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

PLAIN LANGUAGE SUMMARY

Ellis AD 1, LLC plans to develop Ellis AD 1. Ellis AD 1 is a proposed anaerobic digestion facility located on the north side of Austonia Road, 1200 feet west of the intersection of Austonia Road and Armstrong Road, in Ellis County, Texas 75119. Ellis AD 1, LLC will be developing, constructing, owning and operating Ellis AD 1. The proposed facility will produce renewable natural gas and agricultural beneficial by-products.

This permit will not authorize a discharge of pollutants into waters of the state.

Anaerobic digestion is a process by which organic material, such as animal manure and food waste, is broken down by microbes in an enclosed environment to produce biogas. By combining food waste and manure, a smaller volume of manure can create enough biogas to make the system viable. Each digester tank will receive material from the hydrolysis tanks on a regular schedule. Materials transferred from the hydrolysis tanks to the digester tanks will include the food waste slurry. Manure will be transferred into the AD tank by tanker trucks as needed to maintain gas production. Once material is transferred into the digestion tank, it will be homogenized using mixers. In the digester the homogenous mix of manure and food waste is heated and resides in the tank for several days. While in the tanks, microbes break down the mixture in an anaerobic environment, resulting in the production of biogas, which is a combination of methane, carbon dioxide, hydrogen gas, and water vapor. The biogas that is collected in the headspace of the digesters will be routed through a gas conditioning, and upgrading system to remove impurities. This will result in pipeline quality natural gas. Digestate is the effluent discharged from the digesters. The digester tanks have a finite capacity, and as more organic waste, manure, or food waste is added, the processed material within the tanks needs to be removed. The removal of digestate from the digesters will occur throughout the day as needed to reduce the volume of material within the digester tanks. This material will be a nutrient-rich liquid digestate. The liquid digestate is stored in the onsite lagoon. The liquid will be applied to agricultural fields for crop fertilization.

Ellis AD 1, LLC planea desarrollar Ellis AD 1. Ellis AD 1 es una instalación de digestión anaeróbica propuesta ubicada en el lado norte de Austonia Road, 1200 pies al oeste de la intersección de Austonia Road y Armstrong Road, en el condado de Ellis, Texas 75119. Ellis AD 1, LLC desarrollará, construirá, poseerá y operará Ellis AD 1. La instalación propuesta producirá gas natural renovable y subproductos agrícolas beneficiosos.

Este permiso no autorizará la descarga de contaminantes en las aguas del estado.

La digestión anaeróbica es un proceso mediante el cual los microbios descomponen el material orgánico, como el estiércol animal y los desechos de alimentos, en un entorno cerrado para producir biogás. Al combinar los desechos de alimentos y el estiércol, un volumen menor de estiércol puede crear suficiente biogás para que el sistema sea viable. Cada tanque de digestión recibirá material de los tanques de hidrólisis en un cronograma regular. Los materiales transferidos desde los tanques de hidrólisis a los tanques digestores incluirán el purín de desechos de alimentos. El estiércol se transferirá al tanque de AD mediante camiones cisterna según sea necesario para mantener la producción de gas. Una vez que el material se transfiere al tanque de digestión, se homogeneizará utilizando mezcladores. En el digestor, la mezcla homogénea de estiércol y desechos de alimentos se calienta y permanece en el tanque durante varios días. Mientras está en los tanques, los microbios descomponen la mezcla en un entorno anaeróbico, lo que da como resultado la producción de biogás, que es una combinación de metano, dióxido de carbono, gas hidrógeno y vapor de agua. El biogás que se recolecta en el espacio superior de los digestores se enrutará a través de un sistema de acondicionamiento y mejora de gas para eliminar las impurezas. Esto dará como resultado gas natural de calidad de tubería. El digestato es el efluente descargado de los digestores. Los tanques digestores tienen una capacidad finita y, a medida que se agregan más desechos orgánicos, estiércol o desechos de alimentos, es necesario eliminar el material procesado dentro de los tanques. La eliminación del digestato de los digestores se realizará a lo largo del día según sea necesario para reducir el volumen de material dentro de los tanques de digestión. Este material será un digestato líquido rico en nutrientes. El digestato líquido se almacena en la laguna del lugar. El líquido se aplicará a los campos agrícolas para fertilizar los cultivos.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PROPOSED PERMIT NO. WQ0005485000

APPLICATION. Ellis AD 1, LLC; Creek Land and Cattle LLC; and Alliance Land & Cattle, LLC; 133 Boston Post Road, Weston, Massachusetts 02493, which will operate an anaerobic digestion facility, have applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0005485000 to authorize the disposal of treated wastewater at a volume not to exceed a daily average flow of 56,224 gallons per day via irrigation of approximately 4,553 acres. The facility will be located approximately 1,200 feet west of the intersection of Armstrong Road and Austonia Road, in Ellis County, Texas 75119 and the disposal areas will be located across multiple tracts within an 11-mile distance from the treatment facility in a northwest, west, and southwest direction, in Ellis and Navarro Counties, Texas 75119. TCEQ received this application on February 10, 2025. The permit application will be available for viewing and copying at Nicholas P. Sims Library, 515 West Main Street, Waxahachie, in Ellis County, Texas and at Corsicana Public Library, 100 North 12th Street, Corsicana, in Navarro 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=-96.72447,32.199236&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 Ellis AD 1, LLC, Creek Land and Cattle LLC, and Alliance Land & Cattle, LLC at the address stated above or by calling Mr. William Coffrin, Development Manager, Ellis AD 1, LLC, at 781-232-7597, Extension 4.

Issuance Date: March 11, 2025

COMISIÓN DE CALIDAD AMBIENTAL DE TEXAS

AVISO DE RECEPCIÓN DE LA SOLICITUD Y LA INTENCIÓN DE OBTENER UN PERMISO DE CALIDAD DEL AGUA

PERMISO PROPUESTO NÚM. WQ0005485000

SOLICITUD. Ellis AD 1, LLC, Creek Land and Cattle LLC, y Alliance Land & Cattle, LLC, 133 Boston Post Road, Weston, Massachusetts 02493, que operarán una planta de digestión anaeróbica, han solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) un propuesto Permiso de Aplicación en Terrenos de Texas (TLAP) N.º WQ0005485000 para autorizar la eliminación de aguas residuales tratadas en un volumen que no sobrepase un flujo promedio diario de 56,224 galones por día mediante riego de aproximadamente 4,553 acres. La instalación estará ubicada aproximadamente a 1,200 pies al oeste de la intersección de Armstrong Road y Austonia Road, en el condado de Ellis, Texas 75119, y las áreas de eliminación estarán ubicadas en múltiples tramos dentro de una distancia de 11 millas de la instalación de tratamiento en dirección noroeste, oeste y suroeste, en los condados de Ellis y Navarro, Texas 75119. La TCEQ recibió esta solicitud el día 10 de febrero de 2025. La solicitud de permiso estará disponible para leerla y copiarla en la Biblioteca Nicholas P. Sims, 515 West Main Street, Waxahachie, en el condado de Ellis, Texas, y en la Biblioteca Pública de Corsicana, 100 North 12th Street, Corsicana, en el condado de Navarro, Texas antes de la fecha de publicación de 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 de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-96.72447,32.199236&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 realizará una revisión técnica de la solicitud. Después de completar la revisión técnica de la solicitud, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una decisión preliminar sobre la solicitud. **El aviso de la Solicitud y Decisión Preliminar será publicado y enviado por correo a las personas que figuran en la lista de difusión en todo el condado y a las personas que figuran en la lista de correo para esta solicitud. Ese aviso contendrá la fecha límite para presentar comentarios públicos.**

COMENTARIO PÚBLICO / REUNIÓN PÚBLICA. 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

realizará 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 todos 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 de difusión para esta solicitud. Si se reciben comentarios, el aviso enviado por correo también proveerá instrucciones para solicitar una reconsideración de la decisión del Director Ejecutivo y 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 PEDIR UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO, USTED DEBE INCLUIR EN SU PEDIDO LOS SIGUIENTES DATOS: su nombre; dirección; teléfono; nombre del solicitante y número del permiso propuesto; la ubicación y la distancia de su propiedad/actividad con respecto a la instalación propuesta; una descripción específica de la forma en que usted sería afectado adversamente por la instalación 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 administrativa de lo contencioso". Si la solicitud de audiencia administrativa de lo contencioso se presenta por parte de un grupo o una asociación, la solicitud debe identificar el representante del grupo para recibir correspondencia en el futuro; debe identificar un miembro individual del grupo que sería afectado adversamente por la instalación o actividad propuesta; debe proveer la información ya indicada anteriormente con respecto a la ubicación del miembro afectado y la distancia de la instalación o actividad; debe explicar cómo y por qué el miembro sería afectado; y debe explicar la forma en que los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos para los pedidos y comentarios pertinentes, el Director Ejecutivo enviará la solicitud y los pedidos para reconsideración o por una audiencia administrativa de lo contencioso a los Comisionados de la TCEQ para su consideración en una reunión programada de la Comisión.

La Comisión sólo podrá conceder una solicitud de audiencia administrativa de lo contencioso sobre cuestiones que el solicitante presentó en sus comentarios oportunos y que no fueron retiradas posteriormente. **Si se concede una audiencia, el tema de la audiencia se limitará a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas con inquietudes relevantes y materiales sobre la calidad del agua presentadas durante el período de comentarios.**

LISTA DE CORREO. Si usted somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, será añadido a la lista de difusión para esta solicitud específica para recibir avisos públicos futuros enviados por la Oficina del Secretario Principal. Además, puede pedir que lo incluyan

en: (1) la lista de correo permanente para el nombre de solicitante y número de permiso específicos; y/o (2) la lista de correo para un condado especifico. Si desea ser añadido a la lista de correo permanente y/o del condado, identifique claramente la(s) lista(s) y envíe su solicitud por correo a la Oficina del Secretario Principal de la TCEQ, a la dirección proporcionada más abajo.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para obtener detalles sobre el estado de la solicitud, visite la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Busque en la base de datos utilizando el número de permiso para esta solicitud, que se encuentra en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN DE LA AGENCIA. Todos los comentarios y solicitudes públicas deben enviarse electrónicamente a **https://www14.tceq.texas.gov/epic/eComment/**, o por escrito a la Comisión de Calidad Ambiental de Texas, Oficina del Secretario Principal, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información de contacto que proporcione, incluido su nombre, número de teléfono, dirección de correo electrónico y dirección física, pasará a formar parte del registro público de la agencia. Si necesita más información sobre esta solicitud de permiso o el proceso de emisión del permiso, por favor llame al Programa de Educación Pública de la TCEQ, sin cobro, al 1-800-687-4040 o visite su sitio web en www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional de Ellis AD 1, LLC, Creek Land and Cattle LLC, y Alliance Land & Cattle, LLC en la dirección indicada más arriba o llamando al Sr. William Coffrin, Gerente de Desarrollo, Ellis AD 1, LLC, at 781-232-7597, Extensión 4.

Fecha de emisión: el 11 de marzo de 2025

JAMES MIERTSCHIN & ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERING (TBPE F-2458)
P.O. BOX 162305 ° AUSTIN, TEXAS 78716-2305 ° (512) 327-2708

10 February 2025

Water Quality Applications Team
Texas Commission on Environmental Quality
Applications Review and Processing Team (MC148)
Building F, Room 2101
12100 Park 35 Circle
Austin, Texas 78753

RE: Ellis AD 1, LLC Wastewater Treatment Facility
TLAP Permit Application

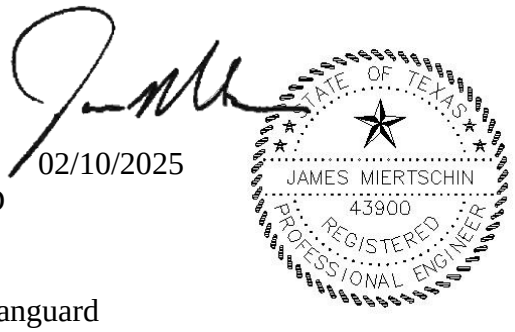
Dear Sirs:

A permit renewal application for Ellis AD 1, LLC Wastewater Treatment Facility located in Ellis and Navarro County, Texas is attached. One original and two copies of the complete application package are included and are being delivered via FedEx to the agency. The application fee has been mailed to the Revenues Section, and a photocopy of the check is included in the application.

Please do not hesitate to contact us if you have any questions or need additional information. You may contact me at (512) 327-2708 or via email at jm@jmaenv.com. You may also contact William Coffrin at wcoffrin@vanguardrenewables.com or (518) 524-4338.

Yours truly,

JAMES MIERTSCHIN & ASSOCIATES, INC.



02/10/2025

James Miertschin, PE, PhD

cc: William Coffrin, Vanguard

JAMES MIERTSCHIN & ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERING
P.O. BOX 162305 ° AUSTIN, TEXAS 78716-2305 ° (512) 327-2708

TLAP Permit Application

Ellis AD 1, LLC

Wastewater Treatment Facility

10 February 2025

TABLE OF CONTENTS
ELLIS AD 1, LLC PERMIT APPLICATION

LIST OF EXHIBITS TO APPLICATION

Exhibit	Title	Application Reference	Content
A	Reserved		
B	Core Data Form	Admin 1.0, p. 4, Item 4	Applicant information
C	Public Viewing	Admin 1.0, p.6, Item 9.d	Public viewing locations
D	Plain Language Summary	Admin 1.0, p. 7, Item 9.f	Plain language description
E	Public Involvement Plan	Admin 1.0, p. 7, Item 9.g	Public involvement
F	Lease	Admin 1.0, p/7, Item 10.f	Lease for WWTF site
G	Original USGS Map	Admin 1.0, p. 8, Item 11.b	Property boundaries, treatment facility boundaries, effluent disposal site, 1 mi radius
H	Affected Landowners Map	Admin 1.1, p. 12, Item 1.a	Boundaries and adjacent landowners; names, addresses; buffer zones; labels
I	Original Photographs	Admin 1.0, p. 13, Item 2	Photos of treatment location, irrigation fields
J	Reserved		
K	Facility Map	Tech 1.0, p. 2, Item 1.d	Production and maintenance, intakes, WWTP units
L	FEMA Map	Tech 1.0, p.2, Item 1.f	Floodplain
M	Flow Schematic	Tech 1.0, p. 3, Item 2.b	Flow schematic
N	TLAP Diposal	Tech 1.0, p.6, Item 4	Coordinates
O	List of Wastes	Tech 1.0, p.10, Item 10	Wastes received
P	Cropping Plan	Wkst 3.0, p. 34, Item 3	Cropping plan
Q	Wells, Groundwater	Wkst 3.0, p.35, Item 4.a, d	Wells within half mile; groundwater
R	Soils	Wkst 3.0, p.36, Item 5	NRCS soils map and data
S	Engineering Report	Whst, 3.1, p.41, Item 2.b	Water balance, storage balance, nitrogen balanc

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the industrial wastewater permit application.

APPLICANT NAME: Ellis AD 1, LLC

PERMIT NUMBER (If new, leave blank): WQ00 Click to enter text.

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

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Worksheet 8.0	☐	☐
Administrative Report 1.1	☒	☐	Worksheet 9.0	☐	☐
SPIF	☐	☐	Worksheet 10.0	☐	☐
Core Data Form	☒	☐	Worksheet 11.0	☐	☐
Public Involvement Plan Form	☒	☐	Worksheet 11.1	☐	☐
Plain Language Summary	☒	☐	Worksheet 11.2	☐	☐
Technical Report 1.0	☒	☐	Worksheet 11.3	☐	☐
Worksheet 1.0	☒	☐	Original USGS Map	☒	☐
Worksheet 2.0	☐	☐	Affected Landowners Map	☒	☐
Worksheet 3.0	☒	☐	Landowner Disk or Labels	☒	☐
Worksheet 3.1	☒	☐	Flow Diagram	☒	☐
Worksheet 3.2	☐	☐	Site Drawing	☒	☐
Worksheet 3.3	☐	☐	Original Photographs	☒	☐
Worksheet 4.0	☐	☐	Design Calculations	☐	☐
Worksheet 4.1	☐	☐	Solids Management Plan	☐	☐
Worksheet 5.0	☐	☐	Water Balance	☒	☐
Worksheet 6.0	☐	☐			
Worksheet 7.0	☐	☐			

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region _____
Permit Number _____

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

This report is required for all applications for TPDES permits and TLAPs, except applications for oil and gas extraction operations subject to 40 CFR Part 435. Contact the Applications Review and Processing Team at 512-239-4671 with any questions about completing this report.

Applications for oil and gas extraction operations subject to 40 CFR Part 435 must use the Oil and Gas Exploration and Production Administrative Report (TCEQ Form-20893 and 20893-inst[1]).

Item 1. Application Information and Fees (Instructions, Page 26)

a. Complete each field with the requested information, if applicable.

Applicant Name: Ellis AD 1, LLC

Permit No.: WQ000Click to enter text.

EPA ID No.: TX0Click to enter text.

Expiration Date: Click to enter text.

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

☒ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

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

☐ Active ☒ Inactive

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

☐ TPDES Permit ☒ TLAP ☐ TPDES with TLAP component

e. Check the box next to the appropriate application type.

☒ New

☐ Renewal with changes ☐ Renewal without changes

☐ Major amendment with renewal ☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

f. If applying for an amendment or modification, describe the request: Click to enter text.

For TCEQ Use Only

Segment Number _____County _____
Expiration Date _____Region _____
Permit Number _____

[1] https://www.tceq.texas.gov/publications/search_forms.html

g. Application Fee

EPA Classification	New	Major Amend. (with or without renewal)	Renewal (with or without changes)	Minor Amend. / Minor Mod. (without renewal)
Minor facility not subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☒ $350	☐ $350	☐ $315	☐ $150
Minor facility subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☐ $1,250	☐ $1,250	☐ $1,215	☐ $150
Major facility	N/A [2]	☐ $2,050	☐ $2,015	☐ $450

h. Payment Information

Mailed

Check or money order No.: 9085

Check or money order amt.: 400.00

Named printed on check or money order: James Miertschin & Associates, Inc.

Epay

Voucher number: Click to enter text.

Copy of voucher attachment: Click to enter text.

Item 2. Applicant Information (Instructions, Pages 26)

a. Customer Number, if applicant is an existing customer: CNClick to enter text.

Note: Locate the customer number using the TCEQ's Central Registry Customer Search[3].

b. Legal name of the entity (applicant) applying for this permit: Ellis AD 1, LLC

Note: The owner of the facility must apply for the permit. The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: Mrs. Full Name (Last/First Name): Martin/Kim

Title: VP of Development Credential: Click to enter text.

d. Will the applicant have overall financial responsibility for the facility?

☒ Yes ☐ No

[2] All facilities are designated as minors until formally classified as a major by EPA.

[3] https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 3. Co-applicant Information (Instructions, Page 27)

☐ Check this box if there is no co-applicant.; otherwise, complete the below questions.

a. Legal name of the entity (co-applicant) applying for this permit: CREEK LAND AND CATTLE LLC / ALLIANCE LAND & CATTLE, LLC

Note: The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

b. Customer Number (if applicant is an existing customer): CNClick to enter text.

Note: Locate the customer number using the TCEQ's Central Registry Customer Search.

c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: Mr. Full Name (Last/First Name): Dance/Blair

Title: Co-Applicants Credential: Click to enter text.

d. Will the co-applicant have overall financial responsibility for the facility?

☐ Yes ☒ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 4. Core Data Form (Instructions, Pages 27)

a. Complete one Core Data Form (TCEQ Form 10400) for each customer (applicant and co-applicant(s)) and include as an attachment. If the customer type selected on the Core Data Form is Individual, complete Attachment 1 of the Administrative Report. Attachment: B

Item 5. Application Contact Information (Instructions, Page 27)

Provide names of two individuals who can be contact for additional information about this application. Indicate if the individual can be contact about administrative or technical information, or both.

a. ☒ Administrative Contact . ☒ Technical Contact

Prefix: Mr. Full Name (Last/First Name): Coffrin/William

Title: Development Mgr Credential: Click to enter text.

Organization Name: Ellis AD 1, LLC

Mailing Address: 133 Boston Post Road City/State/Zip: Weston/MA/02493

Phone No: 518 524 4338 Email: wcoffrin@vanguardrenewables.com (CC: development@vanguardrenewables.com)

b. ☐ Administrative Contact ☒ Technical Contact

Prefix: Dr. Full Name (Last/First Name): Miertschin/James

Title: Engineer Credential: PE

Organization Name: James Miertschin & Associates, Inc.

Mailing Address: PO Box 162305 City/State/Zip: Austin/TX/78716

Phone No: 512 327 2708 Email: jm@jmaenv.com

Attachment: Click to enter text.

Item 6. Permit Contact Information (Instructions, Page 28)

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

a. Prefix: Mr. Full Name (Last/First Name): Coffrin/William

Title: Development Mgr Credential: Click to enter text.

Organization Name: Ellis AD 1, LLC

Mailing Address: 133 Boston Post Road City/State/Zip: Weston/MA/02493

Phone No: 518 524 4338 Email: wcoffrin@vanguardrenewables.com (CC: development@vanguardrenewables.com)

b. Prefix:Dr Full Name (Last/First Name): Miertschin/James

Title: Engineer Credential: PEClick to enter text.

Organization Name: James Miertschin & Assoc, Inc.Click to enter text.

Mailing Address: PO Box 162305 City/State/Zip: Austin/TX/78716

Phone No: 512 327 2708Click to enter text. Email: jm@jmaenv.comClick to enter text.

Attachment: Click to enter text.

Item 7. Billing Contact Information (Instructions, Page 28)

The permittee is responsible for paying the annual fee. The annual fee will be assessed for 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 (form TCEQ-20029).

Provide the complete mailing address where the annual fee invoice should be mailed and the name and phone number of the permittee's representative responsible for payment of the invoice.

Prefix: Mr. Full Name (Last/First Name): Coffrin/William

Title: Development Mgr Credential: Click to enter text.

Organization Name: Ellis AD 1, LLC

Mailing Address: 133 Boston Post Road City/State/Zip: Weston/MA/02493

Phone No: (781) 232-7597 ext. 4 Email: development@vanguardrenewables.com (CC: devaccounting@vanguardrenewables.com)

Item 8. DMR/MER Contact Information (Instructions, Page 28)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs. **Note:** DMR data must be submitted through the NetDMR system. An electronic reporting account can be established once the facility has obtained the permit number.

Prefix: Mr. Full Name (Last/First Name): Coffrin/William

Title: Development Mgr Credential: Click to enter text.

Organization Name: Ellis AD 1, LLC

Mailing Address: 133 Boston Post Road City/State/Zip: Weston/MA/02493

Phone No: 518 524 4338 Email: development@vanguardrenewables.com

Item 9. Notice Information (Instructions, Pages 28)

a. Individual Publishing the Notices

Prefix: Mr. Full Name (Last/First Name): Coffrin/William

Title: Development Mgr Credential: Click to enter text.

Organization Name: Ellis AD 1, LLC

Mailing Address: 133 Boston Post Road City/State/Zip: Weston/MA/02493

Phone No: (781) 232-7597 ext. 4 Email: development@vanguardrenewables.com

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package (only for NORI, NAPD will be sent via regular mail)

☒ E-mail: development@vanguardrenewables.com

☐ Fax: Click to enter text.

☒ Regular Mail (USPS)

Mailing Address: 133 Boston Post Road

City/State/Zip Code: Weston/MA/02493

c. Contact in the Notice

Prefix: Mr. Full Name (Last/First Name): Coffrin/William

Title: Development Mgr Credential: Click to enter text.

Organization Name: Ellis AD 1, LLC

Phone No: (781) 232-7597 ext. 4 Email: development@vanguardrenewables.com

d. Public Viewing Location Information

Note: If the facility or outfall is located in more than one county, provide a public viewing place for each county.

Public building name: Library, see below Location within the building: Click to enter text.

Physical Address of Building: Click to enter text.

City: Click to enter text. County: See attachment C

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.

Call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice(s) is 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 Item 8 (Regulated Entity and Permitted Site Information.)

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 ☒ N/A

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: D

g. Complete one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment and include as an attachment. Attachment: E

Item 10. Regulated Entity and Permitted Site Information (Instructions Page 29)

a. TCEQ issued Regulated Entity Number (RN), if available: RNClick to enter text.

Note: If your business site is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry to determine the RN or to see if the larger site may already be registered as a Regulated Entity. If the site is found, provide the assigned RN.

b. Name of project or site (the name known by the community where located): Ellis AD 1

c. Is the location address of the facility in the existing permit the same?

☐ Yes ☐ No ☒ N/A (new permit)

Note: If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

d. Owner of treatment facility:

Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

or Organization Name: Ellis AD 1, LLC

Mailing Address: 133 Boston Post Road City/State/Zip: Weston/MA/02493

Phone No: (781) 232-7597 ext. 4 Email: development@vanguardrenewables.com

e. Ownership of facility: ☐ Public ☒ Private ☐ Both ☐ Federal

f. Owner of land where treatment facility is or will be: CREEK LAND AND CATTLE LLC

Prefix: Mr. Full Name (Last/First Name): Dance/Blair

or Organization Name: Click to enter text.

Mailing Address: 433 Las Colinas Blvd E, Suite 1290 City/State/Zip: Irving, Texas 75039-5058

Phone No: Click to enter text. Email: blair@dbco.cpa

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: F

g. Owner of effluent TLAP disposal site (if applicable): CREEK LAND AND CATTLE LLC/ ALLIANCE LAND & CATTLE, LLC

Prefix: Mr. Full Name (Last/First Name): Dance/Blair

or Organization Name: Click to enter text.

Mailing Address: 433 Las Colinas Blvd E, Suite 1290 City/State/Zip: Irving, Texas 75039-5058

Phone No: Click to enter text. Email: blair@dbco.cpa

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: F

h. Owner of sewage sludge disposal site (if applicable):

Prefix: Click to enter text. Full Name (Last/First Name): Click to enter text.

or Organization Name: Click to enter text.

Mailing Address: Click to enter text. City/State/Zip: Click to enter text.

Phone No: Click to enter text. Email: Click to enter text.

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: Click to enter text.

Item 11. TDPES Discharge/TLAP Disposal Information (Instructions, Page 31)

a. Is the facility located on or does the treated effluent cross Native American Land?

☐ Yes ☒ No

b. Attach an original full size USGS Topographic Map (or an 8.5"×11" reproduced portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.

☒ One-mile radius	☐ Three-miles downstream information
☒ Applicant's property boundaries	☒ Treatment facility boundaries
☐ Labeled point(s) of discharge	☐ Highlighted discharge route(s)
☒ Effluent disposal site boundaries	☒ All wastewater ponds
☐ Sewage sludge disposal site	☐ New and future construction

Attachment: G

c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: Click to enter text.

d. Are the point(s) of discharge in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: Click to enter text.

e. Are the discharge route(s) in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: Click to enter text.

f. City nearest the outfall(s): Click to enter text.

g. County in which the outfalls(s) is/are located: NA

h. 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, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: Click to enter text.

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.

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

☐ Yes No or New Permit ☒ New Permit

If no, or a new application, provide an accurate location description: Click to enter text.

j. City nearest the disposal site: Click to enter text.

k. County in which the disposal site is located: Ellis, Navarro

l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: Liquid spreader tankers will route from the pond to the fields

m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Chambers Creek Segment 0814Click to enter text.

Item 12. Miscellaneous Information (Instructions, Page 33)

a. 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: Click to enter text.

b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Account no.: Click to enter text.

Total amount due: Click to enter text.

c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Enforcement order no.: Click to enter text.

Amount due: Click to enter text.

Item 13. Signature Page (Instructions, Page 33)

Permit No: WQ000Click to enter text.

Applicant Name: Ellis AD 1, LLC

Certification: I, Kim Martin, 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): Kim Martin

Signatory title: VP of Development

Signature: _____ Date: 2/7/25
(Use blue ink)

Subscribed and Sworn to before me by the said KIM MARTIN

on this 7th day of February, 20 25.

My commission expires on the 23rd day of October, 20 26.

Van Allan Chatham
Notary Public

[SEAL]

Van Allan Chatham
My Commission Expires
10/23/2026
Notary ID 130001157

Van Zandt
County, Texas

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Item 1. Affected Landowner Information (Instructions, Page 35)

a. Attach a landowner map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.

☒ 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 (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.

☒ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.

☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of 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 (e.g., sludge surface disposal site or sludge monofil) is located.

Attachment: H

b. Check the box next to the format of the landowners list:

☐ Readable/Writeable CD ☒ Four sets of labels

Attachment: H

d. Provide the source of the landowners' names and mailing addresses: County Appraisal Districts

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.

Item 2. Original Photographs (Instructions, Page 37)

Provide original ground level photographs. Check the box next to each of the following items to indicate it is included.

☒ 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.

Attachment: I

INDUSTRIAL WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

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

Attachment: Click to enter text.

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 38)

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

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

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

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

Date of Birth: Click to enter text.

Mailing Address: Click to enter text.

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

Phone No.: Click to enter text.

Fax No.: Click to enter text.

E-mail Address: Click to enter text.

CN: Click to enter text.

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

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

☐ Correct and Current Industrial Wastewater Permit Application Forms
(TCEQ Form Nos. 10055 and 10411. Version dated 5/10/2019 or later.)

☐ Water Quality Permit Payment Submittal Form (Page 14)
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)

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

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

☐ N/A ☐ Landowners Map
(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.

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

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

☐ Original signature per 30 TAC § 305.44 – Blue Ink Preferred
(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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

The following information **is required** for all applications for a TLAP or an individual TPDES discharge permit.

For **additional information** or clarification on the requested information, please refer to the Instructions for Completing the Industrial Wastewater Permit Application[1] available on the TCEQ website. Please contact the Industrial Permits Team at 512-239-4671 with any questions about this form.

If more than one outfall is included in the application, provide applicable information for each individual outfall. **If an item does not apply to the facility, enter N/A** to indicate that the item has been considered. Include separate reports or additional sheets as **clearly cross-referenced attachments** and provide the attachment number in the space provided for the item the attachment addresses.

NOTE: This application is for an industrial wastewater permit only. Additional authorizations from the TCEQ Waste Permits Division or the TCEQ Air Permits Division may be needed.

Item 1. Facility/Site Information (Instructions, Page 39)

a. Describe the general nature of the business and type(s) of industrial and commercial activities. Include all applicable SIC codes (up to 4).

Ellis AD 1, LLC will be developing, constructing, owning and operating an anaerobic digester. The proposed facility will produce renewable natural gas and an agricultural beneficial effluent called digestate. Primary SIC code = 4924; primary NAICS code = 221210

b. Describe all wastewater-generating processes at the facility.

There will be two anaerobic digesters at the facility. Feed to the digesters will be food waste slurry and manure. Biogas will be collected from the digesters. Liquid digestate is the effluent discharged from the digesters. Liquid digestate will be stored in the onsite lagoon.

[1] https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html

c. Provide a list of raw materials, major intermediates, and final products handled at the facility.

Materials List

Raw Materials	Intermediate Products	Final Products
Food waste	Biogas	Liquid fertilizer
Cow manure	Digestate	Renewable natural gas

Attachment: Click to enter text.

d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, waste-disposal areas, and water intake structures.
- The location of each unit of the WWTP including the location of wastewater collection sumps, impoundments, outfalls, and sampling points, if significantly different from outfall locations.

Attachment: K

e. Is this a new permit application for an existing facility?

☐ Yes ☒ No

If **yes**, provide background discussion: Click to enter text.

f. Is/will the treatment facility/disposal site be located above the 100-year frequency flood level.

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain: FEMA

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are used/proposed to prevent flooding (including tail water and rainfall run-on controls) of the treatment facility and disposal area: Click to enter text.

Attachment: L

g. For **new** or **major amendment** permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☐ Yes ☒ No ☐ N/A (renewal only)

h. If **yes** to Item 1.g, has the applicant applied for a USACE CWA Chapter 404 Dredge and Fill permit?

☐ Yes ☐ No

If **yes**, provide the permit number: Click to enter text.

If **no**, provide an approximate date of application submittal to the USACE: Click to enter text.

Item 2. Treatment System (Instructions, Page 40)

a. List any physical, chemical, or biological treatment process(es) used/proposed to treat wastewater at this facility. Include a description of each treatment process, starting with initial treatment and finishing with the outfall/point of disposal.

Food waste and animal manure will be fed to two anaerobic digesters. Food waste will be sent to a hydrolysis tank prior to introduction to the digesters. The heated digester includes mixing to homogenize the waste. Biogas is produced in the digester. The digester is a biological process that uses microbes. End products are pipeline quality natural gas and liquid digestate. The digestate liquid will be land applied. Digestate liquid will be stored in an onsite lagoon.

b. Attach a flow schematic **with a water balance** showing all sources of water and wastewater flow into the facility, wastewater flow into and from each treatment unit, and wastewater flow to each outfall/point of disposal.

Attachment: M

Item 3. Impoundments (Instructions, Page 40)

Does the facility use or plan to use any wastewater impoundments (e.g., lagoons or ponds?)

☒ Yes ☐ No

If **no**, proceed to Item 4. If **yes**, complete **Item 3.a** for **existing** impoundments and **Items 3.a - 3.e** for **new or proposed** impoundments. **NOTE:** See instructions, Pages 40-42, for additional information on the attachments required by Items 3.a – 3.e.

a. Complete the table with the following information for each existing, new, or proposed impoundment. Attach additional copies of the Impoundment Information table, if needed.

Use Designation: Indicate the use designation for each impoundment as Treatment (**T**), Disposal (**D**), Containment (**C**), or Evaporation (**E**).

Associated Outfall Number: Provide an outfall number if a discharge occurs or will occur.

Liner Type: Indicate the liner type as Compacted clay liner (**C**), In-situ clay liner (**I**), Synthetic/plastic/rubber liner (**S**), or Alternate liner (**A**). **NOTE:** See instructions for further detail on liner specifications. If an alternate liner (A) is selected, include an attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

Leak Detection System: If any leak detection systems are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no.

Groundwater Monitoring Wells and Data: If groundwater monitoring wells are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no. Attach any existing groundwater monitoring data.

Dimensions: Provide the dimensions, freeboard, surface area, storage capacity of the impoundments, and the maximum depth (not including freeboard). For impoundments with irregular shapes, submit surface area instead of length and width.

Compliance with 40 CFR Part 257, Subpart D: If the impoundment is required to be in compliance with 40 CFR Part 257, Subpart D, enter **Y** for yes. Otherwise, enter **N** for no.

Date of Construction: Enter the date construction of the impoundment commenced (mm/dd/yy).

Impoundment Information

Parameter	**Pond # 1**	**Pond #**	**Pond #**	**Pond #**
Use Designation: (T) (D) (C) or (E)	C			
Associated Outfall Number	NA			
Liner Type (C) (I) (S) or (A)	C			
Alt. Liner Attachment Reference	NA			
Leak Detection System, Y/N	N			
Groundwater Monitoring Wells, Y/N	N			
Groundwater Monitoring Data Attachment	NA			
Pond Bottom Located Above The Seasonal High-Water Table, Y/N	Y			
Length (ft)	500			
Width (ft)	300			
Max Depth From Water Surface (ft), Not Including Freeboard	12			
Freeboard (ft)	2			
Surface Area (acres)	3.44			
Storage Capacity (gallons)	12,000,000			
40 CFR Part 257, Subpart D, Y/N	N			
Date of Construction	TBD			

Attachment: Click to enter text.

The following information (**Items 3.b – 3.e**) is required only for **new or proposed** impoundments.

b. For new or proposed impoundments, attach any available information on the following items. If attached, check **yes** in the appropriate box. Otherwise, check **no** or **not yet designed**.

1. Liner data

☐ Yes ☐ No ☒ Not yet designed

2. Leak detection system or groundwater monitoring data

☐ Yes ☒ No ☐ Not yet designed

3. Groundwater impacts

☐ Yes ☒ No ☐ Not yet designed

NOTE: Item b.3 is required if the bottom of the pond is not above the seasonal high-water table in the shallowest water-bearing zone.

Attachment: Click to enter text.

For TLAP applications: Items 3.c – 3.e are **not required**, continue to Item 4.

c. Attach a USGS map or a color copy of original quality and scale which accurately locates and identifies all known water supply wells and monitor wells within ½-mile of the impoundments.

Attachment: Click to enter text.

d. Attach copies of State Water Well Reports (e.g., driller's logs, completion data, etc.), and data on depths to groundwater for all known water supply wells including a description of how the depths to groundwater were obtained.

Attachment: Click to enter text.

e. Attach information pertaining to the groundwater, soils, geology, pond liner, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment: Click to enter text.

Item 4. Outfall/Disposal Method Information (Instructions, Page 42)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge, and for each point of disposal for TLAP operations.

If there are more outfalls/points of disposal at the facility than the spaces provided, copies of pages 6 and/0r numbered accordingly (i.e., page 6a, 6b, etc.) may be used to provide information on the additional outfalls.

For TLAP applications: Indicate the disposal method and each individual irrigation area **I**, evaporation pond **E**, or subsurface drainage system **S** by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for **Outfall** number (e.g. **E1** for evaporation pond 1, **I2** for irrigation area No. 2, etc.).

Outfall Longitude and Latitude

Outfall No.	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
	See Attachment N	

Outfall Location Description

Outfall No.	Location Description

Description of Sampling Point(s) (if different from Outfall location)

Outfall No.	Description of sampling point

Outfall Flow Information – Permitted and Proposed

Outfall No.	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)	Anticipated Discharge Date (mm/dd/yy)

Outfall Discharge – Method and Measurement

Outfall No.	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used

Outfall Discharge – Flow Characteristics

Outfall No.	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)

Outfall Wastestream Contributions

Outfall No. Click to enter text.

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow

Outfall No. Click to enter text.

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Digestate liquid	0.056224	100

Outfall No. Click to enter text.

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow

Attachment: Click to enter text.

Item 5. Blowdown and Once-Through Cooling Water Discharges (Instructions, Page 43)

a. Indicate if the facility currently or proposes to:

☐ Yes ☒ No Use cooling towers that discharge blowdown or other wastestreams

☐ Yes ☒ No Use boilers that discharge blowdown or other wastestreams

☐ Yes ☒ No Discharge once-through cooling water

NOTE: If the facility uses or plans to use cooling towers or once-through cooling water, Item 12 **is required**.

b. If **yes** to any of the above, attach an SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product or active ingredient, as appropriate, in wastestream.

In addition to each SDS, attach a summary of the above information for each specific wastestream and the associated chemical additives. Specify which outfalls are affected.

Attachment: Click to enter text.

c. Cooling Towers and Boilers

If the facility currently or proposes to use cooling towers or boilers that discharge blowdown or other wastestreams to the outfall(s), complete the following table.

Cooling Towers and Boilers

Type of Unit	Number of Units	Daily Avg Blowdown (gallons/day)	Daily Max Blowdown (gallons/day)
Cooling Towers			
Boilers			

Item 6. Stormwater Management (Instructions, Page 44)

Will any existing/proposed outfalls discharge stormwater associated with industrial activities, as defined at *40 CFR § 122.26(b)(14)*, commingled with any other wastestream?

☐ Yes ☒ No

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in a manner which may result in exposure of the activities or materials to stormwater: Click to enter text.

Item 7. Domestic Sewage, Sewage Sludge, and Septage Management and Disposal (Instructions, Page 44)

Domestic Sewage - Waste and wastewater from humans or household operations that is discharged to a wastewater collection system or otherwise enters a treatment works.

a. Check the box next to the appropriate method of domestic sewage and domestic sewage sludge treatment or disposal. Complete Worksheet 5.0 or Item 7.b if directed to do so.

☐ Domestic sewage is routed (i.e., connected to or transported to) to a WWTP permitted to receive domestic sewage for treatment, disposal, or both. Complete Item 7.b.

☐ Domestic sewage disposed of by an on-site septic tank and drainfield system. Complete Item 7.b.

☐ Domestic and industrial treatment sludge ARE commingled prior to use or disposal.

☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge IS NOT commingled prior to sludge use or disposal. Complete Worksheet 5.0.

☐ Facility is a POTW. Complete Worksheet 5.0.

☒ Domestic sewage is not generated on-site.

☐ Other (e.g., portable toilets), specify and Complete Item 7.b: Click to enter text.

b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.

Item 8. Improvements or Compliance/Enforcement Requirements (Instructions, Page 45)

a. Is the permittee currently required to meet any implementation schedule for compliance or enforcement?

☐ Yes ☒ No

b. Has the permittee completed or planned for any improvements or construction projects?

☐ Yes ☒ No

c. If **yes** to either 8.a **or** 8.b, provide a brief summary of the requirements and a status update: Click to enter text.

Item 9. Toxicity Testing (Instructions, Page 45)

Have any biological tests for acute or chronic toxicity been made on any of the discharges or on a receiving water in relation to the discharge within the last three years?

☐ Yes ☒ No

If **yes**, identify the tests and describe their purposes: Click to enter text.

Additionally, attach a copy of all tests performed which **have not** been submitted to the TCEQ or EPA. **Attachment:** Click to enter text.

Item 10. Off-Site/Third Party Wastes (Instructions, Page 45)

a. Does or will the facility receive wastes from off-site sources for treatment at the facility, disposal on-site via land application, or discharge via a permitted outfall?

☒ Yes ☐ No

If **yes**, provide responses to Items 10.b through 10.d below.

If **no**, proceed to Item 11.

b. Attach the following information to the application:

- List of wastes received (including volumes, characterization, and capability with on-site wastes).
- Identify the sources of wastes received (including the legal name and addresses of the generators).
- Description of the relationship of waste source(s) with the facility's activities.

Attachment: O

c. Is or will wastewater from another TCEQ, NPDES, or TPDES permitted facility commingled with this facility's wastewater after final treatment and prior to discharge via the final outfall/point of disposal?

☐ Yes ☒ No

If **yes**, provide the name, address, and TCEQ, NPDES, or TPDES permit number of the contributing facility and a copy of any agreements or contracts relating to this activity.

Attachment: Click to enter text.

d. Is this facility a POTW that accepts/will accept process wastewater from any SIU and has/is required to have an approved pretreatment program under the NPDES/TPDES program?

☐ Yes ☒ No

If **yes**, **Worksheet 6.0** of this application **is required**.

Item 11. Radioactive Materials (Instructions, Page 46)

a. Are/will radioactive materials be mined, used, stored, or processed at this facility?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L.

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material Name	Concentration (pCi/L)

Radioactive Material Name	Concentration (pCi/L)

b. Does the applicant or anyone at the facility have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L. Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material Name	Concentration (pCi/L)

Item 12. Cooling Water (Instructions, Page 46)

a. Does the facility use or propose to use water for cooling purposes?

☐ Yes ☒ No

If **no**, stop here. If **yes**, complete Items 12.b thru 12.f.

b. Cooling water is/will be obtained from a groundwater source (e.g., on-site well).

☐ Yes ☐ No

If **yes**, stop here. If **no**, continue.

c. Cooling Water Supplier

1. Provide the name of the owner(s) and operator(s) for the CWIS that supplies or will supply water for cooling purposes to the facility.

Cooling Water Intake Structure(s) Owner(s) and Operator(s)

CWIS ID				
Owner				
Operator				

2. Cooling water is/will be obtained from a Public Water Supplier (PWS)

☐ Yes ☐ No

If **no**, continue. If **yes**, provide the PWS Registration No. and stop here: PWS No. Click to enter text.

3. Cooling water is/will be obtained from a reclaimed water source?

☐ Yes ☐ No

If **no**, continue. If **yes**, provide the Reuse Authorization No. and stop here: Click to enter text.

4. Cooling water is/will be obtained from an Independent Supplier

☐ Yes ☐ No

If **no**, proceed to Item 12.d. If **yes**, provide the actual intake flow of the Independent Supplier's CWIS that is/will be used to provide water for cooling purposes and proceed: Click to enter text.

d. 316(b) General Criteria

1. The CWIS(s) used to provide water for cooling purposes to the facility has or will have a cumulative design intake flow of 2 MGD or greater.

☐ Yes ☐ No

2. At least 25% of the total water withdrawn by the CWIS is/will be used at the facility exclusively for cooling purposes on an annual average basis.

☐ Yes ☐ No

3. The CWIS(s) withdraw(s)/propose(s) to withdraw water for cooling purposes from surface waters that meet the definition of Waters of the United States in *40 CFR § 122.2*.

☐ Yes ☐ No

If **no**, provide an explanation of how the waterbody does not meet the definition of Waters of the United States in *40 CFR § 122.2*: Click to enter text.

If **yes** to all three questions in Item 12.d, the facility **meets** the minimum criteria to be subject to the full requirements of Section 316(b) of the CWA. Proceed to **Item 12.f**.

If **no** to any of the questions in Item 12.d, the facility **does not meet** the minimum criteria to be subject to the full requirements of Section 316(b) of the CWA; however, a determination is required based upon BPJ. Proceed to **Item 12.e**.

e. The facility does not meet the minimum requirements to be subject to the fill requirements of Section 316(b) **and uses**/proposes **to use cooling towers**.

☐ Yes ☐ No

If **yes**, stop here. If **no**, complete Worksheet 11.0, Items 1.a, 1.b.1-3 and 6, 2.b.1, and 3.a to allow for a determination based upon BPJ.

f. Oil and Gas Exploration and Production

1. The facility is subject to requirements at 40 CFR Part 435, Subparts A or D.

☐ Yes ☐ No

If **yes**, continue. If **no**, skip to Item 12.g.

2. The facility is an existing facility as defined at 40 CFR § 125.92(k) or a new unit at an existing facility as defined at 40 CFR § 125.92(u).

☐ Yes ☐ No

If **yes**, complete Worksheet 11.0, Items 1.a, 1.b.1-3 and 6, 2.b.1, and 3.a to allow for a determination based upon BPJ. If **no**, skip to Item 12.g.3.

g. Compliance Phase and Track Selection

1. Phase I – New facility subject to 40 CFR Part 125, Subpart I

☐ Yes ☐ No

If **yes**, check the box next to the compliance track selection, attach the requested information, and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2.

☐ Track I – AIF greater than 2 MGD, but less than 10 MGD

- Attach information required by *40 CFR §§ 125.86(b)(2)-(4)*.

☐ Track I – AIF greater than 10 MGD

- Attach information required by *40 CFR § 125.86(b)*.

☐ Track II

- Attach information required by *40 CFR § 125.86(c)*.

Attachment: Click to enter text.

2. Phase II – Existing facility subject to 40 CFR Part 125, Subpart J

☐ Yes ☐ No

If **yes**, complete Worksheets 11.0 through 11.3, as applicable.

3. Phase III – New facility subject to 40 CFR Part 125, Subpart N

☐ Yes ☐ No

If **yes**, check the box next to the compliance track selection and provide the requested information.

☐ Track I – Fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2.

☐ Track I – Not a fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Item 2 (except CWIS latitude/longitude under Item 2.a).

☐ Track II – Fixed facility

- Attach information required by 40 CFR § 125.136(c) and complete Worksheet 11.0, Items 2 and 3.

Attachment: Click to enter text.

Item 13. Permit Change Requests (Instructions, Page 48)

This item is only applicable to existing permitted facilities.

a. Is the facility requesting a **major amendment** of an existing permit?

☐ Yes ☒ No

If **yes**, list each request individually and provide the following information: 1) detailed information regarding the scope of each request and 2) a justification for each request. Attach any supplemental information or additional data to support each request.

Click to enter text.

b. Is the facility requesting any **minor amendments** to the permit?

☐ Yes ☒ No

If **yes**, list and describe each change individually.

Click to enter text.

c. Is the facility requesting any **minor modifications** to the permit?

☐ Yes ☒ No

If **yes**, list and describe each change individually.

Click to enter text.

Item 14. Laboratory Accreditation (Instructions, Page 49)

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: NA not operating

Title: Click to enter text.

Signature: _____

Date: _____

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 1.0: EPA CATEGORICAL EFFLUENT GUIDELINES

This worksheet **is required** for all applications for TPDES permits for discharges of wastewaters subject to EPA categorical effluent limitation guidelines (ELGs).

Item 1. Categorical Industries (Instructions, Page 53)

Is this facility subject to any 40 CFR categorical ELGs outlined on page 53 of the instructions?

☐ Yes ☒ No

If **no**, this worksheet is not required. If **yes**, provide the appropriate information below.

40 CFR Effluent Guideline

Industry	40 CFR Part

Item 2. Production/Process Data (Instructions, Page 54)

NOTE: For all TPDES permit applications requesting individual permit coverage for discharges of oil and gas exploration and production wastewater (discharges into or adjacent to water in the state, falling under the Oil and Gas Extraction Effluent Guidelines – 40 CFR Part 435), see Worksheet 12.0, Item 2 instead.

a. Production Data

Provide appropriate data for effluent guidelines with production-based effluent limitations.

Production Data

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units

b. Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Data (40 CFR Part 414)

Provide each applicable subpart and the percent of total production. Provide data for metal-bearing and cyanide-bearing wastestreams, as required by *40 CFR Part 414, Appendices A and B*.

Percentage of Total Production

Subcategory	Percent of Total Production	Appendix A and B - Metals	Appendix A - Cyanide

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

Click to enter text.

Item 3. Process/Non-Process Wastewater Flows (Instructions, Page 54)

Provide a breakdown of wastewater flow(s) generated by the facility, including both process and non-process wastewater flow(s). Specify which wastewater flows are to be authorized for discharge under this permit and the disposal practices for wastewater flows, excluding domestic, which are not to be authorized for discharge under this permit.

Click to enter text.

Item 4. New Source Determination (Instructions, Page 54)

Provide a list of all wastewater-generating processes subject to EPA categorical ELGs, identify the appropriate guideline Part and Subpart, and provide the date the process/construction commenced.

Wastewater Generating Processes Subject to Effluent Guidelines

Process	EPA Guideline Part	EPA Guideline Subpart	Date Process/ Construction Commenced

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: POLLUTANT ANALYSIS

Worksheet 2.0 **is required** for all applications submitted for a TPDES permit. Worksheet 2.0 is not required for applications for a permit to dispose of all wastewater by land disposal or for discharges solely of stormwater associated with industrial activities.

Item 1. General Testing Requirements (Instructions, Page 55)

a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): NA

b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.

c. Read the general testing requirements in the instructions for important information about sampling, test methods, and MALs. If a contact laboratory was used, attach a list which includes the name, contact information, and pollutants analyzed for each laboratory/firm. **Attachment:** NA

Item 2. Specific Testing Requirements (Instructions, Page 56)

Attach correspondence from TCEQ approving submittal of less than the required number of samples, if applicable. **Attachment:** Click to enter text.

TABLE 1 and TABLE 2 (Instructions, Page 58)

Completion of Tables 1 and 2 is required for all external outfalls for all TPDES permit applications.

Table 1 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1 (mg/L)**	**Sample 2 (mg/L)**	**Sample 3 (mg/L)**	**Sample 4 (mg/L)**
BOD (5-day)				
CBOD (5-day)				
Chemical oxygen demand				
Total organic carbon				
Dissolved oxygen				
Ammonia nitrogen				
Total suspended solids				
Nitrate nitrogen				
Total organic nitrogen				
Total phosphorus				
Oil and grease				
Total residual chlorine				
Total dissolved solids				

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
Sulfate				
Chloride				
Fluoride				
Total alkalinity (mg/L as CaCO3)				
Temperature (°F)				
pH (standard units)				

Table 2 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total					2.5
Antimony, total					5
Arsenic, total					0.5
Barium, total					3
Beryllium, total					0.5
Cadmium, total					1
Chromium, total					3
Chromium, hexavalent					3
Chromium, trivalent					N/A
Copper, total					2
Cyanide, available					2/10
Lead, total					0.5
Mercury, total					0.005/0.0005
Nickel, total					2
Selenium, total					5
Silver, total					0.5
Thallium, total					0.5
Zinc, total					5.0

TABLE 3 (Instructions, Page 58)

Completion of Table 3 **is required** for all **external outfalls** which discharge process wastewater.

Partial completion of Table 3 **is required** for all **external outfalls** which discharge non-process wastewater and stormwater associated with industrial activities commingled with other wastestreams (see instructions for additional guidance).

Table 3 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1 (µg/L)***	**Sample 2 (µg/L)***	**Sample 3 (µg/L)***	**Sample 4 (µg/L)***	**MAL (µg/L)***
Acrylonitrile					50
Anthracene					10
Benzene					10
Benzidine					50
Benzo(a)anthracene					5
Benzo(a)pyrene					5
Bis(2-chloroethyl)ether					10
Bis(2-ethylhexyl)phthalate					10
Bromodichloromethane [Dichlorobromomethane]					10
Bromoform					10
Carbon tetrachloride					2
Chlorobenzene					10
Chlorodibromomethane [Dibromochloromethane]					10
Chloroform					10
Chrysene					5
m-Cresol [3-Methylphenol]					10
o-Cresol [2-Methylphenol]					10
p-Cresol [4-Methylphenol]					10
1,2-Dibromoethane					10
m-Dichlorobenzene [1,3-Dichlorobenzene]					10
o-Dichlorobenzene [1,2-Dichlorobenzene]					10
p-Dichlorobenzene [1,4-Dichlorobenzene]					10
3,3'-Dichlorobenzidine					5
1,2-Dichloroethane					10
1,1-Dichloroethene					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
[1,1-Dichloroethylene]					
Dichloromethane [Methylene chloride]					20
1,2-Dichloropropane					10
1,3-Dichloropropene [1,3-Dichloropropylene]					10
2,4-Dimethylphenol					10
Di-n-Butyl phthalate					10
Ethylbenzene					10
Fluoride					500
Hexachlorobenzene					5
Hexachlorobutadiene					10
Hexachlorocyclopentadiene					10
Hexachloroethane					20
Methyl ethyl ketone					50
Nitrobenzene					10
N-Nitrosodiethylamine					20
N-Nitroso-di-n-butylamine					20
Nonylphenol					333
Pentachlorobenzene					20
Pentachlorophenol					5
Phenanthrene					10
Polychlorinated biphenyls (PCBs) (**)					0.2
Pyridine					20
1,2,4,5-Tetrachlorobenzene					20
1,1,2,2-Tetrachloroethane					10
Tetrachloroethene [Tetrachloroethylene]					10
Toluene					10
1,1,1-Trichloroethane					10
1,1,2-Trichloroethane					10
Trichloroethene [Trichloroethylene]					10
2,4,5-Trichlorophenol					50
TTHM (Total trihalomethanes)					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Vinyl chloride					10

(*) Indicate units if different from µg/L.

(**) Total of detects for PCB-1242, PCB-1254, PCB-1221, PCB-1232, PCB-1248, PCB-1260, and PCB-1016. If all non-detects, enter the highest non-detect preceded by a "<".

TABLE 4 (Instructions, Pages 58-59)

Partial completion of Table 4 **is required** for each **external outfall** based on the conditions below.

a. **Tributyltin**

Is this facility an industrial/commercial facility which currently or proposes to directly dispose of wastewater from the types of operations listed below or a domestic facility which currently or proposes to receive wastewater from the types of industrial/commercial operations listed below?

☐ Yes ☐ No

If **yes**, check the box next to each of the following criteria which apply and provide the appropriate testing results in Table 4 below (check all that apply).

☐ Manufacturers and formulators of tributyltin or related compounds.

☐ Painting of ships, boats and marine structures.

☐ Ship and boat building and repairing.

☐ Ship and boat cleaning, salvage, wrecking and scaling.

☐ Operation and maintenance of marine cargo handling facilities and marinas.

☐ Facilities engaged in wood preserving.

☐ Any other industrial/commercial facility for which tributyltin is known to be present, or for which there is any reason to believe that tributyltin may be present in the effluent.

b. **Enterococci (discharge to saltwater)**

This facility discharges/proposes to discharge directly into saltwater receiving waters **and** Enterococci bacteria are expected to be present in the discharge based on facility processes.

☐ Yes ☐ No

Domestic wastewater is/will be discharged.

☐ Yes ☐ No

If **yes to either** question, provide the appropriate testing results in Table 4 below.

c. E. coli (discharge to freshwater)

This facility discharges/proposes to discharge directly into freshwater receiving waters **and** *E. coli* bacteria are expected to be present in the discharge based on facility processes.

☐ Yes ☐ No

Domestic wastewater is/will be discharged.

☐ Yes ☐ No

If **yes to either** question, provide the appropriate testing results in Table 4 below.

Table 4 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1**	**Sample 2**	**Sample 3**	**Sample 4**	**MAL**
Tributyltin (µg/L)					0.010
Enterococci (cfu or MPN/100 mL)					N/A
E. coli (cfu or MPN/100 mL)					N/A

TABLE 5 (Instructions, Page 59)

Completion of Table 5 **is required** for all **external outfalls** which discharge process wastewater from a facility which manufactures or formulates pesticides or herbicides or other wastewaters which may contain pesticides or herbicides.

If this facility does not/will not manufacture or formulate pesticides or herbicides and does not/will not discharge other wastewaters that may contain pesticides or herbicides, check N/A.

☐ N/A

Table 5 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1 (µg/L)***	**Sample 2 (µg/L)***	**Sample 3 (µg/L)***	**Sample 4 (µg/L)***	**MAL (µg/L)***
Aldrin					0.01
Carbaryl					5
Chlordane					0.2
Chlorpyrifos					0.05
4,4'-DDD					0.1
4,4'-DDE					0.1
4,4'-DDT					0.02
2,4-D					0.7
Danitol [Fenpropathrin]					—
Demeton					0.20
Diazinon					0.5/0.1
Dicofol [Kelthane]					1
Dieldrin					0.02
Diuron					0.090
Endosulfan I (*alpha*)					0.01
Endosulfan II (*beta*)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Guthion [Azinphos methyl]					0.1

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Heptachlor					0.01
Heptachlor epoxide					0.01
Hexachlorocyclohexane (*alpha*)					0.05
Hexachlorocyclohexane (*beta*)					0.05
Hexachlorocyclohexane (*gamma*) [Lindane]					0.05
Hexachlorophene					10
Malathion					0.1
Methoxychlor					2.0
Mirex					0.02
Parathion (ethyl)					0.1
Toxaphene					0.3
2,4,5-TP [Silvex]					0.3

* Indicate units if different from µg/L.

TABLE 6 (Instructions, Page 59)

Completion of Table 6 **is required** for all **external outfalls**.

Table 6 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutants	**Believed Present**	**Believed Absent**	**Sample 1 (mg/L)**	**Sample 2 (mg/L)**	**Sample 3 (mg/L)**	**Sample 4 (mg/L)**	**MAL (µg/L)***
Bromide	☐	☐					400
Color (PCU)	☐	☐					—
Nitrate-Nitrite (as N)	☐	☐					—
Sulfide (as S)	☐	☐					—
Sulfite (as SO3)	☐	☐					—
Surfactants	☐	☐					—
Boron, total	☐	☐					20
Cobalt, total	☐	☐					0.3
Iron, total	☐	☐					7
Magnesium, total	☐	☐					20
Manganese, total	☐	☐					0.5
Molybdenum, total	☐	☐					1
Tin, total	☐	☐					5
Titanium, total	☐	☐					30

TABLE 7 (Instructions, Page 60)

Check the box next to any of the industrial categories applicable to this facility. If no categories are applicable, check N/A. If GC/MS testing is required, check the box provided to confirm the testing results for the appropriate parameters are provided with the application.

☐ N/A

Table 7 for Applicable Industrial Categories

Industrial Category	40 CFR Part	Volatiles Table 8	Acids Table 9	Bases/ Neutrals Table 10	Pesticides Table 11
☐ Adhesives and Sealants		☐ Yes	☐ Yes	☐ Yes	No
☐ Aluminum Forming	467	☐ Yes	☐ Yes	☐ Yes	No
☐ Auto and Other Laundries		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Battery Manufacturing	461	☐ Yes	No	☐ Yes	No
☐ Coal Mining	434	No	No	No	No
☐ Coil Coating	465	☐ Yes	☐ Yes	☐ Yes	No
☐ Copper Forming	468	☐ Yes	☐ Yes	☐ Yes	No
☐ Electric and Electronic Components	469	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Electroplating	413	☐ Yes	☐ Yes	☐ Yes	No
☐ Explosives Manufacturing	457	No	☐ Yes	☐ Yes	No
☐ Foundries		☐ Yes	☐ Yes	☐ Yes	No
☐ Gum and Wood Chemicals - Subparts A,B,C,E	454	☐ Yes	☐ Yes	No	No
☐ Gum and Wood Chemicals - Subparts D,F	454	☐ Yes	☐ Yes	☐ Yes	No
☐ Inorganic Chemicals Manufacturing	415	☐ Yes	☐ Yes	☐ Yes	No
☐ Iron and Steel Manufacturing	420	☐ Yes	☐ Yes	☐ Yes	No
☐ Leather Tanning and Finishing	425	☐ Yes	☐ Yes	☐ Yes	No
☐ Mechanical Products Manufacturing		☐ Yes	☐ Yes	☐ Yes	No
☐ Nonferrous Metals Manufacturing	421,471	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Oil and Gas Extraction - Subparts A, D, E, F, G, H	435	☐ Yes	☐ Yes	☐ Yes	No
☐ Ore Mining - Subpart B	440	No	☐ Yes	No	No
☐ Organic Chemicals Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Paint and Ink Formulation	446,447	☐ Yes	☐ Yes	☐ Yes	No
☐ Pesticides	455	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Petroleum Refining	419	☐ Yes	No	No	No
☐ Pharmaceutical Preparations	439	☐ Yes	☐ Yes	☐ Yes	No
☐ Photographic Equipment and Supplies	459	☐ Yes	☐ Yes	☐ Yes	No
☐ Plastic and Synthetic Materials Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Plastic Processing	463	☐ Yes	No	No	No
☐ Porcelain Enameling	466	No	No	No	No
☐ Printing and Publishing		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Pulp and Paperboard Mills - Subpart C	430	☐ *	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subparts F, K	430	☐ *	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts A, B, D, G, H	430	☐ Yes	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts I, J, L	430	☐ Yes	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subpart E	430	☐ Yes	☐ Yes	☐ Yes	☐ *
☐ Rubber Processing	428	☐ Yes	☐ Yes	☐ Yes	No
☐ Soap and Detergent Manufacturing	417	☐ Yes	☐ Yes	☐ Yes	No
☐ Steam Electric Power Plants	423	☐ Yes	☐ Yes	No	No
☐ Textile Mills (Not Subpart C)	410	☐ Yes	☐ Yes	☐ Yes	No
☐ Timber Products Processing	429	☐ Yes	☐ Yes	☐ Yes	☐ Yes

* Test if believed present.

TABLES 8, 9, 10, and 11 (Instructions, Page 60)

Completion of Tables 8, 9, 10, and 11 **is required** as specified in Table 7 for all **external outfalls** that contain process wastewater.

Completion of Tables 8, 9, 10, and 11 **may be required** for types of industry not specified in Table 7 for specific parameters that are believed to be present in the wastewater.

Table 8 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1 (µg/L)***	**Sample 2 (µg/L)***	**Sample 3 (µg/L)***	**Sample 4 (µg/L)***	**MAL (µg/L)**
Acrolein					50
Acrylonitrile					50
Benzene					10
Bromoform					10
Carbon tetrachloride					2
Chlorobenzene					10
Chlorodibromomethane					10
Chloroethane					50
2-Chloroethylvinyl ether					10
Chloroform					10
Dichlorobromomethane [Bromodichloromethane]					10
1,1-Dichloroethane					10
1,2-Dichloroethane					10
1,1-Dichloroethylene [1,1-Dichloroethene]					10
1,2-Dichloropropane					10
1,3-Dichloropropylene [1,3-Dichloropropene]					10
Ethylbenzene					10
Methyl bromide [Bromomethane]					50
Methyl chloride [Chloromethane]					50
Methylene chloride [Dichloromethane]					20
1,1,2,2-Tetrachloroethane					10
Tetrachloroethylene [Tetrachloroethene]					10
Toluene					10
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]					10
1,1,1-Trichloroethane					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
1,1,2-Trichloroethane					10
Trichloroethylene [Trichloroethene]					10
Vinyl chloride					10

* Indicate units if different from µg/L.

Table 9 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
2-Chlorophenol					10
2,4-Dichlorophenol					10
2,4-Dimethylphenol					10
4,6-Dinitro-o-cresol					50
2,4-Dinitrophenol					50
2-Nitrophenol					20
4-Nitrophenol					50
p-Chloro-m-cresol					10
Pentachlorophenol					5
Phenol					10
2,4,6-Trichlorophenol					10

* Indicate units if different from µg/L.

Table 10 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Acenaphthene					10
Acenaphthylene					10
Anthracene					10
Benzidine					50
Benzo(a)anthracene					5
Benzo(a)pyrene					5
3,4-Benzofluoranthene [Benzo(b)fluoranthene]					10
Benzo(ghi)perylene					20
Benzo(k)fluoranthene					5
Bis(2-chloroethoxy)methane					10
Bis(2-chloroethyl)ether					10
Bis(2-chloroisopropyl)ether					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Bis(2-ethylhexyl)phthalate					10
4-Bromophenyl phenyl ether					10
Butylbenzyl phthalate					10
2-Chloronaphthalene					10
4-Chlorophenyl phenyl ether					10
Chrysene					5
Dibenzo(a,h)anthracene					5
1,2-Dichlorobenzene [o-Dichlorobenzene]					10
1,3-Dichlorobenzene [m-Dichlorobenzene]					10
1,4-Dichlorobenzene [p-Dichlorobenzene]					10
3,3'-Dichlorobenzidine					5
Diethyl phthalate					10
Dimethyl phthalate					10
Di-n-butyl phthalate					10
2,4-Dinitrotoluene					10
2,6-Dinitrotoluene					10
Di-n-octyl phthalate					10
1,2-Diphenylhydrazine (as Azobenzene)					20
Fluoranthene					10
Fluorene					10
Hexachlorobenzene					5
Hexachlorobutadiene					10
Hexachlorocyclopentadiene					10
Hexachloroethane					20
Indeno(1,2,3-cd)pyrene					5
Isophorone					10
Naphthalene					10
Nitrobenzene					10
N-Nitrosodimethylamine					50
N-Nitrosodi-n-propylamine					20
N-Nitrosodiphenylamine					20
Phenanthrene					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Pyrene					10
1,2,4-Trichlorobenzene					10

* Indicate units if different from µg/L.

Table 11 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Aldrin					0.01
alpha-BHC [alpha-Hexachlorocyclohexane]					0.05
beta-BHC [beta-Hexachlorocyclohexane]					0.05
gamma-BHC [gamma-Hexachlorocyclohexane]					0.05
delta-BHC [delta-Hexachlorocyclohexane]					0.05
Chlordane					0.2
4,4'-DDT					0.02
4,4'-DDE					0.1
4,4'-DDD					0.1
Dieldrin					0.02
Endosulfan I (alpha)					0.01
Endosulfan II (beta)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Endrin aldehyde					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
PCB 1242					0.2
PCB 1254					0.2
PCB 1221					0.2
PCB 1232					0.2
PCB 1248					0.2
PCB 1260					0.2
PCB 1016					0.2
Toxaphene					0.3

* Indicate units if different from µg/L.

Attachment: Click to enter text.

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

Complete of Table 12 **is required** for **external outfalls**, as directed below. (Instructions, Pages 59-60)

Indicate which compound(s) are manufactured or used at the facility and provide a brief description of the conditions of its/their presence at the facility (check all that apply).

- ☐ 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) CASRN 93-76-5
- ☐ 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex, 2,4,5-TP) CASRN 93-72-1
- ☐ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon) CASRN 136-25-4
- ☐ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate (Ronnel) CASRN 299-84-3
- ☐ 2,4,5-trichlorophenol (TCP) CASRN 95-95-4
- ☐ hexachlorophene (HCP) CASRN 70-30-4
- ☐ None of the above

Description: Click to enter text.

Does the applicant or anyone at the facility know or have any reason to believe that 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) or any congeners of TCDD may be present in the effluent proposed for discharge?

☐ Yes ☐ No

Description: Click to enter text.

If **yes** to either Items a **or** b, complete Table 12 as instructed.

Table 12 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1					10
1,2,3,7,8-PeCDD	1.0					50
2,3,7,8-HxCDDs	0.1					50
1,2,3,4,6,7,8-HpCDD	0.01					50
2,3,7,8-TCDF	0.1					10
1,2,3,7,8-PeCDF	0.03					50
2,3,4,7,8-PeCDF	0.3					50
2,3,7,8-HxCDFs	0.1					50
2,3,4,7,8-HpCDFs	0.01					50

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					500
PCB 81	0.0003					500
PCB 126	0.1					500
PCB 169	0.03					500
Total						

TABLE 13 (HAZARDOUS SUBSTANCES)

Complete Table 13 **is required** for all **external outfalls** as directed below. (Instructions, Pages 60-61)

Are there any pollutants listed in the instructions (pages 55-62) believed present in the discharge?

☐ Yes ☐ No

Are there pollutants listed in Item 1.c. of Technical Report 1.0 which are believed present in the discharge and have not been analytically quantified elsewhere in this application?

☐ Yes ☐ No

If **yes** to either Items a **or** b, complete Table 13 as instructed.

Table 13 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	CASRN	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	Analytical Method

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND APPLICATION OF EFFLUENT

This worksheet **is required** for all applications for a permit to disposal of wastewater by land application (i.e., TLAP)).

Item 1. Type of Disposal System (Instructions, Page 69)

Check the box next to the type of land disposal requested by this application:

- ☒ Irrigation
- ☐ Evaporation
- ☐ Evapotranspiration beds
- ☐ Drip irrigation system
- ☐ Subsurface application
- ☐ Subsurface soils absorption
- ☒ Surface application
- ☐ Other, specify: Click to enter text.

Item 2. Land Application Area (Instructions, Page 69)

Land Application Area Information

Effluent Application (gallons/day)	Irrigation Acreage (acres)	Describe land use & indicate type(s) of crop(s)	Public Access? (Y/N)
56,224 gpd ann avg	4553	Corn, bermuda	N

Item 3. Annual Cropping Plan (Instructions, Page 69)

Attach the required cropping plan that includes each of the following:

- Cool and warm season plant species
- Breakdown of acreage and percent of total acreage for each crop
- Crop growing season
- Harvesting method/number of harvests
- Minimum/maximum harvest height
- Crop yield goals
- Soils map
- Nitrogen requirements per crop
- Additional fertilizer requirements
- Supplemental watering requirements
- Crop salt tolerances
- Justification for not removing existing vegetation to be irrigated

Attachment:P

Item 4. Well and Map Information (Instructions, Page 70)

a. Check each box to confirm the required information is shown and labeled on the attached USGS map:

☒ The exact boundaries of the land application area

☒ On-site buildings

☒ Waste-disposal or treatment facilities

☒ Effluent storage and tailwater control facilities

☒ Buffer zones

☒ All surface waters in the state onsite and within 500 feet of the property boundaries

☒ All water wells within ½-mile of the disposal site, wastewater ponds, or property boundaries

☒ All springs and seeps onsite and within 500 feet of the property boundaries

Attachment: Q

b. List and cross reference all water wells located on or within 500 feet of the disposal site, wastewater ponds, or property boundaries in the following table. Attach additional pages as necessary to include all of the wells.

Well and Map Information Table

Well ID	Well Use	Producing? Y/N/U	Open, cased, capped, or plugged?	Proposed Best Management Practice
	See Q			

Attachment: Q

c. Groundwater monitoring wells or lysimeters are/will be installed around the land application site or wastewater ponds.

☐ Yes ☒ No

If **yes**, provide the existing/proposed location of the monitoring wells or lysimeters on the site map attached for Item 4.a. Additionally, attach information on the depth of the wells or lysimeters, sampling schedule, and monitoring parameters for TCEQ review, possible modification, and approval.

Attachment: Click to enter text.

d. Attach a short groundwater technical report using *30 TAC § 309.20(a)(4)* as guidance.
Attachment:Q

Item 5. Soil Map and Soil Information (Instructions, Page 71)

Check each box to confirm that the following information is attached:

a. ☒ USDA NRCS Soil Survey Map depicting the area to be used for land application with the locations identified by fields and crops.

b. ☒ Breakdown of acreage and percent of total acreage for each soil type.

c. ☒ Copies of laboratory soil analyses. **Attachment:** Click to enter text.

Item 6. Effluent Monitoring Data (Instructions, Page 72)

a. Completion of Table 14 **is required** for all **renewal** and **major amendment** applications. Complete the table with monitoring data for the previous two years for all parameters regulated in the current permit. An additional table has been provided with blank headers for parameters regulated in the current permit which are not listed in Table 14.

Table 14 for Outfall No.: NA **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Date (mo/yr)	Daily Avg Flow (gpd)	BOD5 (mg/L)	TSS (mg/L)	Nitrogen (mg/L)	Conductivity (mmhos/cm)	Total acres irrigated	Hydraulic Application rate (acre-feet/month)

Date (mo/yr)	Daily Avg Flow (gpd)	BOD5 (mg/L)	TSS (mg/L)	Nitrogen (mg/L)	Conductivity (mmhos/cm)	Total acres irrigated	Hydraulic Application rate (acre-feet/month)

b. Use this table to provide effluent analysis for parameters regulated in the current permit which are not listed in Table 14.

Additional Parameter Effluent Analysis

Date (mo/yr)							

c. Attach an explanation of all persistent excursions to permitted parameters and corrective actions taken. **Attachment:** Click to enter text.

Item 7. Pollutant Analysis (Instructions, Page 72)

a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): NA

b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.

c. Complete Tables 15 and 16.

Table 15 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1 (mg/L)**	**Sample 2 (mg/L)**	**Sample 3 (mg/L)**	**Sample 4 (mg/L)**
BOD (5-day)				
CBOD (5-day)				
Chemical oxygen demand				
Total organic carbon				
Dissolved oxygen				
Ammonia nitrogen				
Total suspended solids				
Nitrate nitrogen				
Total organic nitrogen				
Total phosphorus				
Oil and grease				
Total residual chlorine				
Total dissolved solids				
Sulfate				
Chloride				
Fluoride				
Total alkalinity (mg/L as CaCO3)				
Temperature (˚F)				
pH (standard units)				

Table 16 for Outfall No.: Click to enter text. **Samples are (check one):** ☐ **Composite** ☐ **Grab**

Pollutant	**Sample 1 (µg/L)**	**Sample 2 (µg/L)**	**Sample 3 (µg/L)**	**Sample 4 (µg/L)**	**MAL (µg/L)**
Aluminum, total					2.5
Antimony, total					5
Arsenic, total					0.5
Barium, total					3
Beryllium, total					0.5

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Cadmium, total					1
Chromium, total					3
Chromium, hexavalent					3
Chromium, trivalent					N/A
Copper, total					2
Cyanide, available					2/10
Lead, total					0.5
Mercury, total					0.005/0.0005
Nickel, total					2
Selenium, total					5
Silver, total					0.5
Thallium, total					0.5
Zinc, total					5.0

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 3.1: SURFACE LAND APPLICATION AND APPLICATION

This worksheet **is required** for all applications for a permit to disposal of wastewater by surface land application or evaporation.

Item 1. Edwards Aquifer (Instructions, Page 73)

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

☐ Yes ☒ No

If **no**, proceed to Item 2. If **yes**, complete Items 1.b **and** 1.c.

b. Check the box next to the subchapter applicable to the facility.

☐ 30 TAC Chapter 213, Subchapter A

☐ 30 TAC Chapter 213, Subchapter B

c. If *30 TAC Chapter 213, Subchapter A* applies, attach **either**: 1) a Geologic Assessment (if conducted in accordance with *30 TAC § 213.5*) **or** 2) a report that contains the following:

- A description of the surface geological units within the proposed land application site and wastewater pond area.
- The location and extent of any sensitive recharge features in the land application site and wastewater pond area
- A list of any proposed BMPs to protect the recharge features.

Attachment: Click to enter text.

Item 2. Surface Spray/Irrigation (Instructions, Page 73)

a. Provide the following information on the irrigation operations:

Area under irrigation (acres): 4553

Design application rate (acre-ft/acre/yr): 0.022

Design application frequency (hours/day): 24

Design application frequency (days/week): 7

Design total nitrogen loading rate (lbs nitrogen/acre/year): 118.4

Average slope of the application area (percent): 4

Maximum slope of the application area (percent): 8

Irrigation efficiency (percent): 85

Effluent conductivity (mmhos/cm): 15

Soil conductivity (mmhos/cm): 4

Curve number: 74.3

Describe the application method and equipment: liquid spreader tankers

b. Attach a detailed engineering report which includes a water balance, storage volume calculations, and a nitrogen balance. **Attachment:** S

Item 3. Evaporation Ponds (Instructions, Page 74)

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

b. Attach a separate engineering report of evaporation calculations for average long-term and worst-case critical conditions. **Attachment:** Click to enter text.

Item 4. Evapotranspiration Beds (Instructions, Page 74)

a. Provide the following information on the evapotranspiration beds:

Number of beds: Click to enter text.

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

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

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

Storage volume within the beds (include units): Click to enter text.

Description of any lining to protect groundwater: Click to enter text.

b. Attach a certification by a licensed Texas professional engineer that the liner meets TCEQ requirements. **Attachment:** Click to enter text.

c. Attach a separate engineering report with water balance, storage volume calculations, and description of the liner. **Attachment:** Click to enter text.

Item 5. Overland Flow (Instructions, Page 74)

a. Provide the following information on the overland flow:

Area used for application (acres): Click to enter text.

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

Design application rate (gpm/foot of slope width): Click to enter text.

Slope length (feet): Click to enter text.

Design BOD5 loading rate (lbs BOD5/acre/day): Click to enter text.

Design application frequency (hours/day): Click to enter text.

Design application frequency (days/week): Click to enter text.

b. Attach a separate engineering report with the method of application and design requirements according to *30 TAC § 217.212*. **Attachment:** Click to enter text.

ATTACHMENT B

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

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

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 11/30/2024

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

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

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

Ellis AD 1, LLC

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

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

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

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

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

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

15. Mailing Address:

Ellis AD 1, LLC
133 Boston Post Road

City	Weston	**State**	MA	**ZIP**	02493	**ZIP + 4**	

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

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

(781) 232-7597	t4	( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Ellis AD 1, LLC

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

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

25. Description to Physical Location:	North side of Austonia Road, 1200 feet west of intersection of Austonia Road and Armstrong Road

26. Nearest City	**State**	**Nearest ZIP Code**
Italy	TX	

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

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	34	13.73	97	04	7.63

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

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

renewable natural gas

34. Mailing Address:							
	133 Boston Post Road						
	City	**Weston**	**State**	**MA**	**ZIP**	**02493**	**ZIP + 4**

35. E-Mail Address:	**development@vanguardrenewables.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(781) 232-7597	**ext 4**	( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
				SWR30132
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
			41130	1660012
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
	TXR05FR17			
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0000395000			

SECTION IV: Preparer Information

40. Name:	James Miertschin	41. Title:	Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 327-2708		(512) 327-2733	jm@jmaenv.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:	Ellis AD 1, LLC	Job Title:	VP of Development
Name *(In Print)*:	Kim Martin	Phone:	(781) 232- 7597
Signature:	K Martin	Date:	8/7/25

ATTACHMENT C

PUBLIC PLACES FOR APPLICATION

NAVARRO COUNTY

Corsicana Public Library

100 N. 12th St.

Corsicana, TX 75110

Phone: 903 654 4810

ELLIS COUNTY

S.M. Dunlap Library

300 W. Main St.

Italy, TX 76651

Phone: 972 483 6481

ATTACHMENT D

PLAIN LANGUAGE SUMMARY

Ellis AD 1, LLC plans to develop Ellis AD 1. Ellis AD 1 is a proposed anaerobic digestion facility located on the north side of Austonia Road, 1200 feet west of the intersection of Austonia Road and Armstrong Road, in Ellis County, Texas 75119. Ellis AD 1, LLC will be developing, constructing, owning and operating Ellis AD 1. The proposed facility will produce renewable natural gas and agricultural beneficial by-products.

This permit will not authorize a discharge of pollutants into waters of the state.

Anaerobic digestion is a process by which organic material, such as animal manure and food waste, is broken down by microbes in an enclosed environment to produce biogas. By combining food waste and manure, a smaller volume of manure can create enough biogas to make the system viable. Each digester tank will receive material from the hydrolysis tanks on a regular schedule. Materials transferred from the hydrolysis tanks to the digester tanks will include the food waste slurry. Manure will be transferred into the AD tank by tanker trucks as needed to maintain gas production. Once material is transferred into the digestion tank, it will be homogenized using mixers. In the digester the homogenous mix of manure and food waste is heated and resides in the tank for several days. While in the tanks, microbes break down the mixture in an anaerobic environment, resulting in the production of biogas, which is a combination of methane, carbon dioxide, hydrogen gas, and water vapor. The biogas that is collected in the headspace of the digesters will be routed through a gas conditioning, and upgrading system to remove impurities. This will result in pipeline quality natural gas. Digestate is the effluent discharged from the digesters. The digester tanks have a finite capacity, and as more organic waste, manure, or food waste is added, the processed material within the tanks needs to be removed. The removal of digestate from the digesters will occur throughout the day as needed to reduce the volume of material within the digester tanks. This material will be a nutrient-rich liquid digestate. The liquid digestate is stored in the onsite lagoon. The liquid will be applied to agricultural fields for crop fertilization

.

ATTACHMENT E

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.

Normal public notice publication should be adequate for TLAP application.

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.

This site will have anaerobic digesters to produce renewable natural gas from food waste and animal manure.

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 F

Lease preparation is in progress, to be provided as soon as available.

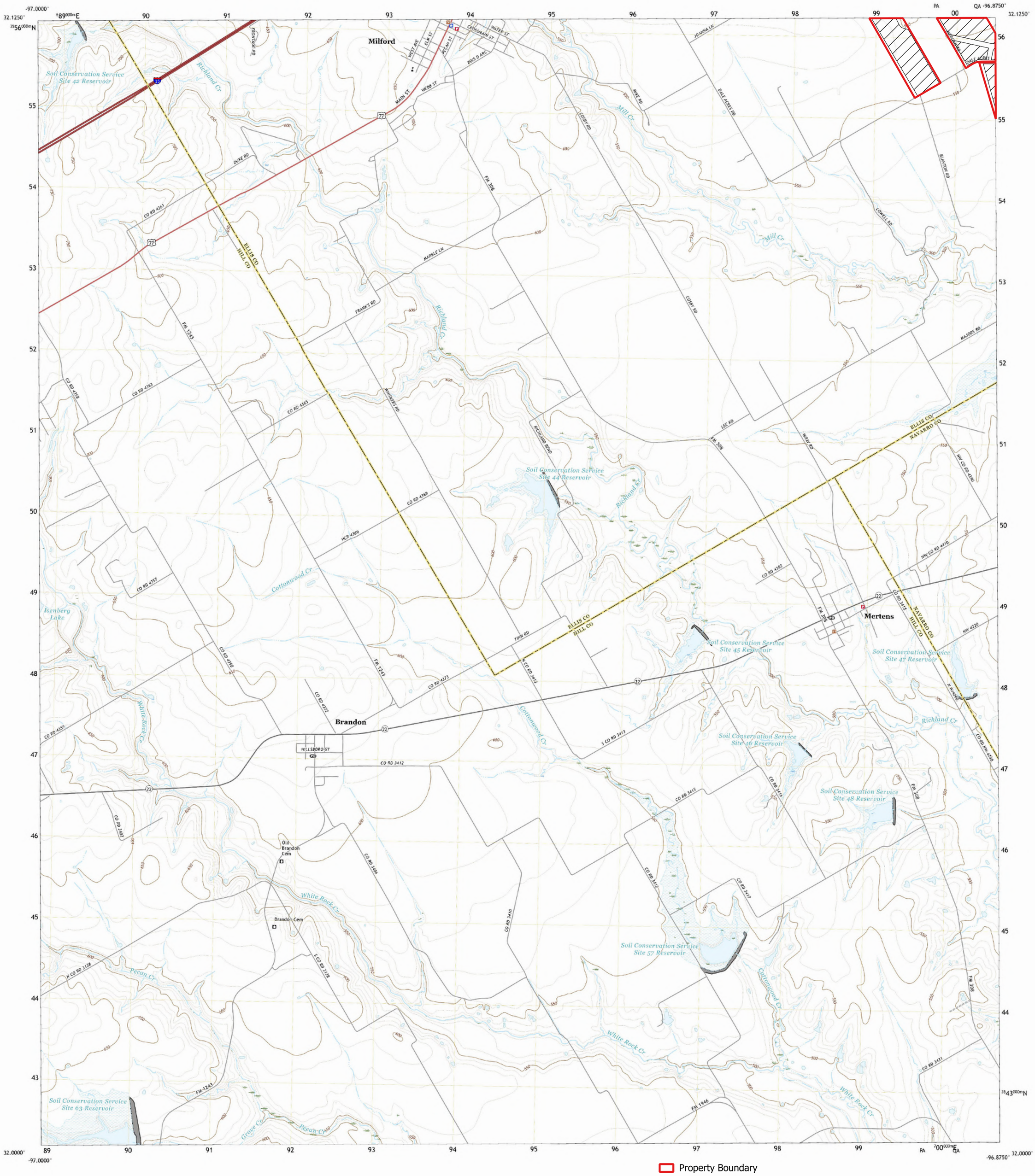
ATTACHMENT G

USGS science for a changing world

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

The National Map US Topo

MERTENS QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Property Boundary

Land Management Units

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 14S/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 - 2018
Names	GNIS,	1979 - 2022
Hydrography	National Hydrography Dataset,	2002 - 2018
Contours	National Elevation Dataset,	2004
Boundaries	Multiple sources; see metadata file	2019 - 2021
Wetlands	FWS National Wetlands Inventory	Not Available

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

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

TEXAS
QUADRANGLE LOCATION

ADJOINING QUADRANGLES
1 Flies Valley
2 Italy
3 Avalon
4 Hillsboro East
5 Frost
6 Abbott
7 Malone
8 Irene

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

MERTENS, TX
2022

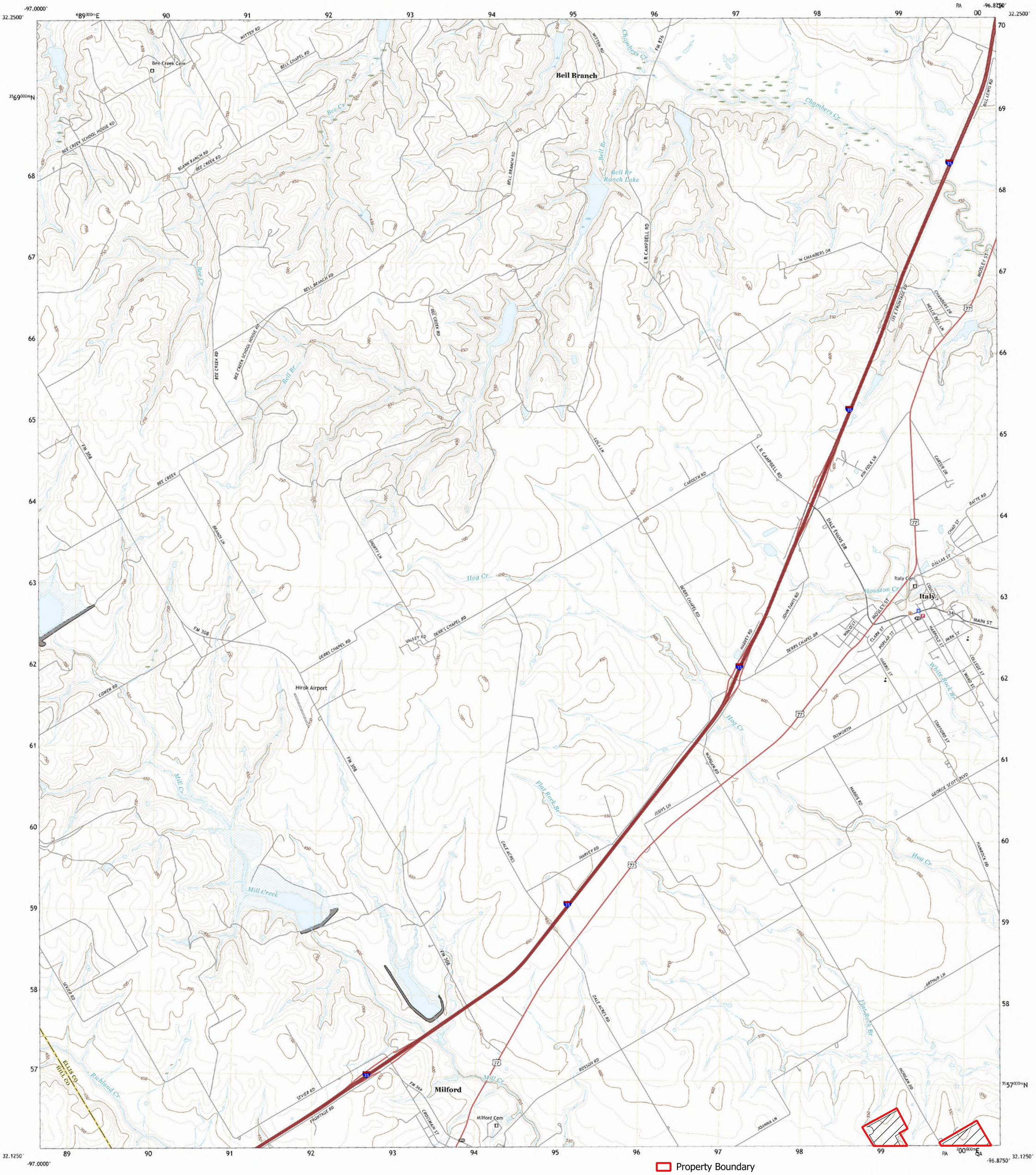
NSN 7643016391251
NGA REF NO. USGSX24K28892

USGS science for a changing world

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

The National Map US Topo

ITALY QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Property Boundary

Land Management Units

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 14S

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 - 2018
Names	GNIS, 1979 - 2022
Hydrography	National Hydrography Dataset, 2002 - 2018
Contours	National Elevation Dataset, 2004
Boundaries	Multiple sources; see metadata file 2019 - 2021
Wetlands	FWS National Wetlands Inventory Not Available

MN
GN
3°15'
53 MILS
1°8'
20 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
CQ
PA | QA
Grid Zone Designation
14S

SCALE 1:24 000

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

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

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

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

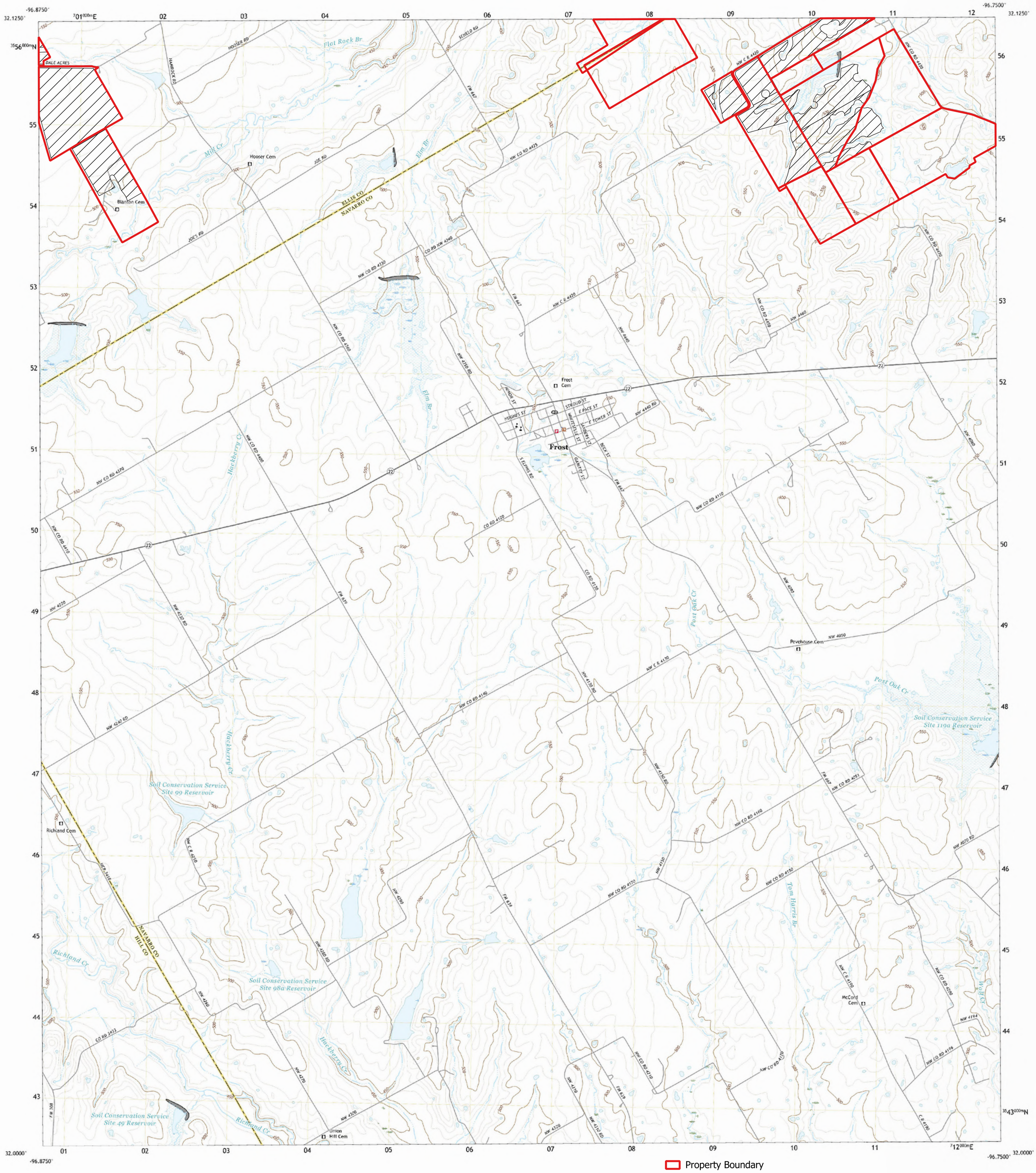
1 Maypearl
2 Boz
3 Forreston
4 Files Valley
5 Avalon
6 Hillsboro East
7 Mertens
8 Frost
ADJOINING QUADRANGLES

ROAD CLASSIFICATION

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

ITALY, TX
2022

NSN 7643016396699
NGA REF NO. USGSX24K22184



USGS science for a changing world

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

The National Map US Topo

FROST QUADRANGLE
TEXAS
7.5-MINUTE SERIES

Property Boundary

Land Management Units

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 14S\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 - 2018
Names..........GNIS, 2000 - 2021
Hydrography..........National Hydrography Dataset, 2002 - 2018
Contours..........National Elevation Dataset, 2004
Boundaries..........Multiple sources; see metadata file 2019 - 2021

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

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
QA
Grid Zone Designation
14S
14R
32°N

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

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

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Italy
2 Avalon
3 Cryer Creek
4 Mertens
5 Blooming Grove
6 Malone
7 Irene
8 Dawson

ROAD CLASSIFICATION

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

FROST, TX
2022

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

The National Map US Topo

CRYER CREEK QUADRANGLE
TEXAS
7.5-MINUTE SERIES

PLANT LOCATION

Property Boundary

Land Management Units

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 14S
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 -	2018
Names	GNIS, 1979 -	2022
Hydrography	National Hydrography Dataset, 2002 -	2018
Contours	National Elevation Dataset,	2003
Boundaries	Multiple sources; see metadata file 2019 -	2021
Wetlands	FWS National Wetlands Inventory Not Available	

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

SCALE 1:24 000

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

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

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

TEXAS
QUADRANGLE LOCATION

1 Forreston
2 Ennis West
3 Ennis East
4 Avalon
5 Emhouse
6 Frost
7 Blooming Grove
8 Corbet
ADJOINING QUADRANGLES

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

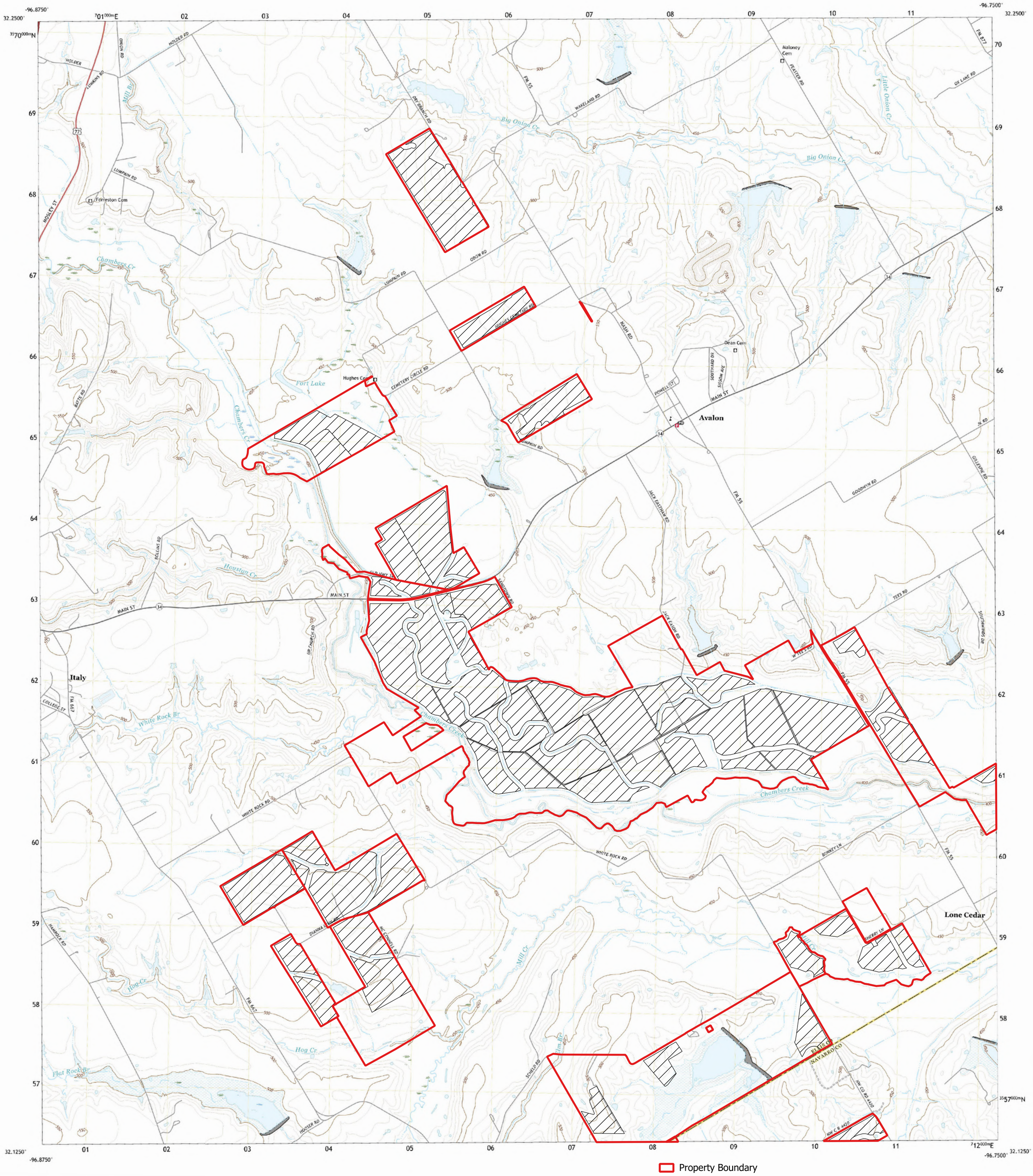
CRYER CREEK, TX
2022

USGS science for a changing world

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

The National Map US Topo

AVALON 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 14S

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 - 2018
Names	GNIS, 1979 - 2022
Hydrography	National Hydrography Dataset, 2002 - 2018
Contours	National Elevation Dataset, 2021
Boundaries	Multiple sources; see metadata file 2019 - 2021
Wetlands	FWS National Wetlands Inventory Not Available

MN
GN
3°11' 57 MILS
1°19' 21 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
FA | QA
Grid Zone Designation 14S

SCALE 1:24 000

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1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

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

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Boz
2 Forreston
3 Ennis West
4 Italy
5 Cryer Creek
6 Mertens
7 Frost
8 Blooming Grove

ADJOINING QUADRANGLES

ROAD CLASSIFICATION

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

AVALON, TX
2022

NSN. 7643016394926
NGA REF NO. USGSX24K1928

ATTACHMENT H


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Landowners shown in yellow highlight could not be identified using records of the Appraisal District.

MAP ID	COUNTY	PID	OWNER NAME	OWNER ADDRESS	CITY/ST/ZIP
1	ELLIS	190814	PRICE ALFRED	PO BOX 106	FORRESTON TX 76041-0106
2	ELLIS	303287	WIEGAND JERRY D & MARILYN	903 FAIRLAWN DR	DUNCANVILLE TX 75116-3003
3	ELLIS	182988	THOMPSON SAMUEL W JR	P O BOX 28	FORRESTON TX 76041
4	ELLIS	140306	BURCHFIELD JACK & ROSE	229 DRY BRANCH RD	FORRESTON TX 76041-2712
5	ELLIS	183012	CREEK LAND & CATTLE LLC	433 LAS COLINAS BLVD E STE 1290	IRVING TX 75039-5058
6	ELLIS	264584	CREEK LAND & CATTLE LLC	433 LAS COLINAS BLVD E STE 1290	IRVING TX 75039-5058
7	ELLIS	190768	ICONIX LABS INC	9901 VALLEY RANCH PKWY E STE 1030	IRVING TX 75063-7115
8	ELLIS	206356	RIDDLE CURTIS RAY & ALVIN RIDDLE	902 HARRIS RD	ITALY TX 76651
9	ELLIS	190781	GREEN WALTER S & DEBORAH	3671 N HIGHWAY 77	WAXAHACHIE TX 75165-5628
10	ELLIS	190296	JOHNSON ELENA C & CHRISTINA A SANCHEZ	5614 CAMBRIA DR	ROCKWALL TX 75032-5703
11	ELLIS	190280	CHAMBERS GROVE LLC	PO BOX 968	MIDLOTHIAN TX 76065
12	ELLIS	190260	BYPASS TRUST & TINA L HAIGHT C/O DAVID M PYKE	7557 RAMBLER RD STE 850	DALLAS TX 75231
13	ELLIS	250572	CREEK LAND & CATTLE LLC	433 LAS COLINAS BLVD E STE 1290	IRVING TX 75039-5058
14	ELLIS	190294	SINGLETON FAMILY FARM LLC	PO BOX 261	CEDAR HILL TX 75106-0261
15	ELLIS	290133	ST MARY HISTORICAL CEMETERY ASSOCIATION	PO BOX 916	ITALY TX 76651
16	ELLIS	251808	HUGHES CEMETERY ASSOCIATION C/O ROBIN DONALSON	355 FM 55	WAXAHACHIE TX 75165-9061
17	ELLIS	279452	CREEK LAND & CATTLE LLC	433 LAS COLINAS BLVD E STE 1290	IRVING TX 75039-5058
18	ELLIS	199882	BRADENBURG KENNETH L	PO BOX 3	DUNCANVILLE TX 75138
19	ELLIS	257199	BRADENBURG KENNETH L	PO BOX 3	DUNCANVILLE TX 75138
20	ELLIS	190261	STRICKER CHARLES E & TONYA K	455 HUGHES CEMETARY RD	ITALY TX 76651-3669
21	ELLIS	190352	SINGLETON FAMILY FARM LLC	PO BOX 261	CEDAR HILL TX 75106-0261
22	ELLIS	225319	BOYD ROBERT & DIANE	PO BOX 571	DESOTO TX 75123-0571
23	ELLIS	182985	AVALON I S D	PO BOX 455	AVALON TX 76623-0455
24	ELLIS	190259	MC CULLOCH LINDA S	374 S FM 55	ITALY TX 76651-3649
25	ELLIS	190340	VALLEE GABRIEL DAVID	3157 LUMPKIN RD	ITALY TX 76651-3587
26	ELLIS	190322	ADAMS MATTHEW R & ALISHIA A	3125 LUMPKIN RD	ITALY TX 76651-3587
27	ELLIS	190342	BROWN EDWARD E & PATSY D	3126 LUMPKIN RD	ITALY TX 76651-3587
28	ELLIS	190324	G&R CAPITAL PROPERTIES LLC	807 YELLOWSTONE DR	MANSFIELD TX 76063
29	ELLIS	190279	GUTIERREZ LUCIO ETAL	PO BOX 97	ITALY TX 76651-0175
30	ELLIS	179247	BENDAYAN TOLEDANO JOANA E	5100 SAN FELIPE ST UNIT 363E	HOUSTON TX 77056-3713
31	ELLIS	181761	ITALY PROPERTIES INC	PO BOX 905	ITALY TX 76651
32	ELLIS	181762	WAYNE MCEWEN INC	P O BOX 84	ITALY TX 76651
33	ELLIS	141726	MCEWEN MARTY	PO BOX 253	AVALON TX 76623-0253
34	ELLIS	209068	CARTER JACOB G & MARY A	710 JACK EASTHAM RD	ITALY TX 76651
35	ELLIS	179251	ACKER JANE & MARTHA TARRANT	207 JOHNSTON BLVD	WAXAHACHIE TX 75165-1343
36	ELLIS	179249	TELLEZ GEORGE A & SADIE N	PO BOX 456	AVALON TX 76623-0456
37	ELLIS	179252	MINER EDWINA A & JERRY L	918 S FM 55	ITALY TX 76651
38	ELLIS	183096	REYES DANIEL M & JOSEPH A	114 WAXWOOD LN	SAN ANTONIO TX 78216-6854
39	ELLIS	243468	WEBB ROY BRIAN & MARGARET R	6445 BERKSHIRE CIR	CLEBURNE TX 76033-8162
40	ELLIS	184462	BEAKLEY BOB C & LINDA	115 SULLIVAN RD	ENNIS TX 75119
41	ELLIS	184450	BEAKLEY JOHN S & AMBER	817 BASINGER RD	ENNIS TX 75119-1589
42	ELLIS	184454			
43	ELLIS	186394	BATES MARY G ETAL	3921 BOBBIN LN	ADDISON TX 75001
44	ELLIS	235412	BATES MARY G ETAL	3921 BOBBIN LN	ADDISON TX 75001
45	ELLIS	179716	BATES MARY G ETAL	3921 BOBBIN LN	ADDISON TX 75001
46	ELLIS	184455	GILLESPIE CAROL DENISE & GILLESPIE MARCIA LYNN & BATES MARY GRACE	3921 BOBBIN LN	ADDISON TX 75001-3102
47	ELLIS	179708	ABNEY JOHN T & LYDIA S	375 HCR 4230	HILLSBORO TX 76645
48	ELLIS	263544	ABNEY JOHN T & LYDIA S	375 HCR 4230	HILLSBORO TX 76645
49	ELLIS	192119	SMITH ADAM M & SANDRA K STILES	917 GOODWYN RD	ITALY TX 76651
50	ELLIS	192110	WILSON JAMES KENNETH ET AL	PO BOX 86	AVALON TX 76623-0086
51	ELLIS	192109	WILSON JAMES KENNETH	PO BOX 86	AVALON TX 76623-0086
52	ELLIS	192112	PRICE DANIEL & JESSICA	542 GOODWYN RD	ITALY TX 76651
53	ELLIS	228545	PRICE DANIEL & JESSICA	542 GOODWYN RD	ITALY TX 76651
54	ELLIS	192114	CARRANCO JESUS & VERONICA L SOTO	519 BLUEWOOD DR	DALLAS TX 75232
55	ELLIS	192113	LYNDRUP MICHAEL D & JENNIFER J	414 GOODWYN RD	ITALY TX 76651-3792
56	ELLIS	187422	LITTLE LORI	1210 CARTWRIGHT RD	ITALY TX 76651
57	ELLIS	187425	RAMSEY OLA SULLIVAN FARMS LP	10935 ALDER CIR	DALLAS TX 75238
58	ELLIS	190255	WORTHY JOE T	248 S ARMSTRONG RD	ENNIS TX 75119
59	ELLIS	201480	GETZENDANER TRUST	4445 SKINNER RD	MIDLOTHIAN TX 76065-7007
60	ELLIS	179714	BLOEMENDAL DUFFY P & ASHLEY E PITTS & JAMES R PITTS	3920 HAMILTON AVE	FT WORTH TX 76107
61	ELLIS	186395	BEAKLEY BOB C & LINDA	115 SULLIVAN RD	ENNIS TX 75119
62	ELLIS	186398	SALE FRANK D & KAREN	PO BOX 1167	RADFORD VA 24143-1167
63	ELLIS	186399	SOUTHARD CLINT A	109 CASTLE CIRCLE	BLOOMING GROVE TX 76626-3301
64	ELLIS	256231	CREEK LAND & CATTLE LLC	433 LAS COLINAS BLVD E STE 1290	IRVING TX 75039-5058
65	ELLIS	257976	KOREAN DONGSAN BAPTIST CHURCH ATTN: SAM GWON KANG, DIRECTOR	P.O. BOX 52	AVALON TX 76623
66	ELLIS	182771	BOYD ROBERT & DIANE	PO BOX 571	DESOTO TX 75123-0571
67	ELLIS	218441	RODRIQUEZ JUAN M & WENDY	PO BOX 88	AVALON TX 76623-0088
68	ELLIS	182769	RODRIGUEZ JUAN M & WENDY G	2023 FM 55	BLOOMING GROVE TX 76626
69	ELLIS	188049			
70	ELLIS	181793	HAMMER HAROLD & LINDA	115 PECAN CREEK ST	RED OAK TX 75154-6331
71	ELLIS	200219	TERRENO LAND CO. LLC	433 E LAS COLINAS BLVD STE 1290	IRVING TX 75039-5581
72	ELLIS	261545	DESERT MATERIALS LLC	433 E LAS COLINAS BLVD STE 1290	IRVING TX 75039
73	ELLIS	185665	DIXON DAVID M & JENNIFER S	3023 WHITE ROCK RD	ITALY TX 76651-3741
74	ELLIS	261549	DIXON DAVID M & JENNIFER S	3023 WHITE ROCK RD	ITALY TX 76651-3741
75	ELLIS	185656	SUTTON BRUCE ETAL	2609 WHITE ROCK RD	ITALY TX 76651-3736
76	ELLIS	186789	KLESMIT TIMOTHY R & DIANE L	2121 WHITE ROCK RD	ITALY TX 76651
77	ELLIS	181758	JETSON WESLEY D & LOUANN RUSSELL	1715 WHTE ROCK RD	ITALY TX 76651-3697
78	ELLIS	255966	KING DWAIN & GLORIA	1421 WHITE ROCK RD	ITALY TX 76651-3788
79	ELLIS	303365	OWENS KEVIN L	1227 WHITE ROCK RD	ITALY TX 76651
80	ELLIS	181760	WOODALL JAMES K	2908 COUNTY ROAD 2610	BONHAM TX 75418-8234
81	ELLIS	186686	SWAIM ROY E JR & NORMA JEAN	1110 WHITE ROCK RD	ITALY TX 76651-3598
82	ELLIS	186688	BENNETT CHERE HINES	2777 PARADISE RD UNIT 2201	LAS VEGAS NV 89109-9114
83	ELLIS	181850	BOWLES MICHAEL & TRACEY	PO BOX 338	ITALY TX 76651-0338
84	ELLIS	181772	COUCH MARY C EST % ELAINE COUCH	5303 MESA VERDE TRL	ARLINGTON TX 76017-1927
85	ELLIS	294660	UPCHURCH MINERVA I ETAL	313 CEDAR CIR	BRENHAM TX 77833-9215
86	ELLIS	190337	UPCHURCH MINERVA I ETAL	313 CEDAR CIR	BRENHAM TX 77833-9215
87	ELLIS	294658	UPCHURCH MINERVA I ETAL	313 CEDAR CIR	BRENHAM TX 77833-9215
88	ELLIS	294659	UPCHURCH MINERVA I ETAL	313 CEDAR CIR	BRENHAM TX 77833-9215
89	ELLIS	226568	HAMBY SPEED M	196 HAMBY RD	ITALY TX 76651
90	ELLIS	0			
91	ELLIS	236165	HAMBY SPEED M	196 HAMBY RD	ITALY TX 76651
92	ELLIS	190268	HAMBY CHAD M & LYNIS M HAMBY	200 HAMBY RD	ITALY TX 76651

93	ELLIS	250573	BYPASS TRUST DAVID M PYKE TRUSTEE	7557 RAMBLER RD STE 850	DALLAS TX 75231
94	ELLIS	181771	KING DWAIN & GLORIA	1421 WHITE ROCK RD	ITALY TX 76651-3788
95	ELLIS	181765	SCOTT RONALD T & CHERRIE L	1311 WHITE ROCK RD	ITALY TX 76651-3600
96	ELLIS	186683	HOWELL AUBRE D	9600 PRATHER RD	SPRINGTOWN TX 76082-6248
97	ELLIS	186689	MUIRHEAD RANDAL R & ANGELA	712 WHITE ROCK RD # 1	ITALY TX 76651-3699
98	ELLIS	186696	MUIRHEAD ANGELA D	712 WHITE ROCK RD	ITALY TX 76651-3699
99	ELLIS	186697	ADAMS CHARLES R & TERRY C	PO BOX 1	ITALY TX 76651-0001
100	ELLIS	186679	SPARKS LADONNA L	155 DIANA LYNN	ITALY TX 76651-3853
101	ELLIS	217222			
102	ELLIS	194435	MOORE BETTY K GRIFFIS	1504 WILLIAMSBURG CT	ENNIS TX 75119-2188
103	ELLIS	199905	GRAVES MACKY R & SANDRA S	1705 SW STATE HIGHWAY 34	ITALY TX 76651-3657
104	ELLIS	186687	GRAVES MACKY R & SANDRA S	1705 SW STATE HIGHWAY 34	ITALY TX 76651-3657
105	ELLIS	188976	BAKER WILLIAM E L/E JAMES D BAKER	3400 LA SALA DEL ESTE NE	ALBUQUERQUE NM 87111
106	ELLIS	188983	JANEK RONALD & JEANETTE	PO BOX 282	ITALY TX 76651-0282
107	ELLIS	188961	VILLARREAL ARMANDO & DANIEL NUNEZ	1725 S WESTMORELAND RD	OVILLA TX 75154-5833
108	ELLIS	181934	WESTFALL G DAVID FAMILY LTD PARTNERSHIP	109 TANGLEWOODD DR	FREDERICKSBURG TX 78624
109	ELLIS	181937	CREIGHTON LARRY D & DOROTHY R	309 MCCONNELL RD	ITALY TX 76651-3779
110	ELLIS	181776	CREIGHTON LARRY D & DOROTHY R	309 MCCONNELL RD	ITALY TX 76651-3779
111	ELLIS	198379	BESHER MARY	1337 SW STATE HIGHWAY 34	ITALY TX 76651-3364
112	ELLIS	221032	MATHERS JON B & REBEKAH A	1004 DIANNA LYNN	ITALY TX 76651-3758
113	ELLIS	227297	HARRIS PAUL & DELORIS	1054 DIANNA LYNN RD	ITALY TX 76651-3758
114	ELLIS	227306	EQUITY TRUST COMPANY FBO ROSEMOND RONNIE	PO BOX 451340	WESTLAKE OH 44145
115	ELLIS	140919	RAMIREZ SALVADOR III & RANA D	1104 DIANNA LYNN RD	ITALY TX 76651-3836
116	ELLIS	181775	KING DWAIN & GLORIA	1421 WHITE ROCK RD	ITALY TX 76651-3788
117	ELLIS	178933	MORGAN REBECCA DIANE L/E MORGAN CHRISTOPHER LYNN	2013 MORGAN RD	MILFORD TX 76670-1059
118	ELLIS	178951	MORGAN CHRISTOPHER LYNN	PO BOX 952	ITALY TX 76651-0952
119	ELLIS	178950	MORGAN REBECCA DIANE L/E MORGAN CHRISTOPHER LYNN	2013 MORGAN RD	MILFORD TX 76670-1059
120	ELLIS	183472	JANEK STEPHEN & ANGELA	PO BOX 602	ITALY TX 76651-0602
121	ELLIS	183471	JANEK RONALD & JEANETTE	PO BOX 282	ITALY TX 76651-0282
122	ELLIS	183469	KELCH KENNETH E JR	P O BOX 528	ITALY TX 76651
123	ELLIS	191615	BRUMMETT DONALD B & KAREN A	P O BOX 528	ITALY TX 76651-0528
124	ELLIS	200020	KELCH KENNETH E JR	PO BOX 528	ITALY TX 76651
125	ELLIS	183467	KELCH KENNETH E JR	PO BOX 528	ITALY TX 76651
126	ELLIS	191983	HOOSER JAMES E JR & ELISABETH C ETAL	2013 GLENWOOD CIR	CORSICANA TX 75110-3419
127	ELLIS	191985	HOOSER FARM CORP	2013 GLENWOOD CIR	CORSICANA TX 75110
128	ELLIS	184682	BAUER ANN T EXEMPT TRUST ANN T BAUER TRUSTEE	3928 BALCONES DR	AUSTIN TX 78731
129	ELLIS	191989	BAUER FAMILY REALTY LLC	3724 JEFFERSON ST STE 120	AUSTIN TX 78731-6215
130	ELLIS	183468	THOMPSON FARMS LP E POWELL THOMPSON	6905 STAHL CV	AUSTIN TX 78731-2831
131	ELLIS	138700	LESLIE THOMAS ROBERT IV	5316 WANETA DR	DALLAS TX 75209-5612
132	ELLIS	183476	LESLIE JEANNE	21 JASON RD	BOERNE TX 78006-5759
133	ELLIS	181048	THOMPSON FARMS LP E POWELL THOMPSON	6905 STAHL CV	AUSTIN TX 78731-2831
134	ELLIS	181040	DEKU FRANCIS N	6701 VICTORY CREST DR	ARLINGTON TX 76002-3672
135	ELLIS	181049	PERRY REBECCA	1834 MORGAN RD	MILFORD TX 76670-1187
136	ELLIS	181053	JANEK RONALD & JEANETTE	PO BOX 282	ITALY TX 76651-0282
137	ELLIS	195644	SOUTH ELLIS CO WATER SUPPLY CORP	PO BOX 348	ITALY TX 76651-0348
138	ELLIS	189393	REVELS ROBBIE LEWIS	PO BOX 22	FROST TX 76641-0022
139	ELLIS	191356	BEASON MC RANCH LTD	677 SCHIELD RD	FROST TX 76641
140	ELLIS	181936	BEASON MC RANCH LTD	677 SCHIELD RD	FROST TX 76641
141	ELLIS	138740	BEASON R WAYNE & LINDA G	677 SHIELD RD	FROST TX 76641-3492
142	ELLIS	184471	BEASON MC RANCH LTD	3545 E MAIN ST	GRAND PRAIRIE TX 75050-4505
143	ELLIS	184473	GALLUP ASA N & PAULA D	218 W 2ND AVE	CORSICANA TX 75110-3003
144	ELLIS	304128	ROWE HANNA & DAVID	1601 SCHIELD RD	FROST TX 76641
145	ELLIS	184478	TURNER CHERYL B & PHIL TURNER	103 BUFFALO CREEK CIR	WAXAHACHIE TX 75165
146	ELLIS	195697	STANDIGE KANDY C/S VLB	P O BOX 2109	POTTSBORO TX 75076
147	ELLIS	304136	QUINTANILLA VELAZQUEZ PEDRO & BELIA L	943 WHITE DOVE DR	ARLINGTON TX 76017
148	ELLIS	199586	GOMEZ HILARIO E & EVA I B ARGUETA	102 PARKS BRANCH RD	RED OAK TX 75154-4070
149	ELLIS	195696	MECCARIELLO CLEMENTE	250 SHERRY LN	BLOOMING GROVE TX 76626-3324
150	ELLIS	188048	MARTIN JO BETH	PO BOX 515	AVALON TX 76623-0515
151	ELLIS	188054	MILL CREEK RANCH %WAYNE BEASON	677 SHIELD RD	FROST TX 76641-3492

MAP ID	COUNTY	PID	OWNER NAME	OWNER ADDRESS	CITY/ST/ZIP
157	NAVARRO	39877	PRICE ALFRED	677 SHIELD RD	FROST TX 76641
158	NAVARRO	37721	WIEGAND JERRY D & MARILYN	677 SHIELDS ROAD	ITALY TX 76641
159	NAVARRO	37720	THOMPSON SAMUEL W JR	1438 SHIELD RD	FROST TX 76641
160	NAVARRO	37712	BURCHFIELD JACK & ROSE	2014 CEDAR VALLEY LN	DALLAS TX 75232
161	NAVARRO	39430	CREEK LAND & CATTLE LLC	PO BOX 886	ITALY TX 76651
162	NAVARRO	60301	CREEK LAND & CATTLE LLC	PO BOX 51	FROST TX 76641
163	NAVARRO	39881	ICONIX LABS INC	PO BOX 22	FROST TX 76641
165	NAVARRO	37711	RIDDLE CURTIS RAY & ALVIN RIDDLE	PO BOX 886	ITALY TX 76651
166	NAVARRO	39896	GREEN WALTER S & DEBORAH	PO BOX 886	ITALY TX 76651
167	NAVARRO	52550	JOHNSON ELENA C & CHRISTINA A SANCHEZ	11340 LIPPITT AVE	DALLAS TX 75218
168	NAVARRO	37683	CHAMBERS GROVE LLC	P O BOX 64	FROST TX 76641
169	NAVARRO	39581	BYPASS TRUST & TINA L HAIGHT	8795 NW CR 4470	BLOOMING GROVE TX 76626
170	NAVARRO	63872	CREEK LAND & CATTLE LLC	977 NW CR 2270	BLOOMING GROVE TX 76626
171	NAVARRO	39599	SINGLETON FAMILY FARM LLC	977 NW CR 2270	BLOOMING GROVE TX 76626
172	NAVARRO	39600	ST MARY HISTORICAL CEMETERY ASSOCIATION	977 NW CR 2270	BLOOMING GROVE TX 76626
173	NAVARRO	63872	HUGHES CEMETERY ASSOCIATION	977 NW CR 2270	BLOOMING GROVE TX 76626
174	NAVARRO	39592	CREEK LAND & CATTLE LLC	9241 FM 55	BLOOMING GROVE TX 76626
175	NAVARRO	62298	BRADENBURG KENNETH L	NONE	
176	NAVARRO	60329	BRADENBURG KENNETH L	PO BOX 142	BLOOMING GROVE TX 76626
177	NAVARRO	39609	STRICKER CHARLES E & TONYA K	4020 MESSINA DR	PLANO TX 75093
178	NAVARRO	57671	SINGLETON FAMILY FARM LLC	4020 MESSINA DR	PLANO TX 75093
179	NAVARRO	66500	BOYD ROBERT & DIANE	NONE	
180	NAVARRO	39776	AVALON I S D	10024 NW COUNTY ROAD 4430	BLOOMING GROVE TX 76626
181	NAVARRO	39775	MC CULLOCH LINDA S	10176 NW CR 4430	BLOOMING GROVE TX 76626
182	NAVARRO	39779	VALLEE GABRIEL DAVID	9241 FM 55	BLOOMING GROVE TX 76626
183	NAVARRO	64111	ADAMS MATTHEW R & ALISHIA A	10312 NW CR 4430	BLOOMING GROVE TX 76626
184	NAVARRO	37054	BROWN EDWARD E & PATSY D	10669 NW CR 4430	BLOOMING GROVE TX 76626
185	NAVARRO	50756	G&R CAPITAL PROPERTIES LLC	10669 NW CR 4430	BLOOMING GROVE TX 76626
186	NAVARRO	39507	GUTIERREZ LUCIO ETAL	10669 NW CR 4430	BLOOMING GROVE TX 76626
187	NAVARRO	52263	BENDAYAN TOLEDANO JOANA E	9201 GARLAND RD	DALLAS TX 75218
188	NAVARRO	37054	ITALY PROPERTIES INC	10669 NW CR 4430	BLOOMING GROVE TX 76626
189	NAVARRO	86838	WAYNE MCEWEN INC	9241 FM 55	BLOOMING GROVE TX 76626
190	NAVARRO	37717	MCEWEN MARTY	BOX 64	FROST TX 76641

ATTACHMENT I

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Vanguard Renewables	Photographs Figure 1A	Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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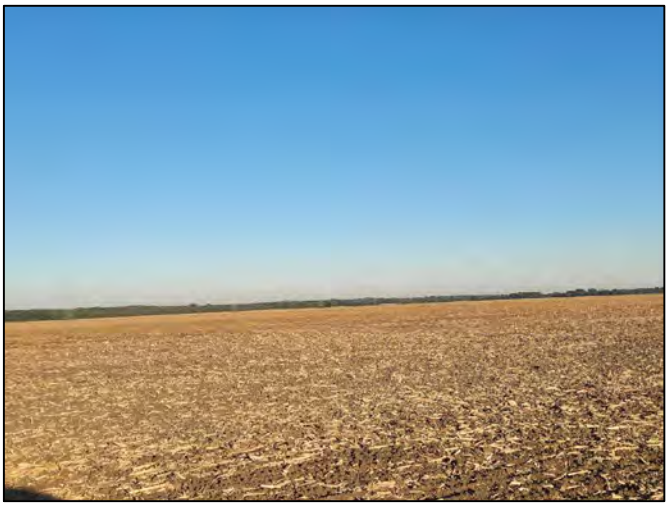

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Vanguard Renewables	Photographs Figure 1B	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1C	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1D	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1E	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1F	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1G	Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1H	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Vanguard Renewables	Photographs Figure 1l	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

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Enviro-Ag Engineering, Inc.
ENGINEERING CONSULTANTS
3404 Airway Boulevard
AMARILLO, TEXAS 79118
TEL (806) 353-6123 FAX (806) 353-4132

Map Generated: 1/20/2025

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● Denotes Picture Location

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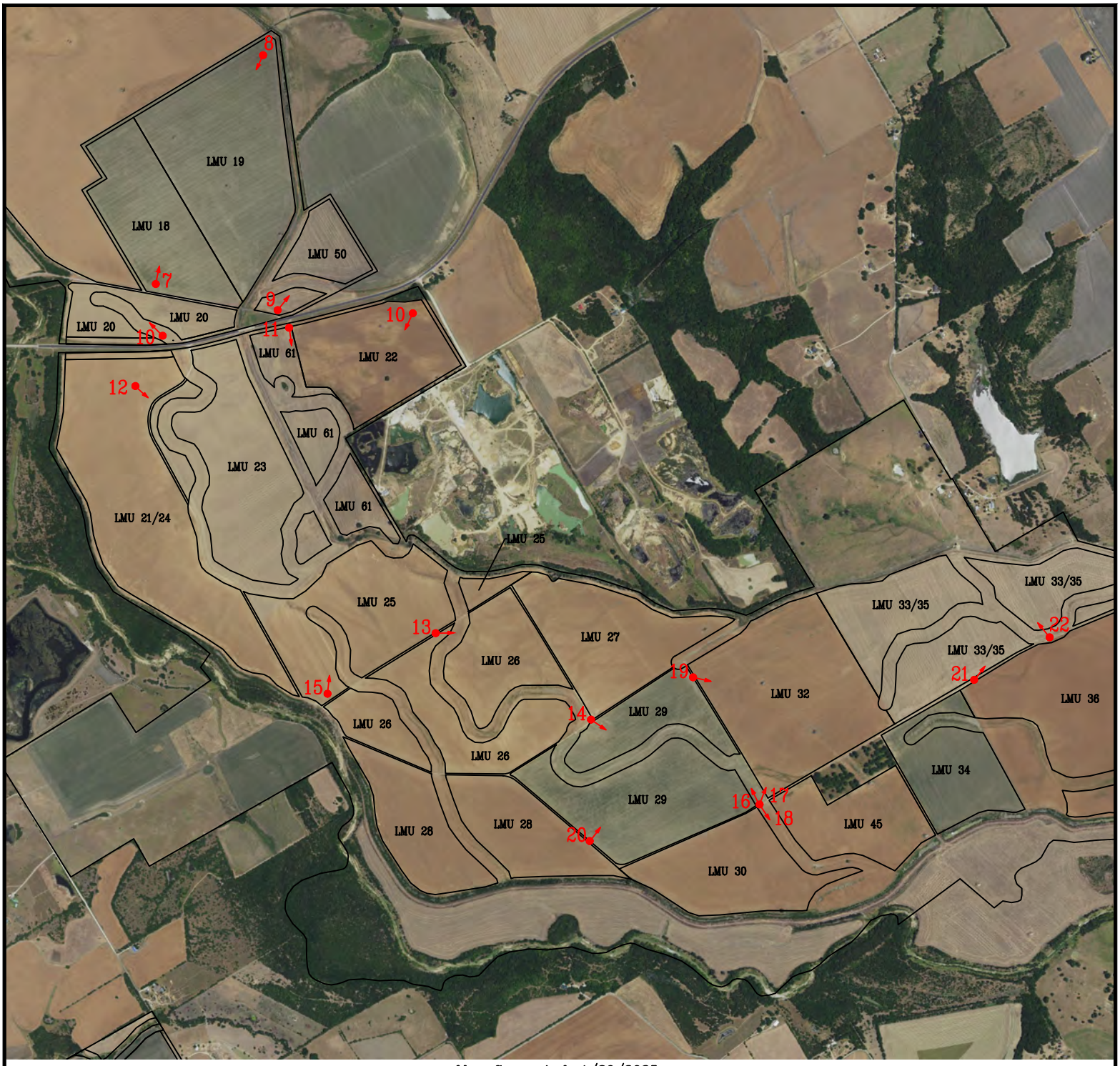
SCALED AS SHOWN

Source: USDS–NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 1	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



Map Generated: 1/20/2025

LEGEND:

● Denotes Picture Location

N

W E

S

1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 2	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Map Generated: 1/20/2025

LEGEND:

● Denotes Picture Location

N
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S

1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS–NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 3	ENVIRO–AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Map Generated: 1/20/2025

LEGEND:

● Denotes Picture Location

N
W E
S

1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 4	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Map Generated: 1/20/2025

LEGEND:

● Denotes Picture Location

N

W E

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1300' 0 1300' 2600'

SCALED AS SHOWN

Source: USDS–NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 5	ENVIRO–AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Map Generated: 1/20/2025

LEGEND:

● Denotes Picture Location

N
W E
S

1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS–NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 6	ENVIRO–AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Map Generated: 1/20/2025

LEGEND:

● Denotes Picture Location

N
W E
S

1000' 0 1000' 2000'

SCALED AS SHOWN

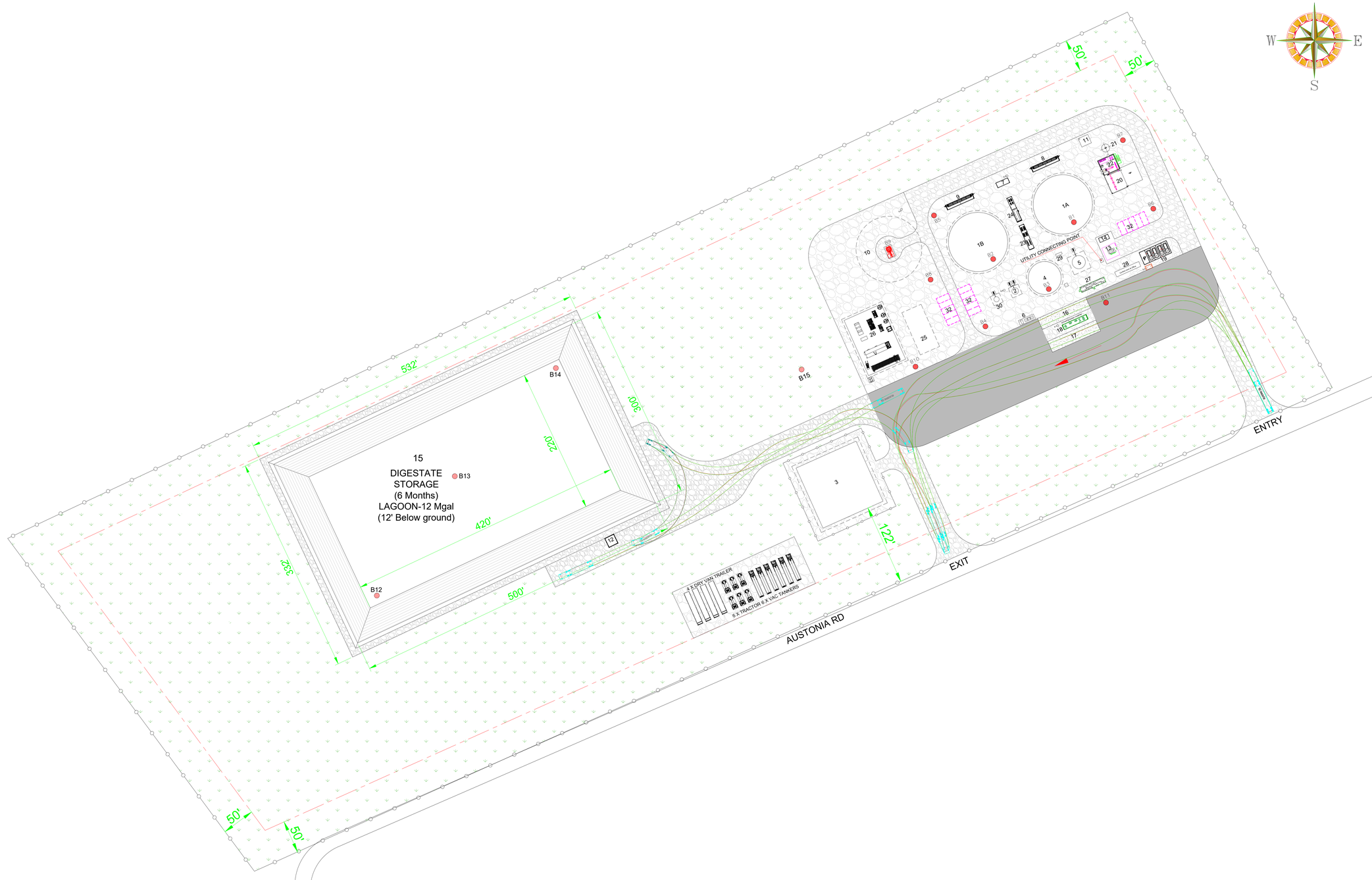
Source: USDS–NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed August, 2024.

Vanguard Renewables	Creek Land & Cattle Picture Location Map Figure 7	ENVIRO–AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

ATTACHMENT K

CREE-G-EE2001

REV 2 | DRG. No.



SITE PLAN LEGEND

NUMBER	NAME	DIMENSIONS	IMPOSED LOAD PSF/sq.ft
1A	DIGESTER-1	Ø90' X 32' ht	2640
1B	DIGESTER-2	Ø90' X 32' ht	2640
2	FERRIC DOSING TANK	Ø10' X 10' ht	-
3	M&R STATION	100'x100'	
4	HYDROLYSIS TANK 2	Ø50' x 24'ht.	1980
5	HYDROLYSIS TANK 3	Ø20' x 15'ht.	1238
6	CHEMICAL TOTES(x3)	4'X4'	
7	BOILER CONTAINER	8'X20'	156
8	HEAT EXCHANGER-1	45'X8'	234
9	HEAT EXCHANGER-2	45'X8'	234
10	FLARE	12'X12'	65
11	MANURE SUMP	16' X 14' X 12' DEEP	-
12	TRUCK LOAD OUT STATION	15'x15'	-
13	TRANSFORMER	10'X12'	115
14	GENERATOR	7'X8'	74
15	DIGESTATE STORAGE LAGOON	REF.DRAWING	-
16	LIQUID OFFLOAD AREA-A	80'x18'	80
17	LIQUID OFFLOAD AREA-B	80'x18'	80
18	UNLOADING PUMP CONTAINER-3	40'x8'	
19	CAR PARKING (4)	9'X20'	-
20	SOLID SEPARATOR BUILDING	54'-6" X 27'	1391
21	PRESSATE HOLDING TANK	Ø12' X 10' ht	-
22	CLARIFIED MANURE TANK	Ø4' X 8' ht	-
23	CONTAINER-1	40' X 8'	-
24	CONTAINER-2	40' X 8'	-
25	CO2 RECOVERY AREA (FUTURE)	70'X32'	-
26	BIOGAS UPGRADER	91'X61'	54
27	ELECTRICAL PANEL CONTAINER-4	40'X8'	-
28	CONTROL & OFFICE CONTAINER-5	40'X8'	-
29	CARBON CANISTER	-	-
30	UTILITY WATER TANK	Ø8' X 8' ht	-
31	N/A	TBD	-
32	CAR PARKING (FUTURE)	9'X20'	-
33	De-OXY SYSTEM	8'X8'	-

Proposed Bore hole, 15 Nos.

Total Acreage used in this layout is 25 Acres

NOTES:–

1. ALL DIMENSIONS ARE IN 'FEET AND INCHES'.
2. One Utility connection service.
3. Layout revisions shall be done as per geotech results.
4. Setback details.
   - 50'–100' From property lines
   - 100'–300' From M&R
   - 100'–300' From Manure storage
   - 50'–100' From roadways
   - 10'–25' From Existing Easement
   - Private well, 150' From a water well.
   - Private well, 300'From surface water.
   - Public well, 150' From a water well.
   - Public well, 300'From surface water.
   - 200'–300' From Occupied Buildings/Dwellings
   - 50'–300' Flare setback from property line
5. Deox equipment is added to this site.
6. AD only site.

ASSUMPTIONS:

1. M&R station size considered as 100'x100'
2. Lagoon storage is assumed as 6 months,equivalent to 12 MGALS.
3. Height restriction are none for industrial building.

LEGENDS

- FENCE LINE
- HEAVY DUTY ASPHALT
- WATER BOUND MACADAM (WBM) ROAD
- GRAVEL
- GRAVEL ROAD
- HEAVY DUTY CONCRETE
- GRASS

SCALE

55' 27.5' 0 55' 110' 165'

1" = 55'

PRELIMINARY

NOT FOR CONSTRUCTION

REV	DATE	REMARKS	AUTH	CHKD
2	01.18.25	REVISED AS PER COMMENTS RECEIVED	RG	AK
1	12.23.24	REVISED AS PER LATEST KMZ	RG	AK

OWNER: VANGUARD RENEWABLES, BOSTON, MA, USA

ENGINEER: SIM AGRO INC., THE WOODLANDS, TX 77380 | ENMAS EPC POWER PROJECTS LIMITED, THE WOODLANDS, TX 77380

PROJECT: CREEK LAND & CATTLE (ELLIS AD1), ELLIS COUNTY, TEXAS

	NAME	SIGN	DATE
DRN	RG		10.26.2024
CHD	DDS		10.26.2024
APPD	AK		10.26.2024

TITLE: SITE PLAN

SHEET: A0 | SCALE: 1:780 | DRG. No. CREE-G-EE2001 | REV 2

ATTACHMENT L

National Flood Hazard Layer FIRMette

FEMA

96°43'45"W 32°12'13"N

96°43'8"W 32°11'43"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

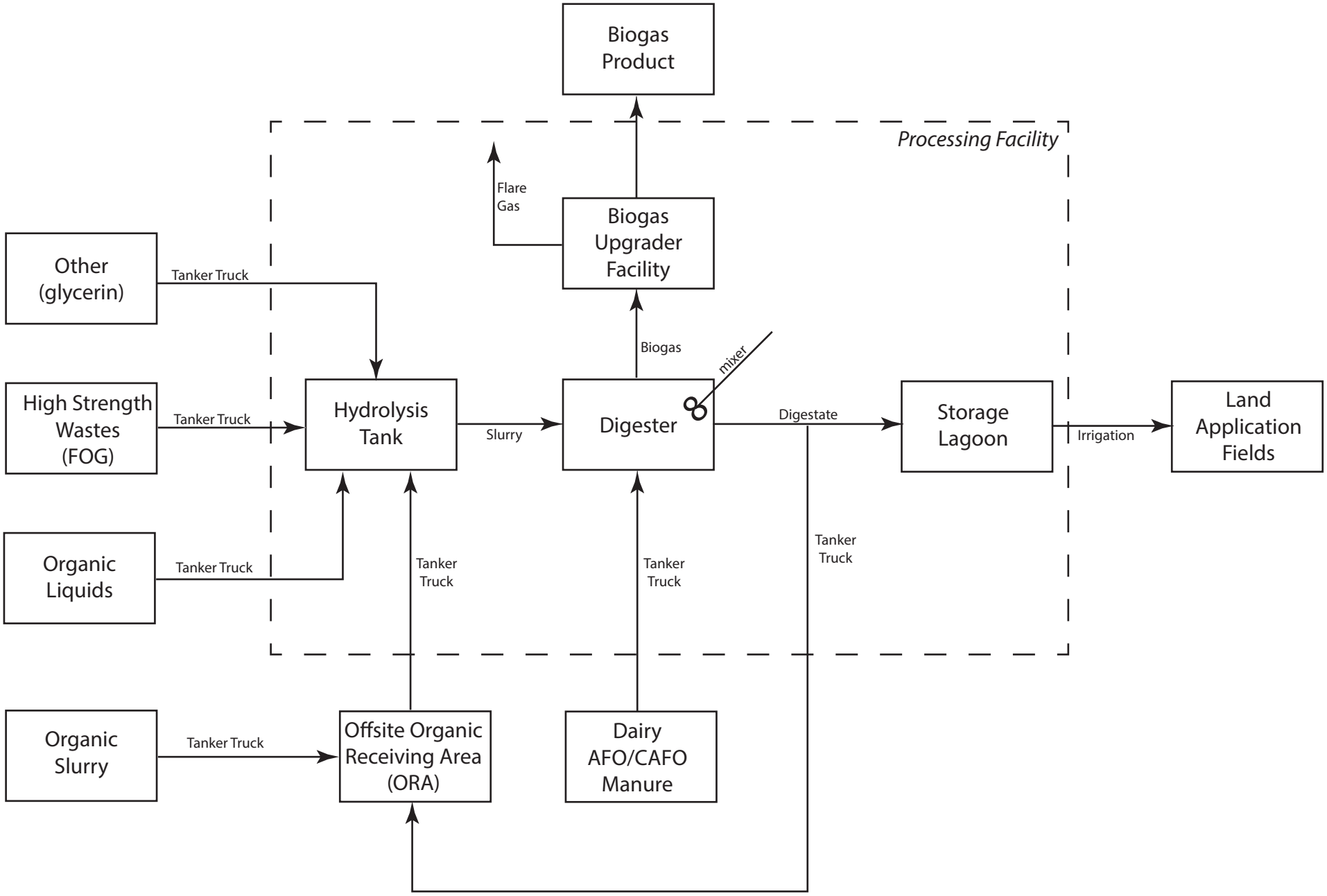
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/24/2025 at 1:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

ATTACHMENT M

PROCESS FLOW DIAGRAM



ATTACHMENT N

Field ID	Latitude	Longitude
18	32.190330	-96.827532
19	32.192277	-96.823944
20	32.186875	-96.826516
21/24	32.180203	-96.828401
22	32.185022	-96.817718
23	32.180876	-96.823756
25	32.175235	-96.818427
26	32.170500	-96.814069
27	32.173860	-96.806224
28	32.166497	-96.813280
29	32.168746	-96.804839
30	32.164707	-96.801457
32	32.171261	-96.798646
33/35	32.174159	-96.789820
34	32.168295	-96.791168
36	32.169881	-96.784344
37	32.170073	-96.779276
38/39	32.171605	-96.772329
40	32.180380	-96.768763
42	32.171107	-96.763075
45	32.166506	-96.795584
50	32.188546	-96.819937
61	32.181933	-96.820401

Field ID	Latitude	Longitude
AB3	32.179310	-96.730365
AB4	32.173661	-96.732021
AB5	32.167704	-96.745293
AB6	32.186899	-96.743125
AC1	32.122305	-96.774146
AC2	32.114792	-96.774106
AC3	32.111072	-96.771031
AR1	32.195548	-96.738136
AR2/3	32.197195	-96.732111
AR5/6	32.192543	-96.726335
AR10	32.182913	-96.725167
CAL	32.207024	-96.807873
CS1	32.145047	-96.831251
CS2	32.143118	-96.840115
CS3	32.154610	-96.843113
CS4	32.153881	-96.831888
DBR	32.231045	-96.822741
MR1	32.115865	-96.870402
MR2	32.123002	-96.877864
MR3	32.122550	-96.887440
MRG	32.109670	-96.866688
SB1	32.205308	-96.837847
SB2	32.202230	-96.837472
W1	32.140654	-96.775336
W2	32.133773	-96.794236
W3	32.127627	-96.801884
WEEKS	32.216836	-96.814967

ATTACHMENT O

Volume and Type of Incoming Feedstock

Ellis AD 1, LLC estimates a capacity to digest approximately 139,712 tons of feed stock per year ("tpy"). The total volume and percentage of each source will fluctuate based on availability and needs of the digester. A summary of the proposed waste categories is as follows:

Category 1: Agricultural Inputs (Manure)

Description: The facility will accept manure from nearby CAFOs in order to effectuate gas production within the anaerobic digesters. The amount of manure will be determined by the actual gas production levels throughout operation of the digesters.

Anticipated Quantity: 0 tpy (manure will be accepted on as-needed basis)

Category 2: Organic Slurry

Description: The facility will be partnered with a nearby organics receiving area (ORA) facility which will supply the organic slurry. This ORA facility is designed to accept, de-package, and pre-process off-specification, expired, or otherwise unsalable food products, as well as organic streams, such as uneaten food from restaurants and other source-separated organics. The organic materials come primarily from manufacturers, food distribution facilities, and retailers. These organics will pass through mechanical separator, which removes the organic materials from its packaging, and pumped/stored into a closed holding tank onsite.

The organic slurry produced at the ORA facility will be pumped from the holding tanks onsite directly into tanker trucks, which will deliver the material to Ellis AD 1, LLC for the further processing of the organics into renewable natural gas and liquid digestate.

Anticipated Quantity: 85,380 tpy

Category 3: Liquid Organics

Description: Liquid organic wastes are liquid streams with relatively high organic content that are received in tanker trucks. These wastes are received directly from the Food Industry and do not have any pre-processing before being mixed with other feedstock and sent to the AD. Examples include rejected batches of soda, beer, juices, or soups to name a few.

Anticipated Quantity: 26,232 tpy

Category 4: High Strength Wastes (FOG)

Description: This is a liquid waste generated as a by-product of the food industry or at restaurants. It is mainly composed of fatty acids. FOG would be collected from grease traps in commercial establishments such as hospitals, hotels, restaurants, and school cafeterias; if available, FOG material can also be collected from residential and industrial producers.

Anticipated Quantity: 24,868 tpy

Category 5: Other (Glycerin)

Description: Glycerin is a high-strength organic waste that is generated as a by-product of processing animal fats and vegetable oils. It is also delivered by tanker trucks.

Anticipated Quantity: 3,232 TPY

ATTACHMENT P

ANNUAL CROPPING PLAN

OVERVIEW

The proposed irrigation fields total 4553.8 acres and are located in Ellis County and Navarro County.

COVER CROPS

The proposed cover crops for the site are corn grain (84.2%), coastal bermuda (15.0%), and sorghum-sudan hay (0.8%). A detailed list of the cover crops to be utilized on each field along with their acreages and projected crop yields is provided in Table 1. The crops will be intensively managed for maximum production. The stated crop yield goals are taken from NRCS in concert with information provided by the farmer. Management practices are in place and used by the farmer to ensure maximized crop production.

GROWING SEASON

The proposed cover crops are primarily warm season plant species although coastal bermuda can continue to grow in the cool season. The growing season of corn grain and sorghum-sudan hay is basically April through July. The growing season of the coastal bermuda is year-around with the most productive months being from April through October.

HARVESTING

The precise method and schedule for harvesting will depend on climatic conditions, but only one harvest of corn per year is planned. The coastal bermudagrass will be maintained continuously by grazing or by three cuttings per year.

NUTRIENTS

One of the primary purposes for obtaining this TLAP is to reduce or eliminate the crop requirement needs for nitrogen from supplemental commercial fertilizer and replace it with nitrogen from the high-nitrogen digestate liquid. It is hoped that the nitrogen requirements of the crops will be provided almost entirely by the nitrogen content in the effluent only. Table 1 shows the nutrients requirements, the maximum application rates so as to not exceed the nutrient requirements, and the application rates if the irrigation water is applied evenly over all fields. Because the amount of acreage available exceeds the amount of land required, the application rates will vary depending on the soil tests and on which fields application is actually occurring. The fields will be managed to that the application rate never exceeds the nutrient requirements. Supplemental fertilizers may be needed to achieve yield goals, but determinations will be made annually on a field-by-field basis using soil test results. Based on the effluent pH, EC and sodium content, soil amendments such as elemental sulfur, gypsum or other inputs may be used to help manage soil pH and salinity.

IRRIGATION

The liquid digestate will be applied to the land application fields via liquid spreader tankers. This is a practical method to distribute the relatively small amount of liquid targeted for each field. The application rate is projected to be 0.0325 ac-ft/ac/yr (which can be converted to 10,592 gal/acre-year). The irrigation efficiency is estimated at 85%. Although the amount of irrigation from the digestate is relatively small, no additional irrigation water is expected to be necessary. The water needs of the crops will be provided primarily by rainfall as farmer has relied upon for years.

SOILS

The 50 land application areas are comprised of 32 principal soil groups. Collectively, the land application areas consist predominantly of hydrologic group D soils (91.06%) with a smaller percentage of hydrologic group C (8.81%) and group B (0.13%) soils. A soil map and detailed soil description are provided in a separate soils report.

SALT TOLERANCES

The primary crop is corn which is a relatively non-tolerant crop for salt. The other predominant crop is coastal bermudagrass which is documented to be a highly salt tolerant crop. To be conservative, the maximum soil conductivity in this analysis was based on the corn crop and utilized a maximum conductivity of 4 mmhos/cm. Because the irrigation volume of liquid is low compared to amount of available field area, the annual irrigation rate is relatively small (i.e., 0.39 in/ac/yr). The lowest annual rainfall over the 25-year period analyzed was 22.29 inches. Hence, the salt concentration in the root zone is expected to be controlled by leaching from rainfall events.

TABLE 1
PLANNED CROPS, YIELD, NUTRIENT REQUIREMENTS BY FIELD

Field ID	Area ac	Planned Crop & Yield	Crop N Required lb/ac	Crop P2O5 Required lb/ac	Available Nitrogen from Effluent lb/ac/in	Available P2O5 from Effluent lb/ac/in	Maximum Irr. Rate at Max. N Rate in	Available P2O5 at Max. N Rate lb/ac	Projected Irr. Rate with Even Dist. in	Available N at Proj. Irr. lb/ac	Available P2O5 at Proj. Irr. lb/ac
18	64.9	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	51.7	0.16	78.4	30.0
19	109.7	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	51.8	0.16	78.4	30.0
20	26.6	Corn 111 - 130 bu	144	105	482.3	184.7	0.24	45.1	0.16	78.4	30.0
21/24	147.6	Corn 111 - 130 bu	144	105	482.3	184.7	0.25	47.1	0.16	78.4	30.0
22	61.7	Corn 111 - 130 bu	144	105	482.3	184.7	0.26	47.6	0.16	78.4	30.0
23	80.1	Corn 111 - 130 bu	144	105	482.3	184.7	0.26	47.6	0.16	78.4	30.0
25	88.7	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.1	0.16	78.4	30.0
26	105.6	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.4	0.16	78.4	30.0
27	69.4	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	49.1	0.16	78.4	30.0
28	93.0	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.5	0.16	78.4	30.0
29	108.9	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	52.1	0.16	78.4	30.0
30	60.1	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	50.9	0.16	78.4	30.0
32	108.2	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	49.6	0.16	78.4	30.0
33/35	109.8	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.2	0.16	78.4	30.0
34	45.4	Corn 111 - 130 bu	144	105	482.3	184.7	0.25	47.0	0.16	78.4	30.0
36	106.4	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.0	0.16	78.4	30.0
37	115.9	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	49.8	0.16	78.4	30.0
38/39	124.0	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	51.0	0.16	78.4	30.0
40	19.3	Corn 111 - 130 bu	144	105	482.3	184.7	0.24	45.1	0.16	78.4	30.0
42	79.2	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	49.8	0.16	78.4	30.0
45	46.8	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	50.9	0.16	78.4	30.0
50	25.4	Corn 111 - 130 bu	144	105	482.3	184.7	0.26	48.8	0.16	78.4	30.0
61	38.0	Corn 111 - 130 bu	144	105	482.3	184.7	0.24	44.0	0.16	78.4	30.0

TABLE 1 (cont'd)

Field ID	Area ac	Planned Crop & Yield	Crop N Required lb/ac	Crop P2O5 Required lb/ac	Available Nitrogen from Effluent lb/ac/in	Available P2O5 from Effluent lb/ac/in	Maximum Irr. Rate at Max. N Rate in	Available P2O5 at Max. N Rate lb/ac	Projected Irr. Rate with Even Dist. in	Available N at Proj. Irr. lb/ac	Available P2O5 at Proj. Irr. lb/ac
AB3	73.9	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	52.1	0.16	78.4	30.0
AB4	81.8	Corn 111 - 130 bu	144	105	482.3	184.7	0.24	44.5	0.16	78.4	30.0
AB5	78.2	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.7	0.16	78.4	30.0
AB6	84.1	Corn 111 - 130 bu	144	105	482.3	184.7	0.25	46.7	0.16	78.4	30.0
AC1	138.0	Coastal Grazing 1 AU/3 ac	160	70	482.3	184.7	0.32	59.0	0.16	78.4	30.0
AC2	110.5	Coastal Grazing 1 AU/3 ac	160	70	482.3	184.7	0.31	58.2	0.16	78.4	30.0
AC3	136.9	Coastal Grazing 1 AU/3 ac	160	70	482.3	184.7	0.28	51.7	0.16	78.4	30.0
AR1	105.8	Corn 111 - 130 bu	144	105	482.3	184.7	0.26	47.1	0.16	78.4	30.0
AR2/3	120.5	Corn 111 - 130 bu	144	105	482.3	184.7	0.25	46.0	0.16	78.4	30.0
AR5/6	123.8	Corn 111 - 130 bu	144	105	482.3	184.7	0.26	47.4	0.16	78.4	30.0
AR10	84.4	Corn 111 - 130 bu	144	105	482.3	184.7	0.24	44.4	0.16	78.4	30.0
CAL	64.4	Coastal 3 Cut Hay	300	125	482.3	184.7	0.62	114.1	0.16	78.4	30.0
CS1	129.5	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	52.1	0.16	78.4	30.0
CS2	69.4	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	49.5	0.16	78.4	30.0
CS3	145.1	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	50.0	0.16	78.4	30.0
CS4	174.2	Corn 111 - 130 bu	144	105	482.3	184.7	0.28	52.2	0.16	78.4	30.0
DBR	194.1	Corn 111 - 130 bu	144	105	482.3	184.7	0.27	49.8	0.16	78.4	30.0
MR1	205.3	Corn 111 - 130 bu	144	105	482.3	184.7	0.24	43.8	0.16	78.4	30.0
MR2	82.7	Corn 111 - 130 bu	144	105	482.3	184.7	0.23	43.1	0.16	78.4	30.0
MR3	108.1	Corn 111 - 130 bu	144	105	482.3	184.7	0.22	41.3	0.16	78.4	30.0
MRG	88.3	Coastal 3 Cut Hay	300	125	482.3	184.7	0.62	114.1	0.16	78.4	30.0

Notes

(1) Planned crop and projected yields based on farmer's planned crops and yields from prior years.
(2) Crop requirements taken from NRCS 590-633 software alternative crops.
(3) Wastewater N and P estimated from facilities with similar operations.
(4) Availability of N estimated utilizing 80%.
(5) Maximum irrigation rate based on not exceeding the crop nitrogen requirement
(6) Projected irrigation rate based on irrigated water being applied evenly over all fields.

ATTACHMENT Q

WORKSHEET 3.0 – ITEM 4.d
GROUNDWATER TECHNICAL REPORT

THORNHILL GROUP, INC.

1 Purpose

The purpose of this section is to provide information on the geologic features and groundwater resources in the area of the Ellis AD 1, LLC property and the proposed properties for the application of the liquid digestate.

2 Surface Geology Map

Figure 1, Surface Geology Map, shows the geologic formations at the surface across the subject properties.

3 Surface Geology

The subject properties lie within the Texas Blackland Prairie general soil grouping. The subject properties cover a large area and therefore encompass many different soils. The soils can be generally characterized as being formed on level to gently rolling plains from calcareous shales or interbedded sandstone and shale. The clayey soils generally have high shrink-swell properties. According to the Geologic Atlas of Texas (Waco Sheet,1970) the subject properties are underlain by either the Ozan Formation (lower Taylor Marl) or Wolfe City Formation of the Taylor Group or alluvial and fluviatile terrace deposits (see Figure 1). The Ozan Formation mostly consists of calcareous clay with silt and sand content increasing upward. It grades upward to the Wolfe City Formation which consists mostly of marl, sand, sandstone, and mudstone. The Wolfe City Formation includes thin calcareous sandstone interbedded with thick calcareous marl. Thickness of the Taylor Group can be 500 feet or more. Alluvium and fluviatile terrace deposits along streams include sand, silt, clay, and gravel of various thicknesses.

4 Local Aquifers

Although the Taylor Group is not considered an aquifer, locally, small domestic wells can be completed into the Ozan Formation or Wolfe City Formation, particularly the glauconitic sandstone that can be found in the Wolfe City Formation. Additionally, some domestic wells are completed into alluvial deposits along stream channels.

The Woodbine Aquifer is the only minor aquifer as defined by the TWDB, that is within the area of the subject properties which is comprised of the Woodbine Formation (see Figure 2). It mostly consists of thin- to massive-bedded sandstone with interbeds of shale. The Woodbine Formation is separated from the overlying Taylor Group by the Austin Chalk and Eagle Ford Shale which mostly consist of limestone and chalk with interbeds of shale and sandstone. Locally, the Woodbine Aquifer is about 1,000 feet BGL. The Woodbine Aquifer is the most prevalent aquifer used, locally, for domestic and non-domestic wells.

The only major aquifer, as defined by the Texas Water Development Board (TWDB), present across the subject properties is the Trinity Aquifer. The Trinity Aquifer consists of the Paluxy Sand, Glen Rose Limestone, Travis Peak (Pearsall) Formation, and Hosston Formation (see Figure 2). The aquifer is primarily composed of sand with interbeds of clay, shale, or silt. The Glen Rose Limestone is primarily composed of limestone. Within southern Ellis and northern Navarro counties, the top of the Trinity Aquifer is about 3,000 feet below ground level (bgl). The Trinity and Woodbine aquifers are separated by the Washita and Fredericksburg Groups. Due to its depth few wells are completed to produce from the Trinity Aquifer, locally.

For the aquifers within the subject area, recharge occurs primarily through infiltration of precipitation in the outcrop areas of the different aquifers. Actual recharge to the formation is minor compared to the total precipitation across the respective outcrops and most of the precipitation is lost from the formation due to runoff downstream or evapotranspiration. Additionally, groundwater recharge occurs between formations as leakage from one formation to another.

Water quality for the different potential sources of groundwater varies, but generally, the groundwater produced from wells within Ellis and Navarro counties is fresh to slightly saline with total dissolved solids concentrations from less than 500 milligram per liter (mg/l) to greater than 1,000 mg/l. The lower concentration of TDS is usually restricted to the shallower or outcrop portion of the formation and TDS increases with depth.

5 Water Wells

All water wells within a 500-foot radius of the subject properties are identified in Table 1. Figure 3 shows the location of the wells within a 500-foot radius.

6 References

Proctor, C. V., Jr., McGowen, J. H., and Haenggi, W. T., 1970, Geologic Atlas of Texas, Waco Sheet: The University of Texas at Austin, Bureau of Economic Geology, Geologic Atlas of Texas, map scale 1:250,000

Thompson, G.L., 1967. Ground-water Resources of Ellis County, Texas. Texas Water Development Board Report 62. 115 p.

Thompson, G.L., 1972. Ground-water Resources of Navarro County, Texas. Texas Water Development Board Report 160. 63 p.

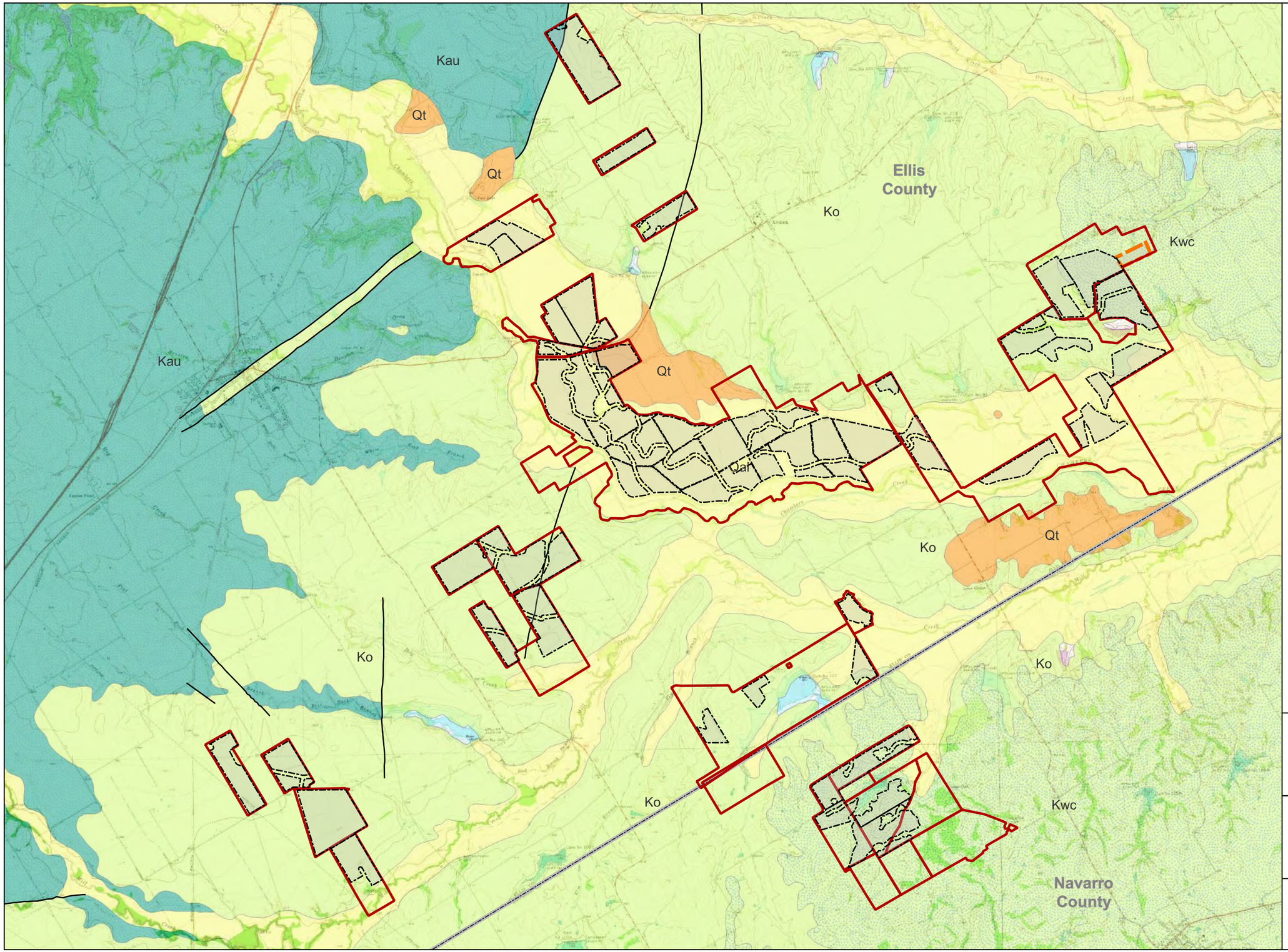
Eric Seeger, P.G.

The seal appearing on this document was authorized January 31, 2025

Table 1. Wells within 500 feet of the Subject Properties

Well ID (Tracking Number or State Well Number)	Source	Well Use	Producing	Latitude	Longitude	Well Total Depth (feet)	Well Details	Comment	Proposed Best Management Practice
289865*	SDRDB	Monitor	No	32.205001	-96.841945	40	2-in PVC screen, bentonite seal from 1 to 22 ft bgl, Concrete seal from surface to 1 ft bgl.	Casing setting unspecified. Filter pack around screen also unspecified.	Adhere to the required setbacks
534044	SDRDB	Agriculture	Yes	32.112416	-96.749250	1,360	3-in screen steel screen from 1,216 to 1,279 ft bgl; pressure cement seal from 1,260 to 1,342 ft bgl and from landsurface to 1,214 ft bgl	Completed in the Woodbine Aquifer.	Adhere to the required setbacks
3350601	TWDB	Unknown	Unknown	32.171389	-96.766944	3,007	Unknown	Abandoned Oil or Gas Well.	Adhere to the required setbacks
3350901	TWDB	Unused	No	32.165556	-96.761389	860	Unknown	Abandoned Oil or Gas Well.	Adhere to the required setbacks
3350503	TWDB	Domestic	Yes	32.181667	-96.792778	1,185	4.5-in Steel Casing	Completed in the Woodbine Aquifer.	Adhere to the required setbacks

Notes: Asterisk (*) drillers report indicates known location error, well address is in Athens, Texas. Bgl is below ground level.



Explanation

- Proposed Plant Site
- Land Management Unit
- Subject Property
- Counties
- Fault

Surface Geology

- Alluvium
- Fluviatile Terrace Deposits
- Austin Chalk
- Ozan Formation (lower Taylor marl)
- Wolfe City Formation

0 1 2 mi

Ellis AD 1, LLC

Figure 1 - Surface Geology

THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

Explanation

- Proposed Plant Site
- Land Management Unit
- Subject Property

Minor Aquifer

- Woodbine (subcrop)

Major Aquifer

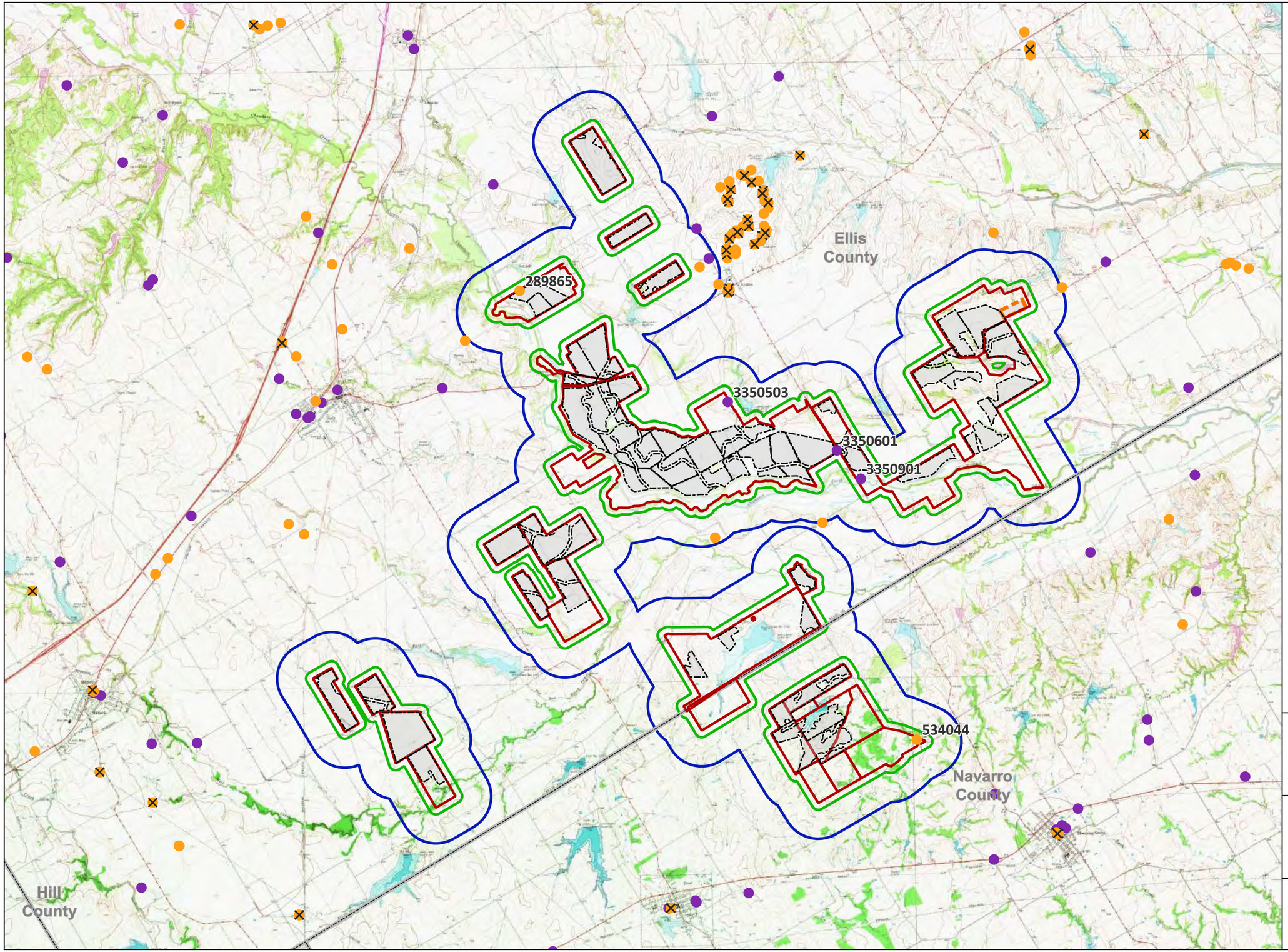
- Trinity (subcrop)
- Counties

0 1 2 mi

Ellis AD 1, LLC

Figure 2 - Local Major and Minor Aquifers

THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists



Explanation

- Submitted Drillers Report Database Well
- TWDB Registered Well
- Submitted Drillers Report Database Plugged Well
- 500 foot Buffer
- Half-Mile Buffer
- Proposed Plant Site
- Land Management Unit
- Subject Property
- Counties

7,000 7,000 ft

Ellis AD 1, LLC

Figure 3 - Well Location Map

THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

ATTACHMENT R

SOILS REPORT
EFFLUENT IRRIGATION SYSTEM

Soil maps for the irrigation areas are shown in Figures 1-7. Individual irrigation tracts are referred to as land management units (LMUs). Current irrigation areas include 50 LMUs as shown in these figures. Soils mapping was based upon file information provided by the NRCS online soil survey database (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). The 50 LMUs are characterized by 33 general soil groups as shown in the following table:

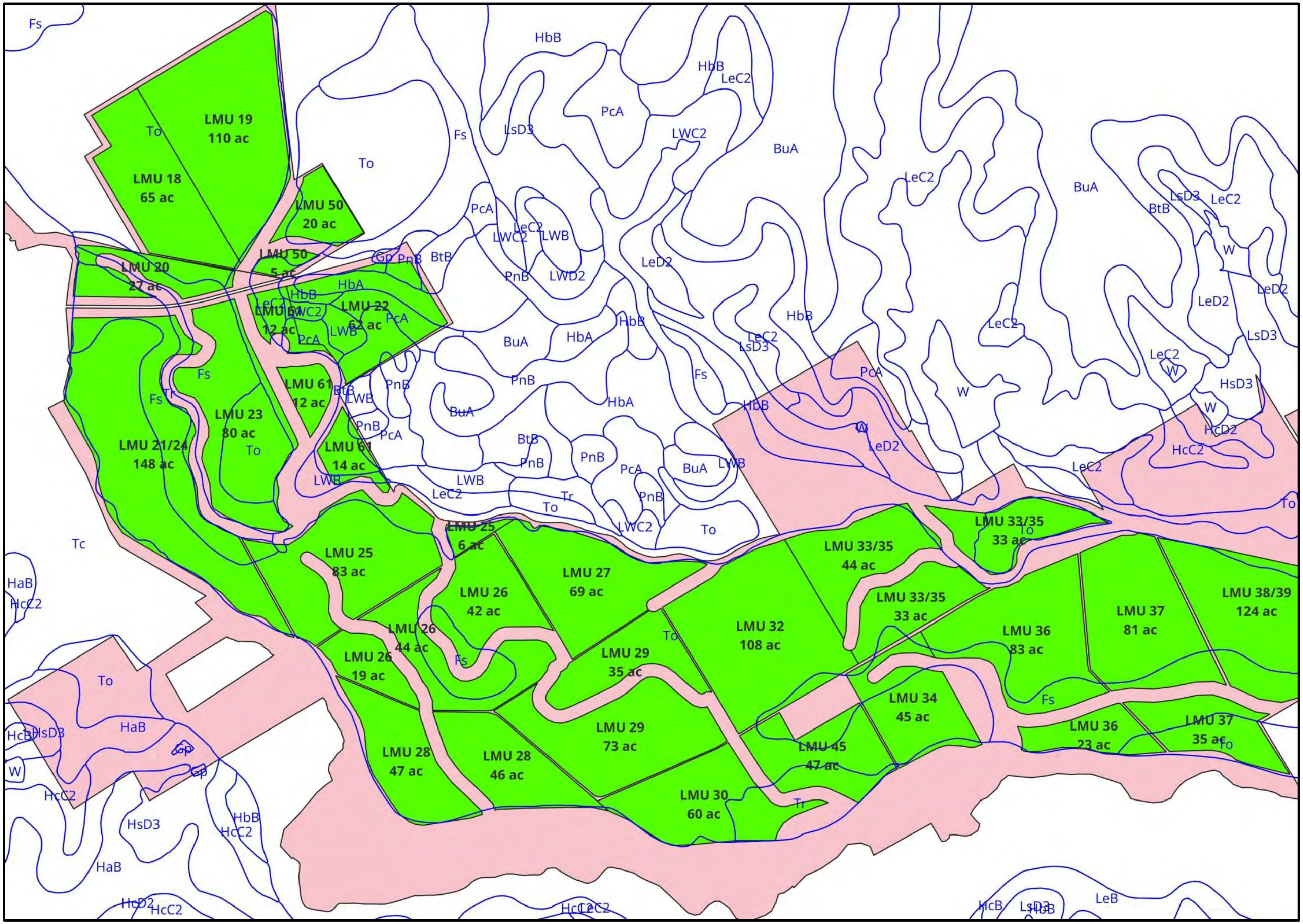
TABLE 1 – LIST OF GENERAL SOIL GROUPS

County	Symbol	Soil Name	Acres	% of Total
Ellis	BtB	Burleson clay, 1 to 3 percent slopes	200.8	4.4%
Ellis	BuA	Burleson clay, 0 to 1 percent slopes	106.2	2.3%
Ellis	Fs	Frio silty clay, 0 to 1 percent slopes, occasionally flooded	272.2	6.0%
Ellis	Gp	Gravel pits	0	0.0%
Ellis	HaA	Houston Black clay, 0 to 1 percent slopes	147.6	3.2%
Ellis	HaB	Houston Black clay, 1 to 3 percent slopes	607.6	13.3%
Ellis	HbA	Branyon clay, 0 to 1 percent slopes	260	5.7%
Ellis	HbB	Branyon clay, 1 to 3 percent slopes	492	10.8%
Ellis	HcC2	Heiden clay, 3 to 5 percent slopes, eroded	137.5	3.0%
Ellis	HcD2	Heiden clay, 5 to 8 percent slopes, eroded	1.2	0.0%
Ellis	HsD3	Heiden-Ferris complex, 5 to 8 percent slopes, severely eroded	11	0.2%
Ellis	LeB	Lewisville silty clay, 1 to 3 percent slopes	13.8	0.3%
Ellis	LeC2	Lewisville silty clay, 3 to 5 percent slopes, eroded	82.9	1.8%
Ellis	LeD2	Lewisville silty clay, 5 to 8 percent slopes, eroded	2	0.0%
Ellis	LsD3	Altoga soils, 5 to 8 percent slopes, severely eroded	3.9	0.1%
Ellis	LWB	Lewisville association, 1 to 3 percent slopes	9	0.2%
Ellis	LWC2	Lewisville association, 3 to 5 percent slopes, moderately eroded	3.6	0.1%
Ellis	PcA	Normangee clay loam, 0 to 2 percent slopes	19.8	0.4%
Ellis	PnB	Normangee and Silawa soils, 1 to 3 percent slopes	4.2	0.1%
Ellis	Sc	Slickspots	0.3	0.0%
Ellis	Tc	Trinity clay, 0 to 1 percent slopes, frequently flooded	105.4	2.3%
Ellis	To	Trinity clay, 0 to 1 percent slopes, occasionally flooded	1545.7	33.9%
Ellis	Tr	Trinity clay, 0 to 1 percent slopes, wet, occasionally flooded, frequently ponded	141.3	3.1%
Navarro	FeD2	Ferris clay, 3 to 8 percent slopes, eroded	25.8	0.6%
Navarro	FhE2	Ferris and Heiden clays, 5 to 15 percent slopes, eroded	38	0.8%
Navarro	HaB	Heiden clay, 1 to 3 percent slopes	30	0.7%
Navarro	HaC	Heiden clay, 3 to 5 percent slopes	16.2	0.4%
Navarro	HaC2	Heiden clay, 3 to 5 percent slopes, eroded	76.6	1.7%
Navarro	HaD2	Heiden clay, 5 to 8 percent slopes, eroded	107.9	2.4%
Navarro	HbB	Houston Black clay, 1 to 3 percent slopes	65.5	1.4%
Navarro	Tn	Trinity clay, 0 to 1 percent slopes, occasionally flooded	24.6	0.5%
Navarro	Tr	Trinity clay, 0 to 1 percent slopes, frequently flooded	0.7	0.0%
		TOTAL	4553.3	100.0%

FIGURE 1


LMU DBR
194 ac
LMU Weeks
61 ac
LMU Cal
64 ac
LMU SB1
78 ac
LMU SB2
38 ac
HbB
HbA
LeC2
HcC2
HcD2
HsD3
HaB
Tc
DAM
W
HcB
LeB
LeD2
HbB
LWC2
BuA
BtB
EdD2
PcA
LWD2
To
Gp
Tr
AuC2
AuB
EdF
LWB
Fs
HcD2
Br
HaA
AuD2
LsD3
Sc

FIGURE 2



LMU 19
110 ac
LMU 18
65 ac
LMU 50
20 ac
LMU 50
5 ac
LMU 20
27 ac
LMU 22
62 ac
LMU 61
12 ac
LMU 61
12 ac
LMU 23
80 ac
LMU 61
14 ac
LMU 21/24
148 ac
LMU 25
83 ac
LMU 25
6 ac
LMU 26
42 ac
LMU 27
69 ac
LMU 26
44 ac
LMU 26
19 ac
LMU 29
35 ac
LMU 29
73 ac
LMU 28
47 ac
LMU 28
46 ac
LMU 30
60 ac
LMU 32
108 ac
LMU 33/35
44 ac
LMU 33/35
33 ac
LMU 33/35
33 ac
LMU 34
45 ac
LMU 45
47 ac
LMU 36
83 ac
LMU 36
23 ac
LMU 37
81 ac
LMU 37
35 ac
LMU 38/39
124 ac

FIGURE 3

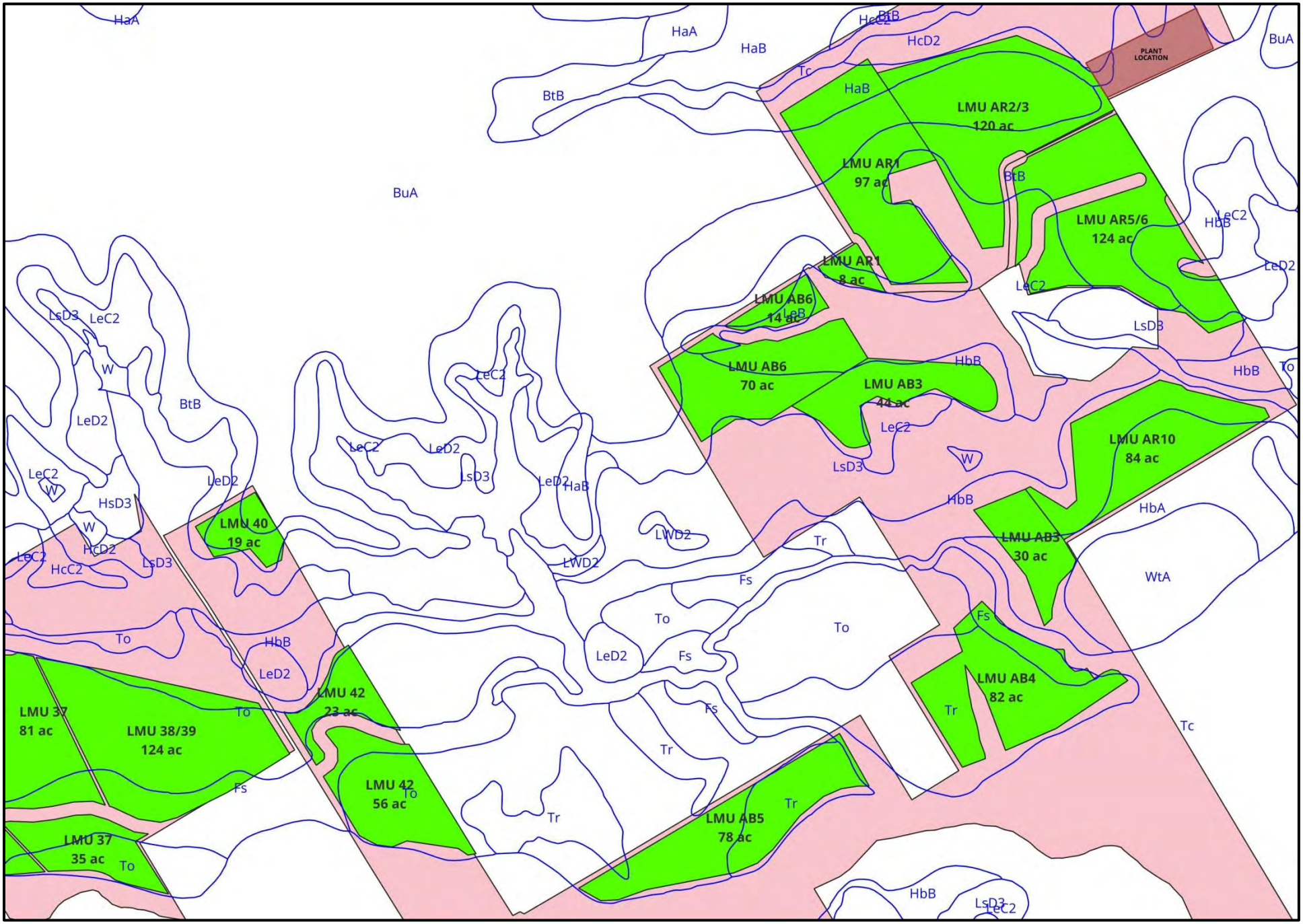

PLANT LOCATION
LMU AR2/3
120 ac
LMU AR1
97 ac
LMU AR5/6
124 ac
LMU AR1
8 ac
LMU AB6
14 ac
LMU AB6
70 ac
LMU AB3
44 ac
LMU AR10
84 ac
LMU AB3
30 ac
LMU AB4
82 ac
LMU AB5
78 ac
LMU 40
19 ac
LMU 42
23 ac
LMU 42
56 ac
LMU 37
81 ac
LMU 38/39
124 ac
LMU 37
35 ac
HaA
HaB
HcD2
BtB
Tc
BuA
LeC2
HbB
LeD2
LsD3
W
HsD3
HcC2
LWD2
Fs
To
Tr
HbA
WtA
HbB

FIGURE 4

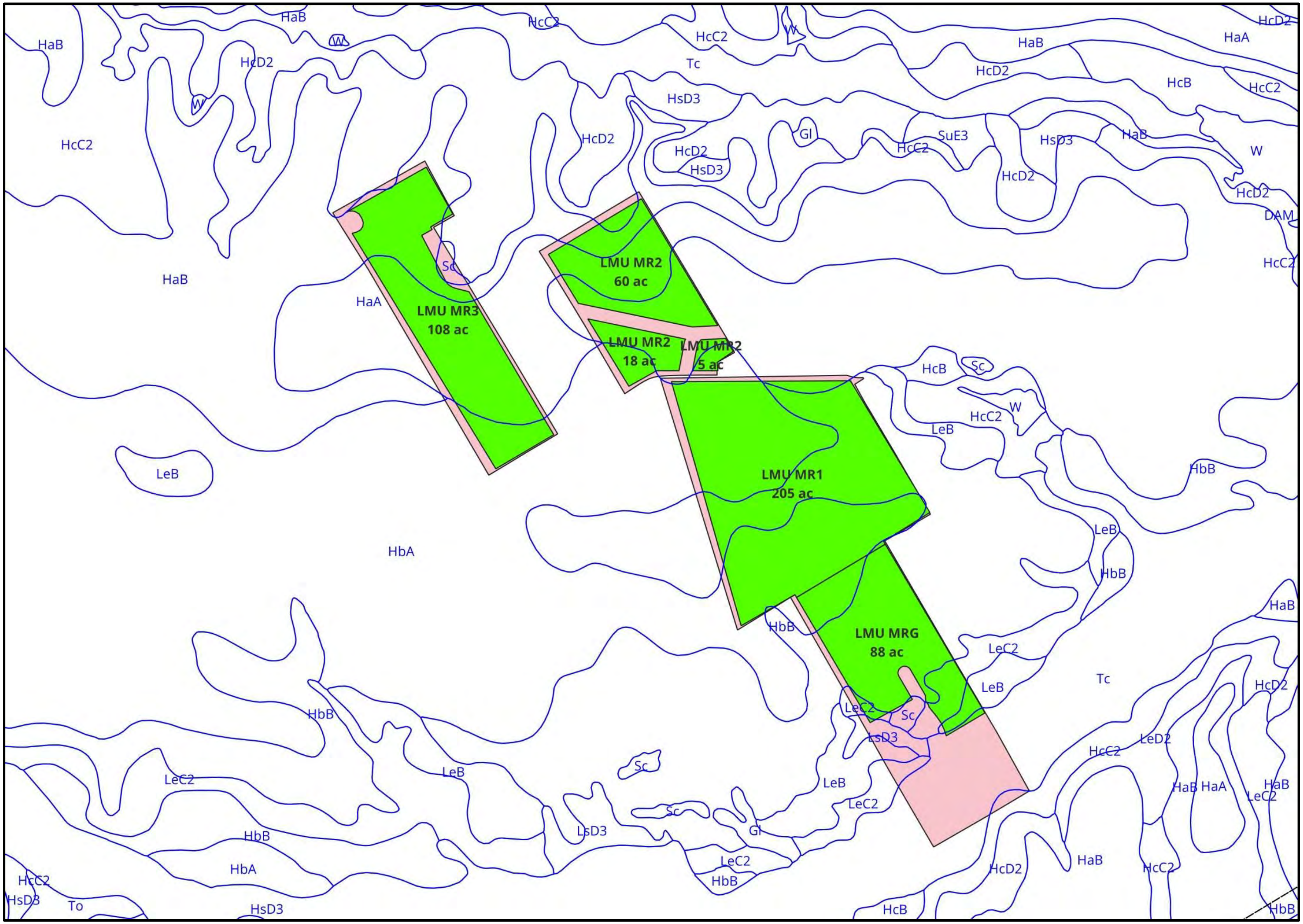

LMU MR3
108 ac
LMU MR2
60 ac
LMU MR2
18 ac
LMU MR2
5 ac
LMU MR1
205 ac
LMU MRG
88 ac
HaB
HcC2
HcD2
HaA
HbA
HbB
LeB
LeC2
Tc
HsD3
HcB
Gl
SuE3
W
DAM
Sc
LsD3
LeD2
To

FIGURE 5

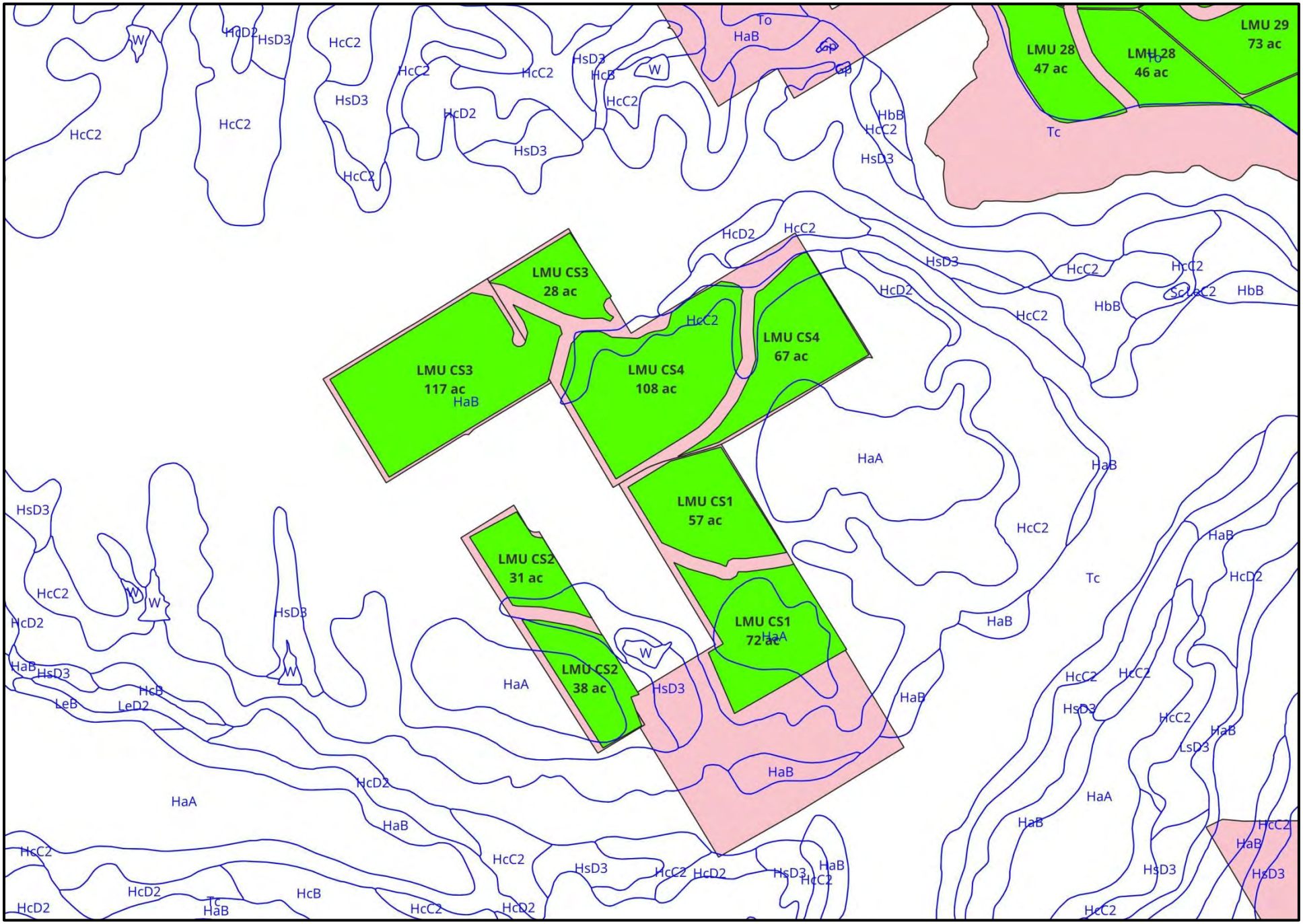

LMU CS3
28 ac
LMU CS3
117 ac
LMU CS4
108 ac
LMU CS4
67 ac
LMU CS1
57 ac
LMU CS2
31 ac
LMU CS1
72 ac
LMU CS2
38 ac
LMU 28
47 ac
LMU 28
46 ac
LMU 29
73 ac
HcC2
HcD2
HsD3
HaB
HaA
HbB
HcB
HsB
LeB
LeD2
LsD3
Tc
To
W
Gp

FIGURE 6

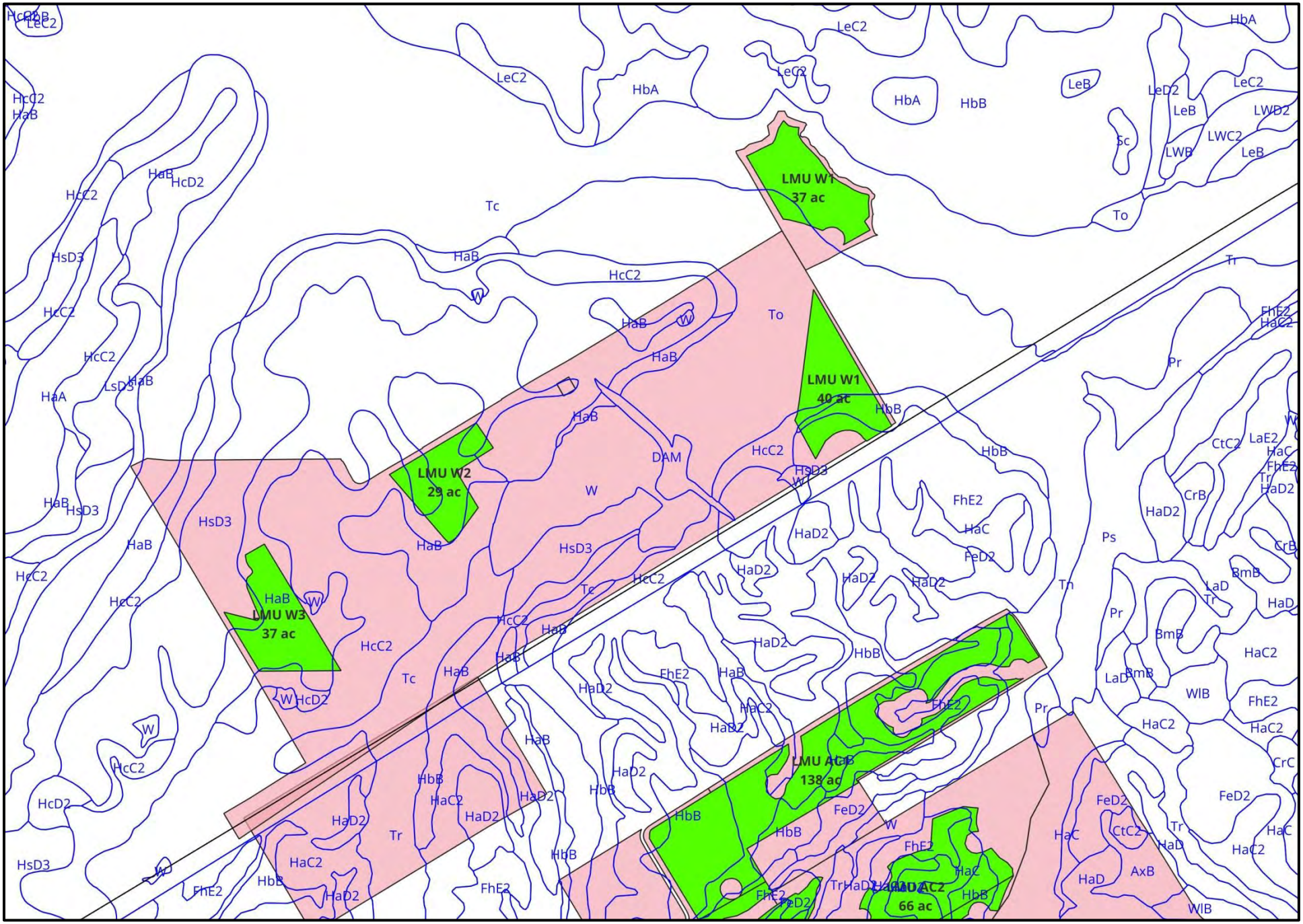
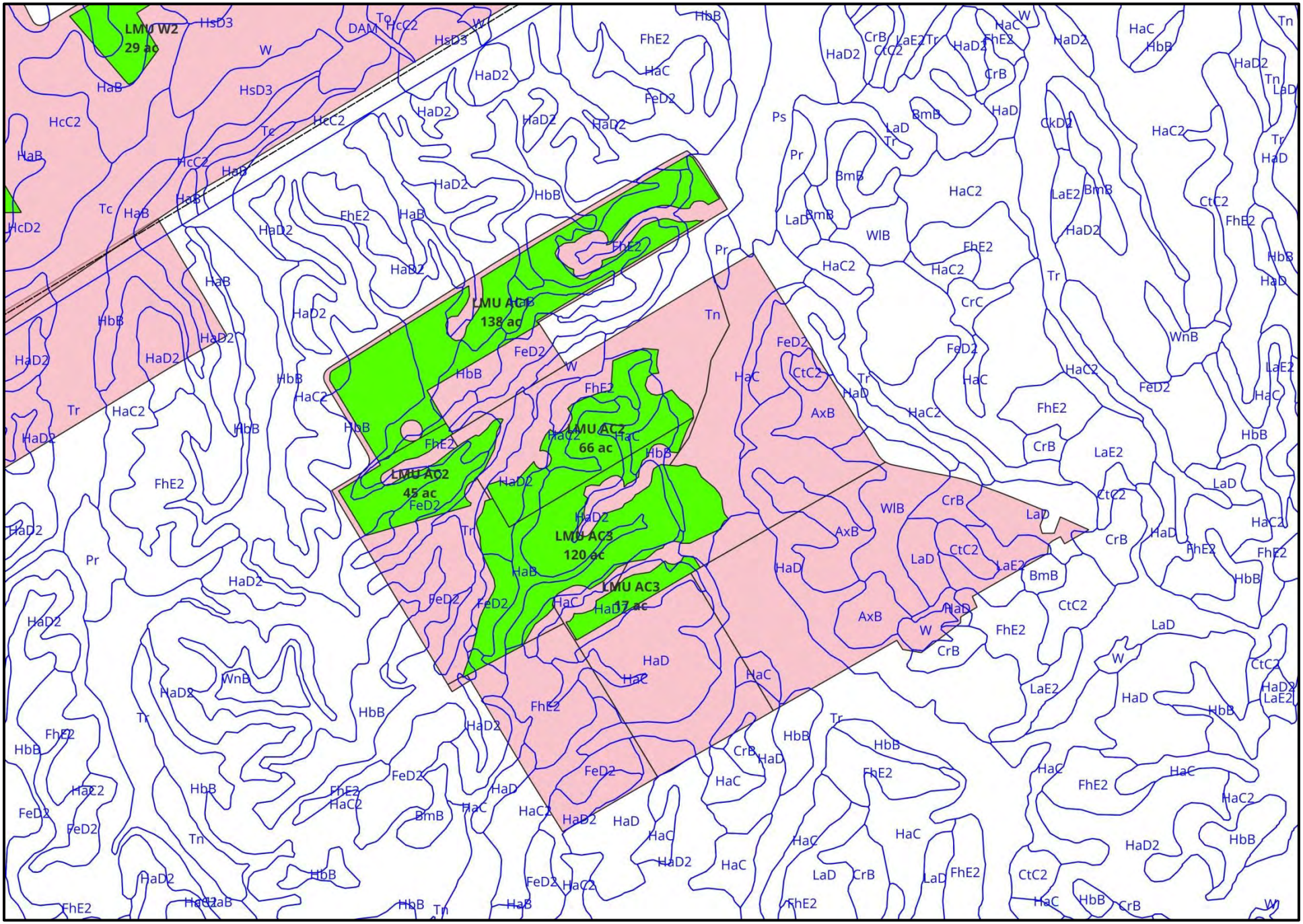

LMU W1
37 ac
LMU W1
40 ac
LMU W2
29 ac
LMU W3
37 ac
LMU AGB
138 ac
LMU AC2
66 ac

FIGURE 7


LMU W2
29 ac
LMU AC1
138 ac
LMU AC2
66 ac
LMU AC2
45 ac
LMU AC3
120 ac
LMU AC3
17 ac

A general description of the major soil component within a soil map unit is provided below along with percentages of minor components:

ELLIS COUNTY

BtB - Burleson clay, 1 to 3 percent slopes

Component: Burleson (85%)

The Burleson component makes up 85 percent of the map unit. Slopes are 1 to 3 percent. This component is on circular gilgai on broad stream terraces on river valleys. The parent material consists of calcareous clayey alluvium of Pleistocene age derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 9 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Wilson (8%)

Component: Branyon (7%)

BuA - Burleson clay, 0 to 1 percent slopes

Component: Burleson (90%)

The Burleson component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on circular gilgai on broad stream terraces on river valleys. The parent material consists of calcareous clayey alluvium of Pleistocene age derived from mixed sources. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 2s. Irrigated land capability classification is 2s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 9 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Wilson (5%)

Component: Branyon (5%)

Fs - Frio silty clay, 0 to 1 percent slopes, occasionally flooded

Component: Frio, occasionally flooded (85%)

The Frio, occasionally flooded component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains on dissected plains. The parent material consists of Calcareous loamy alluvium derived from mudstone over clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is occasionally flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY012TX Loamy Bottomland ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 24 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Tinn, occasionally flooded (10%)

Component: Oakalla, occasionally flooded (5%)

Gp - Gravel pits

Component: Pits, gravel (100%)
The Pits is a minor miscellaneous area.

HaA - Houston Black clay, 0 to 1 percent slopes

Component: Houston Black (85%)
The Houston Black component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on linear gilgai on plains on dissected plains. The parent material consists of clayey residuum weathered from calcareous mudstone of Upper Cretaceous Age. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Wilson (8%)

Component: Heiden (7%)

HaB - Houston Black clay, 1 to 3 percent slopes

Component: Houston Black (80%)
The Houston Black component makes up 80 percent of the map unit. Slopes are 1 to 3 percent. This component is on linear gilgai on ridges on dissected plains. The parent material consists of clayey residuum weathered from calcareous mudstone of Upper Cretaceous Age. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Heiden (15%)

Component: Fairlie (5%)

HbA - Branyon clay, 0 to 1 percent slopes

Component: Branyon (85%)
The Branyon component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on circular gilgai on stream terraces on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone of Pleistocene age. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 9 percent. There are no saline

horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Burleson (5%)

Component: Lewisville (5%)

Component: Houston Black (5%)

HbB - Branyon clay, 1 to 3 percent slopes

Component: Branyon (85%)
The Branyon component makes up 85 percent of the map unit. Slopes are 1 to 3 percent. This component is on circular gilgai on stream terraces on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone of Pleistocene age. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 9 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Lewisville (5%)

Component: Burleson (5%)

Component: Houston Black (5%)

HcC2 - Heiden clay, 3 to 5 percent slopes, eroded

Component: Heiden, moderately eroded (85%)
The Heiden, moderately eroded component makes up 85 percent of the map unit. Slopes are 3 to 5 percent. This component is on ridges on dissected plains. The parent material consists of clayey residuum weathered from mudstone. Depth to a root restrictive layer, densic material, is 40 to 65 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY009TX Southern Eroded Blackland ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 14 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

Component: Houston Black (10%)

Component: Ferris, severely eroded (5%)

HcD2 - Heiden clay, 5 to 8 percent slopes, eroded

Component: Heiden, moderately eroded (85%)
The Heiden, moderately eroded component makes up 85 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges on dissected plains. The parent material consists of clayey residuum weathered from mudstone. Depth to a root restrictive layer, densic material, is 40 to 65 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic

matter content in the surface horizon is about 3 percent. This component is in the R086AY009TX Southern Eroded Blackland ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 14 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

Component: Ferris, moderately eroded (10%)

Component: Heiden, severely eroded (5%)

HsD3 - Heiden-Ferris complex, 5 to 8 percent slopes, severely eroded

Component: Heiden, severely eroded (65%)
The Heiden, severely eroded component makes up 65 percent of the map unit. Slopes are 5 to 8 percent. This component is on linear gilgai on ridges on dissected plains. The parent material consists of clayey residuum weathered from clayey shale of Eagleford Shale or Taylor Marl. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY008TX Northern Eroded Blackland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Ferris, severely eroded (30%)
The Ferris, severely eroded component makes up 30 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges, dissected plains. The parent material consists of clayey residuum weathered from calcareous shale of the Taylor Marl group. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R086AY008TX Northern Eroded Blackland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 16 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Unnamed (5%)

LeB - Lewisville silty clay, 1 to 3 percent slopes

Component: Lewisville (85%)
The Lewisville component makes up 85 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY007TX Southern Clay Loam ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Altoga (10%)

Component: Branyon (5%)

LeC2 - Lewisville silty clay, 3 to 5 percent slopes, eroded

Component: Lewisville, eroded (85%)
The Lewisville, eroded component makes up 85 percent of the map unit. Slopes are 3 to 5 percent. This component is on stream terraces on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY007TX Southern Clay Loam ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Altoga, eroded (15%)

LeD2 - Lewisville silty clay, 5 to 8 percent slopes, eroded

Component: Lewisville, eroded (95%)
The Lewisville, eroded component makes up 95 percent of the map unit. Slopes are 5 to 8 percent. This component is on stream terraces on river valleys. The parent material consists of alluvium of Quaternary age derived from mixed sources. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY006TX Northern Clay Loam ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent.

Component: Unnamed (5%)

LsD3 - Altoga soils, 5 to 8 percent slopes, severely eroded

Component: Altoga, severely eroded (95%)
The Altoga, severely eroded component makes up 95 percent of the map unit. Slopes are 5 to 8 percent. This component is on stream terraces on dissected plains. The parent material consists of clayey alluvium derived from mixed sources. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R086AY010TX Northern Blackland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 58 percent.

Component: Unnamed (5%)

LWB - Lewisville association, 1 to 3 percent slopes

Component: Lewisville (38%)
The Lewisville component makes up 38 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces on dissected plains. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY007TX Southern Clay Loam ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Lewisville (37%)

The Lewisville component makes up 37 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces on dissected plains. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY007TX Southern Clay Loam ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Altoga (15%)

Component: Branyon (10%)

LWC2 - Lewisville association, 3 to 5 percent slopes, moderately eroded

Component: Lewisville, moderately eroded (43%)

The Lewisville, moderately eroded component makes up 43 percent of the map unit. Slopes are 3 to 5 percent. This component is on stream terraces on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY007TX Southern Clay Loam ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Lewisville (42%)

The Lewisville component makes up 42 percent of the map unit. Slopes are 3 to 5 percent. This component is on stream terraces on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R086AY007TX Southern Clay Loam ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Altoga, moderately eroded (10%)

Component: Branyon (5%)

PcA - Normangee clay loam, 0 to 2 percent slopes

Component: Normangee (85%)

The Normangee component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on ridges on dissected plains. The parent material consists of calcareous clayey residuum weathered from shale. Depth to a root restrictive layer, bedrock, densic, is 40 to 66 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R086AY004TX Southern Claypan Prairie ecological site. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. The calcium

carbonate equivalent within 40 inches, typically, does not exceed 3 percent. The soil has a slightly saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 6 within 30 inches of the soil surface.

Component: Crockett (10%)

Component: Wilson (5%)

PnB - Normangee and Silawa soils, 1 to 3 percent slopes

Component: Normangee (80%)
The Normangee component makes up 80 percent of the map unit. Slopes are 1 to 3 percent. This component is on ridges on inland dissected coastal plains. The parent material consists of residuum weathered from shale in the Cook Mountain and Wilcox formations of Eocene age. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R086AY003TX Northern Claypan Prairie ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent. The soil has a slightly saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 6 within 30 inches of the soil surface.

Component: Silawa (15%)
The Silawa component makes up 15 percent of the map unit. Slopes are 1 to 3 percent. This component is on stream terraces on river valleys. The parent material consists of sandy alluvium of Quaternary age derived from mixed sources. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R087AY005TX Sandy Loam ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Component: Unnamed (5%)

Sc - Slickspots

Component: Slickspots (100%)
The Slickspots is a minor miscellaneous area.

Tc - Trinity clay, 0 to 1 percent slopes, frequently flooded

Component: Trinity (85%)
The Trinity component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on broad flood plains on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY013TX Clayey Bottomland ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 9 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Kaufman (10%)

Component: Whitesboro (4%)

Component: Gladewater (1%)

To - Trinity clay, 0 to 1 percent slopes, occasionally flooded

Component: Trinity (85%)
The Trinity component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on broad flood plains on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY013TX Clayey Bottomland ecological site. Nonirrigated land capability classification is 4w. Irrigated land capability classification is 4w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 11 percent. The soil has a very slightly saline horizon within 30 inches of the soil surface.

Component: Frio (5%)

Component: Seagoville (4%)

Component: Ovan (3%)

Component: Bunyan, variant, calcareous variant (2%)

Component: Gladewater (1%)

Tr - Trinity clay, 0 to 1 percent slopes, wet, occasionally flooded, frequently ponded

Component: Trinity, wet (90%)
The Trinity, wet component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on circular gilgai on broad flood plains on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, April, May. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY013TX Clayey Bottomland ecological site. Nonirrigated land capability classification is 5w. Irrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 11 percent. The soil has a very slightly saline horizon within 30 inches of the soil surface.

Component: Seagoville (7%)

Component: Gladewater (3%)

NAVARRO COUNTY

FeD2 - Ferris clay, 3 to 8 percent slopes, eroded

Component: Ferris, eroded (100%)
The Ferris, eroded component makes up 100 percent of the map unit. Slopes are 3 to 8 percent. This component is on linear gilgai on ridges on dissected plains. The parent material consists of residuum weathered from calcareous shale in Eagleford Shale and Taylor Marl formations of Cretaceous age. Depth to a root restrictive layer, bedrock, densic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60

inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R086AY008TX Northern Eroded Blackland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 16 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

FhE2 - Ferris and Heiden clays, 5 to 15 percent slopes, eroded

Component: Ferris, eroded (67%)

The Ferris, eroded component makes up 67 percent of the map unit. Slopes are 5 to 15 percent. This component is on linear gilgai on ridges on dissected plains. The parent material consists of residuum weathered from calcareous shale in Eagleford Shale and Taylor Marl formations of Cretaceous age. Depth to a root restrictive layer, bedrock, densic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R086AY008TX Northern Eroded Blackland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 16 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Heiden, eroded (28%)

The Heiden, eroded component makes up 28 percent of the map unit. Slopes are 5 to 15 percent. This component is on linear gilgai on ridges on dissected plains. The parent material consists of clayey residuum weathered from clayey shale of Eagleford Shale or Taylor Marl. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY008TX Northern Eroded Blackland ecological site. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Unnamed (5%)

HaB - Heiden clay, 1 to 3 percent slopes

Component: Heiden (85%)

The Heiden component makes up 85 percent of the map unit. Slopes are 1 to 3 percent. This component is on ridges on dissected plains. The parent material consists of clayey residuum weathered from mudstone. Depth to a root restrictive layer, densic material, is 40 to 65 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 14 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

Component: Houston Black (10%)

Component: Ferris (5%)

HaC - Heiden clay, 3 to 5 percent slopes

Component: Heiden (85%)

The Heiden component makes up 85 percent of the map unit. Slopes are 3 to 5 percent. This component is on ridges on dissected plains. The parent material consists of clayey residuum weathered from mudstone. Depth to a root restrictive layer, densic material, is 40 to 65 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 14 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

Component: Houston Black (10%)

Component: Ferris, moderately eroded (5%)

HaC2 - Heiden clay, 3 to 5 percent slopes, eroded

Component: Heiden, moderately eroded (85%)

The Heiden, moderately eroded component makes up 85 percent of the map unit. Slopes are 3 to 5 percent. This component is on ridges on dissected plains. The parent material consists of clayey residuum weathered from mudstone. Depth to a root restrictive layer, densic material, is 40 to 65 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY009TX Southern Eroded Blackland ecological site. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 14 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

Component: Houston Black (10%)

Component: Ferris, severely eroded (5%)

HaD2 - Heiden clay, 5 to 8 percent slopes, eroded

Component: Heiden, moderately eroded (85%)

The Heiden, moderately eroded component makes up 85 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges on dissected plains. The parent material consists of clayey residuum weathered from mudstone. Depth to a root restrictive layer, densic material, is 40 to 65 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY009TX Southern Eroded Blackland ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 14 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 7 within 30 inches of the soil surface.

Component: Ferris, moderately eroded (10%)

Component: Heiden, severely eroded (5%)

HbB - Houston Black clay, 1 to 3 percent slopes

Component: Houston Black (80%)

The Houston Black component makes up 80 percent of the map unit. Slopes are 1 to 3 percent. This component is on linear gilgai on ridges on dissected plains. The parent material consists of clayey residuum weathered from calcareous mudstone of

Upper Cretaceous Age. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY011TX Southern Blackland ecological site. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Heiden (15%)

Component: Fairlie (5%)

Tn - Trinity clay, 0 to 1 percent slopes, occasionally flooded

Component: Trinity (85%)
The Trinity component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on broad flood plains on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, November, December. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY013TX Clayey Bottomland ecological site. Nonirrigated land capability classification is 4w. Irrigated land capability classification is 4w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 11 percent. The soil has a very slightly saline horizon within 30 inches of the soil surface.

Component: Frio (5%)

Component: Seagoville (4%)

Component: Ovan (3%)

Component: Bunyan, variant, calcareous variant (2%)

Component: Gladewater (1%)

Tr - Trinity clay, 0 to 1 percent slopes, frequently flooded

Component: Trinity (85%)
The Trinity component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on broad flood plains on river valleys. The parent material consists of calcareous clayey alluvium derived from mudstone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is very high. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R086AY013TX Clayey Bottomland ecological site. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 9 percent. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Kaufman (10%)

Component: Whitesboro (4%)

Component: Gladewater (1%)

Soil properties of the soil map units are summarized in Table 2 (Ellis County) and Table 3 (Navarro County).

TABLE 2 – SOIL PROPERTIES (ELLIS COUNTY)

Map unit symbol and soil name	Map Unit Component	Component Composition %	Hydrologic group	Depth In	USDA texture	Percentage passing sieve No. 200 L-R-H	Liquid limit L-R-H	Plasticity index L-R-H	Saturated hydraulic conductivity micro m/sec	Available water capacity In/In
BtB—Burleson clay, 1 to 3 percent slopes	Burleson	85	D	0-5	Clay	67-82- 97	56-66 -75	33-41-49	0.01-0.42	0.12-0.18
				5-20	Clay, silty clay	80-90- 99	51-63 -75	34-44-54	0.01-0.42	0.12-0.18
				20-43	Silty clay, clay loam, clay	67-83- 98	51-63 -75	34-44-54	0.01-0.42	0.12-0.18
				43-60	Clay loam, clay, silty clay, silty clay loam	67-83- 98	51-63 -75	34-44-54	0.01-0.42	0.12-0.18
BuA—Burleson clay, 0 to 1 percent slopes	Burleson	90	D	0-23	Clay	67-82- 97	56-66 -75	33-41-49	0.01-0.42	0.12-0.18
				23-38	Clay, silty clay	80-90- 99	51-63 -75	34-44-54	0.01-0.42	0.12-0.18
				38-69	Clay, silty clay, clay loam	67-83- 98	51-63 -75	34-44-54	0.01-0.42	0.12-0.18
				69-90	Clay loam, silty clay loam, clay, silty clay	67-83- 98	51-63 -75	34-44-54	0.01-0.42	0.12-0.18
Fs—Frio silty clay, 0 to 1 percent slopes, occasionally flooded	Frio, occasionally flooded	85	C	0-6	Silty clay	86-92-100	56-59 -66	33-34-41	0.42-1.40	0.14-0.20
				6-50	Clay, silty clay, silty clay loam, clay loam	74-93-100	46-60 -66	25-36-41	0.42-1.40	0.14-0.20
				50-80	Silty clay loam, clay, clay loam, silty clay	74-93-100	46-60 -66	25-36-41	0.42-1.40	0.14-0.20
Gp—Gravel pits	Pits, gravel	100	D	0-80	Variable	—	0-7 -14	—	0.42-141.00	0.01-0.10
HaA—Houston Black clay, 0 to 1 percent slopes	Houston black	85	D	0-6	Clay	71-81- 90	63-70 -76	38-44-49	0.01-0.42	0.13-0.16
				6-70	Clay, silty clay	74-81- 90	63-70 -71	38-44-49	0.01-0.42	0.13-0.18
				70-80	Clay, silty clay	65-78- 95	61-71 -75	37-45-50	0.01-0.42	0.10-0.17
HaB—Houston Black clay, 1 to 3 percent slopes	Houston black	80	D	0-6	Clay	71-81- 90	63-70 -76	34-44-49	0.01-0.42	0.15-0.20
				6-70	Clay, silty clay	74-81- 90	58-70 -76	38-44-49	0.01-0.42	0.13-0.18
				70-80	Clay, silty clay	65-78- 95	61-71 -75	37-45-50	0.01-0.42	0.10-0.17
HbA—Branyon clay, 0 to 1 percent slopes	Branyon	85	D	0-12	Clay	64-79- 92	59-63 -69	35-39-43	0.42-1.40	0.14-0.18
				12-72	Clay, silty clay	62-82- 94	59-69 -74	39-43-47	0.01-0.42	0.11-0.18
				72-80	Silty clay, silty clay loam, clay loam, clay	60-85- 97	40-60 -64	23-34-47	0.01-0.42	0.12-0.21
HbB—Branyon clay, 1 to 3 percent slopes	Branyon	85	D	0-12	Clay	64-79- 92	59-63 -69	35-39-43	0.42-1.40	0.14-0.18
				12-72	Clay, silty clay	62-82- 94	59-69 -74	39-43-47	0.01-0.42	0.11-0.18
				72-80	Clay, silty clay, silty clay loam, clay loam	60-85- 97	40-60 -64	23-34-47	0.01-0.42	0.12-0.21
HcC2—Heiden clay, 3 to 5 percent slopes, eroded	Heiden, moderately eroded	85	D	0-13	Clay	65-81- 94	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				13-22	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				22-58	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				58-80	Clay	71-86- 95	50-70 -80	30-45-55	0.01-0.42	0.08-0.15
HcD2—Heiden clay, 5 to 8 percent slopes, eroded	Heiden, moderately eroded	85	D	0-8	Clay	65-81- 94	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				8-22	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				22-44	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				44-80	Clay	71-86- 95	50-70 -80	30-45-55	0.01-0.42	0.08-0.15

TABLE 2 (continued)

Map unit symbol and soil name	Map Unit Component	Component Composition %	Hydrologic group	Depth In	USDA texture	Percentage passing sieve No. 200 L-R-H	Liquid limit L-R-H	Plasticity index L-R-H	Saturated hydraulic conductivity micro m/sec	Available water capacity In/In
HsD3—Heiden-Ferris complex, 5 to 8 percent slopes, severely eroded	Heiden, severely eroded	65	D	0-9	Clay	75-87- 99	51-66 -80	32-44-55	0.01-0.42	0.12-0.18
				9-46	Clay, silty clay	75-87- 99	51-66 -80	32-44-55	0.01-0.42	0.12-0.18
				46-80	Clay	70-80- 90	49-65 -80	32-44-55	0.01-0.42	0.11-0.15
	Ferris, severely eroded	30	D	0-6	Clay	75-88-100	51-64 -76	35-45-55	0.01-0.42	0.15-0.18
				6-44	Clay, silty clay	72-86-100	51-65 -78	35-46-56	0.01-0.42	0.12-0.18
LeB—Lewisville silty clay, 1 to 3 percent slopes	Lewisville	85	C	0-15	Silty clay	87-90-100	52-52 -59	28-29-34	0.42-1.40	0.16-0.20
				15-38	Silty clay, clay loam, silty clay loam	76-88-100	39-49 -57	18-26-32	0.42-1.40	0.14-0.18
				38-69	Silty clay, clay loam, silty clay loam	65-82-100	39-50 -59	18-27-34	0.42-1.40	0.14-0.18
LeC2—Lewisville silty clay, 3 to 5 percent slopes, eroded	Lewisville, eroded	85	C	0-12	Silty clay	87-90-100	52-52 -59	28-29-34	0.42-1.40	0.16-0.20
				12-36	Silty clay, clay loam, silty clay loam	76-88-100	39-49 -57	18-26-32	0.42-1.40	0.14-0.18
				36-64	Silty clay, clay loam, silty clay loam	65-82-100	39-50 -59	18-27-34	0.42-1.40	0.14-0.18
LeD2—Lewisville silty clay, 5 to 8 percent slopes, eroded	Lewisville, eroded	95	B	0-16	Silty clay	77-86- 95	41-51 -61	20-29-37	4.00-14.00	0.16-0.20
				16-28	Silty clay, clay loam, silty clay loam	72-84- 95	40-50 -60	24-30-36	4.00-14.00	0.14-0.18
				28-52	Silty clay, clay loam, silty clay loam	62-79- 95	30-43 -55	12-23-34	4.00-14.00	0.14-0.18
LsD3—Altoga soils, 5 to 8 percent slopes, severely eroded	Altoga, severely eroded	95	B	0-16	Silty clay	70-85- 99	45-53 -60	22-29-36	4.00-14.00	0.15-0.18
				16-52	Silty clay, silty clay loam	70-85- 99	36-46 -55	18-26-33	4.00-14.00	0.15-0.18
				52-66	Silty clay, silty clay loam, loam	58-79- 99	32-44 -55	15-24-33	4.00-14.00	0.15-0.18
LWB—Lewisville association, 1 to 3 percent slopes	Lewisville	38	C	0-16	Silty clay	63-74- 83	34-42 -43	16-20-21	0.42-1.40	0.16-0.20
				16-28	Silty clay, clay loam, silty clay loam	76-88-100	39-49 -57	18-26-32	0.42-1.40	0.14-0.18
				28-52	Silty clay, clay loam, silty clay loam	65-82-100	39-50 -59	18-27-34	0.42-1.40	0.14-0.18
	Lewisville	37	C	0-16	Clay loam	68-75- 84	39-44 -46	18-22-24	1.40-4.00	0.17-0.21
				16-28	Silty clay, clay loam, silty clay loam	76-88-100	39-49 -57	18-26-32	0.42-1.40	0.14-0.18
				28-52	Silty clay, clay loam, silty clay loam	65-82-100	39-50 -59	18-27-34	0.42-1.40	0.14-0.18

TABLE 2 (continued)

Map unit symbol and soil name	Map Unit Component	Component Composition %	Hydrologic group	Depth In	USDA texture	Percentage passing sieve No. 200 L-R-H	Liquid limit L-R-H	Plasticity index L-R-H	Saturated hydraulic conductivity micro m/sec	Available water capacity In/In
LWC2—Lewisville association, 3 to 5 percent slopes, moderately eroded	Lewisville, moderately eroded	43	C	0-12	Silty clay	63-74- 83	34-42 -43	16-20-21	0.42-1.40	0.16-0.20
				12-28	Silty clay, clay loam, silty clay loam	76-88-100	39-49 -57	18-26-32	0.42-1.40	0.14-0.18
				28-52	Silty clay, clay loam, silty clay loam	65-82-100	39-50 -59	18-27-34	0.42-1.40	0.14-0.18
	Lewisville	42	C	0-12	Silty clay	63-74- 83	34-42 -43	16-20-21	0.42-1.40	0.16-0.20
				12-28	Silty clay, clay loam, silty clay loam	76-88-100	39-49 -57	18-26-32	0.42-1.40	0.14-0.18
				28-52	Silty clay, clay loam, silty clay loam	65-82-100	39-50 -59	18-27-34	0.42-1.40	0.14-0.18
PcA—Normangee clay loam, 0 to 2 percent slopes	Normangee	85	C	0-6	Clay loam	66-69- 73	40-41 -43	21-22-23	4.00-14.00	0.17-0.19
				6-44	Clay, clay loam	64-76- 86	50-62 -70	29-39-44	0.42-1.40	0.12-0.18
				44-60	Clay	63-74- 85	56-64 -67	34-41-43	0.42-1.40	0.11-0.16
PnB—Normangee and Silawa soils, 1 to 3 percent slopes	Normangee	80	D	0-6	Clay loam	65-80- 95	30-39 -48	11-19-27	0.42-1.40	0.15-0.20
				6-60	Clay, clay loam	65-81- 96	44-62 -80	22-40-58	0.01-0.42	0.12-0.18
				60-80	Stratified channery clay	65-78- 90	41-51 -60	20-28-35	0.01-0.42	0.12-0.18
	Silawa	15	B	0-7	Fine sandy loam	40-50- 60	16-21 -26	NP-4 -7	14.00-42.00	0.10-0.15
				7-32	Clay, sandy clay loam, fine sandy loam	35-50- 65	25-33 -40	8-13-18	4.00-14.00	0.12-0.17
				32-60	Clay loam, loamy fine sand, fine sandy loam	12-26- 40	16-21 -26	NP-4 -7	42.00-141.00	0.05-0.11
Sc—Slickspots	Slickspots	100	D	0-80	Clay	75-85- 95	51-63 -75	30-40-50	0.01-0.42	0.06-0.12
Tc—Trinity clay, 0 to 1 percent slopes, frequently flooded	Trinity	85	D	0-6	Clay	79-90-100	76-83 -95	49-51-59	0.01-0.42	0.15-0.17
				6-16	Clay	79-91-100	76-84 -96	49-52-65	0.01-0.42	0.11-0.16
				16-80	Clay	77-89-100	76-84 -96	49-52-65	0.01-0.42	0.09-0.12
To—Trinity clay, 0 to 1 percent slopes, occasionally flooded	Trinity	85	D	0-16	Clay	76-90-100	57-81 -99	32-47-59	0.01-0.42	0.11-0.20
				16-36	Clay, silty clay	79-92-100	67-81 -95	40-50-60	0.01-0.42	0.12-0.20
				36-75	Clay	82-92-100	71-81 -94	43-50-60	0.01-0.42	0.12-0.20
Tr—Trinity clay, 0 to 1 percent slopes, wet, occasionally flooded, frequently ponded	Trinity, wet	90	D	0-16	Clay	76-90-100	57-81 -99	32-47-59	0.01-0.42	0.11-0.20
				16-36	Clay, silty clay	79-92-100	67-81 -95	40-50-60	0.01-0.42	0.12-0.20
				36-75	Clay	82-92-100	71-81 -94	43-50-60	0.01-0.42	0.12-0.20

TABLE 3 – SOIL PROPERTIES (NAVARRO COUNTY)

Map unit symbol and soil name	Map Unit Component	Component Composition	Hydrologic group	Depth In	USDA texture	Percentage passing sieve No. 200 L-R-H	Liquid limit L-R-H	Plasticity index L-R-H	Saturated hydraulic conductivity micro m/sec	Available water capacity In/In
FeD2—Ferris clay, 3 to 8 percent slopes, eroded	Ferris, eroded	100	D	0-8	Clay	75-88-100	51-64 -76	35-45-55	0.01-0.42	0.15-0.18
				8-40	Clay, silty clay	72-86-100	51-65 -78	35-46-56	0.01-0.42	0.12-0.18
				40-66	Clay, silty clay	75-88-100	61-81 -100	42-59-75	0.01-0.42	0.11-0.15
FhE2—Ferris and Heiden clays, 5 to 15 percent slopes, eroded	Ferris, eroded	67	D	0-6	Clay	75-88-100	51-64 -76	35-45-55	0.01-0.42	0.15-0.18
				6-59	Clay, silty clay	72-86-100	51-65 -78	35-46-56	0.01-0.42	0.12-0.18
				59-80	Clay, silty clay	75-88-100	61-81 -100	42-59-75	0.01-0.42	0.11-0.15
	Heiden, eroded	28	D	0-20	Clay	75-87- 99	51-66 -80	32-44-55	0.01-0.42	0.12-0.18
				20-40	Clay, silty clay	75-87- 99	51-66 -80	32-44-55	0.01-0.42	0.12-0.18
				40-60	Clay, silty clay	70-80- 90	49-65 -80	32-44-55	0.01-0.42	0.12-0.18
				60-80	Clay	70-80- 90	49-65 -80	32-44-55	0.01-0.42	0.11-0.15
HaB—Heiden clay, 1 to 3 percent slopes	Heiden	85	D	0-6	Clay	65-81- 94	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				6-18	Silty clay, clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				18-58	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				58-70	Clay	71-86- 95	50-70 -80	30-45-55	0.01-0.42	0.08-0.15
HaC—Heiden clay, 3 to 5 percent slopes	Heiden	85	D	0-6	Clay	65-81- 94	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				6-18	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				18-58	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				58-80	Clay	71-86- 95	50-70 -80	30-45-55	0.01-0.42	0.08-0.15
HaC2—Heiden clay, 3 to 5 percent slopes, eroded	Heiden, moderately eroded	85	D	0-13	Clay	65-81- 94	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				13-22	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				22-58	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				58-80	Clay	71-86- 95	50-70 -80	30-45-55	0.01-0.42	0.08-0.15
HaD2—Heiden clay, 5 to 8 percent slopes, eroded	Heiden, moderately eroded	85	D	0-8	Clay	65-81- 94	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				8-22	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				22-44	Clay, silty clay	65-81- 98	50-60 -80	30-40-55	0.01-0.42	0.12-0.18
				44-80	Clay	71-86- 95	50-70 -80	30-45-55	0.01-0.42	0.08-0.15
HbB—Houston Black clay, 1 to 3 percent slopes	Houston black	80	D	0-6	Clay	71-81- 90	63-70 -76	34-44-49	0.01-0.42	0.15-0.20
				6-70	Clay, silty clay	74-81- 90	58-70 -76	38-44-49	0.01-0.42	0.13-0.18
				70-80	Clay, silty clay	65-78- 95	61-71 -75	37-45-50	0.01-0.42	0.10-0.17
Tn—Trinity clay, 0 to 1 percent slopes, occasionally flooded	Trinity	85	D	0-16	Clay	76-90-100	57-81 -99	32-47-59	0.01-0.42	0.11-0.20
				16-36	Clay, silty clay	79-92-100	67-81 -95	40-50-60	0.01-0.42	0.12-0.20
				36-75	Clay	82-92-100	71-81 -94	43-50-60	0.01-0.42	0.12-0.20
Tr—Trinity clay, 0 to 1 percent slopes, frequently flooded	Trinity	85	D	0-6	Clay	79-90-100	76-83 -95	49-51-59	0.01-0.42	0.15-0.17
				6-16	Clay	79-91-100	76-84 -96	49-52-65	0.01-0.42	0.11-0.16
				16-80	Clay	77-89-100	76-84 -96	49-52-65	0.01-0.42	0.09-0.12

Site-specific soils data from all 50 LMUs were collected. The soils laboratory was ServiTech. The sampling results are shown in Appendix A.

APPENDIX A – SOILS TESTING

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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Amarillo, TX 79109
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Fax 806.677.0329

LAB NO:	22810 - 22819
INVOICE NO:	173738
DATE RECEIVED:	11/22/2024
DATE REPORTED:	11/26/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

METHOD USED:			1:2 Soil-Water		1:2 Soil-Water	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP	Ammonium Acetate						Mehlich 3 ICP				
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
22810	AC1	0 - 6	8.1		0.27	Hi	2.5	3.3	6	18	342	9	16	7041	273	86	1.4	61	28	1.2	
22811	AC2	0 - 6	8.0		0.33	Hi	3.8	4.5	8	8	361	7	13	7098	233	58	1.3	55	30	1.2	
22812	AC3	0 - 6	7.9		0.38	Hi	4.6	13.9	25	5	430	10	18	6995	299	43	1.4	56	18	1.3	
22813	AC4	0 - 6	6.5		0.14	No	3.4	3.2	6	26	342	11	20	2414	218	35	2.6	173	33	0.6	
22814	CS1	0 - 6	7.4		0.29	Hi	2.7	4.4	8	22	398	9	16	7701	235	55	1.4	86	69	1.3	
22815	CS2	0 - 6	7.9		0.42	Hi	2.7	8.2	15	20	359	7	13	8473	222	52	1.1	65	96	1.5	
22816	CS3	0 - 6	8.1		0.37	Hi	2.3	7.4	13	10	313	4	7	8326	215	117	<0.1	49	69	1.3	
22817	CS4	0 - 6	8.2		0.38	Hi	2.1	4.3	8	9	238	8	14	8191	155	197	<0.1	44	107	1.0	
22818	DROTCH	0 - 6	8.1		0.34	Hi	3.2	4.9	9	8	253	6	11	7188	286	72	0.3	47	19	1.0	
22819	M1	0 - 6	8.2		0.28	Hi	1.7	3.6	6	4	258	8	14	7377	170	134	0.2	48	44	1.2	

METHOD USED:																					
Lab Number	Sample ID	Sample Depth	Date Sampled																		
22810	AC1	0 - 6	11/17/24																		
22811	AC2	0 - 6	11/17/24																		
22812	AC3	0 - 6	11/17/24																		
22813	AC4	0 - 6	11/17/24																		
22814	CS1	0 - 6	11/17/24																		
22815	CS2	0 - 6	11/17/24																		
22816	CS3	0 - 6	11/17/24																		
22817	CS4	0 - 6	11/17/24																		
22818	DROTCH	0 - 6	11/17/24																		
22819	M1	0 - 6	11/17/24																		

Analyses are representative of the samples submitted

Samples are retained 30 days after report of analysis

Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	22810 - 22819
INVOICE NO:	173738
DATE RECEIVED:	11/22/2024
DATE REPORTED:	11/26/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
22810	AC1																
22811	AC2																
22812	AC3																
22813	AC4																
22814	CS1																
22815	CS2																
22816	CS3																
22817	CS4																
22818	DROTCH																
22819	M1																

Cation Exchange Capacity

CEC	%H	%K	%Ca	%Mg	%Na
29	0	3	88	8	1
28	0	3	89	7	1
29	0	4	87	9	1
15	0	6	81	12	1
28	0	4	89	7	1
28	0	3	89	7	1
28	0	3	89	6	2
28	0	2	90	5	3
28	0	2	88	8	1
28	0	2	90	5	2

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 22810, 22811, 22812, 22813, 22814, 22815, 22816, 22817, 22818, 22819
Servi-Tech Laboratory fertilizer recommendations were not requested.

Lab Number(s): 22810, 22811, 22812, 22814, 22815, 22816, 22817, 22818, 22819
The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	22810 - 22819
INVOICE NO:	173738
DATE RECEIVED:	11/22/2024
DATE REPORTED:	11/26/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number	EAE-FacilityID	EAE-ProjectManager	EAE-FieldID	EAE-SampleSubmissionID	Comments
22810					
22811					
22812					
22813					
22814					
22815					
22816					
22817					
22818					
22819					

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	22820 - 22827
INVOICE NO:	173738
DATE RECEIVED:	11/22/2024
DATE REPORTED:	11/26/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

METHOD USED:			1:2 Soil-Water		1:2 Soil-Water	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP	Ammonium Acetate						Mehlich 3 ICP				
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
22820	M1G	0 - 6	8.0		0.35	Hi	3.6	4.4	8	8	398	21	38	7415	234	80	1.2	87	64	2.0	
22821	MRG	0 - 6	7.8		0.30	Hi	3.7	1.1	<2	7	289	7	13	8366	121	32	1.4	43	65	1.4	
22822	MR1	0 - 6	8.2		0.40	Hi	2.3	16.4	30	17	279	11	20	8520	171	99	2.2	44	87	1.3	
22823	MR2	0 - 6	8.1		0.43	Hi	2.2	17.4	31	15	267	9	16	8511	161	63	1.0	43	86	1.2	
22824	MR3	0 - 6	8.0		0.41	Hi	2.2	20.1	36	15	283	7	13	8780	147	35	0.5	47	113	1.2	
22825	W1	0 - 6	8.0		0.44	Hi	3.3	12.0	22	13	379	9	16	8912	248	61	1.3	64	53	2.0	
22826	W2	0 - 6	8.0		0.33	Hi	3.3	9.6	17	13	298	7	13	6574	211	33	1.5	56	38	1.5	
22827	W3	0 - 6	7.6		0.28	Hi	2.4	9.2	17	33	265	10	18	5976	265	48	1.2	63	79	1.4	

METHOD USED:																					
Lab Number	Sample ID	Sample Depth	Date Sampled																		
22820	M1G	0 - 6	11/17/24																		
22821	MRG	0 - 6	11/17/24																		
22822	MR1	0 - 6	11/17/24																		
22823	MR2	0 - 6	11/17/24																		
22824	MR3	0 - 6	11/17/24																		
22825	W1	0 - 6	11/17/24																		
22826	W2	0 - 6	11/17/24																		
22827	W3	0 - 6	11/17/24																		

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	22820 - 22827
INVOICE NO:	173738
DATE RECEIVED:	11/22/2024
DATE REPORTED:	11/26/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
22820	M1G																
22821	MRG																
22822	MR1																
22823	MR2																
22824	MR3																
22825	W1																
22826	W2																
22827	W3																

Cation Exchange Capacity

Lab Number	CEC	%H	%K	%Ca	%Mg	%Na
22820	28	0	4	88	7	1
22821	27	0	3	93	4	1
22822	28	0	3	91	5	2
22823	27	0	3	92	5	1
22824	27	0	3	92	5	1
22825	28	0	3	88	7	1
22826	28	0	3	90	6	1
22827	28	0	2	89	8	1

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 22820, 22821, 22822, 22823, 22824, 22825, 22826, 22827
Servi-Tech Laboratory fertilizer recommendations were not requested.

Lab Number(s): 22820, 22821, 22822, 22823, 22824, 22825, 22826, 22827
The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Lab Number	EAE-FacilityID	EAE-ProjectManager	EAE-FieldID	EAE-SampleSubmissionID	Comments
22820					
22821					
22822					
22823					
22824					
22825					
22826					
22827					

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

ENVIRO-AG ENGINEERING, INC.
EAE
AMARILLO · STEPHENVILLE · ARTESIA

Enviro-Ag Engineering, Inc.
3404 Airway Blvd,. Amarillo, TX 79118
Tel. 806-353-6123 Fax 806-353-4132

SOIL SAMPLE CHAIN OF CUSTODY RECORD

Producer/Facility: Vanguard Organics - CLC

County: Ellis

Date Sampled: 11/17/2024

Date Shipped: 11/19/2024

Project Manager: Corey Mullin

Sample Type	Sample ID	Depth	Test Package	Crop	YG
Soil	22810 AC1	0-6	TCEQ Complete		
Soil	22811 AC2	0-6	TCEQ Complete		
Soil	22812 AC3	0-6	TCEQ Complete		
Soil	22813 AC4	0-6	TCEQ Complete		
Soil	22814 CS1	0-6	TCEQ Complete		
Soil	22815 CS2	0-6	TCEQ Complete		
Soil	22816 CS3	0-6	TCEQ Complete		
Soil	22817 CS4	0-6	TCEQ Complete		
Soil	22818 Dortch	0-6	TCEQ Complete		
Soil	22819 M1	0-6	TCEQ Complete		
Soil	22820 M1G	0-6	TCEQ Complete		
Soil	22821 MRG	0-6	TCEQ Complete		
Soil	22822 MR1	0-6	TCEQ Complete		
Soil	22823 MR2	0-6	TCEQ Complete		
Soil	22824 MR3	0-6	TCEQ Complete		
Soil	22825 W1	0-6	TCEQ Complete		
Soil	22826 W2	0-6	TCEQ Complete		
Soil	22827 W3	0-6	TCEQ Complete		
	[illegible]				

Relinquished By: R Ref. Internal COC

Company: EAE

Relinquished By: Lisa Postmus

Company: EAE

Date/Time: 11/22 8am

Received By: KB

Relinquished By:

Company: ServiTech Lab

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	10000 - 10008
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

METHOD USED:			1:2 Soil-Water		1:2 Soil-Water	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP				Ammonium Acetate		Mehlich 3 ICP	Calculated DTPA	DTPA			
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
10000	36	0 - 6	8.3		0.30	Hi	1.9	7.4	13	17	269	12	22	7803	138	32	0.8	10	1.2	1.1	
10001	37	0 - 6	8.3		0.35	Hi	2.0	7.7	14	17	308	16	29	8302	166	42	0.7	9	1.3	1.1	
10002	38/39	0 - 6	8.3		0.34	Hi	1.9	6.0	11	11	270	15	27	8783	175	42	0.6	9	1.1	1.1	
10003	40	0 - 6	7.9		0.27	Hi	2.2	14.6	26	10	165	8	14	8511	177	26	0.4	10	2.9	0.5	
10004	41	0 - 6	8.2		0.20	Hi	1.6	9.4	17	14	170	11	20	6236	94	29	0.7	9	1.6	0.8	
10005	42	0 - 6	8.2		0.25	Hi	1.8	7.8	14	27	300	14	25	6836	122	35	0.9	9	1.8	1.1	
10006	45	0 - 6	8.2		0.23	Hi	2.2	6.1	11	19	339	15	27	6665	111	37	0.8	10	1.6	1.2	
10007	50	0 - 6	8.0		0.42	Hi	2.8	9.2	17	15	385	19	34	8231	197	95	0.8	11	1.5	1.2	
10008	61	0 - 6	7.5		0.51	Hi	2.5	16.1	29	46	416	25	45	6397	148	88	1.2	10	2.3	0.9	

METHOD USED:				KCl Extr.		Calculated	TKN	Sat. Paste													
Lab Number	Sample ID	Sample Depth	Date Sampled	Ammonium Nitrogen ppm	lb. /A	Total N ppm	TKN ppm	Saturation % Sat	Electrical Conductivity mmho/cm	Calcium mg/L Ca	Magnesium mg/L Mg	Sodium mg/L Na	Sodium Adsorption Ratio								
10000	36	0 - 6	10/15/24	3	5	985	978	53	0.43	84	3	10	0.3								
10001	37	0 - 6	10/15/24	3	5	840	832	59	0.44	88	4	13	0.4								
10002	38/39	0 - 6	10/15/24	3	5	872	866	61	0.46	80	3	14	0.4								
10003	40	0 - 6	10/15/24	6	11	1003	988	60	0.50	96	4	9	0.2								
10004	41	0 - 6	10/15/24	4	7	860	851	48	0.45	92	3	11	0.3								
10005	42	0 - 6	10/15/24	3	5	921	913	51	0.46	88	3	11	0.3								
10006	45	0 - 6	10/15/24	3	5	1092	1086	57	0.45	83	3	11	0.3								
10007	50	0 - 6	10/15/24	3	5	1249	1240	66	0.71	132	5	29	0.7								
10008	61	0 - 6	10/15/24	3	5	1533	1517	56	1.58	274	10	52	0.8								

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT:	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118
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LAB NO:	10000 - 10008
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	Cation Exchange Capacity CEC	%H	%K	%Ca	%Mg	%Na
10000	36	CORN	120 bu				135	60	0	3	0	0	0	0		0		27	0	3	93	4	1
10000	36	WINTER WHEAT (GRAIN)	160 bu				260	100	0	0	5	0	0	0		0							
10001	37	CORN	120 bu				130	60	0	4	0	0	0	0		0		27	0	3	91	5	1
10001	37	WINTER WHEAT (GRAIN)	160 bu				260	100	0	0	0	0	0	0		0							
10002	38/39	CORN	120 bu				135	80	0	4	0	1.5	0	0		0		27	0	3	91	5	1
10002	38/39	WINTER WHEAT (GRAIN)	160 bu				265	115	0	0	0	1.5	0	0		0							
10003	40	CORN	120 bu				105	85	20	6	0	0	0	0		0		27	0	2	93	5	0
10003	40	WINTER WHEAT (GRAIN)	160 bu				245	120	35	0	0	0	0	0		0							
10004	41	CORN	120 bu				135	70	20	4	0	0	0	0		0		26	0	2	95	3	0
10004	41	WINTER WHEAT (GRAIN)	160 bu				255	110	30	0	5	0	0	0		0							
10005	42	CORN	120 bu				135	35	0	2	0	0	0	0		0		27	0	3	93	4	1
10005	42	WINTER WHEAT (GRAIN)	160 bu				260	80	0	0	0	0	0	0		0							
10006	45	CORN	120 bu				130	55	0	3	0	0	0	0		0		27	0	3	93	3	1
10006	45	WINTER WHEAT (GRAIN)	160 bu				265	100	0	0	0	0	0	0		0							
10007	50	CORN	120 bu				105	65	0	3	0	0	0	0		0		28	0	4	89	6	1
10007	50	WINTER WHEAT (GRAIN)	160 bu				260	105	0	0	0	0	0	0		0							
10008	61	CORN	120 bu				100	0	0	0	0	0	0	0		0		28	0	4	90	4	1
10008	61	WINTER WHEAT (GRAIN)	160 bu				245	20	0	0	0	0	0	0		0							

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007

CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P2O5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	10000 - 10008
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number(s): 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008

GRAZING WHEAT: The above nitrogen (N) recommendations are for grain production only. An extra 20 to 50 lb. of topdress N per acre may be needed to replace the N removed during grazing (Note: Apply 30 to 35 lb. of N for every 100 lb. of weight gained by cattle. A stocker calf removes about 15 lb. of N during a 30 day grazing period.)

Lab Number(s): 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008

CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Lab Number(s): 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008

The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Lab Number(s): 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008

ZINC: The "c-DTPA-Zinc" equivalent was calculated from the Mehlich-3 ICP zinc value. Zinc fertilizer recommendations were calculated using the Mehlich-3 ICP zinc value.

Lab Number(s): 10000, 10004

SULFUR: Suggest applying a portion of the recommended sulfur fertilizer at topdress time. Sulfur fertilizer has not consistently improved wheat yields or protein content, but can help wheat "green up" in spring. Topdressing sulfur is most beneficial on sandy soils, soils with low organic matter, and wheat with above-average yield potential.

Lab Number(s): 10002

MANGANESE: Soil manganese availability can be affected by soil pH and/or soil moisture conditions. Yield response to manganese fertilization is infrequent, so plant analysis is suggested to confirm a deficiency. If fertilizer is required, suggest band application because broadcast applications are generally not effective.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

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DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number	EAE-FacilityID	EAE-ProjectManager	EAE-FieldID	EAE-SampleSubmissionID	Comments
10000					
10001					
10002					
10003					
10004					
10005					
10006					
10007					
10008					

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	9990 - 9999
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

METHOD USED:			1:2 Soil-Water		1:2 Soil-Water	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP				Ammonium Acetate		Mehlich 3 ICP	Calculated DTPA	DTPA			
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
9990	23	0 - 6	8.2		0.19	Hi	1.8	10.9	20	29	274	16	29	5801	125	28	1.4	13	2.2	1.1	
9991	25	0 - 6	8.3		0.21	Hi	1.6	7.3	13	11	210	14	25	6537	109	31	0.7	9	1.3	1.0	
9992	26	0 - 6	8.3		0.20	Hi	1.5	6.9	12	15	181	14	25	6525	99	30	0.7	9	1.2	0.9	
9993	27	0 - 6	8.3		0.25	Hi	1.8	8.8	16	14	213	14	25	7059	123	31	0.7	10	1.5	1.1	
9994	28	0 - 6	8.2		0.28	Hi	2.1	6.8	12	12	259	15	27	7115	126	36	0.7	9	1.2	1.1	
9995	29	0 - 6	8.3		0.25	Hi	1.8	4.4	8	19	279	16	29	7376	131	39	0.8	10	1.5	1.1	
9996	30	0 - 6	8.3		0.35	Hi	2.4	6.2	11	12	291	13	23	7848	141	33	0.8	9	1.5	1.1	
9997	31/35	0 - 6	8.3		0.32	Hi	2.1	7.1	13	9	219	14	25	7745	137	37	0.6	9	1.3	1.0	
9998	32	0 - 6	8.3		0.30	Hi	1.9	8.1	15	16	248	14	25	7757	144	36	0.7	11	1.5	1.2	
9999	34	0 - 6	8.3		0.31	Hi	2.3	11.8	21	20	276	13	23	8054	150	31	0.7	9	1.3	1.1	

METHOD USED:				KCl Extr.		Calculated	TKN	Sat. Paste													
Lab Number	Sample ID	Sample Depth	Date Sampled	Ammonium Nitrogen ppm	lb. /A	Total N ppm	TKN ppm	Saturation % Sat	Electrical Conductivity mmho/cm	Calcium mg/L Ca	Magnesium mg/L Mg	Sodium mg/L Na	Sodium Adsorption Ratio								
9990	23	0 - 6	10/15/24	3	5	1131	1120	46	0.49	100	5	13	0.3								
9991	25	0 - 6	10/15/24	3	5	829	822	50	0.41	79	3	10	0.3								
9992	26	0 - 6	10/15/24	3	5	770	763	48	0.45	83	3	11	0.3								
9993	27	0 - 6	10/15/24	3	5	951	942	54	0.43	80	3	10	0.3								
9994	28	0 - 6	10/15/24	3	5	988	981	56	0.43	83	3	10	0.3								
9995	29	0 - 6	10/15/24	3	5	943	939	55	0.42	78	3	11	0.3								
9996	30	0 - 6	10/15/24	3	5	1151	1145	57	0.42	80	3	10	0.3								
9997	31/35	0 - 6	10/15/24	3	5	1064	1057	55	0.46	82	4	12	0.4								
9998	32	0 - 6	10/15/24	3	5	1155	1147	54	0.44	86	3	12	0.3								
9999	34	0 - 6	10/15/24	3	5	1072	1060	58	0.46	84	3	10	0.3								

Analyses are representative of the samples submitted

Samples are retained 30 days after report of analysis

Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

SOIL ANALYSIS REPORT

CLIENT:	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118
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Fax 806.677.0329

LAB NO:	9990 - 9999
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	Cation Exchange Capacity					
				6.0	6.5	7.0												CEC	%H	%K	%Ca	%Mg	%Na
9990	23	CORN	120 bu				130	25	0	0	0	0	0	0		0		27	0	3	93	4	0
9990	23	WINTER WHEAT (GRAIN)	160 bu				255	75	0	0	0	0	0	0		0							
9991	25	CORN	120 bu				140	80	0	4	0	0	0	0		0		27	0	2	94	3	1
9991	25	WINTER WHEAT (GRAIN)	160 bu				260	115	0	0	0	0	0	0		0							
9992	26	CORN	120 bu				145	65	15	4	0	0	0	0		0		26	0	2	95	3	0
9992	26	WINTER WHEAT (GRAIN)	160 bu				260	105	25	0	0	0	0	0		0							
9993	27	CORN	120 bu				135	70	0	4	0	0	0	0		0		27	0	2	94	4	1
9993	27	WINTER WHEAT (GRAIN)	160 bu				260	110	0	0	0	0	0	0		0							
9994	28	CORN	120 bu				130	75	0	4	0	0	0	0		0		27	0	2	93	4	1
9994	28	WINTER WHEAT (GRAIN)	160 bu				260	110	0	0	0	0	0	0		0							
9995	29	CORN	120 bu				140	55	0	3	0	0	0	0		0		27	0	3	93	4	1
9995	29	WINTER WHEAT (GRAIN)	160 bu				265	100	0	0	0	0	0	0		0							
9996	30	CORN	120 bu				125	75	0	3	0	0	0	0		0		27	0	3	92	4	1
9996	30	WINTER WHEAT (GRAIN)	160 bu				265	110	0	0	0	0	0	0		0							
9997	31/35	CORN	120 bu				130	90	0	4	0	0	0	0		0		27	0	2	93	4	1
9997	31/35	WINTER WHEAT (GRAIN)	160 bu				260	120	0	0	0	0	0	0		0							
9998	32	CORN	120 bu				130	65	0	4	0	0	0	0		0		27	0	2	93	4	1
9998	32	WINTER WHEAT (GRAIN)	160 bu				260	105	0	0	0	0	0	0		0							
9999	34	CORN	120 bu				115	50	0	4	0	0	0	0		0		27	0	3	92	5	0
9999	34	WINTER WHEAT (GRAIN)	160 bu				255	95	0	0	0	0	0	0		0							

SPECIAL COMMENTS AND SUGGESTIONS:

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	9990 - 9999
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number(s): 9990, 9991, 9992, 9993, 9994, 9995, 9996, 9997, 9998, 9999

GRAZING WHEAT: The above nitrogen (N) recommendations are for grain production only. An extra 20 to 50 lb. of topdress N per acre may be needed to replace the N removed during grazing (Note: Apply 30 to 35 lb. of N for every 100 lb. of weight gained by cattle. A stocker calf removes about 15 lb. of N during a 30 day grazing period.)

Lab Number(s): 9990, 9991, 9992, 9993, 9994, 9995, 9996, 9997, 9998, 9999

CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P_2O_5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.

Lab Number(s): 9990, 9991, 9992, 9993, 9994, 9995, 9996, 9997, 9998, 9999

CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Lab Number(s): 9990, 9991, 9992, 9993, 9994, 9995, 9996, 9997, 9998, 9999

The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Lab Number(s): 9990, 9991, 9992, 9993, 9994, 9995, 9996, 9997, 9998, 9999

ZINC: The "c-DTPA-Zinc" equivalent was calculated from the Mehlich-3 ICP zinc value. Zinc fertilizer recommendations were calculated using the Mehlich-3 ICP zinc value.

Lab Number	EAE-FacilityID	EAE-ProjectManager	EAE-FieldID	EAE-SampleSubmissionID	Comments
9990					
9991					
9992					
9993					
9994					
9995					
9996					
9997					
9998					
9999					

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

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LAB NO:	9946 - 9953
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

METHOD USED:			1:2 Soil-Water		1:2 Soil-Water	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP				Ammonium Acetate		Mehlich 3 ICP	Calculated DTPA	DTPA			
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
9946	SB1	0 - 6	8.1		0.36	Hi	2.4	11.6	21	20	296	44	79	8337	167	147	0.7	11	1.3	1.1	
9947	SB2	0 - 6	7.9		0.21	Hi	4.1	12.2	22	6	200	12	22	7550	140	27	0.7	16	1.9	1.3	
9948	WEEKS	0 - 6	8.0		0.23	Hi	2.2	9.9	18	6	196	7	13	8275	111	27	0.3	8	1.2	0.6	
9949	18	0 - 6	8.2		0.38	Hi	1.8	5.0	9	20	327	23	41	7729	140	50	0.9	10	1.3	1.1	
9950	19	0 - 6	8.3		0.39	Hi	2.3	4.8	9	20	375	20	36	8787	173	58	0.8	12	1.0	1.2	
9951	20	0 - 6	8.2		0.39	Hi	1.5	14.5	26	12	206	30	54	6377	99	60	0.7	12	1.5	1.0	
9952	21/24	0 - 6	8.2		0.36	Hi	1.9	11.7	21	11	255	16	29	6934	116	29	0.7	10	1.3	1.1	
9953	22	0 - 6	6.8		0.22	No	1.7	11.0	20	51	160	11	20	4107	267	37	0.5	62	17.3	1.1	

METHOD USED:				KCl Extr.		Calculated	TKN	Sat. Paste					
Lab Number	Sample ID	Sample Depth	Date Sampled	Ammonium Nitrogen ppm	lb. /A	Total N ppm	TKN ppm	Saturation % Sat	Electrical Conductivity mmho/cm	Calcium mg/L Ca	Magnesium mg/L Mg	Sodium mg/L Na	Sodium Adsorption Ratio
9946	SB1	0 - 6	10/15/24	4	7	1244	1232	60	0.77	125	5	57	1.4
9947	SB2	0 - 6	10/15/24	5	9	2447	2435	68	0.46	117	4	11	0.3
9948	WEEKS	0 - 6	10/15/24	4	7	1058	1048	60	0.42	86	2	9	0.3
9949	18	0 - 6	10/15/24	3	5	952	947	59	0.54	102	4	16	0.4
9950	19	0 - 6	10/15/24	4	7	975	970	65	0.40	72	3	13	0.4
9951	20	0 - 6	10/15/24	4	7	785	770	47	0.81	144	5	30	0.7
9952	21/24	0 - 6	10/15/24	3	5	956	944	55	0.46	92	3	9	0.3
9953	22	0 - 6	10/15/24	6	11	874	863	49	0.89	185	15	20	0.4

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	9946 - 9953
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to: 6.0	6.5	7.0	N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	**Cation Exchange Capacity** CEC	%H	%K	%Ca	%Mg	%Na
9946	SB1	CORN	120 bu				110	50	0	4	0	0	0	0		0		28	0	3	90	5	2
9946	SB1	WINTER WHEAT (GRAIN)	160 bu				250	95	0	0	0	0	0	0		0							
9947	SB2	CORN	120 bu				70	100	0	4	0	0	0	0		0		27	0	2	93	4	0
9947	SB2	WINTER WHEAT (GRAIN)	160 bu				250	130	10	0	0	0	0	0		0							
9948	WEEKS	CORN	120 bu				120	100	10	7	0	0	0	0		0		27	0	2	94	3	0
9948	WEEKS	WINTER WHEAT (GRAIN)	160 bu				255	130	15	0	0	0	0	0		0							
9949	18	CORN	120 bu				140	50	0	2	0	0	0	0		0		27	0	3	92	4	1
9949	18	WINTER WHEAT (GRAIN)	160 bu				265	95	0	0	0	0	0	0		0							
9950	19	CORN	120 bu				125	50	0	3	0	2.5	0	0		0		28	0	3	90	5	1
9950	19	WINTER WHEAT (GRAIN)	160 bu				265	95	0	0	0	2.5	0	0		0							
9951	20	CORN	120 bu				130	75	0	4	0	0	0	0		0		27	0	2	94	3	1
9951	20	WINTER WHEAT (GRAIN)	160 bu				245	110	0	0	0	0	0	0		0							
9952	21/24	CORN	120 bu				125	80	0	4	0	0	0	0		0		27	0	2	93	4	0
9952	21/24	WINTER WHEAT (GRAIN)	160 bu				255	115	0	0	0	0	0	0		0							
9953	22	CORN	120 bu				125	0	25	4	0	0	0	0		0		23	0	2	88	10	1
9953	22	WINTER WHEAT (GRAIN)	160 bu				250	10	40	0	5	0	0	0		0							

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 9946, 9947, 9948, 9949, 9950, 9951, 9952

CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P2O5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.

Lab Number(s): 9946, 9947, 9948, 9949, 9950, 9951, 9952

The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	9946 - 9953
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number(s): 9946, 9947, 9948, 9949, 9950, 9951, 9952, 9953

GRAZING WHEAT: The above nitrogen (N) recommendations are for grain production only. An extra 20 to 50 lb. of topdress N per acre may be needed to replace the N removed during grazing (Note: Apply 30 to 35 lb. of N for every 100 lb. of weight gained by cattle. A stocker calf removes about 15 lb. of N during a 30 day grazing period.)

Lab Number(s): 9946, 9947, 9948, 9949, 9950, 9951, 9952, 9953

CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Lab Number(s): 9946, 9947, 9948, 9949, 9950, 9951, 9952, 9953

ZINC: The "c-DTPA-Zinc" equivalent was calculated from the Mehlich-3 ICP zinc value. Zinc fertilizer recommendations were calculated using the Mehlich-3 ICP zinc value.

Lab Number(s): 9950

MANGANESE: Soil manganese availability can be affected by soil pH and/or soil moisture conditions. Yield response to manganese fertilization is infrequent, so plant analysis is suggested to confirm a deficiency. If fertilizer is required, suggest band application because broadcast applications are generally not effective.

Lab Number(s): 9953

SULFUR: Suggest applying a portion of the recommended sulfur fertilizer at topdress time. Sulfur fertilizer has not consistently improved wheat yields or protein content, but can help wheat "green up" in spring. Topdressing sulfur is most beneficial on sandy soils, soils with low organic matter, and wheat with above-average yield potential.

Lab Number	EAE-FacilityID	EAE-ProjectManager	EAE-FieldID	EAE-SampleSubmissionID	Comments
9946					
9947					
9948					
9949					
9950					
9951					
9952					
9953					

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	9936 - 9945
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

METHOD USED:			1:2 Soil-Water		1:2 Soil-Water	XSL(i)	LOI(r)	Cd Reduction		Mehlich 3 ICP				Ammonium Acetate		Mehlich 3 ICP	Calculated DTPA	DTPA			
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	lb. N/A	Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
9936	AB3	0 - 6	8.2		0.29	Hi	2.2	4.4	8	21	409	21	38	7134	207	40	0.9	13	1.9	1.4	
9937	AB4	0 - 6	8.2		0.32	Hi	2.3	15.4	28	10	304	17	31	8734	207	38	0.7	11	1.3	1.2	
9938	AB5	0 - 6	8.2		0.30	Hi	2.0	6.5	12	11	270	15	27	8416	171	40	0.6	11	1.1	1.1	
9939	AB6	0 - 6	7.4		0.28	Hi	1.6	12.3	22	11	159	7	13	6784	265	20	0.4	11	2.5	0.6	
9940	AR1	0 - 6	6.5		0.13	No	1.6	11.6	21	11	108	7	13	5457	449	19	0.4	28	12.5	0.8	
9941	AR2/3	0 - 6	6.3		0.15	No	1.7	13.2	24	24	120	9	16	4745	456	30	0.4	36	22.1	0.8	
9942	AR5/6	0 - 6	6.8		0.13	No	1.7	11.2	20	13	118	8	14	5237	352	25	0.7	23	12.1	0.7	
9943	AR10	0 - 6	8.1		0.19	Hi	1.5	15.6	28	10	116	10	18	6129	104	52	0.4	6	1.2	0.4	
9944	DBR	0 - 6	8.1		0.45	Hi	2.3	7.7	14	6	238	33	59	8848	179	238	0.4	8	1.8	0.6	
9945	GAL	0 - 6	8.1		0.23	Hi	2.5	1.1	<2	5	191	10	18	7795	99	36	0.6	10	1.7	0.7	

METHOD USED:				KCl Extr.		Calculated	TKN	Sat. Paste													
Lab Number	Sample ID	Sample Depth	Date Sampled	Ammonium Nitrogen ppm	lb. /A	Total N ppm	TKN ppm	Saturation % Sat	Electrical Conductivity mmho/cm	Calcium mg/L Ca	Magnesium mg/L Mg	Sodium mg/L Na	Sodium Adsorption Ratio								
9936	AB3	0 - 6	10/15/24	4	7	1120	1116	64	0.41	85	5	11	0.3								
9937	AB4	0 - 6	10/15/24	4	7	923	908	62	0.47	87	4	10	0.3								
9938	AB5	0 - 6	10/15/24	4	7	969	962	59	0.37	72	3	11	0.3								
9939	AB6	0 - 6	10/15/24	5	9	714	702	57	0.51	114	7	8	0.2								
9940	AR1	0 - 6	10/15/24	7	13	786	774	53	0.62	122	13	9	0.2								
9941	AR2/3	0 - 6	10/15/24	6	11	812	799	54	0.40	66	8	10	0.3								
9942	AR5/6	0 - 6	10/15/24	6	11	770	759	55	0.53	115	10	10	0.2								
9943	AR10	0 - 6	10/15/24	6	11	786	770	52	0.43	98	3	22	0.6								
9944	DBR	0 - 6	10/15/24	4	7	1062	1054	63	0.83	126	4	69	1.6								
9945	GAL	0 - 6	10/15/24	5	9	1233	1232	61	0.49	93	3	27	0.8								

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT:	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118
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LAB NO:	9936 - 9945
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

FERTILIZER RECOMMENDATIONS: POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P_2O_5	K_2O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	Cation Exchange Capacity					
				6.0	6.5	7.0												CEC	%H	%K	%Ca	%Mg	%Na
9936	AB3	CORN	120 bu				130	50	0	2	0	0	0	0		0		28	0	4	89	6	1
9936	AB3	WINTER WHEAT (GRAIN)	160 bu				265	95	0	0	0	0	0	0		0							
9937	AB4	CORN	120 bu				105	85	0	4	0	0	0	0		0		28	0	3	90	6	1
9937	AB4	WINTER WHEAT (GRAIN)	160 bu				245	120	0	0	0	0	0	0		0							
9938	AB5	CORN	120 bu				130	80	0	4	0	1.5	0	0		0		27	0	3	92	5	1
9938	AB5	WINTER WHEAT (GRAIN)	160 bu				260	115	0	0	0	1.5	0	0		0							
9939	AB6	CORN	120 bu				130	80	25	6	0	0	0	0		0		28	0	1	90	8	0
9939	AB6	WINTER WHEAT (GRAIN)	160 bu				250	115	40	0	15	0	0	0		0							
9940	AR1	CORN	120 bu				125	80	60	5	0	0	0	0		0		29	0	1	94	13	0
9940	AR1	WINTER WHEAT (GRAIN)	160 bu				245	115	90	0	15	0	0	0		0							
9941	AR2/3	CORN	120 bu				125	40	55	5	0	0	0	0		0		28	0	1	85	14	0
9941	AR2/3	WINTER WHEAT (GRAIN)	160 bu				245	90	80	0	10	0	0	0		0							
9942	AR5/6	CORN	120 bu				125	75	55	3	0	0	0	0		0		28	0	1	92	10	0
9942	AR5/6	WINTER WHEAT (GRAIN)	160 bu				250	110	80	0	15	0	0	0		0							
9943	AR10	CORN	120 bu				125	85	55	6	0	0	0	0		0		26	0	1	95	3	1
9943	AR10	WINTER WHEAT (GRAIN)	160 bu				240	120	85	0	10	0	0	0		0							
9944	DBR	CORN	120 bu				120	100	0	6	0	0	0	0		0		28	0	2	89	5	4
9944	DBR	WINTER WHEAT (GRAIN)	160 bu				260	130	0	0	0	0	0	0		0							
9945	GAL	CORN	120 bu				125	105	10	4	0	0	0	0		0		26	0	2	94	3	1
9945	GAL	WINTER WHEAT (GRAIN)	160 bu				270	130	15	0	0	0	0	0		0							

SPECIAL COMMENTS AND SUGGESTIONS:

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

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LAB NO:	9936 - 9945
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number(s): 9936, 9937, 9938, 9939, 9940, 9941, 9942, 9943, 9944, 9945

GRAZING WHEAT: The above nitrogen (N) recommendations are for grain production only. An extra 20 to 50 lb. of topdress N per acre may be needed to replace the N removed during grazing (Note: Apply 30 to 35 lb. of N for every 100 lb. of weight gained by cattle. A stocker calf removes about 15 lb. of N during a 30 day grazing period.)

Lab Number(s): 9936, 9937, 9938, 9939, 9940, 9941, 9942, 9943, 9944, 9945

CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P_2O_5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.

Lab Number(s): 9936, 9937, 9938, 9939, 9940, 9941, 9942, 9943, 9944, 9945

CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Lab Number(s): 9936, 9937, 9938, 9939, 9940, 9941, 9942, 9943, 9944, 9945

ZINC: The "c-DTPA-Zinc" equivalent was calculated from the Mehlich-3 ICP zinc value. Zinc fertilizer recommendations were calculated using the Mehlich-3 ICP zinc value.

Lab Number(s): 9936, 9937, 9938, 9939, 9943, 9944, 9945

The CEC value calculated by cation summation has been adjusted to compensate for the presence of excess lime (reactive carbonates).

Lab Number(s): 9938

MANGANESE: Soil manganese availability can be affected by soil pH and/or soil moisture conditions. Yield response to manganese fertilization is infrequent, so plant analysis is suggested to confirm a deficiency. If fertilizer is required, suggest band application because broadcast applications are generally not effective.

Lab Number(s): 9939, 9940, 9941, 9942, 9943

SULFUR: Suggest applying a portion of the recommended sulfur fertilizer at topdress time. Sulfur fertilizer has not consistently improved wheat yields or protein content, but can help wheat "green up" in spring. Topdressing sulfur is most beneficial on sandy soils, soils with low organic matter, and wheat with above-average yield potential.

Lab Number(s): 9944

SODIUM - CAUTION (4% to 7% Na): The exchangeable soil sodium (as % Na) is moderately high for fine-textured soils and may indicate a developing problem. If irrigated, an irrigation water analysis can help identify the sodium source. Contact the laboratory for details.

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

SOIL ANALYSIS REPORT

CLIENT: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

servi tech
www.servitech.com
6921 S. Bell
Amarillo, TX 79109
800.557.7509
806.677.0093
Fax 806.677.0329

LAB NO:	9936 - 9945
INVOICE NO:	173354
DATE RECEIVED:	10/21/2024
DATE REPORTED:	10/28/2024

SOIL ANALYSIS RESULTS FOR: VANGUARD ORGANICS - CLC **FIELD ID:** COREY MULLIN

Lab Number	EAE-FacilityID	EAE-ProjectManager	EAE-FieldID	EAE-SampleSubmissionID	Comments
9936					
9937					
9938					
9939					
9940					
9941					
9942					
9943					
9944					
9945					

Analyses are representative of the samples submitted | Samples are retained 30 days after report of analysis | Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Amy Meier, Data Review Coordinator

ATTACHMENT S

SUPPLEMENTAL TECHNICAL REPORT
FOR IRRIGATION DISPOSAL

Ellis AD 1, LLC

Prepared by:

James Miertschin & Associates, Inc.
Austin, Texas

February 2025

7 Feb 2025

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 LOCATION

The Ellis AD 1, LLC (EAD) will provide treatment of organic waste material, supplemented by manure, and will produce renewable natural gas in an anerobic digester. Liquid waste from the digesters will be irrigated as an agricultural beneficial by-product. The proposed facility will be located in Ellis and Navarro Counties.

1.2 PROPOSED IRRIGATION DISPOSAL

The EAD proposes to utilize irrigation for disposal of treated industrial effluent at a final phase flow of 56,224 gpd. Multiple irrigation tracts have been designated with a total of 4,553.8 acres. The cover crop for the irrigation tract is agricultural related: corn and coastal Bermuda, with the majority of acreage devoted to corn. In conjunction with the EAD's permit application, a water balance and storage analysis was conducted for sizing of the irrigation disposal system. In addition, a nitrogen balance was developed.

2.0 IRRIGATION SYSTEM SIZING

TCEQ rules for irrigation systems generally require that effluent disposal be accomplished by evaporation and evapotranspiration. A water balance analysis for the study area is conducted to determine key irrigation system design parameters. In the water balance, rainfall, runoff, infiltration, and evapotranspiration are analyzed in order to determine the amount of water that can be applied to a site for consumption by a particular cover crop. The results are then used to calculate an effluent application rate and land area requirements for irrigation of wastewater.

A storage balance, similar in structure to the preceding water balance, is also required to determine the storage volume required for a system that will provide complete disposal of effluent via irrigation. The storage balance typically includes analysis of the effluent application rate and meteorological inputs under wet weather conditions.

The water balance and storage balance for the present facility have been prepared to perform calculations on a monthly time step, in conformance with guidance in Chapter 309 of the TCEQ's rules.

2.1 WATER BALANCE

A detailed water balance for the facility was conducted that was based upon monthly calculation of key variables. The water balance is shown in Appendix A. Information required and used in

the water balance is described below.

Precipitation

A water balance is developed using average rainfall data for a 25 year period of record. The use of average data tends to smooth out highly variable extremes in annual rainfall totals. A 25-year period of record covering 1999-2023 was obtained from the files of the Texas Water Development Board for Quadrangle 511. The historical average annual precipitation was calculated to be 39.27 inches.

Runoff

The SCS curve number methodology was used to calculate runoff at the irrigation site. Hydrologic soil classification was predominantly type D. An adjusted curve number of 74.3 was determined. The adjustment was based on NRCS recommendations for rainfall over a 30 day period. The SCS methodology was applied to monthly precipitation events in order to calculate runoff for each month. The total daily runoff from the typical year was then used in the water balance. The calculated total runoff was 13.65 inches for the average year.

Evapotranspiration

The cover crop for the irrigation site is associated with agricultural uses: corn and coastal bermudagrass.

TCEQ recommends the following reference for consumptive use: McDaniels, *Consumptive Use of Water by Major Crops in Texas*, Texas Board of Water Engineers, Bulletin No. 6019, 1960 This reference for consumptive use of water by crops has been employed by TCEQ for an extensive period of time to determine crop water needs for wastewater application. This reference provides a map that establishes eight land resource divisions for the state, along with geographic subdivisions for irrigated areas. Using this mapping, the proposed facility in Ellis and Navarro Counties is located in zone 7B.

Table 6 of the reference provides tabulated water needs for corn and Table 5 provides tabulated water needs for alfalfa that can be converted to bermuda. For this analysis, these two crops comprise the largest proportion of the projected land application areas. The calculations to determine consumptive use of water are shown in the table below.

BULLETIN 6019 METHOD

1. Determine "Irrigation Area/Land Resource Division"

Zones shown in Figure 1 & 2 TWDB Bulletin 6019

2. Name Crop/Vegetation Type

Use crop ET data from TWDB Bulletin 6019, Avg. Monthly Consumptive Use (in.)

Primary crops are corn and some coastal bermuda

For total tract, corn represents 0.842 and coastal represents 0.1499 of the acreage

Calculations: (inches)

	Zone 7B Corn ET	Zone 7B Alfalfa ET	Zone 7B Bermuda ET	Combined ET Proportional
January	0	1.00	0.90	0.13
February	0	1.40	1.26	0.19
March	0.2	3.30	2.97	0.61
April	1.6	3.90	3.51	1.87
May	3.7	7.20	6.48	4.09
June	8.7	7.40	6.66	8.32
July	9.4	8.20	7.38	9.02
August	0	5.70	5.13	0.77
September	0	5.90	5.31	0.80
October	0	4.70	4.23	0.63
November	0	1.90	1.71	0.26
December	0	0.80	0.72	0.11
Totals	**23.6**	**51.40**	**46.26**	**26.81**

The projected monthly consumptive use of corn was tabulated alongside the consumptive use of bermuda. With this approach, the calculated consumptive use for the site was determined to be 26.81 inches per year (2.23 feet per year). This would be the allowable consumptive use that is entered into the water balance.

Leaching

A leaching requirement to prevent build-up of salts in the soil was calculated using the methodology recommended by the TCEQ. The leaching quantity is calculated based upon the conductivity of the wastewater and the allowable soil moisture conductivity, along with the evapotranspiration use and infiltrated rainfall, in accordance with the method in TAC Chapter 309. Effluent conductivity was estimated at 15 mmhos/cm and the allowable soil moisture conductivity was estimated at 4 mmhos/cm. Table 3 in Chapter 309 shows a suggested maximum soil conductivity of 4 mmhos/cm for corn, the predominant crop.

Evaporation

Loss of water from the storage pond via evaporation was estimated using data from the Texas Water Development Board, Quadrant 511, for the period of record 1999-2023. The historical monthly average gross evaporation data were corrected for the historical monthly precipitation to obtain net evaporation. The monthly net evaporation value was then disaggregated into daily values for each month and used in the water balance.

Effluent Application Rate

From the water balance calculation for the site, it was determined that a total of 23.37 inches/year (1.95 feet/year) of wastewater could be consumed from the storage pond. This value for consumption from the pond is comprised of water used for irrigation and water that evaporates. This consumptive use also represents the calculated average allowable wastewater application rate for the site, based upon the hydraulic loading described in the water balance.

Minimum Irrigation Area

The effluent application rate from the water balance analysis is used to determine the minimum irrigation area needed for a specific design flow. The proposed effluent flow from the facility is projected to be 56,224 gpd, which is equivalent to an annual volume of wastewater of 63 acre-feet (20.53 MG/yr). Using the annual wastewater flow, an irrigation area of only 32.3 acres would be required using the calculated effluent application rate derived from the water balance. This conclusion would assume that the effluent is scheduled to provide all of the water needs for the crop.

However, additional area available on the tract will also be used for irrigation, in excess of the minimum required. This additional area will be displayed within the storage balance for the site.

2.2 STORAGE BALANCE

A storage balance was conducted for sizing of the storage capacity necessary for successful irrigation scheduling in response to variable dry and wet conditions. The storage balance is essentially a water balance that analyzes the effluent application rate, evapotranspiration, rainfall, runoff, infiltration, and evaporation in order to determine the storage volume required. Instead of the average rainfall applied in the water balance, the storage calculations were based on the wettest year on record during the past 25 years (1999 - 2023).

Precipitation

The wettest year in the 25-year period of record from the Quadrangle 511 data was determined to be 2015, with a total precipitation of 67.56 inches.

Runoff

As in the water balance calculations, the SCS methodology was applied to monthly rainfall from the wet year records in order to calculate runoff. The total runoff in the wet year was estimated to be 40.24 inches. The total daily runoff from the wet year was then used in the storage balance.

Evaporation

The year of lowest gross evaporation (2007) was determined from the period of record covering 1999-2023. The maximum monthly precipitation values were subtracted from the gross evaporation data in order to estimate wet year net evaporation conditions.

Other data employed in the storage balance analysis was carried over from the water balance analysis, namely the calculated total water needs, comprised of evapotranspiration and leaching.

Discussion

A key component of the storage balance analysis for the site is the volume of effluent delivered to the irrigation system on a unit area basis. Therefore, the size of the irrigation field affects the results of the storage balance. Generally, increasing the size of the irrigation area results in a reduction in the calculated storage requirement.

EAD could use an application rate of nearly 2 feet/yr at the irrigation site, based on the results of the water balance. However, EAD plans to apply wastewater to 4553 acres, rather than the minimum acreage shown by the water balance. The storage balance indicated a maximum storage requirement of 0.038 inches/acre. With this storage requirement, a minimum required storage pond volume of 14.27 acre-feet (4.65 MG) can be calculated. This volume of storage would provide 84.5 days of detention at the specified effluent flow. In the Summary section below, it will be explained that the proposed facility will provide substantially more storage volume than the minimum volume calculated with the storage balance.

As previously stated, the storage analysis is dependent upon the irrigation area. As displayed by the storage balance analysis, with the available irrigation area, the effluent application rate is restricted to 0.17 inches per year or less. This finding will be subsequently discussed in the summary section.

2.3 NITROGEN BALANCE

A nitrogen balance was prepared for the irrigation site to examine system sizing with respect to conventional estimates of cover crop nutrient uptake, as shown in Appendix C. Key input parameters are described below.

Hydraulic Application Rate

The first column of data displays the effluent needed in the root zone obtained from the water balance analysis for the site. This root zone requirement for effluent represents the hydraulic application rate, or volume of wastewater, that can be applied for consumption by the crop. The effluent requirement varies monthly in accordance with the climatological and evapotranspiration characteristics at the site. The monthly distribution of crop effluent need is used throughout the nitrogen balance to represent the monthly variation of crop growth and nutritional need. This distribution is displayed in the second column of data in the table.

Nitrogen Loading

The nitrogen balance table calculates the applied nitrogen loading in pounds per acre to the irrigation area on a monthly basis. The third column of data in the table displays the effluent applied on a monthly basis, in terms of total volume in acre-feet, distributed in accordance with the crop effluent needs. The nitrogen loading associated with the applied effluent is calculated in the fourth column of data. The nitrogen loading is determined from the effluent volume and the concentration of total nitrogen and converted to a unit area basis. The sum of the monthly nitrogen loading represents the total amount of nitrogen applied via effluent irrigation for the year.

Crop Uptake

One of the key parameters in the nitrogen balance is the projected crop uptake of nitrogen. Data obtained from NRCS was used to project crop uptake of nitrogen. The nitrogen uptake of corn and bermuda may be estimated at approximately 155 lbs N/acre. (This is based on the proposed acreage of corn at 144 lbs N/acre, plus the proposed acreage of coastal Bermuda at 300 lb N/acre, plus the proposed acreage of grazing Bermuda at 160 lb N/acre, and the calculated composite average value.)

For use in the nitrogen balance, the uptake rate can be increased by 20% to account for volatilization loss of nitrogen. The total annual nitrogen uptake values enter into the nitrogen balance table in the fifth column of data (after including an allowance for volatilization), with the values distributed on a monthly basis in accordance with crop water needs. The sixth column of data presents the calculated hydraulic application rate (inches/month) of effluent that would be needed to satisfy the crop nitrogen needs, with effluent as the only source of nitrogen.

Discussion

The nitrogen balance depicts the needs of the agricultural crops and compares the nutrient load to the wastewater effluent characteristics. In this case, the projected effluent flow is 56,224 gallons per day, and the nitrogen concentration is 3151 mg/L as TKN. With this magnitude of nitrogen loading, the allowable effluent application rate is determined to be to 0.26 inches/acre. Under these conditions, it is evident that nitrogen will be applied to the site at a rate lower than the calculated crop uptake rate for nitrogen. This is also apparent in the calculation of the effluent needed in the root zone, which can be compared directly to the hydraulic application rate for the

irrigation system. The effluent volume application rate calculated on the basis of crop nitrogen uptake is greater than the effluent volume application rate calculated on the basis of consumptive use in the water balance.

TCEQ's Chapter 309 only requires determination of the nitrogen loading on an annual basis, which is simpler than the nutrient budget described above. With an estimated annual crop nitrogen requirement of 155.7 lb N/ac-yr and an adjustment for 20% volatilization, the calculated allowable liquid loading is 0.262 inches/acre-year. This would satisfy the allowable crop nitrogen uptake value on an annual basis.

3.0 SUMMARY OF PROPOSED IRRIGATION SYSTEM

Parameters for the proposed effluent irrigation system are summarized below.

Irrigation Area

The permittee proposes a total **irrigation area of 4553 acres** for disposal of up to **63 acre-feet/yr** (20.53 MG/yr) of effluent.

Storage Pond

According to the storage balance calculation, the permittee needs to provide a storage volume of 14.6 acre-feet (4.8 MG). As a substantial safety factor, the permittee proposes a storage volume **of 12 million gallons for the effluent flow of 56,224 gpd**. This volume will be provided with an earthen berm constructed storage pond. The proposed storage volume significantly exceeds the required minimum storage volume derived from the storage balance analysis.

The storage component is not a wastewater treatment unit *per se* -- it only serves to store highly treated effluent.

Application Rate

It is noted that the monthly water balance discussed in this report indicated that an allowable wastewater application rate would be nearly 2 ft/year. With the large amount of irrigation available, and considering the applied nitrogen loading associated with the wastewater, the nitrogen balance provides the most restrictive parameter, and indicated that an allowable application rate would be 0.26 inches/acre. Therefore, the requested hydraulic application rate in the permit for this facility is an overall rate of 0.26 inches/acre. It is requested that a safety factor be applied to this number, since the cropping needs may vary from field to field, season to season and year to year. A safety factor of 0.25 is requested, which would result in the permitted application rate to be 0.325 inches/acre. Since the permitted application rate is usually expressed as application on a yearly basis, the rate would be 0.325 inches/year (0.027 ft/yr).

Note that this particular situation in unique compared to most irrigation applications. It is often the case that the water balance dictates an allowable application rate in terms of depth of effluent applied per acre per year. Here, the excess of available land and the relatively modest effluent flow result in a greatly reduced application rate. And in fact, the application rate is ultimately controlled by the nitrogen balance.

Application System

The effluent will be used for **irrigation of corn and bermuda,** as described above. Effluent from storage will be pumped to tanker spreaders for tractor-driven delivery to each land management unit.

System Operation

The application of wastewater effluent will be carefully controlled by the operators. There are no physical tailwater controls proposed for the irrigation site. Runoff of effluent during irrigation will be prevented by careful control of the application rate. Irrigation will not occur during wet weather storm events as a further operational precaution to prevent runoff of effluent.

Recommended Language for Permit

It is recommended that the TLAP permit should contain the following language:

Irrigated area = 4553.8 acres
Effluent flow = report
Application rate = 0.325 in/yr (0.027 ft/yr)
= 0.027 acre-feet/acre/year
= 8,962 gal/acre/year (most convenient measure for operator tracking)

Special Provision: Permittee may also occasionally apply solids to the irrigation fields as appropriate to maintain or increase agricultural productivity and within limits and rates described within the irrigation management plan, as long as the annual nitrogen loading limit of 186 lb N/acre/year is maintained.

Special Provision: Permittee shall prepare Irrigation Management Plan that illustrates monitoring and management of nutrient constituents within the effluent and soils. This plan shall address the loading rates of constituents and long-term management goals to address potential buildup of constituents. This Irrigation Management Plan will contain elements of a Nutrient Management Plan that utilizes NRCS guidance. The plan shall be prepared by permittee within 3 months of permit issuance and kept on site.

APPENDIX A – WATER BALANCE

WATER BALANCE

Month	Average Rainfall (25-yr avg) (inches)	Rainfall Runoff (25-yr avg) (inches)	Infiltrated Rainfall (inches)	Evapotrans-piration (inches)	Required Leaching (inches)	Total Water Needs (inches)	Add'l Root Zone Requirement (inches)	Net Evap. from Res. (25-yr avg) (inches)	Net Evap. from Res. per Irr. Area (25-yr avg) (inches)	Effluent Applied to Land (inches)	Consumption from Reservoir (inches)
			(2)-(3)			(5)+(6)	(7)-(4)			(8) / Irr.Eff.	(9)+(10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)	(10)	(11)
Jan	2.71	0.74	1.97	0.13	2.50	2.64	0.67	0.56	0.00	0.78	0.79
Feb	2.84	0.82	2.02	0.19	2.50	2.69	0.67	0.60	0.00	0.78	0.78
Mar	3.80	1.47	2.33	0.61	2.34	2.96	0.62	0.78	0.00	0.73	0.74
Apr	3.43	1.20	2.22	1.87	0.47	2.35	0.13	1.52	0.00	0.15	0.15
May	4.82	2.24	2.58	4.09	0.00	4.09	1.51	1.09	0.00	1.78	1.78
Jun	3.94	1.57	2.37	8.32	0.00	8.32	5.96	3.00	0.00	7.01	7.01
Jul	1.95	0.33	1.62	9.02	0.00	9.02	7.41	5.64	0.00	8.71	8.72
Aug	2.39	0.56	1.83	0.77	1.45	2.22	0.39	5.62	0.00	0.46	0.46
Sep	2.97	0.90	2.07	0.80	1.73	2.53	0.46	3.40	0.00	0.54	0.55
Oct	4.66	2.11	2.54	0.63	2.60	3.24	0.69	1.70	0.00	0.82	0.82
Nov	2.80	0.79	2.00	0.26	2.38	2.64	0.63	1.20	0.00	0.75	0.75
Dec	2.98	0.91	2.07	0.11	2.68	2.78	0.71	0.59	0.00	0.84	0.84
TOTAL	39.27	13.65	25.62	26.81	18.66	45.47	19.85	25.70	0.0207	23.35	23.37

Annual Consumption 23.37 ac-in/ac = 1.95 ac-ft/ac

Data used:

Irrigation Area	4553.84 acres	Annual volume at projected flow rate =	63.0 ac-ft
Reservoir Surface Area	3.66 acres	Min. Irrigation area needed for design flow =	32.3 acres
Ratio of Res. Surface to Irrigated Area	0.0008		
Effluent Flow Rate	0.056 MGD		
Irrigation Efficiency (k)	0.85		
Effluent Conductivity (Ce)	15.00 mmhos/cm		
Maximum Soil Conductivity (Cl)	4.00 mmhos/cm		
Curve Number (CN) =	74.3		

Precipitation Data: Quad 511.TWDB (1999-2024)
Evaporation Data: Quad 511.TWDB (1999-2024)

APPENDIX B – STORAGE BALANCE

STORAGE VOLUME

Month	Total Water Needs from WB (inches)	Effluent Received for Storage or Application (inches)	Wet Yr. 2015 Rainfall (inches)	Wet Yr. 2015 Runoff (inches)	Infiltrated Rainfall (inches)	Available Water (inches)	Low Yr. 2007 Net Evap. from Res. Sur (inches)	Low Yr. 2007 Evap. per Irr. Area (inches)			Storage (inches)	Accum. Storage (inches)
					(14)-(15)	(13)+(16)			(13)-(18)	[(7)-(16)] / k		
(12)	WB (7)	(13)	(14)	(15)	(16)	(17)		(18)			(19)	(20)
Jan	2.64	0.01	4.05	1.65	2.40	2.41	0.00	0.00	0.01	0.28	-0.26	0.0000
Feb	2.69	0.01	2.82	0.81	2.01	2.02	2.13	0.00	0.01	0.79	-0.78	0.0000
Mar	2.96	0.01	4.83	2.25	2.58	2.59	0.00	0.00	0.01	0.44	-0.43	0.0000
Apr	2.35	0.01	6.54	3.67	2.87	2.88	2.48	0.00	0.01	-0.61	0.01	0.0116
May	4.09	0.01	14.22	10.77	3.45	3.47	0.00	0.00	0.01	0.75	-0.73	0.0000
Jun	8.32	0.01	4.49	1.98	2.51	2.52	0.00	0.00	0.01	6.85	-6.83	0.0000
Jul	9.02	0.01	0.16	0.00	0.16	0.17	0.72	0.00	0.01	10.43	-10.41	0.0000
Aug	2.22	0.01	1.35	0.10	1.25	1.26	3.96	0.00	0.01	1.15	-1.14	0.0000
Sep	2.53	0.01	0.72	0.00	0.72	0.73	0.15	0.00	0.01	2.13	-2.11	0.0000
Oct	3.24	0.01	13.39	9.97	3.42	3.43	2.30	0.00	0.01	-0.21	0.01	0.0122
Nov	2.64	0.01	8.45	5.36	3.09	3.10	1.85	0.00	0.01	-0.53	0.01	0.0244
Dec	2.78	0.01	6.54	3.67	2.87	2.88	0.00	0.00	0.01	-0.10	0.01	0.0385
TOTAL	45.47	0.17	67.56	40.24	27.32	27.49	13.59	0.0109	0.1550	21.3500		

Irrigation Area	4553.84 acres	Storage Required
Reservoir Surface Area	3.66 acres	0.0385 in/ac
Ratio of Res. Surface to Irrigated Area	0.0008	14.6 ac-ft
Effluent Flow Rate	56,224 GPD	4.8 MG
Efffluent Applied	0.00045 in/day	84.7 days
	0.17 in/year	
Curve Number (CN)	74.3	
Irrigation Efficiency (k)	0.85	

Storage = ((13)-(18))-((7)-(16)) / K [note: if (7)-(16) < 0, enter 0 for that term]

Precipitation Data: Quad 511,TWDB (1999-2024)
Evaporation Data: Quad 511,TWDB (1999-2024)

APPENDIX C – NITROGEN BALANCE

NITROGEN BALANCE

Month	Effluent Needed in Root Zone for Crop Consumption (in)	Portion of Annual Nitrogen Needed	Effluent Applied (ac-ft)	Applied Nitrogen Load (lb/ac)	Nitrogen Application for Crop Uptake (lb/ac)	Effluent Needed in Root Zone for Crop N Uptake (in)
Jan	2.64	0.06	7.10	13.36	10.77	0.02
Feb	2.69	0.06	7.24	13.62	10.97	0.02
Mar	2.96	0.06	7.96	14.98	12.07	0.02
Apr	2.35	0.05	6.33	11.90	9.59	0.01
May	4.09	0.09	11.01	20.71	16.69	0.02
Jun	8.32	0.18	22.43	42.19	34.00	0.05
Jul	9.02	0.20	24.31	45.72	36.85	0.05
Aug	2.22	0.05	5.99	11.26	9.08	0.01
Sep	2.53	0.06	6.81	12.81	10.32	0.01
Oct	3.24	0.07	8.72	16.41	13.22	0.02
Nov	2.64	0.06	7.11	13.36	10.77	0.02
Dec	2.78	0.06	7.50	14.11	11.37	0.02
TOTAL	45.47	1.00	122.53	230.44	185.72	0.26

Effluent Flow =	0.056	MGD
Wastewater volume (projected)=	63.0	ac-ft/yr
Consumption from reservoir=	23.37	in/yr
Total effluent applied = (root zone need)(ww vol)/(consump from res	122.5	ac-ft
Irrigation area =	4553.8	acres
Crop uptake (before accounting for volatilization) =	154.8	lbs/ac
Waste water total nitrogen concentration=	3151.0	mg/L N
Annual nitrogen crop uptake (including volatilization) =	185.7	lb/ac/yr

Effluent applied = (total effluent applied)(effluent needed/total)
Applied nitrogen load = (effluent applied)(0.3259 MG/ac-ft)(nitrogen conc)(8.34)(1/irrigation area)
Effluent needed for crop nitrogen uptake = (nitrogen loading rate for crop uptake)(12in/ft)(1/2.7)(1/nitrogen conc)

Crop uptake based on corn and coastal: 3897.792 ac corn at 144N+302.67 ac cut coastal at 300N+472.94 ac graze at 160N = avg 155.722

Chapter 309 only requires an annual calculation of N loading: L=N/(2.7C) where L=ann liquid loading ft/yr, N=annual crop N requirement lb/ac/yr plus 20% and C= ww N concentration mg/L

Here, 0.022 ft/yr
0.262 in/yr

Leah Whallon

From: James Miertschin <jm@jmaenv.com>
Sent: Tuesday, March 11, 2025 10:52 AM
To: Leah Whallon
Cc: William Coffrin
Subject: RE: Admin Review Response - Ellis AD 1, LLC (WQ0005485000)
Attachments: mailing labels.docx

Hi Leah, thanks for reviewing with me on the call.

Attached is a new mailing label document that should have the info for both counties. I am confident that you will check it.

There is one other issue to address: the designation of the Library in Italy TX, representing Ellis County, needs to change. I spoke to the librarian last week Friday and she is NOT HAPPY with this and I fear she will simply not cooperate. Instead, for Ellis County, I propose that we designate the public place to be Nicholas Sims Library, 515 W. Main St, Waxahatchie TX 75165. They are familiar with this process and will cooperate.

If you can edit the NORI to reflect this change, please do so.

James Miertschin
James Miertschin & Associates, Inc.

From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
Sent: Monday, March 10, 2025 4:30 PM
To: James Miertschin <jm@jmaenv.com>
Cc: William Coffrin <wcoffrin@vanguardrenewables.com>
Subject: RE: Admin Review Response - Ellis AD 1, LLC (WQ0005485000)

Hi James,

I've reviewed the response and everything was addressed. While preparing to issue the NORI, I realized a discrepancy in the landowner map and list. The map numbers 190 landowners, while the list is for 151 landowners. Please clarify or provide the landowner list and mailing labels to include landowners 152-190.

Everything else looks good to go and I can issue the NORIs once all the landowners have been included. Please let me know if you have any questions.

Thanks,

Leah Whallon
Texas Commission on Environmental Quality
Water Quality Division
512-239-0084
leah.whallon@tceq.texas.gov

Leah Whallon

From: James Miertschin <jm@jmaenv.com>
Sent: Thursday, March 6, 2025 3:59 PM
To: Leah Whallon
Cc: William Coffrin
Subject: Admin Review Response - Ellis AD 1, LLC (WQ0005485000)
Attachments: ResponseTo20Feb25TCEQLetter.pdf; CDF 02.05.25- Alliance Land & Cattle- Signed.pdf; CDF 02.05.25- Creek Land and Cattle- Signed.pdf; 10055 Vanguard page 9.pdf; CDF 02.26.25 page 2.pdf; English_wq0005485000-nori-draft.docx; Spanish_wq0005485000-nori-draft.docx; Vanguard Adjacent Landowners Labels.doc; Signature Page (pg. 33) Alliance Land &Cattle- Signed.pdf; Signature Page (pg. 33) Creek Land and Cattle-Signed.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Leah
Attached is a response letter regarding the administrative review comments on the application referenced above. There are multiple attachments, so please check to make sure that nothing is missing. Call me or email me if you have any questions please.

James Miertschin
James Miertschin & Associates, Inc.

JAMES MIERTSCHIN & ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERING (TX REG #F-2458)
P.O. BOX 162305 ° AUSTIN, TEXAS 78716-2305 ° (512) 327-2708

6 March 2025

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

Re: Application for Proposed Permit No. WQ0005485000
Ellis AD 1, LLC (CN606351617)
Site Name: Ellis AD 1 (RN112138888)
Response to Comments from Administrative Review

Dear Ms. Whallon:

We received your letter dated 20 February 2025 regarding the permit application referenced above. Responses to your comments are provided below, on behalf of Ellis AD 1, LLC.

1. Core Data Form, Section III, Items 24-32; regarding counties, zip codes, SIC codes, NAICS codes, latitude/longitude.

   Response: A revised page 2 of the Core Data Form is attached, providing the requested information.

2. Administrative Report 1.0, Item 3; regarding co-applicants.

   Response: Signature pages and Core Data Forms for the two co-applicants are attached.

3. Administrative Report 1.0, Items 11.i-j; regarding physical locations

   Response: A revised page for Items 11.i-j is attached.

4. Administrative Report 1.1; regarding landowner list.

   Response: Attached with this response is the reformatted landowner list in Word.

5. Notice of Receipt of Application and Intent to Obtain a Water Quality Permit

   Response: The Notice appears to be generally correct but additional details have been added. An updated notice is attached as a Word document,

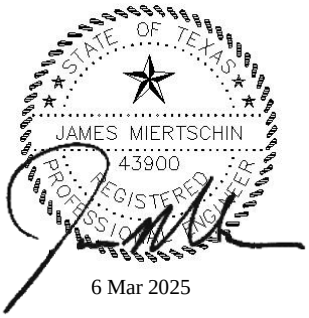
6. Public notice in Spanish.

   Response: The translation of the notice in Spanish is attached as a Word document.

I am providing this complete response to you via email. Please do not hesitate to call me at (512) 327-2708 if you have any questions.

Yours truly,

JAMES MIERTSCHIN & ASSOCIATES, INC.



6 Mar 2025

James Miertschin, PE, PhD

cc: William Coffrin

Signature Page (Instructions, Page 33)

Permit No: WQ000Click to enter text.

Applicant Name: Alliance Land & Cattle, LLC

Certification: I, Alliance Land & Cattle, LLC, 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): Blair Dance

Signatory title: Co-Applicant

Signature: _____ Date: 3/6/2025
(Use blue ink)

Subscribed and Sworn to before me by the said Blair Lee Dance

on this 6th day of March, 2025.

My commission expires on the 7th day of February, 2029.

Jennifer L Arnold
Notary Public

JENNIFER ARNOLD
My Notary ID # 130996378
Expires February 7, 2029

[SEAL]

Dallas, TX
County, Texas

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

Signature Page (Instructions, Page 33)

Permit No: WQ000Click to enter text.

Applicant Name: Creek Land and Cattle, LLC

Certification: I, Creek Land and Cattle, LLC, 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): Blair Dance

Signatory title: Co-Applicant

Signature: _____ Date: 3/6/2025
(Use blue ink)

Subscribed and Sworn to before me by the said Blair Lee Dance

on this 6th day of March, 2025.

My commission expires on the 7th day of February, 2029.

Jennifer L Arnold
Notary Public

Dallas, TX
County, Texas

JENNIFER ARNOLD [SEAL]
My Notary ID # 130996378
Expires February 7, 2029

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

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: Click to enter text.

e. Are the discharge route(s) in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: Click to enter text.

f. City nearest the outfall(s): Click to enter text.

g. County in which the outfalls(s) is/are located: NA

h. 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, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: Click to enter text.

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.

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

☐ Yes No or New Permit ☒ New Permit

If no, or a new application, provide an accurate location description: multiple tracts within an 11-mile distance from treatment facility in a NW, W, and SW direction

j. City nearest the disposal site: Ennis, Italy

k. County in which the disposal site is located: Ellis, Navarro

l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: Liquid spreader tankers will route from the pond to the fields

m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: Chambers Creek Segment 0814Click to enter text.

(781) 232-7597	t4	( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Ellis AD 1, LLC

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

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

25. Description to Physical Location:	North side of Austonia Road, 1200 feet west of intersection of Austonia Road and Armstrong Road				
26. Nearest City			**State**	**Nearest ZIP Code**	
Ennis			TX	75119	

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

27. Latitude (N) In Decimal:	32.199236		**28. Longitude (W) In Decimal:**	-96.724471	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4224		221210	

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

renewable natural gas

34. Mailing Address:							
	133 Boston Post Road						
	City	**Weston**	**State**	**MA**	**ZIP**	**02493**	**ZIP + 4**
35. E-Mail Address:	**development@vanguardrenewables.com**						

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(781) 232-7597	**ext 4**	( ) -

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.

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

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

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 2/26/2025

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

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

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

Alliance Land & Cattle, LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0801785013	14628158413		

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

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

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

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

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

15. Mailing Address:	433 Las Colinas Blvd E, Suite 1290							
	City	Irving	**State**	TX	**ZIP**	75039	**ZIP + 4**	5058

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	blair@dbco.cpa

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

(927) 989-7330		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Ellis AD 1, LLC

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

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

25. Description to Physical Location:	North side of Austonia Road, 1200 feet west of intersection of Austonia Road and Armstrong Road				
26. Nearest City			**State**	**Nearest ZIP Code**	
Ennis			TX	75119	

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

27. Latitude (N) In Decimal:	32.199236		**28. Longitude (W) In Decimal:**	-96.724471	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
32	11	57.3	96	43	28.1

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4924		221210	

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

renewable natural gas

34. Mailing Address:							
	133 Boston Post Road						
	City	**Weston**	**State**	**MA**	**ZIP**	**02493**	**ZIP + 4**
35. E-Mail Address:	**development@vanguardrenewables.com**						

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(781) 232-7597	**ext 4**	( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
				SWR30132
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
			41130	1660012
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
	TXR05FR17			
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0000395000			

SECTION IV: Preparer Information

40. Name:	James Miertschin	**41. Title:**	Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512 **)** 327-2708		**(** 512 **)** 327-2733	jm@jmaenv.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:	Alliance Land & Cattle, LLC	**Job Title:**	Owner
Name *(In Print):*	Blair Dance	**Phone:**	**(** 972 **)** 989- **7330**
Signature:		**Date:**	

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
				SWR30132
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
			41130	1660012
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
	TXR05FR17			
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0000395000			

SECTION IV: Preparer Information

40. Name:	James Miertschin	41. Title:	Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 327-2708		(512) 327-2733	jm@jmaenv.com

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Company:	Alliance Land & Cattle, LLC	Job Title:	Owner / Manager
Name *(In Print)*:	Blair Dance	Phone:	(972) 989- 7330
Signature:	Blair Dance	Date:	3·6·25

TCEQ Use Only

TCEQ Core Data Form

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SECTION II: Customer Information

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

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

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

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0801347524	32043082414		

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

12. Number of Employees	**13. Independently Owned and Operated?**
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher	☒ **Yes** ☐ **No**

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

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

15. Mailing Address:	433 Las Colinas Blvd E, Suite 1290						
	City	Irving	**State**	TX	**ZIP**	75039	**ZIP + 4**	5058

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	blair@dbco.cpa

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

(927) 989-7330		( ) -

SECTION III: Regulated Entity Information

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renewable natural gas

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	133 Boston Post Road						
	City	**Weston**	**State**	**MA**	**ZIP**	**02493**	**ZIP + 4**
35. E-Mail Address:	**development@vanguardrenewables.com**						

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(781) 232-7597	**ext 4**	( ) -

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☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
				SWR30132
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
			41130	1660012
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
	TXR05FR17			
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0000395000			

SECTION IV: Preparer Information

40. Name:	James Miertschin	**41. Title:**	Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512 **)** 327-2708		**(** 512 **)** 327-2733	jm@jmaenv.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:	Creek Land and Cattle, LLC	**Job Title:**	Owner
Name *(In Print):*	Blair Dance	**Phone:**	**(** 972 **)** 989- **7330**
Signature:		**Date:**	

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
				SWR30132
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
			41130	1660012
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
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☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0000395000			

SECTION IV: Preparer Information

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(512) 327-2708		(512) 327-2733	jm@jmaenv.com

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Company:	Creek Land and Cattle, LLC	Job Title:	Owner / Manager
Name *(In Print)*:	Blair Dance	Phone:	(972) 989- **7330**
Signature:	Blair Lee Dance	Date:	3.6.25

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PROPOSED PERMIT NO. WQ0005485000

APPLICATION. Ellis AD 1, LLC, Creek Land and Cattle LLC, and Alliance Land & Cattle, LLC, 133 Boston Post Road, Weston, Massachusetts 02493, which will operate an anaerobic digestion facility, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0005485000 to authorize the disposal of treated wastewater at a volume not to exceed a daily average flow of 56,224 gallons per day via irrigation of approximately 4,553 acres. The facility and disposal area will be located approximately 1,200 feet west of the intersection of Armstrong Road and Austonia Road, in Ellis and Navarro Counties, Texas 75119. TCEQ received this application on February 10, 2025. The permit application will be available for viewing and copying at S.M. Dunlap Library, 300 West Main Street, Italy, in Ellis County, Texas and at Corsicana Public Library, 100 North 12th Street, Corsicana, in Navarro 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. (map link pending response)

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 Ellis AD 1, LLC, Creek Land and Cattle LLC, and Alliance Land & Cattle, LLC at the address stated above or by calling Mr. William Coffrin, Development Manager, Ellis AD 1, LLC, at 781-232-7597, Extension 4.

Issuance Date: [Month Day, Year]

COMISIÓN DE CALIDAD AMBIENTAL DE TEXAS

AVISO DE RECEPCIÓN DE LA SOLICITUD Y LA INTENCIÓN DE OBTENER UN PERMISO DE CALIDAD DEL AGUA

PERMISO PROPUESTO NÚM. WQ0005485000

SOLICITUD. Ellis AD 1, LLC, Creek Land and Cattle LLC, y Alliance Land & Cattle, LLC, 133 Boston Post Road, Weston, Massachusetts 02493, que operarán una planta de digestión anaeróbica, han solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) un propuesto Permiso de Aplicación en Terrenos de Texas (TLAP) N.º WQ0005485000 para autorizar la eliminación de aguas residuales tratadas en un volumen que no sobrepase un flujo promedio diario de 56,224 galones por día mediante riego de aproximadamente 4,553 acres. La instalación y el área de eliminación estarán ubicadas aproximadamente a 1,200 pies al oeste de la intersección de Armstrong Road y Austonia Road, en los condados de Ellis y Navarro, Texas 75119. La TCEQ recibió esta solicitud el día 10 de febrero de 2025. La solicitud de permiso estará disponible para leerla y copiarla en la Biblioteca S.M. Dunlap, 300 West Main Street, Italy, en el condado de Ellis, Texas, y en la Biblioteca Pública de Corsicana, 100 North 12th Street, Corsicana, en el condado de Navarro, Texas, antes de la fecha de publicación de 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 de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. (se espera respuesta para el enlace del mapa)

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.

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y realizará una revisión técnica de la solicitud. Después de completar la revisión técnica de la solicitud, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una decisión preliminar sobre la solicitud. **El aviso de la Solicitud y Decisión Preliminar será publicado y enviado por correo a las personas que figuran en la lista de difusión en todo el condado y a las personas que figuran en la lista de correo para esta solicitud. Ese aviso contendrá la fecha límite para presentar comentarios públicos.**

COMENTARIO PÚBLICO / REUNIÓN PÚBLICA. 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 realizará 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 todos 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 de difusión para esta solicitud. Si se reciben comentarios, el aviso enviado por correo también proveerá instrucciones para solicitar una reconsideración de la decisión del Director Ejecutivo y 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 PEDIR UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO, USTED DEBE INCLUIR EN SU PEDIDO LOS SIGUIENTES DATOS: su nombre; dirección; teléfono; nombre del solicitante y número del permiso propuesto; la ubicación y la distancia de su propiedad/actividad con respecto a la instalación propuesta; una descripción específica de la forma en que usted sería afectado adversamente por la instalación 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 administrativa de lo contencioso". Si la solicitud de audiencia administrativa de lo contencioso se presenta por parte de un grupo o una asociación, la solicitud debe identificar el representante del grupo para recibir correspondencia en el futuro; debe identificar un miembro individual del grupo que sería afectado adversamente por la instalación o actividad propuesta; debe proveer la información ya indicada anteriormente con respecto a la ubicación del miembro afectado y la distancia de la instalación o actividad; debe explicar cómo y por qué el miembro sería afectado; y debe explicar la forma en que los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos para los pedidos y comentarios pertinentes, el Director Ejecutivo enviará la solicitud y los pedidos para reconsideración o por una audiencia administrativa de lo contencioso a los Comisionados de la TCEQ para su consideración en una reunión programada de la Comisión.

La Comisión sólo podrá conceder una solicitud de audiencia administrativa de lo contencioso sobre cuestiones que el solicitante presentó en sus comentarios oportunos y que no fueron retiradas posteriormente. **Si se concede una audiencia, el tema de la audiencia se limitará a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas con inquietudes relevantes y materiales sobre la calidad del agua presentadas durante el período de comentarios.**

LISTA DE CORREO. Si usted somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, será añadido a la lista de difusión para esta solicitud específica para recibir avisos públicos futuros enviados por la Oficina del Secretario Principal. Además, puede pedir que lo incluyan en: (1) la lista de correo permanente para el nombre de solicitante y número de permiso

específicos; y/o (2) la lista de correo para un condado especifico. Si desea ser añadido a la lista de correo permanente y/o del condado, identifique claramente la(s) lista(s) y envíe su solicitud por correo a la Oficina del Secretario Principal de la TCEQ, a la dirección proporcionada más abajo.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para obtener detalles sobre el estado de la solicitud, visite la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Busque en la base de datos utilizando el número de permiso para esta solicitud, que se encuentra en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN DE LA AGENCIA. Todos los comentarios y solicitudes públicas deben enviarse electrónicamente a **https://www14.tceq.texas.gov/epic/eComment/**, o por escrito a la Comisión de Calidad Ambiental de Texas, Oficina del Secretario Principal, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información de contacto que proporcione, incluido su nombre, número de teléfono, dirección de correo electrónico y dirección física, pasará a formar parte del registro público de la agencia. Si necesita más información sobre esta solicitud de permiso o el proceso de emisión del permiso, por favor llame al Programa de Educación Pública de la TCEQ, sin cobro, al 1-800-687-4040 o visite su sitio web en www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional de Ellis AD 1, LLC, Creek Land and Cattle LLC, y Alliance Land & Cattle, LLC en la dirección indicada más arriba o llamando al Sr. William Coffrin, Gerente de Desarrollo, Ellis AD 1, LLC, at 781-232-7597, Extensión 4.

Fecha de emisión: [Mes, Día, Año]

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P O BOX 28
FORRESTON TX 76041

JACK & ROSE BURCHFIELD
229 DRY BRANCH RD
FORRESTON TX 76041-2712

CREEK LAND & CATTLE LLC
433 LAS COLINAS BLVD E STE 1290
IRVING TX 75039-5058

ICONIX LABS INC
9901 VALLEY RANCH PKWY E STE 1030
IRVING TX 75063-7115

CURTIS RAY & ALVIN RIDDLE
902 HARRIS RD
ITALY TX 76651

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5614 CAMBRIA DR
ROCKWALL TX 75032-5703

BYPASS TRUST & TINA L HAIGHT
C/O DAVID M PYKE
7557 RAMBLER RD STE 850
DALLAS TX 75231

WALTER & DEBRAH GREEN
3671 N HIGHWAY 77
WAXAHACHIE TX 75165-5628

CHAMBERS GROVE LLC
PO BOX 968
MIDLOTHIAN TX 76065

SINGLETON FAMILY FARM LLC
PO BOX 261
CEDAR HILL TX 75106-0261

ST MARY HISTORICAL CEMETERY ASSOCIATION
PO BOX 916
ITALY TX 76651

HUGHES CEMETERY ASSOCIATION
C/O ROBIN DONALSON
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WAXAHACHIE TX 75165-9061

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ITALY TX 76651-3649

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MATTHEW R ADAMS & ALISHIA A
3125 LUMPKIN RD
ITALY TX 76651-3587

EDWARD E BROWN & PATSY D
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ITALY PROPERTIES INC
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P O BOX 84
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MARTY MCEWEN
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AVALON TX 76623-0253

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LITTLE LORI
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RAMSEY OLA SULLIVAN FARMS LP
10935 ALDER CIR
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ENNIS TX 75119

GETZENDANER TRUST
4445 SKINNER RD
MIDLOTHIAN TX 76065-7007

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TERRENO LAND CO. LLC
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CHAD M HAMBY & LYNIS M HAMBY
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C ETAL
2013 GLENWOOD CIR
CORSICANA TX 75110-3419

HOOSER FARM CORP
2013 GLENWOOD CIR
CORSICANA TX 75110

BAUER ANN T EXEMPT TRUST ANN T
BAUER TRUSTEE
3928 BALCONES DR
AUSTIN TX 78731

BAUER FAMILY REALTY LLC
3724 JEFFERSON ST STE 120
AUSTIN TX 78731-6215

THOMPSON FARMS LP E POWELL
THOMPSON
6905 STAHL CV
AUSTIN TX 78731-2831

THOMAS ROBERT LESLIE IV
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DALLAS TX 75209-5612

JEANNE LESLIE
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THOMPSON FARMS LP E POWELL
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