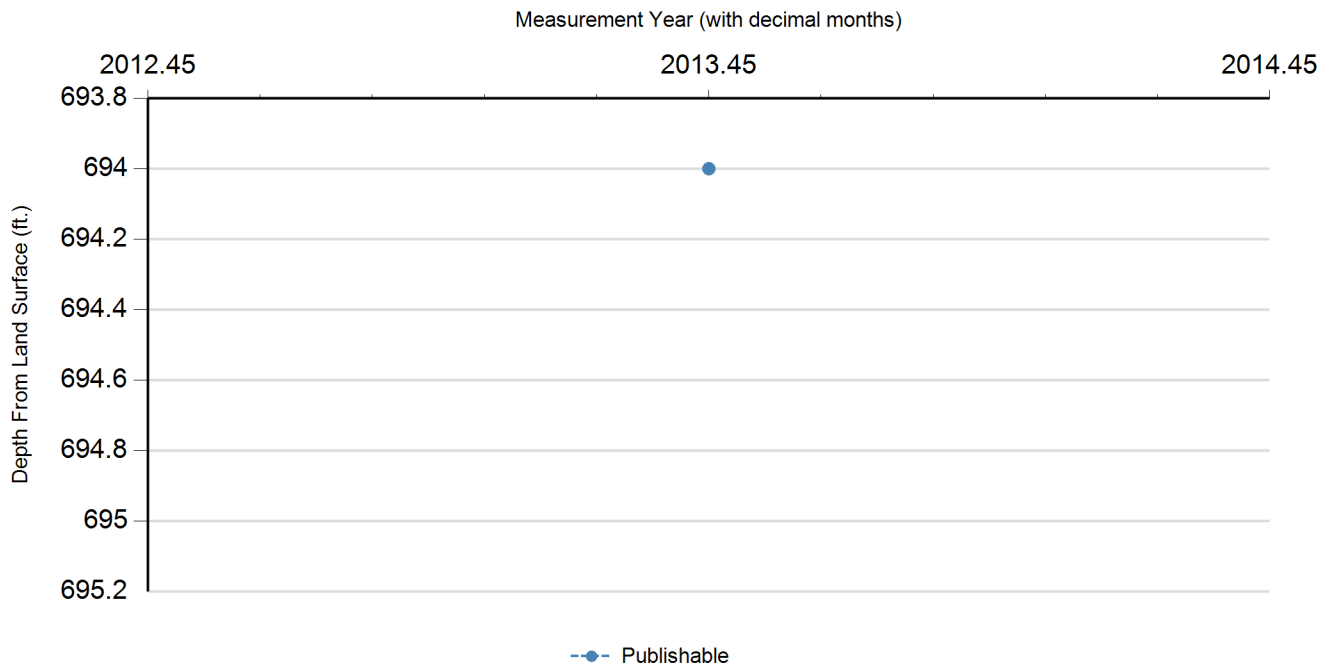
Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
12	0	1000

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	6/13/2013		694		401	1	Other Federal Agencies	Unknown		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 7/16/2013 **Sample Time:** 1015 **Sample Number:** 1 **Collection Entity:** Barton Springs/Edwards Aquifer CD

Sampled Aquifer: Hosston Formation

Analyzed Lab: LCRA - Lower Colorado River Authority

Reliability: Sampled using TWDB protocols

Collection Remarks: Lab Calculated Anion/Cation Chg Bal set to TWDB Calculated Value due to an error in the lab calculated formula

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)	<	10	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CaCO ₃)		267	mg/L as CaCO ₃	
01106	ALUMINUM, DISSOLVED (UG/L AS AL)	<	4	ug/L	
50938	ANION/CATION CHG BAL, PERCENT		-2.02	PCT	
01095	ANTIMONY, DISSOLVED (UG/L AS SB)	<	1	ug/L	
01000	ARSENIC, DISSOLVED (UG/L AS AS)	<	2	ug/L	
01005	BARIUM, DISSOLVED (UG/L AS BA)		19.5	ug/L	
01010	BERYLLIUM, DISSOLVED (UG/L AS BE)	<	1	ug/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO ₃)		325.83	mg/L	
01020	BORON, DISSOLVED (UG/L AS B)		1560	ug/L	
71870	BROMIDE, DISSOLVED, (MG/L AS BR)		0.424	mg/L	
01025	CADMIUM, DISSOLVED (UG/L AS CD)	<	1	ug/L	
00915	CALCIUM, DISSOLVED (MG/L AS CA)		176	mg/L	
28004	CARBON-14 DISS APPARENT AGE (YEARS BP)		11610	Y-BP	60
82172	CARBON-14 FRACTION MODERN		0.2357		0.0001
00445	CARBONATE ION, CALCULATED (MG/L AS CO ₃)		0	mg/L	
00941	CHLORIDE, DISSOLVED (MG/L AS CL)		63.2	mg/L	
01030	CHROMIUM, DISSOLVED (UG/L AS CR)	<	1	ug/L	
01035	COBALT, DISSOLVED (UG/L AS CO)		2.32	ug/L	
01040	COPPER, DISSOLVED (UG/L AS CU)		3.02	ug/L	
50791	DEUTERIUM, EXPRESSED AS PERMIL VSMOW		-26.2	0/00	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.35	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CaCO ₃)		947	mg/L as CaCO ₃	
01046	IRON, DISSOLVED (UG/L AS FE)	<	50	ug/L	
01049	LEAD, DISSOLVED (UG/L AS PB)	<	1	ug/L	
01130	LITHIUM, DISSOLVED (UG/L AS LI)		150	ug/L	
00925	MAGNESIUM, DISSOLVED (MG/L AS MG)		120	mg/L	
01056	MANGANESE, DISSOLVED (UG/L AS MN)		6.22	ug/L	
71890	MERCURY, DISSOLVED (UG/L AS HG)	<	0.2	ug/L	
01060	MOLYBDENUM, DISSOLVED (UG/L AS MO)		2.77	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO ₃)		2.84	mg/L as NO ₃	

**Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
58-41-407**

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00631	NITRITE PLUS NITRATE, DISSOLVED (MG/L AS N)		0.641	mg/L as N	
50790	OXYGEN-18, EXPRESSED AS PERMIL VSMOW		-4.42	0/00	
00400	PH (STANDARD UNITS), FIELD		7.68	SU	
00666	PHOSPHORUS, DISSOLVED (MG/L AS P)	<	0.02	mg/L as P	
00935	POTASSIUM, DISSOLVED (MG/L AS K)		14.2	mg/L	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
01145	SELENIUM, DISSOLVED (UG/L AS SE)	<	4	ug/L	
00955	SILICA, DISSOLVED (MG/L AS SI02)		14.4	mg/L as SIO2	
01075	SILVER, DISSOLVED (UG/L AS AG)	<	1	ug/L	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		1.89		
00932	SODIUM, CALCULATED, PERCENT		24	PCT	
00930	SODIUM, DISSOLVED (MG/L AS NA)		133	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		2280	MICR	
01080	STRONTIUM, DISSOLVED (UG/L AS SR)		11500	ug/L	
48297	STRONTIUM, ISOTOPE OF MASS 86 AND 87 RATIO		0.708312	N/A	
00946	SULFATE, DISSOLVED (MG/L AS SO4)		906	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		26.64	C	
01057	THALLIUM, DISSOLVED (UG/L AS TL)	<	1	ug/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		1603	mg/L	
07012	TRITIUM IN WATER (TRITIUM UNITS)		0.12	TU	0.09
22703	URANIUM, NATURAL, DISSOLVED (UG/L AS U)	<	1	ug/L	
01085	VANADIUM, DISSOLVED (UG/L AS V)		1	ug/L	
01090	ZINC, DISSOLVED (UG/L AS ZN)		1310	ug/L	

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

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (<https://www.twdb.texas.gov/groundwater/data/gwdb rpt.asp>) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team at GroundwaterData@twdb.texas.gov.

STATE OF TEXAS WELL REPORT for Tracking #13298

Owner:	Harvey Atwell	Owner Well #:	No Data
Address:	P.O. Box 160996 Austin, TX 78716	Grid #:	57-48-3
Well Location:	17135 Majestic Ridge Lakeway, TX 78738	Latitude:	30° 20' 08" N
		Longitude:	098° 00' 04" W
Well County:	Travis	Elevation:	1099 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **8/30/2002** Drilling End Date: **8/31/2002**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	7.875	0	120
	6.75	120	820

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	120	38

Seal Method: **pressure cementing**

Sealed By: **ADC**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Sleeve Installed**

Water Level: **520 ft. below land surface on 2002-09-05** Measurement Method: **Unknown**

Packers: **Neoprene/burlap 120 & 680**

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Estimated** Yield: **55 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
680-820	trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

The driller did certify that while drilling, deepening or otherwise altering the above described well, injurious water or constituents was encountered and the landowner or person having the well drilled was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Co.**

**P.O. Box 1060
Manchaca, TX 78652**

Driller Name: **Byron Benoit**

License Number: **1955**

Apprentice Name: **Byron Benoit**

Apprentice Number: **1955**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	Topsoil
3	45	caliche
45	130	gray lime
130	160	broken tan lime
160	480	gray lime
480	560	broken tan lime
560	640	gray lime
640	680	shale
680	720	broken red sandstone
720	740	red clay sandstone
740	820	broken red sandstone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5 N Plastic -2 to 820 SDR 17			
Perf. From 680-820			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #20590

Owner: **TREYCO** Owner Well #: **001**
Address: **708 UPSON ST.
AUSTIN, TX 78703** Grid #: **57-48-3**
Well Location: **ENVOY PLACE
SPICEWOOD, TX 78669** Latitude: **30° 20' 51" N**
Longitude: **098° 01' 09" W**
Well County: **Travis** Elevation: **No Data**
****Plugged Within 48 Hours****

****This well has been plugged****

Plugging Report Tracking #107588

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **4/9/2003**

Drilling End Date: **4/10/2003**

Borehole:

<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
8	0	20
6.125	10	310

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data:

<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
0	0	0

Seal Method: **Unknown**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **0 ft. below land surface on 2003-04-15**

Measurement Method: **Unknown**

Packers: **NONE**

Type of Pump: **NONE**

Pump Depth (ft.): **0**

Well Tests: **Jetted** **Yield: 0 GPM**

Plug Information:

<i>Description (number of sacks & material)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
0 0 0 3 2		

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING, INC.**
185 ANGELFIRE DR.
DRIPPING SPRINGS, TX 78620

Driller Name: **BOBBY ROBERTS** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	TOPSOIL
1	10	CALICHE
10	15	TAN SAND
15	49	TAN CLAY
49	100	TAN ROCK
100	110	GREY SHALE
110	120	GREY ROCK
120	168	GREY SHALE
168	200	RED CLAY
200	237	RED ROCK
237	240	RED CLAY
240	285	RED ROCK

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
NONE			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #26187

Owner: **LARRY WILLIAMS** Owner Well #: **001**
Address: **4520 BEE CREEK** Grid #: **57-48-3**
SPICEWOOD, TX 78669
Well Location: **4520 BEE CREEK** Latitude: **30° 20' 35" N**
SPICEWOOD, TX 78669 Longitude: **098° 01' 42" W**
Well County: **Travis** Elevation: **950 ft. above sea level**

****This well has been plugged****

Plugging Report Tracking #228173

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **8/12/2003**

Drilling End Date: **8/12/2003**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	13
	7	13	410

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	310	410	Gravel	

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	13	10
	295	310	2

Seal Method: **SLURRIED & POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **GREG SVETLIK**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **320 ft. below land surface on 2003-08-15** Measurement Method: **Unknown**

Packers: **PLASTIC 13**

Type of Pump: **Submersible**

Pump Depth (ft.): **380**

Well Tests: **Jetted** **Yield: 10 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING, INC.**
185 ANGELFIRE DR.
DRIPPING SPRINGS, TX 78620

Driller Name: **JIM BLAIR**

License Number: **54416**

Apprentice Name: **GREG SVETLIK**

Apprentice Number: **WWDAPP00001**
734

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	2	TOPSOIL
2	11	CALICHE
11	185	GREY LIMESTONE
185	195	GREY SHALE
195	207	GREY LIMESTONE
207	212	GREY SHALE
212	217	WHITE LIMESTONE
217	245	GREY LIMESTONE
245	265	LIGHT GREY LIMESTONE
265	273	GREY SHALE
273	365	GREY LIMESTONE
365	400	WHITE ROCK W/B 10 GPM
400	410	GREY LIMESTONE

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
4.5	NEW	PLASTIC	0 - 345
4.5	NEW	SCREEN MFG.	345 - 405 .10
4.5	NEW	PLASTIC	405 - 410

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #28035

Owner:	SHADOWLAKE BUILDERS	Owner Well #:	020
Address:	5004 BEE CREEK RD. SPICEWOOD, TX 78669	Grid #:	57-48-3
Well Location:	BEE CREEK RD. @ 71 W. SPICEWOOD, TX 78669	Latitude:	30° 20' 06" N
Well County:	Travis	Longitude:	098° 01' 28" W
		Elevation:	940 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/23/2003** Drilling End Date: **9/23/2003**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	13
	7	13	430

Drilling Method: **Air Hammer**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	330	430	Gravel	

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	10	12 CEMENT
	315	330	2 HOLE PLUG

Seal Method: **SLURRIED & POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **GREG SVETLIK**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **273 ft. below land surface on 2003-09-24** Measurement Method: **Unknown**

Packers: **PLASTIC 10**

Type of Pump: **Submersible** Pump Depth (ft.): **400**

Well Tests: **Jetted** **Yield: 60 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING, INC.**
185 ANGELFIRE DR.
DRIPPING SPRINGS, TX 78620

Driller Name: **JIM BLAIR**

License Number: **54416**

Apprentice Name: **GREG SVETLIK**

Apprentice Number: **WWDAPP00001**
734

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOPSOIL
1	22	CALICHE W/ SHELF ROCK
22	42	GREY LIMESTONE
42	46	TAN CLAY
46	185	GREY LIMESTONE
185	198	LIGHT GREY ROCK
198	200	GREY SHALE
200	208	GREY LIMESTONE
208	228	LIGHT GREY & TAN LIMESTONE W/B 7 GPM
228	275	GREY LIMESTONE
275	320	LIGHT GREY LIMESTONE
320	360	GREY LIMESTONE
360	405	LIGHT GREY LIMESTONE
405	425	WHITE ROCK W/B 60 GPM
425	430	GREY LIMESTONE

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	NEW	PLASTIC	0 - 360
4.5	NEW	SCREEN MFG.	360 - 420 .10
4.5	NEW	PLASTIC	420 - 430

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #29997

Owner: **TOLL BROTHERS**
Address: **907 S. RR 620 STE. 200
AUSTIN, TX 78734**

Well Location: **111 ARIA DR.
LAKEWAY, TX 78734**

Well County: **Travis**

Owner Well #: **No Data**

Grid #: **58-41-4**

Latitude: **30° 19' 53" N**

Longitude: **097° 57' 36" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **10/14/2003**

Drilling End Date: **10/14/2003**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	20
	6	20	900

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	5 CEM

Seal Method: **Slurry**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **135**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **4 PVC & BURLAP 20-570-580-600**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 15 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
30	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING**
2520 HWY 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **FRANK GLASS** License Number: **1313**

Comments: **REVISED**
DG

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOP SOIL
1	15	CALICHE
15	70	BLUE LIME
70	255	GRAY LIME
255	260	SOAP STONE WHITE
260	345	GRAY LIME
345	400	BROWN LIME
400	460	GRAY LIME
460	500	TAN LIME
500	515	GRAY LIME
515	560	HAMMID
560	585	BROWN
585	815	TRINITY
815	900	BLACK SHOLE

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	N	PLASTIC	+2-900

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #29998

Owner: **TOLL BROTHERS**
Address: **907 S. RR 620 STE. 200
AUSTIN, TX 78734**

Well Location: **111 ARIA DR.
LAKEWAY, TX 78734**

Well County: **Travis**

Owner Well #: **No Data**

Grid #: **58-41-4**

Latitude: **30° 19' 44" N**

Longitude: **097° 57' 48" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **10/14/2003**

Drilling End Date: **10/14/2003**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	20
	6	20	900

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	5 CEM

Seal Method: **Slurry**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **3 PVC & BURLAP 20-700-710**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 15 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
35	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING**
2520 HWY 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **FRANK GLASS**

License Number: **1313**

Comments: **REVISED**
DG

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	4	FILL
4	16	CALICHE
16	70	BLUE LIME
70	180	GRAY LIME
180	215	BROWN LIME
215	410	GRAY LIME
410	430	BROWN LIME
430	500	GRAY & BROWN LIME
500	560	TAN LIME
560	570	GRAY LIME
570	620	HAMMID
620	710	BROWN SANDSTONE
710	810	TRINITY

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5 N	PLASTIC	+2-810	SDR-17

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #33901

Owner:	GREG CUSACK	Owner Well #:	No Data
Address:	322 EXPLORER AUSTIN, TX 78734	Grid #:	58-41-4
Well Location:	3406 PAWNEE PASS AUSTIN, TX	Latitude:	30° 19' 57" N
Well County:	Travis	Longitude:	097° 58' 44" W
		Elevation:	1045 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **1/28/2004** Drilling End Date: **1/30/2004**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	13
	7	13	750

Drilling Method: **Air Hammer**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	650	750	Gravel	

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	10	6 CEMENT
	635	650	2 HOLE PLUG

Seal Method: **SLURRIED & POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **GREG SVETLIK**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **492 ft. below land surface on 2004-02-02** Measurement Method: **Unknown**

Packers: **1 PLASTIC 10**

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Jetted** Yield: **25 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING, INC.**
185 ANGELFIRE DR.
DRIPPING SPRINGS, TX 78620

Driller Name: **JIM BLAIR**

License Number: **54416**

Apprentice Name: **GREG SVETLIK**

Apprentice Number: **WWDAPP00001**
734

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	TOPSOIL
1	10	CALICHE
10	530	GREY LIMESTONE
530	560	WHITE ROCK W/B 10 GPM
560	570	LT GREY LIMESTONE
570	582	GREY LIMESTONE
582	640	GREY SHALE / LIMESTONE MIX
640	668	GREY LIMESTONE
668	675	RED CLAY
675	683	TAN & WHITE ROCK
683	750	PINK ROCK W/B 25 GPM

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
4.5	NEW	PLASTIC	0 - 683
4.5	NEW	SCREEN MFG	683 - 743 .10
4.5	NEW	PLASTIC	743 - 750

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #37375

Owner:	Doug Osborne	Owner Well #:	No Data
Address:	13151 Humphrey Drive Austin, TX 78729	Grid #:	58-41-4
Well Location:	4000 Peak Lookout Drive Austin, TX 78735	Latitude:	30° 19' 41" N
Well County:	Travis	Longitude:	097° 58' 34" W
		Elevation:	1195 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **11/18/2002** Drilling End Date: **11/19/2002**

Borehole:	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
	7.875	0	100
	7	100	640
	6.75	640	960

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
	0	120	38

Seal Method: **pressure cementing**

Sealed By: **ADC**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Sleeve Installed**

Water Level: **614 ft. below land surface on 2002-11-22** Measurement Method: **Unknown**

Packers: **Neoprene/Burlap 120 & 780**

Type of Pump: **Submersible** Pump Depth (ft.): **760**

Well Tests: **Estimated** Yield: **35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
780-960	trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Company**

**P.O. Box 1060
Manchaca, TX 78652**

Driller Name: **Byron Benoit**

License Number: **1955**

Comments: **Talked to David about this report being so late.
JONI**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	topsoil
2	50	tan-white sandstone
50	200	gray lime
200	280	broken gray lime
280	400	gray lime-shale
400	560	broken tan-gray lime
560	640	gray lime-shale
640	720	broken tan sandstone
720	780	Shale
780	820	broken red sandstone
820	840	red clay-sandstone
840	920	broken red sandstone
920	960	yellow clay-purple sandstone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	New	PLastic	-2 to 960 sch 40
			perf. from 780-960

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #45605

Owner: **PETE STROBEL & ASSOC.**
Address: **P. O. BOX 1118
DRIPPING SPRINGS,, TX 78620**
Well Location: **4008 PEAK LOOKOUT
AUSTIN, TX**
Well County: **Travis**

Owner Well #: **No Data**
Grid #: **58-41-4**
Latitude: **30° 19' 22" N**
Longitude: **097° 58' 22" W**
Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **9/6/2004**

Drilling End Date: **9/7/2004**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9.5	0	100
	6.75	100	970

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	7 CEMENT
	0	100	20 CLAY

Seal Method: **PRESSURE TRIMMY
CEMENTING**

Distance to Property Line (ft.): **N/A**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **5 BURLAP, PVC 100', 110', 770', 790', 830'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS** License Number: **4227**

Comments: **Amended 9-28-04 Ref#402**

Report Amended on by Request #402

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOP SOIL
1	50	CALICHE
50	55	BLUE LIME
55	350	GRAY LIME
350	410	GRAY/TAN LIME
410	450	TAN LIME
450	690	GRAY LIME
690	710	GRAY W/TAN LIME
710	740	GRAY LIME
740	765	HAMMID LIME
765	780	HAMMID CLAY/RED CLAY
780	820	GRAY/TAN LIME
820	830	RED W/BUE SHELL
830	870	RED LIME
870	940	RED SAND
940	970	RED W/TAN LIME

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	OD	N PVC	+2 TO 970 .020

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #48727

Owner:	Don Mitchem	Owner Well #:	No Data
Address:	3519 south Pawnee Pass Lakeway, TX 78738	Grid #:	58-41-4
Well Location:	3519 south Pawnee Pass Lakeway, TX 78738	Latitude:	30° 19' 57" N
Well County:	Travis	Longitude:	097° 58' 38" W
		Elevation:	1107 ft. above sea level
Type of Work:	Replacement	Proposed Use:	Domestic

Drilling Start Date: **9/17/2004** Drilling End Date: **9/19/2004**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	40
	7	40	420
	6.75	420	860

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	40	15

Seal Method: **gravity flow**

Distance to Property Line (ft.): **200+**

Sealed By: **adc**

Distance to Septic Field or other
concentrated contamination (ft.): **200+**

Variance Number: **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **est.**

Surface Completion: **Surface Sleeve Installed**

Water Level: **560 ft. below land surface on 2004-09-23** Measurement Method: **Unknown**

Packers: **neoprene/burlap 40
shale trap 740**

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Jetted** Yield: **40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
780-860	trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **associated drilling co**
po box 1060
manchaca, TX 78652

Driller Name: **4064 wi james benoit**

License Number: **4064**

Comments: **5s20-39ds b08110039-p10241us6**
0422 / 794545506

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	18	white limestone
18	410	bluish lime and clay mix
410	530	tan limestone
530	580	grey limestone
580	600	grey sandstone
600	630	grey clay/shale
630	680	grey white sandstone/limestone
680	820	red sandstone
820	860	multi-color limestones

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5"	new	sdr17	-3 to 860
slotted 780-840			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #48731

Owner:	Don Mitchem	Owner Well #:	No Data
Address:	3519 south Pawnee Pass Lakeway, TX 78738	Grid #:	58-41-4
Well Location:	3519 south Pawnee Pass Lakeway, TX 78738	Latitude:	30° 19' 57" N
Well County:	Travis	Longitude:	097° 58' 38" W
		Elevation:	1107 ft. above sea level
Type of Work:	Replacement	Proposed Use:	Domestic

Drilling Start Date: **9/17/2004** Drilling End Date: **9/19/2004**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	40
	7	40	420
	6.75	420	860

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	40	15

Seal Method: **gravity flow**

Distance to Property Line (ft.): **200+**

Sealed By: **adc**

Distance to Septic Field or other
concentrated contamination (ft.): **200+**

Variance Number: **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **est.**

Surface Completion: **Surface Sleeve Installed**

Water Level: **560 ft. below land surface on 2004-09-23** Measurement Method: **Unknown**

Packers: **neoprene/burlap 40
shale trap 740**

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Jetted** Yield: **40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
780-860	trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **associated drilling co**
po box 1060
manchaca, TX 78652

Driller Name: **4064 wi james benoit**

License Number: **4064**

Comments: **5s20-39ds b08110039-p10241us6**
0422 / 794545506

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	18	white limestone
18	410	bluish lime and clay mix
410	530	tan limestone
530	580	grey limestone
580	600	grey sandstone
600	630	grey clay/shale
630	680	grey white sandstone/limestone
680	820	red sandstone
820	860	multi-color limestones

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5"	new	sdr17	-3 to 860
slotted 780-840			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #60485

Owner:	Dennis Cook	Owner Well #:	1
Address:	5604 Southwest Parkway Austin, TX 78735	Grid #:	58-41-1
Well Location:	3413 Serene Hill Ct. Austin, TX 78738	Latitude:	30° 20' 29" N
Well County:	Travis	Longitude:	097° 59' 54" W
		Elevation:	1022 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **1/14/2005** Drilling End Date: **1/16/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	7	20	860

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	5

Seal Method: **Gravity**

Sealed By: **ADC**

Distance to Property Line (ft.): **150**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured**

Surface Completion: **Surface Sleeve Installed**

Water Level: **377 ft. below land surface on 2005-01-18** Measurement Method: **Unknown**

Packers: **neophrene 20'**
neophrene 780'

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Estimated** Yield: **40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
780-860	trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **A**
Po Box 1060
Manchaca, TX 78652

Driller Name: **James Benoit** License Number: **4064**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	black topsoil
1	20	tan caliche
20	320	gray limestone
320	420	sandstone
420	520	tan limestone
520	560	red sandstone/ clay
560	640	sandstone
640	780	gray limestone
780	860	broken red sandstone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	new	plastic	-2 860 SDR 17
			perf. from 780' to 860'

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #64375

Owner:	Rick Skinner c/o Action Water Wells	Owner Well #:	1
Address:	100 Spanish Oak Trail Spicewood, TX 78669	Grid #:	58-41-4
Well Location:	Pawnee Pass TX	Latitude:	30° 19' 45" N
Well County:	Travis	Longitude:	097° 58' 44" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **3/25/2005** Drilling End Date: **3/25/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	6	20	880

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	4 Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **>50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Variance Number: **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Burlap 685', 680', 20'**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
685-875	Lower Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **APEX Drilling Inc.**
PO Box 867
Marble Falls, TX 78654

Driller Name: **Michael G Becker, P.G.** License Number: **54516**

Comments: **Amended 8/10/05 ref#1899**

Report Amended on by Request #1899

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	12	Caliche
12	120	Blue Limestone
120	180	Tan Limestone
180	220	Gray Limestone with Clay
220	390	Gray & Tan Limestone
390	480	Tan Limestone
480	530	Gray Limestone
530	610	Tan Limestone
610	630	Gray Limestone with Clay
630	665	Clay-Hammid
665	685	Gray Sandstone w/ White Limestone
685	800	Red Sandstone
800	855	Gravel
855	865	White Limestone
865	875	Gravel
875	880	White Limestone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5"	New	PVC +2 to 800	SDR17
4.5"	New	Screen	800 to 880

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #71751

Owner:	RICHARD SKINNER #1	Owner Well #:	No Data
Address:	1310 RR 620 S. STE C-15 AUSTIN, TX 78734	Grid #:	57-48-3
Well Location:	4400 BEE CREEK RD. SPICEWOOD, TX 78669	Latitude:	30° 20' 47" N
		Longitude:	098° 01' 43" W
Well County:	Travis	Elevation:	920 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **10/20/2005** Drilling End Date: **10/20/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	10
	6.5	10	430

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	10	12 CEMENT

Seal Method: **SLURRIED & POURED**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **326 ft. below land surface on 2005-10-22** Measurement Method: **Unknown**

Packers: **NEOPRENE 15
NEOPRENE 220
NEOPRENE 345**

Type of Pump: **Submersible** Pump Depth (ft.): **400**

Well Tests: **Jetted** Yield: **35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING, INC.**
185 ANGELFIRE DR.
DRIPPING SPRINGS, TX 78620

Driller Name: **BOBBY ROBERTS** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOPSOIL
1	7	WHITE ROCK
7	8	YELLOW CLAY
8	10	WHITE ROCK
10	23	CALICHE
23	50	GREY LIMESTONE
50	58	SANDSTONE
58	67	GREY LIMESTONE
67	78	BLUE SHALE
78	115	GREY LIMESTONE / SANDSTONE
115	120	GREY SHALE
120	160	GREY LIMESTONE / SANDSTONE
160	164	BLUE SHALE
164	185	GREY LIMESTONE
185	190	GREY CLAY
190	195	TAN ROCK W/B 20 GPM TDS 1740
195	210	GREY ROCK

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	NEW	PLASTIC	0 - 370
4.5	NEW	SCREEN MFG.	370 - 430 .05

210	230	GREY LIMESTONE
230	260	GREY ROCK
260	345	GREY LIMESTONE
345	430	TAN & WHITE ROCK W/B 35 GPM

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #74002

Owner:	Summit Builders	Owner Well #:	1
Address:	Po Box 340277 Austin, TX 78734	Grid #:	58-41-4
Well Location:	3700 Wild Cherry Austin, TX 78738	Latitude:	30° 19' 50" N
Well County:	Travis	Longitude:	097° 58' 37" W
		Elevation:	1113 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **1/3/2006**

Drilling End Date: **1/5/2006**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8.5	0	120
	7	120	950

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	120	28

Seal Method: **Tremie**

Distance to Property Line (ft.): **40**

Sealed By: **ADC**

Distance to Septic Field or other
concentrated contamination (ft.): **150**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured**

Surface Completion: **Surface Sleeve Installed**

Water Level: **587 ft. below land surface on 2006-01-09** Measurement Method: **Unknown**

Packers: **neophrene 120
neophrene 800**

Type of Pump: **Submersible** Pump Depth (ft.): **760**

Well Tests: **Estimated** Yield: **20 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
800'-930'	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Co.**

**P.O. Box 1060
Manchaca, TX 78652**

Driller Name: **James Benoit / 4064wi**

License Number: **4064**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	black topsoil
1	20	tan caliche
20	460	gray limestone
460	500	tan limestone (broken)
500	740	gray limestone
740	800	shale
800	930	broken red sandstone
930	950	hard tan limestone

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
4.5	new	plastic -2 950 SDR 17	
		mill slotted 800'- 900'	

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #77018

Owner: **Gary Simon**

Owner Well #: **1**

Address: **17003 Flint Rock Rd
Austin, TX 78738**

Grid #: **57-48-3**

Well Location: **17204 Flint Rock Rd
Austin, TX 78738**

Latitude: **30° 20' 01" N**

Longitude: **098° 00' 19" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **9/9/2005**

Drilling End Date: **9/10/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	6	20	875

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	4 Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **50+**

Sealed By: **APEX Drilling**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Burlap 690', 680', 20'**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
675 to 875	Trintiy

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **APEX Drilling, Inc.**
PO Box 867
Marble Falls, TX 78654

Driller Name: **Michael G. Becker, P.G.** License Number: **54516**

Comments: **Amended 2/23/06 Ref.#3007**

Report Amended on by Request #3007

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	32	Tan LS
32	320	Tan & Gry LS
320	440	Tan LS
440	620	Tan & Gry LS
620	675	Gry LS w/ Clay
675	700	Red Clay w/ Sand (H2O)
700	710	Gravel
710	755	Red Sand
755	785	Tan LS
785	840	Red SS
840	860	Wht LS
860	875	Gravel

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5"	New	PVC +2 to 875	SDR17

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #77384

Owner: **TOLL BROTHERS**

Owner Well #: **No Data**

Address: **8716 N. Mopac, Suite 100
Austin, TX 78759**

Grid #: **58-41-4**

Well Location: **101 1/2 Aria Drive
Austin, TX 78738**

Latitude: **30° 19' 44" N**

Longitude: **097° 57' 46" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **12/30/2005**

Drilling End Date: **12/30/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6	100	810

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	27

Seal Method: **Pressure trimmy**

Distance to Property Line (ft.): **No Data**

Sealed By: **Central Texas Drilling**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **4 PVC & Burlap at 100', 660', 700', 710'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 20-30 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
40	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Central Texas Drilling Co.**
500 Southland Drive
Burnet, TX 78611

Driller Name: **Frank Glass**

License Number: **1313**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	Top soil
1	17	Caliche
17	90	Blue lime
90	340	Gray lime
340	400	Brown lime
400	610	Gray & brown lime strips sandstone
610	660	Hammond
660	700	Brown sandstone
700	810	Trinity 20-30 gpm

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
5" OD New Plastic +2-810 (SDR 17 - 750' & 60' Screen)			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #91305

Owner: **Fred Edlin**

Owner Well #: **No Data**

Address: **129 Royal Oaks Lane
Lakeway, TX 78734**

Grid #: **57-48-3**

Well Location: **4313 Travis Vista
Lakeway, TX 78734**

Latitude: **30° 20' 01" N**

Longitude: **098° 00' 19" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **9/10/2005**

Drilling End Date: **9/11/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	6	20	875

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	4 of Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Burlap 700', 695', 20'**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
700-875	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc**
PO Box 867
Marble Falls, TX 78654

Driller Name: **Michael G Becker P.G.** License Number: **54516**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	32	Tan Limestone
32	320	Tan-Grey Limestone
320	440	Tan Limestone
440	620	Grey & Tan Limestone
620	675	Grey Limestone w/ Clay
675	700	Red Clay w/ Sand H2O
700	710	Gravel
710	755	Red Sand
755	785	Tan Limestone
785	840	Red Sandstone
840	860	White Limestone
860	875	Gravel

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5" (5" OD)	New	PVC	+2' to 775' SDR17
4.5" (5" OD)	New	PVC Slotted	775' to 795' .035
4.5" (5" OD)	New	PVC	795' to 855' SDR17
4.5" (5" OD)	New	PVC Slotted	855' to 875' .035

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #92326

Owner: **Andrew Heller**
Address: **4501 Henning Dr
Austin, TX 78738**
Well Location: **4501 Henning Dr
Austin, TX 78738**
Well County: **Travis**

Owner Well #: **No Data**
Grid #: **58-41-4**
Latitude: **30° 19' 39" N**
Longitude: **097° 59' 34" W**
Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **8/23/2005**

Drilling End Date: **8/23/2005**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	6	20	880

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	4 of Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Burlap 700', 695', 20'**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
705-860	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc**
PO Box 867
Marble Falls, TX 78654

Driller Name: **Michael G Becker P.G.** License Number: **54516**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	28	Caliche
28	80	Blue Limestone
80	180	Grey-Tan Limestone
180	350	Grey-Limestone w/ Clay
350	530	Tan-Grey Limestone
530	590	Tan Limestone
590	640	White Limestone
640	655	Grey Limestone
655	690	Clay
690	705	Grey Sandstone
705	770	Red Sand H2O
770	810	Tan Limestone
810	845	Red Sand H2O
845	860	Gravel
860	880	Tan-Blue Clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5" (5" OD)	New	PVC	+2' to 780' SDR17
4.5" (5" OD)	New	Slotted PVC	780' to 860' .035
4.5" (5" OD)	New	PVC	860' to 880' SDR17

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #93219

Owner:	J R BOEHL	Owner Well #:	No Data
Address:	239 BORA BORA DR GALVESTON, TX 77554	Grid #:	58-41-1
Well Location:	17106 MAJESTIC RIDGE AUSTIN, TX 78738	Latitude:	30° 20' 31" N
Well County:	Travis	Longitude:	097° 59' 41" W
		Elevation:	1010 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **8/17/2006** Drilling End Date: **8/18/2006**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	8	0	13
	6.75	13	795

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	2	2
	2	13	8

Seal Method: **SLURRIED & POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **540 ft. below land surface on 2006-08-21** Measurement Method: **Unknown**

Packers: **NEOPRENE 13**
NEOPRENE 725
NEOPRENE 730

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Jetted** Yield: **25 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING**
185 ANGELFIRE DR
DRIPPING SPRINGS, TX 78620

Driller Name: **BOBBY ROBERTS** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	TOPSOIL
2	51	TAN LIMESTONE
51	520	GREY LIMESTONE
520	646	GREY ROCK
646	680	GREY SHALE
680	690	GREY ROCK
690	715	TAN ROCK
715	725	BROWN CLAY
725	790	BROWN ROCK W/B 25 GPM TDS 1440
790	795	BLUE CLAY

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	NEW	PLASTIC	0-730
4.5	NEW	SCREEN MFG.	730-790 .050
4.5	NEW	PLASTIC	790-795

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #96653

Owner:	RICHARD SKINNER	Owner Well #:	No Data
Address:	1310 RR 620 S., STE C-15 AUSTIN, TX 78734	Grid #:	57-48-3
Well Location:	4400 BEE CREEK RD. SPICEWOOD, TX 78669	Latitude:	30° 20' 22" N
		Longitude:	098° 01' 12" W
Well County:	Travis	Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/26/2006** Drilling End Date: **9/26/2006**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	13
	6.75	13	670

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	2	2
	2	13	8

Seal Method: **SLURRIED & POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **BOBBY ROBERTS**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **377 ft. below land surface on 2006-10-18** Measurement Method: **Unknown**

Packers: **NEOPRENE 13
NEOPRENE 555
NEOPRENE 560**

Type of Pump: **Submersible** Pump Depth (ft.): **640**

Well Tests: **Jetted** Yield: **100 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING**
185 ANGELFIRE DR
DRIPPING SPRINGS, TX 78620

Driller Name: **BOBBY ROBERTS 54870** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOPSOIL
1	13	CALICHE
13	30	YELLOW CLAY
30	205	GRAY LIMESTONE
205	215	BLUE SHALE
215	345	GRAY LIMESTONE
345	450	WHITE ROCK W/B 10 GPM TDS 640
450	455	GRAY CLAY
455	460	GRAY ROCK
460	465	BLUE CLAY
465	475	GRAY ROCK
475	485	BLUE CLAY
485	495	GREY ROCK
495	550	RED SANDSTONE
550	670	RED ROCK W/B 100 GPM TDS 1670

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	NEW	PLASTIC	0-600
4.5	NEW	SCREEN MFG.	600-660 .050
4.5	NEW	PLASTIC	660-670

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #117485

Owner: **Mollison Homes c/o Mike Mollison**

Owner Well #: **No Data**

Address: **17115 Majestic Ridge
Lakeway, TX 78738**

Grid #: **57-48-6**

Well Location: **17012 Flint Rock RD
Lakeway, TX 78738**

Latitude: **30° 19' 59" N**

Longitude: **098° 00' 14" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **4/25/2007**

Drilling End Date: **4/25/2007**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	6.5	20	845

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	4 of Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Neoprene 635', 630', 625', 20**

Type of Pump: **No Data**

Well Tests: **Estimated** **Yield: 50 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
637-835	Trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc**
PO Box 867
Marble Falls, TX 78654

Driller Name: **Andrew J Johnson**License Number: **54989**Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	30	Caliche
30	90	Blue Limestone
90	210	Grey Limestone
210	410	Grey-Tan Limestone
410	450	Tan Limestone
450	525	Grey Limestone
525	560	Tan Limestone
560	580	Grey Limestone / Clay
580	605	Clay
605	637	Grey Sandy Limestone
637	645	Red Sandstone
645	660	Sand
660	704	Red Sandstone
704	715	White Limestone
715	740	Sand
740	782	Tan Limestone
782	835	Sand / Gravel
835	845	Tan Clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5" (5" OD)	New	PVC	+2' to 715' SDR17
4.5" (5" OD)	New	Slotted PVC	715' to 735' .035
4.5" (5" OD)	New	PVC	735' to 755' SDR17
4.5" (5" OD)	New	Slotted PVC	755' to 775' .035
4.5" (5" OD)	New	PVC	775' to 795' SDR17
4.5" (5" OD)	New	Slotted PVC	795' to 835' .035
4.5" (5" OD)	New	PVC	835' to 845' SDR17

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #125832

Owner: **Mark Shimek**

Owner Well #: **No Data**

Address: **2 Tourney Ln.
Austin, TX 78738**

Grid #: **58-41-1**

Well Location: **3701 Serene Hills Dr
Austin, TX 78738**

Latitude: **30° 20' 28" N**

Longitude: **097° 59' 49" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **6/3/2004**

Drilling End Date: **6/3/2004**

Borehole:

<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
9	0	50
6.25	50	850

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data:

<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
0	40	6

Seal Method: **Slurry**

Distance to Property Line (ft.): **No Data**

Sealed By: **CTD**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **None - Well Drilled
First**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Rubber,PVC,Burlap 40,620,640**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 3 Cave GPM**

Water Quality:

Strata Depth (ft.)	Water Type
?Cave	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Central Texas Drilling, Inc.**
2520 Hwy 290 West
Dripping Springs, TX 78620

Driller Name: **Aaron Glass**

License Number: **4227**

Comments: **Logged by DT\$**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		Top Soil
1-30		Caliche
30-34		Blue
34-335		Gray
335-337		Fracture?
NO RETURNS		
?590		Hammid Clay
630		No More Clay?
650		Sandstone?
850		Total Depth

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	OD	N PVC	SDR 17 -2/850 .25

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #134327

Owner:	AG&M BEE CREEK INVESTMENTS	Owner Well #:	No Data
Address:	13652 HWY 71 W AUSTIN, TX 78737	Grid #:	57-48-3
Well Location:	19012 HWY 71 W SPICEWOOD, TX 78669	Latitude:	30° 20' 21" N
		Longitude:	098° 02' 02" W
Well County:	Travis	Elevation:	774 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **1/14/2008** Drilling End Date: **1/14/2008**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	12
	6.75	12	270

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	6	6
	6	12	4

Seal Method: **SLURRIED & POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **CESAR RAMOS**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **NOT YET INSTALLED**

Surface Completion: **Surface Sleeve Installed**

Water Level: **157 ft. below land surface on 2008-01-14** Measurement Method: **Unknown**

Packers: **NEOPRENE 12
NEOPRENE 180
NEOPRENE 185**

Type of Pump: **Submersible** Pump Depth (ft.): **250**

Well Tests: **Jetted** Yield: **60 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **BEE CAVE DRILLING INC**
185 ANGELFIRE DR
DRIPPING SPRINGS, TX 78620

Driller Name: **JIM BLAIR**

License Number: **54416**

Apprentice Name: **CESAR RAMOS**

Apprentice Number: **57534**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	10	CALICHE
10	40	GRAY LIMESTONE
40	45	GRAY CLAY
45	180	GRAY LIMESTONE
180	200	WHITE ROCK
200	223	GRAY ROCK
223	260	WHITE ROCK W/B 60 GPM TDS 1300
260	270	GRAY LIMESTONE

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	NEW	PLASTIC	0-200
4.5	NEW	SCREEN MFG	200-260 .050
4.5	NEW	PLASTIC	260-270

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #146505

Owner: **McAden Cumby Builders**
Address: **500 Cap.of Tx. Bldg.8, Ste.100
AUSTIN, TX 78746**
Well Location: **3001 F.M. 620 SOUTH
AUSTIN, TX 78734**
Well County: **Travis**

Owner Well #: **No Data**
Grid #: **58-41-1**
Latitude: **30° 20' 00" N**
Longitude: **097° 58' 03" W**
Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **6/19/2008**

Drilling End Date: **6/19/2008**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8.625	0	100
	6.5	100	760

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	16 CEMENT
	0	100	15 VOLCLAY

Seal Method: **PRESSURE TRIMMY
CEMENTING**

Distance to Property Line (ft.): **N/A**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Pitless Adapter Used**

Water Level: **No Data**

Packers: **5 BURLAP,PVC,RUBBER 100,580,600,620,
640**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 30-35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
85	TRINITY

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**License Number: **4227**Comments: **Amended Ref# 6153 7/30/08****Report Amended on by Request #6153**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-2		FILL
2-18		CALICHE
18-20		BLUE LIMESTONE
20-210		GRAY LIMESTONE
210-460		GRAY W/TAN LIMESTONE
460-510		TAN LIMESTONE
510-540		TAN/GRAY/BROWN LIMESTONE
540-560		TAN/BROWN SANDSTONE
560-580		BROWN/GRAY LIMESTONE
580-595		GRAY LIMESTONE
595-610		GRAY LIMESTONE W/HAMMIT
		CLAY
610-630		GRAY LIMESTONE W/RED CLAY
630-650		GRAY/TAN LIMESTONE W/
		LITTLE CLAY
650-660		RED/GRAY LIMESTONE
660-720		RED/TAN SAND

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N SDR17 PVC	+3 TO 760
5"	OD	N SDR17 PVC SLOT	660 TO 760 .032

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #152651

Owner:	Gene Villanueva	Owner Well #:	1
Address:	318 Nautilus Ave Lakeway, TX 78738	Grid #:	58-41-1
Well Location:	3408 Serene Hills Court Lakeway, TX 78738	Latitude:	30° 20' 40" N
Well County:	Travis	Longitude:	097° 59' 56" W
		Elevation:	937 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **8/29/2008** Drilling End Date: **9/3/2008**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	120
	7	120	850

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	120	36
	640	700	18

Seal Method: **Tremie**

Distance to Property Line (ft.): **50+**

Sealed By: **ADC**

Distance to Septic Field or other
concentrated contamination (ft.): **91**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured**

Surface Completion: **Surface Sleeve Installed**

Water Level: **409 ft. below land surface on 2008-09-06** Measurement Method: **Unknown**

Packers: **neophrene 120'**

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Estimated** Yield: **30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
740'-850'	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Co.**

**P.O. Box 1060
Manchaca, TX 78652**

Driller Name: **Byron Benoit**

License Number: **1955**

Apprentice Name: **Frank Barnard**

Apprentice Number: **56366**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	topsoil
1	13	caliche
13	247	gray limestone
247	249	void
249	600	gray limestone
600	640	shale
640	700	hard tan limestone
700	740	red sandstone
740	850	broken red sandstone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5"	new	plastic	-2' to 850' sdr17
		slotted	740'-850'

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #172832

Owner: **BLANCO SAN MIGUEL LIMITED**

Owner Well #: **No Data**

Address: **13200 BEE CAVE PKWY.
AUSTIN, TX 78730**

Grid #: **57-48-3**

Well Location: **19110 HWY. 71 WEST
SPICEWOOD, TX**

Latitude: **30° 20' 26" N**

Longitude: **098° 02' 10" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **12/9/2008**

Drilling End Date: **12/9/2008**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8.75	0	100
	6	100	310

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	50	18 CEMENT
	0	50	10 VOLCLAY

Seal Method: **PRESSURE TRIMMY
CEMENTING**

Distance to Property Line (ft.): **N/A**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Surface Sleeve Installed**

Water Level: **144.7 ft. below land surface on 2008-12-09**

Measurement Method: **Unknown**

Packers: **4 BURLAP,PVC,RUBBER 100',110',150',170'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 20-25 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
60	MIDDLE TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTRAL TEXAS DRILLING, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**

License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOP SOIL & ROCK
1	30	CALICHE
30	35	BLUE/GRAY LIMESTONE
35	175	GRAY LIMESTONE
175	180	GRAY/TAN LIMESTONE
180	210	TAN LIMESTONE
210	235	TAN W/GRAY LIMESTONE
235	255	TAN/WHITE LIMESTONE
255	280	GRAY LIMESTONE
280	285	GRAY LIMESTONE W/SHALE
285	295	GRAY LIMESTONE
295	300	GRAY LIMESTONE W/SHALE
300	310	HAMMIT CLAY

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N PVC SDR17	+3 TO 310
5"	OD	N PVC SDR17	SLOT 190 TO 290 .032

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #174365

Owner: **David Faust--Diamond F Ranch**

Owner Well #: **No Data**

Address: **P.O. Box 340080
Austin, TX 78734**

Grid #: **58-41-4**

Well Location: **16177 Flint Rock Rd
Austin, TX 78738**

Latitude: **30° 19' 45" N**

Longitude: **097° 58' 58" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **7/29/2004**

Drilling End Date: **7/29/2004**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	30
	6	30	810

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	30	5

Seal Method: **Slurry**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **PVC and burlap, 30'
PVC and burlap, 620'
PVC and burlap, 630'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 15-20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
45	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Western Water Wells, LLC**
500 Southland Drive
Burnet, TX 78611

Driller Name: **Frank A. Glass**

License Number: **1313**

Comments: **\$scd**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	topsoil
1	15	caliche
15	75	blue lime
75	315	gray lime
315	360	brown lime
360	490	gray and brown lime sandstone
490	525	white lime 5-8 gpm
525	560	gray lime
560	610	Hammond
610	630	gray lime
630	700	sandstone and sand
700	760	tan lime
760	800	sand strips
800	810	chert lime

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	OD	N plastic	+2-810 17 & 40

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #174386

Owner: **David Piland**

Owner Well #: **No Data**

Address: **26 Autumn Oak
Austin, TX 78738**

Grid #: **58-41-1**

Well Location: **3605 Serene Hills Lot 27
Majestic Hills, TX**

Latitude: **30° 20' 33" N**

Longitude: **097° 59' 50" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **7/2/2004**

Drilling End Date: **7/2/2004**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	25
	6	25	800

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	25	5

Seal Method: **Slurry**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **owner**

Surface Completion: **Unknown**

Water Level: **No Data**

Packers: **PVC and burlap, 25'
PVC and burlap, 660'
PVC and burlap, 670'**

Type of Pump: **No Data**

Well Tests: **Jetted** **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
40	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Western Water Wells, LLC**
500 Southland Drive
Burnet, TX 78611

Driller Name: **Frank A. Glass**

License Number: **1313**

Comments: **Well Test: no returns. \$scd**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	topsoil
1	17	caliche
17	65	blue lime
65	275	gray lime
275	276	fracture--lost returns
276	580	lime
580	635	Hammond
635	670	lime
670	800	Trinity

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5	OD	N plastic	+2-800 SDR17&40

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #181840

Owner: **Duncan Johnson Comm-Word
(Owner)**

Owner Well #: **No Data**

Address: **6601-A Bee Cave Road
Austin, TX 78746**

Grid #: **57-48-3**

Well Location: **17824 Serene Hills Pass
Austin, TX 78738**

Latitude: **30° 20' 36" N**

Longitude: **098° 00' 22" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **5/22/2009**

Drilling End Date: **5/22/2009**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	50
	6	50	890

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	50	10

Seal Method: **Slurry**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **6 PVC & Burlap @ 50', 640', 680', 695', 700', 740'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
60	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Western Water Wells**
500 Southland Dr.
Burnet, TX 78611

Driller Name: **Frank Glass**

License Number: **1313**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	40	Caliche
40	70	Blue Lime
70	315	Gray Lime
315	375	Brown Lime
375	395	White Soap Stone
395	590	Gray & Brown Lime
590	640	White & Brown
640	690	Hammond
690	748	Sand
740	890	Trinity 30 GPM

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5 OD	New	Plastic	+2 to 890 SDR 17
80'	Screen		

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #278629

Owner: **Aqua Land Lakeway Medical Dvlp, LLC**

Owner Well #: **No Data**

Address: **3700 Buffalo Speedway Ste.1100
Houston, TX 77098**

Grid #: **58-41-1**

Well Location: **3002 1/2 Ranch Rd. 620 South
Lakeway, TX 78738**

Latitude: **30° 20' 02" N**

Longitude: **097° 58' 13" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **11/21/2011**

Drilling End Date: **11/22/2011**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	40
	8	40	860

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	50	21 of Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Burlap/Neoprene 710, 705, 700, 300, 60, 50**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 50-60 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
710-853	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P O Box 867
Marble Falls, TX 78654

Driller Name: **Michael G. Becker, P. G.** License Number: **54516**

Comments: **Reference to Variance #068-12 (Distance to Sewer Line)**
Amended 4/26/12 Ref.# 10346

Report Amended on by Request #10346

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	36	Fill
36	161	Grey Limestone
161	178	Tan Limestone
178	490	Grey/Tan Limestone
490	510	Tan Limestone
510	580	Grey/Tan Limestone
580	665	Grey Limestone w/Clay
665	710	Red Sandstone
710	715	Gravel H2O
715	742	Red Sandstone
742	754	Gravel H2O
754	790	Red Sandstone
790	800	Gravel H2O
800	830	Sandstone
830	853	Gravel H2O
853	860	Tan Clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	(5" OD) New	PVC + 2'	to 780' SDR17
5"	(5" OD) New	Slotted PVC	780' to 860' .035
8"	New	PVC	0' to 40' Sch40

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #279798

Owner: **Lake Travis High School**

Owner Well #: **No Data**

Address: **3324 Ranch Rd. 620 S.
Austin, TX 78738**

Grid #: **58-41-4**

Well Location: **3324 Ranch Rd. 620 S.
Austin, TX 78738**

Latitude: **30° 19' 24" N**

Longitude: **097° 58' 19" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **8/22/2011**

Drilling End Date: **8/22/2011**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	952

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	60	12 of Portland

Seal Method: **Slurry**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Burlap/Neoprene 755, 760, 765, 60**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 27 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
755-945	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P O Box 867
Marble Falls, TX 78654

Driller Name: **Michael G. Becker, P. G.** License Number: **54516**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	24	Tan Limestone
24	118	Grey/Tan Limestone
118	128	Tan Limestone
128	492	Grey/Tan Limestone
492	520	Tan/White Limestone
520	680	Grey/Tan Limestone
680	755	Grey Limestone w/Clay
755	920	Red Sandstone
920	945	Gravel
945	952	Tan Clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5" (5" OD)	New	PVC	+ 2' to 872' SDR17
4.5" (5" OD)	New	Slotted PVC	872' to 952' .035

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #279924

Owner: **Hutter** Owner Well #: **No Data**
Address: **102 cog hill
austin, TX 78738** Grid #: **58-41-1**
Well Location: **102 cog hill
austin, TX 78738** Latitude: **30° 20' 00" N**
Longitude: **097° 59' 01" W**
Well County: **Travis** Elevation: **924 ft. above sea level**
****Plugged Within 48 Hours****

****This well has been plugged****

Plugging Report Tracking #134785

Type of Work: **New Well** Proposed Use: **Closed-Loop Geothermal**

Drilling Start Date: **1/4/2012** Drilling End Date: **1/6/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	4.5	0	300

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	30	300	Gravel	3/8

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	30	3 bentonite

Seal Method: **Poured**

Distance to Property Line (ft.): **50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **owner**

Surface Completion: **Alternative Procedure Used**

Water Level: **No Data on 2012-01-04**

Measurement Method: **Unknown**

Packers: **No Data**

Type of Pump: **Other - Not Specified**

Well Tests: **No Test Data Specified**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	none

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Sarris Gerthmal Drilling**
p. o. box 19452
Austin, TX 78760

Driller Name: **Anthony Sarris** License Number: **58870**

Comments: **4 closed loop geothermal wells drilled**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	10	clay
10	300	grey shale

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
1 inch new polyethylene pipe 0- 300			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #281702

Owner:	Wheelock Street Capital	Owner Well #:	1
Address:	5025 McDade Dr Austin, TX 78735	Grid #:	57-48-6
Well Location:	5928 Pedernales Summit Parkway Austin, TX 78738	Latitude:	30° 19' 36" N
Well County:	Travis	Longitude:	098° 01' 45" W
		Elevation:	955 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **12/21/2011** Drilling End Date: **1/29/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	12.25	0	100
	9.875	100	740

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	45	24 Ptlnd
	45	100	2 Hlplg8BnsI

Seal Method: **Unknown**

Distance to Property Line (ft.): **1000+**

Sealed By: **Unknown**

Distance to Septic Field or other
concentrated contamination (ft.): **50**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Measured**

Surface Completion: **Surface Sleeve Installed**

Water Level: **360 ft. below land surface on 2012-01-09** Measurement Method: **Unknown**

Packers:

- 6Mil Poly 100'**
- 6Mil Poly 200'**
- 6Mil Poly 300'**
- 6Mil Poly 400'**
- 6Mil Poly 500'**
- 6Mil Poly 540'**
- Shale Packer 600'**
- 6Mil Poly 620'**

Type of Pump: **Submersible**

Pump Depth (ft.): **640**

Well Tests: **Jetted** **Yield: 20+ GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
640'/720'	Good

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Whisenant & Lyle Water Services**
 P.O. Box 525
 Dripping Springs, TX 78620

Driller Name: **Martin Lingle** License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>From (ft)</i>	<i>To (ft)</i>	<i>Description</i>
0-1/2	Topsoil	
1/2-2	Caliche	
2-16	Black Clay Brown Limestone	
16-17	Gray Limestone	
17-38	Brown Limestone	
38-80	Gray Limestone	
80-101	Dark Gray Limestone	
101-220	Light Gray Limestone	
220-240	Dark Gray Limestone	
240-270	Tan Limestone	
270-340	Gray Limestone	
340-360	Tan Limestone	
360-400	Brown Limestone	
400-440	Gray Limestone	
440-480	Gray Clay	

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
6.9	New	SDR 17 Blank	+2'/640'
6.9	New	SDR 17 Slotted	640'/720'
6.9	New	SDR 17 Blank	720'/740'

480-540 Gray Brown Limestone
540-560 Red Sandstone
560-690 Brown Limestone
690-710 Red Sandstone
710-738 Calcite
738-740 Black Rock

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #290846

Owner: **Circle K Stores, Inc. #2704681**

Owner Well #: **B-1**

Address: **P.O. Box 52085
Phoenix, AZ 85072**

Grid #: **58-41-1**

Well Location: **1405 S. Ranch Road 620
Austin, TX 78734**

Latitude: **30° 20' 58" N**

Longitude: **097° 57' 48" W**

Well County: **Travis**

Elevation: **No Data**

****Plugged Within 48 Hours****

****This well has been plugged****

Plugging Report Tracking #136735

Type of Work: **New Well**

Proposed Use: **Monitor**

Drilling Start Date: **6/5/2012**

Drilling End Date: **6/5/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	6	0	80

Drilling Method: **Air Rotary**

Borehole Completion: **Plugged**

Annular Seal Data: **No Data**

Seal Method: **Hand Mixed**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Alternative Procedure Used**

Water Level: **No Data**

Packers: **N/A**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

	<i>Description (number of sacks & material)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Plug Information:	0 - 2 Concrete		
	2 - 80 Bentonite		
	No casing left in well.		

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Unknown**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **Unknown**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Vortex Drilling, Inc.**
4412 Bluemel Road
San Antonio, TX 78240

Driller Name: **James E. Neal** License Number: **4868**

Apprentice Name: **Ralph Bartholomew** Apprentice Number: **59046**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-6"		Concrete
6"-2		Caliche fill
2-80		Limestone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
1	New	Schedule 40 PVC	.010 80 - 70 Screen
1	New	Schedule 40 PVC	70 - 0 Riser

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #302100

Owner:	Mike Meyer	Owner Well #:	No Data
Address:	402 Aria Dr Austin, TX 78738	Grid #:	57-48-3
Well Location:	17204 Flint Rock Rd Austin, TX 78738	Latitude:	30° 20' 00" N
Well County:	Travis	Longitude:	098° 00' 19" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/24/2012** Drilling End Date: **9/25/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	100
	6.5	100	875

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	9-Bens 1-Port

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **20**

Distance to Septic Field or other
concentrated contamination (ft.): **50+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Landowner**

Surface Completion: **Surface Sleeve Installed**

Water Level: **No Data**

Packers: **Brulap/Neoprene 690', 680', 660', 400', 105', 100'**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 15 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
700-875	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P.O. Box 867
Marble Falls, TX 78654

Driller Name: **Michael G. Becker** License Number: **54516**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Topsoil
1	33	Tan Limestone
33	421	Gray/Tan Limestone
421	435	Tan Limestone
432	557	Gray/Tan Limestone
557	575	Tan/White Limestone
575	615	Gray/Tan Limestone
615	660	Gray Clay
660	700	Red Sandstone
700	705	Gravel
705	747	Red Sandstone
747	756	Gravel
756	860	Red Sandstone **H2O
860	875	Gravel **H2O

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5" (5" OD)	New	PVC	+2' to 795' SDR17
4.5" (5" OD)	New	Slotted PVC	795' to 815' .035
4.5" (5" OD)	New	PVC	815' to 835' SDR17
4.5" (5" OD)	New	Slotted PVC	835' to 855' .035
4.5" (5" OD)	New	PVC	855' to 875' SDR17

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #302877

Owner:	Bob Teaford	Owner Well #:	1
Address:	155 Contrails Way Spicewood, TX 78669	Grid #:	57-48-3
Well Location:	19111 hwy 71 W. Spicewood, TX 78669	Latitude:	30° 20' 20" N
Well County:	Travis	Longitude:	098° 02' 10" W
		Elevation:	760 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/5/2012**

Drilling End Date: **9/5/2012**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	10	0	10
	8	10	130

Drilling Method: **Air Hammer; Air Rotary**

Borehole Completion: **Filter Packed; Open Hole**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	12	130	Gravel	3/8

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	10	4 cement
	10	12	1 bentonite

Seal Method: **slurry & poured**

Distance to Property Line (ft.): **12**

Sealed By: **Steve Stewart**

Distance to Septic Field or other
concentrated contamination (ft.): **150**

Variance Number: **no**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **measured**

Surface Completion: **Surface Sleeve Installed**

Water Level: **12 ft. below land surface on 2012-09-05** Measurement Method: **Unknown**

Packers: **none**

Type of Pump: **No Data**

Well Tests: **Estimated** **Yield: 10 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	Fresh

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling**
185 Angelfire Dr
Dripping Springs, TX 78620

Driller Name: **Jim Blair**

License Number: **54416**

Apprentice Name: **Steve Stewart**

Apprentice Number: **11049501**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0	2	Topsoil
2	7	Pink limestone
Lost circulation, porous rock		
total depth 130 ft, 800 Tds		

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	New	Plastic	+1 to 60 sdr 17
4.5	New	Plastic / perf 1/4"	60 to 130 sdr 17

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #303549

Owner:	TDI CONSTRUCTION	Owner Well #:	No Data
Address:	600 E.LAS COL. BLVD.STE.1800 IRVING, TX 75039	Grid #:	58-41-5
Well Location:	3501 SOUTH F.M. 620 AUSTIN, TX 78738	Latitude:	30° 19' 26" N
Well County:	Travis	Longitude:	097° 57' 23" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **8/17/2012** Drilling End Date: **8/17/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.5	100	840

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	12 CEMENT
	0	100	4 VOLCLAY

Seal Method: **PRESSURE TRIMMIE
CEMENT**

Distance to Property Line (ft.): **N/A**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Surface Sleeve Installed**

Water Level: **503 ft. below land surface on 2012-08-17** Measurement Method: **Unknown**

Packers: **4 BURLAP,PVC,NEOPRENE 100',590',610',750'**

Type of Pump: **Submersible**

Well Tests: **Jetted** Yield: **25-30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
80	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTEX PUMP & SUPPLY, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**

License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		TOP SOIL
1-10		CALICHE
10-15		BLUE LIMESTONE
15-300		GRAY LIMESTONE
300-310		WHITE LIMESTONE
310-380		GRAY LIMESTONE
380-440		GRAY/TAN LIMESTONE
440-510		TAN/GRAY LIMESTONE
510-530		TAN/BROWN LIMESTONE H2O
530-540		TAN/BROWN LIMESTONE
		W/GRAY
540-590		GRAY LIMESTONE W/HAMMIT
		CLAY
590-600		GRAY LIMESTONE W/RED CLAY
600-635		GRAY/TAN LIMESTONE
635-660		RED/TAN LIMESTONE
660-730		RED SANDSTONE
730-790		RED SAND

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N SDR17 PVC	+3 TO 840
5"	OD	N SDR17 PVC SLOT	670 TO 730 .032
5"	OD	N SDR17 PVC SLOT	770 TO 840 .032

790-835 GRAVEL SAND
835-840 GRAY LIMESTONE W/CLAY

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #305495

Owner:	BURK EDWARDS	Owner Well #:	No Data
Address:	3001 RANCH RD. 620 N., STE.321 AUSTIN, TX 78738	Grid #:	58-41-4
Well Location:	4023 PAWNEE PASS AUSTIN, TX 78738	Latitude:	30° 19' 58" N
Well County:	Travis	Longitude:	097° 59' 21" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **10/10/2012** Drilling End Date: **10/10/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	50
	6.5	50	760

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	50	8 CEMENT
	0	50	4 VOLCLAY

Seal Method: **Slurry**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Water Level:	522.6 ft. below land surface on 2012-10-10	Measurement Method:	Unknown
Packers:	6 BURLAP,PVC 50',500',520',540',620',700		
Type of Pump:	Submersible		
Well Tests:	Jetted	Yield:	40 GPM

Water Quality:

Strata Depth (ft.)	Water Type
80	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTEX PUMP & SUPPLY, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**

License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		TOP SOIL
1-14		CALICHE
14-18		BLUE/GRAY LIMESTONE
18-260		GRAY LIMESTONE
260-370		GRAY/TAN LIMESTONE
370-460		TAN/GRAY LIMESTONE
460-490		TAN LIMESTONE
490-530		GRAY LIMESTONE W/HAMMETT
		CLAY
530-540		HAMMETT & RED CLAY
540-560		GRAY LIMESTONE
560-570		SANDSTONE H20
570-630		RED/TAN SANDSTONE
630-730		RED/TAN LIMESTONE STRIPS
730-760		RED SAND AND GRAVEL

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD N	PVC SDR17	+3 TO 760
5"	OD N	PVC SDR17	SLOT 600 TO 760 .032

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #316585

Owner: **Cassie & Creed Ford**

Owner Well #: **No Data**

Address: **325 Ranch Rd. 620 S #104
Lakeway, TX 78734**

Grid #: **58-41-4**

Well Location: **16490 Flint Rock Rd.
Lakeway, TX 78734**

Latitude: **30° 19' 59" N**

Longitude: **097° 59' 37" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **12/20/2012**

Drilling End Date: **12/29/2012**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	20
	8	20	815

Drilling Method: **Air Hammer**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	6

Seal Method: **Hand Poured**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **180**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Tape Measure**

Surface Completion: **Pitless Adapter Used**

Water Level: **487 ft. below land surface on 2012-12-21** Measurement Method: **Unknown**

Packers: **Shale Trap 750', 709', 705', 685', 20'**

Type of Pump: **Submersible**

Pump Depth (ft.): **600**

Well Tests: **Estimated** Yield: **20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Tom Arnold Drilling**
2750 S Q. W. Grimes Blvd.
Roundrock, TX 78664

Driller Name: **Tommy D. Arnold**

License Number: **2096**

Comments: **See note in late report file.**
^EAD

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	fill
1	11	yellow limestone
11	34	blue limestone
34	41	brown limestone
41	230	gray limestone
230	245	brown limestone
245	412	gray limestone
412	430	gray limestone & shale
430	511	gray limestone
511	560	red & blue shale
560	580	red sandstone
580	640	red shale
640	709	red sandstone
709	730	red cemented gravel & sand
730	750	red sandstone & shale
750	770	cemented gravel & sand
770	790	gray liemstone & shale

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4 1/2"	N	Plastic	0'-810'
Perf. 709'-730'			
Perf. 750'-770'			

790	815	blue shale
-----	-----	------------

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #321851

Owner:	Lake Travis ISD	Owner Well #:	1
Address:	3322 RR 620 Austin, TX 78738	Grid #:	58-41-4
Well Location:	3322 RR 620 Austin, TX 78738	Latitude:	30° 19' 24" N
Well County:	Travis	Longitude:	097° 58' 10" W
		Elevation:	1102 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: 12/27/2012 Drilling End Date: 6/13/2013

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	12	0	1000

Drilling Method: Air Rotary

Borehole Completion: Straight Wall

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	60	80ptIn66hlpg

Seal Method: Pos. Displacement

Sealed By: Driller

Distance to Property Line (ft.): 200+

Distance to Septic Field or other
concentrated contamination (ft.): 1,000

Distance to Septic Tank (ft.): No Data

Method of Verification: Measured

Surface Completion: Surface Slab Installed

Water Level: 694 ft. below land surface on 2013-05-16 Measurement Method: Unknown

Packers: Shale Packer 680'
Shale Packer 675'
Shale Packer 670'
6MIL Poly 60'

Type of Pump: Submersible Pump Depth (ft.): 840

Well Tests: Pump Yield: 25 GPM

Water Quality:

Strata Depth (ft.)	Water Type
840'/940'	Unknown

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Whisenant & Lyle Water Services**
P.O. Box 525
Dripping Springs, TX 78620

Driller Name: **Martin Lingle** License Number: **54813**

Apprentice Name: **Travis Haffelder**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	Topsoil
3	9	Brown Limestone
9	18	Caliche
18	27	Brown Tan Limestone
27	1000	Void

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
6.9	New	PVC-SDR 17IB	+2'/840'
6.9	New	PVC-17 Slotted	.035 840'/938'
6.9	New	Cap	938'/940'
940'/1000'		Open Hole	

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #337020

Owner:	SCOTT HANSON #2	Owner Well #:	2
Address:	4600 SPANISH OAKS CLUB BLVD. AUSTIN, TX 78738	Grid #:	57-48-6
Well Location:	15730 HAMILTON POOL ROAD AUSTIN, TX 78738	Latitude:	30° 18' 34" N
Well County:	Travis	Longitude:	098° 00' 14" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Test Well

Drilling Start Date: 5/1/2013

Drilling End Date: 5/1/2013

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	20
	6.5	20	330

Drilling Method: Air Hammer

Borehole Completion: Straight Wall

Annular Seal Data: No Data

Seal Method: Not Applicable

Sealed By: Unknown

Distance to Property Line (ft.): No Data

Distance to Septic Field or other
concentrated contamination (ft.): No Data

Distance to Septic Tank (ft.): No Data

Method of Verification: No Data

Surface Completion: Unknown

Water Level: No Data

Packers: No Data

Type of Pump: No Data

Well Tests: No Test Data Specified

	Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
Plug Information:	0 0 2 1		

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information:

Driller Name: **TOMMY ARNOLD**

License Number: **2096**

Comments: **^MP**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>From (ft)</i>	<i>To (ft)</i>	<i>Description</i>
0-1		LOOSE ROCK
1-6		YELL L.STONE
6-31		BLU L.STONE
31-108		GRAY L.STONE
108-128		BRWN L.STONE
128-292		GRAY L.STONE
292-293		FRACTURE
293-330		NO RETURNS
(WELL BACK FILLED W/DRILL CUTTING & ABONDANDED)		

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
NONE			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #337023

Owner:	SCOTT HANSON	Owner Well #:	2
Address:	4600 SPANISH OAKS CLUB BLVD. AUSTIN, TX 78738	Grid #:	57-48-6
Well Location:	15730 HAMILTON POOL ROAD AUSTIN, TX 78738	Latitude:	30° 18' 30" N
Well County:	Travis	Longitude:	098° 00' 19" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Test Well

Drilling Start Date: **4/30/2013** Drilling End Date: **4/30/2013**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	20
	6.5	20	310

Drilling Method: **Air Hammer**

Borehole Completion: **Straight Wall**

Annular Seal Data: **No Data**

Seal Method: **Not Applicable**

Sealed By: **Unknown**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Unknown**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

	Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
Plug Information:	0 0 2 1		

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information:

Driller Name: **TOMMY ARNOLD**

License Number: **2096**

Comments: **^MP**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		LOOSE ROCK
1-6		YELL L.STONE
6-31		BLU L.STONE
31-126		GRAY L.STONE
126-140		BRWN L.STONE
140-290		GRAY L.STONE
290-291		FRACTURE
291-310		NO RETURNS
(WELL BACK FILLED W/DRILL CUTTING & ABONDANDED)		

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
NONE			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #338874

Owner:	SCOTT HANSON	Owner Well #:	3
Address:	4600 SPANISH OAKS CLUB BLVD AUSTIN, TX 78738	Grid #:	58-41-4
Well Location:	15730 HAMILTON POOL RD AUSTIN, TX 78738	Latitude:	30° 18' 25" N
Well County:	Travis	Longitude:	097° 59' 56" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Test Well

Drilling Start Date: **5/3/2013**

Drilling End Date: **5/10/2013**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	20
	6.5	20	810

Drilling Method: **Air Hammer**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	7

Seal Method: **HAND POURED**

Distance to Property Line (ft.): **No Data**

Sealed By: **TOM ARNOLD DRILLING**

Distance to Septic Field or other
concentrated contamination (ft.): **150**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **TAPE MEASURE FRM
PROPOSED SITE**

Surface Completion: **Surface Sleeve Installed**

Water Level: **483 ft. below land surface on 2013-05-15** Measurement Method: **Unknown**

Packers: **SHALE TRAP 710, 690, 550, 20**

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Pump** Yield: **25 GPM with 103 ft. drawdown after 3 hours**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information:

Driller Name: **TOMMY ARNOLD**

License Number: **2096**

Comments: **^VSP**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	7	SANDY LOAM
7	13	SANDY LOAM & GRAVEL
13	79	GRAY LIMESTONE
79	87	BLUE LIMESTONE SHALE
87	103	BROWN LIMESTONE
103	270	GRAY LIMESTONE
270	271	FRACTURE
271	810	NO RETURNS

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
4-1/2" N PLASTIC 0-810			
PERF 710-810			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #342986

Owner:	Lake Travis ISD	Owner Well #:	No Data
Address:	11601 Hwy. 71 W Building B Austin, TX 78738	Grid #:	57-48-3
Well Location:	4932 Bee Creek Rd. Spicewood, TX 78669	Latitude:	30° 20' 16" N
		Longitude:	098° 01' 56" W
Well County:	Travis	Elevation:	894 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **8/5/2013**

Drilling End Date: **8/11/2013**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	12.25	0	10
	10	10	780

Drilling Method: **Air Hammer**

Borehole Completion: **Open Hole**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	50	15 cement

Seal Method: **slurry and pour**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **none**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: **274 ft. below land surface on 2013-08-15** Measurement Method: **Unknown**

Packers: **neoprene 50, 350, 560, 600, 640, 720, 722**

Type of Pump: **No Data**

Well Tests: **Pump** Yield: **36 GPM with 45 ft. drawdown after 6 hours**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	Trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Steve Stewart** License Number: **54416**

Apprentice Name: **Jim Blair**

Comments: **Note: surface slab not installed yet as customer is still changing the grade at the surface. when surface grading is finished, we will install surface slab.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	white limestone
2	4	gray limestone
4	50	tan limestone
50	60	gray shale
60	65	gray limestone
65	80	gray shale
80	350	gray limestone wb 2 gpm 1000 tds
350	440	white & gray limestone
440	455	gray clay
455	470	light gray limestone wb 9 gpm
470	515	brown & gray limestone w/ clay
515	560	gray & red clay
560	565	tan & red sandstone
565	586	red & gray clay
586	590	gray sandstone w/ tan rock
590	595	gray clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
6.9" (OD)	New	SDR-17	0 560
6.9"	New	Perf 0.032"	560 580
6.9"	New	SDR-17	580 600
6.9"	New	Perf 0.032"	600 620
6.9"	New	SDR-17	620 640
6.9"	New	Perf 0.032"	640 660
6.9"	New	SDR-17	660 720
6.9"	New	Perf 0.032"	720 760
6.9"	New	SDR-17	760 780

595	610	gray sandstone
610	620	gray clay
620	695	brown & gray sandstone w/ clay strips wb
695	755	gray sandstone wb
755	780	gray rock

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #361592

Owner:	Architectural Granite & Marble	Owner Well #:	2
Address:	19012 Hwy. 71 W. Spicewood, TX 78669	Grid #:	57-48-3
Well Location:	19012 Hwy. 71 W. Spicewood, TX 78669	Latitude:	30° 20' 25" N
		Longitude:	098° 02' 00" W
Well County:	Travis	Elevation:	781 ft. above sea level
Type of Work:	New Well	Proposed Use:	Industrial

Drilling Start Date: **3/10/2014** Drilling End Date: **3/10/2014**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	10	0	10
	8	10	20
	6.75	20	565

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	50	14 cement

Seal Method: **slurry & pour**

Sealed By: **Steve Stewart**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Pitless Adapter Used**

Water Level: **181 ft. below land surface on 2014-03-14** Measurement Method: **Unknown**

Packers: **neoprene 50, 150, 450, 453, 455**

Type of Pump: **Submersible** Pump Depth (ft.): **540**

Well Tests: **Jetted** Yield: **100 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	8	topsoil
8	12	tan limestone
12	25	tan caliche
25	45	gray limestone
45	50	gray clay
50	140	light gray limestone
140	155	white limestone
155	185	gray limestone wb 10 gpm
185	270	white/tan limestone wb 50gpm 1100tds
270	310	gray limestone
310	360	gray clay w/ red
360	390	trinity mix
390	430	red & gray shale
430	565	trinity mix w/ sand

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
4.5	new	sdr-17	0 495
4.5	new	perf	495 565

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #362820

Owner: **TDI Construction Serv., LLC-Well 1**

Owner Well #: **No Data**

Address: **600 E.Las Colinas, Ste. 1800
IRVING, TX 75039**

Grid #: **58-41-4**

Well Location: **3453 S. RANCH RD. 620
AUSTIN, TX 78738**

Latitude: **30° 19' 33" N**

Longitude: **097° 57' 31" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **3/31/2014**

Drilling End Date: **3/31/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.5	100	850

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	16 CEMENT
	0	100	6 VOLCLAY

Seal Method: **PRESSURE TRIMMIE
CEMENT**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Water Level: **566 ft. below land surface on 2014-03-31** Measurement Method: **Unknown**

Packers: **6 BURLAP,PVC 100',540',560',580',600',700'**

Type of Pump: **Submersible**

Well Tests: **Jetted** Yield: **50-60 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
80	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTEX PUMP & SUPPLY, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**

License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		TOP SOIL & ROCK
1-15		CALICHE
15-20		BLUE/GRAY LIMESTONE
20-310		GRAY LIMESTONE
310-430		GRAY/TAN LIMESTONE
430-490		TAN/GRAY LIMESTONE
490-500		TAN LIMESTONE
500-501		FRACTURE
501-530		TAN LIMESTONE
530-540		GRAY LIMESTONE
540-580		GRAY LIMESTONE W/CLAY
		(HAMMETT CLAY)
580-590		GRAY LIMESTONE W/RED CLAY
590-600		GRAY W/TAN LIMESTONE
600-640		GRAY W/TAN SANDSTONE
640-690		RED SANDSTONE W/RED CLAY
690-700		RED/GRAY LIMESTONE
700-775		SANDSTONE

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N SDR17 PVC	+3 TO 850
5"	OD	N SDR17 PVC SLOT	760 TO 780 .032
5"	OD	N SDR17 PVC SLOT	800 TO 840 .032

775-845 SAND & GRAVEL
845-850 TAN LIMESTONE

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #362861

Owner:	TDI Construction serv.,LLC-Well 2	Owner Well #:	No Data
Address:	600 E.Las Colinas,Ste. 1800 IRVING, TX 75039	Grid #:	58-41-4
Well Location:	3453 S. Ranch Rd. 620 AUSTIN, TX 78738	Latitude:	30° 19' 33" N
Well County:	Travis	Longitude:	097° 57' 33" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **4/1/2014**

Drilling End Date: **4/1/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.5	100	850

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	13 CEMENT
	0	100	5 VOLCLAY

Seal Method: **PRESSURE TRIMMIE
CEMENT**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Water Level:	571.6 ft. below land surface on 2014-04-01	Measurement Method:	Unknown
Packers:	7 BURLAP,PVC 100',540',560',580',600' 600', 680'		
Type of Pump:	Submersible		
Well Tests:	Jetted	Yield:	50-60 GPM

Water Quality:

Strata Depth (ft.)	Water Type
80	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTEX PUMP & SUPPLY, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**

License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		TOP SOIL & ROCK
1-15		CALICHE
15-18		BLUE/GRAY LIMESTONE
18-320		GRAY LIMESTONE
320-440		GRAY/TAN LIMESTONE
440-500		TAN/GRAY LIMESTONE
500-550		GRAY LIMESTONE
550-580		HAMMETT CLAY
580-600		HAMMETT W/RED CLAY
600-635		GRAY/TAN LIMESTONE
635-680		GRAY/RED SANDSTONE
		W/CLAY
680-700		GRAY/RED SANDSTONE
		NO CLAY
700-780		RED SANDSTONE
780-850		RED SANDSTONE W/GRAVEL

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N SDR17 PVC	+3 TO 850
5"	OD	N SDR17 PVC SLOT	720 TO 780 .032
5"	OD	N SDR17 PVC SLOT	800 TO 840 .032

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #363714

Owner:	CHRISTOPHER LEVY	Owner Well #:	No Data
Address:	2002A GUADALUPE ST. #118 AUSTIN, TX 78705	Grid #:	58-41-1
Well Location:	3505 SERENE HILLS DRIVE AUSTIN, TX 78738	Latitude:	30° 20' 36" N
Well County:	Travis	Longitude:	097° 59' 49" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **2/13/2014** Drilling End Date: **2/13/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.5	100	770

Drilling Method: **Air Rotary**

Borehole Completion: **CASED**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	5 VOLCLAY

Seal Method: **PRESSURE TRIMMIE
CEMENT**

Distance to Property Line (ft.): **N/A**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **WELL DRILLED FIRST**

Surface Completion: **Surface Sleeve Installed**

Water Level: **431 ft. below land surface on 2014-02-13** Measurement Method: **Unknown**

Packers: **6 BURLPA, PVC 100',560',580',600',
620', 660'**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 30-35 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
60	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTEX PUMP & SUPPLY, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**

License Number: **4227**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1		TOP SOIL
1-13		CALICHE
13-18		BLUE/GRAY LIMESTONE
18-210		GRAY LIMESTONE
210-310		GRAY W/TAN LIMESTONE
310-410		TAN W/GRAY LIMESTONE
410-450		TAN/GRAY SANDSTONE
450-500		WHITE/TAN LIMESTONE
500-520		BROWN LIMESTONE
520-540		GRAY LIMESTONE
540-575		GRAY LIMESTONE W/HAMMETT CLAY
575-580		GRAY LIMESTONE W/RED CLAY
580-600		GRAY/TAN LIMESTONE
600-610		RED SANDSTONE & CLAY
610-630		SAND & GRAVEL
630-660		RED SAND W/RED CLAY
660-760		SAND & GRAVEL

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N SDR17 PVC	+3 TO 770
5"	OD	N SDR17 PVC SLOT	680 TO 760 .032

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #363765

Owner: **Hurst Creek MUD**

Owner Well #: **No Data**

Address: **102 Trophy Dr.
The Hills, TX 78738**

Grid #: **58-41-1**

Well Location: **102 Trophy Dr. (Rec.Park)
The Hills, TX 78738**

Latitude: **30° 20' 50" N**

Longitude: **097° 59' 45" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Test Well**

Drilling Start Date: **4/30/2014**

Drilling End Date: **4/30/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	20
	6.25	20	770

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	3cmt

Seal Method: **hand poured**

Distance to Property Line (ft.): **50+**

Sealed By: **ADC**

Distance to Septic Field or other
concentrated contamination (ft.): **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **owner**

Surface Completion: **Unknown**

Water Level: **393 ft. below land surface on 2014-04-30** Measurement Method: **Unknown**

Packers: **n/a**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 5-7 GPM**

	<i>Description (number of sacks & material)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Plug Information:	n/a		

Water Quality:

Strata Depth (ft.)	Water Type
590-730	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc.**
PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit** License Number: **4064**

Comments: **Well to be plugged at later date as per owner**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	10	topfill
10	35	white caliche
35	390	gray lime
390	410	tan lime
410	480	tan and white limestone
480	495	gray and white limestone
495	525	gray shale
525	590	tan and white limestone
590	670	red sandstone
670	690	multi-colored limestones
690	730	red sandstone
730	750	yellow limestone and clay
750	770	gray shale

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
6-1/4	id new	sch 40 pvc	0 to 20

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #368921

Owner:	Kim Calbert	Owner Well #:	2
Address:	3920 Pawnee Pass Lakeway, TX 78738	Grid #:	58-41-1
Well Location:	3920 Pawnee Pass Lakeway, TX 78738	Latitude:	30° 20' 01" N
Well County:	Travis	Longitude:	097° 59' 26" W
		Elevation:	983 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **6/6/2014**

Drilling End Date: **6/7/2014**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	10	0	10
	8	10	100
	6.75	100	810

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	25	8 cement
	25	100	15 bentonite

Seal Method: **pressure cemented**

Sealed By: **Derek Scott**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Pitless Adapter Used**

Water Level: **524 ft. below land surface on 2014-06-09** Measurement Method: **Unknown**

Packers: **neoprene 100, 240, 245, 655, 660**

Type of Pump: **Submersible** Pump Depth (ft.): **760**

Well Tests: **Jetted** Yield: **30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	topsoil
1	5	white limestone
5	10	white limestone & shale mix
10	40	white limestone
40	190	gray limestone
190	210	tan limestone
210	450	gray limestone
450	500	tan & gray limestone
500	530	gray limestone & shale mix
530	570	red & gray clay
570	590	gray sandstone
590	630	red & gray clay
630	780	red & gray sandstone
780	810	red sand & gravel

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	new	sdr-17	0 750
4.5	new	perf	750 790
4.5	new	sdr-17	790 810

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #373653

Owner: **Ray and Mary Hennig**

Owner Well #: **No Data**

Address: **4411 Hennig Rd.
Austin, TX 78738**

Grid #: **58-41-4**

Well Location: **4411 Hennig Rd.
Austin, TX 78738**

Latitude: **30° 19' 40" N**

Longitude: **097° 59' 33" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **7/22/2014**

Drilling End Date: **7/22/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	50
	6.25	50	930

Drilling Method: **Air Rotary**

Borehole Completion: **cased; Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	1	50	5cmt 3gel

Seal Method: **hand poured**

Distance to Property Line (ft.): **55**

Sealed By: **ADC**

Distance to Septic Field or other
concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **tape**

Surface Completion: **Surface Sleeve Installed**

Water Level: **662 ft. below land surface on 2014-07-22** Measurement Method: **Unknown**

Packers: **burlap,plastic,rubber @ 710,690,670,50**

Type of Pump: **Submersible**

Pump Depth (ft.): **810**

Well Tests: **Jetted** **Yield: 10-15 GPM**

	<i>Description (number of sacks & material)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Plug Information:	n/a		

Water Quality:

Strata Depth (ft.)	Water Type
705-930	trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc**
PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit**License Number: **4064**Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	15	white chalk
15	545	gray lime
545	590	tan lime
590	615	gray lime
615	645	gray shale
645	705	gray and white limestone
705	770	red sandstone
770	790	tan and white limestone
790	850	red sandstone
850	860	multi-colored limestones
860	900	red sandstone
900	930	yellow limestone

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5 od	new	sdr17 pvc	-3 to 790
5 od	new	sdr17 pvc (.032)	screen 790 to 890
5 od	new	sdr17 pvc	890 to 930

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #374747

Owner:	HURST CREEK MUD	Owner Well #:	No Data
Address:	102 TROPHY DRIVE THE HILLS, TX 78738	Grid #:	58-41-1
Well Location:	102 TROPHY DRIVE 102 TROPHY DRIVE, TX 78738	Latitude:	30° 20' 22" N
Well County:	Travis	Longitude:	097° 59' 41" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: 7/16/2014 Drilling End Date: 7/16/2014

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	100
	6.5	100	750

Drilling Method: Air Rotary

Borehole Completion: CASED

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	100	3 VOLCLAY
	0	100	13 CLASS H

Seal Method: PRESSURE TRIMMIE
CEMENTING

Distance to Property Line (ft.): N/A

Sealed By: Driller

Distance to Septic Field or other
concentrated contamination (ft.): N/A

Distance to Septic Tank (ft.): No Data

Method of Verification: HURST CREEK MUD

Surface Completion: Surface Sleeve Installed

Water Level: No Data

Packers: 5 BURLAP,PVC,RUBBER 100',470',490',510',
530'

Type of Pump: Submersible

Well Tests: Jetted Yield: 35-40 GPM

Water Quality:

Strata Depth (ft.)	Water Type
75	TRINITY

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **CENTEX PUMP & SUPPLY, INC.**
2520 HWY. 290 WEST
DRIPPING SPRINGS, TX 78620

Driller Name: **AARON GLASS**License Number: **4227**Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	TOP SOIL & FILL
2	15	CALICHE
15	18	BLUE/GRAY LIMESTONE
18	20	GRAY LIMESTONE
20	70	TAN LIMESTONE
70	290	GRAY LIMESTONE
290	295	WHITE LIMESTONE
295	400	GRAY/TAN LIMESTONE
400	445	TAN/GRAY LIMESTONE
445	450	TAN W/WHITE LIMESTONE
450	460	BROWN LIMESTONE
460	465	GRAY/TAN/BROWN LIMESTONE
465	470	GRAY LIMESTONE
470	505	HAMMETT CLAY
505	520	HAMMETT CLAY W/RED CLAY
520	540	GRAY/TAN LIMESTONE
540	585	RED SANDSTONE

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5"	OD	N SDR17 PVC	+3 TO 750
5"	OD	N SDR17 PVC SLOT	590 TO 750 .032

585	610	RED SANDSTONE W/GRAVEL
610	690	RED SANDSTONE
690	710	GRAVEL
710	740	RED SAND
740	750	TAN LIMESTONE

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #382354

Owner:	Matthew Scrivener	Owner Well #:	1
Address:	8920 Business Park Dr. St. 350 Austin, TX 78759	Grid #:	57-48-3
Well Location:	17027 Raynam Hill Dr. Austin, TX 78738	Latitude:	30° 20' 12" N
		Longitude:	098° 00' 14" W
Well County:	Travis	Elevation:	1102 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **11/25/2014** Drilling End Date: **11/26/2014**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	10	0	10
	8	10	20
	6.75	20	870

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	50	8 cement

Seal Method: **slurry & pour**

Sealed By: **Steve Stewart**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Pitless Adapter Used**

Water Level: **605 ft. below land surface on 2014-12-01** Measurement Method: **Unknown**

Packers: **neoprene 50, 400, 700, 705, 745, 750**

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Jetted** Yield: **40 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair** License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	topsoil
2	15	tan caliche
15	29	tan limestone
29	45	gray limestone
45	60	tan limestone
60	295	gray limestone
295	340	tan & gray limestone
340	380	gray limestone
380	390	white gypsum
390	490	gray limestone
490	580	tan & gray limestone wb 2.5 gpm
580	630	gray clay
630	660	gray sandstone
660	710	gray clay
710	730	gray limestone
730	770	red sandstone wb
770	870	red/tan sandston wb 40 gpm 1800 tds

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
4.5	new	sdr-17	0 790
4.5	new	perf	790 870

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #388346

Owner: **Sellers** Owner Well #: **No Data**
Address: **4000 peak lookout dr
Austin, TX 78738** Grid #: **58-41-4**
Well Location: **4000 peaklook dr
austin, TX 78738** Latitude: **30° 19' 01" N**
Longitude: **097° 58' 00" W**
Well County: **Travis** Elevation: **No Data**

****Plugged Within 48 Hours****

****This well has been plugged****

Plugging Report Tracking #149257

Type of Work: **New Well** Proposed Use: **Closed-Loop Geothermal**

Drilling Start Date: **12/22/2014** Drilling End Date: **12/30/2014**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	4.5	0	300

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	20	300	Gravel	3/8

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	3 bentonite

Seal Method: **Poured**

Distance to Property Line (ft.): **20**

Sealed By: **Anthony Sarris**

Distance to Septic Field or other
concentrated contamination (ft.): **100 plus**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **owner**

Surface Completion: **Alternative Procedure Used**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **Unknown**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Sarris Drilling**
p o box 18716
Austin, TX 78760

Driller Name: **Anyhony Sarris** License Number: **58870**

Comments: **drillrd 10 new closed loop geothermal wells 0-300**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	10	clay
10	300	grey shale

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
1 inch new polyethylene pipe 0- 300			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #392286

Owner: **Destiny Hills Development**

Owner Well #: **No Data**

Address: **6801 Destiny Hills Dr.
Austin, TX 78738**

Grid #: **57-48-6**

Well Location: **6801 Destiny Hills Dr.
Austin, TX 78738**

Latitude: **30° 18' 36" N**

Longitude: **098° 00' 55" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **2/9/2015**

Drilling End Date: **2/10/2015**

Borehole:

<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
9	0	100
6.25	100	930

Drilling Method: **Air Rotary**

Borehole Completion: **cased; Straight Wall**

Annular Seal Data:

<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
-1	100	13cmt 3gel

Seal Method: **pressure cemented /
trimmie**

Distance to Property Line (ft.): **20**

Sealed By: **ADC**

Distance to Septic Field or other
concentrated contamination (ft.): **n/a**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **tape**

Surface Completion: **Surface Sleeve Installed**

Water Level: **432 ft. below land surface on 2015-02-10** Measurement Method: **Unknown**

Packers: **burlap,plastic,rubber @ 810,805,790,100**

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Jetted** **Yield: 25-30 GPM**

Plug Information:

<i>Description (number of sacks & material)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
n/a		

Water Quality:

Strata Depth (ft.)	Water Type
750-930	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc.**
PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit** License Number: **4064**

Comments: **Fire Protection Water Source**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	5	white caliche
5	25	tan lime and clay
25	490	gray lime
490	515	tan lime
515	630	tan and white limestone
630	690	gray and white limestone
690	710	gray lime and shale
710	750	tan limestone
750	890	red sandstone
890	910	multi colored limestones (gravel)
910	930	yellow limestone and clay

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
5 od	new	sdr17 pvc	-3 to 810
5 od	new	sdr17 pvc (.032)	screen 810 to 910
5 od	new	sdr17 pvc	910 to 930

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #396942

Owner:	Steve Cokins	Owner Well #:	No Data
Address:	805 Brooks Hollow Rd Austin, TX 78734	Grid #:	58-41-4
Well Location:	16200 Shane Landon Ct. Austin, TX 78734	Latitude:	30° 19' 42" N
Well County:	Travis	Longitude:	097° 59' 36" W
		Elevation:	1090 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **4/29/2015** Drilling End Date: **5/12/2015**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	7.875	0	860

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	91	19 cement
	91	100	4 Bentonite

Seal Method: **Pos. Displacement**

Distance to Property Line (ft.): **30**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **Measured**

Surface Completion: **Pitless Adapter Used**

Water Level: **543 ft. below land surface on 2015-05-11** Measurement Method: **Unknown**

Packers:

- Shale Packer 103
- 6Mil Poly 105
- Shale Packer 117
- 6Mil Poly 120
- 6Mil Poly 600
- Shale Packer 680
- 6Mil Poly 685
- Shale Packer 695
- 6Mil Poly 700

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Jetted** **Yield: 10 GPM**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	740/840	Good

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **Unknown**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Whisenant & Lyle Water Services**
 PO Box 525
 Dripping Springs, TX 78620

Driller Name: **Martin Lingle** License Number: **54813**

Comments: **No Data**

Lithology:	Casing:
DESCRIPTION & COLOR OF FORMATION MATERIAL	BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description	Dia. (in.)	New/Used	Type	Setting From/To (ft.)
0	1	Topsoil	4.5	New	SDR 17	+2/740
1	20	Clay	4.5	New	SDR 17 Slotted	740/840 .035
20	21	Gray limestone	Open Hole			840/860
21	59	Brown limestone				
59	357	Gray limestone				
357	360	Dark gray limestone				
360	401	Gray limestone				
401	416	Tan limestone				
416	420	Gray limestone				
420	438	Tan gray limestone				
438	510	Tan limestone				
510	520	Gray limestone				
520	577	Brown limestone				
577	615	Gray white limestone				
615	635	Gray limestone				

635	680	Gray clay
680	720	Tan brown limestone
720	740	Red sandstone
740	855	Conglomerate
855	860	Blue shale

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #411492

Owner:	Paul Beavers	Owner Well #:	No Data
Address:	17003 Flintrock Rd. Austin, TX 78738	Grid #:	57-48-3
Well Location:	17003 Flintrock Rd. Austin, TX 78738	Latitude:	30° 20' 00.91" N
Well County:	Travis	Longitude:	098° 00' 02.68" W
		Elevation:	1000 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **11/5/2015** Drilling End Date: **11/6/2015**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	10	0	9
	8.5	9	20
	6.75	20	780

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	50	Cement 7 Bags/Sacks

Seal Method: **Poured**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Pitless Adapter Used**

Surface Completion by Driller

Water Level: **525 ft. below land surface on 2015-11-09** Measurement Method: **Electric Line**

Packers: **Rubber at 50 ft.
Rubber at 650 ft.
Rubber at 655 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **610**

Well Tests: **Jetted** Yield: **27 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair**License Number: **54416**Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	9	Tan Lime/Caliche
9	110	Grey Lime
110	130	Grey & Tan Sand
130	330	Grey Sand
330	410	Grey And Tan Sand
410	450	Brown Lime
450	490	Grey Lime
490	510	Tan Lime
510	530	Dark Gray Lime
530	570	Gray and Tan Sand
570	640	Hammett
640	690	Red Sand W/B 650-670
690	750	Trinity Mix W/B 690-710
750	760	Trinity Mix w/ Gravel W/B 27gpm 2000TDS
760	780	Trinity Mix

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	SDR-17	-2	700
4.5	Perforated or Slotted	New Plastic (PVC)	SDR-17	700	780

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #415072

Owner: **Bee Creek Stable LP**
Address: **4900 Bee Creek Rd
Spicewood, TX 78669**
Well Location: **4900 Bee Creek Rd
Spicewood, TX 78669**
Well County: **Travis**

Owner Well #: **No Data**
Grid #: **57-48-3**
Latitude: **30° 20' 17" N**
Longitude: **098° 01' 41" W**
Elevation: **No Data**

Type of Work: **Test Well**

Proposed Use: **Public Supply**

Drilling Start Date: **12/18/2015**

Drilling End Date: **1/19/2016**

Plans Approved by TCEQ - **NO**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	471

Drilling Method: **Air Rotary**

Borehole Completion: **Open Hole**

Annular Seal Data: **No Data**

Seal Method: **Temporary 10' Plug 360' -
350'**

Sealed By: **Driller**

Distance to Property Line (ft.): **150+**

Distance to Septic Field or other
concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **150+**

Method of Verification: **Land Owner**

Surface Completion: **Temp Test Well Comp.**

Surface Completion by Driller

Water Level: **No Data**

Packers: **Neoprene at 360 ft.**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 27 GPM with 25' ft. drawdown after 4.5 hours**

Water Quality:

Strata Depth (ft.)	Water Type
360 - 471	Middle Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

The driller did certify that while drilling, deepening or otherwise altering the above described well, injurious water or constituents was encountered and the landowner or person having the well drilled was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P.O. Box 867
Marble Falls, TX 78654

Driller Name: **Andrew Jackson Johnson** License Number: **54989**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	27	Tan LS
27	200	Gray Tan LS
200	207	White Anhydrite
207	471	VOID Lost Returns

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	360

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #417051

Owner: **Weldon Graham**

Owner Well #: **No Data**

Address: **1905 Univerisity Club Dr.
Austin , TX 78732**

Grid #: **58-41-4**

Well Location: **4305 Hennig Dr
Austin, TX 78738**

Latitude: **30° 19' 48" N**

Longitude: **097° 59' 37" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **2/25/2016**

Drilling End Date: **2/25/2016**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8	0	20
	6.25	20	885

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	30	Portland 6 Bags/Sacks

Seal Method: **Slurry**

Distance to Property Line (ft.): **50+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Land Owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **Burlap/Neoprene at 30 ft.
Burlap/Neoprene at 40 ft.
Burlap/Neoprene at 700 ft.
Burlap/Neoprene at 710 ft.
Burlap/Neoprene at 720 ft.
Burlap/Neoprene at 725 ft.
Burlap/Neoprene at 740 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: NA GPM**

Water Quality:

Strata Depth (ft.)	Water Type
700 - 879	L. Trinity TDS- NA

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

The driller did certify that while drilling, deepening or otherwise altering the above described well, injurious water or constituents was encountered and the landowner or person having the well drilled was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P.O. Box 867
Marble Falls, TX 78654

Driller Name: **Andrew Jackson Johnson**

License Number: **54989**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	35	Tan LS
35	350	Tan Gray LS
350	400	Lost Returns
400	515	Smooth Soft
515	525	Smooth Hard
638	662	Soft Clay
662	665	Hard Clay
665	673	Soft Clay
673	879	Hard Choppy
879	885	Soft

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	805
4.5	Screen	New Plastic (PVC)	.035	805	825
4.5	Blank	New Plastic (PVC)	SDR17	825	845
4.5	Screen	New Plastic (PVC)	.035	845	885

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #421075

Owner: **Bee Creek Stable LP**
Address: **4900 Bee Creek Rd
Spicewood , TX 78669**
Well Location: **4900 Bee Creek Rd
Spicewood, TX 78669**
Ref: Test Well 415072
Well County: **Travis**

Owner Well #: **No Data**
Grid #: **57-48-3**
Latitude: **30° 20' 17" N**
Longitude: **098° 01' 41" W**
Elevation: **No Data**

Type of Work: **Completion**

Proposed Use: **Domestic**

Drilling Start Date: **3/28/2016**

Drilling End Date: **4/1/2016**

Borehole:	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
	11.625	0	390
	8	390	465

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
	0	390	Portland 146 Bags/Sacks
	190	207	Bentonite 16 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **150+**

Distance to Septic Field or other
concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **150+**

Method of Verification: **Land Owner**

Surface Completion: **7" x 7' Slab**

Surface Completion by Driller

Water Level: **No Data**

Packers: **Neoprene at 388 ft.
Neoprene at 389 ft.
Neoprene at 390 ft.**

Type of Pump: **No Data**

Well Tests: **Pump** **No Test Data Specified**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
390 - 465	Middle Trinity

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P.O. Box 867
Marble Falls, TX 78654

Driller Name: **Andrew Jackson Johnson** License Number: **54989**

Comments: **16 Bags 3/8" Bentonite Chips placed over lost circulation zone. 207-190**
TDS 2200, Land Owner is aware of TDS Levels, Owner has engineered plans to blend water with portable source.

Report Amended on 5/17/2016 by Request #17832

Report Amended on 5/18/2016 by Request #17845

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	Top Soil
1	27	Tan LS
27	200	Gray Tan LS
200	207	White Anhydrite
207	471	VOID Lost Returns

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
6.25	Blank	New SDR17	SCR17	2	390

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #425672

Owner:	Ash Creek Homes	Owner Well #:	No Data
Address:	PO Box 341749 Austin, TX 78734	Grid #:	58-41-4
Well Location:	16105 Rockies Run Summit Austin, TX 78738	Latitude:	30° 19' 07.17" N
		Longitude:	097° 59' 53.44" W
Well County:	Travis	Elevation:	1137 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: 5/24/2016 Drilling End Date: 5/25/2016

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	10	0	10
	6.75	10	925

Drilling Method: Air Rotary

Borehole Completion: Perforated or Slotted

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	30	Cement 10 Bags/Sacks
	30	50	Bentonite 3 Bags/Sacks

Seal Method: Poured

Sealed By: Driller

Distance to Property Line (ft.): No Data

Distance to Septic Field or other
concentrated contamination (ft.): No Data

Distance to Septic Tank (ft.): No Data

Method of Verification: No Data

Surface Completion: Surface Sleeve Installed

Surface Completion by Driller

Water Level: No Data

Packers: Rubber at 50 ft.
Rubber at 800 ft.
Rubber at 805 ft.

Type of Pump: No Data

Well Tests: Jetted Yield: 25 GPM

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
800 - 925	Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair**

License Number: **54416**

Comments: **we have not set the pump yet.**

Report Amended on 7/8/2016 by Request #18197

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	5	topsoil & loose rock
5	40	tan limestone
40	470	gray limestone
470	540	tan limestone
540	690	gray limestone
690	800	shale & clay
800	925	trinity sandstone & gravel

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	sdr-17	0	825
4.5	Perforated or Slotted	New Plastic (PVC)	sdr-17	825	925

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #438988

Owner:	JENKINS CUSTOM HOMES	Owner Well #:	No Data
Address:	3813 JUNIPER TRACE, STE. 100 BEE CAVES, TX 78738	Grid #:	58-41-4
Well Location:	16409 SHANE LANDON CT. AUSTIN, TX 78738	Latitude:	30° 19' 40.2" N
Well County:	Travis	Longitude:	097° 59' 39.84" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: 10/11/2016 Drilling End Date: 10/11/2016

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	100
	6.5	100	860

Drilling Method: Air Rotary

Borehole Completion: CASED

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	100	CEMENT TYPE H 14 Bags/Sacks
	0	100	Bentonite 4 Bags/Sacks

Seal Method: Pressure

Sealed By: Driller

Distance to Property Line (ft.): 20

Distance to Septic Field or other
concentrated contamination (ft.): N/A

Distance to Septic Tank (ft.): N/A

Method of Verification: TAPE MEASURE

Surface Completion: Surface Sleeve Installed

Surface Completion by Driller

Water Level: 606 ft. below land surface on 2016-10-20 Measurement Method: Electric Line

Packers: BURLAP & PVC at 101 ft.
BURLAP & PVC at 620 ft.
BURLAP & PVC at 640 ft.
BURLAP & PVC at 660 ft.
BURLAP & PVC at 680 ft.

Type of Pump: Submersible

Pump Depth (ft.): 700

Well Tests: Jetted Yield: N/A GPM

Water Quality:

Strata Depth (ft.)	Water Type
600 - 780	LOWER TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **MARTIN DALE LINGLE, JR.**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOP SOIL
1	15	BROWN LIMESTONE
15	340	GRAY LIMESTONE
340	350	DARK GRAY LIMESTONE
350	385	GRAY LIMESTONE
385	410	BROWN LIMESTONE
410	590	GRAY/TAN LIMESTONE
590	630	TAN LIMESTONE
630	635	TAN/GRAY LIMESTONE
635	660	CLAY HAMMETT
660	675	CLAY HAMMETT W/RED CLAY
675	695	GRAY LIMESTONE
695	800	SANDSTONE

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR17	3	800
5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.032	600	780

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #460445

Owner:	Steven Cox	Owner Well #:	No Data
Address:	2281 270th Ct SE Sammamish, WA 98075	Grid #:	57-48-3
Well Location:	17000 Majestic Ridge Lakeway, TX 78738	Latitude:	30° 20' 46.1" N
Well County:	Travis	Longitude:	098° 00' 24.4" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **10/4/2016** Drilling End Date: **10/11/2016**

Borehole:	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
	9	0	20
	8	20	101
	6.5	101	890

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
	0	101	Cement 22 Bags/Sacks

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **109**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **tape measure**

Surface Completion: **Surface Sleeve Installed**

Water Level: **490 ft. below land surface on 2016-10-11**

Packers: **shale trap at 810 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **600**

Well Tests: **Estimated** Yield: **10 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

The driller did certify that while drilling, deepening or otherwise altering the above described well, injurious water or constituents was encountered and the landowner or person having the well drilled was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **TOM ARNOLD DRILLING**
2750 SOUTH A. W. GRIMES BLVD
ROUND ROCK, TX 78664

Driller Name: **Tommy D Arnold**License Number: **2096**Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	top soil & loose rock
1	13	yellow limestone
13	44	gray limestone
44	51	blue limestone
51	160	gray limestone
160	177	brown limestone
177	201	gray limestone
201	209	gray limestone
209	350	gray limestone
350	352	fractures
352	510	gray limestone (partial drill returns)
510	890	no drill returns

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5		New Plastic (PVC)		0	890
4.5	Screen	New Plastic (PVC)	0.032	810	870

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #463219

Owner:	Lake Travis ISD	Owner Well #:	No Data
Address:	Vail Divide Bee Cave , TX 78738	Grid #:	58-41-4
Well Location:	Vail Divide Bee Cave, TX 78738	Latitude:	30° 18' 48.81" N
Well County:	Travis	Longitude:	097° 59' 53.24" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Closed-Loop Geothermal

Drilling Start Date: 9/18/2017 Drilling End Date: 9/18/2017

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	4.75	0	300

Drilling Method: Air Rotary

Borehole Completion: Plugged

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	30	Bentonite 10 Bags/Sacks
	30	300	Dry Cuttings

Seal Method: Dry cuttings and Hole Plug

Distance to Property Line (ft.): 500

Sealed By: Driller

Distance to Septic Field or other
concentrated contamination (ft.): 1000+

Distance to Septic Tank (ft.): 1000+

Method of Verification: Laser

Surface Completion: Alternative Procedure Used

Surface Completion by Driller

Water Level: No Data

Packers: No Data

Type of Pump: No Data

Well Tests: No Test Data Specified

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

The driller did certify that while drilling, deepening or otherwise altering the above described well, injurious water or constituents was encountered and the landowner or person having the well drilled was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Ball Drilling Company**
PO Box 3011
Marble Falls, TX 78654

Driller Name: **Joseph C. Hart** License Number: **59548**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	Clay
2	10	White Limestone
10	21	Tan Limestone
21	92	Grey Limestone
93	300	Grey Limestone with Hard Layers

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
No Data			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #463997

Owner:	Michael Macs	Owner Well #:	No Data
Address:	17730 Serene Hills Pass Austin, TX 78738	Grid #:	57-48-3
Well Location:	17730 Serene Hills Pass Austin, TX 78738	Latitude:	30° 20' 27.9" N
Well County:	Travis	Longitude:	098° 00' 16.6" W
		Elevation:	1098 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/5/2017**

Drilling End Date: **9/13/2017**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	10	0	10
	6.75	10	888

Drilling Method: **Air Rotary**

Borehole Completion: **Perforated or Slotted**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	20	Cement 4 Bags/Sacks
	20	25	Bentonite 2 Bags/Sacks

Seal Method: **Poured**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **587 ft. below land surface on 2017-09-16**

Packers: **Rubber at 25 ft.
Rubber at 510 ft.
Rubber at 730 ft.
Rubber at 735 ft.
Rubber at 740 ft.**

Type of Pump: **Submersible**

Pump Depth (ft.): **800**

Well Tests: **Jetted** **Yield: 18 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair**

License Number: **54416**

Comments: **tds 875**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	topsoil
1	13	caliche
13	287	gray limestone
287	315	gray limestone w/ shale stringers
315	385	gray limestone
385	575	grey & tan rock
575	650	white & tan rock
650	740	grey limestone
740	820	red sandstone
820	880	red sandstone & conglomerate
880	888	grey shale & clay

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	sdr-17	0	828
4.5	Perforated or Slotted	New Plastic (PVC)	sdr-17	828	888

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #464009

Owner:	Doug & Dianne Webb	Owner Well #:	2
Address:	4008 Pawnee Pass Austin, TX 78738	Grid #:	58-41-4
Well Location:	4008 Pawnee Pass Austin, TX 78738	Latitude:	30° 19' 56.13" N
Well County:	Travis	Longitude:	097° 59' 26.64" W
		Elevation:	986 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/20/2017** Drilling End Date: **9/21/2017**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	10
	6.75	10	828

Drilling Method: **Air Rotary**

Borehole Completion: **Perforated or Slotted**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	30	Cement 6 Bags/Sacks
	30	55	Bentonite 2 Bags/Sacks

Seal Method: **Poured**

Sealed By: **Driller**

Distance to Property Line (ft.): **No Data**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **Pitless Adapter Used**

Surface Completion by Driller

Water Level: **571 ft. below land surface on 2017-09-25**

Packers: **Rubber at 50 ft.
Rubber at 55 ft.
Rubber at 623 ft.
Rubber at 628 ft.**

Type of Pump: **Submersible**

Pump Depth (ft.): **740**

Well Tests: **Jetted Yield: 40+ GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair**

License Number: **54416**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	topsoil
1	8	caliche
8	495	gray limestone
495	560	tan limestone
560	610	clay
610	640	tan limestone
640	660	tan sandstone wb 15 gpm
660	828	red sandstone wb

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	sdr-17	0	748
4.5	Perforated or Slotted	New Plastic (PVC)	sdr-17	748	808

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #474018

Owner:	STEVE HARREN	Owner Well #:	No Data
Address:	6836 BEE CAVES BLDG. 3, STE. 302 AUSTIN, TX 78746	Grid #:	58-41-4
Well Location:	14425 FALCON HEAD BLVD. AUSTIN, TX 78738	Latitude:	30° 19' 22.8" N
Well County:	Travis	Longitude:	097° 57' 31.74" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **1/5/2018**

Drilling End Date: **1/5/2018**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	9	0	100
	6.125	100	870

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	100	TYPE H CEMENT 12 Bags/Sacks
	0	100	QUICK GEL 2 Bags/Sacks

Seal Method: **Pressure**

Distance to Property Line (ft.): **40**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **TAPE
MEASURE/OWNER**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **600 ft. below land surface on 2018-01-05** Measurement Method: **Electric Line**

Packers: **Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 600 ft.
BURLAP & PLASTIC at 700 ft.
BURLAP & PLASTIC at 750 ft.
BURLAP & PLASTIC at 770 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Jetted** Yield: **30 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
770 - 870	LOWER TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**

**2520 Hwy. 290 West
Dripping Springs, TX 78620**

Driller Name: **MARTIN DALE LINGLE**

License Number: **54813**

Comments: **No Data**

Report Amended on 4/2/2018 by Request #24752

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	TOP SOIL
3	8	BROWN LIMESTONE
8	10	BLUE LIMESTONE
10	18	BROWN LIMESTONE
18	160	GRAY LIMESTONE
160	210	GRAY/TAN LIMESTONE
210	270	TAN LIMESTONE
270	280	GRAY LIMESTONE
280	290	DARK GRAY LIMESTONE
290	300	WHITE LIMESTONE
300	420	TAN/GRAY LIMESTONE
420	510	TAN LIMESTONE
510	530	TAN/BLACK LIMESTONE (COW CREEK)
530	550	TAN/BLACK LIMESTONE (COW CREEK)
550	570	GRAY CLAY

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR17	2	770
5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.032	770	870

570	590	GRAY CLAY W/LIMESTONE
590	610	GRAY CLAY W/LIMESTONE
610	630	GRAY LIMESTONE
630	650	BROWN SANDSTONE
650	670	BROWN SANDSTONE
670	690	RED SANDSTONE W/GRAVEL
690	710	BROWN/TAN LIMESTONE
710	730	RED/WHITE/TAN/BROWN LIMESTONE
730	750	RED SANDSTONE
750	770	RED SANDSTONE W/GRAVEL
770	790	GRAVEL
790	810	GRAVEL
810	830	GRAVEL W/SAND
830	850	GRAVEL W/BROWN SANDSTONE
850	870	BROWN/WHITE CLAY

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #482411

Owner:	C&A Builders	Owner Well #:	1
Address:	1100 Lakeway Dr. Suite 200 Lakeway, TX 78734	Grid #:	58-41-4
Well Location:	3711 Pawnee Pass South Austin, TX 78738	Latitude:	30° 19' 45.13" N
Well County:	Travis	Longitude:	097° 58' 37.16" W
		Elevation:	1124 ft. above sea level

Type of Work:	New Well	Proposed Use:	Domestic
---------------	-----------------	---------------	-----------------

Drilling Start Date: **5/23/2018** Drilling End Date: **5/28/2018**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	10	0	8
	8.5	8	960

Drilling Method: **Air Rotary**

Borehole Completion: **Perforated or Slotted**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	20	Cement 6 Bags/Sacks
	20	50	Bentonite 5 Bags/Sacks

Seal Method: **Poured**

Sealed By: **Driller**

Distance to Property Line (ft.): **52**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion:	Pitless Adapter Used	Surface Completion by Driller
---------------------	-----------------------------	--------------------------------------

Water Level: **762 ft. below land surface on 2018-05-30**

Packers:

- Rubber at 50 ft.**
- Rubber at 55 ft.**
- Rubber at 520 ft.**
- Rubber at 525 ft.**
- Rubber at 760 ft.**
- Rubber at 765 ft.**
- Rubber at 775 ft.**
- Rubber at 780 ft.**

Type of Pump: **Submersible**

Pump Depth (ft.): **860**

Well Tests: **Pump**

Yield: 8+ GPM

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Dr.
Dripping Springs, TX 78620

Driller Name: **Jim Blair**

License Number: **54416**

Comments: **well does not pump off at 8 gpm pump test.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	topsoil & loose rock
1	20	tan limestone
20	580	gray limestone
580	590	gray sandstone (lost returns)
590	660	clay?
660	960	no returns

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
5	Blank	New Plastic (PVC)	sch. 80	0	860
5	Perforated or Slotted	New Plastic (PVC)	sch. 80	860	960

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #488707

Owner:	Marc Dodge	Owner Well #:	No Data
Address:	17119 Majestic Ridge Road Austin, TX 78738	Grid #:	58-41-1
Well Location:	17119 Majestic Ridge Road Austin, TX 78738	Latitude:	30° 20' 15.3" N
Well County:	Travis	Longitude:	097° 59' 58.5" W
		Elevation:	1070 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **8/21/2018** Drilling End Date: **8/21/2018**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	50
	6.25	50	910

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	-1	50	6 cement 2 benseal Bags/Sacks

Seal Method: **Slurry**

Sealed By: **Driller**

Distance to Property Line (ft.): **52**

Distance to Septic Field or other
concentrated contamination (ft.): **none**

Distance to Septic Tank (ft.): **none**

Method of Verification: **owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **522 ft. below land surface on 2018-08-21** Measurement Method: **Sonic/Radar**

Packers: **Burlap at 50 ft.
burlap and plastic at 410 ft.
burlap and plastic at 730 ft.
burlap and plastic at 750 ft.**

Type of Pump: **Submersible**

Well Tests: **Estimated Yield: 5 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
750 - 910	lower trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc**
PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit** License Number: **4064**

Comments: **Drilled for Glass Well Service**
SB

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	15	white calachie
15	475	blue lime
475	540	tan lime
540	630	grey lime
630	670	grey shale
670	725	tan grey limestone
725	760	red grey sandstone
760	770	red white sandstone, H2O
770	850	red sandstone
850	870	yellow tan limestone, H2O
870	895	grey limestone
895	910	blue shale

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	-3	750
4.5	blank/screen/stag	New Plastic (PVC)	SDR17 0.020	750	910

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #488880

Owner:	ALLAN STARK	Owner Well #:	No Data
Address:	16327 FLINT ROCK RD. AUSTIN, TX 78738	Grid #:	58-41-4
Well Location:	16327 FLINT ROCK RD. AUSTIN, TX 78738	Latitude:	30° 19' 30.91" N
Well County:	Travis	Longitude:	097° 59' 25.69" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **7/2/2018**

Drilling End Date: **7/2/2018**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	100
	6.125	100	895

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	100	TYPE H CEMENT 14 Bags/Sacks
	0	100	Bentonite 2 Bags/Sacks

Seal Method: **Pressure**

Distance to Property Line (ft.): **15**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **150**

Distance to Septic Tank (ft.): **150**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **699 ft. below land surface on 2018-07-12** Measurement Method: **Electric Line**

Packers: **Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 650 ft.
BURLAP & PLASTIC at 670 ft.
BURLAP & PLASTIC at 690 ft.
BURLAP & PLASTIC at 785 ft.**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 10 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
785 - 885	LOWER TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **MARTIN DALE LINGLE**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	15	CALICHE
15	17	BLUE LIMESTONE
17	40	BROWN LIMESTONE
40	160	GRAY LIMESTONE
160	180	TAN LIMESTONE
180	340	GRAY/TAN LIMESTONE
340	475	TAN LIMESTONE
475	650	TAN/GRAY LIMESTONE
650	690	GRAY CLAY
690	775	BROWN & RED LIMESTONE
775	815	RED SAND
815	835	SAND
835	855	SAND & GRAVEL
855	885	SAND
885	895	BROWN CLAY

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR17	2	785
5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.032	785	885
5	Blank	New Plastic (PVC)	SDR17	885	895

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #499789

Owner:	MARK NORRIS	Owner Well #:	No Data
Address:	327 HURST CREEK RD. LAKEWAY , TX 78734	Grid #:	58-41-4
Well Location:	4404 HENNIG DRIVE AUSTIN, TX 78738	Latitude:	30° 19' 45" N
Well County:	Travis	Longitude:	097° 59' 37.32" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **10/29/2018** Drilling End Date: **10/29/2018**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.125	100	910

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	Cement 14 Bags/Sacks
	0	100	Bentonite 2 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **20**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **641 ft. below land surface on 2018-10-31** Measurement Method: **Electric Line**

Packers: **Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 590 ft.
BURLAP & PLASTIC at 630 ft.
BURLAP & PLASTIC at 650 ft.
BURLAP & PLASTIC at 700 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **725**

Well Tests: **Jetted** **Yield: 20+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
810 - 890	TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **MARTIN DALE LINGLE**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	18	TAN/BROWN LIMESTONE
18	50	BLUE LIMESTONE
50	320	GRAY LIMESTONE
320	400	GRAY/TAN LIMESTONE
400	590	BROWN/TAN LIMESTONE
590	650	GRAY CLAY
650	670	GRAY LIMESTONE
670	690	GRAY LIMESTONE
690	710	RED SANDSTONE & GRAY SANDSTONE
710	730	RED SANDSTONE
730	750	RED/BROWN SAND
750	770	GRAY/RED SANDSTONE
770	790	TAN/BROWN LIMESTONE
790	810	RED/BROWN SANDSTONE
810	830	RED SANDSTONE W/MULTICOLORED
830	850	RED SANDSTONE W/MULTICOLORED

Dia. (in.)	New/Used	Type	Setting From/To (ft.)
No Data			

850	870	GRAVEL
870	890	GRAVEL
890	910	BLUE CLAY

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #499853

Owner:	Lake Travis Independent School District	Owner Well #:	No Data
Address:	16101 West SH 71 Austin, TX 78738	Grid #:	58-41-4
Well Location:	16101 West SH 71 Austin, TX 78738	Latitude:	30° 18' 39.07" N
Well County:	Travis	Longitude:	097° 59' 54.65" W
Number of Wells Drilled:	410	Elevation:	1065 ft. above sea level
Type of Work:	New Well	Proposed Use:	Closed-Loop Geothermal

Drilling Start Date: 2/14/2018 Drilling End Date: 12/21/2018

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	4.75	0	300

Drilling Method: Air Rotary

Borehole Completion: Crushed Limestone 30 to 300

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	30	Bentonite 3 Bags/Sacks

Seal Method: Poured

Sealed By: Driller

Distance to Property Line (ft.): 400

Distance to Septic Field or other
concentrated contamination (ft.): 150+

Distance to Septic Tank (ft.): None

Method of Verification: Laser

Surface Completion: Alternative Procedure Used Surface Completion by Driller

Water Level: No Data

Packers: No Data

Type of Pump: No Data

Well Tests: No Test Data Specified

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Ball Drilling Company**
PO Box 3011
Marble Falls, TX 78654

Driller Name: **Joseph C. Hart** License Number: **59548**

Comments: **These are closed loop geothermal wells. No water was encountered, no pumps were installed**

410 Closed loop wells

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	15	Brown Clay
15	25	Tan Limestone
25	52	Blue Limestone
52	300	Grey Limestone

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
1	Geothermal Loop	New Polyethylene Loop	SDR 11	4	300

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #500733

Owner:	HAGY CUSTOM HOMES	Owner Well #:	No Data
Address:	31872 Ranch Rd. 12 Dripping Springs, TX 78620	Grid #:	57-48-6
Well Location:	17136 WHISPERING BREEZE DRIVE AUSTIN, TX 78738	Latitude:	30° 18' 32.58" N
Well County:	Travis	Longitude:	098° 00' 57.9" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: 11/5/2018 Drilling End Date: 11/5/2018

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	100
	6.125	100	650

Drilling Method: Air Rotary

Borehole Completion: Straight Wall

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	100	Cement 14 Bags/Sacks
	0	100	Bentonite 2 Bags/Sacks

Seal Method: Pressure

Sealed By: Driller

Distance to Property Line (ft.): 40

Distance to Septic Field or other
concentrated contamination (ft.): N/A

Distance to Septic Tank (ft.): N/A

Method of Verification: OWNER

Surface Completion: Surface Sleeve Installed Surface Completion by Driller

Water Level: 442 ft. below land surface on 2018-11-05 Measurement Method: Electric Line

Packers: Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 300 ft.
BURLAP & PLASTIC at 400 ft.
BURLAP & PLASTIC at 500 ft.
BURLAP & PLASTIC at 590 ft.

Type of Pump: Submersible Pump Depth (ft.): 600

Well Tests: Jetted Yield: 40 GPM

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
580 - 640	MIDDLE TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **Martin Dale Lingle**

License Number: **54813**

Comments: **No Data**

Report Amended on 2/1/2019 by Request #27034

Report Amended on 2/11/2019 by Request #27141

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	TOP SOIL
1	37	CALICHE
37	40	BLUE LIMESTONE
40	60	BROWN LIMESTONE
60	215	GRAY LIMESTONE
215	375	TAN/GRAY LIMESTONE
375	400	BROWN/GRAY LIMESTONE
400	430	GRAY LIMESTONE W/CLAY
430	450	TAN LIMESTONE
450	510	GRAY LIMESTONE
510	590	TAN/BROWN LIMESTONE
590	610	WHITE LIMESTONE
610	630	WHITE LIMESTONE
630	640	WHITE/BROWN/GRAY LIMESTONE

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
5	Blank	New Plastic (PVC)	SDR17	2	580
5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.32	580	640
5	Blank	New Plastic (PVC)	SDR17	640	650

640	650	CLAY
-----	-----	------

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #502232

Owner:	JORGE HERRERO	Owner Well #:	No Data
Address:	7100 DESTINY HILLS AUSTIN, TX 78738	Grid #:	57-48-6
Well Location:	7100 DESTINY HILLS DRIVE AUSTIN, TX 78738	Latitude:	30° 18' 59.94" N
Well County:	Travis	Longitude:	098° 00' 50.22" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **12/13/2018** Drilling End Date: **12/13/2018**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.125	100	630

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	Cement 13 Bags/Sacks
	0	100	QUICK GEL 2 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **25**

Distance to Septic Field or other
concentrated contamination (ft.): **50+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **207 ft. below land surface on 2018-12-13** Measurement Method: **Electric Line**

Packers: **Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 500 ft.
BURLAP & PLASTIC at 520 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **600**

Well Tests: **Jetted** **Yield: 25+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
530 - 630	MIDDLE TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **MARTIN DALE LINGLE**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	23	CALICHE
23	25	BLUE LIMESTONE
25	250	GRAY/TAN LIMESTONE
250	300	GRAY LIMESTONE W/FRACTURE
300	390	GRAY LIMESTONE W/CLAY
390	410	TAN & GRAY LIMESTONE
410	430	GRAY LIMESTONE W/CLAY
430	490	TAN/BROWN LIMESTONE
490	610	TAN/BROWN LIMESTONE
610	615	GRAY/TAN LIMESTONE
615	630	GRAY CLAY

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR17	2	530
5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.032	530	630

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #508384

Owner:	Lake Travis ISD	Owner Well #:	No Data
Address:	16101 TX Hwy 71 West Austin, TX 78738	Grid #:	58-41-4
Well Location:	16101 TX Hwy 71 West Austin, TX 78738	Latitude:	30° 18' 41.18" N
Well County:	Travis	Longitude:	097° 59' 51.51" W
Number of Wells Drilled:	410	Elevation:	1087 ft. above sea level
Type of Work:	New Well	Proposed Use:	Closed-Loop Geothermal

Drilling Start Date: **2/14/2018** Drilling End Date: **3/1/2019**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	4.75	0	300

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	30	300	Gravel	3/8ths with fines

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	30	Bentonite 3 Bags/Sacks

Seal Method: **Poured**

Sealed By: **Driller**

Distance to Property Line (ft.): **500+**

Distance to Septic Field or other
concentrated contamination (ft.): **None**

Distance to Septic Tank (ft.): **None**

Method of Verification: **Laser**

Surface Completion: **Alternative Procedure Used** **Surface Completion by Driller**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Ball Drilling Company**
P. O. Box 3011
Marble Falls, TX 78654

Driller Name: **Lonnie Ball** License Number: **2298**

Comments: **410 Closed Loop Geothermal Wells**
Some of the wells were drilled by Joseph C. Hart 59548C

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	Caliche
3	24	White Limestone
24	300	Grey Limestone

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
1	Blank	New Polyethylene Loop	SDR 11	5	300

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #511455

Owner:	American Constructors (Lake Travis Middle School)	Owner Well #:	2
Address:	11900 W. Palmer Lane # 200 Cedar Park , TX 78613	Grid #:	58-41-4
Well Location:	5400 Vail Divide Austin, TX 78738	Latitude:	30° 18' 42" N
Well County:	Travis	Longitude:	097° 59' 51" W
Number of Wells Drilled:	2	Elevation:	No Data

Type of Work:	New Well	Proposed Use:	Irrigation
---------------	-----------------	---------------	-------------------

Drilling Start Date: **5/14/2019** Drilling End Date: **5/15/2019**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9.87	0	15
	8	15	600

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	7 Benseal 8 Portland 15 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **50**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **50**

Method of Verification: **Land Owner**

Surface Completion:	Surface Sleeve Installed	Surface Completion by Driller
---------------------	---------------------------------	--------------------------------------

Water Level: **No Data**

Packers: **Burlap/Neoprene at 100 ft.
Burlap/Neoprene at 105 ft.
Burlap/Neoprene at 270 ft.
Burlap/Neoprene at 280 ft.
Burlap/Neoprene at 290 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted Yield: 60-70+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
320 - 580	M. Trinity - TDS 1000

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P.O. Box 867
Marble Falls, TX 78654

Driller Name: **Andrew Jackson Johnson**

License Number: **54989**

Comments: **No Data**

Report Amended on 5/24/2019 by Request #27932

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	2	Fill
2	9	Tan LS
9	140	Gray Tan LS
140	490	Lt Gray LS
490	520	Tan LS
520	589	Tan Gray LS
589	600	Gray LS w/ Clay

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR17	2	320
5	Screen	New Plastic (PVC)	.035	320	340
5	Blank	New Plastic (PVC)	SDR17	340	500
5	Screen	New Plastic (PVC)	.035	500	580
5	Blank	New Plastic (PVC)	SDR17	580	600

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #515470

Owner: **American Contractors (Lake Travis Middle School)**

Owner Well #: **1**

Address: **11900 W. Palmer Lane # 200
Cedar Park , TX 78613**

Grid #: **58-41-4**

Well Location: **5400 Vail Divide
Austin, TX 78738**

Latitude: **30° 18' 40" N**

Longitude: **097° 59' 57" W**

Well County: **Travis**

Elevation: **No Data**

Number of Wells Drilled: **2**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **5/20/2019**

Drilling End Date: **5/21/2019**

Borehole:

<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
9.87	0	15
8.75	15	892

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:

<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
0	100	12 Benseal 5 Portland 17 Bags/Sacks

Seal Method: **Pressure**

Distance to Property Line (ft.): **50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **50**

Method of Verification: **Land Owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **Burlap/Neoprene at 100 ft.
Burlap/Neoprene at 105 ft.
Burlap/Neoprene at 700 ft.
Burlap/Neoprene at 720 ft.
Burlap/Neoprene at 740 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 20-25 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
740 - 880	Lower Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**

**P.O. Box 867
Marble Falls, TX 78654**

Driller Name: **Andrew Jackson Johnson**

License Number: **54989**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	14	Tan LS
14	120	Gray Tan LS
120	490	Tan Lt Gray LS
490	502	Tan LS
502	538	Tan Gray LS
538	553	Tan LS
553	585	Tan Gray LS
585	610	Gray Tan LS w/ Clay
610	642	Gray Clay
642	655	Gray Tan LS w/ Sand
655	780	Red SS
780	810	Gravel
810	846	Chert
846	850	Pink Tan White LS
850	880	Tan Red White LS
880	892	Tan Blue Clay

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR17	2	792
5	Screen	New Plastic (PVC)	.035	792	892

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #518929

Owner: **Larry Williams**

Owner Well #: **No Data**

Address: **1139 Challenger
Lakeway, TX 78734**

Grid #: **57-48-3**

Well Location: **Bee Creek Rd.
Spicewood, TX 78669**

Latitude: **30° 20' 25" N**

Longitude: **098° 01' 43" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **2/18/2019**

Drilling End Date: **2/18/2019**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	20
	6.5	20	450

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	20	Cement 6 Bags/Sacks

Seal Method: **Poured**

Distance to Property Line (ft.): **n/a**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **300**

Distance to Septic Tank (ft.): **n/a**

Method of Verification: **Tape Measure**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **345 ft. below land surface on 2019-02-21**

Packers: **Shale Trap at 20 ft.
Shale Trap at 320 ft.
Shale trap at 338 ft.**

Type of Pump: **Submersible**

Pump Depth (ft.): **400**

Well Tests: **Estimated Yield: 20 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **TOM ARNOLD DRILLING**
2750 SOUTH A. W. GRIMES BLVD
ROUND ROCK, TX 78664

Driller Name: **Tommy D Arnold**

License Number: **2096**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	Topsoil & Loose Rock
1	20	Yellow Limestone
20	28	Blue Limestone
28	43	Yellow Limestone
43	170	Gray Limestone
170	450	No Drill Returns (Lost Circulation)

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)		0	450
	Perforated or Slotted			390	410

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #525033

Owner:	Andrew Brunone	Owner Well #:	No Data
Address:	4408 Hennig Drive Austin , TX 78738	Grid #:	58-41-4
Well Location:	4408 Hennig Drive Austin, TX 78738	Latitude:	30° 19' 43.1" N
Well County:	Travis	Longitude:	097° 59' 36.9" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: 9/4/2019

Drilling End Date: 9/6/2019

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	7.875	0	100
	6.75	100	900

Drilling Method: Air Rotary

Borehole Completion: Straight Wall

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	100	Cement 23 Bags/Sacks

Seal Method: Pressure

Distance to Property Line (ft.): 20

Sealed By: Driller

Distance to Septic Field or other
concentrated contamination (ft.): na

Distance to Septic Tank (ft.): na

Method of Verification: tape

Surface Completion: Pitless Adapter Used

Surface Completion by Driller

Water Level: No Data

Packers:

- Rubber at 100 ft.
- Plastic at 101 ft.
- Rubber at 120 ft.
- Rubber at 340 ft.
- Plastic at 341 ft.
- Rubber at 500 ft.
- Plastic at 501 ft.
- Rubber at 680 ft.
- Plastic at 681 ft.
- Rubber at 700 ft.
- Plastic at 701 ft.

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 10 GPM**

Water Quality:	<i>Strata Depth (ft.)</i>	<i>Water Type</i>
	700 - 900	good

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**
1107 FM 1431 suit 286
Marble Falls, TX 78654

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Justin Bounds**

Comments: **No Data**

Report Amended on 10/25/2019 by Request #29114

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	25	white limestone
25	330	grey limestone
330	510	tan limestone with some grey limestone streaks
510	620	brwon limestone
620	660	clay
660	700	grey lime stone
700	900	red sand stone

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	sdr 17	0	840
4.5	Screen	New Plastic (PVC)	sdr 17 0.032	840	900

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #531625

Owner:	DAVID BABIN	Owner Well #:	No Data
Address:	17212 MAJESTIC RIDGE RD. AUSTIN, TX 78738	Grid #:	57-48-3
Well Location:	17212 MAJESTIC RIDGE RD. AUSTIN, TX 78738	Latitude:	30° 20' 18.48" N
Well County:	Travis	Longitude:	098° 00' 07.74" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: 11/26/2019 Drilling End Date: 11/26/2019

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	100
	6.125	100	890

Drilling Method: Air Rotary

Borehole Completion: Straight Wall

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	100	PORTLAND CEMENT 50 Bags/Sacks

Seal Method: Pressure

Sealed By: Driller

Distance to Property Line (ft.): 50

Distance to Septic Field or other
concentrated contamination (ft.): N/A

Distance to Septic Tank (ft.): N/A

Method of Verification: OWNER

Surface Completion: Surface Sleeve Installed

Surface Completion by Driller

Water Level: No Data

Measurement Method: Electric Line

Packers: Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 400 ft.
BURLAP & PLASTIC at 600 ft.
BURLAP & PLASTIC at 750 ft.
BURLAP & PLASTIC at 770 ft.

Type of Pump: Submersible

Pump Depth (ft.): 700

Well Tests: Jetted Yield: 15 GPM

Water Quality:

Strata Depth (ft.)	Water Type
770 - 870	LOWER TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**

**2520 Hwy. 290 West
Dripping Springs, TX 78620**

Driller Name: **MARTIN DALE LINGLE**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	ROCK
2	18	CALICHE
18	20	BLUE LIMESTONE
20	85	GRAY LIMESTONE
85	210	GRAY/TAN LIMESTONE
210	270	GRAY LIMESTONE
270	300	TAN LIMESTONE
300	340	GRAY LIMESTONE
340	350	WHITE LIMESTONE
350	390	GRAY LIMESTONE
390	420	BROWN LIMESTONE
420	440	GRAY & TAN LIMESTONE
440	600	BROWN LIMESTONE
600	630	GRAY CLAY
630	645	GRAY SAND
645	660	GRAY/RED CLAY
660	670	GRAY SAND
670	690	GRAY/RED SAND

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	770
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.032	770	870
4.5	Blank	New Plastic (PVC)	SDR17	870	890

690	710	RED SANDSTONE
710	730	RED SANDSTONE W/GRAVEL
730	750	CONGLOMERATE
750	770	RED SANDSTONE
770	790	RED SANDSTONE
790	810	GRAVEL/CONGLOMERATE
810	830	GRAVEL/CONGLOMERATE
830	850	GRAVEL/CONGLOMERATE
850	870	GRAVEL/CONGLOMERATE
870	890	BROWN CLAY

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #532064

Owner:	JOHNNY MORROW	Owner Well #:	No Data
Address:	17211 MAJESTIC RIDGE RD. AUSTIN, TX 78738	Grid #:	57-48-3
Well Location:	17211 MAJESTIC RIDGE DRIVE AUSTIN, TX 78738	Latitude:	30° 20' 17.82" N
Well County:	Travis	Longitude:	098° 00' 10.86" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **11/27/2019** Drilling End Date: **11/27/2019**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.125	100	870

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	PORTLAND CEMENT 14 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **10**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **560 ft. below land surface on 2019-12-04** Measurement Method: **Electric Line**

Packers: **Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 400 ft.
BURLAP & PLASTIC at 600 ft.
BURLAP & PLASTIC at 750 ft.
BURLAP & PLASTIC at 770 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **700**

Well Tests: **Jetted** **Yield: 20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
770 - 870	LOWER TRINITY

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.****2520 Hwy. 290 West
Dripping Springs, TX 78620**Driller Name: **MARTIN DALE LINGLE**License Number: **54813**Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	2	ROCK
2	18	CALICHE
18	20	BLUE LIMESTONE
20	85	GRAY LIMESTONE
85	210	GRAY/TAN LIMESTONE
210	270	GRAY LIMESTONE
270	300	TAN LIMESTONE
300	340	GRAY LIMESTONE
340	350	WHITE LIMESTONE
350	390	GRAY LIMESTONE
390	420	BROWN LIMESTONE
420	440	GRAY/TAN LIMESTONE
440	600	BROWN LIMESTONE
600	630	GRAY CLAY
630	645	GRAY SAND
645	660	GRAY/RED CLAY
660	670	GRAY SAND
670	690	GRAY/RED SAND

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	770
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17 0.032	770	870

690	710	RED SANDSTONE
710	730	RED SANDSTONE W/GRAVEL
730	750	COLOR
750	770	RED SANDSTONE
770	790	RED SANDSTONE SAND
790	810	GRAVEL COLOR LIMESTONE
810	830	GRAVEL COLOR LIMESTONE
830	850	GRAVEL COLOR LIMESTONE
850	870	GRAVEL COLOR LIMESTONE

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #548936

Owner:	Eddie Dick	Owner Well #:	No Data
Address:	7005 Destiny Hills Austin, TX 78738	Grid #:	57-48-6
Well Location:	7005 Destiny Hills Austin, TX 78738	Latitude:	30° 18' 48.12" N
Well County:	Travis	Longitude:	098° 00' 43.44" W
		Elevation:	1139 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **6/25/2020** Drilling End Date: **6/25/2020**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	11	0	20
	6.25	20	870

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	-1	30	3 cement Bags/Sacks
	0	20	3 cement 2 holeplug Bags/Sacks

Seal Method: **Slurry**

Sealed By: **Driller**

Distance to Property Line (ft.): **unknown**

Distance to Septic Field or other
concentrated contamination (ft.): **unknown**

Distance to Septic Tank (ft.): **unknown**

Method of Verification: **owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **638 ft. below land surface on 2020-06-25** Measurement Method: **Sonic/Radar**

Packers: **burlap 20', 30'**
burlap and plastic 710', 690'

Type of Pump: **Submersible**

Well Tests: **Estimated** **Yield: 15-20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
232	Hosston Trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc**
PO Box 673
Dripping Springs, TX 78620

Driller Name: **James Benoit**License Number: **4064**Comments: **Drilled for Glass Well Services**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	white calachie
3	15	soft tan lime
15	510	blue lime
510	590	tan limestone
590	635	tan grey limestone
635	665	grey lime and shale
665	730	tan white limestone
730	750	red white sandstone, H2O
750	830	red sandstone
830	850	multicolor color limestone, H2O
850	870	black yellow limestone

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	sdr17	-3	770
4.5	Screen	New Plastic (PVC)	sdr17 0.032	770	850
4.5	Blank	New Plastic (PVC)	sdr17	850	870

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #560057

Owner:	BRIAN BIRDWELL	Owner Well #:	No Data
Address:	17118 WHISPERING BREEZE AUSTIN, TX 78738	Grid #:	57-48-6
Well Location:	17118 WHISPERING BREEZE AUSTIN, TX 78738	Latitude:	30° 18' 32.28" N
Well County:	Travis	Longitude:	098° 01' 00" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **10/5/2020** Drilling End Date: **10/5/2020**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.125	100	670

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	PORTLAND CEMENT 14 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **50**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **OWNER**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **563.8 ft. below land surface on 2020-10-05** Measurement Method: **Electric Line**

Packers: **Burlap at 100 ft.
BURLAP & PLASTIC at 120 ft.
BURLAP & PLASTIC at 300 ft.
BURLAP & PLASTIC at 400 ft.
BURLAP & PLASTIC at 550 ft.
BURLAP & PLASTIC at 570 ft.**

Type of Pump: **Submersible** Pump Depth (ft.): **640**

Well Tests: **Jetted** Yield: **10+ GPM**

Water Quality:

Strata Depth (ft.)	Water Type
570 - 670	MIDDLE TRINITY

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**

**2520 Hwy. 290 West
Dripping Springs, TX 78620**

Driller Name: **MARTIN DALE LINGLE**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	TOP SOIL
1	35	CALICHE
35	37	BLUE LIMESTONE
37	60	BROWN LIMESTONE
60	190	GRAY LIMESTONE
190	370	GRAY/TAN LIMESTONE
370	405	BROWN/GRAY LIMESTONE
405	430	GRAY LIMESTONE W/CLAY
430	510	GRAY/TAN LIMESTONE
510	590	TAN/BROWN LIMESTONE
590	630	WHITE LIMESTONE
630	665	WHITE/BROWN/GRAY LIMESTONE
665	670	GRAY CLAY

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	570
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17	570	670

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #598700

Owner:	Strobel & Associates, LLC.	Owner Well #:	Boss
Address:	PO Box 340850 Austin, TX 78734	Grid #:	57-48-3
Well Location:	4600 Wild Cow Cove Spicewood, TX 78669	Latitude:	30° 20' 00.98" N
		Longitude:	098° 02' 00.38" W
Well County:	Travis	Elevation:	754 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **2/23/2022** Drilling End Date: **2/23/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.125	100	390

Drilling Method: **Air Hammer**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	Portland 8 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **50**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **Well drilled 1st**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **112 ft. below land surface, and 25 GPM**
artesian flow on **2022-02-28**

Packers: **Burlap at 100 ft.**
Burlap/Plastic at 120 ft.
Burlap/Plastic at 200 ft.
Burlap/Plastic at 290 ft.

Type of Pump: **Submersible**

Pump Depth (ft.): **360**

Well Tests: **Jetted** **Yield: 15 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
290 - 390	Lower Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **Martin Lingle**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	15	Rock & Caliche
15	18	Caliche
18	20	Blue
20	170	Gray Tan
170	220	Tan
220	250	Gray w/ Clay
250	260	Red Clay
260	390	Red Sand Stone Gravel

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	290
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17	290	390

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #601467

Owner:	Barker Project (Arbogast Homes)	Owner Well #:	No Data
Address:	17224 Flintrock Road Austin, TX 78738	Grid #:	57-48-3
Well Location:	17224 Flintrock Road Austin, TX 78738	Latitude:	30° 20' 13.7" N
Well County:	Travis	Longitude:	098° 00' 36.76" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **3/16/2022** Drilling End Date: **3/16/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8.75	0	100
	6.25	100	990

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	-1	100	10 cement 4 benseal Bags/Sacks

Seal Method: **Pressure Tremmie**

Distance to Property Line (ft.): **50**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **unknown**

Distance to Septic Tank (ft.): **unknown**

Method of Verification: **owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level:	682 ft. below land surface on 2022-03-16	Measurement Method:	Sonic/Radar
Packers:	burlap and plastic 810, 790 burlap and rubber 100		
Type of Pump:	Submersible		
Well Tests:	Estimated	Yield: 15-20 GPM	

Water Quality:

Strata Depth (ft.)	Water Type
308	hoston trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc**
PO BOX 673
Dripping Springs, TX 78620

Driller Name: **James Benot**License Number: **4064**Comments: **Drilled for Geo-Springs DBA Glass Well Services**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	10	white limestone
10	60	tan limestone
60	90	tan lime
90	660	blue lime
660	690	tan white limestone
690	730	grey limestone
730	760	grey lime and shale
760	810	grey white limestone
810	860	red sandstone
860	890	tan limestone
960	980	multi color limestone and clay
980	990	yellow limestone and clay

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	sdr17	-3	910
4.5	Screen	New Plastic (PVC)	sdr17	910	970
4.5	Blank	New Plastic (PVC)	sdr17	970	990

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #602784

Owner: **Circle K Stores, Inc.**

Owner Well #: **SB-1**

Address: **1120 W, Warner Rd
Tempe, AZ 85284**

Grid #: **58-41-1**

Well Location: **1405 S. Ranch Rd 620
Lakeway, TX 78734**

Latitude: **30° 20' 57.23" N**

Longitude: **097° 57' 47.56" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Environmental Soil Boring**

Drilling Start Date: **4/8/2022**

Drilling End Date: **4/8/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	6	0	7.5

Drilling Method: **Solid Stem Auger**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	2	Cement 1 Bags/Sacks
	2	7.5	Bentonite 1 Bags/Sacks

Seal Method: **Poured**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **No Data**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Eagle Remediation**
P.O. Box 70
Azle, TX 76098

Driller Name: **Brad Eskue** License Number: **58164**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	3	Sand
3	7.5	Sandy Clay

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
No Data			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #602785

Owner: **Circle K Stores, Inc.**

Owner Well #: **SB-2**

Address: **1120 W, Warner Rd
Tempe, AZ 85284**

Grid #: **58-41-1**

Well Location: **1405 S. Ranch Rd 620
Lakeway, TX 78734**

Latitude: **30° 20' 57.23" N**

Longitude: **097° 57' 47.56" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Environmental Soil Boring**

Drilling Start Date: **4/8/2022**

Drilling End Date: **4/8/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	6	0	10

Drilling Method: **Solid Stem Auger**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	2	Cement 1 Bags/Sacks
	2	10	Bentonite 1 Bags/Sacks

Seal Method: **Poured**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **No Data**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Eagle Remediation**
P.O. Box 70
Azle, TX 76098

Driller Name: **Brad Eskue** License Number: **58164**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	3	Sand
3	10	Sandy Clay

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
No Data			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #602786

Owner: **Circle K Stores, Inc.**

Owner Well #: **SB-3**

Address: **1120 W, Warner Rd
Tempe, AZ 85284**

Grid #: **58-41-1**

Well Location: **1405 S. Ranch Rd 620
Lakeway, TX 78734**

Latitude: **30° 20' 57.23" N**

Longitude: **097° 57' 47.56" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Environmental Soil Boring**

Drilling Start Date: **4/8/2022**

Drilling End Date: **4/8/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	6	0	10

Drilling Method: **Solid Stem Auger**

Borehole Completion: **Open Hole**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	2	Cement 1 Bags/Sacks
	2	10	Bentonite 1 Bags/Sacks

Seal Method: **Poured**

Distance to Property Line (ft.): **No Data**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **No Data**

Distance to Septic Tank (ft.): **No Data**

Method of Verification: **No Data**

Surface Completion: **No Data**

Water Level: **No Data**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **No Test Data Specified**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Eagle Remediation**
P.O. Box 70
Azle, TX 76098

Driller Name: **Brad Eskue** License Number: **58164**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	3	Sand
3	10	Sandy Clay

<i>Dia. (in.)</i>	<i>New/Used</i>	<i>Type</i>	<i>Setting From/To (ft.)</i>
No Data			

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #614344

Owner:	Robert Sanchez	Owner Well #:	No Data
Address:	4811 Palisade Drive Austin, TX 78731	Grid #:	57-48-3
Well Location:	17216 Flintrock Road Lakeway, TX 78738	Latitude:	30° 20' 18.6" N
Well County:	Travis	Longitude:	098° 00' 25.88" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **7/6/2022**

Drilling End Date: **7/6/2022**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	8.75	0	100
	6.25	100	910

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	-1	100	10 cement 4 benseal Bags/Sacks

Seal Method: **Pressure Tremmie**

Distance to Property Line (ft.): **52**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **unknown**

Distance to Septic Tank (ft.): **unknown**

Method of Verification: **owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **730 ft. below land surface on 2022-07-06** Measurement Method: **Sonic/Radar**

Packers: **burlap and plastic 810, 790'**
burlap and rubber 100

Type of Pump: **Submersible**

Well Tests: **Estimated** Yield: **15-20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
180	hosston trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc**
PO BOX 673
Dripping Springs, TX 78620

Driller Name: **James Benoit**

License Number: **4064**

Comments: **SWTCGCD**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	10	white caliche
10	45	tan lime
45	605	blue lime
605	670	tan white limestone
670	700	grey limestone
700	735	grey lime and shale
735	805	grey white limestone
805	860	red sandstone
860	890	tan limestone
890	910	multi color limestone

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	sdr17	-3	850
4.5	Screen	New Plastic (PVC)	sdr17 0.020	850	910

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #620862

Owner: **Lake Travis ISD**

Owner Well #: **No Data**

Address: **16101 S Hwy 71 Bldg. B
Austin, TX 78738**

Grid #: **57-48-3**

Well Location: **16101 S Hwy 71 Bldg. B
Austin, TX 78738**

Latitude: **30° 20' 31" N**

Longitude: **098° 02' 09" W**

Well County: **Travis**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Irrigation**

Drilling Start Date: **10/11/2022**

Drilling End Date: **10/11/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	8.5	0	253

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	7 Benseal 2 Portland 9 Bags/Sacks

Seal Method: **Pressure**

Distance to Property Line (ft.): **100+**

Sealed By: **Driller**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Land Owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **No Data**

Packers: **Burlap/Neoprene at 100 ft.
Burlap/Neoprene at 105 ft.**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 50 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
105 - 252	M. Trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Apex Drilling, Inc.**
P.O. Box 867
Marble Falls, TX 78654

Driller Name: **Andrew Jackson Johnson**License Number: **54989**Apprentice Name: **Alfonso Rodriguez Jr.**Apprentice Number: **60952**Comments: **SWTGCD # 57483LT7**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	1	Top Soil
1	18	Caliche Tan LS
18	28	Tan LS
28	187	Gray Tan LS
187	210	Gray LS H2o
210	218	Gray Tan LS H2o
218	239	White Tan LS H2o
239	248	Gray LS
248	252	Gray Tan LS
252	253	Gray LS w/ Clay

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	193
4.5	Screen	New Plastic (PVC)	.035	193	253

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #621681

Owner:	Catherine & Creed Ford IV	Owner Well #:	58414CF2
Address:	16490 Flint Rock Rd. Austin, TX 78738	Grid #:	58-41-4
Well Location:	16490 Flint Rock Rd. Austin, TX 78738	Latitude:	30° 19' 55.6" N
Well County:	Travis	Longitude:	097° 59' 33.2" W
		Elevation:	1004 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **10/6/2022** Drilling End Date: **10/6/2022**

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	9	0	100
	6.125	100	810

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	100	Cement 12 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **60**

Distance to Septic Field or other
concentrated contamination (ft.): **100**

Distance to Septic Tank (ft.): **100**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **642.6 ft. below land surface, and 20 GPM** Measurement Method: **Electric Line**
artesian flow on **2022-10-21**

Packers: **Burlap at 100 ft.**
Burlap/Plastic at 120 ft.
Burlap/Plastic at 300 ft.
Burlap/Plastic at 600 ft.
Burlap/Plastic at 700 ft.
Burlap/Plastic at 730 ft.

Type of Pump: **Submersible** Pump Depth (ft.): **740**

Well Tests: **Jetted** Yield: **20 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
730 - 810	Lower Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**

**2520 Hwy. 290 West
Dripping Springs, TX 78620**

Driller Name: **Martin Lingle**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	20	Caliche
20	21	Blue
21	95	Gray
95	100	Gray w/ Clay
100	110	Gray
110	330	Gray Tan
330	410	Tan Brown
410	420	Gray
420	530	Tan
530	590	Gray Clay
590	610	Tan Gray
610	690	Brown Red
690	710	Gravel
710	730	Brown Red
730	770	Gravel Red H2O
770	810	Blueshale

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	2	730
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17	730	810

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #649902

Owner:	Tom Shoonover	Owner Well #:	No Data
Address:	6301 Destiny Hills Dr. Austin, TX 78738	Grid #:	57-48-6
Well Location:	6301 Destiny Hills Dr. Austin, TX 78738	Latitude:	30° 18' 38.81" N
Well County:	Travis	Longitude:	098° 00' 54.04" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: 9/1/2023

Drilling End Date: 9/1/2023

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	8.75	0	100
	6.25	100	920

Drilling Method: Air Rotary

Borehole Completion: Straight Wall

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	-1	100	10 cement, 4 Benseal Bags/Sacks

Seal Method: Pressure Tremie

Distance to Property Line (ft.): 110

Sealed By: Driller

Distance to Septic Field or other
concentrated contamination (ft.): No Data

Distance to Septic Tank (ft.): No Data

Method of Verification: Owner

Surface Completion: Surface Sleeve Installed

Surface Completion by Driller

Water Level:	742 ft. below land surface on 2023-09-01	Measurement Method:	Sonic/Radar
Packers:	Burlap & PVC 800', 780' Burlap & Rubber 100'		
Type of Pump:	Submersible		
Well Tests:	Estimated	Yield:	10-15 GPM

Water Quality:

Strata Depth (ft.)	Water Type
742 - 920	Hosston Trinity

Chemical Analysis Made: **No**Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Associated Drilling Inc**
PO BOX 673
Dripping Springs, TX 78620

Driller Name: **James Benoit** License Number: **4064**

Comments: **Southwest Travis County Groundwater District Well #57486TS**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	10	caliche
10	45	tan lime
45	485	blue lime
485	570	tan white limestone
570	670	blue white limestone
670	715	blue clay & lime
715	775	gray white sandstone
775	850	red sandstone & clay
850	900	tan & yellow limestone
900	920	yellow limestone

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR17	-3	820
4.5	Screen	New Plastic (PVC)	SDR17 0.032	820	920

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #650877

Owner:	V B Group, LLC.	Owner Well #:	58414VB
Address:	2931 E. 12th St. #102 Austin, TX 78702	Grid #:	58-41-4
Well Location:	4405 Hennig Drive Austin, TX 78738	Latitude:	30° 19' 43" N
Well County:	Travis	Longitude:	097° 59' 34" W
		Elevation:	1101 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **9/19/2023** Drilling End Date: **9/19/2023**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.13	100	920

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	Cement 14 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **50**

Distance to Septic Field or other
concentrated contamination (ft.): **N/A**

Distance to Septic Tank (ft.): **N/A**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **745 ft. below land surface on 2023-10-13**

Packers: **Burlap at 100 ft.
Burlap/Plastic at 120 ft.
Burlap/Plastic at 200 ft.
Burlap/Plastic at 600 ft.
Burlap/Plastic at 800 ft.
Burlap/Plastic at 820 ft.**

Type of Pump: **Submersible**

Pump Depth (ft.): **850**

Well Tests: **Jetted Yield: 10-15 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
820 - 920	Lower Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**

**2520 Hwy. 290 West
Dripping Springs, TX 78620**

Driller Name: **Martin Lingle**

License Number: **54813**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	30	Caliche
30	31	Gray
31	50	Brown
50	95	Gray
95	190	Gray Tan
190	205	Tan
205	500	Gray & Tan
500	630	Brown Tan
630	690	Gray w/ Clay
690	710	Gray Tan Brown
710	750	Red Sand Stone Sand
750	790	Tan Brown White Red Sand Stone
790	810	Red Sand
810	830	Conglomerate
830	910	Gravel - Sand
910	920	Shale

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	SDR17	0	820
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17	820	920

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #652378

Owner:	The Lakeway Church	Owner Well #:	58411LC
Address:	2203 Lakeway Blvd. Lakeway, TX 78734	Grid #:	58-41-1
Well Location:	2203 Lakeway Blvd. Lakeway, TX 78734	Latitude:	30° 21' 17" N
Well County:	Travis	Longitude:	097° 58' 51" W
		Elevation:	881 ft. above sea level
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: **10/16/2023** Drilling End Date: **10/16/2023**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9	0	100
	6.13	100	690

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	100	Cement 14 Bags/Sacks

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **354 ft. below land surface on 2023-10-16**

Packers: **Burlap
Burlap/Plastic**

Type of Pump: **Submersible**

Well Tests: **Jetted** **Yield: 15 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
590 - 690	Lower Trinity

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Centex Pump & Supply, Inc.**
2520 Hwy. 290 West
Dripping Springs, TX 78620

Driller Name: **Martin Lingle**

License Number: **54813**

Comments: **Glass Well Services to set pump.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	2	Top Soil
2	15	Caliche
15	24	Gray Strip Clay
24	170	Gray-Tan
170	190	Gray Strip Clay
190	490	Gray-Tan-White
490	550	Gray Clay
550	580	Red Sand Stone Sm Gravel
580	650	Red Sand Stone
650	670	Red Sand Stone White
670	690	Gravel

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
4.5	Blank	New Plastic (PVC)	SDR17	0	590
4.5	Perforated or Slotted	New Plastic (PVC)	SDR17	590	690

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

STATE OF TEXAS WELL REPORT for Tracking #655869

Owner:	Tyson Moler	Owner Well #:	No Data
Address:	4708 Snake Eagle Cove Austin, TX 78738	Grid #:	58-41-4
Well Location:	3616 Pawnee Pass Austin, TX 78738	Latitude:	30° 19' 47" N
Well County:	Travis	Longitude:	097° 58' 41" W
		Elevation:	1090 ft. above sea level
Type of Work:	New Well	Proposed Use:	Domestic

Drilling Start Date: **10/11/2023** Drilling End Date: **10/19/2023**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	10	0	19
	6.5	19	910

Drilling Method: **Air Rotary**

Borehole Completion: **Straight Wall**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
Annular Seal Data:	0	25	Cement 7 Bags/Sacks

Seal Method: **Poured**

Sealed By: **Driller**

Distance to Property Line (ft.): **108**

Distance to Septic Field or other
concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **100+**

Method of Verification: **Tape**

Surface Completion: **Surface Sleeve Installed**

Surface Completion by Driller

Water Level: **717 ft. below land surface on 2023-10-19** Measurement Method: **Sonic/Radar**

Packers: **Rubber at 25 ft.
Rubber at 390 ft.
Rubber at 590 ft.
Rubber at 690 ft.
Rubber at 790 ft.**

Type of Pump: **No Data**

Well Tests: **Estimated Yield: 29 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **TOM ARNOLD DRILLING**
2750 SOUTH A. W. GRIMES BLVD
ROUND ROCK, TX 78664

Driller Name: **Tommy D Arnold** License Number: **2096**

Comments: **Well installed Prior to Septic Distances are from proposed Locations.**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	26	Yellow Limestone
26	41	Blue Limestone
41	188	Gray Limestone
188	192	Blue Limestone
192	215	Gray Limestone
215	231	Brown Limestone
231	580	Gray Limestone
580	650	Gray Sandstone
650	690	Blue Limestone & Shale
690	790	Gray & Red Sandstone
790	884	Gray Sandstone & Cemented Gravel Streaks
884	905	Cemented Gravel
905	910	Blue Shale

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	Blank	New Plastic (PVC)	SDR 17	0	910
4.5	Screen	New Plastic (PVC)	SDR17	810	910

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

STATE OF TEXAS WELL REPORT for Tracking #660714

Owner:	A New Day CDC	Owner Well #:	No Data
Address:	5014 Bee Creek Rd Spicewood, TX 78669	Grid #:	57-48-3
Well Location:	4828 Bee Creek Rd Spicewood, TX 78669	Latitude:	30° 20' 24.3" N
Well County:	Travis	Longitude:	098° 01' 38.2" W
		Elevation:	929 ft. above sea level
Type of Work:	New Well	Proposed Use:	Public Supply

Drilling Start Date: **12/27/2023**

Drilling End Date: **1/23/2024**

Plans Approved by TCEQ - YES
PWS# 2270442

Borehole:

<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
10.625	0	10
10	10	460

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
330	460	Gravel	3/8

Annular Seal Data:

<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Description (number of sacks & material)</i>
0	330	Cement 115

Seal Method: **Pressure**

Sealed By: **Driller**

Distance to Property Line (ft.): **43**

Distance to Septic Field or other
concentrated contamination (ft.): **155**

Distance to Septic Tank (ft.): **155**

Method of Verification: **tape**

Surface Completion: **Surface Slab Installed**

Water Level: **316 ft. below land surface on 2024-01-29** Measurement Method: **Electric Line**

Packers: **No Data**

Type of Pump: **Submersible** Pump Depth (ft.): **440**

Well Tests: **Jetted** Yield: **10 GPM**

Water Quality:

<i>Strata Depth (ft.)</i>	<i>Water Type</i>
No Data	No Data

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which
contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Bee Cave Drilling, Inc.**
185 Angel Fire Rd.
Dripping Springs, TX 78620

Driller Name: **Michael Scott** License Number: **59719**

Apprentice Name: **Austin Cook** Apprentice Number: **60597**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

<i>Top (ft.)</i>	<i>Bottom (ft.)</i>	<i>Description</i>
0	1	topsoil / loose rock
1	20	yellow limestone
20	28	blue limestone
28	48	yellow limestone
48	155	grey limestone
155	460	lost returns

<i>Dia (in.)</i>	<i>Type</i>	<i>Material</i>	<i>Sch./Gage</i>	<i>Top (ft.)</i>	<i>Bottom (ft.)</i>
12	Blank	New Steel		0	10
5	Blank	New Plastic (PVC)		0	340
5	Screen	New Plastic (PVC)		340	440
5	Blank	New Plastic (PVC)		440	460

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

ATTACHMENT T
GROUND WATER QUALITY TECHNICAL REPORT

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT T – GROUNDWATER QUALITY REPORT

Records Review

The Flintrock Wastewater Treatment Plant (WWTP) subsurface drip irrigation system (the drip system) is located at eight (8) different sites in the Lakeway area, from near the Flintrock Trace & Lohmans Spur intersection to near the Serene Hills Drive and Highway 71 intersection. The Flintrock WWTP spray irrigation systems are located at the Flintrock Estates Golf Course at 401 Jack Nicklaus Drive, Lakeway TX, and along Serene Hills Drive ROW in Lakeway, Texas. The WWTP and all disposal sites are in Travis County, Texas. The WWTP and all disposal sites are located within the Southwest Travis County Groundwater Conservation District. A USGS Topographic map is provided in Attachment 1. A site drawing is provided in Attachment 2. A Web Soil Survey map has been provided in Attachment 3.

Records of the Railroad Commission of Texas, Texas Water Development Board (TWDB), TCEQ, Natural Resources Conservation Service (NRCS), were reviewed. After reviewing the records, it was determined there are no recharge features located within the irrigation boundaries, however a previous Karst and Environmental survey of the Serene Hills disposal sites identified two (2) recharge features as described in the section below. Also, several wells are within (1) mile of the dispersal sites. A list of wells is available in Attachment 4 of this report and the wells are shown on the USGS Map in Attachment 1.

Site Specific Geology and Groundwater

Elevations of the drip and spray system sites range from approximately 940-ft to 1200-ft MSEL. No portion of this site is located within the Edwards Aquifer Contributing or Recharge Zone. The site lies within the Upper Glen Rose Formation. No shallow groundwater was found at the irrigation sites.

A Karst Survey and Environmental Assessment was previously performed for the Serene Hills Disposal site. As mentioned in the existing Karst Survey and Environmental Assessment, two (2) karst features were identified at the Serene Hills Disposal Site. A solution cavity was found that was approximately 1-foot by 1-foot and 2-feet deep. This feature was determined to have a low recharge potential. The second feature found was a sinkhole approximately 6-feet by 4-feet and 2.5-feet deep. A setback of 150-feet is recommended.

The Irrigation sites lie over the Trinity Aquifer. According to the Driller Logs in the area, the water surface elevation measured in the Wells range from about approximately 400-ft to 700-ft MSEL, and the strata ranges from approximately 200-ft to 450-ft MSEL. The Trinity Aquifer generally flows to the southeast. The major uses of the Trinity Aquifer include residential drinking water and agricultural irrigation.

Protective Measures

Several features were discovered through records review and on-site investigations. These features include a sink hole and existing water wells. All existing water wells are located more than 150-ft from each drip irrigation site, therefore the proposed best management practice of a 150-ft setback will be met without any further effort. A 150-ft setback will be maintained from the sink-hole located at the Serene Hills Disposal site.

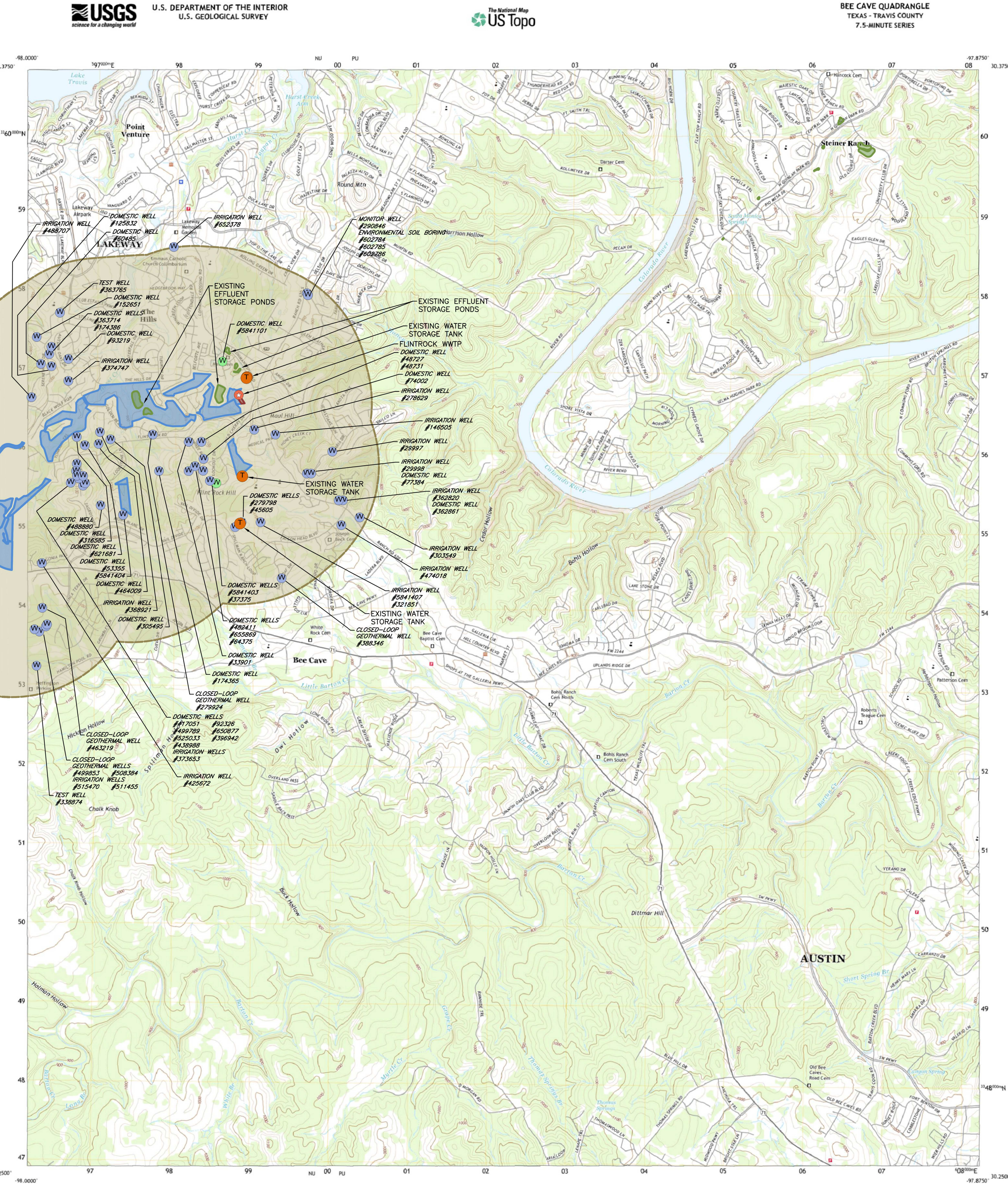
TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT T – GROUNDWATER QUALITY REPORT

Several other best management practices will be followed at the drip irrigation sites. These practices include:

1. Minimum setbacks of 500-ft from public drinking water wells, 150-ft from private drinking water wells, 100-ft from agriculture irrigation water wells, and 100-ft from surface water and water courses.
2. Disposal application rates low enough to prevent run-off and ensure use by cover crop without over saturation of the soil. Disposal application rates low enough to prevent application of more nitrogen that can be taken up and used by the cover crop. More detail is provided in the Drip Irrigation Report, Attachment Z of the application.
3. Soil moisture monitoring devices will be installed to monitor soil moisture content and to prevent irrigation in areas where the soils are saturated. More detail is provided in the Drip Irrigation Report, Attachment Z of the application.
4. Groundwater monitoring will be done to ensure that irrigation of the treated effluent is not causing any adverse effects. Groundwater will be monitored by two methods: installing suction Lysimeters or sampling wells and monitoring any springs or seeps that may appear. More detail is provided in the Drip Irrigation Report, Attachment Z of the application.
5. The drip irrigation lines will only be installed on soils suitable for wastewater absorption. The soil beneath the drip lines will be at least 12-inches in depth. The drip lines will not be installed over limestone outcrops, or areas with inadequate soils. If a zone crosses an unsuitable area a piece of solid line, without perforations, will be installed for the length of the unsuitable area. Large limestone boulders will be removed to expose suitable soils if necessary. The entire area will be avoided if the unsuitable area is large in size.

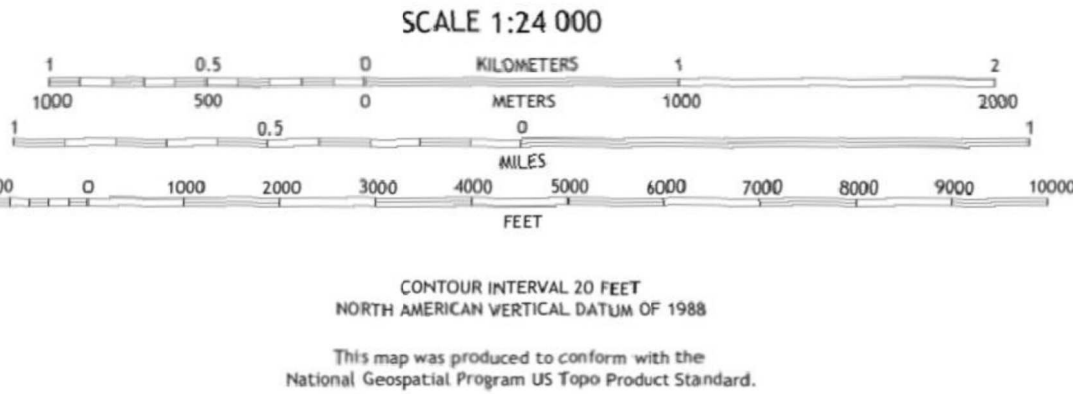
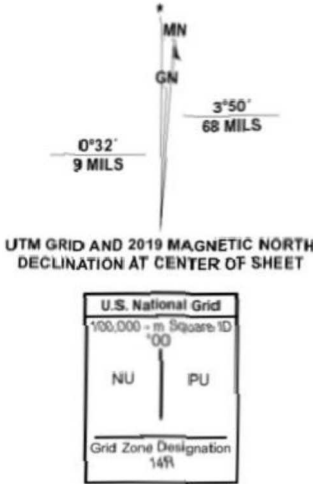
TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT T – GROUNDWATER QUALITY REPORT

ATTACHMENT 1 – USGS MAP



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, September 2016 - November 2016
Roads:.....U.S. Census Bureau, 2015 - 2019
Names:.....GNS, 1979 - 2022
Hydrography:.....National Hydrography Dataset, 2002 - 2018
Contours:.....National Elevation Dataset, 2019
Boundaries:.....Multiple sources; see metadata file 2019 - 2021
Wetlands:.....FWS National Wetlands Inventory Not Available



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

1 Pace Bend
2 Mansfield Dam
3 Jollyville
4 Shingle Hills
5 Austin West
6 Dripping Springs
7 Signal Hill
8 Oak Hill

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

BEE CAVE, TX
2022

Default (2)

- Map Base
- WASTEWATER TREATMENT PLANT
- EXISTING WATER TANK
- EXISTING WELL (SDRDB)
- EXISTING WELL (GWDB)
- EXISTING SPRING OR SEEP
- WWTP PROPERTY & FACILITY BOUNDARY
- EFFLUENT STORAGE PONDS
- EFFLUENT DISPOSAL SITE BOUNDARY
- 1 MILE BUFFER - DISPOSAL AREA
- TX_Bee_Cave_20220811_TM_geo



Green Civil Design
a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

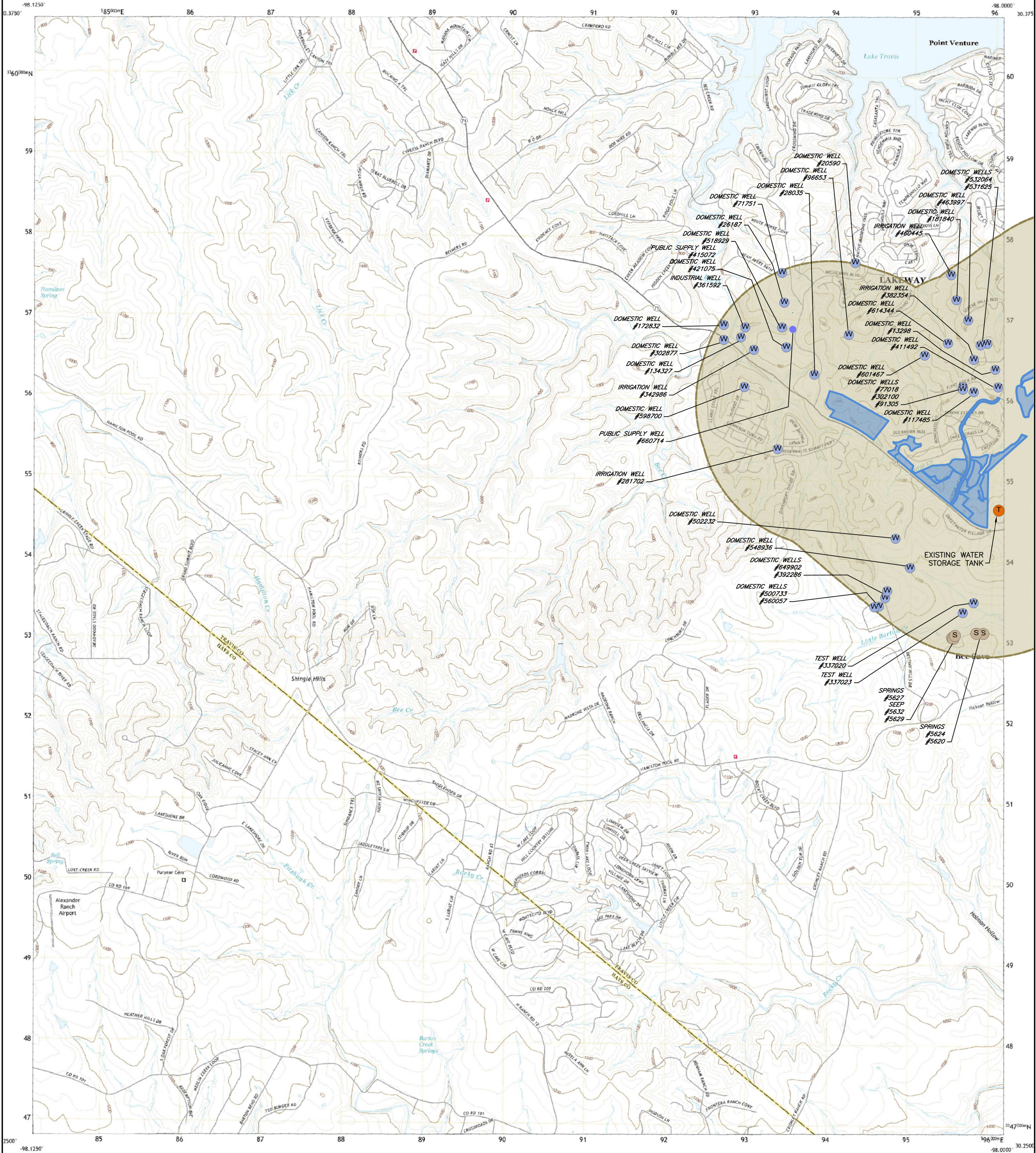
ATTACHMENT 1
USGS MAP (1 OF 2)



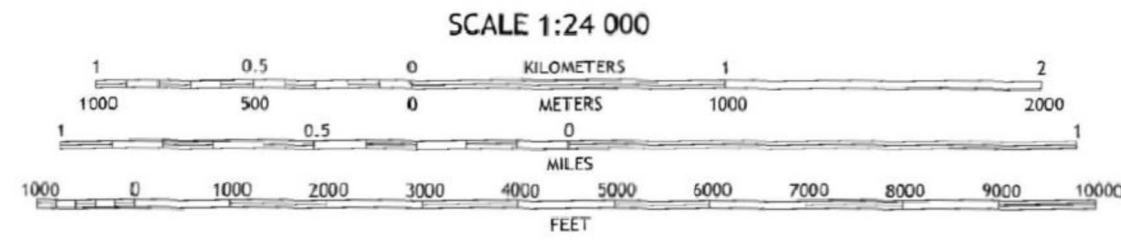
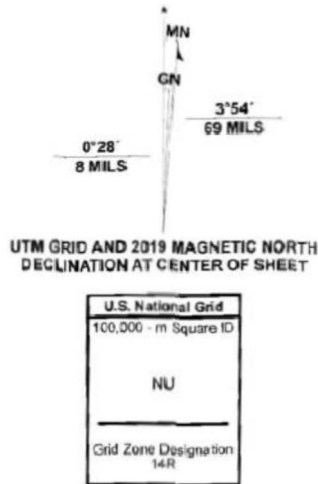
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



SHINGLE HILLS QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 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:.....NAP: September 2016 - November 2016
Roads:.....U.S. Census Bureau, 2015 - 2019
Names:.....GMS, 1979 - 2021
Hydrography:.....National Hydrography Dataset, 2002 - 2018
Contours:.....National Elevation Dataset, 2019
Boundaries:.....Multiple sources; see metadata file 2019 - 2021
Wetlands:.....FWS National Wetlands Inventory Not Available



1	2	3
4	5	6
7	8	9

ADJACENT QUADRANGLES

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

SHINGLE HILLS, TX
2022

- Default
- Map Base
 - EXISTING WATER TANK
 - EXISTING WELL (SDRDB)
 - EXISTING WELL (GWDB)
 - EXISTING SPRING OR SEEP
 - EFFLUENT STORAGE PONDS
 - EFFLUENT DISPOSAL SITE BOUNDARY
 - 1 MILE BUFFER
 - 1 MILE BUFFER - DISPOSAL AREA
 - TX_Shingle_Hills_20220727_TM_geo

Green Civil Design
a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783






TRAVIS COUNTY WCID NO. 17
FLINTROCK WASTEWATER SYSTEM

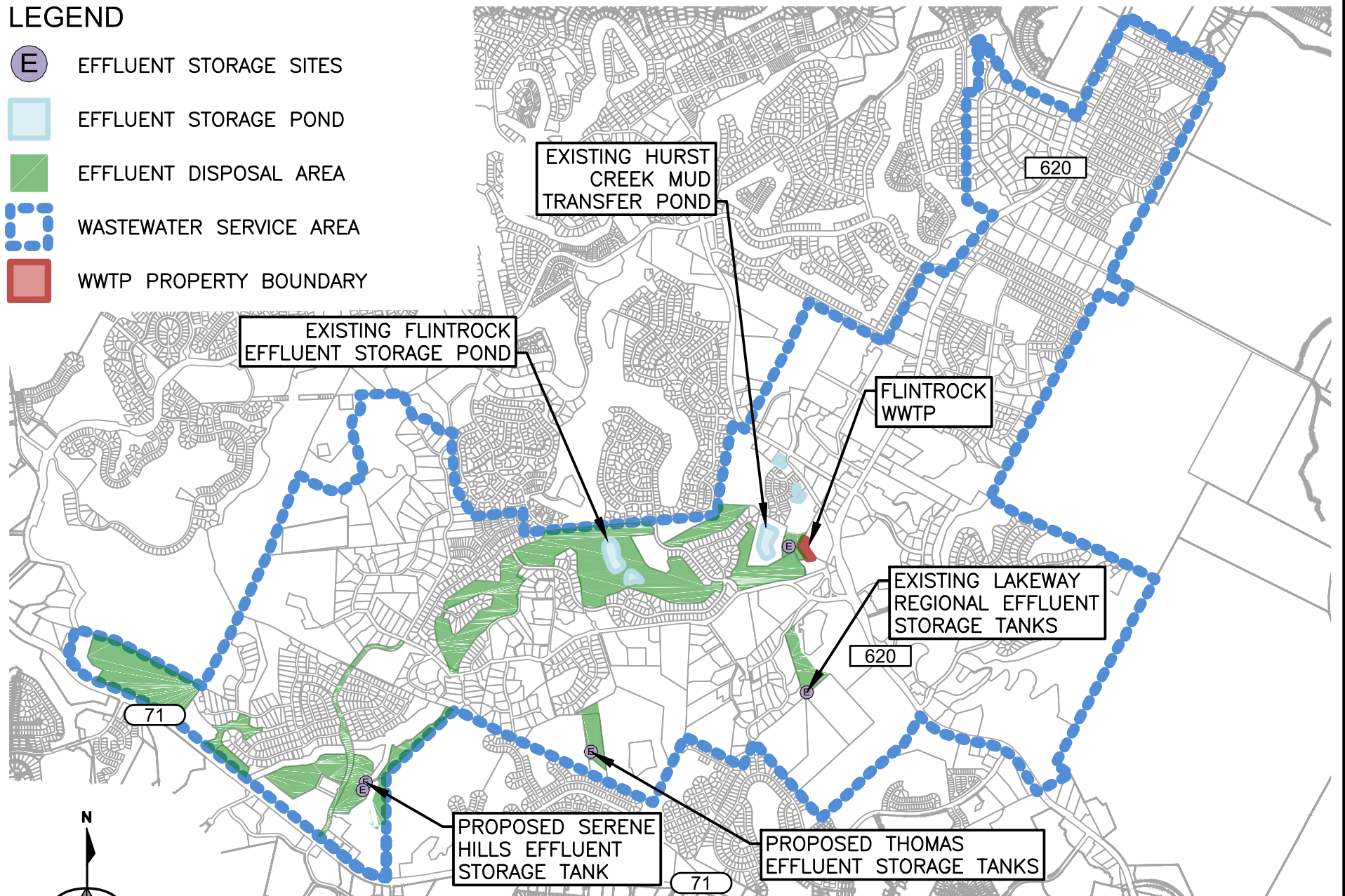
ATTACHMENT 1
USGS MAP (2 OF 2)

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT T – GROUNDWATER QUALITY REPORT

ATTACHMENT 2 – SITE DRAWING

LEGEND

-  EFFLUENT STORAGE SITES
-  EFFLUENT STORAGE POND
-  EFFLUENT DISPOSAL AREA
-  WASTEWATER SERVICE AREA
-  WWTP PROPERTY BOUNDARY



Green Civil Design

a BAXTER & WOODMAN company

301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027

TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WATER WCID NO. 17
FLINTROCK WWTP

ATTACHMENT 2
SITE DRAWING

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT T – GROUNDWATER QUALITY REPORT

ATTACHMENT 3 – WEB SOIL SURVEY


Soil Map—Travis County, Texas
(Creekside Tract Map)



Soil Map—Travis County, Texas
(Creekside Tract Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

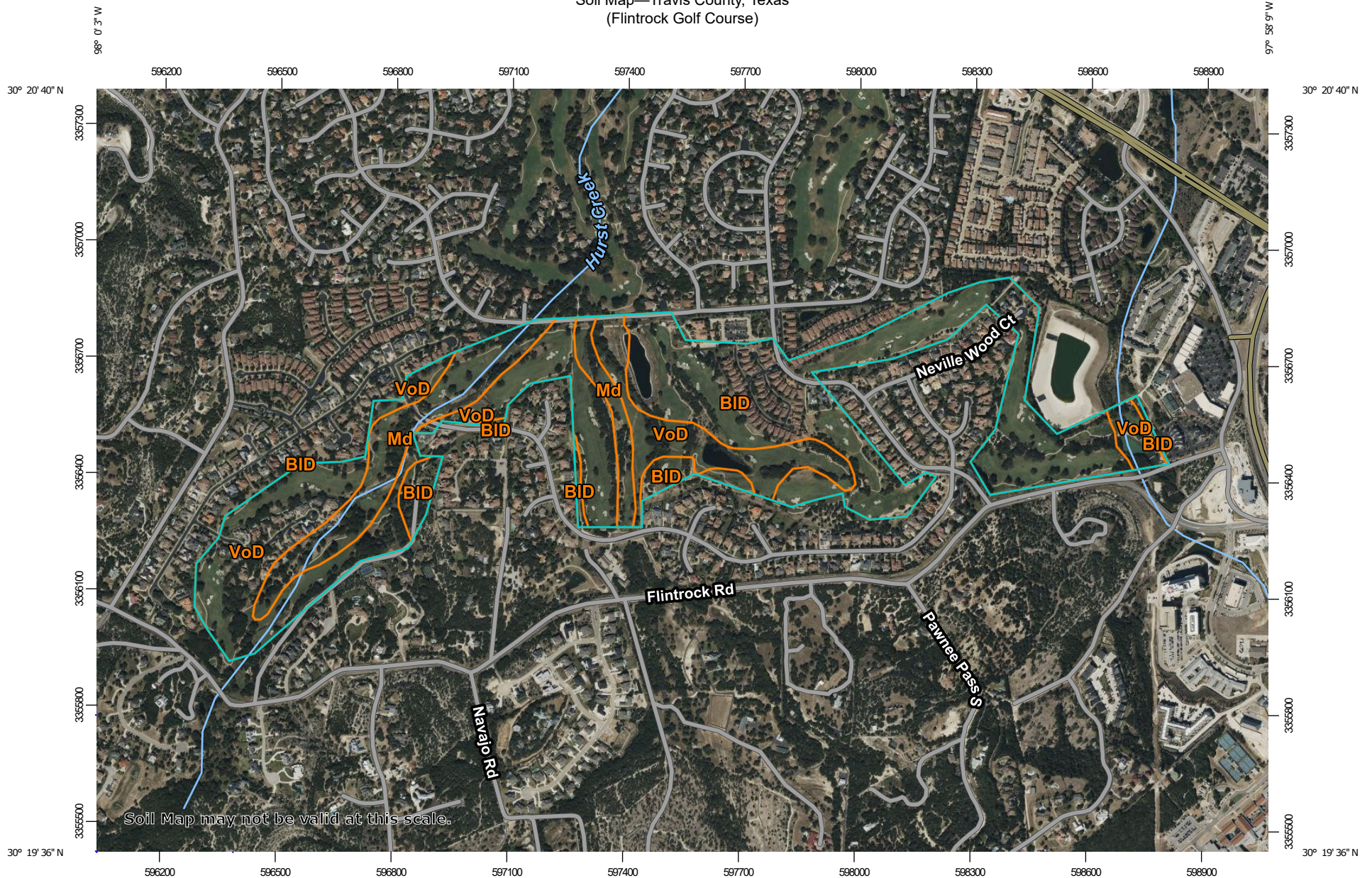
Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	3.0	92.1%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.3	7.9%
Totals for Area of Interest		3.3	100.0%

Soil Map—Travis County, Texas (Flintrock Golf Course)



Soil Map may not be valid at this scale.

Map Scale: 1:13,900 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

Soil Map—Travis County, Texas
(Flintrock Golf Course)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	82.0	44.3%
Md	Mixed alluvial land, 0 to 1 percent slopes, frequently flooded	27.8	15.0%
VoD	Volente silty clay loam, 1 to 8 percent slopes	75.3	40.7%
Totals for Area of Interest		185.1	100.0%


Soil Map—Travis County, Texas (Lakeway Map)



Soil Map—Travis County, Texas
(Lakeway Map)


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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

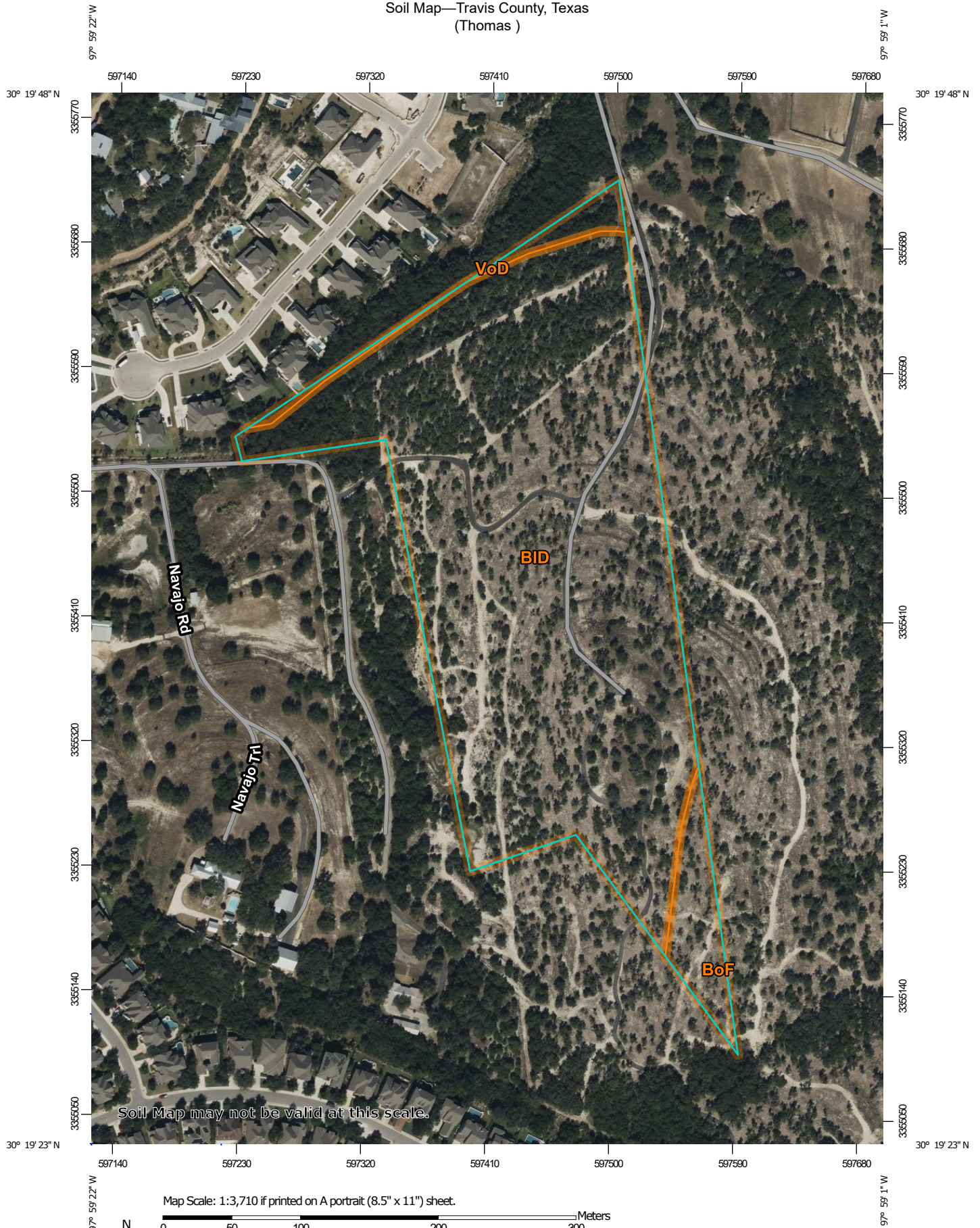
Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	8.5	89.0%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	0.3	3.5%
TaD	Eckrant very stony clay, 5 to 18 percent slopes	0.7	6.9%
TcA	Eckrant and Speck soils, 0 to 2 percent slopes	0.1	0.6%
Totals for Area of Interest		9.5	100.0%

Soil Map—Travis County, Texas
(Thomas)



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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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.

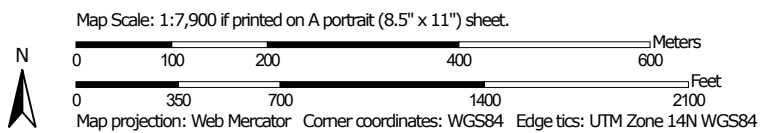
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	21.0	92.4%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	1.2	5.3%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.5	2.3%
Totals for Area of Interest		22.7	100.0%

Soil Map—Travis County, Texas
(Serene Hills Drive Map)



Soil Map may not be valid at this scale.



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills Drive Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

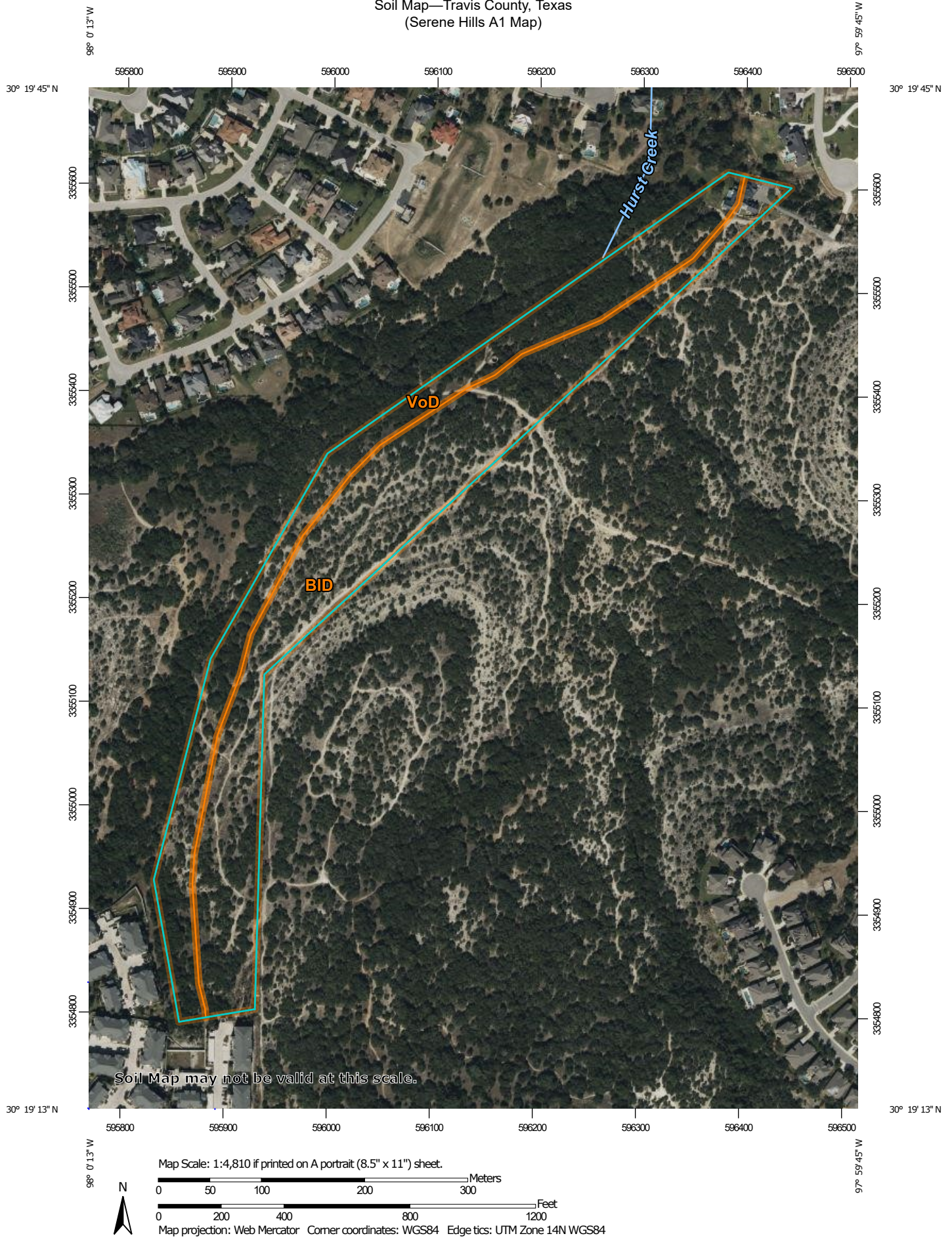
Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	14.3	90.4%
VoD	Volente silty clay loam, 1 to 8 percent slopes	1.5	9.6%
Totals for Area of Interest		15.9	100.0%


Soil Map—Travis County, Texas
(Serene Hills A1 Map)



Soil Map—Travis County, Texas
(Serene Hills A1 Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	13.2	62.3%
VoD	Volente silty clay loam, 1 to 8 percent slopes	7.9	37.7%
Totals for Area of Interest		21.1	100.0%


Soil Map—Travis County, Texas
(Serene Hills A2 Map)



Soil Map—Travis County, Texas
(Serene Hills A2 Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	11.7	54.3%
VoD	Volente silty clay loam, 1 to 8 percent slopes	9.9	45.7%
Totals for Area of Interest		21.6	100.0%

Soil Map—Travis County, Texas
(Serene Hills A3 Map)



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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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

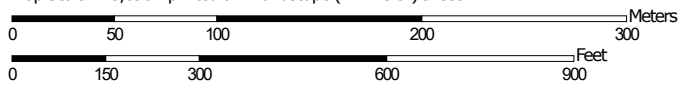
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	20.7	75.4%
VoD	Volente silty clay loam, 1 to 8 percent slopes	6.7	24.6%
Totals for Area of Interest		27.4	100.0%

Soil Map—Travis County, Texas
(Serene Hills A4 Map)



Soil Map may not be valid at this scale.

Map Scale: 1:3,690 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84




**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	9.8	64.4%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	5.3	34.6%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.1	0.9%
Totals for Area of Interest		15.2	100.0%

Soil Map—Travis County, Texas
(Serene Hills A5 Map)



Soil Map may not be valid at this scale.

Map Scale: 1:5,130 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	1.1	2.3%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	48.0	97.7%
Totals for Area of Interest		49.1	100.0%

Travis County, Texas

BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2yltz

Elevation: 820 to 1,330 feet

Mean annual precipitation: 33 to 37 inches

Mean annual air temperature: 65 to 69 degrees F

Frost-free period: 220 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 68 percent

Rock outcrop: 20 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 6 inches: gravelly clay loam

Bw - 6 to 18 inches: clay loam

Cr - 18 to 60 inches: bedrock

Properties and qualities

Slope: 1 to 12 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 90 percent

Gypsum, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Limestone

Typical profile

R - 0 to 48 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 0 to 2 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

San saba

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY356TX - Blackland 29-35 PZ
Hydric soil rating: No

Volente

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Eckrant

Percent of map unit: 4 percent

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R081CY363TX - Steep Rocky 29-35 PZ

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

BoF—Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2t2m3

Elevation: 470 to 1,900 feet

Mean annual precipitation: 32 to 37 inches

Mean annual air temperature: 66 to 68 degrees F

Frost-free period: 230 to 265 days

Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 38 percent

Rock outcrop: 25 percent

Real and similar soils: 22 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 6 inches: gravelly clay loam

Bk - 6 to 14 inches: gravelly clay loam

Cr - 14 to 60 inches: bedrock

Properties and qualities

Slope: 8 to 30 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 90 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Limestone

Typical profile

R - 0 to 80 inches: bedrock

Properties and qualities

Slope: 8 to 30 percent
Depth to restrictive feature: 0 to 2 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Real

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 4 inches: gravelly loam
Ak - 4 to 14 inches: extremely gravelly loam
Cr - 14 to 40 inches: bedrock

Properties and qualities

Slope: 8 to 30 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 8 to 19 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium

*Capacity of the most limiting layer to transmit water
(Ksat):* Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 70 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0
mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Minor Components

Eckrant

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope,
footslope
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081BY350TX - Steep Rocky 23-31 PZ
Hydric soil rating: No

Volente

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope, toeslope,
backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

Md—Mixed alluvial land, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: f65p

Elevation: 750 to 2,000 feet

Mean annual precipitation: 18 to 30 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Alluvial land, mixed: 100 percent

*Estimates are based on observations, descriptions, and transects of
the mapunit.*

Description of Alluvial Land, Mixed

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Calcareous gravelly alluvium of quaternary age
derived from mixed sources

Typical profile

H1 - 0 to 48 inches: stratified very gravelly coarse sand to very
gravelly sand

Properties and qualities

Slope: 0 to 1 percent

Drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to
very high (5.95 to 19.98 in/hr)

Frequency of flooding: Frequent

Calcium carbonate, maximum content: 90 percent

Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Ecological site: R086AY012TX - Loamy Bottomland

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

TaD—Eckrant very stony clay, 5 to 18 percent slopes

Map Unit Setting

National map unit symbol: 2xmt6

Elevation: 450 to 1,350 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 66 to 69 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eckrant and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eckrant

Setting

Landform: Ridges

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 5 inches: very stony clay

A2 - 5 to 8 inches: extremely flaggy clay

R - 8 to 30 inches: bedrock

Properties and qualities

Slope: 5 to 18 percent

Depth to restrictive feature: 6 to 14 inches to lithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 0.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brackett

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

TcA—Eckrant and Speck soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ylv5

Elevation: 800 to 1,300 feet

Mean annual precipitation: 33 to 37 inches

Mean annual air temperature: 65 to 69 degrees F

Frost-free period: 220 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Eckrant and similar soils: 63 percent

Speck and similar soils: 32 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eckrant

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 5 inches: very stony clay

A2 - 5 to 8 inches: extremely flaggy clay

R - 8 to 30 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 6 to 14 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 0.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Description of Speck

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 14 inches: clay loam
Bt - 14 to 18 inches: gravelly clay
R - 18 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water
(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R081CY361TX - Redland 29-35 PZ
Hydric soil rating: No

Minor Components

Crawford

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

VoD—Volente silty clay loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ynhg

Elevation: 400 to 1,400 feet

Mean annual precipitation: 32 to 35 inches

Mean annual air temperature: 65 to 69 degrees F

Frost-free period: 230 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Volente and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Volente

Setting

Landform: Ridges

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Calcareous clayey colluvium and/or alluvium derived from limestone

Typical profile

A - 0 to 22 inches: silty clay loam

BA - 22 to 36 inches: silty clay

Bw - 36 to 46 inches: silty clay

Ck - 46 to 59 inches: clay loam

Properties and qualities

Slope: 1 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Lewisville

Percent of map unit: 15 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Eckrant

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Orif

Percent of map unit: 2 percent
Landform: Drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R081CY561TX - Loamy Bottomland 29-35 PZ
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

TRAVIS COUNTY WCID NO. 17
WQ0013878001
ATTACHMENT T – GROUNDWATER QUALITY REPORT

ATTACHMENT 4 – WELL INFORMATION

ATTACHMENT 4 – WELL INFORMATION

TABLE 1 – WATER WELL DATA

WELL ID	WELL USE	PRODUCING (Y/N)	OPEN, CASED, CAPPED, OR PLUGGED?	PROPOSED BEST MANAGEMENT PRACTICE
5841101	Domestic	Y	Open	Greater than 150-ft away from irrigation site
5841403	Domestic	Y	Open	Greater than 150-ft away from irrigation site
5841404	Domestic	Y	Open	Greater than 150-ft away from irrigation site
5841407	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
13298	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
20590	Domestic	N	Plugged	Greater than 150-ft away from irrigation site
26187	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
28035	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
29997	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
29998	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
33901	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
37375	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
45605	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
48727	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
48731	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
60485	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
64375	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
71751	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
74002	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
77018	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
77384	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
91305	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
92326	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
93219	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
96653	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
117485	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
125832	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
134327	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
146505	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
152651	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
172832	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
174365	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
174386	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
181840	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
278629	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
279798	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
279924	Closed-Loop Geothermal	N	Plugged	Greater than 150-ft away from irrigation site
281702	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
290846	Monitor	N	Plugged	Greater than 150-ft away from irrigation site
302100	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
302877	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
303549	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
305495	Domestic	Y	Cased	Greater than 150-ft away from irrigation site

ATTACHMENT 4 – WELL INFORMATION

316585	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
321851	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
337020	Test Well	N	Unknown	Greater than 150-ft away from irrigation site
337023	Test Well	N	Unknown	Greater than 150-ft away from irrigation site
338874	Test Well	Y	Cased	Greater than 150-ft away from irrigation site
342896	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
361592	Industrial	Y	Cased	Greater than 150-ft away from irrigation site
362820	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
362861	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
363714	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
363765	Test Well	Y	Cased	Greater than 150-ft away from irrigation site
368921	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
373653	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
374747	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
382354	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
388346	Closed-Loop Geothermal	N	Plugged	Greater than 150-ft away from irrigation site
392286	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
396942	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
411492	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
415072	Public Supply	Y	Cased	Greater than 500-ft away from irrigation site
417051	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
421075	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
425672	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
438988	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
460445	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
463219	Closed-Loop Geothermal	Y	Plugged	Greater than 150-ft away from irrigation site
463997	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
464009	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
474018	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
482411	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
488707	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
488880	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
499789	Domestic	Y	Unknown	Greater than 150-ft away from irrigation site
499853	Closed-Loop Geothermal	Y	Cased	Greater than 150-ft away from irrigation site
500733	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
502232	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
508384	Closed-Loop Geothermal	Y	Cased	Greater than 150-ft away from irrigation site
511455	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
515470	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
518929	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
525033	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
531625	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
532064	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
548936	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
560057	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
598700	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
601467	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
602784	Environmental Soil Boring	Y	Open	Greater than 150-ft away from irrigation site
602785	Environmental Soil Boring	Y	Open	Greater than 150-ft away from irrigation site

ATTACHMENT 4 – WELL INFORMATION

602786	Environmental Soil Boring	Y	Open	Greater than 150-ft away from irrigation site
614344	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
620862	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
621681	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
649902	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
650877	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
652387	Irrigation	Y	Cased	Greater than 150-ft away from irrigation site
655869	Domestic	Y	Cased	Greater than 150-ft away from irrigation site
667014	Public Supply	Y	Cased	Greater than 500-ft away from irrigation site

ATTACHMENT U
WEB SOIL SURVEY


Soil Map—Travis County, Texas
(Creekside Tract Map)



Soil Map—Travis County, Texas
(Creekside Tract Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

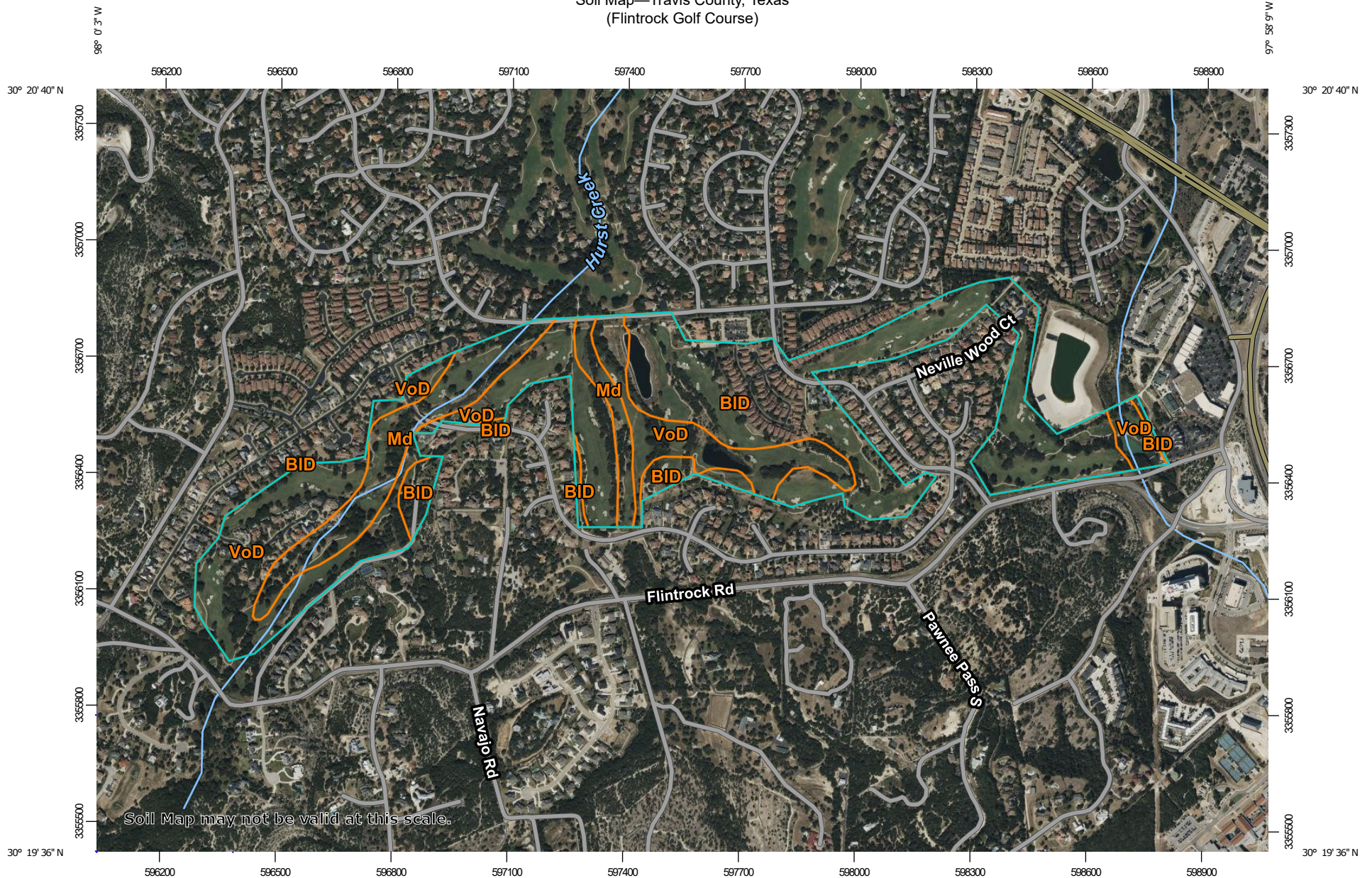
Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	3.0	92.1%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.3	7.9%
Totals for Area of Interest		3.3	100.0%

Soil Map—Travis County, Texas (Flintrock Golf Course)



Soil Map may not be valid at this scale.

Map Scale: 1:13,900 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

Soil Map—Travis County, Texas
(Flintrock Golf Course)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	82.0	44.3%
Md	Mixed alluvial land, 0 to 1 percent slopes, frequently flooded	27.8	15.0%
VoD	Volente silty clay loam, 1 to 8 percent slopes	75.3	40.7%
Totals for Area of Interest		185.1	100.0%

Soil Map—Travis County, Texas (Lakeway Map)



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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

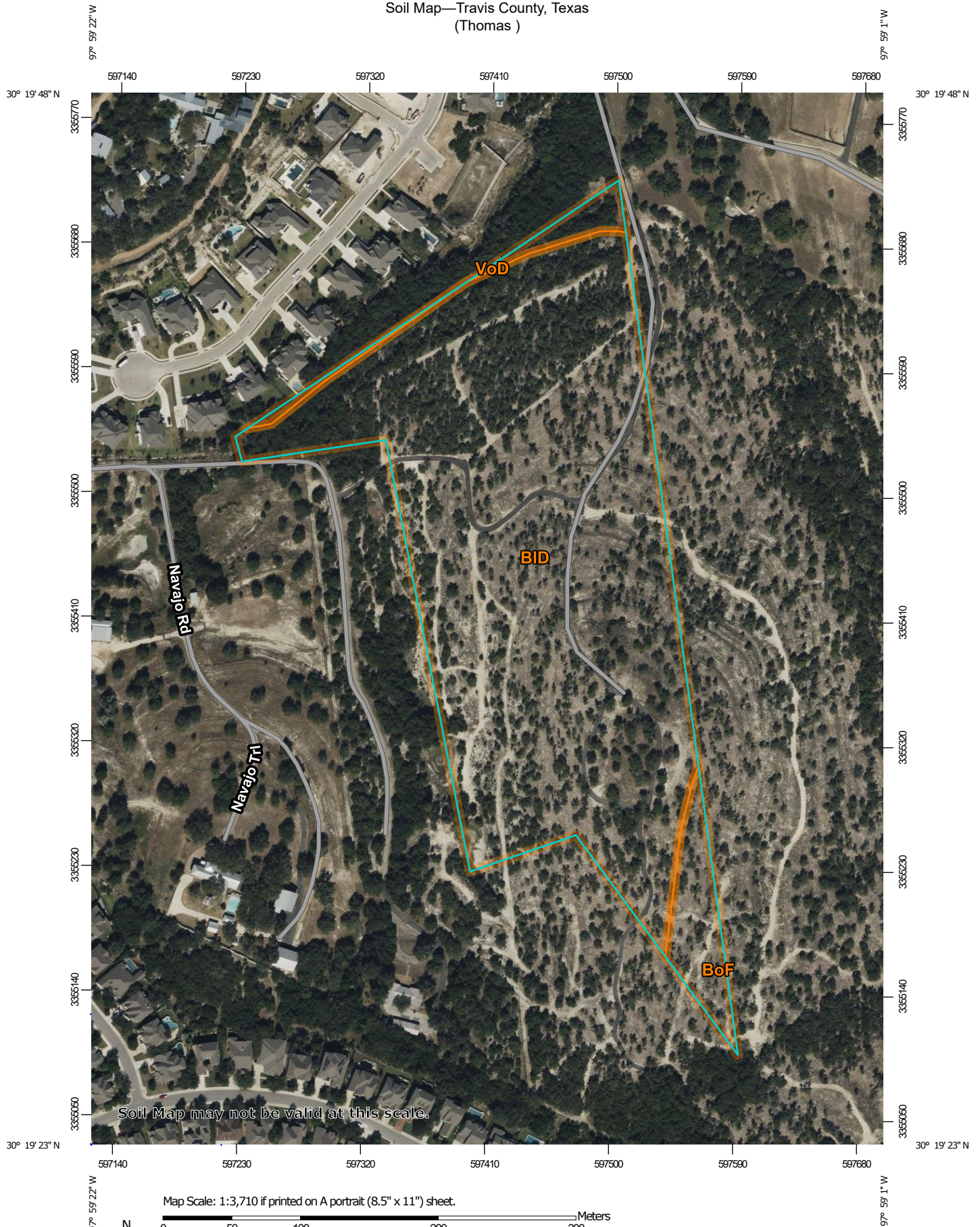
Date(s) aerial images were photographed: Data not available.

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.

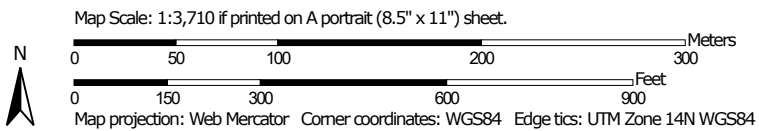
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	8.5	89.0%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	0.3	3.5%
TaD	Eckrant very stony clay, 5 to 18 percent slopes	0.7	6.9%
TcA	Eckrant and Speck soils, 0 to 2 percent slopes	0.1	0.6%
Totals for Area of Interest		9.5	100.0%

Soil Map—Travis County, Texas
(Thomas)



Soil Map may not be valid at this scale.




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3


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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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.

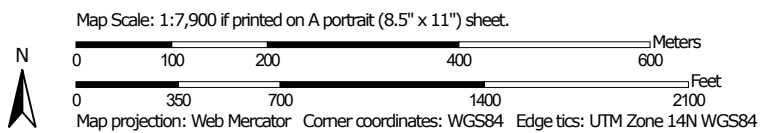
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	21.0	92.4%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	1.2	5.3%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.5	2.3%
Totals for Area of Interest		22.7	100.0%

Soil Map—Travis County, Texas
(Serene Hills Drive Map)



Soil Map may not be valid at this scale.



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills Drive Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	14.3	90.4%
VoD	Volente silty clay loam, 1 to 8 percent slopes	1.5	9.6%
Totals for Area of Interest		15.9	100.0%


Soil Map—Travis County, Texas
(Serene Hills A1 Map)



Soil Map—Travis County, Texas
(Serene Hills A1 Map)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	13.2	62.3%
VoD	Volente silty clay loam, 1 to 8 percent slopes	7.9	37.7%
Totals for Area of Interest		21.1	100.0%

Soil Map—Travis County, Texas (Serene Hills A2 Map)



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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

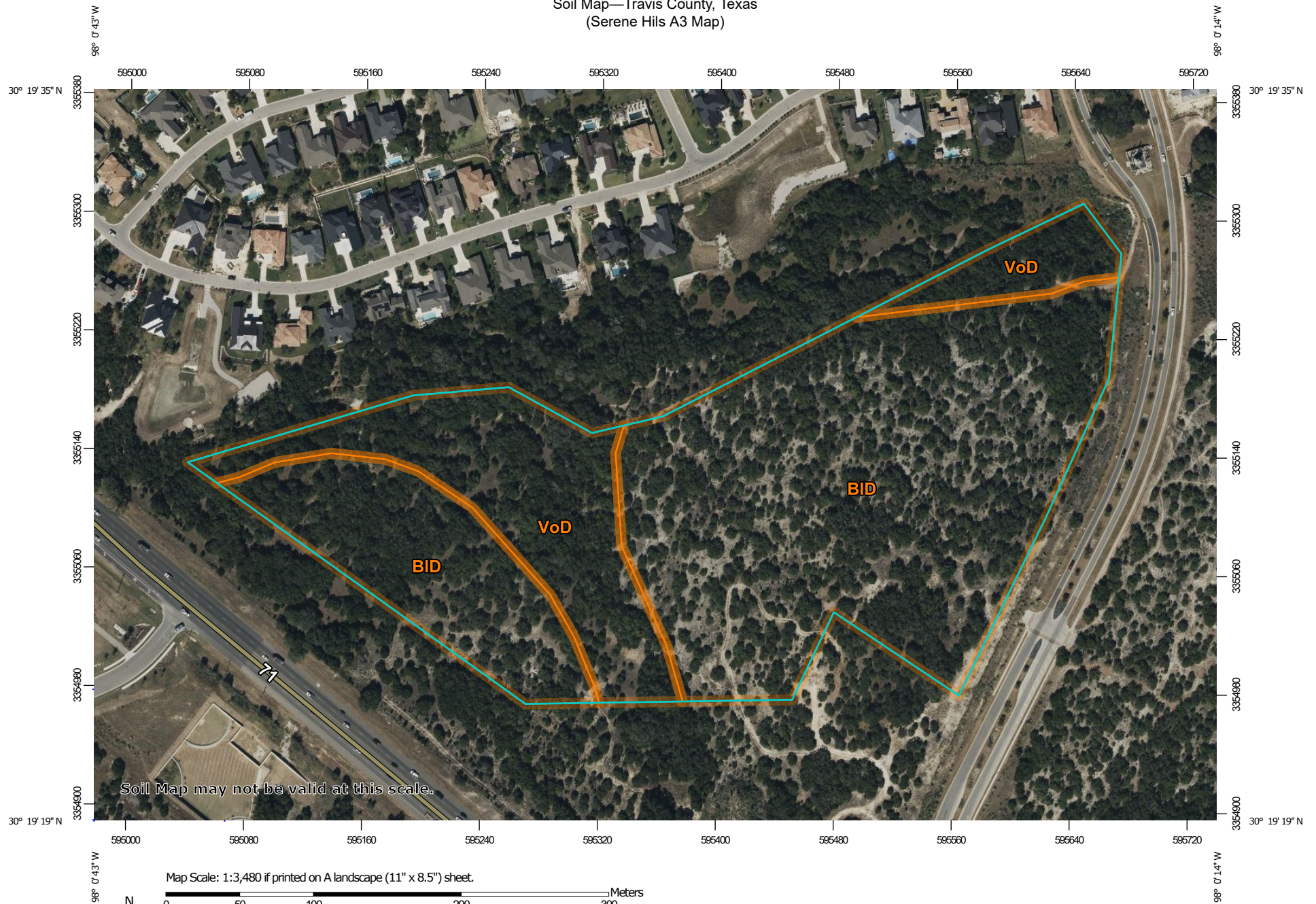
Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	11.7	54.3%
VoD	Volente silty clay loam, 1 to 8 percent slopes	9.9	45.7%
Totals for Area of Interest		21.6	100.0%

Soil Map—Travis County, Texas
(Serene Hills A3 Map)



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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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

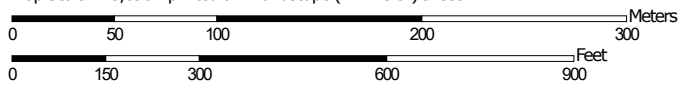
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	20.7	75.4%
VoD	Volente silty clay loam, 1 to 8 percent slopes	6.7	24.6%
Totals for Area of Interest		27.4	100.0%

Soil Map—Travis County, Texas
(Serene Hills A4 Map)



Soil Map may not be valid at this scale.

Map Scale: 1:3,690 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84




**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	9.8	64.4%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	5.3	34.6%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.1	0.9%
Totals for Area of Interest		15.2	100.0%

Soil Map—Travis County, Texas
(Serene Hills A5 Map)



Soil Map may not be valid at this scale.

Map Scale: 1:5,130 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

8/22/2024
Page 1 of 3

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

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
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	1.1	2.3%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	48.0	97.7%
Totals for Area of Interest		49.1	100.0%

Travis County, Texas

BID—Brackett-Rock outcrop complex, 1 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2yltz

Elevation: 820 to 1,330 feet

Mean annual precipitation: 33 to 37 inches

Mean annual air temperature: 65 to 69 degrees F

Frost-free period: 220 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 68 percent

Rock outcrop: 20 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 6 inches: gravelly clay loam

Bw - 6 to 18 inches: clay loam

Cr - 18 to 60 inches: bedrock

Properties and qualities

Slope: 1 to 12 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 90 percent

Gypsum, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Limestone

Typical profile

R - 0 to 48 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 0 to 2 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

San saba

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY356TX - Blackland 29-35 PZ
Hydric soil rating: No

Volente

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Eckrant

Percent of map unit: 4 percent

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: R081CY363TX - Steep Rocky 29-35 PZ

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

BoF—Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2t2m3

Elevation: 470 to 1,900 feet

Mean annual precipitation: 32 to 37 inches

Mean annual air temperature: 66 to 68 degrees F

Frost-free period: 230 to 265 days

Farmland classification: Not prime farmland

Map Unit Composition

Brackett and similar soils: 38 percent

Rock outcrop: 25 percent

Real and similar soils: 22 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brackett

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 6 inches: gravelly clay loam

Bk - 6 to 14 inches: gravelly clay loam

Cr - 14 to 60 inches: bedrock

Properties and qualities

Slope: 8 to 30 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 90 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Limestone

Typical profile

R - 0 to 80 inches: bedrock

Properties and qualities

Slope: 8 to 30 percent
Depth to restrictive feature: 0 to 2 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water
(Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Real

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 4 inches: gravelly loam
Ak - 4 to 14 inches: extremely gravelly loam
Cr - 14 to 40 inches: bedrock

Properties and qualities

Slope: 8 to 30 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 8 to 19 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 70 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R081CY362TX - Steep Adobe 29-35 PZ
Hydric soil rating: No

Minor Components

Eckrant

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081BY350TX - Steep Rocky 23-31 PZ
Hydric soil rating: No

Volente

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope, toeslope, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

Md—Mixed alluvial land, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: f65p

Elevation: 750 to 2,000 feet

Mean annual precipitation: 18 to 30 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Alluvial land, mixed: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alluvial Land, Mixed

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Calcareous gravelly alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 48 inches: stratified very gravelly coarse sand to very gravelly sand

Properties and qualities

Slope: 0 to 1 percent

Drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Frequency of flooding: Frequent

Calcium carbonate, maximum content: 90 percent

Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Ecological site: R086AY012TX - Loamy Bottomland

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

TaD—Eckrant very stony clay, 5 to 18 percent slopes

Map Unit Setting

National map unit symbol: 2xmt6

Elevation: 450 to 1,350 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 66 to 69 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eckrant and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eckrant

Setting

Landform: Ridges

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 5 inches: very stony clay

A2 - 5 to 8 inches: extremely flaggy clay

R - 8 to 30 inches: bedrock

Properties and qualities

Slope: 5 to 18 percent

Depth to restrictive feature: 6 to 14 inches to lithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 0.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brackett

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas
Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

TcA—Eckrant and Speck soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ylv5

Elevation: 800 to 1,300 feet

Mean annual precipitation: 33 to 37 inches

Mean annual air temperature: 65 to 69 degrees F

Frost-free period: 220 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Eckrant and similar soils: 63 percent

Speck and similar soils: 32 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eckrant

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from limestone

Typical profile

A1 - 0 to 5 inches: very stony clay

A2 - 5 to 8 inches: extremely flaggy clay

R - 8 to 30 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 6 to 14 inches to lithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 0.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Description of Speck

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 14 inches: clay loam
Bt - 14 to 18 inches: gravelly clay
R - 18 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water
(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R081CY361TX - Redland 29-35 PZ
Hydric soil rating: No

Minor Components

Crawford

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

Travis County, Texas

VoD—Volente silty clay loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ynhg

Elevation: 400 to 1,400 feet

Mean annual precipitation: 32 to 35 inches

Mean annual air temperature: 65 to 69 degrees F

Frost-free period: 230 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Volente and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Volente

Setting

Landform: Ridges

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Calcareous clayey colluvium and/or alluvium derived from limestone

Typical profile

A - 0 to 22 inches: silty clay loam

BA - 22 to 36 inches: silty clay

Bw - 36 to 46 inches: silty clay

Ck - 46 to 59 inches: clay loam

Properties and qualities

Slope: 1 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Minor Components

Lewisville

Percent of map unit: 15 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY357TX - Clay Loam 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Eckrant

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Orif

Percent of map unit: 2 percent
Landform: Drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R081CY561TX - Loamy Bottomland 29-35 PZ
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Hydric soil rating: No

Data Source Information

Soil Survey Area: Travis County, Texas

Survey Area Data: Version 25, Sep 5, 2023

ATTACHMENT V
SOIL ANALYSIS

Email information for report date:
4/29/24 16:57
H001050

Travis County WCID 17

Attn: Matt Gonzalez
adufek@wcid17.org

3812 ECK LANE
AUSTIN, TX 78734

Please contact us for your sampling needs or if you have any questions. Some convenient contacts are listed below. You can also access your results and reports through our ClientConnect™ portal on our website (www.aqua-techlabs.com).

For sampling questions:

samplingbryan@aqua-techlabs.com (Bryan area)
samplingaustin@aqua-techlabs.com (Austin area)

reporting@aqua-techlabs.com (report questions)

Aqua-Tech values you as a customer and encourages you to speak with our staff at 979-778-3707 or the above emails if you have questions.

Thank you for your business,
June M. Brien
Executive Technical Director

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

The analyses summarized in this report were performed by Aqua-Tech Laboratories, Inc. unless otherwise noted. Aqua-Tech Laboratories, Inc. holds accreditation from the State of Texas in accordance with TNI and/or through the TCEQ Drinking Water Commercial Laboratory Approval Program.

The following abbreviations indicate certification status:

NEL	TNI accredited parameter.
ANR	Accreditation not offered by the State of Texas.
DWP	Approval through the TCEQ Drinking Water Commercial Laboratory Approval Program.
INF	Aqua-Tech Laboratories, Inc. is not accredited for this parameter. It is reported on an informational basis only.

Certificate: T104704371-23-27



TCEQ Lab ID T104704371

Subcontracted data summarized in this report is indicated by "Sub" in the Lab column.

General Definitions:

NR	Not Reported.
RPD	Relative Percent Difference.
% R	Percent Recovery.
dry	Results with the "dry" unit designation are reported on a "dry weight" basis.
SQL	The Sample Quantitation Limit is the value below which the parameter cannot reliably be detected. The SQL includes all sample preparations, dilutions and / or concentrations.
Adj MDL	The Adjusted Method Detection Limit is the MDL value adjusted for any sample dilutions or concentrations.
MDL	The Method Detection Limit is the lowest theoretical value that is statistically different from zero for a specific method, taking into account all preparation steps and instrument settings.

All samples are reported on an "as received" basis unless the designation "dry" is added to the reported unit.

Copies of Aqua-Tech Laboratories, Inc. procedures and individual sampling plans are available upon request. Note that samples are collected by Aqua-Tech Laboratories, Inc. personnel unless otherwise noted in the "Sample Collected" field of this report as "Client" or "CLT".

Samples included in this report were received in acceptable condition according to Aqua-Tech Laboratories, Inc. procedures and 40 CFR, Chapter I, Subchapter D, Part 136.3, TABLE II. - *Required containers, preservation techniques, and holding times*, unless otherwise noted in this report.

Record Retention:

All reports, raw data, and associated quality control data are kept on file for 10 years before being destroyed. Any client that would like copies of records must contact Aqua-Tech Laboratories, Inc. no later than six months prior to the scheduled disposal. An administrative fee for retrieval and distribution will apply.

This report was approved by:

June M. Brien, Technical Director

The results in this report apply only to the samples analyzed. This analytical report must be reproduced in its entirety unless written permission is granted by Aqua-Tech Laboratories, Inc.

corp@aqua-techlabs.com

www.aqua-techlabs.com

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed: 4/29/24 16:57

H001050

Flintrock WWTP Soil 0-6 Inches

Collected: 02/21/24 11:00 by CLIENT
Received: 02/21/24 13:35 by Bryce Jones

Type
Comp

Matrix
Solid

C-O-C #
H001050

Lab ID#	H001050-01	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch
---------	------------	--------	-------	-------	-----	---------	-----	-----	----------	--------	-------

General Chemistry

% Solids	79.6	g/100g (%)			0.10	0.10	0.10	Austin	02/24/24 09:12 SR	SM2540 G 2015	M173817	NEL
Total Kjeldahl Nitrogen as N	1540	mg/kg dry			0.13	36.2	55.6	Bryan	03/05/24 16:27 KMA	SM4500-NH3 G 2011	M174210	ANR

Plant Available Parameters

Total Nitrogen	1540	mg/kg dry wt.				N/A	N/A	Calc	04/29/24 16:40 PMY	Calculation	M176680	ANR
----------------	------	---------------	--	--	--	-----	-----	------	--------------------	-------------	---------	-----

Please see the attached subcontract report for subcontracted data.

Flintrock WWTP Soil 6-18inches

Collected: 02/21/24 11:00 by CLIENT
Received: 02/21/24 13:35 by Bryce Jones

Type
Comp

Matrix
Solid

C-O-C #
H001050

Lab ID#	H001050-02	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch
---------	------------	--------	-------	-------	-----	---------	-----	-----	----------	--------	-------

General Chemistry

% Solids	78.1	g/100g (%)			0.10	0.10	0.10	Austin	02/24/24 09:12 SR	SM2540 G 2015	M173817	NEL
Total Kjeldahl Nitrogen as N	1490	mg/kg dry			0.13	31.5	48.4	Bryan	03/05/24 16:27 KMA	SM4500-NH3 G 2011	M174210	ANR

Plant Available Parameters

Total Nitrogen	1490	mg/kg dry wt.				N/A	N/A	Calc	04/29/24 16:40 PMY	Calculation	M176680	ANR
----------------	------	---------------	--	--	--	-----	-----	------	--------------------	-------------	---------	-----

Please see the attached subcontract report for subcontracted data.

Flintrock WWTP Soil 18-30 inches

Collected: 02/21/24 11:00 by CLIENT
Received: 02/21/24 13:35 by Bryce Jones

Type
Comp

Matrix
Solid

C-O-C #
H001050

Lab ID#	H001050-03	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch
---------	------------	--------	-------	-------	-----	---------	-----	-----	----------	--------	-------

General Chemistry

% Solids	78.8	g/100g (%)			0.10	0.10	0.10	Austin	02/24/24 09:12 SR	SM2540 G 2015	M173817	NEL
Total Kjeldahl Nitrogen as N	958	mg/kg dry			0.13	39.8	61.2	Bryan	03/05/24 16:27 KMA	SM4500-NH3 G 2011	M174210	ANR

Plant Available Parameters

Total Nitrogen	960	mg/kg dry wt.				N/A	N/A	Calc	04/29/24 16:40 PMY	Calculation	M176680	ANR
----------------	-----	---------------	--	--	--	-----	-----	------	--------------------	-------------	---------	-----

Please see the attached subcontract report for subcontracted data.

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193



AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Travis County WCID 17

Report Printed: 4/29/24 16:57
H001050

General Chemistry - Quality Control												
Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
% Solids - SM2540 G 2015												Austin
Blank	<0.10	g/100g (%)	0.10	0.10	02/24/24 09:12 SR							M173817
Duplicate	12.3	g/100g (%)	0.10	0.10	02/24/24 09:12 SR		12.7			3.21	10	M173817
Duplicate	12.3	%	0.100	0.100	02/24/24 09:12 SR		12.7			3.21	10	M173817
Total Kjeldahl Nitrogen as N - SM4500-NH3 G 2011												Bryan
Initial Cal Check	4.78	mg/L			03/05/24 16:27 KMA	4.56		105	90 - 110			2403036
Low Cal Check	0.22	mg/L			03/05/24 16:27 KMA	0.200		108	70 - 130			2403036
Blank	<0.20	mg/kg wet	0.13	0.20	03/05/24 16:27 KMA							M174210
LCS	4.08	mg/kg wet	0.13	0.20	03/05/24 16:27 KMA	4.00		102	91 - 116			M174210
LCS Dup	4.16	mg/kg wet	0.13	0.20	03/05/24 16:27 KMA	4.00		104	91 - 116	1.89	10	M174210
Matrix Spike	2300	mg/kg dry	64.6	99.3	03/05/24 16:27 KMA	1990	411	95.2	88.2 - 119			M174210
Matrix Spike Dup	2310	mg/kg dry	64.6	99.3	03/05/24 16:27 KMA	1990	411	95.6	88.2 - 119	0.498	20	M174210
Reference	1140	mg/kg wet	31.5	48.5	03/05/24 16:27 KMA	1160		98.1	80 - 120			M174210
Sample Preparation Summary											External Dilution Factor	Batch
Sample	Method	Prepared	Lab	Bottle	Initial	Units	Final	Units				
H001050-01												
% Solids	SM2540 G 2015	2/24/24 9:12 SR	Austin	B	10.0	g	10.0	mL	1			M173817
Subcontract	Sub Contract Data Entry	4/29/24 15:57 PMY	Bryan	-	-	-	-	-	-			M176678
Total Kjeldahl Nitrogen as N	SM4500-NH3 G 2011	3/5/24 9:20 KMA	Bryan	B	0.113	g	25.0	mL	1			M174210
Total Nitrogen	Calculation	4/29/24 16:40 PMY			1.00	g	1.00	mL	1			M176680
H001050-02												
% Solids	SM2540 G 2015	2/24/24 9:12 SR	Austin	B	10.0	g	10.0	mL	1			M173817
Subcontract	Sub Contract Data Entry	4/29/24 15:57 PMY	Bryan	-	-	-	-	-	-			M176678
Total Kjeldahl Nitrogen as N	SM4500-NH3 G 2011	3/5/24 9:20 KMA	Bryan	B	0.132	g	25.0	mL	1			M174210
Total Nitrogen	Calculation	4/29/24 16:40 PMY			1.00	g	1.00	mL	1			M176680
H001050-03												
% Solids	SM2540 G 2015	2/24/24 9:12 SR	Austin	B	10.0	g	10.0	mL	1			M173817
Subcontract	Sub Contract Data Entry	4/29/24 15:57 PMY	Bryan	-	-	-	-	-	-			M176678
Total Kjeldahl Nitrogen as N	SM4500-NH3 G 2011	3/5/24 9:20 KMA	Bryan	B	0.104	g	25.0	mL	1			M174210
Total Nitrogen	Calculation	4/29/24 16:40 PMY			1.00	g	1.00	mL	1			M176680

Aqua-Tech LABORATORIES, INC.		Chain-of-Custody and Analysis Request					Aqua-Tech laboratories, Inc. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Austin 3512 Montopolis Dr. Austin, TX 78744 512.301.9559 </div> <div style="text-align: center;"> Bryan 635 Phil Gramm Blvd. Bryan, TX 77807 979.778.3707 </div> </div>		C-O-C # H001050 Page 1 of 2 <small>rte_ATL COC 012723.rpt</small>							
Client / Project Name: Travis County WCID 17 Flintrock WWTP Soil					TCEQ LAB ID: T104704371		Test results meet all accreditation/certification requirements unless stated otherwise.									
Contact Information Name Matt Gonzalez Address 3812 ECK LANE City AUSTIN State TX Zip 78734 Phone (512) 266-1111 email		Definitions DW Drinking Water NP Non-Potable Water S Solid CM Custody Maintained CTU Custody Transfer Unbroken CT Corrected Temperature		Reagent tracking is available upon request.		Sample Custody										
<p>Analyses Requested: "A" prefix indicates Austin, all others Bryan or Subcontracted, indicated by [SUB]. Name format: Analysis-Matrix-Technology-Method.</p> <p>[NEL] = NELAP accredited parameter [CNR] = No NELAP accreditation required or available [SUB] = NELAP accredited subcontracted parameter [INF] = Informational only (not NELAC certified)</p> <p>By relinquishing the samples listed below to Aqua-Tech laboratories, Inc. (ATL), the client agrees to the following terms. Samples will be analyzed by a method that is within ATL's NELAP fields of accreditation (FoA). Analyses requiring an accredited method that is not within ATL's FoA will be subcontracted to a NELAP lab that is accredited for that method. Clients will be notified of the subcontract lab's details. Other analytes not requiring accreditation will be analyzed by a compendial method. If a specific method is required, the client will note the method in the "Analysis Requested" column. The client approves all method modifications documented by ATL or the subcontract lab.</p> <p>A current list of ATL's NELAC fields of accreditation and other methods are available on request.</p>						Relinquished (print & sign) <i>Greg Adams</i> <input checked="" type="checkbox"/> Sampler <input checked="" type="checkbox"/> Client <input type="checkbox"/> ATL Field Date <u>02-21-24</u> <input type="checkbox"/> Iced / Refrig Time <u>11:45</u> <input type="checkbox"/> Custody Sealed										
						Received (print & sign) <i>Bryce Jones</i> <input type="checkbox"/> Client <input checked="" type="checkbox"/> ATL Field Date <u>2/21/24</u> <input type="checkbox"/> Iced / Refrig Time <u>1222</u> <input type="checkbox"/> CM / CTU										
						Relinquished (print & sign) <i>NPE</i> <input type="checkbox"/> Client <input type="checkbox"/> ATL Field Date _____ Time _____ <input type="checkbox"/> Iced / Refrig <input type="checkbox"/> CM / CTU										
						Received (print & sign) <i>Bryce Jones</i> <input type="checkbox"/> Client <input checked="" type="checkbox"/> ATL Field Date <u>02/21/24</u> <input checked="" type="checkbox"/> Iced / Refrig Time <u>13:35</u> <input checked="" type="checkbox"/> CM / CTU / Sealed										
						Received (print & sign) <i>Bryce Jones</i> <input checked="" type="checkbox"/> Lab Date <u>02/21/24</u> <input checked="" type="checkbox"/> Cond Good <input checked="" type="checkbox"/> Iced / Refrig <input checked="" type="checkbox"/> CM / CTU Time <u>13:35</u>										
Comments:					- LAB RECEIPT - AQU1		Relinquished (print & sign) _____ Date _____ Time _____ <input type="checkbox"/> Iced / Refrig <input type="checkbox"/> CM / CTU									
		Temperature - CT (C): 3.6														
		Preservation Correct: Yes														
		Post-Preservatives: N/A Thermometer ID: 0811654 pH Paper ID: 0812800 <small>ko_A COC MULTI 043020.rpt</small>														
Field Sample ID					Start Date Time		End Date Time		Composite Type		Sample Matrix		Container (Checked box indicates bottle arrived in lab) (Volume - Type - Preservative)		Lab ID	
Flintrock WWTP Soil 0-6 Inches					02-21-24 08:00		02-21-24 11:00		Comp		S		<input checked="" type="checkbox"/> A SOIL 1LP <input checked="" type="checkbox"/> B SOIL 1LP		H001050-01	
A TS SL Grav SM2540 G [NEL] Cond SL (SP) Probe TAMU CNR [SUB] Mg TAMU Water Soluble SP MEQ [SUB] [ANR] Na TAMU Water Soluble Saturated Paste CNR [SUB] P TAMU Plant Available Mehlich 3 CNR [SUB] SUB pH SL TAMU (1:2) CNR [SUB] Y Billing Ship to Sub-Contract Lab					Ca TAMU Water Soluble Saturated Paste CNR [SUB] K TAMU Plant Available Mehlich 3 CNR [SUB] N Total SL PKG TAMU [CNR] Na TAMU Water Soluble Saturated Paste CNR [SUB] SAR TAMU Plant Available CNR [SUB] TKN SL AUTO SM4500 NH3 G [CNR]					Ca TAMU Water Soluble SP MEQ [SUB] [ANR] Mg TAMU Water Soluble Saturated Paste CNR [SUB] N Total TAMU CALC ENTRY [CNR] NO3N TAMU Extractable Mehlich 3 CNR [SUB] Solids, Dry Weight Y Billing N Total Calc						
Flintrock WWTP Soil 6-18inches					02-21-24 08:00		02-21-24 11:00		Comp		S		<input checked="" type="checkbox"/> A SOIL 1LP <input checked="" type="checkbox"/> B SOIL 1LP		H001050-02	
A TS SL Grav SM2540 G [NEL] Ca TAMU Water Soluble SP MEQ [SUB] [ANR] Mg TAMU Plant Available Mehlich 3 CNR [SUB] [ANR] N Total SL PKG TAMU [CNR] Na TAMU Water Soluble Saturated Paste CNR [SUB] P TAMU Plant Available Mehlich 3 CNR [SUB] SUB pH SL TAMU (1:2) CNR [SUB]					Ca TAMU Plant Available Mehlich 3 CNR [SUB] [ANR] Cond SL (SP) Probe TAMU CNR [SUB] Mg TAMU Water Soluble Saturated Paste CNR [SUB] N Total TAMU CALC ENTRY [CNR] Na TAMU Water Soluble SP MEQ [SUB] [ANR] SAR TAMU Plant Available CNR [SUB] TKN SL AUTO SM4500 NH3 G [CNR]					Ca TAMU Water Soluble Saturated Paste CNR [SUB] K TAMU Plant Available Mehlich 3 CNR [SUB] Mg TAMU Water Soluble SP MEQ [SUB] [ANR] Na TAMU Plant Available Mehlich 3 CNR [SUB] [ANR] NO3N TAMU Extractable Mehlich 3 CNR [SUB] Solids, Dry Weight Y Billing N Total Calc						

Chain-of-Custody and Analysis Request

C-O-C #

H001050

Client : Travis County WCID 17

Page 2 of 2

Field Sample ID	Start Date Time	End Date Time	Composite Type	Sample Matrix	Container (Checked box indicates bottle arrived in lab) (Volume - Type - Preservative)	Lab ID
Flintrock WWTP Soil 18-30 inches	02-21-24 08:00	02-21-24 11:00	Comp	S	<input checked="" type="checkbox"/> A SOIL 1LP <input checked="" type="checkbox"/> B SOIL 1LP	H001050-03
<div> <div> A TS SL Grav SM2540 G [NEL] Ca TAMU Water Soluble SP MEQ [SUB] [ANR] Mg TAMU Plant Available Mehlich 3 CNR [SUB] [ANR] N Total SL PKG TAMU [CNR] Na TAMU Water Soluble Saturated Paste CNR [SUB] P TAMU Plant Available Mehlich 3 CNR [SUB] SUB pH SL TAMU (1:2) CNR [SUB] </div> <div> Ca TAMU Plant Available Mehlich 3 CNR [SUB] [ANR] Cond SL (SP) Probe TAMU CNR [SUB] Mg TAMU Water Soluble Saturated Paste CNR [SUB] N Total TAMU CALC ENTRY [CNR] Na TAMU Water Soluble SP MEQ [SUB] [ANR] SAR TAMU Plant Available CNR [SUB] TKN SL AUTO SM4500 NH3 G [CNR] </div> <div> Ca TAMU Water Soluble Saturated Paste CNR [SUB] K TAMU Plant Available Mehlich 3 CNR [SUB] Mg TAMU Water Soluble SP MEQ [SUB] [ANR] Na TAMU Plant Available Mehlich 3 CNR [SUB] [ANR] NO3N TAMU Extractable Mehlich 3 CNR [SUB] Solids, Dry Weight Y Billing N Total Calc </div> </div>						



Report generated for:
Aqua-Tech Laboratories, Inc.
635 Phil Gramm Blvd
BRYAN, TX 77807

Travis County

Laboratory Number: 652463

Customer Sample ID: H001050-01A

Crop Grown: RYEGRASS , MODERATE GRAZING

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/27/2024

Printed on: 3/6/2024

Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	8.1	(6)	-	Mod. Alkaline							
Conductivity	63	(-)	umho/cm	None						CL*	Fertilizer Recommended
Nitrate-N	5	(-)	ppm**								120 lbs N/acre
Phosphorus	11	(50)	ppm								40 lbs P2O5/acre
Potassium	411	(125)	ppm								0 lbs K2O/acre
Calcium	13,407	(180)	ppm								0 lbs Ca/acre
Magnesium	405	(50)	ppm								0 lbs Mg/acre
Sulfur	99	(13)	ppm								0 lbs S/acre
Sodium	77	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)			
	pH	6.9	
	Conductivity	0.88	mmhos/cm
	Sodium	43	ppm 1.865 meq/L
	Potassium	12	ppm 0.307 meq/L
	Calcium	113	ppm 5.627 meq/L
	Magnesium	11	ppm 0.907 meq/L
	SAR	1.03	
	SSP	21.42	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply 1/2 of nitrogen at preplant and topdress remainder of nitrogen after 4 to 6 weeks of grazing.

Online fertilizer calculators to determine appropriate fertilizers and application rates.

<http://soiltesting.tamu.edu>



Report generated for:
Aqua-Tech Laboratories, Inc.
635 Phil Gramm Blvd
BRYAN, TX 77807

Travis County
Laboratory Number: 652463
Customer Sample ID: H001050-01A

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/27/2024

Printed on: 3/6/2024

Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	8.1	(5.8)	-	Mod. Alkaline								
Conductivity	63	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	5	(-)	ppm**								90 lbs N/acre	
Phosphorus	11	(50)	ppm								95 lbs P2O5/acre	
Potassium	411	(150)	ppm								0 lbs K2O/acre	
Calcium	13,407	(180)	ppm								0 lbs Ca/acre	
Magnesium	405	(50)	ppm								0 lbs Mg/acre	
Sulfur	99	(13)	ppm								0 lbs S/acre	
Sodium	77	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron												
Limestone Requirement											0.00 tons 100ECCE/acre	

Detailed Salinity Test (Saturated Paste Extract)			
	pH	6.9	
	Conductivity	0.88 mmhos/cm	
	Sodium	43 ppm	1.865 meq/L
	Potassium	12 ppm	0.307 meq/L
	Calcium	113 ppm	5.627 meq/L
	Magnesium	11 ppm	0.907 meq/L
	SAR	1.03	
	SSP	21.42	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.

<http://soiltesting.tamu.edu>



Report generated for:
Aqua-Tech Laboratories, Inc.
635 Phil Gramm Blvd
BRYAN, TX 77807

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/27/2024

Printed on: 3/6/2024

Area Represented: not provided

Travis County

Laboratory Number: 652464

Customer Sample ID: H001050-02A

Crop Grown: RYEGRASS , MODERATE GRAZING

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	8.0	(6)	-	Mod. Alkaline								
Conductivity	76	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	3	(-)	ppm**									120 lbs N/acre
Phosphorus	1	(50)	ppm									50 lbs P2O5/acre
Potassium	363	(125)	ppm									0 lbs K2O/acre
Calcium	16,019	(180)	ppm									0 lbs Ca/acre
Magnesium	354	(50)	ppm									0 lbs Mg/acre
Sulfur	117	(13)	ppm									0 lbs S/acre
Sodium	72	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre
Detailed Salinity Test (Saturated Paste Extract)												
	pH										6.9	
	Conductivity										0.74 mmhos/cm	
	Sodium										41 ppm 1.778 meq/L	
	Potassium										8 ppm 0.216 meq/L	
	Calcium										81 ppm 4.036 meq/L	
	Magnesium										6 ppm 0.518 meq/L	
	SAR										1.18	
	SSP										27.15	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply 1/2 of nitrogen at preplant and topdress remainder of nitrogen after 4 to 6 weeks of grazing.

Online fertilizer calculators to determine appropriate fertilizers and application rates.

<http://soiltesting.tamu.edu>



Report generated for:
Aqua-Tech Laboratories, Inc.
635 Phil Gramm Blvd
BRYAN, TX 77807

Travis County
Laboratory Number: 652464
Customer Sample ID: H001050-02A

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/27/2024

Printed on: 3/6/2024

Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	8.0	(5.8)	-	Mod. Alkaline								
Conductivity	76	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	3	(-)	ppm**									90 lbs N/acre
Phosphorus	1	(50)	ppm									120 lbs P2O5/acre
Potassium	363	(150)	ppm									0 lbs K2O/acre
Calcium	16,019	(180)	ppm									0 lbs Ca/acre
Magnesium	354	(50)	ppm									0 lbs Mg/acre
Sulfur	117	(13)	ppm									0 lbs S/acre
Sodium	72	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)			
	pH	6.9	
	Conductivity	0.74	mmhos/cm
	Sodium	41	ppm
	Potassium	8	ppm
	Calcium	81	ppm
	Magnesium	6	ppm
	SAR	1.18	
	SSP	27.15	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.

<http://soiltesting.tamu.edu>



Report generated for:
Aqua-Tech Laboratories, Inc.
635 Phil Gramm Blvd
BRYAN, TX 77807

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/27/2024

Printed on: 3/6/2024

Area Represented: not provided

Travis County

Laboratory Number: 652465

Customer Sample ID: H001050-03A

Crop Grown: RYEGRASS , MODERATE GRAZING

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.	
pH	8.0	(6)	-	Mod. Alkaline							
Conductivity	80	(-)	umho/cm	None							Fertilizer Recommended
Nitrate-N	2	(-)	ppm**								125 lbs N/acre
Phosphorus	0	(50)	ppm								55 lbs P2O5/acre
Potassium	289	(125)	ppm								0 lbs K2O/acre
Calcium	17,699	(180)	ppm								0 lbs Ca/acre
Magnesium	321	(50)	ppm								0 lbs Mg/acre
Sulfur	129	(13)	ppm								0 lbs S/acre
Sodium	68	(-)	ppm								
Iron											
Zinc											
Manganese											
Copper											
Boron											
Limestone Requirement											0.00 tons 100ECCE/acre
Detailed Salinity Test (Saturated Paste Extract)											
	pH	6.7									
	Conductivity	0.82	mmhos/cm								
	Sodium	44	ppm								1.910 meq/L
	Potassium	6	ppm								0.163 meq/L
	Calcium	110	ppm								5.513 meq/L
	Magnesium	6	ppm								0.534 meq/L
	SAR	1.10									
	SSP	23.52									

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply 1/2 of nitrogen at preplant and topdress remainder of nitrogen after 4 to 6 weeks of grazing.

Online fertilizer calculators to determine appropriate fertilizers and application rates.

<http://soiltesting.tamu.edu>



Report generated for:
Aqua-Tech Laboratories, Inc.
635 Phil Gramm Blvd
BRYAN, TX 77807

Travis County
Laboratory Number: 652465
Customer Sample ID: H001050-03A

Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: <http://soiltesting.tamu.edu>

Sample received on: 2/27/2024

Printed on: 3/6/2024

Area Represented: not provided

Analysis	Results	CL*	Units	ExLow	VLow	Low	Mod	High	VHigh	Excess.		
pH	8.0	(5.8)	-	Mod. Alkaline								
Conductivity	80	(-)	umho/cm	None							CL*	Fertilizer Recommended
Nitrate-N	2	(-)	ppm**									95 lbs N/acre
Phosphorus	0	(50)	ppm									120 lbs P2O5/acre
Potassium	289	(150)	ppm									0 lbs K2O/acre
Calcium	17,699	(180)	ppm									0 lbs Ca/acre
Magnesium	321	(50)	ppm									0 lbs Mg/acre
Sulfur	129	(13)	ppm									0 lbs S/acre
Sodium	68	(-)	ppm									
Iron												
Zinc												
Manganese												
Copper												
Boron												
Limestone Requirement												0.00 tons 100ECCE/acre

Detailed Salinity Test (Saturated Paste Extract)			
	pH	6.7	
	Conductivity	0.82 mmhos/cm	
	Sodium	44 ppm	1.910 meq/L
	Potassium	6 ppm	0.163 meq/L
	Calcium	110 ppm	5.513 meq/L
	Magnesium	6 ppm	0.534 meq/L
	SAR	1.10	
	SSP	23.52	

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
<http://soiltesting.tamu.edu>

SHIPPED TO: **TAMU - Soil Lab**

Page 2 of 2

Sample ID Sampled / Matrix	Analysis Request	(ATL indicates cooler number in parentheses for each container - only required if more than one cooler listed above.)	Lab ID
H001050-02 02/21/24 11:00 Soil	<div>Calculation - TAMU</div> <div>SAR Plant Available</div> <div>Mehlich 3 - TAMU</div> <div> P Plant Available NO3N Extractable Na Plant Available Mg Plant Available K Plant Available Ca Plant Available </div> <div>Saturated Paste - TAMU</div> <div> Na Water Soluble MEQ Na Water Soluble Mg Water Soluble MEQ Mg Water Soluble Conductivity (SP) Ca Water Soluble MEQ Ca Water Soluble </div> <div>TAMU - 1:2 Soil Extract</div> <div>pH</div>	() H001050-02 [A] - SOIL 1LP	
H001050-03 02/21/24 11:00 Soil	<div>Calculation - TAMU</div> <div>SAR Plant Available</div> <div>Mehlich 3 - TAMU</div> <div> P Plant Available NO3N Extractable Na Plant Available Mg Plant Available K Plant Available Ca Plant Available </div> <div>Saturated Paste - TAMU</div> <div> Na Water Soluble MEQ Na Water Soluble Mg Water Soluble MEQ Mg Water Soluble Conductivity (SP) Ca Water Soluble MEQ Ca Water Soluble </div> <div>TAMU - 1:2 Soil Extract</div> <div>pH</div>	() H001050-03 [A] - SOIL 1LP	

ATTACHMENT W
EFFLUENT MONITORING DATA SUMMARY

**TRAVIS COUNTY WCID NO. 17
FLINTROCK WWTP WQ0013878001
ATTACHMENT W - EFFLUENT MONITORING DATA SUMMARY**

Date	Avg Daily Flow (gpd)	Total Monthly Flow (MGD)	BOD (mg/L)	CBOD (mg/L)	Turbidity (ntu)	E Coli (CFU)	TSS (mg/L)	P (mg/L)	pH	CL2 (mg/L)	Drip Acres Irrigated	Spray Acres Irrigated	Total Acres Irrigated
Jun-22	516,700	15.5020	2.00	2.00	2.50	8.00	2.00	0.734	7.60	10.00	0.0000	152.6	152.6460
Jul-22	505,500	15.6710	1.00	2.00	1.20	97.00	1.00	1.030	7.90	6.50	0.0000	152.6	152.6460
Aug-22	504,600	15.6440	1.00	2.00	1.30	1.00	1.00	0.736	7.70	10.00	0.0000	152.6	152.6460
Sep-22	490,500	14.7140	1.00	2.00	1.20	15.00	1.00	0.683	8.00	9.20	0.0000	152.6	152.6460
Oct-22	487,000	15.0970	2.00	2.00	1.40	22.00	1.00	0.773	7.90	7.30	0.0000	152.6	152.6460
Nov-22	513,600	15.4070	2.00	3.00	1.60	1.00	1.00	0.281	7.70	10.60	0.0000	152.6	152.6460
Dec-22	530,600	16.4480	2.00	2.00	1.40	3.00	1.00	0.284	7.70	9.00	0.0000	152.6	152.6460
Jan-23	521,400	16.1620	2.00	5.00	1.00	1.00	1.00	0.082	7.10	10.90	0.0000	152.6	152.6460
Feb-23	501,200	14.0340	3.00	3.00	1.10	1.00	2.00	0.236	7.10	10.90	0.0000	152.6	152.6460
Mar-23	479,600	14.8690	4.00	7.00	2.30	1.00	2.00	0.490	7.35	9.80	0.0000	152.6	152.6460
Apr-23	490,600	14.7170	1.00	3.00	1.30	1.00	1.00	0.670	7.41	10.00	0.0000	152.6	152.6460
May-23	485,500	15.0490	2.00	2.00	1.30	1.00	1.00	0.438	7.72	10.00	0.0000	152.6	152.6460
Jun-23	482,500	14.4740	2.00	2.00	1.20	2.00	1.00	0.433	7.56	10.00	0.0000	152.6	152.6460
Jul-23	453,600	14.0620	1.00	2.00	1.60	11.00	1.00	0.828	7.43	10.00	0.0000	152.6	152.6460
Aug-23	464,200	14.3900	1.00	2.00	1.30	8.00	1.00	0.152	7.29	9.60	0.0000	152.6	152.6460
Sep-23	464,300	13.9300	1.00	3.00	1.90	3.00	2.00	0.704	7.50	8.30	0.0000	152.6	152.6460
Oct-23	470,500	14.5870	2.00	6.00	3.90	1.00	1.00	0.450	7.67	9.40	0.0000	152.6	152.6460
Nov-23	484,200	14.5250	2.00	2.00	1.30	1.00	1.00	0.983	7.62	10.00	0.0000	152.6	152.6460
Dec-23	512,600	15.8900	3.00	3.00	1.50	1.00	1.00	0.412	7.56	10.00	0.0000	152.6	152.6460
Jan-24	537,000	16.6470	2.00	3.00	2.10	1.00	1.00	0.236	7.10	10.90	0.0000	152.6	152.6460
Feb-24	508,400	14.7430	3.00	4.00	2.00	2.00	1.00	0.235	7.10	10.90	0.0000	152.6	152.6460
Mar-24	511,100	15.8430	4.00	4.00	2.40	2.00	4.00	0.730	7.38	8.90	0.0000	152.6	152.6460
Apr-24	519,000	15.5690	3.00	3.00	1.10	1.00	1.00	0.720	7.45	8.20	0.0000	152.6	152.6460
May-24	530,000	16.4300	4.00	2.00	1.00	6.00	1.00	0.644	7.39	5.10	0.0000	152.6	152.6460
Jun-24	507,300	15.2180	1.00	22.00	1.00	15.00	1.00	0.878	7.36	10.00	0.0000	152.6	152.6460

ATTACHMENT X
WATER BALANCE

Column Descriptions for the Proceeding Water Balance Table

Column Number	Description
(1)	Day of the year
(2)	Daily rainfall from NOAA gauge GHCND:USW00013958 at Camp Mabry. Data from 01/01/1988 to 12/06/2013
(3)	Runoff was determined using SCS method found in SCS Technical Release No. 55. CN value of 80 was used, based on Soil Group D: Lawns, open spaces, parks, golf courses, etc with grass covering more than 75% of the area. CN was found in Table 8.3 From "Water Resources Engineering" by Wurbs & James
(4)	Average infiltrated rainfall is taken as the difference between average precipitation and average runoff
(5)	Evapotranspiration was found using Blaney-Criddle method as described in FAO's "Irrigation Water Management" Paper, Chapter 3: Crop Water Needs. See Table "ET using Blaney-Criddle Method"
(6)	Required Leaching (L) = $(C_e/(C_l - C_e) * (E - R_i))$ where R_i =column(4), E =Column(5), C_e =Electrical Conductivity of Effluent, C_l = Max Allowable Conductivity of Soil Solution (Table 3 of TCEQ Chapter 309). C_e = 1.5, & C_l =10.0
(7)	Total Water Needs is equal to the sum of Evapotranspiration (5) and Required Leaching (6)
(8)	Effluent needed in root zone. Calculated by subtracting Average Infiltration (4) from the Total Water Needs (7)
(9)	Reservoir Surface Evaporation taken from TWDB QUADS 709 & 710 for Years 1988-2012. Data was averaged between Quads. Monthly Values were distributed evenly to have a constant Evaporation rate per day for each month. Total/# Days in Month)*(reservoir surface area/irrigation surface area) = (Monthly Evap
(10)	Effluent to be Applied to Land is calculated by dividing the Effluent Needed in Root Zone (8) by the Irrigation efficiency, K. Irrigation efficiency, K, is equal to 0.85 unless specific information provided (no specific information provided)
(11)	Consumption from reservoir is calculated by adding Evapotranspiration (9) and Effluent to be Applied to Land (10)
(12)	Effluent Received = 0.125 inches/acre-day
(13)	Annual Rainfall amount from the 'worst year' in past 25 years of data (1988-2013). Total Rainfall is then distributed proportional to monthly averages (Since using daily data, daily data from 'worst year' was inserted). 'Worst Year' was 2004.
(14)	Runoff using rainfall values in column 13. Same method was used as in column (4) (SCS Method)
(15)	Infiltrated rainfall is taken as the difference between the precipitation from the 'worst year' and runoff calculated using precepitation from the 'worst year'
(16)	Available water is calculated by adding Effluent Received for Application or Storage (12) and Infiltrated Rainfall calculated by 'worst year'
(17)	Lowest annual evaporation in past 25 years from a reservoir surface. Distribute annual value proportionally to monthly average evaporation expressed in inches per irrigated acre. (After annual value distributed proportionally to montly average, each monthly value was divided by number of days in month)
(18)	Storage = $[(12)-(17)] - \{[(7)-(15)]/K\}$. If the term $\{[(7)-(15)]/K\}$ is negative, then the vaule for storage = $[(12)-(17)]$. K=.85 unless otherwise specified.

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (Inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/(K))	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Jan	0.005	0.000	0.005	0.109	0.018	0.128	0.123	0.002	0.145	0.147	0.125	0.039	0.000	0.039	0.164	0.002	0.019	0.398
2-Jan	0.108	0.000	0.108	0.109	0.000	0.110	0.002	0.002	0.002	0.005	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.392
3-Jan	0.042	0.000	0.042	0.109	0.012	0.121	0.079	0.002	0.093	0.095	0.125	0.000	0.000	0.000	0.125	0.002	-0.020	0.377
4-Jan	0.045	0.000	0.045	0.109	0.011	0.121	0.076	0.002	0.089	0.091	0.125	0.000	0.000	0.000	0.125	0.002	-0.019	0.353
5-Jan	0.070	0.000	0.070	0.109	0.007	0.116	0.046	0.002	0.055	0.057	0.125	0.000	0.000	0.000	0.125	0.002	-0.014	0.339
6-Jan	0.107	0.000	0.107	0.109	0.000	0.110	0.002	0.002	0.003	0.005	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.333
7-Jan	0.103	0.000	0.103	0.109	0.001	0.111	0.008	0.002	0.009	0.011	0.125	0.000	0.000	0.000	0.125	0.002	-0.007	0.326
8-Jan	0.039	0.000	0.039	0.109	0.012	0.122	0.082	0.002	0.097	0.099	0.125	0.031	0.000	0.031	0.156	0.002	0.017	0.343
9-Jan	0.364	0.000	0.364	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.337
10-Jan	0.067	0.000	0.067	0.109	0.008	0.117	0.050	0.002	0.059	0.062	0.125	0.000	0.000	0.000	0.125	0.002	-0.015	0.323
11-Jan	0.039	0.000	0.039	0.109	0.012	0.122	0.083	0.002	0.098	0.100	0.125	0.000	0.000	0.000	0.125	0.002	-0.020	0.303
12-Jan	0.071	0.000	0.071	0.109	0.007	0.116	0.045	0.002	0.053	0.056	0.125	0.000	0.000	0.000	0.125	0.002	-0.014	0.289
13-Jan	0.171	0.000	0.171	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.283
14-Jan	0.026	0.000	0.026	0.109	0.015	0.124	0.098	0.002	0.115	0.118	0.125	0.020	0.000	0.020	0.145	0.002	0.000	0.283
15-Jan	0.166	0.000	0.166	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	0.980	0.077	0.903	1.028	0.002	0.123	0.407
16-Jan	0.139	0.000	0.139	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	2.575	0.944	1.635	1.760	0.002	0.123	0.530
17-Jan	0.044	0.000	0.044	0.109	0.012	0.121	0.077	0.002	0.091	0.093	0.125	0.000	0.000	0.000	0.125	0.002	-0.019	0.510
18-Jan	0.100	0.000	0.100	0.109	0.002	0.111	0.011	0.002	0.013	0.015	0.125	0.000	0.000	0.000	0.125	0.002	-0.008	0.503
19-Jan	0.091	0.000	0.091	0.109	0.003	0.113	0.022	0.002	0.026	0.028	0.125	0.000	0.000	0.000	0.125	0.002	-0.010	0.493
20-Jan	0.034	0.000	0.034	0.109	0.013	0.123	0.088	0.002	0.104	0.106	0.125	0.000	0.000	0.000	0.125	0.002	-0.021	0.472
21-Jan	0.039	0.000	0.039	0.109	0.012	0.122	0.083	0.002	0.097	0.100	0.125	0.000	0.000	0.000	0.125	0.002	-0.020	0.452
22-Jan	0.025	0.000	0.025	0.109	0.015	0.124	0.099	0.002	0.116	0.119	0.125	0.000	0.000	0.000	0.125	0.002	-0.023	0.428
23-Jan	0.029	0.000	0.029	0.109	0.014	0.124	0.094	0.002	0.111	0.113	0.125	0.000	0.000	0.000	0.125	0.002	-0.022	0.406
24-Jan	0.077	0.000	0.077	0.109	0.006	0.115	0.038	0.002	0.044	0.047	0.125	0.488	0.000	0.488	0.613	0.002	0.123	0.529
25-Jan	0.132	0.000	0.132	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.523
26-Jan	0.111	0.000	0.111	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.511
27-Jan	0.102	0.000	0.102	0.109	0.001	0.111	0.008	0.002	0.010	0.012	0.125	0.000	0.000	0.000	0.125	0.002	-0.007	0.505
28-Jan	0.111	0.000	0.111	0.109	0.000	0.109	0.000	0.002	0.000	0.002	0.125	0.000	0.000	0.000	0.125	0.002	-0.006	0.511
29-Jan	0.100	0.000	0.100	0.109	0.002	0.111	0.011	0.002	0.013	0.016	0.125	0.012	0.000	0.012	0.137	0.002	0.006	0.511
30-Jan	0.018	0.000	0.018	0.109	0.016	0.126	0.107	0.002	0.126	0.128	0.125	0.000	0.000	0.000	0.125	0.002	-0.025	0.487
31-Jan	0.058	0.000	0.058	0.109	0.009	0.119	0.061	0.002	0.071	0.074	0.125	0.000	0.000	0.000	0.125	0.002	-0.016	0.470
Jan Total	2.635	0.000	2.635	3.393	0.209	3.603	1.395	0.075	1.641	1.716	3.873	4.150	1.021	3.128	7.002	0.058	0.091	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Feb	0.071	0.000	0.071	0.123	0.009	0.132	0.061	0.003	0.072	0.075	0.125	0.000	0.000	0.000	0.125	0.003	-0.033	0.437
2-Feb	0.042	0.000	0.042	0.123	0.014	0.137	0.096	0.003	0.112	0.115	0.125	0.000	0.000	0.000	0.125	0.003	-0.039	0.398
3-Feb	0.144	0.000	0.144	0.123	0.000	0.123	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.003	-0.023	0.375
4-Feb	0.173	0.000	0.173	0.123	0.000	0.123	0.000	0.003	0.000	0.003	0.125	0.941	0.065	0.875	1.000	0.003	0.122	0.497
5-Feb	0.062	0.000	0.062	0.123	0.011	0.134	0.071	0.003	0.084	0.087	0.125	0.169	0.000	0.169	0.294	0.003	0.122	0.619
6-Feb	0.025	0.000	0.025	0.123	0.017	0.140	0.116	0.003	0.136	0.139	0.125	0.000	0.000	0.000	0.125	0.003	-0.043	0.576
7-Feb	0.033	0.000	0.033	0.123	0.016	0.139	0.106	0.003	0.125	0.128	0.125	0.000	0.000	0.000	0.125	0.003	-0.041	0.535
8-Feb	0.018	0.000	0.018	0.123	0.019	0.141	0.124	0.003	0.145	0.148	0.125	0.031	0.000	0.031	0.156	0.003	-0.007	0.528
9-Feb	0.108	0.000	0.108	0.123	0.003	0.126	0.018	0.003	0.021	0.024	0.125	0.252	0.000	0.252	0.377	0.003	0.122	0.650
10-Feb	0.110	0.000	0.110	0.123	0.002	0.125	0.015	0.003	0.018	0.021	0.125	0.469	0.000	0.469	0.593	0.003	0.122	0.772
11-Feb	0.054	0.000	0.054	0.123	0.012	0.135	0.081	0.003	0.095	0.098	0.125	0.701	0.015	0.686	0.811	0.003	0.122	0.894
12-Feb	0.081	0.000	0.081	0.123	0.007	0.130	0.049	0.003	0.058	0.061	0.125	0.000	0.000	0.000	0.125	0.003	-0.031	0.863
13-Feb	0.030	0.000	0.030	0.123	0.016	0.139	0.109	0.003	0.128	0.131	0.125	0.110	0.000	0.110	0.235	0.003	0.088	0.951
14-Feb	0.032	0.000	0.032	0.123	0.016	0.139	0.107	0.003	0.126	0.128	0.125	0.130	0.000	0.130	0.255	0.003	0.111	1.062
15-Feb	0.013	0.000	0.013	0.123	0.019	0.142	0.130	0.003	0.153	0.155	0.125	0.000	0.000	0.000	0.125	0.003	-0.045	1.017
16-Feb	0.067	0.000	0.067	0.123	0.010	0.133	0.066	0.003	0.077	0.080	0.125	0.000	0.000	0.000	0.125	0.003	-0.034	0.983
17-Feb	0.033	0.000	0.033	0.123	0.016	0.139	0.105	0.003	0.124	0.127	0.125	0.000	0.000	0.000	0.125	0.003	-0.041	0.942
18-Feb	0.126	0.000	0.126	0.123	0.000	0.123	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.003	-0.023	0.919
19-Feb	0.011	0.000	0.011	0.123	0.020	0.143	0.131	0.003	0.155	0.157	0.125	0.000	0.000	0.000	0.125	0.003	-0.046	0.874
20-Feb	0.120	0.000	0.120	0.123	0.000	0.123	0.003	0.003	0.003	0.006	0.125	0.000	0.000	0.000	0.125	0.003	-0.023	0.851
21-Feb	0.132	0.000	0.132	0.123	0.000	0.123	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.003	-0.023	0.828
22-Feb	0.097	0.000	0.097	0.123	0.005	0.127	0.031	0.003	0.036	0.039	0.125	0.000	0.000	0.000	0.125	0.003	-0.028	0.800
23-Feb	0.036	0.000	0.036	0.123	0.015	0.138	0.102	0.003	0.120	0.122	0.125	0.240	0.000	0.240	0.365	0.003	0.122	0.922
24-Feb	0.136	0.000	0.136	0.123	0.000	0.123	0.000	0.003	0.000	0.003	0.125	0.488	0.000	0.488	0.613	0.003	0.122	1.044
25-Feb	0.098	0.000	0.098	0.123	0.004	0.127	0.030	0.003	0.035	0.038	0.125	0.000	0.000	0.000	0.125	0.003	-0.028	1.017
26-Feb	0.067	0.000	0.067	0.123	0.010	0.133	0.066	0.003	0.078	0.080	0.125	0.000	0.000	0.000	0.125	0.003	-0.034	0.982
27-Feb	0.006	0.000	0.006	0.123	0.021	0.144	0.138	0.003	0.162	0.165	0.125	0.000	0.000	0.000	0.125	0.003	-0.047	0.936
28-Feb	0.067	0.000	0.067	0.123	0.010	0.133	0.066	0.003	0.077	0.080	0.125	0.012	0.000	0.012	0.137	0.003	-0.020	0.915
29-Feb	0.105	0.000	0.105	0.123	0.003	0.126	0.022	0.003	0.025	0.028	0.125	0.189	0.000	0.189	0.314	0.003	0.122	1.037
Feb Total	2.095	0.000	2.095	3.564	0.276	3.840	1.840	0.081	2.165	2.246	3.624	3.732	0.081	3.651	7.275	0.083	0.567	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((9)/K)	Consumption from Reservoir ((9)-(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Mar	0.079	0.000	0.079	0.149	0.012	0.162	0.083	0.004	0.097	0.101	0.125	0.000	0.000	0.000	0.125	0.003	-0.068	0.969
2-Mar	0.077	0.000	0.077	0.149	0.013	0.162	0.085	0.004	0.100	0.104	0.125	0.181	0.000	0.181	0.306	0.003	0.122	1.091
3-Mar	0.084	0.000	0.084	0.149	0.011	0.161	0.077	0.004	0.090	0.094	0.125	0.012	0.000	0.012	0.137	0.003	-0.053	1.037
4-Mar	0.095	0.000	0.095	0.149	0.009	0.159	0.063	0.004	0.074	0.078	0.125	0.709	0.016	0.693	0.818	0.003	0.122	1.159
5-Mar	0.010	0.000	0.010	0.149	0.025	0.174	0.164	0.004	0.193	0.197	0.125	0.000	0.000	0.000	0.125	0.003	-0.063	1.076
6-Mar	0.026	0.000	0.026	0.149	0.022	0.171	0.145	0.004	0.171	0.175	0.125	0.000	0.000	0.000	0.125	0.003	-0.079	0.997
7-Mar	0.027	0.000	0.027	0.149	0.022	0.171	0.144	0.004	0.169	0.173	0.125	0.000	0.000	0.000	0.125	0.003	-0.079	0.918
8-Mar	0.055	0.000	0.055	0.149	0.017	0.166	0.111	0.004	0.131	0.134	0.125	0.000	0.000	0.000	0.125	0.003	-0.067	0.844
9-Mar	0.088	0.000	0.088	0.149	0.011	0.160	0.072	0.004	0.085	0.089	0.125	0.000	0.000	0.000	0.125	0.003	-0.067	0.778
10-Mar	0.105	0.000	0.105	0.149	0.008	0.157	0.052	0.004	0.061	0.065	0.125	0.000	0.000	0.000	0.125	0.003	-0.063	0.715
11-Mar	0.102	0.000	0.102	0.149	0.008	0.157	0.056	0.004	0.066	0.069	0.125	0.000	0.000	0.000	0.125	0.003	-0.064	0.651
12-Mar	0.227	0.000	0.227	0.149	0.000	0.149	0.000	0.004	0.000	0.004	0.125	0.118	0.000	0.118	0.243	0.003	0.085	0.736
13-Mar	0.133	0.000	0.133	0.149	0.003	0.152	0.019	0.004	0.022	0.026	0.125	0.339	0.000	0.339	0.464	0.003	0.122	0.858
14-Mar	0.072	0.000	0.072	0.149	0.014	0.163	0.091	0.004	0.107	0.111	0.125	0.031	0.000	0.031	0.156	0.003	-0.033	0.825
15-Mar	0.091	0.000	0.091	0.149	0.010	0.159	0.068	0.004	0.080	0.084	0.125	0.579	0.002	0.576	0.701	0.003	0.122	0.947
16-Mar	0.123	0.000	0.123	0.149	0.005	0.154	0.031	0.004	0.036	0.040	0.125	0.071	0.000	0.071	0.196	0.003	0.024	0.971
17-Mar	0.149	0.000	0.149	0.149	0.000	0.149	0.000	0.004	0.000	0.004	0.125	0.000	0.000	0.000	0.125	0.003	-0.054	0.917
18-Mar	0.134	0.000	0.134	0.149	0.003	0.152	0.018	0.004	0.021	0.025	0.125	0.000	0.000	0.000	0.125	0.003	-0.057	0.860
19-Mar	0.095	0.000	0.095	0.149	0.010	0.159	0.064	0.004	0.075	0.079	0.125	0.031	0.000	0.031	0.156	0.003	-0.038	0.832
20-Mar	0.278	0.000	0.278	0.149	0.000	0.149	0.000	0.004	0.000	0.004	0.125	0.020	0.000	0.020	0.145	0.003	-0.031	0.802
21-Mar	0.043	0.000	0.043	0.149	0.013	0.168	0.125	0.004	0.147	0.150	0.125	0.000	0.000	0.000	0.125	0.003	-0.076	0.726
22-Mar	0.009	0.000	0.009	0.149	0.025	0.174	0.165	0.004	0.194	0.198	0.125	0.000	0.000	0.000	0.125	0.003	-0.083	0.643
23-Mar	0.007	0.000	0.007	0.149	0.025	0.174	0.168	0.004	0.197	0.201	0.125	0.000	0.000	0.000	0.125	0.003	-0.083	0.560
24-Mar	0.035	0.000	0.035	0.149	0.020	0.169	0.134	0.004	0.158	0.162	0.125	0.209	0.000	0.209	0.334	0.003	0.122	0.681
25-Mar	0.082	0.000	0.082	0.149	0.012	0.161	0.079	0.004	0.093	0.097	0.125	0.000	0.000	0.000	0.125	0.003	-0.068	0.634
26-Mar	0.099	0.000	0.099	0.149	0.009	0.158	0.059	0.004	0.070	0.073	0.125	0.000	0.000	0.000	0.125	0.003	-0.064	0.549
27-Mar	0.138	0.000	0.138	0.149	0.002	0.151	0.013	0.004	0.015	0.019	0.125	0.000	0.000	0.000	0.125	0.003	-0.056	0.493
28-Mar	0.222	0.000	0.222	0.149	0.000	0.149	0.000	0.004	0.000	0.004	0.125	0.012	0.000	0.012	0.137	0.003	-0.040	0.453
29-Mar	0.020	0.000	0.020	0.149	0.023	0.172	0.152	0.004	0.179	0.182	0.125	0.000	0.000	0.000	0.125	0.003	-0.081	0.373
30-Mar	0.067	0.000	0.067	0.149	0.014	0.164	0.096	0.004	0.113	0.117	0.125	0.000	0.000	0.000	0.125	0.003	-0.071	0.302
31-Mar	0.041	0.000	0.041	0.149	0.019	0.168	0.127	0.004	0.149	0.153	0.125	0.000	0.000	0.000	0.125	0.003	-0.076	0.226
Mar Total	2.811	0.000	2.811	4.622	0.369	4.991	2.459	0.118	2.893	3.011	3.873	2.311	0.018	2.293	6.166	0.103	-0.812	

Day	Average Precip (Inches)	Average Runoff (Inches)	Average Infiltrated Rainfall (Inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Apr	0.032	0.000	0.032	0.180	0.026	0.206	0.174	0.005	0.205	0.210	0.125	0.000	0.000	0.000	0.125	0.004	-0.121	0.104
2-Apr	0.166	0.000	0.166	0.180	0.002	0.182	0.016	0.005	0.019	0.024	0.125	0.071	0.000	0.071	0.196	0.004	-0.010	0.094
3-Apr	0.061	0.000	0.061	0.180	0.021	0.201	0.140	0.005	0.165	0.170	0.125	0.000	0.000	0.000	0.125	0.004	-0.115	-0.021
4-Apr	0.159	0.000	0.159	0.180	0.004	0.183	0.024	0.005	0.028	0.033	0.125	0.252	0.000	0.252	0.377	0.004	0.121	0.100
5-Apr	0.063	0.000	0.063	0.180	0.021	0.200	0.137	0.005	0.161	0.166	0.125	0.000	0.000	0.000	0.125	0.004	-0.115	-0.015
6-Apr	0.097	0.000	0.097	0.180	0.015	0.194	0.097	0.005	0.114	0.119	0.125	1.799	0.444	1.355	1.480	0.004	0.121	0.106
7-Apr	0.073	0.000	0.073	0.180	0.019	0.199	0.126	0.005	0.148	0.153	0.125	0.000	0.000	0.000	0.125	0.004	-0.113	-0.007
8-Apr	0.019	0.000	0.019	0.180	0.028	0.208	0.189	0.005	0.223	0.228	0.125	0.000	0.000	0.000	0.125	0.004	-0.124	-0.131
9-Apr	0.081	0.000	0.081	0.180	0.026	0.206	0.175	0.005	0.206	0.211	0.125	0.000	0.000	0.000	0.125	0.004	-0.122	-0.253
10-Apr	0.049	0.000	0.049	0.180	0.023	0.203	0.154	0.005	0.182	0.187	0.125	0.579	0.002	0.576	0.701	0.004	0.121	-0.132
11-Apr	0.050	0.000	0.050	0.180	0.023	0.203	0.152	0.005	0.179	0.184	0.125	0.469	0.000	0.469	0.593	0.004	0.121	-0.011
12-Apr	0.037	0.000	0.037	0.180	0.025	0.205	0.168	0.005	0.198	0.203	0.125	0.000	0.000	0.000	0.125	0.004	-0.120	-0.132
13-Apr	0.020	0.000	0.020	0.180	0.028	0.208	0.188	0.005	0.221	0.226	0.125	0.000	0.000	0.000	0.125	0.004	-0.124	-0.255
14-Apr	0.085	0.000	0.085	0.180	0.017	0.197	0.111	0.005	0.131	0.136	0.125	0.000	0.000	0.000	0.125	0.004	-0.110	-0.366
15-Apr	0.029	0.000	0.029	0.180	0.027	0.207	0.178	0.005	0.209	0.214	0.125	0.000	0.000	0.000	0.125	0.004	-0.122	-0.488
16-Apr	0.113	0.000	0.113	0.180	0.012	0.192	0.078	0.005	0.092	0.097	0.125	0.000	0.000	0.000	0.125	0.004	-0.105	-0.592
17-Apr	0.222	0.000	0.222	0.180	0.000	0.180	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.004	-0.091	-0.683
18-Apr	0.049	0.000	0.049	0.180	0.023	0.203	0.154	0.005	0.181	0.186	0.125	0.000	0.000	0.000	0.125	0.004	-0.118	-0.801
19-Apr	0.069	0.000	0.069	0.180	0.020	0.199	0.131	0.005	0.154	0.159	0.125	0.000	0.000	0.000	0.125	0.004	-0.114	-0.915
20-Apr	0.036	0.000	0.036	0.180	0.025	0.205	0.170	0.005	0.199	0.204	0.125	0.000	0.000	0.000	0.125	0.004	-0.121	-1.096
21-Apr	0.058	0.000	0.058	0.180	0.021	0.201	0.143	0.005	0.168	0.173	0.125	0.000	0.000	0.000	0.125	0.004	-0.116	-1.151
22-Apr	0.017	0.000	0.017	0.180	0.029	0.209	0.191	0.005	0.225	0.230	0.125	0.000	0.000	0.000	0.125	0.004	-0.124	-1.276
23-Apr	0.073	0.000	0.073	0.180	0.028	0.208	0.185	0.005	0.217	0.223	0.125	0.000	0.000	0.000	0.125	0.004	-0.123	-1.399
24-Apr	0.039	0.000	0.039	0.180	0.025	0.205	0.165	0.005	0.195	0.200	0.125	0.618	0.005	0.613	0.738	0.004	0.121	-1.278
25-Apr	0.129	0.000	0.129	0.180	0.009	0.189	0.059	0.005	0.070	0.075	0.125	0.031	0.000	0.031	0.156	0.004	-0.064	-1.343
26-Apr	0.149	0.000	0.149	0.180	0.005	0.185	0.036	0.005	0.043	0.048	0.125	0.012	0.000	0.012	0.137	0.004	-0.083	-1.426
27-Apr	0.086	0.000	0.086	0.180	0.016	0.196	0.110	0.005	0.129	0.134	0.125	0.000	0.000	0.000	0.125	0.004	-0.110	-1.536
28-Apr	0.051	0.000	0.051	0.180	0.023	0.203	0.152	0.005	0.179	0.184	0.125	0.000	0.000	0.000	0.125	0.004	-0.118	-1.653
29-Apr	0.180	0.000	0.180	0.180	0.000	0.180	0.000	0.005	0.000	0.005	0.125	0.130	0.000	0.130	0.255	0.004	0.062	-1.591
30-Apr	0.018	0.000	0.018	0.180	0.029	0.208	0.190	0.005	0.224	0.229	0.125	0.012	0.000	0.012	0.137	0.004	-0.110	-1.702
Apr Total	2.211	0.000	2.211	5.555	0.569	5.965	3.797	0.151	4.467	4.617	3.748	3.972	0.452	3.520	7.269	0.122	-1.928	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-May	0.129	0.000	0.129	0.213	0.015	0.228	0.099	0.005	0.116	0.122	0.125	0.421	0.000	0.421	0.546	0.004	0.121	-1.581
2-May	0.139	0.000	0.139	0.213	0.013	0.226	0.067	0.005	0.103	0.108	0.125	0.000	0.000	0.000	0.125	0.004	-0.145	-1.726
3-May	0.097	0.000	0.097	0.213	0.020	0.233	0.136	0.005	0.160	0.166	0.125	0.000	0.000	0.000	0.125	0.004	-0.154	-1.879
4-May	0.140	0.000	0.140	0.213	0.013	0.226	0.086	0.005	0.101	0.107	0.125	0.000	0.000	0.000	0.125	0.004	-0.145	-2.024
5-May	0.125	0.000	0.125	0.213	0.016	0.229	0.103	0.005	0.122	0.127	0.125	0.000	0.000	0.000	0.125	0.004	-0.148	-2.172
6-May	0.172	0.000	0.172	0.213	0.007	0.220	0.049	0.005	0.057	0.063	0.125	0.000	0.000	0.000	0.125	0.004	-0.138	-2.310
7-May	0.018	0.000	0.018	0.213	0.034	0.247	0.229	0.005	0.269	0.275	0.125	0.000	0.000	0.000	0.125	0.004	-0.170	-2.480
8-May	0.235	0.000	0.235	0.213	0.000	0.213	0.000	0.005	0.000	0.005	0.125	0.020	0.000	0.020	0.145	0.004	-0.106	-2.587
9-May	0.168	0.000	0.168	0.213	0.008	0.221	0.053	0.005	0.062	0.068	0.125	0.772	0.027	0.745	0.870	0.004	0.121	-2.666
10-May	0.272	0.000	0.272	0.213	0.000	0.213	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.004	-0.130	-2.595
11-May	0.055	0.000	0.055	0.213	0.028	0.241	0.186	0.005	0.215	0.224	0.125	0.390	0.000	0.390	0.515	0.004	0.121	-2.474
12-May	0.147	0.000	0.147	0.213	0.012	0.225	0.078	0.005	0.091	0.097	0.125	0.012	0.000	0.012	0.137	0.004	-0.129	-2.604
13-May	0.183	0.000	0.183	0.213	0.005	0.218	0.035	0.005	0.041	0.046	0.125	0.980	0.077	0.903	1.028	0.004	0.121	-2.483
14-May	0.133	0.000	0.133	0.213	0.014	0.227	0.094	0.005	0.111	0.116	0.125	0.319	0.000	0.319	0.444	0.004	0.121	-2.362
15-May	0.178	0.000	0.178	0.213	0.006	0.219	0.041	0.005	0.049	0.054	0.125	0.000	0.000	0.000	0.125	0.004	-0.137	-2.499
16-May	0.229	0.000	0.229	0.213	0.000	0.213	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.004	-0.130	-2.758
17-May	0.237	0.000	0.237	0.213	0.000	0.213	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.004	-0.160	-2.918
18-May	0.068	0.000	0.068	0.213	0.026	0.239	0.171	0.005	0.201	0.206	0.125	0.000	0.000	0.000	0.125	0.004	-0.161	-3.078
19-May	0.063	0.000	0.063	0.213	0.026	0.239	0.176	0.005	0.207	0.212	0.125	0.000	0.000	0.000	0.125	0.004	-0.155	-3.234
20-May	0.089	0.000	0.089	0.213	0.022	0.235	0.146	0.005	0.171	0.177	0.125	0.000	0.000	0.000	0.125	0.004	-0.162	-3.396
21-May	0.058	0.000	0.058	0.213	0.027	0.240	0.183	0.005	0.215	0.220	0.125	0.000	0.000	0.000	0.125	0.004	-0.170	-3.566
22-May	0.019	0.000	0.019	0.213	0.034	0.247	0.228	0.005	0.269	0.274	0.125	0.000	0.000	0.000	0.125	0.004	-0.154	-3.720
23-May	0.094	0.000	0.094	0.213	0.021	0.234	0.141	0.005	0.165	0.171	0.125	0.000	0.000	0.000	0.125	0.004	-0.154	-3.850
24-May	0.231	0.000	0.231	0.213	0.000	0.213	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.004	-0.169	-4.018
25-May	0.025	0.000	0.025	0.213	0.033	0.246	0.222	0.005	0.261	0.266	0.125	0.000	0.000	0.000	0.125	0.004	-0.152	-4.170
26-May	0.106	0.000	0.106	0.213	0.019	0.232	0.126	0.005	0.148	0.154	0.125	0.000	0.000	0.000	0.125	0.004	0.043	-4.127
27-May	0.197	0.000	0.197	0.213	0.003	0.216	0.019	0.005	0.023	0.028	0.125	0.150	0.000	0.150	0.275	0.004	-0.136	-4.263
28-May	0.184	0.000	0.184	0.213	0.005	0.218	0.034	0.005	0.040	0.046	0.125	0.000	0.000	0.000	0.125	0.004	-0.130	-4.392
29-May	0.220	0.000	0.220	0.213	0.000	0.213	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.004	-0.066	-4.478
30-May	0.133	0.000	0.133	0.213	0.014	0.227	0.094	0.005	0.111	0.116	0.125	0.051	0.000	0.051	0.176	0.004	0.118	-4.361
31-May	0.110	0.000	0.110	0.213	0.018	0.231	0.121	0.005	0.142	0.148	0.125	0.228	0.000	0.228	0.353	0.004		
May Total	4.253	0.000	4.253	6.603	0.441	7.044	2.937	0.168	3.456	3.624	3.873	3.343	0.104	3.238	7.112	0.123	-2.659	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year In Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Jun	0.123	0.000	0.123	0.236	0.020	0.256	0.133	0.007	0.157	0.164	0.125	0.000	0.000	0.000	0.125	0.005	-0.182	-4.543
2-Jun	0.094	0.000	0.094	0.236	0.025	0.261	0.167	0.007	0.196	0.203	0.125	0.000	0.000	0.000	0.125	0.005	-0.188	-4.730
3-Jun	0.160	0.000	0.160	0.236	0.013	0.249	0.089	0.007	0.105	0.112	0.125	1.020	0.089	0.930	1.055	0.005	0.119	-4.611
4-Jun	0.211	0.000	0.211	0.236	0.004	0.241	0.030	0.007	0.035	0.042	0.125	0.020	0.000	0.020	0.145	0.005	-0.140	-4.751
5-Jun	0.052	0.000	0.052	0.236	0.033	0.269	0.217	0.007	0.255	0.263	0.125	0.000	0.000	0.000	0.125	0.005	-0.197	-4.948
6-Jun	0.068	0.000	0.068	0.236	0.030	0.266	0.198	0.007	0.233	0.241	0.125	0.000	0.000	0.000	0.125	0.005	-0.193	-5.141
7-Jun	0.052	0.000	0.052	0.236	0.032	0.269	0.216	0.007	0.254	0.262	0.125	0.382	0.000	0.382	0.507	0.005	0.119	-5.022
8-Jun	0.137	0.000	0.137	0.236	0.017	0.254	0.116	0.007	0.137	0.144	0.125	1.390	0.234	1.156	1.281	0.005	0.119	-4.902
9-Jun	0.348	0.000	0.348	0.236	0.000	0.236	0.000	0.007	0.000	0.007	0.125	4.240	2.242	1.998	2.123	0.005	0.119	-4.783
10-Jun	0.062	0.000	0.062	0.236	0.031	0.267	0.204	0.007	0.240	0.248	0.125	0.000	0.000	0.000	0.125	0.005	-0.194	-4.977
11-Jun	0.217	0.000	0.217	0.236	0.003	0.239	0.022	0.007	0.026	0.033	0.125	0.071	0.000	0.071	0.196	0.005	-0.079	-5.056
12-Jun	0.029	0.000	0.029	0.236	0.037	0.273	0.244	0.007	0.287	0.294	0.125	0.000	0.000	0.000	0.125	0.005	-0.201	-5.258
13-Jun	0.130	0.000	0.130	0.236	0.019	0.255	0.125	0.007	0.147	0.154	0.125	0.000	0.000	0.000	0.125	0.005	-0.180	-5.438
14-Jun	0.044	0.000	0.044	0.236	0.034	0.270	0.226	0.007	0.266	0.273	0.125	0.000	0.000	0.000	0.125	0.005	-0.198	-5.636
15-Jun	0.051	0.000	0.051	0.236	0.033	0.269	0.217	0.007	0.256	0.263	0.125	0.000	0.000	0.000	0.125	0.005	-0.197	-5.833
16-Jun	0.112	0.000	0.112	0.236	0.022	0.258	0.146	0.007	0.172	0.180	0.125	0.000	0.000	0.000	0.125	0.005	-0.184	-6.017
17-Jun	0.099	0.000	0.099	0.236	0.024	0.260	0.161	0.007	0.189	0.197	0.125	0.000	0.000	0.000	0.125	0.005	-0.187	-6.204
18-Jun	0.096	0.000	0.096	0.236	0.025	0.261	0.165	0.007	0.194	0.202	0.125	0.000	0.000	0.000	0.125	0.005	-0.187	-6.391
19-Jun	0.077	0.000	0.077	0.236	0.028	0.264	0.187	0.007	0.220	0.227	0.125	0.000	0.000	0.000	0.125	0.005	-0.191	-6.583
20-Jun	0.072	0.000	0.072	0.236	0.029	0.265	0.193	0.007	0.227	0.234	0.125	0.000	0.000	0.000	0.125	0.005	-0.192	-6.775
21-Jun	0.145	0.000	0.145	0.236	0.016	0.252	0.107	0.007	0.126	0.133	0.125	0.000	0.000	0.000	0.125	0.005	-0.177	-6.952
22-Jun	0.128	0.000	0.128	0.236	0.019	0.255	0.127	0.007	0.149	0.156	0.125	0.260	0.000	0.260	0.385	0.005	0.119	-6.833
23-Jun	0.036	0.000	0.036	0.236	0.035	0.271	0.235	0.007	0.276	0.284	0.125	0.900	0.000	0.900	0.125	0.005	-0.200	-7.032
24-Jun	0.014	0.000	0.014	0.236	0.039	0.275	0.261	0.007	0.308	0.315	0.125	0.012	0.000	0.012	0.137	0.005	-0.191	-7.223
25-Jun	0.091	0.000	0.091	0.236	0.026	0.262	0.170	0.007	0.200	0.207	0.125	0.488	0.000	0.488	0.613	0.005	0.119	-7.104
26-Jun	0.210	0.000	0.210	0.236	0.005	0.241	0.031	0.007	0.037	0.044	0.125	0.988	0.080	0.908	1.033	0.005	0.119	-6.984
27-Jun	0.075	0.000	0.075	0.236	0.028	0.265	0.190	0.007	0.223	0.231	0.125	0.059	0.000	0.059	0.184	0.005	-0.122	-7.106
28-Jun	0.021	0.000	0.021	0.236	0.038	0.274	0.253	0.007	0.298	0.305	0.125	0.012	0.000	0.012	0.137	0.005	-0.189	-7.296
29-Jun	0.242	0.000	0.242	0.236	0.000	0.236	0.000	0.007	0.000	0.007	0.125	1.118	0.123	0.996	1.121	0.005	0.119	-7.176
30-Jun	0.195	0.000	0.195	0.236	0.007	0.243	0.048	0.007	0.057	0.064	0.125	1.350	0.216	1.135	1.259	0.005	0.119	-7.057
Jun Total	3.392	0.000	3.392	7.083	0.672	7.755	4.481	0.217	5.272	5.489	3.748	11.409	2.983	8.427	12.175	0.165	-2.696	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rain-fall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Jul	0.085	0.000	0.085	0.238	0.027	0.265	0.180	0.007	0.212	0.219	0.125	0.000	0.000	0.000	0.125	0.005	-0.192	-7.248
2-Jul	0.137	0.000	0.137	0.238	0.018	0.256	0.119	0.007	0.140	0.148	0.125	0.000	0.000	0.000	0.125	0.005	-0.181	-7.429
3-Jul	0.045	0.000	0.045	0.238	0.034	0.272	0.227	0.007	0.267	0.275	0.125	0.000	0.000	0.000	0.125	0.005	-0.200	-7.629
4-Jul	0.076	0.000	0.076	0.238	0.029	0.267	0.190	0.007	0.224	0.231	0.125	0.000	0.000	0.000	0.125	0.005	-0.193	-7.822
5-Jul	0.017	0.000	0.017	0.238	0.039	0.277	0.260	0.007	0.306	0.314	0.125	0.000	0.000	0.000	0.125	0.005	-0.206	-8.028
6-Jul	0.053	0.000	0.053	0.238	0.033	0.271	0.217	0.007	0.256	0.263	0.125	0.000	0.000	0.000	0.125	0.005	-0.198	-8.226
7-Jul	0.024	0.000	0.024	0.238	0.038	0.276	0.252	0.007	0.296	0.303	0.125	0.000	0.000	0.000	0.125	0.005	-0.204	-8.430
8-Jul	0.093	0.000	0.093	0.238	0.026	0.264	0.171	0.007	0.201	0.208	0.125	0.000	0.000	0.000	0.125	0.005	-0.190	-8.620
9-Jul	0.056	0.000	0.056	0.238	0.032	0.270	0.214	0.007	0.252	0.259	0.125	0.000	0.000	0.000	0.125	0.005	-0.198	-8.817
10-Jul	0.038	0.000	0.038	0.238	0.035	0.273	0.235	0.007	0.277	0.284	0.125	0.000	0.000	0.000	0.125	0.005	-0.201	-9.019
11-Jul	0.117	0.000	0.117	0.238	0.021	0.259	0.142	0.007	0.167	0.175	0.125	0.252	0.000	0.252	0.377	0.006	0.112	-8.907
12-Jul	0.007	0.000	0.007	0.238	0.041	0.279	0.272	0.007	0.320	0.327	0.125	0.000	0.000	0.000	0.125	0.005	-0.208	-9.115
13-Jul	0.003	0.000	0.003	0.238	0.041	0.280	0.276	0.007	0.325	0.332	0.125	0.000	0.000	0.000	0.125	0.005	-0.208	-9.323
14-Jul	0.090	0.000	0.090	0.238	0.026	0.264	0.175	0.007	0.205	0.213	0.125	0.000	0.000	0.000	0.125	0.005	-0.191	-9.514
15-Jul	0.198	0.000	0.198	0.238	0.007	0.245	0.047	0.007	0.056	0.063	0.125	0.000	0.000	0.000	0.125	0.005	-0.188	-9.682
16-Jul	0.022	0.000	0.022	0.238	0.038	0.276	0.254	0.007	0.299	0.306	0.125	0.000	0.000	0.000	0.125	0.005	-0.205	-9.886
17-Jul	0.141	0.000	0.141	0.238	0.017	0.255	0.115	0.007	0.135	0.142	0.125	0.000	0.000	0.000	0.125	0.005	-0.180	-10.066
18-Jul	0.047	0.000	0.047	0.238	0.034	0.272	0.225	0.007	0.265	0.272	0.125	0.000	0.000	0.000	0.125	0.005	-0.199	-10.266
19-Jul	0.024	0.000	0.024	0.238	0.038	0.276	0.252	0.007	0.296	0.303	0.125	0.000	0.000	0.000	0.125	0.005	-0.204	-10.470
20-Jul	0.079	0.000	0.079	0.238	0.028	0.266	0.188	0.007	0.221	0.228	0.125	0.000	0.000	0.000	0.125	0.005	-0.203	-10.663
21-Jul	0.132	0.000	0.132	0.238	0.019	0.257	0.124	0.007	0.146	0.154	0.125	0.000	0.000	0.000	0.125	0.005	-0.182	-10.845
22-Jul	0.013	0.000	0.013	0.238	0.040	0.278	0.264	0.007	0.311	0.318	0.125	0.000	0.000	0.000	0.125	0.005	-0.206	-11.051
23-Jul	0.114	0.000	0.114	0.238	0.022	0.260	0.146	0.007	0.172	0.179	0.125	0.000	0.000	0.000	0.125	0.005	-0.186	-11.236
24-Jul	0.027	0.000	0.027	0.238	0.037	0.275	0.248	0.007	0.292	0.300	0.125	0.000	0.000	0.000	0.125	0.005	-0.204	-11.440
25-Jul	0.026	0.000	0.026	0.238	0.037	0.276	0.250	0.007	0.294	0.301	0.125	0.189	0.000	0.189	0.314	0.005	0.019	-11.422
26-Jul	0.126	0.000	0.126	0.238	0.020	0.258	0.132	0.007	0.155	0.162	0.125	0.000	0.000	0.000	0.125	0.005	-0.183	-11.604
27-Jul	0.051	0.000	0.051	0.238	0.033	0.271	0.220	0.007	0.259	0.266	0.125	0.000	0.000	0.000	0.125	0.005	-0.199	-11.803
28-Jul	0.012	0.000	0.012	0.238	0.040	0.278	0.266	0.007	0.313	0.320	0.125	0.000	0.000	0.000	0.125	0.005	-0.207	-12.010
29-Jul	0.017	0.000	0.017	0.238	0.039	0.277	0.261	0.007	0.307	0.314	0.125	0.280	0.000	0.280	0.404	0.005	0.120	-11.889
30-Jul	0.116	0.000	0.116	0.238	0.022	0.260	0.143	0.007	0.169	0.176	0.125	0.110	0.000	0.110	0.235	0.005	-0.055	-11.945
31-Jul	0.009	0.000	0.009	0.238	0.040	0.279	0.269	0.007	0.317	0.324	0.125	0.000	0.000	0.000	0.125	0.005	-0.207	-12.152
Jul Total	1.996	0.000	1.996	7.382	0.950	8.332	6.336	0.227	7.454	7.681	3.873	0.831	0.000	0.831	4.704	0.141	-5.095	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)-(3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/(K))	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Aug	0.034	0.000	0.034	0.231	0.035	0.266	0.232	0.008	0.273	0.281	0.125	0.000	0.000	0.000	0.125	0.006	-0.194	-12.346
2-Aug	0.125	0.000	0.125	0.231	0.019	0.250	0.125	0.008	0.147	0.155	0.125	0.000	0.000	0.000	0.125	0.006	-0.175	-12.521
3-Aug	0.057	0.000	0.057	0.231	0.031	0.262	0.204	0.008	0.240	0.248	0.125	0.000	0.000	0.000	0.125	0.006	-0.189	-12.710
4-Aug	0.000	0.000	0.000	0.231	0.041	0.272	0.272	0.008	0.320	0.328	0.125	0.000	0.000	0.000	0.125	0.006	-0.201	-12.912
5-Aug	0.046	0.000	0.046	0.231	0.033	0.264	0.217	0.008	0.258	0.263	0.125	0.000	0.000	0.000	0.125	0.006	-0.191	-13.103
6-Aug	0.011	0.000	0.011	0.231	0.039	0.270	0.259	0.008	0.304	0.312	0.125	0.000	0.000	0.000	0.125	0.006	-0.199	-13.302
7-Aug	0.081	0.000	0.081	0.231	0.026	0.258	0.176	0.008	0.208	0.215	0.125	0.000	0.000	0.000	0.125	0.006	-0.184	-13.486
8-Aug	0.043	0.000	0.043	0.231	0.032	0.264	0.221	0.008	0.260	0.268	0.125	0.000	0.000	0.000	0.125	0.006	-0.192	-13.678
9-Aug	0.226	0.000	0.226	0.231	0.001	0.232	0.006	0.008	0.007	0.015	0.125	0.000	0.000	0.000	0.125	0.006	-0.154	-13.832
10-Aug	0.110	0.000	0.110	0.231	0.021	0.253	0.143	0.008	0.168	0.176	0.125	0.000	0.000	0.000	0.125	0.006	-0.178	-14.011
11-Aug	0.105	0.000	0.105	0.231	0.022	0.253	0.148	0.008	0.174	0.182	0.125	0.260	0.000	0.260	0.385	0.006	0.119	-13.892
12-Aug	0.001	0.000	0.001	0.231	0.041	0.272	0.270	0.008	0.318	0.326	0.125	0.000	0.000	0.000	0.125	0.006	-0.201	-14.093
13-Aug	0.077	0.000	0.077	0.231	0.027	0.258	0.181	0.008	0.213	0.221	0.125	0.000	0.000	0.000	0.125	0.006	-0.185	-14.278
14-Aug	0.146	0.000	0.146	0.231	0.015	0.246	0.100	0.008	0.118	0.126	0.125	0.000	0.000	0.000	0.125	0.006	-0.171	-14.448
15-Aug	0.112	0.000	0.112	0.231	0.021	0.252	0.141	0.008	0.165	0.173	0.125	0.000	0.000	0.000	0.125	0.006	-0.178	-14.626
16-Aug	0.057	0.000	0.057	0.231	0.031	0.262	0.205	0.008	0.241	0.249	0.125	0.000	0.000	0.000	0.125	0.006	-0.189	-14.816
17-Aug	0.011	0.000	0.011	0.231	0.039	0.270	0.259	0.008	0.305	0.313	0.125	0.000	0.000	0.000	0.125	0.006	-0.199	-15.015
18-Aug	0.055	0.000	0.055	0.231	0.031	0.262	0.207	0.008	0.244	0.252	0.125	0.000	0.000	0.000	0.125	0.006	-0.190	-15.204
19-Aug	0.187	0.000	0.187	0.231	0.008	0.239	0.052	0.008	0.061	0.068	0.125	0.988	0.080	0.908	1.033	0.006	0.119	-15.085
20-Aug	0.013	0.000	0.013	0.231	0.038	0.270	0.257	0.008	0.302	0.310	0.125	0.339	0.000	0.339	0.464	0.006	0.119	-14.967
21-Aug	0.033	0.000	0.033	0.231	0.035	0.266	0.233	0.008	0.274	0.282	0.125	0.220	0.000	0.220	0.345	0.006	0.065	-14.901
22-Aug	0.079	0.000	0.079	0.231	0.027	0.258	0.179	0.008	0.211	0.219	0.125	0.079	0.000	0.079	0.204	0.006	-0.092	-14.993
23-Aug	0.084	0.000	0.084	0.231	0.026	0.257	0.173	0.008	0.204	0.212	0.125	0.020	0.000	0.020	0.145	0.006	-0.161	-15.154
24-Aug	0.136	0.000	0.136	0.231	0.017	0.248	0.112	0.008	0.132	0.140	0.125	0.000	0.000	0.000	0.125	0.006	-0.173	-15.327
25-Aug	0.013	0.000	0.013	0.231	0.038	0.270	0.256	0.008	0.302	0.309	0.125	0.000	0.000	0.000	0.125	0.006	-0.198	-15.525
26-Aug	0.152	0.000	0.152	0.231	0.014	0.245	0.094	0.008	0.110	0.118	0.125	0.000	0.000	0.000	0.125	0.006	-0.170	-15.695
27-Aug	0.108	0.000	0.108	0.231	0.022	0.253	0.145	0.008	0.170	0.178	0.125	0.000	0.000	0.000	0.125	0.006	-0.179	-15.874
28-Aug	0.028	0.000	0.028	0.231	0.036	0.267	0.238	0.008	0.281	0.288	0.125	0.000	0.000	0.000	0.125	0.006	-0.195	-16.069
29-Aug	0.119	0.000	0.119	0.231	0.020	0.251	0.132	0.008	0.155	0.163	0.125	0.000	0.000	0.000	0.125	0.006	-0.176	-16.245
30-Aug	0.100	0.000	0.100	0.231	0.023	0.254	0.154	0.008	0.181	0.189	0.125	0.000	0.000	0.000	0.125	0.006	-0.180	-16.425
31-Aug	0.183	0.000	0.183	0.231	0.008	0.240	0.057	0.008	0.067	0.074	0.125	0.000	0.000	0.000	0.125	0.006	-0.163	-16.589
Aug Total	2.532	0.000	2.532	7.165	0.818	7.983	5.450	0.242	6.412	6.654	3.873	1.906	0.080	1.826	5.699	0.190	-4.437	

Day	Average Precip (Inches)	Average Runoff (Inches)	Average Infiltrated Rainfall (Inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low (Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Sep	0.058	0.000	0.058	0.201	0.025	0.226	0.169	0.006	0.198	0.205	0.125	0.000	0.000	0.000	0.125	0.005	-0.146	-16.735
2-Sep	0.212	0.000	0.212	0.201	0.000	0.201	0.000	0.006	0.000	0.006	0.125	0.000	0.000	0.000	0.125	0.005	-0.116	-16.851
3-Sep	0.123	0.000	0.123	0.201	0.014	0.215	0.091	0.006	0.107	0.114	0.125	0.000	0.000	0.000	0.125	0.005	-0.133	-16.984
4-Sep	0.072	0.000	0.072	0.201	0.023	0.224	0.152	0.006	0.179	0.185	0.125	0.000	0.000	0.000	0.125	0.005	-0.143	-17.127
5-Sep	0.042	0.000	0.042	0.201	0.028	0.229	0.187	0.006	0.220	0.226	0.125	0.000	0.000	0.000	0.125	0.005	-0.149	-17.276
6-Sep	0.016	0.000	0.016	0.201	0.033	0.234	0.217	0.006	0.254	0.262	0.125	0.142	0.000	0.142	0.267	0.005	0.012	-17.264
7-Sep	0.376	0.000	0.376	0.201	0.000	0.201	0.000	0.006	0.000	0.006	0.125	0.000	0.000	0.000	0.125	0.005	-0.116	-17.381
8-Sep	0.192	0.000	0.192	0.201	0.002	0.203	0.011	0.006	0.012	0.019	0.125	0.000	0.000	0.000	0.125	0.005	-0.118	-17.499
9-Sep	0.095	0.000	0.095	0.201	0.019	0.220	0.124	0.006	0.146	0.152	0.125	0.000	0.000	0.000	0.125	0.005	-0.138	-17.637
10-Sep	0.037	0.000	0.037	0.201	0.029	0.230	0.192	0.006	0.226	0.233	0.125	0.000	0.000	0.000	0.125	0.005	-0.150	-17.788
11-Sep	0.233	0.000	0.233	0.201	0.000	0.201	0.000	0.006	0.000	0.006	0.125	0.000	0.000	0.000	0.125	0.005	-0.116	-17.904
12-Sep	0.157	0.000	0.157	0.201	0.008	0.209	0.051	0.006	0.060	0.067	0.125	0.000	0.000	0.000	0.125	0.005	-0.125	-18.029
13-Sep	0.084	0.000	0.084	0.201	0.021	0.222	0.138	0.006	0.162	0.168	0.125	0.020	0.000	0.020	0.145	0.005	-0.118	-18.147
14-Sep	0.167	0.000	0.167	0.201	0.006	0.207	0.040	0.006	0.047	0.053	0.125	1.409	0.243	1.167	1.292	0.005	0.120	-18.027
15-Sep	0.092	0.000	0.092	0.201	0.019	0.220	0.128	0.006	0.151	0.157	0.125	0.000	0.000	0.000	0.125	0.005	-0.139	-18.166
16-Sep	0.181	0.000	0.181	0.201	0.004	0.205	0.023	0.006	0.028	0.034	0.125	0.000	0.000	0.000	0.125	0.005	-0.121	-18.286
17-Sep	0.037	0.000	0.037	0.201	0.029	0.230	0.193	0.006	0.221	0.234	0.125	0.000	0.000	0.000	0.125	0.005	-0.151	-18.437
18-Sep	0.060	0.000	0.060	0.201	0.025	0.226	0.166	0.006	0.195	0.201	0.125	0.000	0.000	0.000	0.125	0.005	-0.146	-18.583
19-Sep	0.062	0.000	0.062	0.201	0.026	0.227	0.175	0.006	0.206	0.213	0.125	0.000	0.000	0.000	0.125	0.005	-0.147	-18.730
20-Sep	0.167	0.000	0.167	0.201	0.006	0.207	0.041	0.006	0.048	0.054	0.125	0.000	0.000	0.000	0.125	0.005	-0.124	-18.854
21-Sep	0.095	0.000	0.095	0.201	0.019	0.220	0.124	0.006	0.146	0.152	0.125	0.000	0.000	0.000	0.125	0.005	-0.138	-18.992
22-Sep	0.153	0.000	0.153	0.201	0.009	0.210	0.057	0.006	0.067	0.073	0.125	0.000	0.000	0.000	0.125	0.005	-0.126	-19.118
23-Sep	0.057	0.000	0.057	0.201	0.025	0.226	0.169	0.006	0.199	0.205	0.125	0.000	0.000	0.000	0.125	0.005	-0.146	-19.265
24-Sep	0.046	0.000	0.046	0.201	0.027	0.228	0.183	0.006	0.215	0.221	0.125	0.000	0.000	0.000	0.125	0.005	-0.149	-19.413
25-Sep	0.007	0.000	0.007	0.201	0.034	0.235	0.228	0.006	0.269	0.275	0.125	0.000	0.000	0.000	0.125	0.005	-0.157	-19.570
26-Sep	0.009	0.000	0.009	0.201	0.034	0.235	0.226	0.006	0.266	0.272	0.125	0.000	0.000	0.000	0.125	0.005	-0.156	-19.726
27-Sep	0.007	0.000	0.007	0.201	0.034	0.235	0.228	0.006	0.269	0.275	0.125	0.000	0.000	0.000	0.125	0.005	-0.157	-19.883
28-Sep	0.083	0.000	0.083	0.201	0.021	0.222	0.139	0.006	0.163	0.169	0.125	0.000	0.000	0.000	0.125	0.005	-0.141	-20.024
29-Sep	0.103	0.000	0.103	0.201	0.017	0.218	0.116	0.006	0.136	0.142	0.125	0.000	0.000	0.000	0.125	0.005	-0.137	-20.161
30-Sep	0.045	0.000	0.045	0.201	0.028	0.229	0.184	0.006	0.216	0.222	0.125	0.000	0.000	0.000	0.125	0.005	-0.149	-20.309
Sep Total	3.058	0.000	3.058	6.031	0.563	6.594	3.753	0.185	4.415	4.600	3.748	1.571	0.243	1.328	5.077	0.146	-3.721	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)-(3))	Evapo-transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)-(15))	Net 25 Year Low Evaporation from Regul. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Oct	0.090	0.000	0.050	0.165	0.020	0.185	0.134	0.005	0.158	0.163	0.125	0.000	0.000	0.000	0.125	0.005	-0.097	-20.406
2-Oct	0.079	0.000	0.079	0.165	0.015	0.180	0.101	0.005	0.119	0.124	0.125	1.980	0.551	1.430	1.555	0.005	0.120	-20.286
3-Oct	0.013	0.000	0.013	0.165	0.027	0.191	0.178	0.005	0.209	0.214	0.125	0.000	0.000	0.000	0.125	0.005	-0.105	-20.391
4-Oct	0.033	0.000	0.033	0.165	0.023	0.188	0.155	0.005	0.183	0.188	0.125	0.169	0.000	0.169	0.294	0.005	0.098	-20.292
5-Oct	0.018	0.000	0.018	0.165	0.025	0.190	0.172	0.005	0.202	0.207	0.125	0.000	0.000	0.000	0.125	0.005	-0.104	-20.396
6-Oct	0.141	0.000	0.141	0.165	0.004	0.169	0.028	0.005	0.033	0.038	0.125	0.110	0.000	0.110	0.235	0.005	0.052	-20.345
7-Oct	0.257	0.000	0.257	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.005	-0.073	-20.418
8-Oct	0.079	0.000	0.079	0.165	0.015	0.180	0.101	0.005	0.119	0.124	0.125	0.000	0.000	0.000	0.125	0.005	-0.091	-20.510
9-Oct	0.255	0.000	0.255	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.005	-0.073	-20.583
10-Oct	0.159	0.000	0.159	0.165	0.001	0.166	0.007	0.005	0.008	0.013	0.125	0.000	0.000	0.000	0.125	0.005	-0.075	-20.657
11-Oct	0.174	0.000	0.174	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.005	-0.073	-20.731
12-Oct	0.145	0.000	0.145	0.165	0.004	0.168	0.024	0.005	0.028	0.033	0.125	0.000	0.000	0.000	0.125	0.005	-0.078	-20.808
13-Oct	0.206	0.000	0.206	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.252	0.000	0.252	0.377	0.005	0.120	-20.688
14-Oct	0.038	0.000	0.038	0.165	0.022	0.187	0.149	0.005	0.175	0.180	0.125	0.000	0.000	0.000	0.125	0.005	-0.100	-20.788
15-Oct	0.115	0.000	0.115	0.165	0.009	0.173	0.059	0.005	0.069	0.074	0.125	0.000	0.000	0.000	0.125	0.005	-0.084	-20.871
16-Oct	0.097	0.000	0.097	0.165	0.012	0.177	0.080	0.005	0.094	0.099	0.125	0.000	0.000	0.000	0.125	0.005	-0.087	-20.959
17-Oct	0.273	0.000	0.273	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.005	-0.073	-21.032
18-Oct	0.140	0.000	0.140	0.165	0.004	0.169	0.029	0.005	0.034	0.039	0.125	0.000	0.000	0.000	0.125	0.005	-0.084	-21.111
19-Oct	0.115	0.000	0.115	0.165	0.009	0.174	0.059	0.005	0.069	0.074	0.125	0.000	0.000	0.000	0.125	0.005	-0.092	-21.195
20-Oct	0.075	0.000	0.075	0.165	0.016	0.180	0.105	0.005	0.124	0.129	0.125	0.000	0.000	0.000	0.125	0.005	-0.092	-21.286
21-Oct	0.147	0.000	0.147	0.165	0.003	0.168	0.021	0.005	0.025	0.030	0.125	0.000	0.000	0.000	0.125	0.005	-0.077	-21.364
22-Oct	0.189	0.000	0.189	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.520	0.000	0.520	0.644	0.005	0.120	-21.243
23-Oct	0.069	0.000	0.069	0.165	0.017	0.181	0.112	0.005	0.132	0.137	0.125	1.449	0.261	1.188	1.313	0.005	0.120	-21.123
24-Oct	0.071	0.000	0.071	0.165	0.017	0.181	0.111	0.005	0.130	0.135	0.125	0.071	0.000	0.071	0.196	0.005	-0.010	-21.132
25-Oct	0.103	0.000	0.103	0.165	0.011	0.176	0.072	0.005	0.085	0.090	0.125	0.000	0.000	0.000	0.125	0.005	-0.096	-21.219
26-Oct	0.119	0.000	0.119	0.165	0.008	0.173	0.054	0.005	0.064	0.069	0.125	0.000	0.000	0.000	0.125	0.005	-0.083	-21.302
27-Oct	0.039	0.000	0.039	0.165	0.022	0.187	0.148	0.005	0.174	0.179	0.125	0.059	0.000	0.059	0.184	0.005	-0.030	-21.392
28-Oct	0.050	0.000	0.050	0.165	0.020	0.185	0.135	0.005	0.159	0.163	0.125	0.012	0.000	0.012	0.137	0.005	-0.083	-21.415
29-Oct	0.087	0.000	0.087	0.165	0.014	0.178	0.091	0.005	0.108	0.112	0.125	0.000	0.000	0.000	0.125	0.005	-0.090	-21.504
30-Oct	0.202	0.000	0.202	0.165	0.000	0.165	0.000	0.005	0.000	0.005	0.125	0.000	0.000	0.000	0.125	0.005	-0.073	-21.578
31-Oct	0.146	0.000	0.146	0.165	0.003	0.168	0.022	0.005	0.026	0.031	0.125	0.000	0.000	0.000	0.125	0.005	-0.077	-21.655
Oct Total	3.683	0.000	3.683	5.105	0.322	5.427	2.147	0.151	2.525	2.677	3.873	4.622	0.812	3.810	7.684	0.143	-1.346	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/K)	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Nov	0.228	0.000	0.228	0.130	0.000	0.130	0.000	0.004	0.000	0.004	0.125	1.539	0.305	1.234	1.359	0.003	0.122	0.122
2-Nov	0.129	0.000	0.129	0.130	0.000	0.130	0.001	0.004	0.001	0.005	0.125	0.000	0.000	0.000	0.125	0.003	-0.031	0.091
3-Nov	0.094	0.000	0.094	0.130	0.006	0.136	0.042	0.004	0.049	0.053	0.125	0.000	0.000	0.000	0.125	0.003	-0.038	0.052
4-Nov	0.101	0.000	0.101	0.130	0.005	0.135	0.034	0.004	0.040	0.044	0.125	0.000	0.000	0.000	0.125	0.003	-0.037	0.015
5-Nov	0.085	0.000	0.085	0.130	0.008	0.138	0.053	0.004	0.062	0.066	0.125	0.000	0.000	0.000	0.125	0.003	-0.040	-0.025
6-Nov	0.016	0.000	0.016	0.130	0.020	0.150	0.134	0.004	0.158	0.162	0.125	0.000	0.000	0.000	0.125	0.003	-0.055	-0.080
7-Nov	0.061	0.000	0.061	0.130	0.012	0.142	0.081	0.004	0.095	0.099	0.125	0.000	0.000	0.000	0.125	0.003	-0.045	-0.125
8-Nov	0.163	0.000	0.163	0.130	0.000	0.130	0.000	0.004	0.000	0.004	0.125	0.000	0.000	0.000	0.125	0.003	-0.031	-0.157
9-Nov	0.031	0.000	0.031	0.130	0.017	0.147	0.115	0.004	0.137	0.140	0.125	0.000	0.000	0.000	0.125	0.003	-0.052	-0.208
10-Nov	0.008	0.000	0.008	0.130	0.021	0.151	0.143	0.004	0.158	0.172	0.125	0.000	0.000	0.000	0.125	0.003	-0.056	-0.264
11-Nov	0.055	0.000	0.055	0.130	0.013	0.143	0.089	0.004	0.104	0.108	0.125	0.000	0.000	0.000	0.125	0.003	-0.047	-0.311
12-Nov	0.066	0.000	0.066	0.130	0.008	0.138	0.052	0.004	0.061	0.065	0.125	0.000	0.000	0.000	0.125	0.003	-0.040	-0.351
13-Nov	0.033	0.000	0.033	0.130	0.017	0.147	0.114	0.004	0.134	0.138	0.125	0.020	0.000	0.020	0.145	0.003	-0.028	-0.380
14-Nov	0.062	0.000	0.062	0.130	0.012	0.142	0.080	0.004	0.095	0.098	0.125	0.551	0.001	0.550	0.675	0.003	0.122	-0.258
15-Nov	0.379	0.000	0.379	0.130	0.000	0.130	0.000	0.004	0.000	0.004	0.125	0.402	0.000	0.402	0.527	0.003	0.122	-0.136
16-Nov	0.089	0.000	0.089	0.130	0.007	0.137	0.048	0.004	0.057	0.060	0.125	2.039	0.587	1.453	1.578	0.003	0.122	-0.014
17-Nov	0.249	0.000	0.249	0.130	0.000	0.130	0.000	0.004	0.000	0.004	0.125	2.988	1.241	1.747	1.872	0.003	0.122	0.108
18-Nov	0.046	0.000	0.046	0.130	0.015	0.145	0.099	0.004	0.116	0.120	0.125	0.000	0.000	0.000	0.125	0.003	-0.049	0.059
19-Nov	0.083	0.000	0.083	0.130	0.008	0.138	0.055	0.004	0.065	0.068	0.125	0.000	0.000	0.000	0.125	0.003	-0.041	0.018
20-Nov	0.096	0.000	0.096	0.130	0.006	0.136	0.039	0.004	0.046	0.050	0.125	0.689	0.013	0.676	0.801	0.003	0.122	0.140
21-Nov	0.041	0.000	0.041	0.130	0.016	0.146	0.105	0.004	0.123	0.127	0.125	6.150	0.000	0.150	0.275	0.003	0.122	0.262
22-Nov	0.318	0.000	0.318	0.130	0.000	0.130	0.000	0.004	0.000	0.004	0.125	4.610	2.556	2.054	2.179	0.003	0.122	0.383
23-Nov	0.056	0.000	0.056	0.130	0.013	0.143	0.087	0.004	0.102	0.106	0.125	0.772	0.027	0.745	0.870	0.003	0.122	0.505
24-Nov	0.055	0.000	0.055	0.130	0.006	0.136	0.041	0.004	0.048	0.052	0.125	0.000	0.000	0.000	0.125	0.003	-0.038	0.467
25-Nov	0.055	0.000	0.055	0.130	0.013	0.143	0.089	0.004	0.104	0.108	0.125	0.000	0.000	0.000	0.125	0.003	-0.047	0.420
26-Nov	0.099	0.000	0.099	0.130	0.006	0.135	0.037	0.004	0.043	0.047	0.125	0.000	0.000	0.000	0.125	0.003	-0.038	0.382
27-Nov	0.002	0.000	0.002	0.130	0.023	0.153	0.151	0.004	0.178	0.181	0.125	0.000	0.000	0.000	0.125	0.003	-0.058	0.325
28-Nov	0.105	0.000	0.105	0.130	0.004	0.134	0.029	0.004	0.034	0.038	0.125	0.000	0.000	0.000	0.125	0.003	-0.036	0.289
29-Nov	0.029	0.000	0.029	0.130	0.018	0.148	0.119	0.004	0.140	0.144	0.125	0.000	0.000	0.000	0.125	0.003	-0.052	0.236
30-Nov	0.076	0.000	0.076	0.130	0.010	0.140	0.064	0.004	0.075	0.079	0.125	0.339	0.000	0.339	0.464	0.003	0.122	0.358
Nov Total	2.969	0.000	2.969	3.898	0.285	4.183	1.902	0.108	2.238	2.346	1.748	14.098	4.730	9.369	13.117	0.096	0.358	

Day	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)+(9))	Consumption from Reservoir ((9)+(10))	Effluent received for Application or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Accumulated Storage
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1-Dec	0.042	0.000	0.042	0.107	0.011	0.118	0.076	0.003	0.089	0.092	0.125	0.000	0.000	0.000	0.125	0.002	-0.017	0.342
2-Dec	0.069	0.000	0.069	0.107	0.007	0.114	0.045	0.003	0.053	0.056	0.125	0.000	0.000	0.000	0.125	0.002	-0.011	0.331
3-Dec	0.022	0.000	0.022	0.107	0.015	0.122	0.100	0.003	0.117	0.120	0.125	0.000	0.000	0.000	0.125	0.002	-0.021	0.310
4-Dec	0.061	0.000	0.061	0.107	0.008	0.115	0.054	0.003	0.064	0.066	0.125	0.012	0.000	0.012	0.137	0.002	0.001	0.311
5-Dec	0.035	0.000	0.035	0.107	0.013	0.120	0.084	0.003	0.099	0.101	0.125	0.110	0.000	0.110	0.235	0.002	0.112	0.423
6-Dec	0.011	0.000	0.011	0.107	0.017	0.124	0.113	0.003	0.133	0.136	0.125	0.098	0.000	0.098	0.223	0.002	0.093	0.515
7-Dec	0.019	0.000	0.019	0.107	0.016	0.123	0.104	0.003	0.122	0.125	0.125	0.000	0.000	0.000	0.125	0.002	-0.021	0.494
8-Dec	0.140	0.000	0.140	0.107	0.000	0.107	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.002	-0.003	0.491
9-Dec	0.098	0.000	0.098	0.107	0.002	0.109	0.011	0.003	0.013	0.015	0.125	0.000	0.000	0.000	0.125	0.002	-0.005	0.486
10-Dec	0.058	0.000	0.058	0.107	0.009	0.116	0.058	0.003	0.068	0.071	0.125	0.000	0.000	0.000	0.125	0.002	-0.013	0.473
11-Dec	0.063	0.000	0.063	0.107	0.008	0.115	0.052	0.003	0.061	0.063	0.125	0.000	0.000	0.000	0.125	0.002	-0.012	0.460
12-Dec	0.083	0.000	0.083	0.107	0.004	0.111	0.029	0.003	0.034	0.036	0.125	0.000	0.000	0.000	0.125	0.002	-0.008	0.452
13-Dec	0.060	0.000	0.060	0.107	0.008	0.115	0.055	0.003	0.065	0.067	0.125	0.000	0.000	0.000	0.125	0.002	-0.013	0.439
14-Dec	0.090	0.000	0.090	0.107	0.003	0.110	0.019	0.003	0.023	0.025	0.125	0.000	0.000	0.000	0.125	0.002	-0.007	0.433
15-Dec	0.282	0.000	0.282	0.107	0.000	0.107	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.002	-0.003	0.430
16-Dec	0.027	0.000	0.027	0.107	0.014	0.121	0.094	0.003	0.110	0.113	0.125	0.000	0.000	0.000	0.125	0.002	-0.020	0.410
17-Dec	0.054	0.000	0.054	0.107	0.009	0.116	0.062	0.003	0.073	0.076	0.125	0.000	0.000	0.000	0.125	0.002	-0.014	0.396
18-Dec	0.066	0.000	0.066	0.107	0.007	0.114	0.049	0.003	0.057	0.060	0.125	0.000	0.000	0.000	0.125	0.002	-0.012	0.384
19-Dec	0.074	0.000	0.074	0.107	0.006	0.113	0.039	0.003	0.045	0.048	0.125	0.000	0.000	0.000	0.125	0.002	-0.010	0.374
20-Dec	0.301	0.000	0.301	0.107	0.000	0.107	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.002	-0.003	0.371
21-Dec	0.132	0.000	0.132	0.107	0.000	0.107	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.002	-0.003	0.368
22-Dec	0.129	0.000	0.129	0.107	0.000	0.107	0.000	0.003	0.000	0.003	0.125	0.110	0.000	0.110	0.235	0.002	0.123	0.491
23-Dec	0.137	0.000	0.137	0.107	0.000	0.107	0.000	0.003	0.000	0.003	0.125	0.000	0.000	0.000	0.125	0.002	-0.003	0.487
24-Dec	0.079	0.000	0.079	0.107	0.005	0.112	0.033	0.003	0.039	0.042	0.125	0.000	0.000	0.000	0.125	0.002	-0.009	0.478
25-Dec	0.070	0.000	0.070	0.107	0.007	0.113	0.044	0.003	0.051	0.054	0.125	0.000	0.000	0.000	0.125	0.002	-0.011	0.468
26-Dec	0.078	0.000	0.078	0.107	0.005	0.112	0.034	0.003	0.040	0.043	0.125	0.000	0.000	0.000	0.125	0.002	-0.009	0.458
27-Dec	0.020	0.000	0.020	0.107	0.015	0.122	0.102	0.003	0.120	0.122	0.125	0.000	0.000	0.000	0.125	0.002	-0.021	0.437
28-Dec	0.072	0.000	0.072	0.107	0.006	0.113	0.041	0.003	0.049	0.051	0.125	0.000	0.000	0.000	0.125	0.002	-0.010	0.427
29-Dec	0.043	0.000	0.043	0.107	0.011	0.118	0.075	0.003	0.088	0.091	0.125	0.000	0.000	0.000	0.125	0.002	-0.016	0.400
30-Dec	0.043	0.000	0.043	0.107	0.015	0.122	0.100	0.003	0.118	0.121	0.125	0.000	0.000	0.000	0.125	0.002	-0.021	0.379
31-Dec	0.022	0.000	0.022	0.107	0.015	0.122	0.100	0.003	0.118	0.121	0.125	0.000	0.000	0.000	0.125	0.002	-0.021	0.379
Dec Total	2.508	0.000	2.508	3.315	0.227	3.542	1.514	0.078	1.781	1.859	3.873	0.331	0.000	0.331	4.204	0.071	0.021	

Month	Average Precip (inches)	Average Runoff (inches)	Average Infiltrated Rainfall (inches) ((2)- (3))	Evapo- transpiration	Required Leaching	Total Water Needs ((5)+(6))	Effluent Needed in Root Zone ((7)-(4))	Evaporation from Reservoir Surface	Effluent to be applied to Land ((8)/(K))	Consumption from Reservoir ((9)+(10))	Effluent received for Applicaton or Storage	Rainfall Worst Year in Past 25 Years	Runoff Worst Year in Past 25 Years	Infiltrated Rainfall ((13)-(14))	Available Water ((12)+(15))	Net 25 Year Low Evaporation from Regur. Surface	Storage	Maximum Accumulated Storage During Month
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Jan Total	2.635	0.000	2.635	3.393	0.209	3.603	1.395	0.075	1.641	1.716	3.873	4.150	1.021	3.128	7.002	0.058	0.091	0.530
Feb Total	2.096	0.000	2.096	3.564	0.276	3.840	1.840	0.081	2.165	2.246	3.624	3.732	0.081	3.651	7.275	0.083	0.567	1.062
Mar Total	2.811	0.000	2.811	4.622	0.369	4.991	2.459	0.118	2.893	3.011	3.873	2.311	0.018	2.293	6.166	0.103	-0.812	1.159
Apr Total	2.211	0.000	2.211	5.395	0.569	5.965	3.797	0.151	4.467	4.617	3.748	3.972	0.452	3.520	7.269	0.122	-1.928	0.106
May Total	4.253	0.000	4.253	6.603	0.441	7.044	2.937	0.168	3.456	3.624	3.873	3.343	0.104	3.238	7.112	0.123	-2.659	-1.581
Jun Total	3.392	0.000	3.392	7.083	0.672	7.755	4.481	0.217	5.272	5.489	3.748	11.409	2.983	8.427	12.175	0.165	-2.696	-4.543
Jul Total	1.996	0.000	1.996	7.382	0.950	8.332	6.336	0.227	7.454	7.681	3.873	0.831	0.000	0.831	4.704	0.141	-5.095	-7.248
Aug Total	2.532	0.000	2.532	7.165	0.818	7.983	5.450	0.242	6.412	6.654	3.873	1.906	0.080	1.826	5.699	0.190	-4.437	-12.346
Sep Total	3.058	0.000	3.058	6.031	0.563	6.594	3.753	0.185	4.415	4.600	3.748	1.571	0.243	1.328	5.077	0.146	-3.721	-16.735
Oct Total	3.683	0.000	3.683	5.105	0.322	5.427	2.147	0.151	2.525	2.677	3.873	4.622	0.812	3.810	7.684	0.143	-1.346	-20.286
Nov Total	2.969	0.000	2.969	3.898	0.285	4.183	1.902	0.108	2.238	2.346	3.748	14.098	4.730	9.369	13.117	0.096	0.358	0.505
Dec Total	2.508	0.000	2.508	3.315	0.227	3.542	1.514	0.078	1.781	1.859	3.873	0.331	0.000	0.331	4.204	0.071	0.021	0.515
	34.144	0.000	34.144	63.557	5.702	69.258	38.010	1.802	44.718	46.520	45.732	52.276	10.523	41.752	87.484	1.440		

Highest accumulated storage using daily values is 1.165 in/ac. Highest accumulated storage time period is Nov 1st to March 4th.

Area of Spray Irrigation 120.6500 acres

Max Calculated Allowable 46.520 inches/year
Application Rate 3.877 feet/year
0.127 inches/day

Proposed Application Rate 45.732 inches/year
3.800 feet/year
0.125 inches/day

Proposed Application 409,295 gallons/day

Maximum Accumulated Storage 1.159 inches/acre irrigated
11.652 acre-feet
3,796,950 gallons
9.277 Days

Proposed Storage 56.523 acre-feet
18,418,000 gallons
45 Days Storage of Proposed Application Rate

ET using Blaney-Criddle Method

Month	Mean Daily % of annual day time hours (p)	Average Temperature (°F)	Average Temperature (°C)	Eto (mm/day)	Eto (inches/day)	Etc (inches/day)
Jan	0.24	51.50	10.83	3.090	0.122	0.109
Feb	0.25	55.00	12.78	3.469	0.137	0.123
Mar	0.27	61.70	16.50	4.209	0.166	0.149
Apr	0.29	69.20	20.67	5.077	0.200	0.180
May	0.31	76.60	24.78	6.013	0.237	0.213
Jun	0.32	82.20	27.89	6.665	0.262	0.236
Jul	0.31	85.00	29.44	6.722	0.265	0.238
Aug	0.30	85.80	29.89	6.525	0.257	0.231
Sep	0.28	80.00	26.67	5.675	0.223	0.201
Oct	0.26	71.20	21.78	4.649	0.183	0.165
Nov	0.24	61.00	16.11	3.668	0.144	0.130
Dec	0.23	52.50	11.39	3.018	0.119	0.107

$$Et_o = p * (.046 * T_{mean} + 8)$$

p = Mean daily percentage of annual daytime hours. Found in Table 4 of FAO's "Irrigation Water Management" Paper, Chapter 3: Crop Water Needs, using Latitude of 31°

T_{mean} = Mean daily temperature. Found using NOAA Average Monthly Temperatures for Austin, TX using 30-year Normal data (1981-2010)

$$Et_c = Et_o * K_c$$

K_c = 0.90. Found using Food and Agriculture Organization of the United Nations, "Crop Evapotranspiration - Guidelines for Computing Crop Water Requirements - FAO Irrigation and Drainage Paper 56." Value computed by averaging Warm Season Turf Grass, 0.85, and Cool Season Turf Grass, 0.95.

**Avg. Evaporation between
TWDB Quads 709 & 710**

Month	Evaporation (inches/month)
Jan	2.250
Feb	2.435
Mar	3.536
Apr	4.511
May	5.045
Jun	6.488
Jul	6.798
Aug	7.242
Sep	5.537
Oct	4.526
Nov	3.234
Dec	2.341

Total: 54.608

**Lowest Annual*
Evaporation, Averaged
Between TWDB Quads 709
& 710**

Month	Evaporation (inches/month)
Jan	1.725
Feb	2.485
Mar	3.070
Apr	3.665
May	3.675
Jun	4.940
Jul	4.225
Aug	5.695
Sep	4.360
Oct	4.280
Nov	2.865
Dec	2.120

Total: 43.105

*Both Quads had Lowest Annual Evaporation
in Year 2007

SCS Runoff Method

$$R = (P - 0.2S)^2 / (P + 0.8S)$$

R = Runoff (inches)

P = Precipitation (inches)

$$S = (1000 / CN) - 10$$

CN = Curve Number

Effluent Storage Area

	Area (SF)	Area (Acres)	Volume (MG.)
Exist Pond 1	62,116	1.43	-
Exist Pond 2	89,279	2.05	-
Prop. Tank 1 (138' Ø)	14,957	0.34	5
Prop. Tank 2 (108' Ø)	9,161	0.21	3

Total: 175,513 4.03

Spray Irrigation Areas

	Area (SF)	Area (Acres)
Flintrock Golf Course	4,956,692	113.7900
Serene Hills Drive (E)	298,822	6.8600

Total: 5,255,514 120.6500

ATTACHMENT Y
SPRAY IRRIGATION ENGINEERING REPORT

TRAVIS COUNTY W.C.&I.D. No. 17

FLINTROCK WASTEWATER TREATMENT PLANT

SPRAY IRRIGATION REPORT

March 2014



Prepared by:



3801 South First Street • Austin, Texas 78704 • (512) 442-3008

TABLE OF CONTENTS

• <u>Section One – Introduction</u>	01
• <u>Section Two – Spray Irrigation System Description</u>	02
• <u>Section Three – Water Balance</u>	03
• <u>Section Four – Nitrogen Loading</u>	04
• <u>Section Five – Conclusion</u>	04
• <u>Attachments</u>	
○ <u>1.0 – Effluent Disposal Overall System Layout</u>	

Section One – Introduction

Travis County WCID 17 currently owns and operates the Flintrock Wastewater Treatment Plant. This facility currently has a treatment capacity of 0.5 MGD. WCID 17 holds a domestic wastewater disposal permit WQ0013878001 for the Flintrock Wastewater Treatment Plant, and is permitted for a disposal of 0.5 MGD via irrigation and evaporation. The existing permit, WQ0013878001, authorizes the disposal of treated domestic wastewater via spray irrigation at the Flintrock Estates Golf Course at a rate of 2.64 acre-feet per year per acre (ac-ft/ac-yr), drip irrigation at a rate of 0.1 gallons per day per square foot (gpd/sf), and up to 0.1 MGD through an off channel storage pond permitted under the Hurst Creek MUD Permit WQ0012215001.

WCID 17 is seeking to renew and make a major amendment to their Flintrock Wastewater Treatment Plant's disposal permit WQ0013878001. Part of the proposed major amendment is to increase the application rate at the existing Flintrock Golf Course spray irrigation effluent disposal site, and to add a new spray irrigation disposal site to irrigate the Serene Hills Drive R.O.W. The table below summarizes the existing and proposed spray irrigation sites and application rates.

**Existing and Proposed Spray Irrigation Sites & Disposal Rates
Summary**

Spray Irrigation Disposal Site	Existing Permitted Application Rate (Acre-feet/Acre-year)	Proposed Permitted Application Rate (Acre-feet/Acre-year)
Flintrock Estates Golf Course (Existing)	2.64	3.80
Serene Hills Drive R.O.W. (Proposed)	N/A	3.80

A detailed description of the proposed major amendment is provided in Attachment A of the application. Effluent Disposal Area maps, Disposal Site Easements, and Effluent Disposal Application Areas & Storage Summary are provided in Attachment N of the application. A report describing the Flintrock Wastewater Treatment Plant's spray irrigation system, water balance, storage calculations, and nitrogen loading is provided below.

Section Two – Spray Irrigation System Description

The Flintrock Wastewater Treatment Plant disposal permit, WQ0013878001, authorizes the disposal of treated domestic wastewater via spray irrigation at the Flintrock Estates Golf Course at a rate of 2.64 ac-ft/ac-yr. As part of the major amendment, it is being proposed to increase this application rate to 3.80 ac-ft/ac-yr on 113.7900 acres at the Flintrock Estates Golf Course. It is also being proposed to add one (1) new spray irrigation disposal site with an application rate of 3.80 ac-ft/ac-yr on the Serene Hills Drive R.O.W.

The proposed spray irrigation system will dispose of treated domestic wastewater from the Flintrock Wastewater Treatment Plant with an application rate of 3.80 ac-ft/ac-yr (409,290-gpd) on a total irrigation area of 120.6500 acres. The spray irrigation system will have two (2) disposal sites: 113.7900 acres at the Flintrock Estates Golf Course and 6.8600 acres of Serene Hills Drive R.O.W. The disposal capacity was determined from a water balance. The water balance was completed and summarized below in Section 3 – Water Balance. The full water balance results are presented in Attachment N-3 of the application. Effluent Disposal Area Maps and Site Easements are provided in Attachment N-4 & N-5. The table below summarizes the spray irrigation system's disposal sites, areas, and application rates.

Disposal Sites	Total Site Area (acres)	Irrigation Area (acres)	Existing Application Rate (ac-ft/ac-yr)	Proposed Application Rate (ac-ft/ac-yr)	Proposed Disposal Capacity (gpd)
Flintrock Golf Course	113.7900	113.7900	2.64	3.80	386,023
Serene Hills Drive R.O.W	13.4600	6.8600	N/A	3.80	23,267
Total:	127.2500	120.6500	2.65	7.60	409,290

Several infrastructure improvements will be needed to accommodate the new proposed spray irrigation site. No new infrastructure improvements are anticipated for the existing spray irrigation system at the Flintrock Golf Course. Attached to this report is the Flintrock Effluent Disposal System Overall System Layout Exhibit.

A pump station will be installed at the existing effluent ponds at the Flintrock Estates Golf Course. This pump station will be used to pump to the Serene Hills Effluent Storage Tanks & Pump Station and the Thomas Effluent Storage Tank & Pump Station (Thomas Storage Tank & Pump Station will be used for drip irrigation storage. See Drip Irrigation Report in Attachment N-2) through a 12-inch effluent line. The Flintrock Golf Course Pump Station will be constructed with one (1) back-up pump.

The Serene Hills Effluent Pump Station & Storage Tank will provide effluent for the Serene Hills Drive R.O.W. spray irrigation system (The Serene Hills Storage Tanks & Pump Station also serve the Serene Hills Drip Irrigation system. See Drip Irrigation Report in Attachment N-2). The Serene Hills Pump Station will be constructed with one (1) back-up pump. Filtration will be provided on the downstream side of the proposed pumps. It is anticipated that cartridge filters will be utilized. The filters will be installed with 100 micron screens.

The proposed spray irrigation system in the Serene Hills Drive R.O.W will irrigate the existing landscaping located in the right-of-way. As shown on the Final Plats in Attachment N-5, a Public Utility Easement (PUE) is being dedicated that will encompass the entire right-of-way on Serene Hills Drive. The new proposed spray irrigation site is located within the city limits of the City of Lakeway. WCID 17 has obtained a Permanent Irrigation Easement, Doc No: 2014104865, from the City of Lakeway to irrigate the Serene Hills Drive R.O.W. A copy of this easement is provided in Attachment N-5 of the application. WCID 17's Reclaimed Water O&M Plan is attached (Attachment N-7 of the application), detailing how this and other systems will be operated, monitored and maintained to ensure compliance with TCEQ regulations. As noted in the WCID 17 Reclaimed O&M Plan, overspray is prohibited and will be monitored. The irrigation mains and laterals installed on Serene Hills Drive will be buried and installed in accordance with TCEQ regulations and the WCID 17 Reclaimed O&M Plan. The proposed turf on Serene Hills Drive & Flintrock Road will consist of Bermuda grass and Winter Rye grass, to provide vegetative cover throughout the year.

Section Three – Water Balance

The full daily water balance was calculated for the Flintrock Wastewater Treatment Plant's Spray Irrigation system. The results of this daily water balance are summarized below. The full daily water balance is provided in Attachment N-3 of the application.

The precipitation data was taken from NOAA Gauge USW00013958 at Camp Mabry in Austin, Texas. Average daily precipitation was determined by averaging precipitation amounts for each day of the year over the past 25 years (Ex. Jan 1 1988, Jan 1 1989, Jan 1 1990, etc.). Runoff was calculated using the SCS method as found in Technical Release No. 55. Evapotranspiration was calculated using the Blaney-Criddle method as described in FAO's "Irrigation Water Management Paper, Chapter 3: Crop Water Needs." Reservoir surface evaporation data was obtained from the Texas Water Development Board (TWDB) Quads 709 & 710. The data was averaged between the quads. The annual rainfall amount for the 'worst' year was determined by selecting the year with the highest precipitation amount. The 'worst' year was determined to be 2004. The maximum application rate was determined to be 46.52 inches/ac/yr (3.877 ac-ft/ac-yr). The proposed application rate is less than the calculated maximum application rate. The proposed application rate is 45.73 inches/ac/year (3.80 ac-ft/ac-yr).

The water balance accumulated storage summation was started on November 1st, to simulate the worst case scenario. The water balance calculates a minimum storage volume needed of 9.27-days, or 3.80-MG. The Flintrock Wastewater Treatment Plant Spray Irrigation system is proposing 45-days of storage, or 18.418-MG. This storage volume will be included in addition to the storage volume for the drip irrigation system. See attachment N-2 for the Drip Irrigation Report, and N-6 for the Effluent Disposal Application Areas & Storage Summary. A summary table of the water balance including application rates & storage requirements is provided below

Application Rate				Effluent Storage			
Maximum Allowable		Proposed		Minimum Allowable		Proposed	
Ac-ft/ac-yr	Gpd/sf	Ac-ft/ac-yr	Gpd/sf	Days	MG	Days	MG
3.877	0.079	3.80	0.078	9.27	3.80	45	18.418

Section Four – Nitrogen Loading

The maximum application rate, based on nitrogen loading, is calculated using the formula given in TCEQ Form 10053, Instructions for Domestic Worksheet 3.1 – Surface Land Disposal of Effluent:

$$L = N/2.7C$$

L = Annual liquid loading (ac-ft/yr)

C = Effluent nitrogen concentration (mg/l)

N = Annual crop requirement of nitrogen plus 20% volatilization

From the “Process Design Manual for Land Treatment of Municipal Wastewater,” by U.S. Environmental Protection, October 1981, the nitrogen uptake for Bermuda grass ranges from 400 to 675 kg/ha/yr, and the nitrogen uptake for Rye grass ranges from 200 to 280 kg/ha/yr. The minimum value for either crop is 200 kg/ha/yr, or 178 lb/ac/yr. Using this value and adding 20% for volatilization gives a value for ‘N’ of 213.6 lb/ac/yr. The proposed maximum effluent nitrogen concentration, ‘C’, is 5 mg/l. Using these values gives a maximum allowable annual liquid loading, ‘L’, of 15.82 ac-ft/ac/yr. The proposed annual liquid loading rate is 3.80 ac-ft/ac/yr. Therefore, the nitrogen loading rate is not the limiting factor.

Section Five – Conclusion

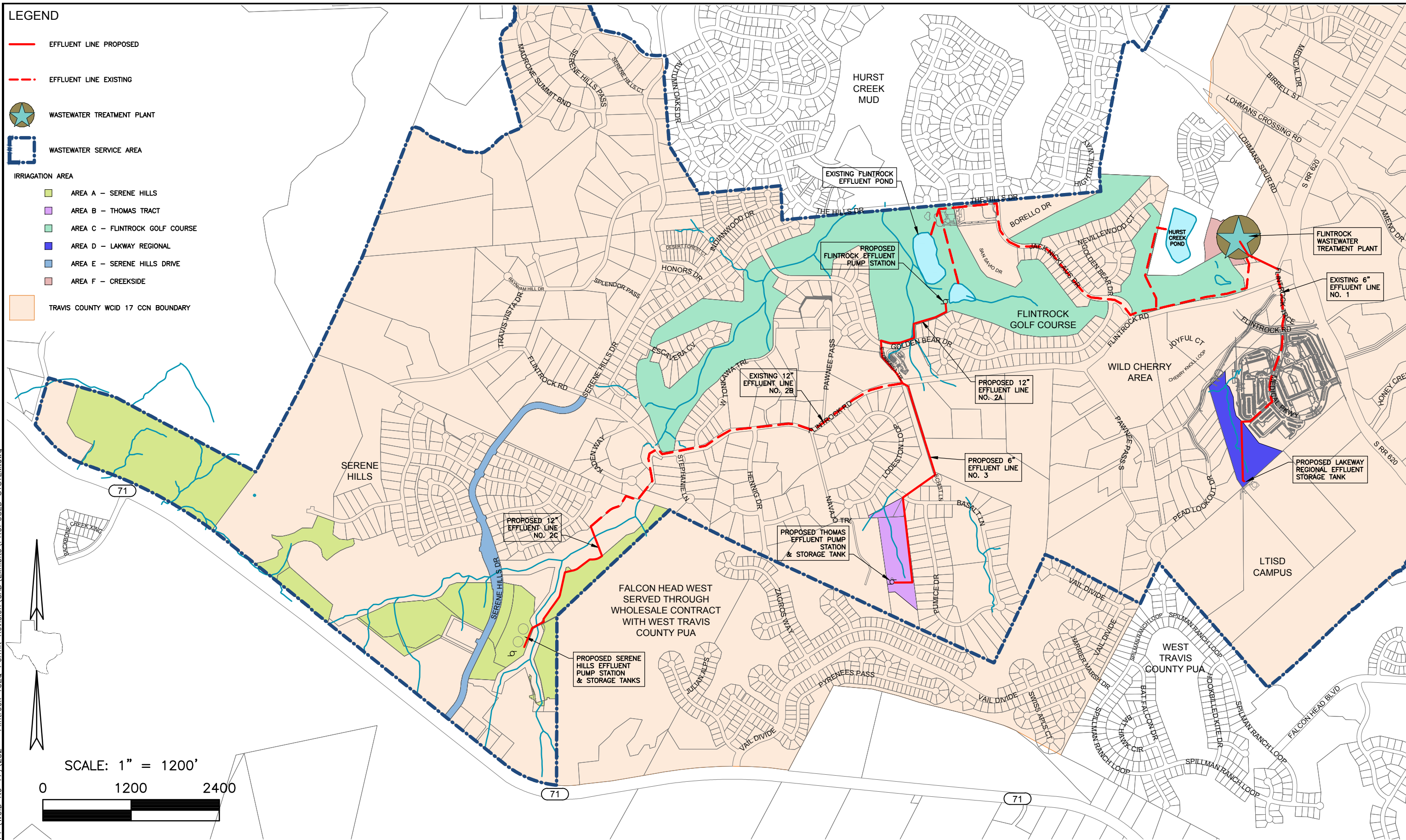
In summary, Travis County WCID No. 17 is seeking to renew and make a major amendment to their Flintrock Wastewater Disposal Permit, WQ0013878001. Part of the proposed major amendment is to increase the application rate at the existing Flintrock Golf Course spray irrigation effluent disposal site, and to add a new spray irrigation disposal site on the Serene Hills Drive R.O.W and the Flintrock Road R.O.W.

The proposed Flintrock Wastewater Treatment Plant’s spray irrigation system will dispose of treated domestic wastewater on 120.6500 acres of usable irrigation area: 113.7900 acres of the Flintrock Golf Course and 6.8600 acres of the Serene Hills Drive R.O.W. Each spray irrigation site will have an application rate of 3.80 ac-ft/ac-yr. The spray irrigation system will have a disposal capacity of 409,290-gpd. Several infrastructure improvements will be needed including a Pump station at the existing Flintrock Golf Course effluent ponds, Effluent Storage Tanks & Pump Station for the Serene Hills disposal area, and a 12-inch effluent line.

ATTACHMENT 1.0 – Flintrock Effluent Disposal Overall System Layout

LEGEND

- EFFLUENT LINE PROPOSED
- EFFLUENT LINE EXISTING
- WASTEWATER TREATMENT PLANT
- WASTEWATER SERVICE AREA
- IRRIGATION AREA
 - AREA A - SERENE HILLS
 - AREA B - THOMAS TRACT
 - AREA C - FLINTROCK GOLF COURSE
 - AREA D - LAKWAY REGIONAL
 - AREA E - SERENE HILLS DRIVE
 - AREA F - CREEKSIDE
- TRAVIS COUNTY WCID 17 CCN BOUNDARY



ATTACHMENT Z
DRIP IRRIGATION ENGINEERING REPORT

TRAVIS COUNTY W.C.&I.D. No. 17

FLINTROCK WASTEWATER TREATMENT PLANT

DRIP IRRIGATION REPORT

March 2014



Prepared by:



3801 South First Street • Austin, Texas 78704 • (512) 442-3008

TABLE OF CONTENTS

•	<u>Executive Summary</u>	01
•	<u>Section One – Irrigation Area Layout & Management Plan</u>	03
○	<u>1.1 Drainfield Layout</u>	03
▪	1.1a – Site & Soil Requirements	
▪	1.1b – Drainfield Sizing & Requirements	
▪	1.1c – Drip Irrigation Line Installation	
▪	1.1d – Pump Station & Filtration	
○	<u>1.2 Soil Moisture Monitoring Plan</u>	05
▪	1.2a – Soil Moisture Monitoring Devices & Installation	
▪	1.2b – Soil Moisture Monitoring Devices Operation	
○	<u>1.3 Drip Irrigation Operation & Management Plan</u>	06
▪	1.3a – Drip Irrigation System Operations	
▪	1.3b – Drip Irrigation System Management	
○	<u>1.4 Vegetation Management Plan & Nitrogen balance</u>	08
▪	1.4a – Drip Tubing Installation Methods for Preservation of existing trees	
▪	1.4b – Vegetation Present	
▪	1.4c – Nitrogen Balance	
▪	1.4d – Monthly Observations	
○	<u>1.5 Wet Weather Effluent Storage Management Plan</u>	10
•	<u>Section Two – Irrigation Monitoring Plan</u>	11
○	<u>2.1 – Treated Effluent Monitoring</u>	11
○	<u>2.2 – Soils Monitoring</u>	11
○	<u>2.3 – Shallow Groundwater Monitoring</u>	12
○	<u>2.4 – Records & Reporting</u>	13
•	<u>Section Three – Annual Cropping Plan</u>	15
○	<u>3.1 – Annual Cropping Plan</u>	15
•	<u>Attachments</u>	
○	<u>1.0 – Drip Irrigation Overall System Layout</u>	
○	<u>2.0 – Existing & Proposed Serene Hills Drip Irrigation Areas</u>	
○	<u>3.0 – Soil Maps of Drip Irrigation Sites</u>	

Executive Summary:

Travis County WCID 17 currently owns and operates the Flintrock Wastewater Treatment Plant. This facility currently has a treatment capacity of 0.5 MGD. WCID 17 holds a domestic wastewater disposal permit WQ0013878001 for the Flintrock Wastewater Treatment Plant, and is permitted for a disposal of 0.5 MGD via irrigation and evaporation. The existing permit, WQ0013878001, authorizes the disposal of treated domestic wastewater via spray irrigation at the Flintrock Estates Golf Course at a rate of 2.64 acre-feet per year per acre (ac-ft/ac-yr), drip irrigation at a rate of 0.1 gallons per day per square foot (gpd/sf), and up to 0.1 MGD through an off channel storage pond permitted under the Hurst Creek MUD Permit WQ0012215001.

WCID 17 is seeking to renew and make a major amendment to their Flintrock Wastewater Treatment Plant's disposal permit WQ0013878001. WCID 17 is proposing to absorb their existing Serene Hills Permit WQ0013294003 into their Flintrock Permit as part of this major amendment. Under the Serene Hills Permit, WCID 17 is permitted to dispose of 165,000-gpd of treated domestic wastewater via drip irrigation. WCID 17 is proposing to include this as part of the Flintrock Permit and to increase this disposal rate from 165,000-gpd to 304,591-gpd. It is also being proposed to add three (3) new drip irrigation disposal sites. Each drip irrigation site will have a disposal capacity of 0.1 gallons per day per square foot (gpd/sf). These sites include the Thomas Tract, Lakeway Regional, and the Creekside Tract. A detailed Amendment Request is available in Attachment A of the application. Effluent Disposal Area Maps are provided in Attachment N-5. The table below summarizes the existing and proposed drip irrigation sites and disposal rates

DRIP IRRIGATION DISPOSAL AREAS	Total Site Area (acres)	Irrigation Area (acres)	Existing Disposal Capacity (gpd)	Proposed Disposal Capacity (gpd)
Existing Permitted Disposal Sites				
Flintrock Golf Course via Drip Irrigation	30.261	30.261	131,816	131,816
Serene Hills (From WQ0013294003)	115.93	72.96	165,000	304,591
Proposed Permitted Disposal Sites				
Thomas Tract	11.22	6.01	N/A	26,200
Lakeway Regional	8.50	3.56	N/A	15,500
Creekside Tract	5.40	3.80	N/A	16,551
Total:	171.30	116.591	296,816	494,658

As mentioned above, and described in more detail in Attachment 'A', it is proposed to absorb the existing Serene Hills Permit WQ0013294003 disposal capacity of 165,000-gpd. The drip irrigation areas included in the Serene Hills permit are shown in Attachment 2.0 of this report. The proposed areas are also shown in Attachment 2.0 of this report, and are shown in more detail in attachment N-4 of the application.

This report was developed to ensure that the Flintrock Drip Irrigation Systems are operated and maintained in a manner, which will preserve and protect the surrounding environment. This drip irrigation system will be used to dispose of a maximum of 494,658 gallons per day (gpd) of treated domestic wastewater effluent from the Flintrock Wastewater Treatment Plant on 116.591-acres. It is proposed to construct the remaining drip irrigation system in two phases. Phase I will include the drip dispersal fields at the Flintrock Golf course with a disposal capacity of 131,816-gpd. The Final Phase, Phase II, will include the remaining drip dispersal fields at the Serene Hills site, the drip dispersal fields on the Thomas tract with a disposal capacity of 26,200-gpd, the drip dispersal fields at Lakeway Regional with a disposal capacity of 15,500-gpd, and the drip dispersal fields at the Creekside tract with a disposal capacity of 16,551-gpd. This proposed drip dispersal system, will be owned and operated by Travis County Water Control and Improvement District No. 17 (the District). The system will be installed, operated, and monitored in accordance with the TCEQ regulations and approved Construction Plans and Specifications.

The drip irrigation fields will be installed only on areas with adequate soils and slopes less than or equal to 30-percent. The treated wastewater effluent will be applied at a rate which will not cause over saturation of the soil. Soil moisture monitoring devices will be installed to monitor the soils moisture content and to prevent irrigation in areas where the soils are saturated. The effluent being applied will be treated at the Flintrock Wastewater Treatment Plant.

This drip irrigation system will be operated, maintained, and monitored by Travis County Water Control and Improvement District No. 17. The District has a TCEQ certified wastewater treatment plant operator running the Flintrock Wastewater Treatment Plant and disposal system. The site will be monitored for any problems, and if any problems with the system are found they will be resolved before the system, or that portion of the system, is put back into service.

A number of observations and tests will be done periodically to ensure that this system is not causing any adverse effects to the surrounding environment. These include making monthly observations of the vegetation to ensure that it is not being stressed. The treated wastewater effluent will have continuous flow readings, daily chlorine residual tests, weekly Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and Nitrogen tests done before it enters the irrigation system. The soils will be tested yearly for nutrients, salts and moisture. The shallow groundwater will be tested quarterly for nutrients and fecal coliform. Any springs and/or seeps that emerge will be tested quarterly for nutrients, fecal coliform, water volume, sodium, sulfate and chloride. The implementation of this Plan will continue for the life of the drip irrigation system.

Section One – Irrigation Area Layout and Management Plan

1.1 Drainfield Layout

1.1.a Site and Soil Requirements

The drip irrigation fields shall be installed on 116.591-acres, as shown in areas of Attachment N-4 of the application. No drip fields shall be installed within a 5-foot setback from the property lines or within 150-feet of any spring. These buffer zones are to be left in their natural condition.

The drip irrigation lines must be installed so that a minimum of 12-inches of soil exists below the lines. The lines shall also have between 6 and 12-inches of cover over the lines. Soil samples will be collected at the site to verify adequate soil depths, as well as to analyze the soil for background data to be used to monitor any changes in the soil once effluent application has begun. Initial soil sampling will be done prior to the final design of the drip irrigation system. The results of the sampling will be used to identify any areas of the site where soils are not suitable for drip irrigation.

The drip irrigation system must only be installed on areas with slopes not exceeding 30-percent. The proposed drip dispersal areas, with a total area of 171.30-acres, have slopes ranging from 5 to over 30 percent. Within these areas 119.871-acres have been identified with slopes less than 30 percent and outside setbacks. The total proposed irrigation area is 116.591-acres. The irrigation zones will also be laid out to allow for vehicular access. Soil Maps of the drip irrigation areas are provided in Attachment 3.0 of this report. Detailed Soil Maps of the entire effluent disposal sites are provided in Attachment O of the application.

1.1.b Drainfield Sizing and Requirements

This proposed drip irrigation system would be used to dispose of a maximum average of 494,658 gallons per day of treated wastewater effluent. It is proposed to construct this drip irrigation system in two phases. Phase I will include the drip dispersal fields installed at the Flintrock Golf Course with a disposal capacity of 131,816-gpd. The Final Phase, Phase II, will include the remaining drip dispersal fields at Serene Hills site, the Thomas tract with disposal capacity of 26,200-gpd, the Lakeway Regional site with a disposal capacity of 15,500-gpd, and the Creekside Tract with a disposal capacity of 16,551-gpd. The system will utilize a proposed application rate of 0.10 gallons per day per square foot (gpd/sf) at the Flintrock Golf Course, Thomas Tract, Lakeway Regional, and the Creekside Tract. The Serene Hills site was divided into five (5) areas, and each area will utilize their existing permitted application rate. Two of the five Serene Hills area have a permitted application rate less than 0.10 gpd/sf. Attachment N-6 of the application provides more detail. Utilizing these application rates gives a total drainfield area of 5,079,023-square feet, or 116.591-acres.

The drip irrigation fields will be laid out to provide uniform effluent distribution. There are two ways this will be accomplished. First, the fields will be laid out and installed parallel to contour lines, to minimize any grade differences across each field. Secondly, pressure-compensating emitters will be used to ensure uniform distribution. These emitters have a uniform flow rate over a wide range of water pressures, typically 10 to 60 psi. Drip lines will be spaced at 2-feet. Emitters will also be spaced at 2-feet. Emitters will have a typical flow rate of 0.60 gallons per hour. Each zone will run twice a day, with each run time equaling half of the required run time per zone. This will help prevent soil saturation and run-off.

1.1.c Drip Irrigation Line Installation

The drip irrigation lines will be installed where there is at least 12-inches of adequate soil below the lines. The drip irrigation lines will be buried 6 to 12-inches below existing ground. The drip irrigation lines will only be installed on soils suitable for wastewater absorption. The soil beneath the drip lines will be at least 12-inches in depth. The drip lines will not be installed over limestone outcrops, or areas with inadequate soils. If a zone crosses an unsuitable area a piece of solid line, without perforations, will be installed for the length of the unsuitable area. Large limestone boulders will be removed to expose suitable soils if necessary. The entire area will be avoided if the unsuitable area is large in size. The drip irrigation lines will not be installed on slopes greater than 30-percent.

Erosion and sedimentation controls will be installed prior to beginning construction. These controls include installing silt fence on the downhill sides of the site.

1.1.d Pump Station and Filtration

A proposed Pump Station will be installed at the existing Effluent storage pond at the Flintrock Golf Course to feed the drip irrigation system. The Flintrock Pump Station will be constructed with one (1) back-up pump. Filtration will be provided on the downstream side of the proposed pumps. It is anticipated that cartridge filters will be utilized. The filters will be installed with 120 mesh screens. The filtration system will have an automatic back-flushing feature. A separate set of pumps will be installed at the existing effluent storage pond to pump to the Thomas Tract & Serene Hills Effluent Storage Tanks & Pump stations (The Flintrock Pump Station & Serene Hills Effluent Storage Tank & Pump Station also serve the Spray Irrigation System. See Spray Irrigation Report in Attachment N-1).

The Serene Hills Effluent Storage Tank & Pump Station will serve the Serene Hills drip irrigation system, and the Serene Hills R.O.W. spray irrigation system. The Serene Hills Effluent Storage Tank & Pump Station will receive effluent from the Flintrock Pump Station through a 12-inch effluent line (see Attachment 1.0 - Flintrock Disposal System Overall System Layout). The Serene Hills Pump Station will be constructed with one (1) back-up pump. Filtration will be provided on the downstream side of the proposed pumps. It is anticipated that cartridge filters will be utilized. The filters will be installed with 120 mesh screens. The filtration system will have an automatic back-flushing feature.

The Thomas Tract Effluent Storage Tank & Pump Station will serve the Thomas Tract drip irrigation system. The Thomas Tract Effluent Storage Tank & Pump Station will receive effluent from the Flintrock Pump Station through a 12-inch and 6-inch effluent lines (see Attachment 1.0 - Flintrock Disposal System Overall System Layout). The Thomas Tract Pump Station will be constructed with one (1) back-up pump. Filtration will be provided on the downstream side of the proposed pumps. It is anticipated that cartridge filters will be utilized. The filters will be installed with 120 mesh screens. The filtration system will have an automatic back-flushing feature.

The Lakeway Regional Storage Tank will receive effluent directly from the Flintrock Wastewater Treatment Plant. Effluent from the plant will be conveyed through an existing 6-inch effluent line No. 1 (see Attachment 1.0 - Flintrock Disposal System Overall System Layout).

The Creekside Tract will receive effluent directly from the Flintrock Wastewater Treatment Plant.

1.2 Soil Moisture Monitoring Plan

1.2a Soil Moisture Monitoring Devices and Installation

Soil moisture monitoring devices will be used with this drip irrigation system to ensure that application of effluent does not occur during periods of soil saturation. The soil moisture-monitoring device will measure the soils moisture content and transfer this data to the controller of the drip irrigation system. In the event of reaching soil saturation, due to rain or effluent application, the monitoring device, via the drip irrigation controller, shall stop irrigation of the zone(s) if it is in the process of dosing or prevent the zone(s) from beginning dosing.

Soil moisture monitoring devices are to be used with this system. A typical model of soil moisture monitoring device is the TRIME (Time Domain Reflectometry with Intelligent Micro Elements), Model TRIME-EZ. These devices are self-contained rod probes which are inserted into the ground to take a continuous volumetric soil moisture content measurement, (measurement taken every 10 to 15 seconds). The TRIME-EZ has a measuring range of 0-95% volumetric water content. When the water content is between 0 and 40% the device has an accuracy of $\pm 1\%$, and when the water content is between 40 and 70% the device has an accuracy of $\pm 2\%$. These devices operate in a temperature range of -15°C (5°F) to 50°C (122°F).

The soil moisture monitoring devices are to be installed after installation of the drip irrigation zones and prior to effluent application on the fields. A minimum of one (1) soil moisture-monitoring device will be installed per zone. The location of these devices is at the downstream side of each zone. The bottom of each probe is to be placed 6 to 10-inches below the drip tubing.

1.2b Soil Moisture Monitoring Devices Operation

The soil moisture monitoring devices will continuously (every 10 to 15 seconds) take a soil moisture reading and report this data to the drip irrigation system's controller. If the zone being dosed becomes saturated, for any reason, the controller will send a signal to the zone's automatic valve and stop dosing to that field. If the next scheduled zone is not saturated dosing will begin in that zone. If the next scheduled zone is saturated the controller will skip that zone and proceed through its schedule until it finds a zone, that is not saturated, to dose. If all of the zones are saturated no effluent will be applied to the site. During saturated soil conditions effluent will be held in the proposed effluent storage facility. Details of the Wet Weather Effluent Storage Management Plan are given in Section 1.5. Records of saturation events will be recorded as alarm conditions. Records for saturation events will indicate when each zone became saturated and the application rate prior to becoming saturated.

1.3 Drip Irrigation Operation and Management Plan

1.3.a *Drip Irrigation System Operation*

The drip irrigation system will be operated by a personal computer equipped with control software. The controller will maintain real time to allow scheduled dosing and flushing to occur at pre-determined times of day, and must be equipped with a back-up power supply to maintain correct time and program variables in the event of power failure.

The controller will be programmed with a dosing schedule. This schedule will dictate the order or the zones to be dosed, and the frequency and duration of the dosing. The frequency and duration for each zone will be determined by the flow rate to that zone and the area of the zone, so that the effluent application rates do not exceed the permitted rates. The dosing volumes and the time between doses shall be easily adjustable. The gallon per minute flow rate within each zone shall be monitored continuously during a dosing cycle and the controller shall compare this value with the preset (design) flow rate. Any deviation in the flow rate of any zone shall be recorded by the processor as a flow variance alarm condition and the controller shall engage the appropriate alarm transmissions.

Each zone will be dosed twice per day. This allows the field to 'rest' between doses. The amount of time between each zone can be altered to spread the dosing out over a longer period of time, as well as lengthening the amount of time between each zone's first and second daily dosing. This schedule assumes all of the zones are of equal size.

Each dripper zone shall be automatically flushed on a predetermined schedule, not to exceed 28 days, in order to remove organic buildup within the dripper lines. The controller shall monitor the total volume of water and the total number of run cycles for each zone between flushing cycles and initiate a zone flush once the preset quantity has been reached. The controller shall flush only one zone at a time and a flushing velocity in excess of 2.0 feet per second must be maintained at the distal end of each dripper line within a zone. The duration of the flushing cycle shall be in accordance with the manufacturer's recommendation, but adequate volume must be applied to ensure that resuspended solids are completely flushed out of the return collection headers.

The controller will also be capable of storing operation records and engaging and transmitting alarm conditions. The following operational records shall be stored in memory, and written to disk, for later retrieval:

- total accumulated flows into each zone per day
- total number of doses into each zone per day
- total number of field flushing cycles in each zone per day
- gallon per minute flow rate within each zone
- total flow in system per day
- total flow rate of system
- last 100 alarm conditions encountered and the nature of the alarms

The records of each saturation event, as described in Section 1.2.b, will be kept for the life of the system.

The controller shall be equipped with a two-way (modem) communicator, and must be capable of self-transmitting the following alarm conditions:

- power failures
- power restores
- variance in flow rate of each zone
- flow rate variance restore ($\pm 20\%$)
- automatic shutdown of the controller due to any extreme variance in flow rate to any zone ($\pm 50\%$)

The controller must also be capable of receiving telecommunications from the manufacturer's representative in order to upload or download software information and stored data and to allow the remote user to run diagnostic routines from a remote location. The controller shall include a visual alarm and be equipped to trigger an audio alarm for the following conditions:

- power failure
- flow variance ($\pm 20\%$)
- flow variance ($\pm 50\%$)

The soil moisture monitoring devices will report their readings to the controller. If the zone being dosed becomes saturated the controller will send a signal to the zone's automatic valve and stop dosing to that zone. If the next scheduled zone is not saturated dosing will begin in that zone. If the next scheduled zone is saturated the controller will skip that zone and proceed through its schedule until it finds a zone, that is not saturated, to dose. If all of the zones are saturated no effluent will be applied to the site.

After the system is installed it shall be tested and calibrated. The dosing pressures in each zone shall be tested to verify that they comply with the manufacturer's requirements (7-60psi). The flow rate shall be tested in each zone, comparing the actual flow rates with the actual size of the field. The controller shall be programmed using the actual flow rates determined for each zone. A report shall be generated and given to the Owner and Engineer stating the flow rate, pressure, and size of each zone and verifying that the overall flow rate and application rate, for the system and for each zone, meet the requirements stated.

1.3.b Drip Irrigation System Management

Once the system has been installed, tested and meets the approval of the Owner and Engineer, the Engineer will issue a Letter of Concurrence stating that the drip irrigation system was installed according to the sealed and permitted Construction Plans. Travis County WC&ID No. 17 (the District) will own and operate this system. The District will have one of its TCEQ certified wastewater treatment plant operators run the wastewater treatment plant and the disposal system. They will be responsible for all maintenance needed to keep the system functioning according to the manufacturer's specifications and/or criteria. The District will maintain, repair and/or replace all components of the drip irrigation system in accordance with the manufacturer's specifications. The entire system will be visually observed for malfunctions once a week, minimum. The entire system will be warranted by the Contractor for one (1) year after acceptance of the system by the Owner against all defects in workmanship and materials.

1.4 Vegetation Management Plan and Nitrogen Balance

1.4.a Drip Tubing Installation Methods for Preservation of Existing Trees

The proposed drip tubing will be installed by burying it beneath 6 to 12-inches of soil. The drip irrigation lines will only be installed on soils suitable for wastewater absorption. The soil beneath the drip lines will be a minimum of 12-inches in depth. The drip lines will not be installed over limestone outcrops, or areas with inadequate soils. If a zone crosses an unsuitable area a piece of solid line, without perforations, will be installed for the length of the unsuitable area. Large limestone boulders will be removed to expose suitable soils if necessary. The entire area will be avoided if the unsuitable area is large in size. The drip irrigation lines will not be installed on slopes greater than 30-percent.

The drip tubes can be bent and installed around most large existing trees. Brush understory will be cleared from the fields and existing trees trimmed up to approximately 4-feet to allow for the installation of the drip tubing. The Contractor will make an effort to save as many of the existing trees as possible, and will not remove any trees with a trunk diameter of 6-inches or larger.

1.4.b Vegetation Present

The drip irrigation sites are predominantly occupied by native oak and cedar trees. A variety of shrubs exist under the trees and various native grasses exist in the open areas of the tract. After construction of each system the site will be seeded with Bermuda and Winter Rye grasses. The existing oak and cedar trees, as well as the planted Bermuda and Winter Rye grasses, will consume the wastewater effluent.

1.4.c Nitrogen Balance

This drip irrigation system will dispose of a maximum average flow rate of 494,658 gallons per day (gpd) of treated wastewater effluent, at a maximum application rate of 0.10 gpd per square foot. The treated wastewater effluent will be generated by the Flintrock Wastewater Treatment Plant. A possible limiting factor on irrigation rates is the nitrogen application rate. The nitrogen applied from the effluent shall not be greater than the amount that can be taken up and removed by vegetation, so that excess nitrogen does not leach into the ground water system or surface waters.

According to 30 TAC Section 222.83, the allowable annual hydraulic loading rate based on nitrogen limits is given by the following equation:

$$Lw(n) = [(Cp)(Pr-ET) + (U)(4.4)] / [(1-f)(Cn) - Cp]$$

$Lw(n)$ = allowable annual hydraulic loading rate based upon nitrogen limits in inches per year

Cp = total nitrogen concentration in soil solution in milligrams per liter

Nitrogen concentration of soil solution is equal to 9.0 mg/L

Pr = precipitation rate in inches per year

Average precipitation for Austin, over 25-year period of 1988-2012, according to NOAA Rain Gage USW00013958 at Camp Mabry in Austin, TX and is equal to 34.144 in/yr

ET = evapotranspiration rate in inches per year

Average evapotranspiration rate, calculated using Blaney-Criddle method as described in FAO's "Irrigation Water Management" paper, was calculated to be 63.56 in/yr

U = nitrogen uptake by crop in pounds per acre per year

Average nitrogen uptake for Bermuda Grass, according to Process Design Manual for Land Treatment of Municipal Wastewater, U.S. Environmental Protection, October 1981, is equal to 200 kg/ha/yr or 178 lb/acre/yr

4.4 = combined conversion factor

Cn = total nitrogen concentration in wastewater at time of application to land in milligrams per liter

Proposed effluent maximum permitted concentration equal to 5.0 mg/L

f = fraction of applied nitrogen removed by denitrification and volatilization and assumed to be 0.20

The above equation gives an allowable hydraulic loading rate, based on nitrogen limits, of 103.69 in/yr. The proposed hydraulic application rate is 57.04 in/yr. Therefore, the anticipated nitrogen loading is less than what can be used through crop uptake, and nitrogen loading is not a controlling factor in the hydraulic loading rate.

1.4.d Monthly Observations

Monthly observations will be done to ensure that this drip irrigation system is not causing harm to the existing vegetation. These observations will entail making visual observations of the site and recording any vegetation that is showing signs of stress, and the corresponding drip irrigation zone(s) that the stressed vegetation is located in. Mitigation of any stressed vegetation will be done within the following month. Mitigation would involve reducing the flow rate to the effected zones, closing the effected zones completely, or modifying the vegetation. Modifying the vegetation could involve planting additional vegetation. All observations indicating stressed vegetation will be recorded on a quarterly basis. These reports will indicate where stressed vegetation was located, the corresponding drip irrigation zone, and the mitigation steps that were taken.

1.5 Wet Weather Effluent Storage Management Plan

An alternative effluent disposal plan is needed to dispose of effluent during wet weather periods or periods of repair and/or maintenance to the drip irrigation system. This will be accomplished by the use of effluent storage facilities, and multiple irrigation/disposal systems. A minimum of 5-days of storage will be provided for the drip irrigation systems, in addition to the storage provided for the spray irrigation systems. An Effluent Disposal Application Areas & Storage Summary is provided in Attachment N-6.

Section Two – Irrigation Area Monitoring Plan:

2.1 Treated Effluent Monitoring

Once the wastewater has passed through the Flintrock Wastewater Treatment Plant and received full treatment it will need to be tested. These results will be used to ensure compliance with the proposed TCEQ TLAP Permit, and to help diagnose any problems that might occur in the drip irrigation system. Treated effluent samples will be collected before the effluent enters the drip irrigation system. These samples will be taken weekly, at a minimum, and tested for the following:

- Five Day Biological Oxygen Demand (BOD₅)
- Total Suspended Solids (TSS)
- Ammonia-Nitrogen

2.2 Soils Monitoring

Soil samples will be taken on-site to ensure that the effluent being applied is not causing any adverse effects to the vegetation and/or groundwater. Samples will be tested both prior to any effluent being applied and also annually once effluent application has begun. The soil tests done prior to effluent application will serve as background data. This background data will be used to monitor any changes in the soil once effluent application has begun.

Each soil sampling location will have a composite sample analyzed from representative soil depths. These depths will be at 0-6 inches, 6-18 inches, and 18-30 inches, or until an impermeable layer is reached. For each sampling event, 3 sub-sampling sites will be identified in the vicinity of the identified soil sampling site, and used for collecting composite soil samples by horizon. Each horizon will have 3 samples collected, one from each sub-sampling site, which will be mixed (composited), bagged, and analyzed. For example, for the 0-6-inch horizon, 3 sub-samples are collected and mixed for that horizon, but are not mixed (composited) with samples from other horizons or other sampling locations. Each composite sample will be tested for the following:

- pH
- Nitrate + Nitrite - Nitrogen
- Total Kjeldahl Nitrogen
- Ammonia-Nitrogen
- Total Phosphorus
- Ortho-Phosphate
- Potassium
- Magnesium
- Calcium
- Sodium
- Electrical Conductivity
- Percent Moisture Analysis
- Sodium Adsorption Ratio (SAR)

2.3 Shallow Groundwater Monitoring

Groundwater will also be monitored on the drip irrigation site to ensure that the treated effluent application is not causing any adverse effects. Groundwater will be monitored by two methods, by installing either suction lysimeters or sampling wells and by monitoring any springs or seeps that may appear.

A sampling well is a device used for collecting ground water. The sampling wells will consist of auguring a hole in the ground, filling the bottom 1-inch of the hole with gravel, setting a 4-inch perforated PVC pipe wrapped in filter fabric in the hole, filling the area around the pipe with gravel, and capping the PVC pipe. This well will allow groundwater to enter the pipe and be collected.

A suction lysimeter is also a device used for collecting ground water. The suction lysimeter is a cylindrical device consisting of a porous ceramic cup, a body tube and a stopper assembly. The suction lysimeter is inserted into the soil. A vacuum pump is used to pull water from the surrounding soil matrix through the ceramic cup and into the sampler. The soil water is then collected. If neither the sampling well nor the suction lysimeter are found to be adequate, other means of sampling shallow groundwater will be used, which is acceptable to both the District and TCEQ.

Samples will be taken quarterly, with the Spring and Fall samplings taken after rainfall events if possible. Background data will be established by sampling the wells outside the influence of drip irrigation zones on the same schedule as the other wells. The soil water collected will be tested for the following:

- Nitrate + Nitrite - Nitrogen
- Total Kjeldahl Nitrogen (TKN)
- Ammonia-Nitrogen
- Total Phosphorus
- Ortho-Phosphate
- Total Dissolved Solids (TDS)
- Fecal Coliform
- Specific Conductivity

After application of treated effluent has begun the site will be monitored for any emerging springs and/or seeps. Field checks will be done on a quarterly basis at the drip irrigation fields and down-gradient of the fields. If any springs and/or seeps are identified they will be tested. A grab sample of at least one (1) spring or seep will be taken and tested for the same parameters, on the same quarterly basis, as for the sampling wells. In addition to these parameters any springs or seeps that emerge will be tested for the following:

- Water Volume
- Sodium
- Sulfate
- Chloride

2.4 Records and Reporting

Records of all test data for the wastewater effluent, soils, shallow groundwater, any springs and/or seeps that emerge, and the overall system will be kept at the Flintrock Wastewater Treatment Plant, and/or the District Office, for a period of five (5) years. Following is a summary of the monitoring and testing that will be done:

▪ Treated Wastewater Effluent:

<u>Parameter</u>	<u>Minimum Frequency</u>
Flow	Continuous
Chlorine Residual	One/Day
Biological Oxygen Demand (5 day)	One/Week
Total Suspended Solids	One/Week
pH	Two/Month
Ammonia-Nitrogen	One/Month
Fecal Coliform	One/Quarter

▪ Soils

<u>Parameter</u>	<u>Minimum Frequency</u>
pH	One/Year
Nitrate + Nitrite - Nitrogen	One/Year
Total Kjeldahl Nitrogen (TKN)	One/Year
Ammonia-Nitrogen	One/Year
Total Phosphorus	One/Year
Ortho-Phosphate	One/Year
Potassium	One/Year
Magnesium	One/Year
Calcium	One/Year
Sodium	One/Year
Electrical Conductivity	One/Year
Percent Moisture Analysis	One/Year
Sodium Absorption Ratio (SAR)	One/Year

▪ Shallow Groundwater

<u>Parameter</u>	<u>Minimum Frequency</u>
Nitrate + Nitrite - Nitrogen	One/Quarter
Total Kjeldahl Nitrogen (TKN)	One/Quarter
Ammonia-Nitrogen	One/Quarter
Total Phosphorus	One/Quarter
Ortho-Phosphate	One/Quarter
Total Dissolved Solids (TDS)	One/Quarter
Fecal Coliform	One/Quarter
Specific Conductivity	One/Quarter

- Any Springs and/or Seeps that Emerge

<u>Parameter</u>	<u>Minimum Frequency</u>
Nitrate + Nitrite - Nitrogen	One/Quarter
Total Kjeldahl Nitrogen (TKN)	One/Quarter
Ammonia-Nitrogen	One/Quarter
Total Phosphorus	One/Quarter
Ortho-Phosphate	One/Quarter
Total Dissolved Solids (TDS)	One/Quarter
Fecal Coliform	One/Quarter
Specific Conductivity	One/Quarter
Water Volume	One/Quarter
Sodium	One/Quarter
Sulfate	One/Quarter
Chloride	One/Quarter

- System

<u>Parameter</u>	<u>Minimum Frequency</u>
Inspect depth of mulch cover (if applicable)	One/Month
Inspect for any stressed vegetation	One/Month
Inspect for any emerging springs or seeps	One/Quarter
Inspect for any erosion	One/Month
Visually observe system for malfunctions	One/Week

All records will be maintained and be available at the wastewater plant site and/or District Office for inspection by authorized representatives of TCEQ. At least five (5) years of records will be kept. Several reports will be submitted to TCEQ, in addition to keeping records on-site. A monthly operating report will be submitted showing the treated wastewater effluent flow and permitted effluent quality concentrations to verify compliance with permit conditions. The soils testing will be submitted to TCEQ annually during September of each year. Semi-annual monitoring results will be sent to TCEQ for any spring and/or seep that emerges.

Section Three – Annual Cropping Plan:

3.1 Annual Cropping Plan

The proposed drip irrigation site is predominantly occupied by oak and cedar trees. A relatively small number of other native trees are also present. A variety of shrubs exist under the trees and various native grasses exist in the open areas of the tract.

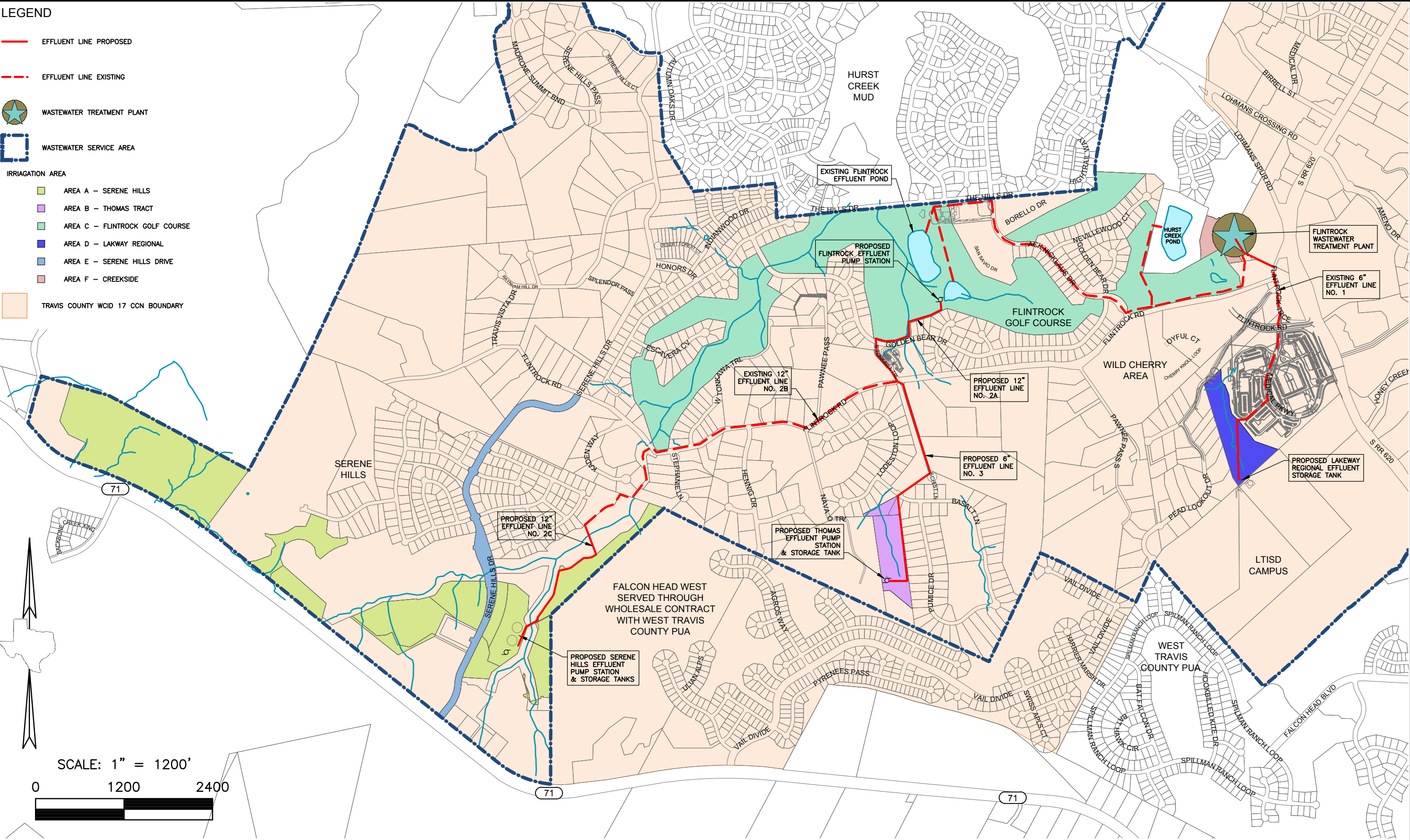
The installation of the proposed drip irrigation system will involve leaving as many of the existing trees in place as possible. The remaining area will be seeded with Bermuda and Winter Rye grasses.

Bermuda grass has a typical growing season lasting from March through October. It will go dormant following the first frost and remain dormant until Spring. Winter Rye has a typical growing season lasting from October through February. Bermuda grass has a maximum height of 15 to 18 inches, and Winter Rye has a maximum height of approximately 12 inches.

As discussed further in Section 1.4.c – Nitrogen Balance, the average nitrogen uptake for Bermuda grass is equal to 178 lb/acre/yr. An allowable hydraulic loading rate of 103.69 in/yr, based on nitrogen limits, was established for this system. A hydraulic loading rate of 57.04 in/yr is proposed. Therefore, the amount of nitrogen applied would not exceed the amount that can be removed by crop uptake. No additional fertilizer is proposed to be applied to the site. No supplemental watering is proposed for this site.

The crop salt tolerances were taken from Table 3 of 30 TAC Section 309.20. Bermuda grass is listed as Highly Salt Tolerant, with a maximum electrical conductivity of 8.0 – 12.0 millimhos/cm at 25 degrees Celsius. Winter Rye is listed as Relatively Salt Tolerant with a maximum electrical conductivity of 6.0 – 8.0 millimhos/cm at 25 degrees Celsius.

ATTACHMENT 1.0 – Flintrock Effluent Disposal Overall System Layout



ATTACHMENT 2.0 – Existing & Proposed Serene Hills Drip Irrigation Areas

FILE: P:\Projects\6014 (WCID No 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\ATTACHMENT 2.0 - DRIP IRRIGATION REPORT REVISED 2014.05.13.dwg

NOTES:

THE FOLLOWING MINIMUM SETBACKS WERE USED:

- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
- 150' FROM PRIVATE WATER WELLS
- 100' FROM SURFACE WATERS OF THE STATE
- 5' FROM PROPERTY LINES
- 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
- OUTSIDE FLOODWAY

AREA "A-1" ('A' & 'B' FROM EXIST. PERMIT)

TOTAL GROSS AREA =	15.33 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	2.72 A.C.
AREA WITH SLOPES > 30% =	0.05 A.C.
TOTAL USABLE AREA =	12.56 A.C.

AREA "A-2" ('C' FROM EXIST. PERMIT)

TOTAL GROSS AREA =	14.25 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	2.39 A.C.
AREA WITH SLOPES > 30% =	0.33 A.C.
TOTAL USABLE AREA =	11.53 A.C.

AREA "A-3" ('D' & 'E' FROM EXIST. PERMIT)

TOTAL GROSS AREA =	21.74 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	5.75 A.C.
AREA WITH SLOPES > 30% =	0.29 A.C.
TOTAL USABLE AREA =	15.70 A.C.

AREA "A-4" ('F' FROM EXIST. PERMIT)

TOTAL GROSS AREA =	12.80 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	3.29 A.C.
AREA WITH SLOPES > 30% =	0.45 A.C.
TOTAL USABLE AREA =	9.06 A.C.

AREA "A-5" ('G' FROM EXIST. PERMIT)

TOTAL GROSS AREA =	51.81 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	10.93 A.C.
AREA WITH SLOPES > 30% =	13.80 A.C.
TOTAL USABLE AREA =	27.08 A.C.

AREA "A" TOTAL

TOTAL GROSS AREA =	115.93 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	25.08 A.C.
AREA WITH SLOPES > 30% =	14.92 A.C.
TOTAL USABLE AREA =	75.93 A.C.

LEGEND

	PROPERTY BOUNDARY
	IRRIGATION AREA SETBACK

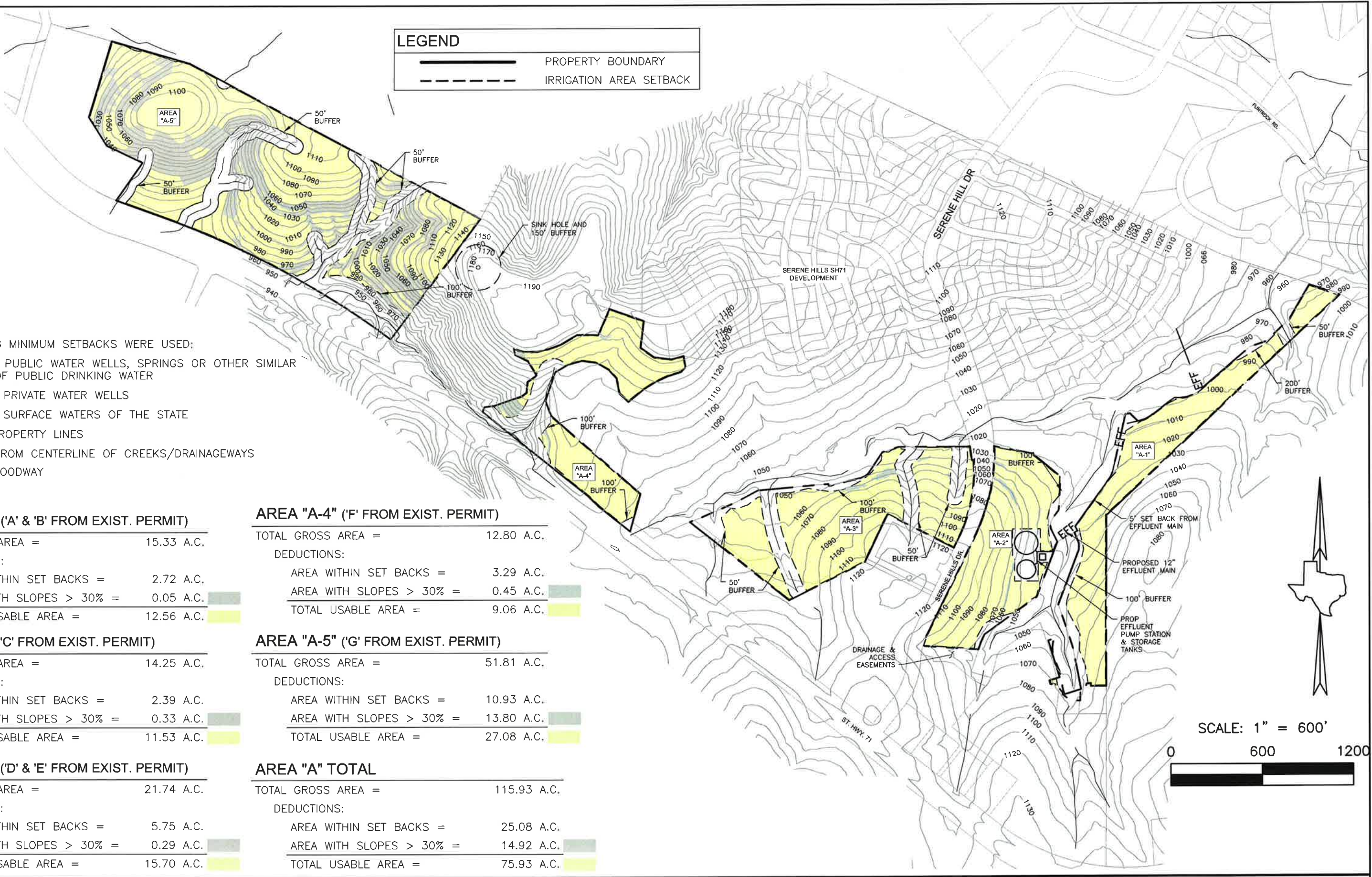
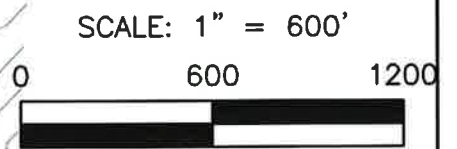


3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522

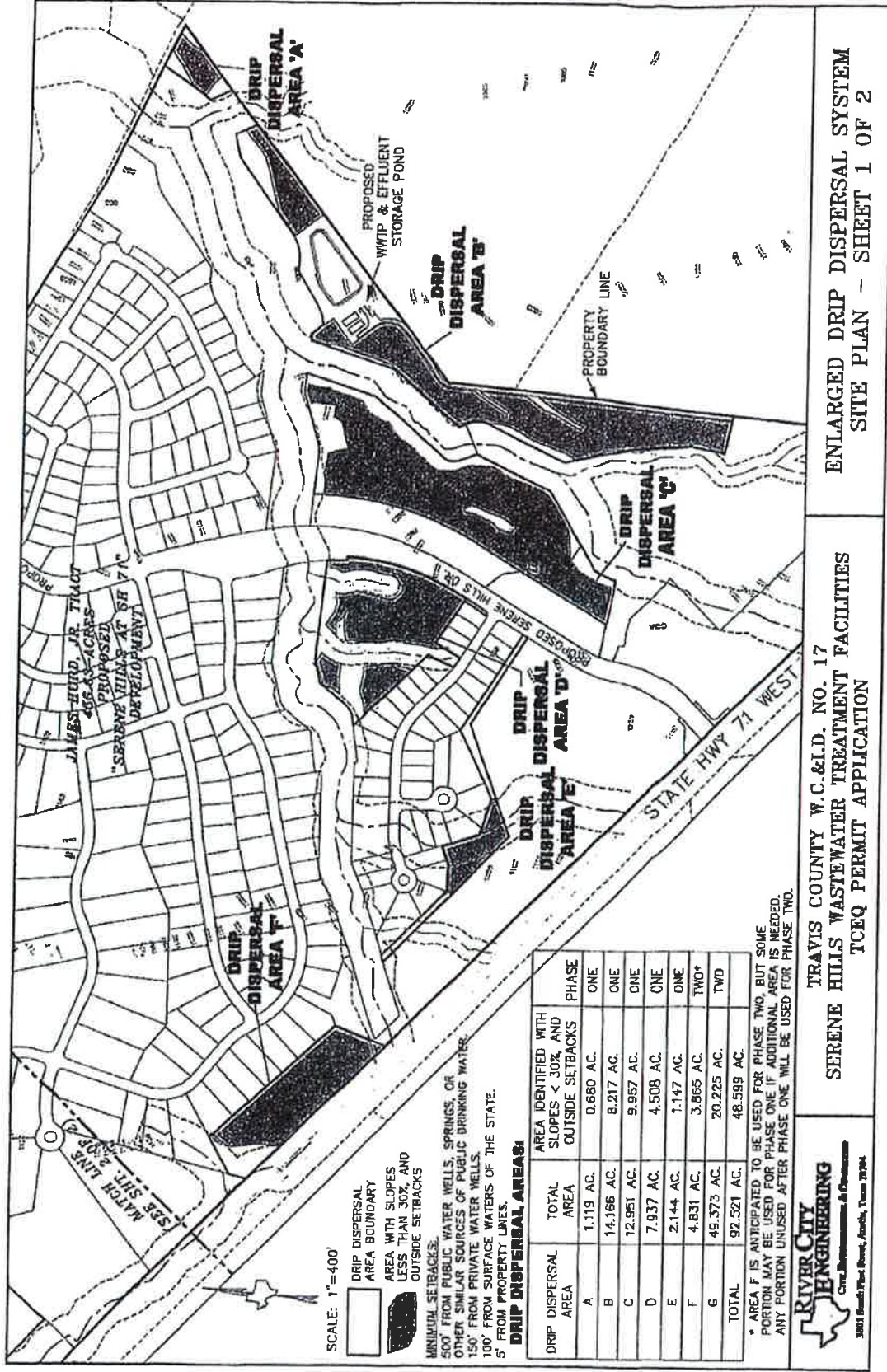
1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3801

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 17
FLINTROCK WASTEWATER SYSTEM

ATTACHMENT '2.0'
EXISTING AND PROPOSED SERENE HILLS EFFLUENT
DISPOSAL SITE

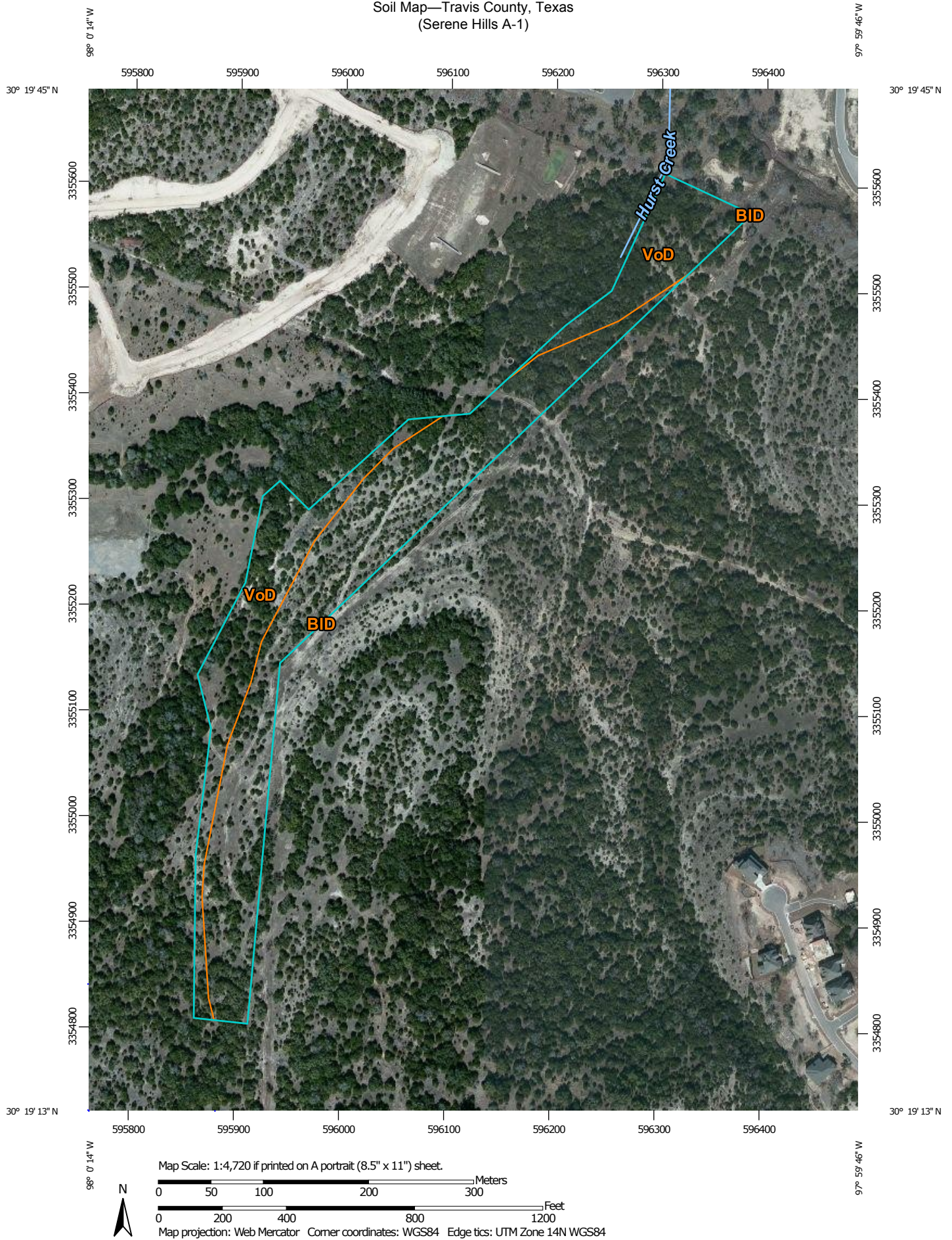


Existing Serene Hills Irrigation Areas
ATTACHMENT A



ATTACHMENT 3.0 – Soil Maps of Drip Irrigation Sites

Soil Map—Travis County, Texas (Serene Hills A-1)



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

3/18/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills A-1)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

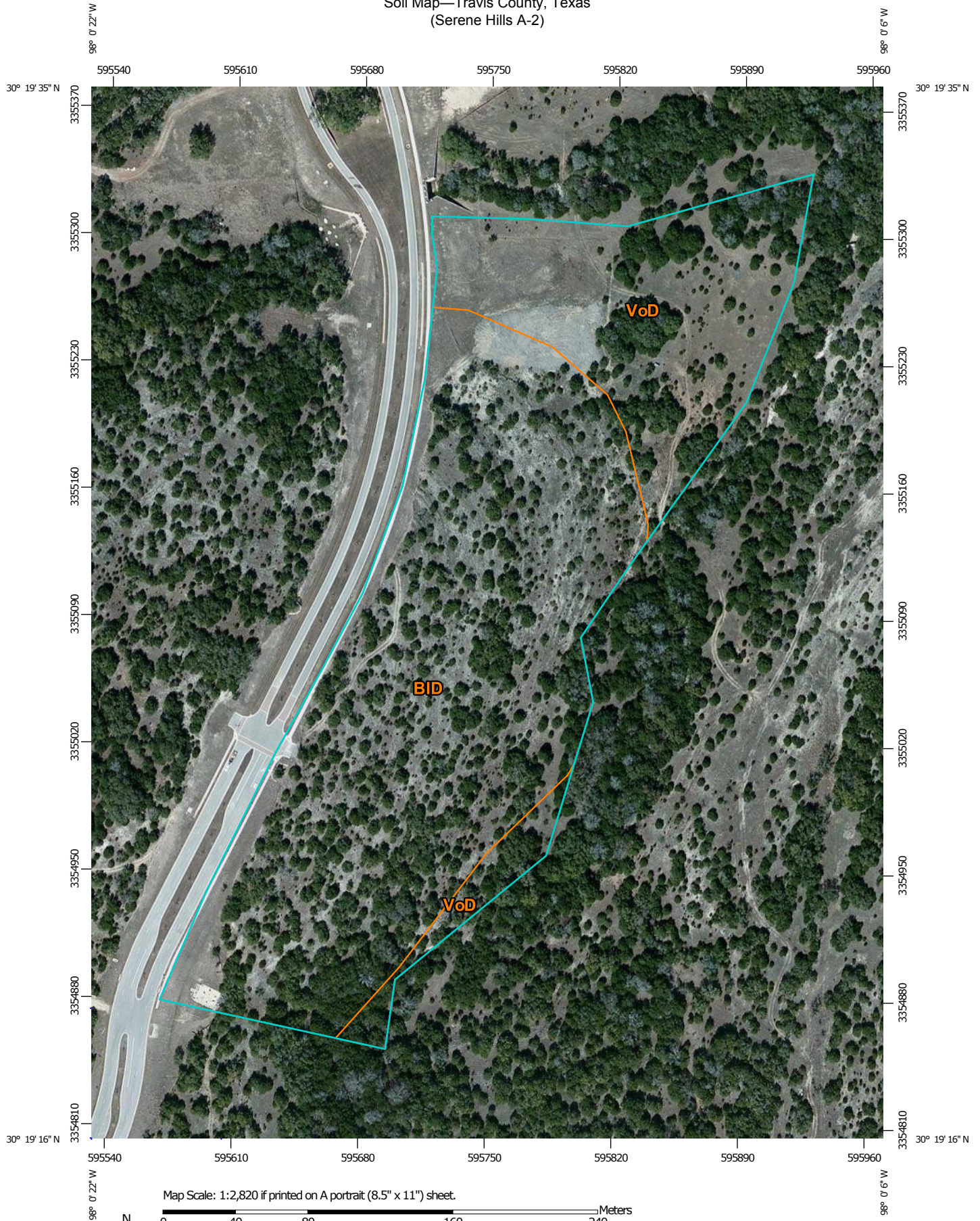
Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	9.7	60.4%
VoD	Volente silty clay loam, 1 to 8 percent slopes	6.3	39.6%
Totals for Area of Interest		16.0	100.0%

Soil Map—Travis County, Texas (Serene Hills A-2)



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

3/18/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills A-2)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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.

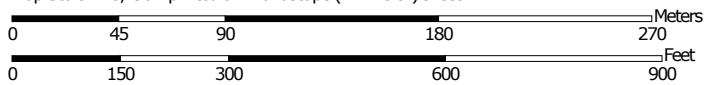
Map Unit Legend

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	12.7	69.7%
VoD	Volente silty clay loam, 1 to 8 percent slopes	5.5	30.3%
Totals for Area of Interest		18.2	100.0%

Soil Map—Travis County, Texas
(Serene Hills A-3)



Map Scale: 1:3,190 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 14N WGS84



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

3/18/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills A-3)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

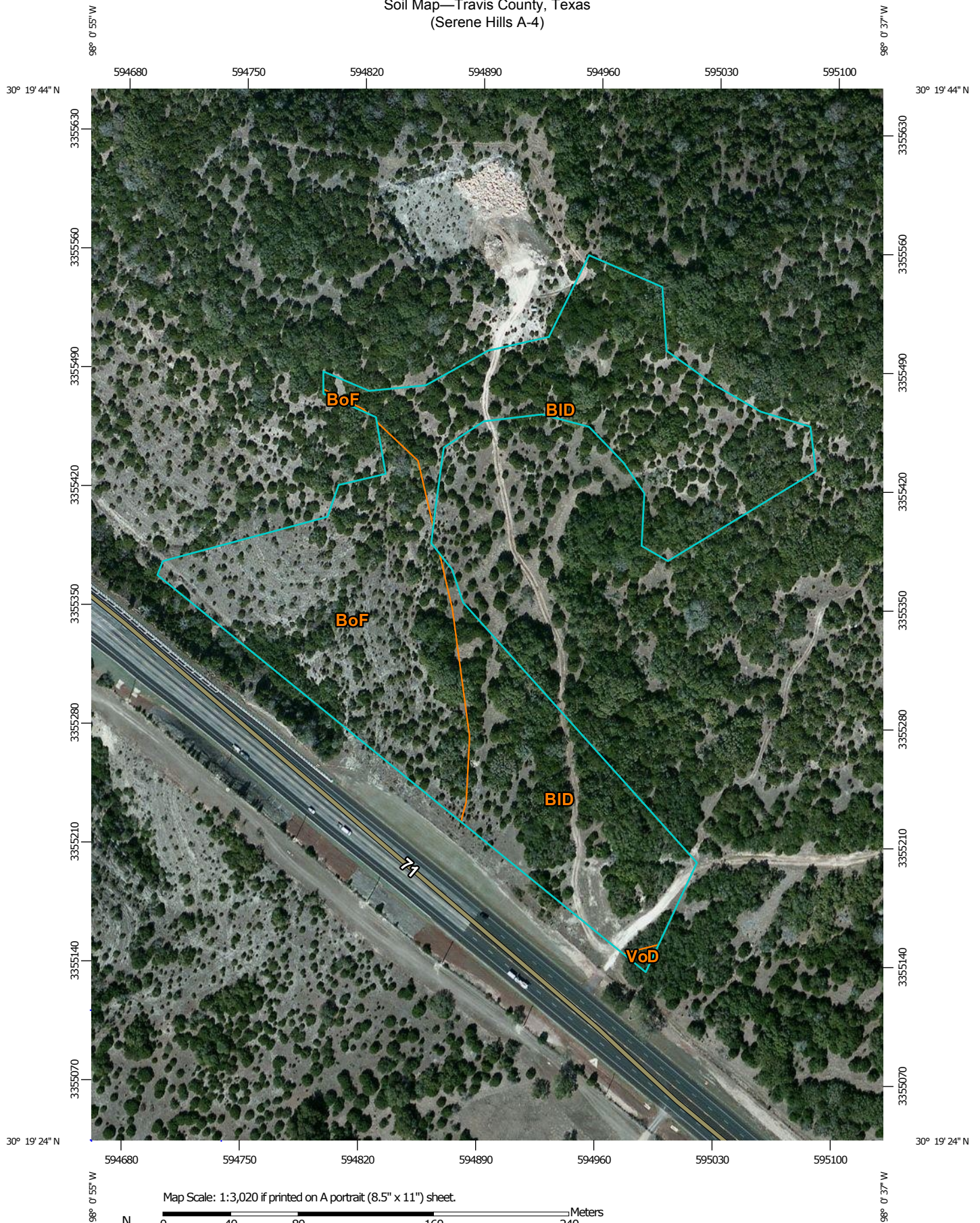
Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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.

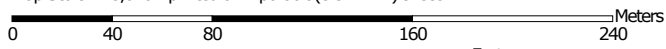
Map Unit Legend

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	14.0	66.7%
VoD	Volente silty clay loam, 1 to 8 percent slopes	7.0	33.3%
Totals for Area of Interest		20.9	100.0%

Soil Map—Travis County, Texas
(Serene Hills A-4)



Map Scale: 1:3,020 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

3/18/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills A-4)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	8.0	62.6%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	4.7	37.1%
VoD	Volente silty clay loam, 1 to 8 percent slopes	0.0	0.3%
Totals for Area of Interest		12.8	100.0%

Soil Map—Travis County, Texas
(Serene Hills A-5)



Map Scale: 1:5,260 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

3/18/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Serene Hills A-5)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

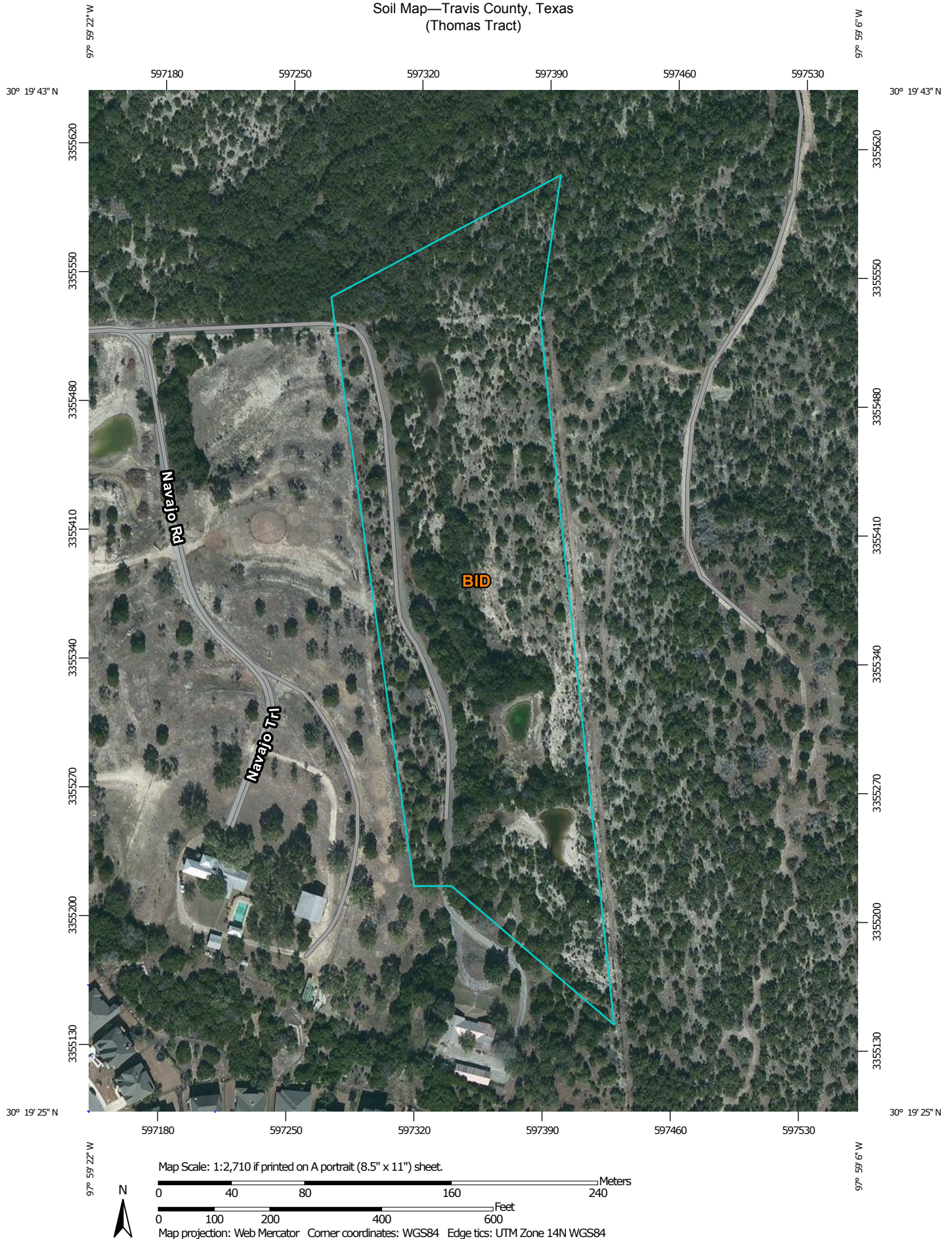
Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	0.7	1.4%
BoF	Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes	52.0	98.6%
Totals for Area of Interest		52.7	100.0%

Soil Map—Travis County, Texas
(Thomas Tract)



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

3/18/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Thomas Tract)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

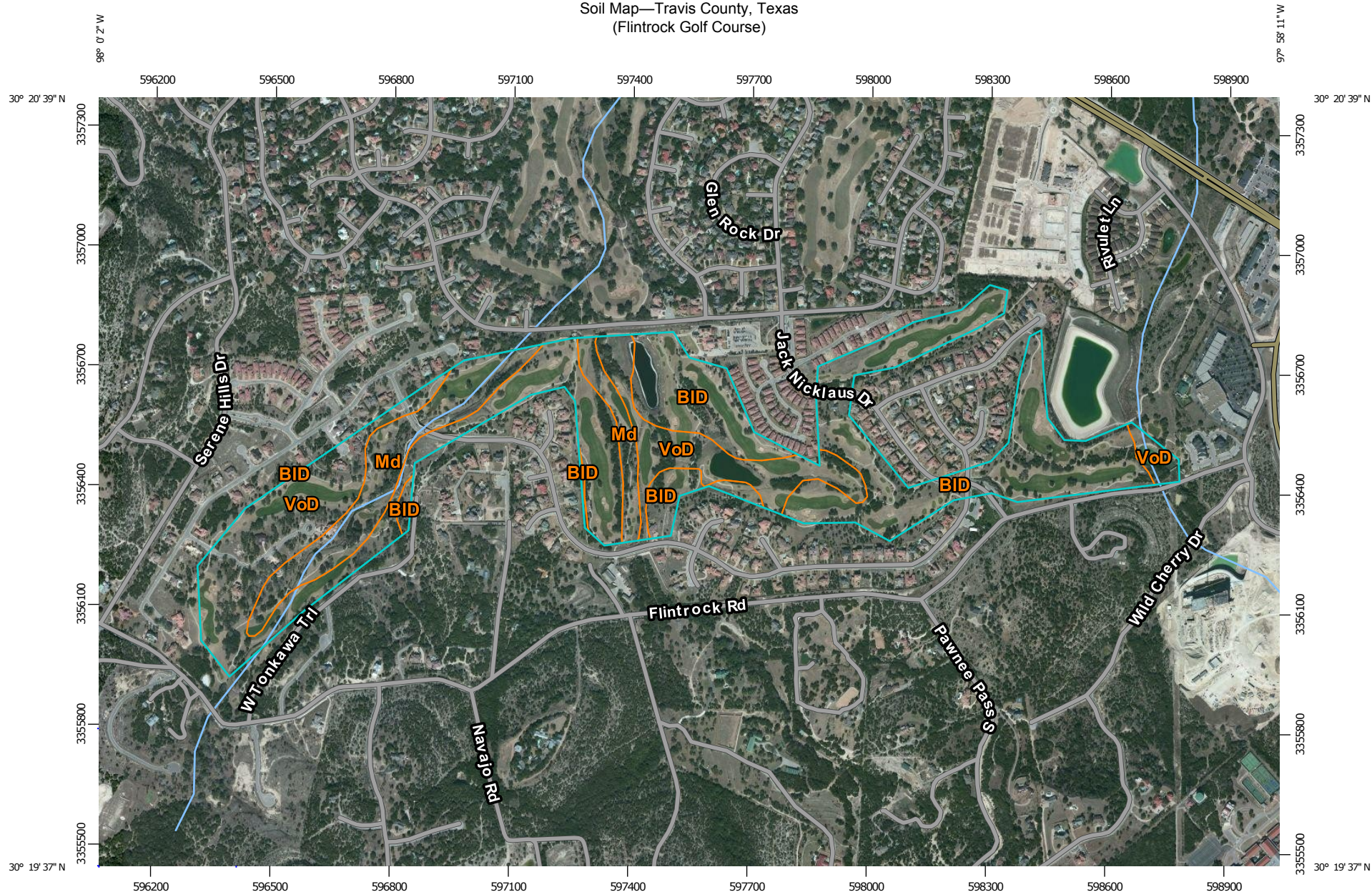
Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	10.2	100.0%
Totals for Area of Interest		10.2	100.0%

Soil Map—Travis County, Texas (Flintrock Golf Course)



Map Scale: 1:13,600 if printed on A landscape (11" x 8.5") sheet.

0 200 400 800 1200 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

3/13/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Flintrock Golf Course)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	66.6	41.2%
Md	Mixed alluvial land, 0 to 1 percent slopes, frequently flooded	25.7	15.9%
VoD	Volente silty clay loam, 1 to 8 percent slopes	69.3	42.9%
Totals for Area of Interest		161.6	100.0%


Soil Map—Travis County, Texas (Lakeway Regional)



Soil Map—Travis County, Texas
(Lakeway Regional)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

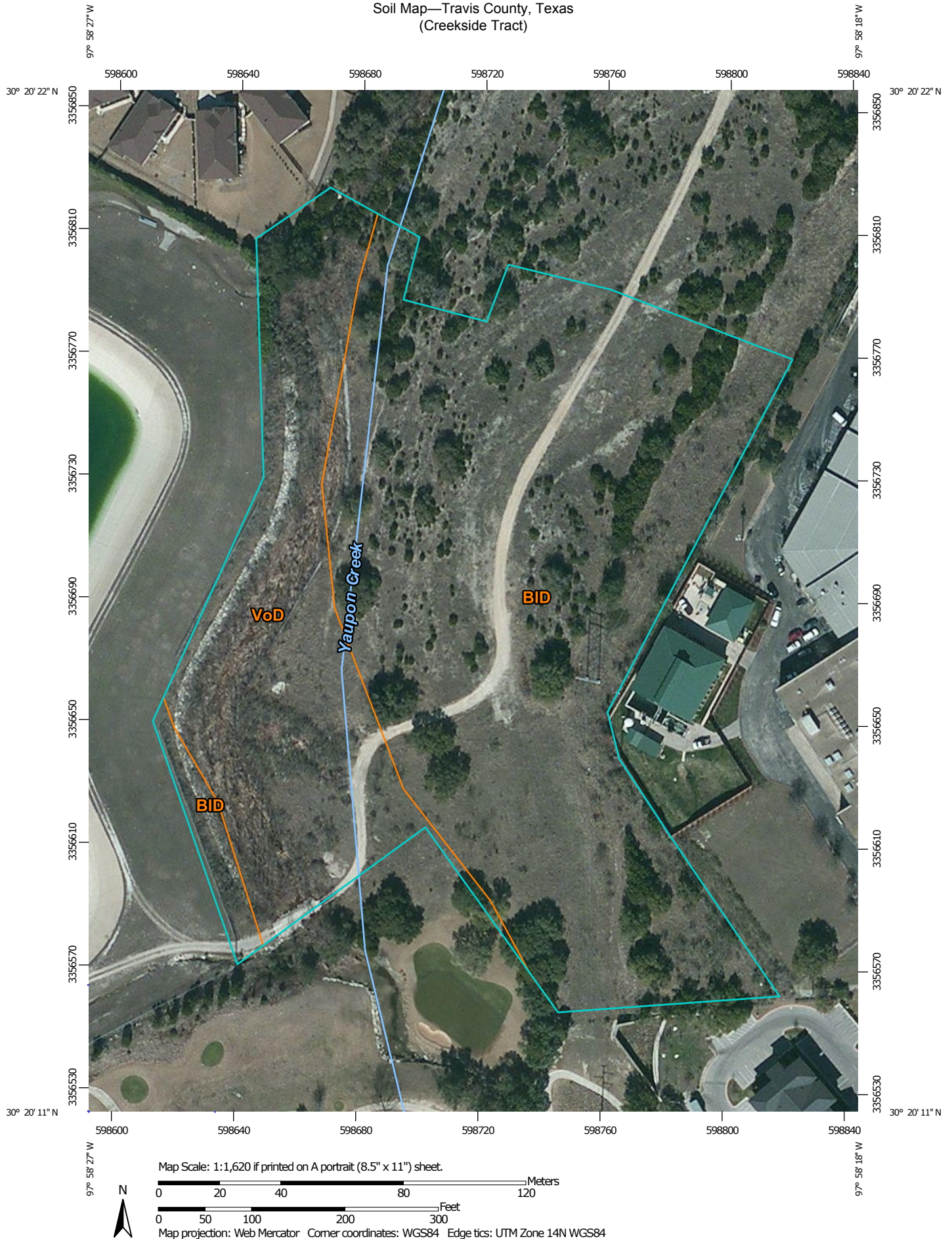
Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	12.0	92.7%
TaD	Tarrant soils, 5 to 18 percent slopes	0.9	7.3%
Totals for Area of Interest		13.0	100.0%

Soil Map—Travis County, Texas (Creekside Tract)



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

5/13/2014
Page 1 of 3

Soil Map—Travis County, Texas
(Creekside Tract)

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
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: Travis County, Texas
Survey Area Data: Version 14, Dec 12, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 18, 2010—Apr 18, 2011

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

Travis County, Texas (TX453)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BID	Brackett-Rock outcrop complex, 1 to 12 percent slopes	6.1	71.8%
VoD	Volente silty clay loam, 1 to 8 percent slopes	2.4	28.2%
Totals for Area of Interest		8.5	100.0%

ATTACHMENT AA

SPECIAL PROVISIONS SUMMARY LETTER AND TCEQ APPROVALS



December 8, 2015

Mr. Louis C. Herrin III, P.E.
TCEQ – MC 148
P.O. Box 13087
Austin, Texas 78711-3087

Re: Chapter 217.6 Summary Transmittal Letter
Permittee: Travis County W.C. & I.D. No. 17
3812 Eck Lane, Austin, Texas 78734
Permit Number: WQ0013878-001
Project Name: Flintrock WWTP Expansion
County: Travis

Dear Mr. Herin:

The purpose of this letter is to provide the TCEQ with the information necessary to comply with the requirements of § 217.6(c) of the TCEQ's rules entitled, Design Criteria for Domestic Wastewater Systems. The necessary information includes:

1. Engineering Firm:
River City Engineering, Ltd.
3801 South First Street
Austin, Texas 78704
2. Design Engineer:
William F. Peña, P.E.
Phone: (512) 442-3008
Fax: (512) 442-6522
3. Entity to Own, Operate and Maintain the project through its design life:
Travis County Water Control and Improvement District No. 17
3812 Eck Lane
Austin, Texas 78734
4. Wastewater Treatment Plant Operator:
Isaac Briones, Operator #: WW0037013
5. Variances from Chapter 217, which are a part of the design:
This design contains no Variances from Chapter 217.

6. Innovative or Nonconforming Technologies:

No innovative or nonconforming technologies are proposed as part of this project.

7. The plans and specification:

The plans and specifications which describe the project identified in this letter are in substantial compliance with all the requirements of Chapter 217.

8. Description of the project and it's scope:

This project entails expanding the treatment capacity of the existing Flintrock Wastewater Treatment Plant. Travis County WC&ID No. 17 (the District) currently holds TPDES Permit No. WQ0013878-001 allowing disposal of an Interim I Phase maximum average flow rate of 486,000 gallons per day (gpd) and a Final Phase maximum average flow rate of 1.0 million gallons per day (MGD). The existing Flintrock Wastewater Treatment Plant has a treatment capacity of 500,000 gpd. The proposed 500,000 gpd treatment plant expansion will increase the wastewater treatment plant capacity to 1.0 MGD.

This project generally involves construction of the following:

- New headworks facility to include an in-channel, perforated plate, travelling belt fine screen with a 0.25-inch maximum screen opening and a screenings washer / compactor.
- New 70'-0" x 54'-0", 339,000 gallon capacity influent equalization basin and influent transfer pumps.
- Two (2) new 34'-0" x 48'-8", Sequencing Batch Reactor (SBR) basins in conjunction with two (2) existing SBR basins to expand the treatment capacity to 1.0 MGD average flow.
- Improvements to one (1) existing 19'-0" x 68'-0" chlorine contact / effluent equalization basin for SBR Basins 1 and 2. One (1) new 14'-0" x 70'-0", 95,000 gallon chlorine contact / effluent equalization basin for SBR Basins 3 and 4.
- New disc filter facility to include four (4), 7'-0" diameter, cloth-media disk filters with automatic backwash system installed in a concrete basin with effluent channel and effluent flow measuring v-notch weir.
- New effluent transfer basin and effluent pump station to include two (2) new 1,400 gpm, 90 HP Golf Course Effluent Transfer Pumps and (2) new 300 gpm, 85 HP Lakeway Medical Effluent Transfer Pumps.
- New bleach storage facility.

- New belt filter press sludge dewatering facility with polymer feed system and dewatered sludge conveyor system.
- Associated Piping, Electrical, Instrumentation, and Site Improvements

Current wastewater flows average approximately 315,000-gpd. The permitted effluent limitations consist of a maximum daily average biological oxygen demand of 5 mg/l, total suspended solids of 10 mg/l and total phosphorus of 2 mg/l. The pH of the effluent shall not be less than 6.0 mgd not greater than 9.0. The effluent shall be chlorinated to a residual of 1.0mg/L with a minimum detention time of 20 minutes.

If you have any questions, or need any additional information, please do not hesitate to contact us.

Sincerely,



William F. Peña, P. E.



12-8-2015

Cc: Firoj Vahora – TCEQ – MC 148
Deborah Gernes – Travis County W.C & I.D. No. 17

0014-239

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niemann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 26, 2016

WILLIAM F. PENA, P.E.
RIVER CITY ENGINEERING, LTD.
3801 S FIRST STREET
AUSTIN, TX 78704

Re: TRAVIS COUNTY W.C. & I.D. NO. 17
FLINTROCK WWTP EXPANSION
WQ Permit No. WQ0013878-001
WWPR Log No. 1215/031
CN600669048, RN102177433
TRAVIS County

Dear MR. PENA:

On 12/10/2015, we received the summary transmittal letter dated 12/8/2015 for the FLINTROCK WWTP EXPANSION. This project has been selected for a full review of its plans and specifications. You have 30 days from the date of this letter to submit the plans and specifications.

Section 217.6(d) states, "The executive director may review the plans and specifications for any collection system or treatment facility. Factors to be used to determine whether a review will be performed include, but are not limited to, whether or not a non-conforming or innovative technology is being proposed, the stream segment in which the project is located, and the applicant's compliance record.

Section 217.6(f) states "If the executive director notifies an owner by fax or letter of the intent to review a collection system or facility's design, the owner shall submit the following within 30 days after receiving notice: (1) a complete set of plans and specifications; (2) a complete report; (3) any requested variances; and (4) sufficient information to satisfy the executive director that a project is in substantial compliance with this chapter."

If necessary, we will request subsequent information needed to make a final decision on approval. You will have 30 days to submit the requested information. As noted in the §217.11, construction on this project may not commence until approval of the plans and specifications is made by the executive director and the associated wastewater permit is issued.

FEB 03 REC'D

WILLIAM F. PENA, P.E.

Page 2

January 26, 2016

Please contact me at Mark.Hall@tceq.state.tx.us or (512) 239-4924, if you have any questions or if we can be of any further assistance.

Sincerely,

A handwritten signature in black ink that reads "Mark Hall". The signature is stylized with a large, sweeping "M" and a cursive "Hall".

Mark D. Hall, P.E.

Wastewater Permits Section (MC 148)

Water Quality Division

Texas Commission on Environmental Quality

MDH/rb

cc: TCEQ, Region 11, Water Section



February 4, 2016

Mark Hall, P.E.
Wastewater Permits Section – MC 148
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: Travis County WC&ID No. 17 – Flintrock WWTP Expansion
WQ Permit No. WQ0013878-001
WWPR Log No. 1215/031
CN600669048, RN102177433

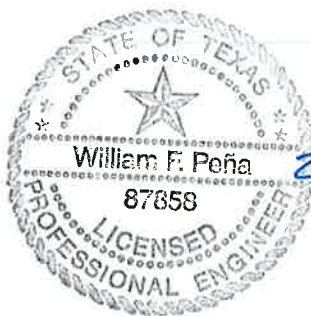
Mr. Hall:

We received your letter dated January 26, 2016 requiring submittal of plans and specifications for the Flintrock WWTP Expansion project. The plans and design calculations requested during our February 3rd conversation are being forwarded via email as a PDF file. As we discussed since 30 days had passed after delivery of our December 8, 2015 summary transmittal letter we understood the project to be approved, per Section 217.6(f), have since awarded the contract for construction of this project and plan to begin construction in the next 2-4 weeks.

If you have any questions or need additional information please do not hesitate to contact us.

Sincerely,

William F. Peña, P.E.



2-4-2016

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 11, 2016

WILLIAM F. PENA, P.E.
RIVER CITY ENGINEERING, LTD.
3801 S FIRST STREET
AUSTIN, TX 78704

Re: TRAVIS COUNTY W.C. & I.D. NO. 17
FLINTROCK WWTP EXPANSION
Permit No. WQ0013878-001
WWPR Log No. 1215/031
CN600669048, RN102177433
TRAVIS County

Dear MR. PENA:

We have received your response letter, dated 2/4/2016, transmitting the plans and design calculations

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

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

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

FEB 16 2016

WILLIAM F. PENA, P.E.

Page 2

February 11, 2016

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

2. Any deviations from Chapter 217 shall be disclosed in the summary transmittal letter and the technical justifications for those deviations shall be provided in the engineering report. Any deviations from Chapter 217 shall be based on the best professional judgement of the licensed professional engineer sealing the materials and the engineer's judgement that the design would not result in a threat to public health or the environment.
3. Any variance from a Chapter 217 requirement disclosed in your summary transmittal letter is approved. If in the future, additional variances from the Chapter 217 requirements are desired for the project, each variance must be requested in writing by the design engineer. Then, the TCEQ will consider granting a written approval to the variance from the rules for the specific project and the specific circumstances.
4. Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

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

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

Sincerely,



Mark D. Hall, P.E.

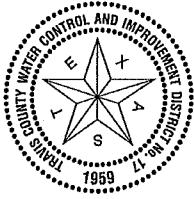
Wastewater Permits Section (MC 148)

Water Quality Division

Texas Commission on Environmental Quality

MDH/rb

cc: TCEQ, Region 11 Office



**TRAVIS COUNTY WATER CONTROL
AND IMPROVEMENT DISTRICT 17**

3812 Eck Lane • Austin, Texas 78734
• Phone (512) 266-1111 • Fax (512) 266-2790

August 7, 2020

Mr. David Van Soest
Director – TCEQ Region 11
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711

RE: Travis County WC&ID No. 17 – Flintrock WWTP Expansion
WQ Permit No. WQ0013878001
WWPR Log No. 1215/031
CN600669048, RN102177433

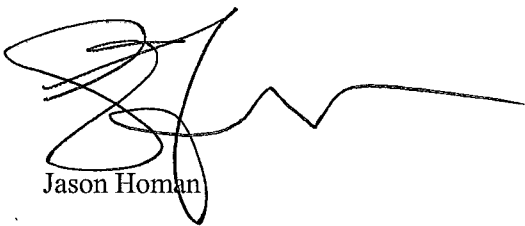
Dear Mr. Van Soest:

Enclosed you will find an updated copy of TCEQ Form 20007 – Notification of Completion / Phase of Wastewater Treatment Facility regarding the Travis County WC&ID No. 17 Flintrock WWTP Expansion project. The original, dated 12/6/2018, incorrectly stated the plant would be operating in the final phase when in fact it was and is operating in Interim Phase II flow.

If you have any questions or need additional information please do not hesitate to contact us.

Sincerely,

WC&ID 17



Jason Homan

General Manager

512-266-1111

Enclosures:

1. TCEQ Form 20007 – Notification of Completion / Phase of Wastewater Treatment Facility



**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
NOTIFICATION OF COMPLETION/PHASE OF WASTEWATER
TREATMENT FACILITY**

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

Current Permit Information

What is the TCEQ Water Quality Permit Number? WQ0013878001

What is the EPA I.D. Number? TX Click here to enter text.

Current Name on Permit: Travis County Water Control and Improvement District No. 17

Notification

Indicate the phase the facility will be operating.

- ☐ Interim Phase I Flow
- ☒ Interim Phase II Flow
- ☐ Interim Phase III Flow
- ☐ Final Phase Flow

Indicate the date that the operation began or will begin operating under the selected phase:
Month/Day/Year: 12/17/18

Comments: Commissioning flows to commence on noted date. Operational flows to commence one week later. Notification of Phase 2 of wastewater expansion project for existing SBs 1&2.

Certification and Signature

Responsible Official Name (Print or Type): Jason Homan

Responsible Official Title: General Manager

Responsible Official Email: jhoman@wcid17.org

I 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.

Signature (use blue ink):

Date:

8/7/2020

Email completed form to:
or

WQ-ARPTeam@tceq.texas.gov

Fax completed form to:
or mail completed form to:

512-239-0884
Texas Commission on Environmental Quality
Applications Review and Processing Team (MC-148)
P.O. Box 13087
Austin TX 78711-3087

Instructions for Notification of Completion/Phase Of Wastewater Treatment Facility

Current Permit Information

Provide your Permit Number. This number will start with WQ followed by 10 digits. The number can be found on the top right-hand corner of your issued permit.

For Texas Pollutant Discharge Elimination Permits (TPDES), provide the EPA ID number. This number will start with TX followed by 7 digits. The number can be found on the top right-hand corner of your issued permit.

Provide the current name that is on your permit. This information can be found on the first page of your permit.

Indicate the phase of operation you will be operating under. Provide the date the facility will begin operating in that phase. Date should be provided as month/day/year.

Signature Requirements

In accordance with 30 Texas Administrative Code §305.44 relating to Signatories to Applications, all applications shall be signed as follows:

For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).



June 21, 2017

Mr. Louis C. Herrin III, P.E.
TCEQ – MC 148
P.O. Box 13087
Austin, Texas 78711-3087

Re: Chapter 217.6 Summary Transmittal Letter
Permittee: Travis County W.C. & I.D. No. 17
3812 Eck Lane, Austin, Texas 78734
Permit Number: WQ0013878-001
Project Name: Lakeway Regional Drip Irrigation
County: Travis

Dear Mr. Herrin:

The purpose of this letter is to provide the TCEQ with the information necessary to comply with the requirements of § 217.6(c) of the TCEQ's rules entitled, Design Criteria for Domestic Wastewater Systems. The necessary information includes:

1. Engineering Firm:
WWD Engineering
9217 Hwy 290 W, Ste 110
Austin, TX 78736
2. Design Engineer:
Erin Banks, P.E.
Phone: (512) 707-7027
Fax: (512) 617-1524
3. Entity to Own, Operate and Maintain the project through its design life:
Travis County Water Control and Improvement District No. 17
3812 Eck Lane
Austin, Texas 78734
4. Wastewater Treatment Plant Operator:
Isaac Briones, Operator #: WW0037013
5. Variances from Chapter 217, which are a part of the design:
This design contains no Variances from Chapter 217.
6. Innovative or Nonconforming Technologies:
No innovative or nonconforming technologies are proposed as part of this project.



Mr. Louis Herrin
June 21, 2017
Page 2

7. The plans and specification:

The plans and specifications which describe the project identified in this letter are in substantial compliance with all the requirements of Chapter 217.

8. Description of the project and it's scope:

This project entails the installation of a 15,500-gallon per day (gpd) drip irrigation system, in accordance with Travis County W.C & I.D. No. 17's (District's) existing TPDES Permit No. WQ 0013878-001. The proposed system will be installed on the District's existing 8.499-acre permanent easement, Document No. 2014084856 O.P.R.T.C. This project is planned to be installed in conjunction with, but under separate contract and separate plans and specifications, the Lakeway Regional Effluent Storage Tank. The installation of these two (2) projects along with the future 16,500 gpd Creekside Drip Irrigation would move the District from the current Interim I Phase of 0.486 MGD to Interim II Phase of 0.518 MGD.

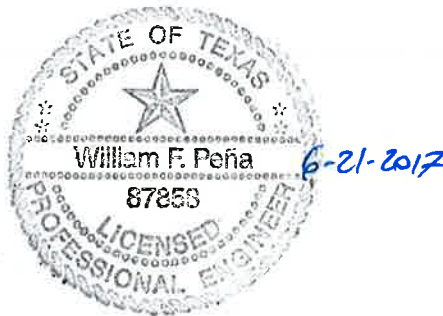
This project generally involves construction of the following:

- 15,500 gpd drip irrigation system
- Associated booster pumps and controls

If you have any questions, or need any additional information, please do not hesitate to contact us.

Sincerely,

William F. Peña, P. E.



cc: Firoj Vahora – TCEQ – MC 148
Jason Homan – Travis County W.C & I.D. No. 17

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 29, 2017

William F. Pena, P.E.
Trihydo Corporation
3801 S First Street
Austin, TX 78704

Re: Travis County Water Control and Improvement District No. 17
Lakeway Regional Drip Irrigation
Permit No. WQ0013878001
WWPR Log No. 0617/126
CN600669048, RN102177433
Travis County

Dear Mr. Pena:

TCEQ received the project summary transmittal letter dated June 21, 2017.

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

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

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

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

William F. Pena, P.E.
Page 2
June 29, 2017

are discussed in §217.6(c). Additionally, the engineering report must include all constants, graphs, equations, and calculations needed to show substantial compliance with Chapter 217. The items which shall be included in the summary transmittal letter are addressed in §217.6(c)(1)-(10).

- Any deviations from Chapter 217 shall be disclosed in the summary transmittal letter and the technical justifications for those deviations shall be provided in the engineering report. Any deviations from Chapter 217 shall be based on the best professional judgement of the licensed professional engineer sealing the materials and the engineer's judgement that the design would not result in a threat to public health or the environment.
- Any variance from a Chapter 217 requirement disclosed in your summary transmittal letter is approved. If in the future, additional variances from the Chapter 217 requirements are desired for the project, each variance must be requested in writing by the design engineer. Then, the TCEQ will consider granting a written approval to the variance from the rules for the specific project and the specific circumstances.
- Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

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

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

Sincerely,


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

PAB/tc

cc: TCEQ, Region 11 Office



Engineering & Consulting

11130 Jollyville Rd., Ste. 101
Austin, Texas 78759
(512) 640-6590

Texas Registered Engineering Firm F-17563

May 29, 2020

Texas Commission on Environmental Quality
Wastewater Permits Section
MC 148
P.O. Box 13087
Austin, Texas 78711-3087

**Re: Travis County WC&ID No. 17 – Lakeway Regional Drip Irrigation
Permit No. WQ0013878001
WWPR Log No. 0617/126
CN 600669048, RN 102177433**

To Whom It May Concern,

This letter is to notify you that construction of this project was completed on May 26, 2020. The project included the installation of a wastewater effluent drip irrigation system to dispose of up to 15,500 gallon per day (gpd). The previous permitted effluent disposal capacity for this Flintrock Wastewater System was 0.4860 million gallons per day (MGD). This project adds 0.0155 MGD of disposal capacity, bringing the total disposal capacity to 0.5015 MGD. I certify that all construction, materials and equipment were substantially in accordance with the approved project and the rules of the TCEQ.

If you have any questions, or need additional information, please do not hesitate to contact me.

Sincerely,



William F. Peña, P.E.

Attachment: TCEQ Construction Approval Letter

cc: TCEQ, Region 11 Office: MC R11, P.O. Box 13087, Austin, TX 78711-3087
Jason Homan – Travis County WCID No. 17 (email)
Joe Kunz – Travis County WCID No. 17 (email)



Engineering & Consulting

301 Denali Pass, Suite 3
Cedar Park, Texas 78613
(512) 640-6590

Texas Registered Engineering Firm F-17563

October 30, 2020

Mr. Louis C. Herrin III, P.E.
TCEQ – MC 148
P.O. Box 13087
Austin, Texas 78711-3087

Re: Flintrock Falls Golf Course Irrigation Expansion Project
Chapter 217.6 Summary Transmittal Letter
CORRECTION

Permittee: Travis County W.C.&I.D. No. 17

Permit Number: WQ0013878001

Project Name: Flintrock Falls Golf Course Irrigation Expansion Project

County: Travis

Dear Mr. Herrin:

Please note this letter updates and replaces the letter previously sent, dated October 28, 2020. The Entity to Operate and Maintain the Effluent Disposal Irrigation System has been revised to Hills II of Lakeway, who operate the system per a Contract with Travis County W.C.&I.D. No. 17. The purpose of this letter is to provide the Texas Commission on Environmental Quality (TCEQ) with the information necessary to comply with the requirements of §217.6(c) of the TCEQ's rules entitled, "Design Criteria for Domestic Wastewater Systems." The necessary information includes:

1. Design Firm:
MDL Consulting
2829 W Country Club
Searcy, AZ 72143
2. Design Licensed Irrigator:
Mitchell D. Langley
TX Licensed Irrigator No. 18665
Phone: (501) 305-0202
mdlconsulting@cabelynx.com
3. Entity to Own the Effluent Disposal Irrigation System through its design life:
Travis County W.C.&I.D. No. 17
3812 Eck Lane
Austin, TX 78734
512-266-1111



4. Entity to Operate and Maintain the Effluent Disposal Irrigation System:
Hills II of Lakeway
26 Club Estates Parkway
Austin, TX 78738
Halsey Hammond
Halsey.Hammond@clubcorp.com
512-964-0311.
5. Variances from Chapter 217, which are a part of the design:
This design contains no Variances from Chapter 217.
6. Innovative or Nonconforming Technologies:
No innovative or nonconforming technologies are proposed as part of this project.
7. The plans and specification:
The plans and specifications which describe the project identified in this letter are in substantial compliance with all the requirements of Chapter 217.
8. Description of the project and its scope:
This project includes improvements to expand the existing effluent disposal capacity of the Flintrock Wastewater Treatment Facility as outlined in the TCEQ TLAP permit #WQ0013878001. This project will add 131,816 gpd of effluent disposal through spray irrigation of the roughs of the Flintrock Falls Golf Course, expanding the existing 386,024 gpd golf course spray irrigation system that currently irrigates the greens, tee boxes, and fairways to a total effluent disposal capacity of 517,840 gpd. This, combined with the existing 15,500 gpd Lakeway Regional Drip Irrigation system and the 100,000 gpd disposed of through Hurst Creek MUD, will bring the Flintrock system's total effluent disposal capacity to 633,340 gpd. No changes to the treatment facility's capacity or treatment process are proposed.

If you have any questions, or need any additional information, please do not hesitate to contact us.

Sincerely,



William F. Peña, P. E.

cc: Shawn Stewart – Austin Region Water Section Manager, TCEQ
Joe Kunz – Operations Manager, Travis County WC&ID No. 17

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 5, 2020

William F. Pena, P.E.
GREEN CIVIL DESIGN, LLC
301 Denali Pass, Suite 3
Cedar Park, TX 78613

Re: Travis County WCID 17
Flintrock Falls Golf Course Irrigation Expansion Project
Permit No. WQ0013878-001
WWPR Log No. 1120/004
CN600669048, RN102177433
Travis County

Dear Mr. Pena:

TCEQ received the project summary transmittal letter dated 10/30/2020.

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

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

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

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

William F. Pena, P.E.

Page 2

November 5, 2020

equations, and calculations needed to show substantial compliance with Chapter 217. The items which shall be included in the summary transmittal letter are addressed in §217.6(d)(1)-(9).

- Any deviations from Chapter 217 shall be disclosed in the summary transmittal letter and the technical justifications for those deviations shall be provided in the engineering report. Any deviations from Chapter 217 shall be based on the best professional judgement of the licensed professional engineer sealing the materials and the engineer's judgement that the design would not result in a threat to public health or the environment.
- Any variance from a Chapter 217 requirement disclosed in your summary transmittal letter is approved. If in the future, additional variances from the Chapter 217 requirements are desired for the project, each variance must be requested in writing by the design engineer. Then, the TCEQ will consider granting a written approval to the variance from the rules for the specific project and the specific circumstances.
- Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

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

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

Sincerely,



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

BLR/tc

cc: TCEQ, Region 11 Office



Engineering & Consulting

301 Denali Pass, Suite 3
Cedar Park, TX 78613
(512) 640-6590

Texas Registered Engineering Firm F-17563

January 13, 2022

Texas Commission on Environmental Quality
Wastewater Permits Section
MC 148
P.O. Box 13087
Austin, Texas 78711-3087

**Re: Travis County WC&ID No. 17
Flintrock Falls Golf Course Irrigation Expansion Project
Permit No. WQ0013878001
WWPR Log No. 1120/004
CN 600669048, RN 102177433**

To Whom It May Concern,

This letter is to notify you that construction of this Project was completed on November 23, 2021. This Project included installation of spray irrigation on 43.18-acres of the Flintrock Falls Golf Course, expanding the existing effluent irrigation system into the roughs of the golf course. This Project adds 0.131816 MGD of effluent disposal capacity to the previous capacity of 0.501524 MGD, for a current System effluent disposal capacity of 0.633340 MGD. The Travis County WC&ID No. 17 Flintrock Wastewater System is now operating under the Interim II Phase of Permit No. WQ0013878001. I certify that, based on routine construction inspection by Travis County WC&ID No. 17 personnel, that all construction, materials, and equipment were substantially in accordance with the approved project and the rules of the TCEQ.

If you have any questions, or need additional information, please do not hesitate to contact me.

Sincerely,



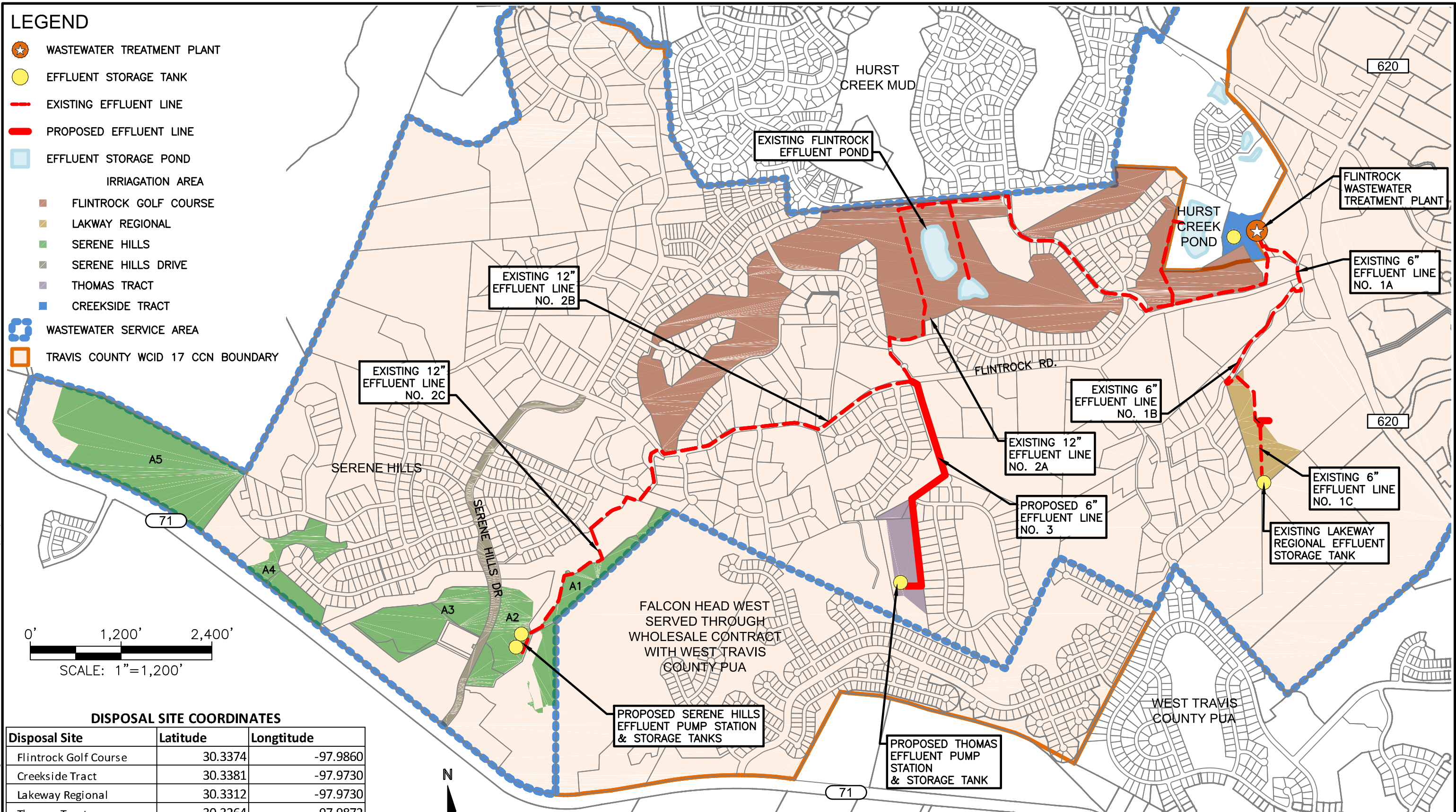
William F. Peña, P.E.

Attachment: TCEQ Construction Approval Letter

cc: TCEQ, Region 11 Office: MC R11, P.O. Box 13087, Austin, TX 78711-3087
Joe Kunz, Operations Manager – Travis County WCID No. 17 (email)

ATTACHMENT AB
DISPOSAL SITE LOCATION MAPS AND SUMMARY

FILE: 2400662 - OVERALL SYSTEM.dwg TAB: EXHIBIT-11X17-L PLOTTED: 7/25/2024 5:10 PM BY: GLENN POPE



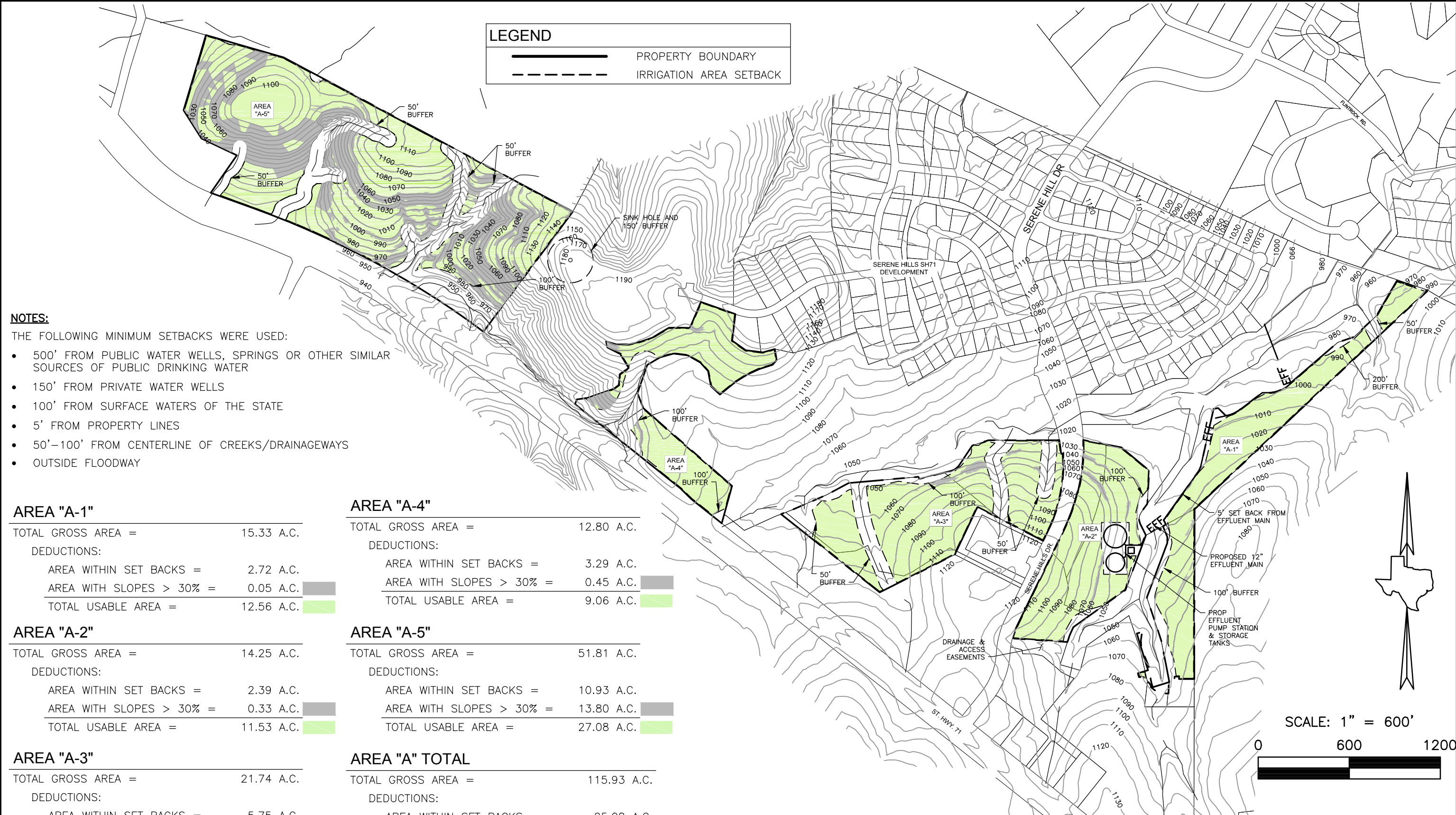
301 DENALI PASS DR., SUITE 3
CEDAR PARK, TEXAS 78613
(281)350-7027
TEXAS REGISTERED ENGINEERING FIRM F-21783

TRAVIS COUNTY WATER WCID NO. 17
FLINTROCK WWTP

ATTACHMENT 'AB'
DISPOSAL SITE LOCATION MAP & SUMMARY

ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\ Slope Maps.dwg



- NOTES:**
- THE FOLLOWING MINIMUM SETBACKS WERE USED:
- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
 - 150' FROM PRIVATE WATER WELLS
 - 100' FROM SURFACE WATERS OF THE STATE
 - 5' FROM PROPERTY LINES
 - 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
 - OUTSIDE FLOODWAY

AREA "A-1"		
TOTAL GROSS AREA =	15.33 A.C.	
DEDUCTIONS:		
AREA WITHIN SET BACKS =	2.72 A.C.	
AREA WITH SLOPES > 30% =	0.05 A.C.	
TOTAL USABLE AREA =	12.56 A.C.	

AREA "A-2"		
TOTAL GROSS AREA =	14.25 A.C.	
DEDUCTIONS:		
AREA WITHIN SET BACKS =	2.39 A.C.	
AREA WITH SLOPES > 30% =	0.33 A.C.	
TOTAL USABLE AREA =	11.53 A.C.	

AREA "A-3"		
TOTAL GROSS AREA =	21.74 A.C.	
DEDUCTIONS:		
AREA WITHIN SET BACKS =	5.75 A.C.	
AREA WITH SLOPES > 30% =	0.29 A.C.	
TOTAL USABLE AREA =	15.70 A.C.	

AREA "A-4"		
TOTAL GROSS AREA =	12.80 A.C.	
DEDUCTIONS:		
AREA WITHIN SET BACKS =	3.29 A.C.	
AREA WITH SLOPES > 30% =	0.45 A.C.	
TOTAL USABLE AREA =	9.06 A.C.	

AREA "A-5"		
TOTAL GROSS AREA =	51.81 A.C.	
DEDUCTIONS:		
AREA WITHIN SET BACKS =	10.93 A.C.	
AREA WITH SLOPES > 30% =	13.80 A.C.	
TOTAL USABLE AREA =	27.08 A.C.	

AREA "A" TOTAL		
TOTAL GROSS AREA =	115.93 A.C.	
DEDUCTIONS:		
AREA WITHIN SET BACKS =	25.08 A.C.	
AREA WITH SLOPES > 30% =	14.92 A.C.	
TOTAL USABLE AREA =	75.93 A.C.	



RIVER CITY
ENGINEERING

Texas Registered Engineering Firm F-0001546
CIVIL, ENVIRONMENTAL & CONSULTING

3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522

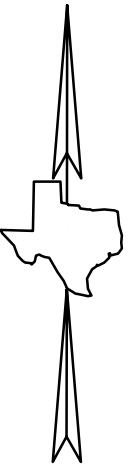
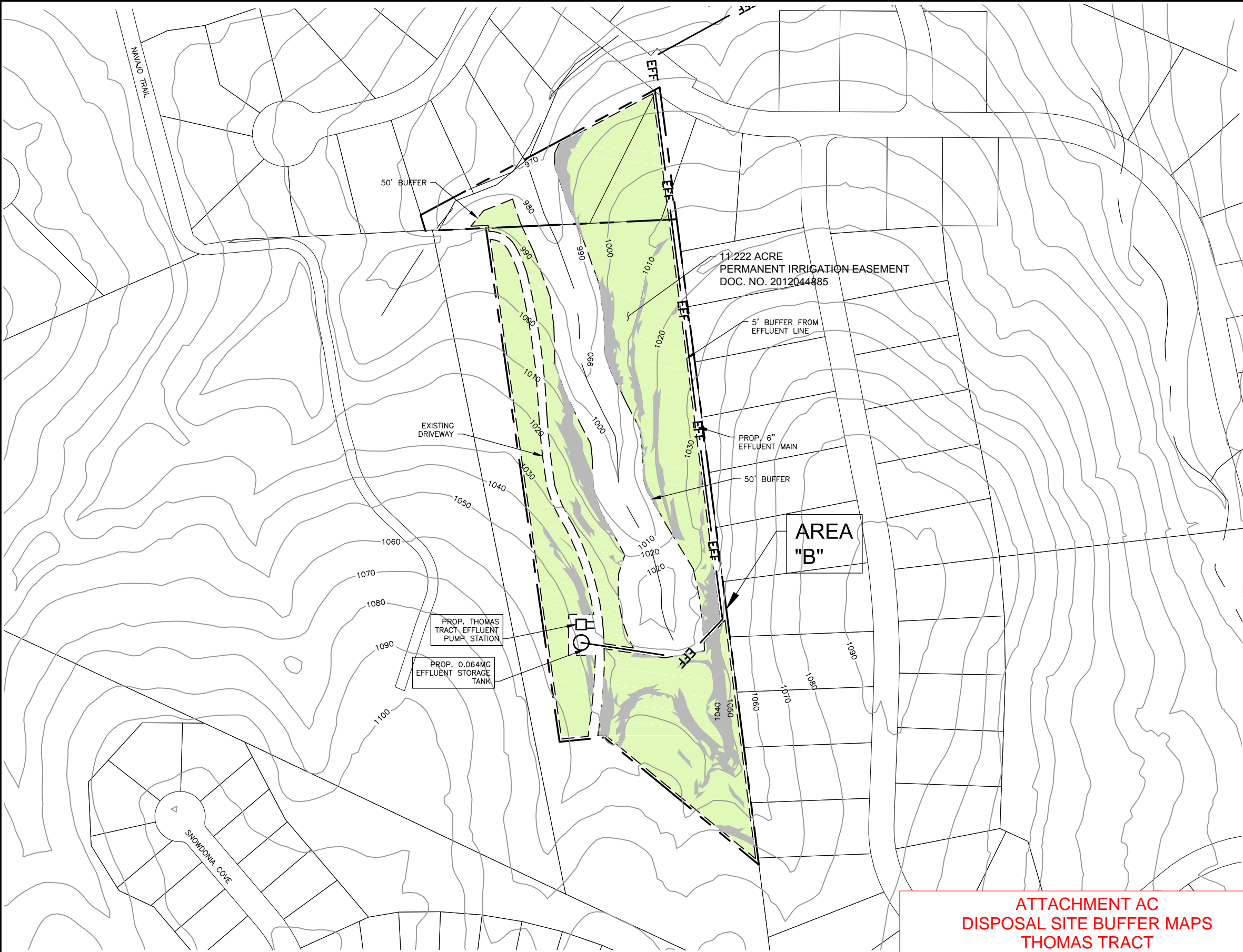
1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3601

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 17
FLINTROCK WASTEWATER SYSTEM

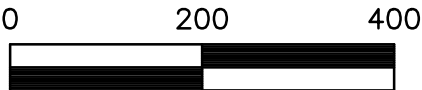
ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
SERENE HILLS AREA

~~ATTACHMENT 'N-4'~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~SERENE HILLS EFFLUENT DISPOSAL SITE - AREA 'A'~~

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\SLOPE MAPS.dwg TAB: HELLER TRACT 11X17 PLOTTED: 3/12/2014 5:31 PM BY: GLENN POPE



SCALE: 1" = 200'



LEGEND

- PROPERTY BOUNDARY
- IRRIGATION AREA SETBACK

NOTES:

THE FOLLOWING MINIMUM SETBACKS WERE USED:

- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
- 150' FROM PRIVATE WATER WELLS
- 100' FROM SURFACE WATERS OF THE STATE
- 5' FROM PROPERTY LINES
- 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
- OUTSIDE FLOODWAYS

AREA "B"

TOTAL GROSS AREA = 11.22 A.C.

DEDUCTIONS:

AREA WITHIN SET BACKS = 4.03 A.C.

AREA WITH SLOPES > 30% = 1.05 A.C.

TOTAL USABLE AREA = 6.14 A.C.

ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
THOMAS TRACT



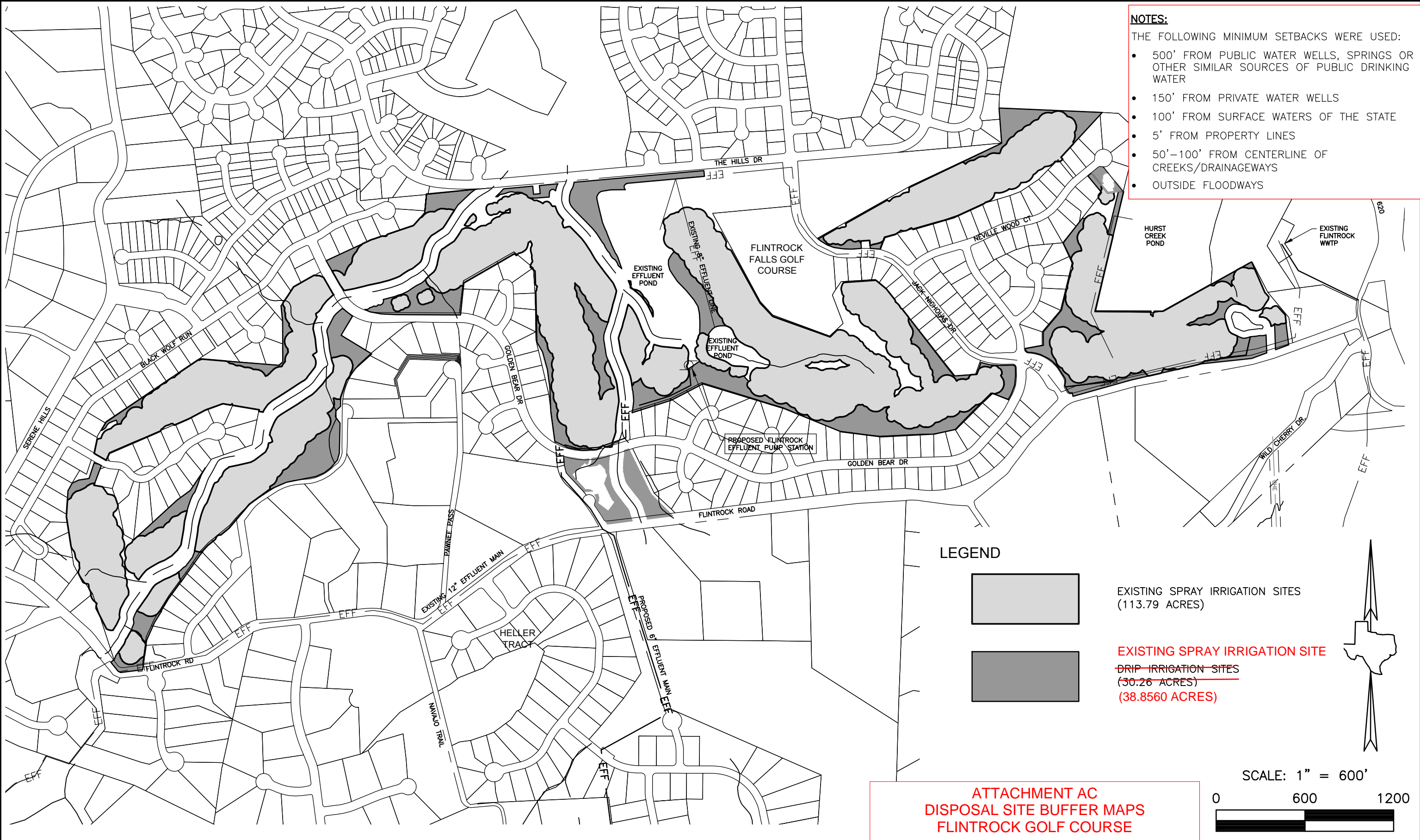
3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522

1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3601

TRAVIS COUNTY WATER IMPROVEMENT & CONTROL DISTRICT NO. 17
FLINTROCK WASTEWATER SYSTEM

~~ATTACHMENT 'N-4'~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~THOMAS TRACT EFFLUENT DISPOSAL SITE - AREA 'B'~~

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\Flintrock Golf Course Irrigation.dwg



- NOTES:**
- THE FOLLOWING MINIMUM SETBACKS WERE USED:
- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
 - 150' FROM PRIVATE WATER WELLS
 - 100' FROM SURFACE WATERS OF THE STATE
 - 5' FROM PROPERTY LINES
 - 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
 - OUTSIDE FLOODWAYS



RIVER CITY ENGINEERING
Texas Registered Engineering Firm F-0001546
CIVIL, ENVIRONMENTAL & CONSULTING

3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522

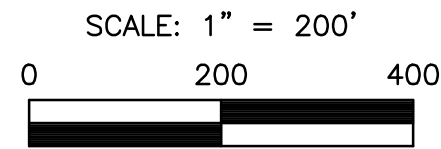
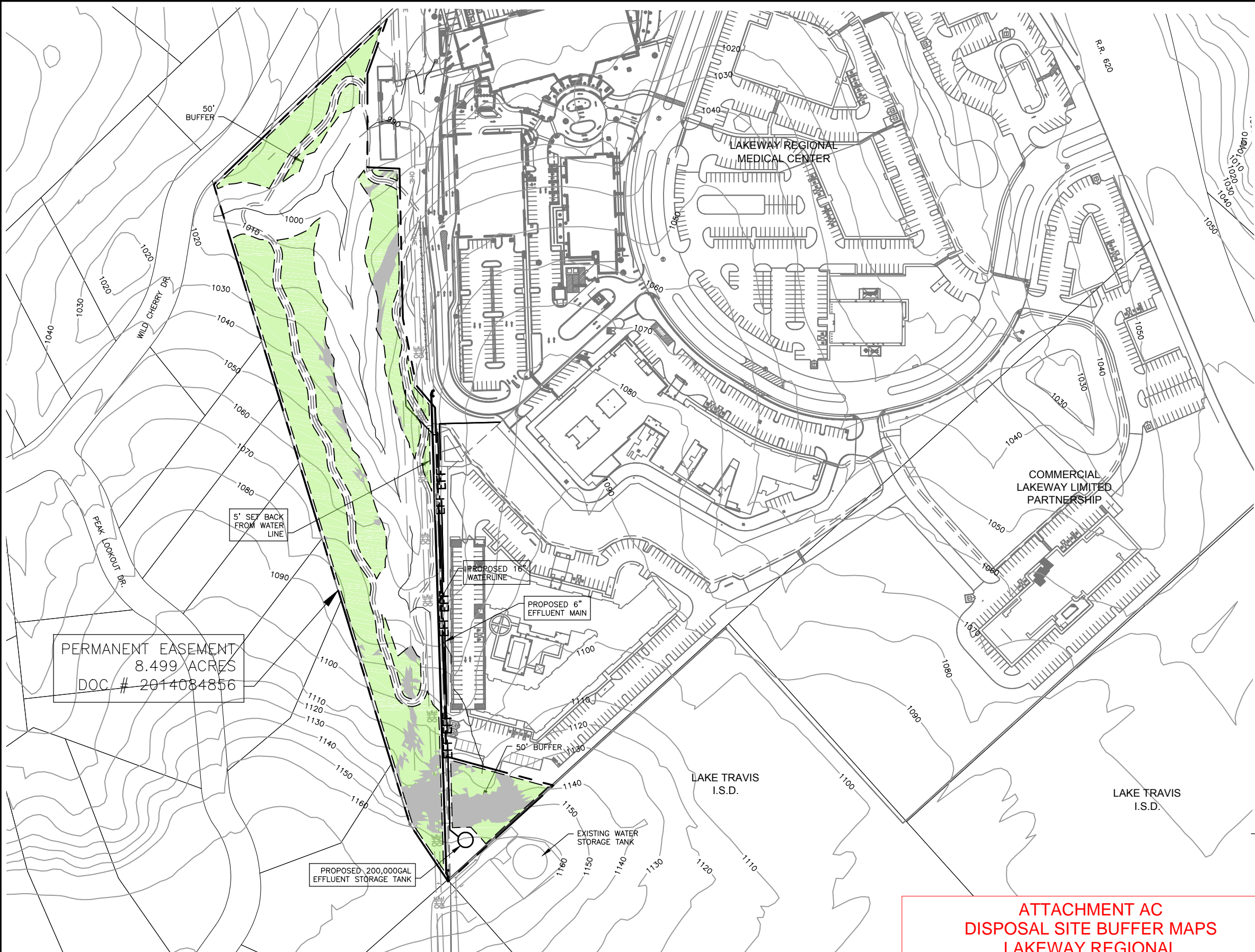
1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3601

TRAVIS COUNTY WATER IMPROVEMENT & CONTROL DISTRICT NO. 17
FLINTROCK WASTEWATER SYSTEM

**ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
FLINTROCK GOLF COURSE**

~~ATTACHMENT 'N-4'~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~FLINTROCK GOLF COURSE EFFLUENT DISPOSAL - AREA 'C'~~
~~INCLUDED IN EXISTING TCEQ TLAP~~

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\SLOPE MAPS.dwg



LEGEND	
	PROPERTY BOUNDARY
	IRRIGATION AREA SETBACK

- NOTES:**
- THE FOLLOWING MINIMUM SETBACKS WERE USED:
- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
 - 150' FROM PRIVATE WATER WELLS
 - 100' FROM SURFACE WATERS OF THE STATE
 - 5' FROM PROPERTY LINES
 - 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
 - OUTSIDE FLOODWAY

AREA "D"	
TOTAL GROSS AREA =	8.499 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	4.39 A.C.
AREA WITH SLOPES > 30% =	0.45 A.C.
TOTAL USABLE AREA =	3.66 A.C.

ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
LAKEWAY REGIONAL



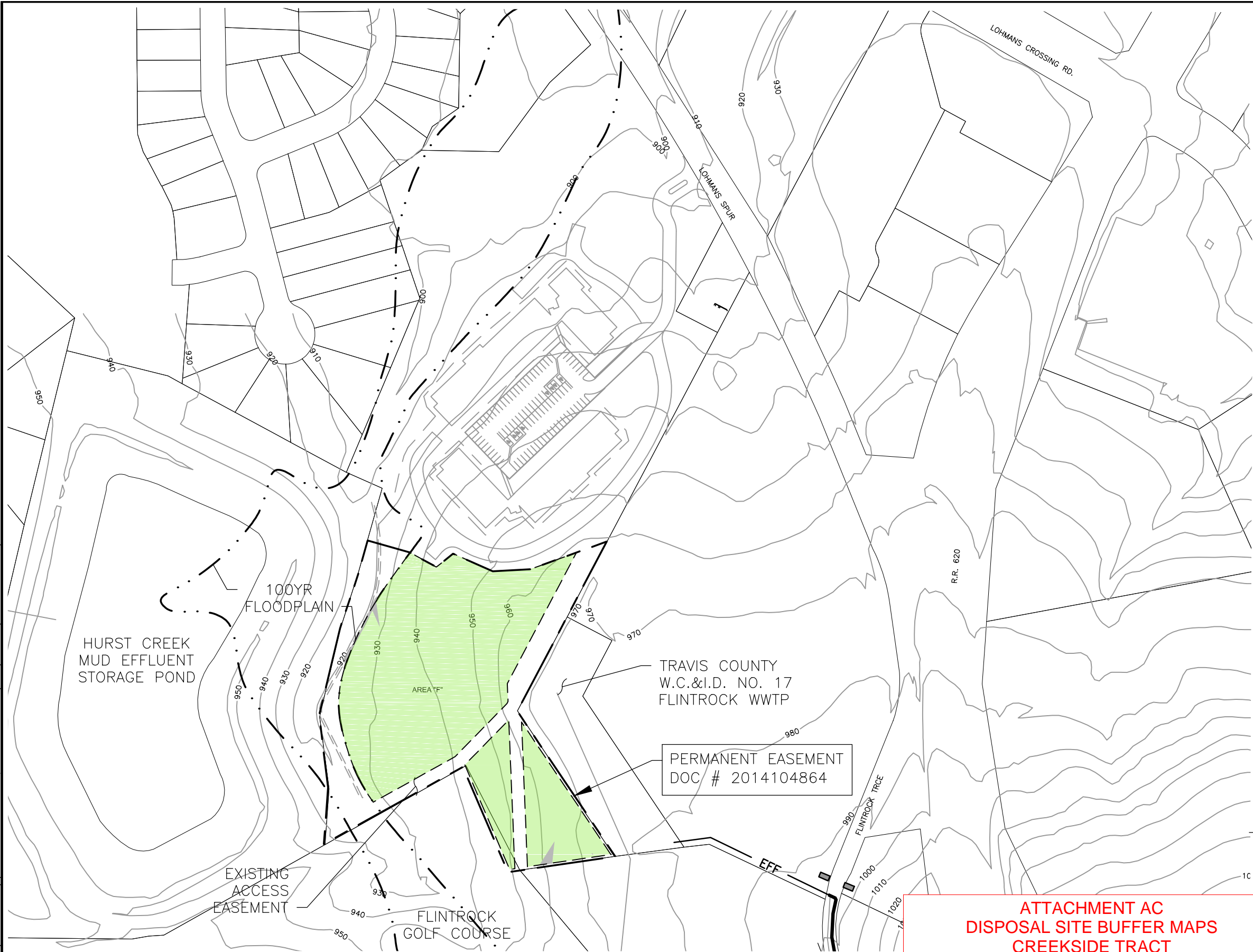
3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522

1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3601

TRAVIS COUNTY WATER IMPROVEMENT & CONTROL DISTRICT NO. 17
FLINTROCK WASTEWATER SYSTEM

~~ATTACHMENT "N-4"~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~LAKEWAY REGIONAL MEDICAL EFFLUENT DISPOSAL SITE -~~
~~AREA "D"~~

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\ Slope MAPS.dwg



LEGEND

	PROPERTY BOUNDARY
	IRRIGATION AREA SETBACK

- NOTES:**
- THE FOLLOWING MINIMUM SETBACKS WERE USED:
- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
 - 150' FROM PRIVATE WATER WELLS
 - 100' FROM SURFACE WATERS OF THE STATE
 - 5' FROM PROPERTY LINES
 - 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
 - OUTSIDE FLOODWAY

AREA "F"

TOTAL GROSS AREA =	5.397 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	1.50 A.C.
AREA WITH SLOPES > 30% =	0.02 A.C.
TOTAL USABLE AREA =	3.88 A.C.

ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
CREEKSIDE TRACT

RIVER CITY ENGINEERING
Texas Registered Engineering Firm F-0001546
 CIVIL, ENVIRONMENTAL & CONSULTING

3801 SOUTH 1ST STREET
 AUSTIN, TEXAS 78704-7047
 PHONE-(512) 442-3008
 FAX-(512) 442-6522

1011 W. COUNTY LINE ROAD, SUITE C
 NEW BRAUNFELS, TEXAS 78130
 PHONE-(830)-626-3588
 FAX-(830)-626-3601

TRAVIS COUNTY WATER IMPROVEMENT & CONTROL DISTRICT NO. 17
FLINTROCK WASTEWATER SYSTEM

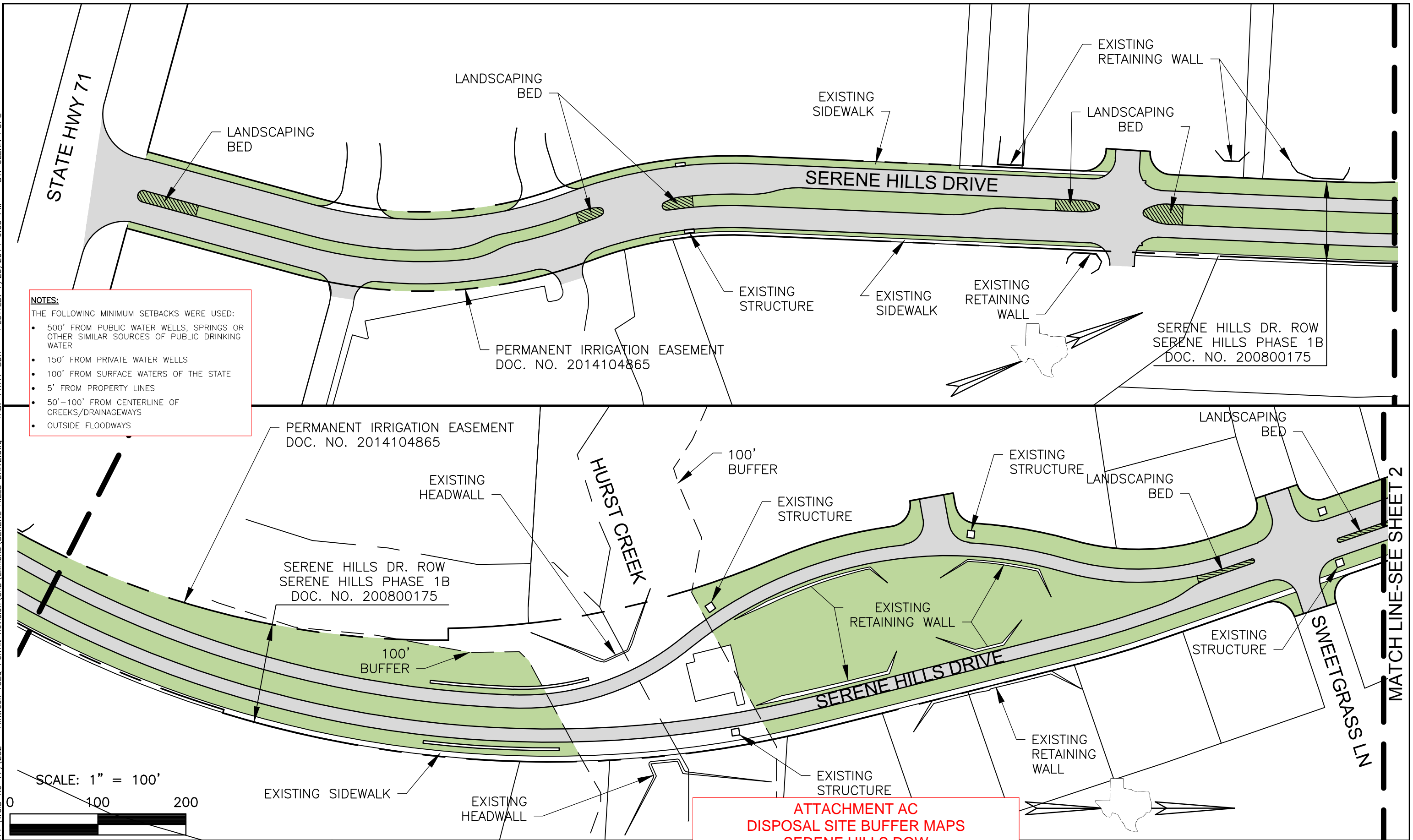
~~ATTACHMENT 'N-4'~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~CREEKSIDE EFFLUENT DISPOSAL SITE - AREA 'F'~~

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\SERENE HILLS DRIVE.dwg TAB: 11X17 BDR PLOTTED: 7/23/2014 6:05 PM BY: GLENN POPE

NOTES:

THE FOLLOWING MINIMUM SETBACKS WERE USED:

- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
- 150' FROM PRIVATE WATER WELLS
- 100' FROM SURFACE WATERS OF THE STATE
- 5' FROM PROPERTY LINES
- 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
- OUTSIDE FLOODWAYS



**ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
SERENE HILLS ROW**

~~ATTACHMENT 'N 4'~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~SERENE HILLS DRIVE EFFLUENT DISPOSAL SITE - AREA 'E'~~
SHEET 1 OF 2

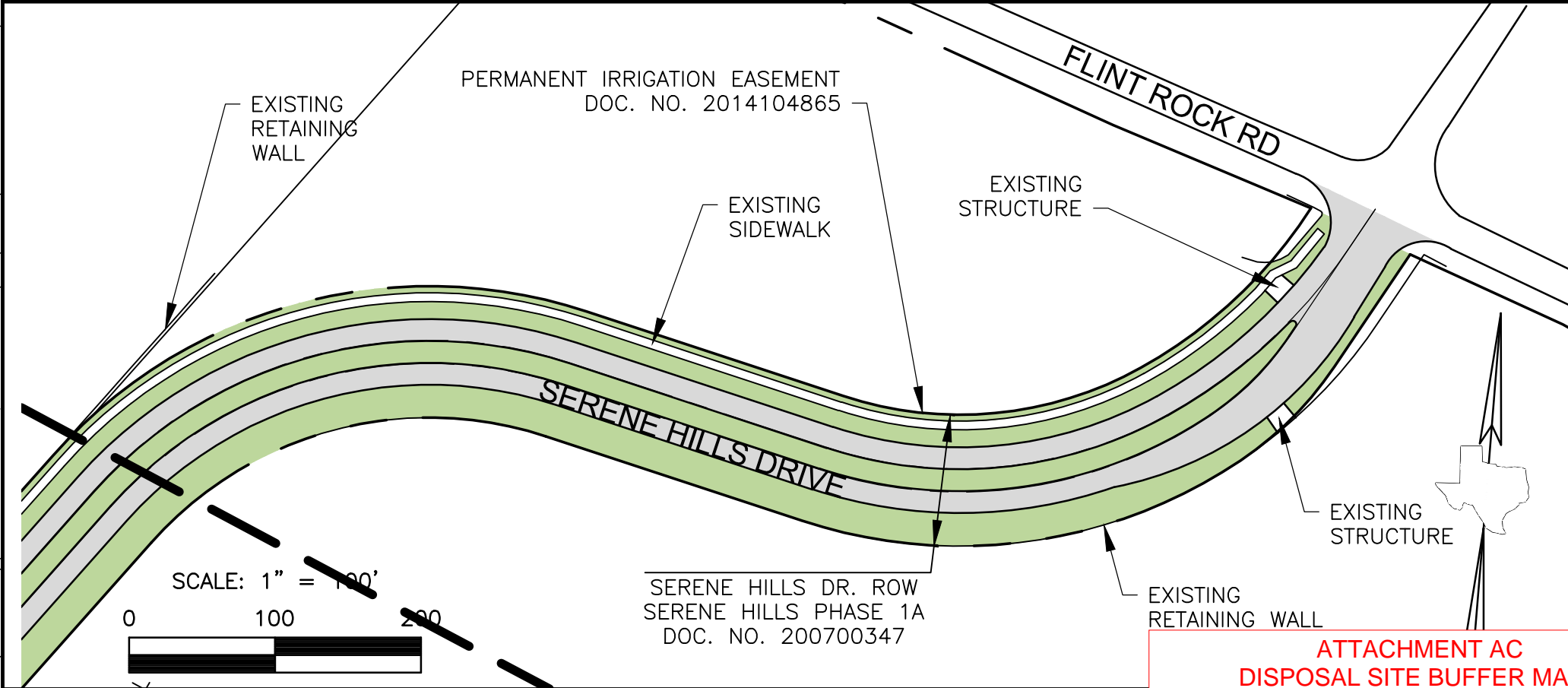
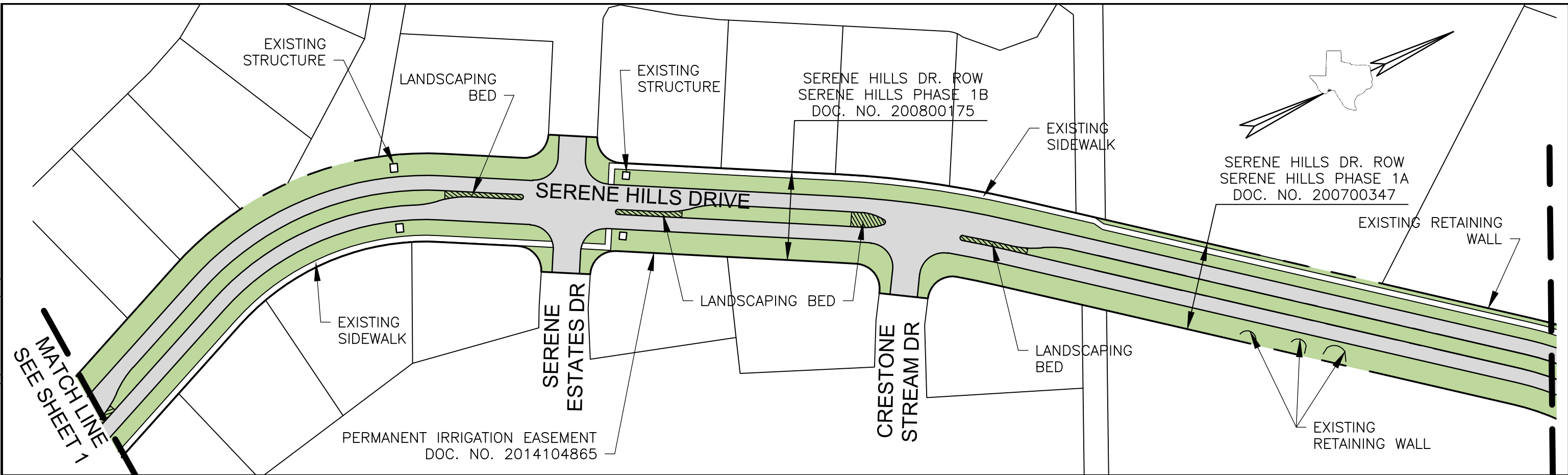


3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522

1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3601

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 17
FLINTROCK WASTEWATER SYSTEM

FILE: P:\Projects\6014 (WCID No. 17)\282 - Flintrock TCEQ Permit Revision\CAD\Exhibits\SERENE HILLS DRIVE.dwg
TAB: 11X17 BDR (2) PLOTTED: 7/23/2014 6:03 PM BY: GLENN POPE



AREA "E"

TOTAL GROSS AREA =	13.46 A.C.
DEDUCTIONS:	
AREA WITHIN SET BACKS =	6.60 A.C.
AREA WITH SLOPES > 30% =	0.00 A.C.
TOTAL USABLE AREA =	6.86 A.C.

NOTES:

THE FOLLOWING MINIMUM SETBACKS WERE USED:

- 500' FROM PUBLIC WATER WELLS, SPRINGS OR OTHER SIMILAR SOURCES OF PUBLIC DRINKING WATER
- 150' FROM PRIVATE WATER WELLS
- 100' FROM SURFACE WATERS OF THE STATE
- 5' FROM PROPERTY LINES
- 50'-100' FROM CENTERLINE OF CREEKS/DRAINAGEWAYS
- OUTSIDE FLOODWAY

LEGEND

■ SERENE HILLS DR IRRIGATION

ATTACHMENT AC
DISPOSAL SITE BUFFER MAPS
SERENE HILLS ROW



3801 SOUTH 1ST STREET
AUSTIN, TEXAS 78704-7047
PHONE-(512) 442-3008
FAX-(512) 442-6522
1011 W. COUNTY LINE ROAD, SUITE C
NEW BRAUNFELS, TEXAS 78130
PHONE-(830)-626-3588
FAX-(830)-626-3601

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 17
FLINTROCK WASTEWATER SYSTEM

~~ATTACHMENT 'N-4'~~
~~EFFLUENT DISPOSAL AREA MAPS~~
~~SERENE HILLS DRIVE EFFLUENT DISPOSAL SITE - AREA 'E'~~
SHEET 2 OF 2